AN EXPERIMENTAL INVESTIGATION OF THREE DEVELOPMENTAL READING PROGRAMMES

by

Peter Thomas Pienaar

IN TWO VOLUMES

VOLUME I

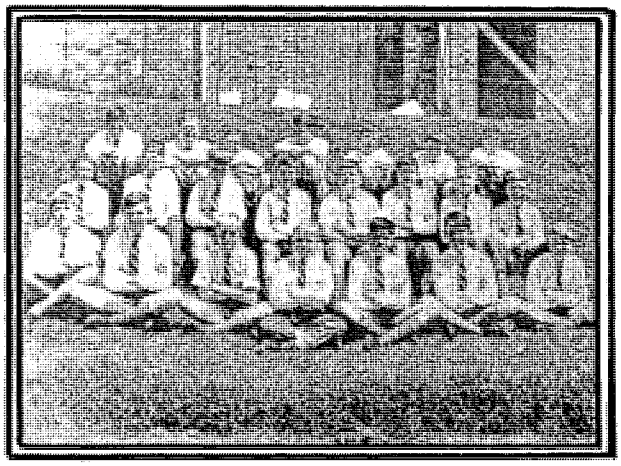
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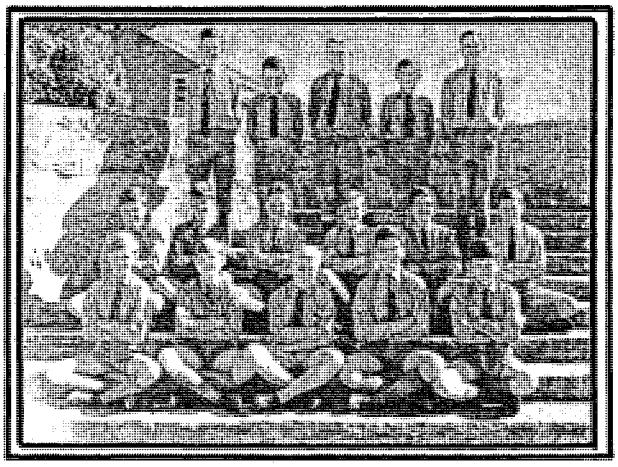
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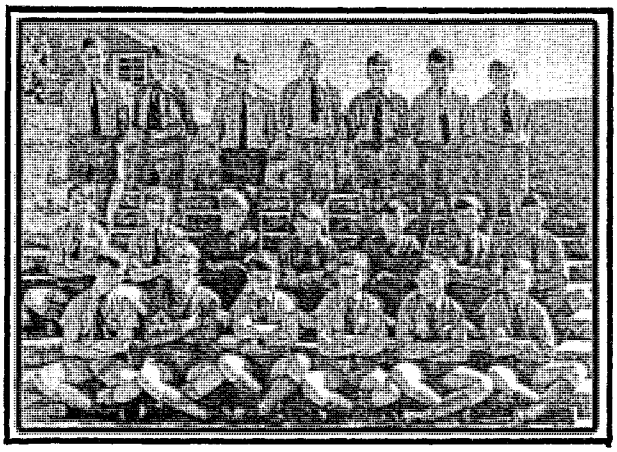
1970

"Comparatively few people ever reach the maximum degree of proficiency in reading of which they are capable."

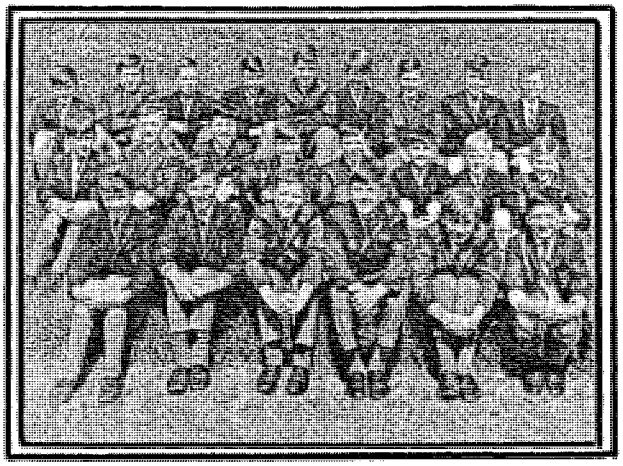
Albert J. Harris, Ph.D., 1947.







Children
are properly
at the centre
of educational
research,
and these boys,
whom I taught
personally,
were at the centre
of this project.



ACKNOWLEDGEMENTS

A project of this size is inevitably something of a team effort, and I owe the other members of my team a considerable debt of gratitude. The Director of the Institute for the Study of English in Africa (I.S.E.A.), and my joint-supervisor, Professor W. Branford, has taken a keen interest in all phases of this project. Despite his many commitments he has always been approachable, attentive and helpful. His suggestions for further reading have proved invaluable, and his searching criticisms of my drafts have assisted me greatly. I am equally indebted to my other supervisor, Mr Arthur Noble, Senior Lecturer in Education. If it had not been for his energy and optimism this project might never have got under way, and but for his patience, persistence and tact it might well have foundered on at least two occasions during the experimental phase. If it ultimately proves worthy it will be due in large measure to his expert advice on the statistical procedures, and to his tireless and scrupulous supervision.

There is one other member of this team without whose help and forbearance this dissertation would never have been written. My wife has borne with me steadfastly throughout the difficult days of testing and teaching - I came home tired and irritable on more than one occasion - and latterly through the interminable days of reading and writing. "More is thy due than more than all can pay."

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This thesis has not been submitted for a degree at any other university.

AN EXPERIMENTAL INVESTIGATION OF THREE DEVELOPMENTAL READING PROGRAMMES

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FORM OF CITATION

Throughout this dissertation a shortened form of citation has been used. For example, instead of an extended acknowledgment by way of a footnote, Chall, J. Learning to Read, the Great Debate, New York, McGraw-Hill Book Company, 1967, p.88, this reference will appear briefly thus, Chall, 1967, p.88, directly after the quotation. Should the reader wish to ascertain details of publication he may consult Bibliography on pp. 591-8.

DESIGNATION OF GROUPS AND INDIVIDUAL BOYS

In order to ensure that schools and pupils remain anonymous they have been given coded designations. The letters D and A on their own denote Control Groups D and A. The letters E, F, B and C on their own denote Experimental Groups E, F, B and C. In Experimental Phases II and III, in which groups were sub-divided and matched (see Appendices B and C, pp.472-80), Control Group D was split into 2 matched Control Groups because there were sufficient numbers to warrant it. These two Control Groups are designated 1D and 2D respectively. In addition in Experimental Phases II and III each Group was subdivided into Sub-groups thus:

1D(1), 2D(1), E(1), F(1), A(1), B(1), C(1) - the top Sub-groups in the "normal" or "correct" Standard 5 age range of 11.11-12.10 at the beginning of the third term.[1]
1D(2), 2D(2), E(2), F(2), A(2), B(2), C(2) - the bottom Sub-groups in the normal or "correct" Standard 5 age range of 11.11-12.10 at the beginning of the third term.
1DD, 2DD, EE, FF, AA, BB, CC - the "overage" Sub-groups i.e. those boys who were 12.11 or more at the beginning of the third term.
DDD, EEE, AAA, BBB, CCC - the "underage" Sub-groups i.e. those boys who were 11.10 or less at the beginning of the third term.

The letters D, E, F, A, B, C, in conjunction with a numeral, thus, D12 or F13, refer to specific pupils in the "correct" age range. The letters DD, EE, FF, AA, BB and CC, with a numeral following, as BB5 or CC13, denote pupils in the "overage" (for Standard 5) category. The letters DDD, EEE, AAA, BBB and CCC, with a numeral after, as DDD1, denote the small minority of pupils in the "underage" (for Standard 5) category. There were no underage pupils in Group F.

[1] See Manual for the Silent Reading Tests, 1963, p.24.

GLOSSARY

For brevity and ease of reading I have abbreviated technical terms, names of tests, and components of reading programmes to which I frequently refer. For the sake of compactness I have also shortened terms like "Comprehension" when they are used in tables. This glossary may be folded out for easy reference while reading.

C.A.	Chronological Age
C.G.	Control Group
C'hension	Comprehension
C'ite	Composite
C.R.	Controlled Reader
Dec.	Decrement
E.D.L.	Educational Developmental Laboratories
Eff'cy	Efficiency
E.G.	Experimental Group
E.Q.	English Quotient
F'cy	Frequency
Inc.	Increment
I.Q.	Intelligence Quotient
L.S.B.	Listening Skill Builder (component of S.R.A. Reading Laboratories)
M.A.	Mental Age
M.H.E.T.	Moray House English Test
M.H.V.R.T.	Moray House Verbal Reasoning Test
N.B.E.S.R.	National Bureau of Educational and Social Research
N.B.S.T.	National Bureau Spelling Test
N.F.E.R.	National Foundation of Educational Research
N.S.A.G.T.	New South African Group Test (of Intelligence)
N.V.I.Q.	Non-verbal Intelligence Quotient
Paras.	Paragraphs
P.B.	Power Builder (component of S.R.A. Reading Laboratories)
P'ile	Percentile
p.p.w.	periods per week
P'tion	Position
R.A.	Reading Age
R.A.L.	Readability Age Level
R.B.	Rate Builder (component of S.R.A. Reading Laboratories)
R.Q.	Reading Quotient
R.S.	Raw Score
S.A.	Spelling Age
S.A.S.R.G.T.	South African Silent Reading Group Test
S'tces/Sent's	Sentences
S.D.	Standard Deviation
S.G.W.S.T.	Schonell Graded Word Spelling Test
S.L.G.	Starting Level Guide (component of S.R.A. Reading Laboratories)
S.P.	Standard Placement
S.Q.	Spelling Quotient
S.Q.3.R.	"Survey, Question, Read, Review, Recite" (a technique advocated in S.R.A. Reading Laboratories)
S.R.A.	Science Research Associates
S.S.R.T.	Schonell Silent Reading Test
T.Q.L.R.	"Tune-in, Question, Listen, Read" (a technique advocated in S.R.A. Reading Laboratories)
V.I.Q.	Verbal Intelligence Quotient
Vocab.	Vocabulary
V.R.Q.	Verbal Reasoning Quotient
W.p.m.	words per minute

CHAPTER ONE

A SURVEY OF THE ORIGINS AND DEVELOPMENT OF THE PROJECT

> "Learning to read has to be seen as a continuing process which goes on throughout the child's school career, and which sets as its goal the power to read with understanding, appreciation and enjoyment."
> Whitehead, 1966, p.26.

1.1 Genesis

My interest in increasing the efficiency of children's silent reading began in 1958 when I was teaching a Standard 5A of 24 boys and 15 girls in a two-stream Primary School in Rhodesia. The majority of children were able readers and the mean Word Reading Age was 12.7 which, in relation to an average chronological age of 12.3, yielded an above average Reading Quotient of 103. These children needed lots of reading practice, and in addition to the usual Reading periods I resolved to set aside at least one period a week for Comprehension, as reading for meaning was then called.

I could find no suitable published set of comprehension exercises which I thought would both interest and inform my charges, so I set out to construct my own, lifting extracts from various books (which I hoped the children would subsequently be inspired to read), and modifying where necessary in order to simplify, or streamline, or round off, an episode (see Appendix Q, p.471). The extracts were usually 300-500 words long and each supported ten straightforward "who did what, when, where and how" questions, for example, "Who owned the magic veil?", "What kept Odysseus afloat when he was first washed into the water?", "When did he first see that he was close to shore?", "Where did he finally find a place to land?", and "How did he save himself from death as he was swept onto the reef?" There was only an occasional semantic question - "In this story Odysseus had a close shave. What does this mean?" - and only the isolated inferential question - "Why do you think that the bullet found its mark?"

During the next six years of teaching I built up a stock of these comprehension sheets, and then in 1964 I was appointed to a lectureship in Education at the Teachers' College, Bulawayo. I soon came across an S.R.A. Reading Laboratory in my new environment. I was also introduced to a number of American texts on Speed Reading which was then coming into vogue in Rhodesia. I read voraciously anything that I could lay my hands on, and of course drastically revised many of my earlier notions and opinions about refining reading. At some time during that first hectic year I met the term "developmental reading", and it was not long before I began to reformulate my passages for comprehension along the lines of developmental reading exercises.

During 1965 a group of second-year students was detailed to produce a series of comprehension exercises as an English Method assignment during a vacation. I selected the twenty-five most promising of these, corrected and altered them where necessary, wrote a preamble (see Appendix Q, p.572) and produced a cyclostyled set of developmental reading exercises, in booklet form, entitled racily Ton-Up, all in time for the students' Final Teaching Practice. The passages for reading were mostly taken from various well-known and well-loved children's books such as Alice in Wonderland, Jock of the Bushveld, The Water Babies and White Fang, or books suitable for children such as My Family and Other Animals and The White South (see Appendix Q, pp.573-7). The questions were still largely of the undemanding recall-the-facts type, for example "Who gave the orders to start the game?" and "What did the people use for mallets and balls?" But it was the stories themselves that needed to be most radically revised. The only respects in which these were in any way controlled was in the total number of words used (there were five "steps" in the series, five stories being 400 words in length, five 500 words in length, and so on up to 800 words), and in Readability Level (we applied the Spache Readability Formula - see Appendix P, pp.564-70 - to all extracts, and I stipulated that the Readability Level of all passages should fall between 11.0 or 13.0 years). We did not eliminate direct speech or worry unduly about varying lengths of sentence and varying grades of difficulty of different sentences within the same passage; nor did we take account of immeasurables like "ideational level" and idiom. In short we confined ourselves to an unsatisfactorily rough control of vocabulary and sentence length.

Nevertheless, it was a start and a necessary apprenticeship for Double-Up, the design and construction of which I discuss fully in 7.1.

Double-Up was the result of a worthwhile lecturer-student collaboration. During the second and third terms of 1966 and 1967 I ran third-year extension courses on developmental reading, and our programme came out in episodic form, from week to week, during this time. It was written by a score of different people in a number of different places at a number of different times. I myself wrote half a dozen stories crouched by a blazing camp fire down at Gona-re-Zhou, The-Place-of-the-Big-Elephant, a wild and trackless corner of Rhodesia tucked away in the arid South East. Gona-re-Zhou is "right out in the blue" and I used to go down there periodically to renew myself. A week would pass in which I saw no sign of another human being, not even the foot-print of a native. I wrote on my lap with the smell of big game in my nostrils, and the sound of elephant cavorting in the river below me, punctuated by the occasional sonorous snort of a hippo. Those of the ninety-nine stories that I did not write I rewrote, and 90% of the new multiple-choice or open-ended questions I either formulated or reformulated. It was a painstaking, laborious business and I estimate that each story with its questions took me two to three hours to write or rewrite. I have been told that there is a characteristic stamp about them and this I take to be a good thing because it means that they are under better control than the stories in Ton-Up. The concepts, or "ideational level", and composition and idiom, are similar in all stories; direct speech has been eliminated unless it occurs in internalised thinking, as in the passage Lost (see Appendix R , p. 578), and the number and length of paragraphs is consistent. In short, those aspects of reading which are primarily dependent on perception, and which depend on habitual perceptual patterns for their optimum efficient functioning, have been kept under very careful control. In addition the interpretation of all passages should be equally easy because the same "governor" has been applied rigorously to all of them. Withal, however, the passages retain both spontaneity and variety, and it is essential that they should, if children are going to be sustainedly interested in the programme. In other words, the rigorous control is unobtrusive, at least to children. Moreover, the stories themselves are all original.

Double-Up was half complete early in 1967 and in the first term of that year it was launched as a programme, as opposed to the piecemeal, day-a-week trials that it had had in the hands of various students during 1966. It was launched in a Standard 5B in a two-stream Primary School in Bulawayo. In due course I shall fully describe its voyage in this and other pilot classes during 1967. Suffice it to say at this juncture that the writing of the programme was completed as originally envisaged midway through 1967, that each passage was tried out with a Standard 5A and a Standard 5B in another large Primary School in Bulawayo, and that it was only after correction and modification in the light of children's reactions to the passages and questions that the exercises were graded and collated for use in the pilot Standard 5B referred to above.

On 25th November, 1967, at the eleventh hour (applications closed on 30th November, 1967), I applied for a Post-graduate Studentship for 1968 with the Institute for the Study of English in Africa. My letter of application read in part:

> "Since reading is at the core of the whole learning process, and since it has always been one of my principal professional concerns, both in the classroom and in the College, I want to compare critically three developmental reading programmes. I would plan to use pupils who have attained a minimal Reading Age of 11.0 ... at the Standard 5 level, and the three programmes I would want to compare are:
>
> (i) Double-Up, a programme of my own design presently being tried out in pilot groups of three Standard 5 classes in Bulawayo.
> (ii) An S.R.A. Reading Laboratory.
> (iii) A combination of Tach-X Tachistoscope and Controlled Reader courses.
>
> I think to use five groups of ± 30 English-speaking pupils in five Standard 5's in five schools in Grahamstown, and to equate these as nearly as possible ... without actually disrupting classes. One group would then serve as a control doing class reading, paired reading, research reading and library ... while the other four groups worked through the programmes set out above, three groups working continuously on one programme apiece for three terms, and one group working on

> rotation through the three programmes doing a different programme each term - the three separate gains in Reading Ages of this group, combined with their own subjective comparisons and preferences, would suggest which of the three programmes was the most productive of reading improvement .... For the duration of the experimental period, the experimental groups would do virtually no other formal reading, and would work for ± 3 hours a week on their programmes. Ideally I myself would hope to teach all five groups throughout the experimental period."

In the event these plans had to be modified to some extent, as I shall describe hereunder.

On 1st December, 1967, I received a telegram offering me an appointment with the Institute for the Study of English in Africa. I telegraphed acceptance immediately.

The results of the first full run-through of Double-Up came to hand early in December, 1967. I was greatly encouraged and set off optimistically for Grahamstown early in the New Year. Since I had to give a full term's notice to the Rhodesian Ministry of Education, I knew I would not be able to take up my appointment before 1st May, 1968. Therefore it was imperative that I make preliminary contact with my supervisors, and the schools concerned, and put in hand the publication of Double-Up,[1] while I was still on leave. These preliminaries were successfully concluded, and I returned to Bulawayo well satisfied. The project was taking shape. Considerable correspondence ensued between my supervisors and myself, and between them and the Cape Education Department and the various schools which we had decided to approach, but all difficulties were eventually surmounted, albeit at the eleventh hour in some cases, and in May, 1968, the project got under way.

[1] A copy of the programme, together with its successor primer programme, Buck-Up (see 7.9), which was published in May, 1969, accompany this dissertation. Two further small publications, Aware and More Aware (see 4.6 , 5.5 and 7.3), which were published in November, 1968, and November, 1969, are also submitted for the reader's appraisal.

1.2 Motive

I undertook this study in the belief that the teaching of communication skills, and in particular the teaching of reading, should not cease when the child can make himself understood orally, or when he can read intelligently, or indeed when he can communicate his thoughts intelligibly in writing. Though the further teaching of reading is the focal point of my research, and of this thesis, I do not believe that it is desirable, or possible, to teach it in isolation, at any stage in the individual's education. Communication is a totality made up of a number of interdependent skills - gesture, oral expression, drama, mime, reading aloud and silently, and writing in both prose and poetry - and must be studied as a unity. Any reading programme, or method, which does not take account of, and incorporate, the complementary aspects of language study, must be the poorer for the omission. I hope to show how a developmental reading course can interlock with other aspects of the language study programme, and in this connection I discuss the place of developmental reading in the total reading process in Chapter Two.

1.3 Core

The main purpose of this study is to examine and compare modifications of three different developmental reading programmes:

(i) the Science Research Associate's Reading Laboratory, commonly known as the S.R.A. Reading Laboratory;

(ii) the Educational Developmental Laboratories' Programmes to be used in conjunction with two devices, the Tachistoscope and the Controlled Reader;

(iii) Double-Up, the developmental reading programme already mentioned.

The first two programmes have been on the market for some time now and are widely used throughout the free world. They were both developed in the United States. Both aim to improve the speed and power of silent reading through intensive practice on carefully graded, predominantly non-fictional passages for comprehension, and through vocabulary-building exercises. Both seek to improve concentration and interpretative skill, but whereas S.R.A. Reading Laboratories aim to achieve this mainly through motivating the student and giving him lots of practice in reading interesting material from

the printed page, E.D.L. devices aim to do this by mechanistically improving perception as well. The S.R.A. Laboratories are compact, intricate, individualised and comparatively inexpensive. The E.D.L. devices are ingenious, yet quite simple to operate. Because the machines are expensive it is necessary to teach groups rather than individuals. The E.D.L. programmes are numerous, varied and challenging.

Double-Up was first published in 1968. At present it has only been used in South Africa and Canada.[1] Double-Up also sets out to improve speed and power of silent reading. But in addition it affords opportunity and incentive for reading aloud. Furthermore there are topics for discussion arising out of the passages for comprehension. In order that there should be discussion it is necessary for students to have common references and hence the programme is used most profitably with groups rather than with individuals. Like S.R.A. and E.D.L. programmes, Double-Up is made up of a series of graded passages for reading, most of which are fictional and have an African setting and flavour, and hence a local appeal. But unlike its popular counterparts the questions usually precede the stories. The reader scans the questions first and then reads the passage to which they refer. In this way the answer often "hits him in the eye", so to speak. Half the questions set relate to the vocabulary which is used in the passage. The student is expected to infer meanings from contextual clues.

1.4 Experimental design

Because of these differences in principle and approach, and because programmes and not methods of teaching are being compared, there are two experimental legs to this project. The flow diagram on p.12 shows how these separate legs are treated in this thesis.

There is another reason why there had to be two experimental legs, and why they had to be written up separately, avoiding a direct comparison between Double-Up and either of the other two programmes.

[1] A teacher at one of this project's experimental schools emigrated to Canada during 1968 and he took Double-Up with him. The progress that Canadian children have made on the programme is described in 7.8.

> "The authors of reading programs are not the best researchers to test their own programs. While they should be involved in the early pilot studies of their programs, comparing one's own product with the products of others requires a kind of objectivity that is difficult for any author to develop towards his own work."
> Chall, 1967, p.314.

It would have been experimentally unsound for me to teach to my own programme.

Leg I: A critical examination and review of S.R.A. Reading Laboratories and E.D.L. programmes, both of which I taught for three hours a week for twenty weeks to four different Standard 5 classes in two different Boys' Schools in Grahamstown. This involved twelve hours teaching a week, and because of the careful preparation and continuous evaluation that was necessary, and because of the difficulties of time-tabling and fitting in with systems geared to specialist teaching and examinations, it would have been extremely difficult for me to teach to a third programme as well.

Leg II: A critical examination and review of Double-Up, which was taught for three hours a week for the same twenty weeks by three different teachers to four different Standard 5 classes in two different Boys' Schools, one in Grahamstown and one in King William's Town.

The two legs have much in common: they were mounted simultaneously, the same tests were used on both, the testing procedures were very similar and I tested all experimental and control groups initially and finally, and the tutorial period was the same for all groups. These common aspects are described in detail in Chapter Three. Then in the concluding chapter, Chapter Eight, I summarise those findings which are common to all three programmes, or peculiar to a particular programme, and evaluate them accordingly. At this point I make a number of recommendations.

1.5 Modifications

In an experiment of this sort the ideal experimental design usually has to be modified in practice. In Table 1 below, the reader can see at once how far the ideal conditions were met in practice.

As far as my own teaching was concerned, I had to modify my approach to comply with the requirements of the syllabus and the system which operated in the two schools concerned. Thus I could not devote all my teaching time to working through the programmes in precisely the manner suggested by the authors. At School F, where E.D.L. was in use, it was only possible to use the Reading Room, in which direct E.D.L. instruction took place, for three out of five periods each week. In the event this turned out to be a good thing because the learning activities and situations which it is possible to create in the Reading Room with the two devices aforementioned are limited, and tend to weary the learner if they are repeated too frequently. Consequently, we spent two periods per week, or one hour, in the classroom and I put the two classes through a variety of productive and enjoyable extension activities which were designed to augment the E.D.L. work and integrate it with other aspects of English. Thus we played Logo Lotto and Word Cricket to extend vocabulary and improve spelling, we put new words into sentences and "stories" to improve usage, and we wrote spontaneous pieces of prose and poetry in order to provide an imaginative outlet and ensure that new words became used words. Needless to say an equal amount of time was given up to similar activities at School E where S.R.A. was in use, and the answers to the questionnaires which were completed by pupils in both schools at the conclusion of the twenty week tutorial period suggest that this extension work was equally beneficial in all four classes.

1.6 Purview

The authors of both E.D.L. and S.R.A. programmes suggest that a crash fifteen week course, working for three judiciously spaced hours a week on a programme, or programmes, will bring about dramatic improvements in reading efficiency. They suggest that such a course will improve word-attack, increase vocabulary, improve concentration and comprehension, and increase speed of reading. I put boys of all

Ideal	Implementation
(i) Large representative samples from which to draw experimental and control groups, following the random sampling method.	(i) Leg I - experimental groups of 45 boys (Experimental Group E, working on S.R.A. Reading Laboratory IIIA) and 36 boys (Experimental Group F, working on E.D.L. devices and programmes); and a control group of 105 boys (Control Group D). Leg II - experimental groups of 43 and 47 boys (Experimental Groups B and C working on Double-Up); and a control group of 43 boys (Control Group A).
(ii) A battery of sensitive and reliable standardised tests with extended scales to permit of maximum measurable improvement.	(ii) There was not sufficient time to give as many tests as I would have liked. Individual word reading tests were ruled out, as was a comprehensive individual test of various facets of reading ability like the Neale Analysis. The New South African Group Test (N.S.A.G.T.) and the South African Silent Reading Group Test (S.A.S.R.G.T.) were the main test instruments, and they were chosen principally because they had been standardised in South Africa. The three verbal sub-tests of the N.S.A.G.T. made up of 75 items (25+25+25), proved an adequate measure of V.I.Q. However the three sub-tests of the S.A.S.R.G.T., made up of 50, 25 and 20 items, yielded inconclusive results mainly because the scales proved to be too short for research purposes.
(iii) Teacher equalisation to eliminate or reduce the Hawthorne Effect.	(iii) I was able to teach both Experimental Groups E and F, so equalising the teacher variable as far as they were concerned. Control Group D was sub-divided into A, B and C streams which were all taught by different English teachers. This must have tended to reduce the effects of the teacher variable because all three streams were run together for control purposes. Furthermore, being in a different town, Control Group D was far enough removed physically from Experimental Groups E and F not to be put on its mettle. I was not able to control the teacher variable in Experimental Leg II inasmuch as 3 different teachers taught the 3 different experimental classes, namely Standard 5B (Group B) at School AB, and Standard 5A and Standard 5B (Group C) at School C. However the same English teacher taught both Control and Experimental Groups (Standard 5A and Standard 5B) at School AB, so here at least some measure of control was effected.
(iv) An extended tutorial period to enable measurable gains to be made and maintained.	(iv) Teaching went on over a 6-month period, holidays excluded. This, judging by the claims made for developmental reading programmes, should have proved sufficient for subjects to make measurable improvements.

TABLE 1

abilities in the age range 11.0 - 16.0 through an extended crash course, and we worked hard and well together. Yet the measurable gains made in vocabulary, comprehension, verbal reasoning and speed of reading were certainly not dramatic, and in many cases they did not differ significantly from gains made by control groups. The standardised tests used partly account for the disappointing results achieved by many of the pupils on all three programmes. Furthermore the programmes benefited pupils in ways which it is impossible to measure with standardised tests, for example, in attitudes, motivation, and fluency of reading and writing. Withal, though, I conclude that the crash course is no panacea. Individual children of all ages and abilities can and do make spectacular increments when put through a developmental reading course, though whether these gains are maintained depends very much on the quality of follow-up teaching. However, my researches indicate that groups of children who are reading up to or in excess of their innate ability do not make spectacular increments in the short term when they are put through a crash course in developmental reading. Nor do groups of backward readers make dramatic progress on such a course. Reading retardation is stubborn and cannot be eliminated easily in the short term by any single course or teaching method, nor by any one teacher, no matter how effective and conscientious. The greatest gains and the greatest long term benefit for all children, regardless of ability, are likely to accrue from an integrated course of at least a year's duration. Furthermore, the success of any developmental reading programme is directly dependent upon and proportionate to the skill and persistence of the teacher. No matter how good the programme, it can only supplement, never supplant, the imaginative teacher.

1.7 Ground-plan of the write-up

This is an extensive and complex report and the flow diagram below should enable the reader to find his way through it more easily. For the reader's convenience facsimiles of this flow chart are to be found on fold-out page(vii) of Volume I, and fold-out page(xiv) of Volume II.

CHAPTER ONE

How my interest in developmental reading began, and how this project started. A synoptic view of the project.

CHAPTER TWO

Developmental Reading, what it is, how it works, and how it fits into the scheme of learning to read/reading to learn. A review of the general literature.

CHAPTER THREE

Mounting the experimental side of the project. A critical appraisal of the test instruments.

CHAPTER FOUR

Experimental Leg I: S.R.A. Reading Laboratories. A review of the literature specific to S.R.A. materials. The teaching programme. Experimental Group E versus Control Group D. Examination and other non-standardised test results. Questionnaires.

CHAPTER FIVE

Experimental Leg I: E.D.L. devices and programmes. A review of the literature specific to E.D.L. materials. The teaching programme. Experimental Group F versus Control Group D. Examination and other non-standardised test results. Questionnaires.

CHAPTER SIX

Experimental Groups E and F versus Control Group D. Standardised and non-standardised objective test results. Statistical analyses.

CHAPTER SEVEN

Experimental Leg II: Double-Up. The 1967 try-out. The 1968 experiment in South Africa. Experimental Groups B and C versus Control Group A. Examples of written work. Standardised and non-standardised objective test results. Statistical analyses. Questionnaires. A follow-up in 1969. Double-Up in Canada, 1968-9. The primer programme, Buck-Up.

CHAPTER EIGHT

Conclusions and Recommendations

1.8 Annex

Finally, before I proceed, I would like to quote in part from a recent article in The Times Educational Supplement:

> "One teacher summed up her colleagues' attitude about educational researchers: 'They are so out of touch, rather like school inspectors, totally removed from our everyday problems'.... 'We want', one teacher explained, 'every day classroom subjects. Most of us are married women, with husbands to cook for at night, not masses of spare time to read about fringe research'.... Plenty of ideas were put forward by the staff of a large voluntary-aided South London grammar school, where they complained that in a number of cases their interest in educational research was clouded by the form in which it was often presented - in dull, pedantic slabs of black type .... A comprehensive school-head summed it up like this: 'The fact that so many teachers go on courses shows that they are keen to learn something that has an impact on their everyday teaching. Now the ball is in the researchers' court - to make their research less airy-fairy and peripheral, and realise that teachers see their main job as teaching.'"
>
> Peta Deschampsneufs, T.E.S., February 23, 1968.

CHAPTER TWO

DEVELOPMENTAL READING, WHAT IT IS AND HOW IT WORKS

"Reading, of course is the basis for achievement in all other subjects."
Flesch, 1955, p.77.

2.1 Foundation

There is little doubt that learning to read is one of the most difficult and invigorating intellectual challenges that confronts the learner in his life-time.

> "Reading, in common with other advanced learned activities, rests upon an extremely complex neuro-physical structure, the basic integrity of which appears crucial to success in learning to read."
> Theodore Harris, 1969, p.1083.

Yet in literate communities reading is only one of the major language skills, and in one linguist's view at least it seems that it should be no more difficult to acquire than the basis for all further language development, speech.

> "This learning to 'talk' is considered so easy a task that if a child does not achieve it by the age of four, worried parents often seek advice concerning his retarded development. On the other hand, learning to 'read' is considered so difficult a task that it is urged that a child shouldn't begin it before he has reached the age of six or seven; and then only after a period of careful preparation through a 'readiness' program. As a matter of fact, learning to talk our first, our 'native' language, is perhaps the greatest intellectual feat most of us ever accomplish."
> Fries, 1963, p.112.

A child's command of language develops out of the interaction between his innate potentialities and environmental forces. He acquires language skills progressively. Thus before he learns to read he must learn to speak intelligibly. And in order to

acquire speech patterns he must have schemata with which he can match words that he hears in order to understand what words mean. Initially he acquires these mental constructs in the process of speaking and listening.[1] Communication is essentially a matter of transmitting and receiving, or of speaking and listening. Later he may add to his store of constructs by seeing new words, saying them and hearing them and then associating them either with pictures or objects which he can see, or with ideas of things which he already has. Speaking and listening are therefore vital in the beginning stages of learning to read. Without a foundation of speech patterns it is extremely difficult to acquire the more sophisticated graphic symbols of communication used in reading and writing. This is why deaf and dumb children find it so hard to learn to read. There are three components to language, the syntactical, the phonological, and the semantic[2], and all three are acquired simultaneously to some extent because they all complement and illuminate one another. It follows that if for some reason the learner cannot take in one of those three components he will be severely handicapped in grasping the other two. The deaf child cannot hear the phonological component while the dumb child cannot repeat what he hears. Deaf and dumb children have to learn to do without sounds and to substitute some other form of linguistic notation to illuminate the morphology of their language. This makes the already difficult task of learning to read (and the complementary skill of learning to write) infinitely more difficult. Such children have no sound-sense system on which to build the decoding-interpretative process that is involved in learning to read. And it is precisely this sound-sense system which facilitates the development of speech first and reading second.

[1] Brown (1964) elaborates on the way in which children learn through parent-child dialogues, and a process which he calls "expansion": "If a child says 'doggie bite', a parent may reply, 'yes, he is biting', adding the auxiliary verb, is, and the progressive inflection, -ing. Both additions exemplify details of English transformations, and do so within the context of the child's own speech. Brown calls this process 'expansion'. He finds that parents expand approximately 30 percent of what two-year-old children say."

[2] See Postal, P.M. Underlying and Superficial Linguistic Structure. In: Language (1968), pp. 192-200.

There are two parts to the reading process,

(i) physiological: perceptual

(ii) psychological: interpretative.

When we read we see first and decode and interpret second. When a child learns to read he learns that certain visual symbols have certain specific sound values. He learns to associate the symbols with their sounds. According to the phonic method of teaching reading[1] he learns the word "cat" by breaking it up into its component sounds: "c" says /k/, "a" says /æ/, and "t" says /t/, so "c-a-t" says /kæt/. Learning to read mechanically, then, is essentially an analytic-synthetic process. But as soon as the rudiments of the decoding process have been mastered, and perhaps even simultaneously, the child should be encouraged to use contextual clues to elucidate and extend the meaning of words and sentences. In other words he should be trained to understand and appreciate the syntactic and semantic aspects of language as an important adjunct to practice in word recognition and word attack skills. The single words that the one-year old first utters - "dada", "mama", "wow-wow", for example - have the same function as sentences insofar as they are a kind of vocal cryptogram - "I see daddy", "Come here mummy", or

[1] "Burrell and other investigators...all agree that letter and letter-sound knowledge is important for progress in learning to read....The alphabet and sounds should be taught early, either before or as children learn words."

Chall, 1967, p.155.

"The children's progress in phonic knowledge was accompanied by a similar degree of improvement in word recognition and comprehension ability....Practice in word-building, by phonic methods particularly, develops correct habits of word attack, improves word-recognition, and fosters positive attitudes towards reading activities in general."

Morris, 1966, p.166 and 168.

"All alphabetic systems are phonetic; the two words mean the same thing. The only trouble is that English is a little more irregular than other languages....About 13 per cent of all English words are partly irregular in their spelling....but usually contain just one irregularly spelt vowel: done is pronounced 'dun', one is pronounced 'wun', 'are' is pronounced 'ar', and so on....learning to read means learning to sound out words."

Flesch, 1955, p.13 and 21.

"I like the dog". Therefore they may be described as rudimentary sentences, and just as they soon expand into simple sentences with subject and predicate word-groups, so too should reading quickly develop from the recognition of individual isolated words to the understanding of syntactically and semantically connected material. In other words meaning, as distinct from mechanics, should be stressed at all times and at all stages.

> "Teaching of reading should ensure that mechanical reading and comprehension develop commensurately.... An over-emphasis on mechanical reading to the detriment of comprehension...should be avoided."
> Tansley, 1967, p.6 and p.29.

As the child becomes more and more familiar with the more common words, which he uses in his daily speech, he learns to recognise them instantly, and he builds speed and fluency in this way. At the same time he should be developing his word-attack skills so that he can break down polysyllabic words. The way a 6-year old's face lights up when he successfully breaks down "pter-o-dac-tyl" or "bront-o-saur-us" leaves one in no doubt of the motivational value to the child of puzzling out new words, whether they be in or out of context. However, as he gains in reading experience he should use contextual clues more and more to elucidate meaning.

> "Pupils need continuous training in deriving the meanings of words from the context and from the clues inherent in parts of words."
> Gray, 1956, p.143.
>
> "Children should be encouraged to make use of context clues to 'unlock' words which are difficult."
> Tansley, 1967, p.44.

Psycholinguists would certainly approve of the use of a modified "cloze" technique to arrive at the pronunciation and meaning of a word in order to complete the sense of a sentence, and the beginning reading teacher should encourage intelligent guessing if it is supported by phonic knowledge. Thus if the child encounters the word "unusual" in the following sentence, "The policemen asked the father of the boys, and the foreman, to report to him at once

anything unusual that happened on the island[1]", and he has difficulty with it, the teacher might usefully prompt him with "Is it 'strange', Johnny?" or "Is it 'usual'?" thus leading him to work out the word from the sense of the sentence and his previous experience. Alternatively she might urge the child to read on a bit to see what the word might be, very much as we leave the most difficult words in a crossword puzzle until last so that we can glean as many pointers as possible. (The "cloze" technique involves completion of a sentence by supplying the missing word, or words, from contextual clues - see footnote, p.561). The eclectic approach should certainly not be excluded from the reading process. Just as every child rediscovers, and in a sense invents, spoken language - "On the basis of fundamental biological characteristics...each generation creates language anew" (McNeill, 1968, p.21) - so, too, must he be given the opportunity to go on a treasure hunt when he opens a book. The joy of discovery applies as much to reading as it does to mathematics, or any other subject.

The greater the child's language experience the better equipped he will be to tackle the reading process. Operation Headstart in America and the Plowden Report in Britain were widely publicised and enthusiastically received, and one of the reasons is that they both high-light the importance of Nursery School education, particularly for the socially disadvantaged child.[2] One of the main functions of informal pre-school education is to provide the child with opportunities to extend his limited experience and limited

[1] Murray, W. The Holiday Camp Mystery. Ladybird Key Words Reading Scheme, Book 12a. Loughborough, Wills and Hepworth, Ltd., 1966, p.24.

[2] More recently (1969) Prof. Arthur R. Jensen has cast some doubt on the efficacy of these programmes. "He analyzes the failure of many preschool and compensatory programs of the last five years to achieve significant gains in I.Q. and concludes that such programs are misdirected in their choice of goals and educational practices." (Harvard Educational Review, Vol.39, No.2, Spring 1969). His article (in the preceding issue of the Harvard Educational Review Vol.31, No.1, Winter 1969) has reactivated the old nature versus nurture controversy and there is much discussion to which no less then 5 professors in the U.S.A. contribute in the later edition of the Review referred to above. Clearly no one has yet had the last word, and it is doubtful whether anyone ever will.

language through constructive play and lively dialogue with interested, specially trained adults whom he would not normally meet in his home situation. The environment in Nursery Schools is designed to fit the child and carefully structured to bring him out of himself and develop him physically, intellectually, socially and emotionally.

> "Lack of appropriate language stimulation in early home and school life makes success in school activities such as reading progressively more difficult with age. Deutsch (1965) stressed the need among disadvantaged children for intensive language saturation in preschool and early school programs."
>
> Theodore Harris, 1969, p.1072.

The best preparation for learning to read is a happy home in which parents and siblings talk frequently and intelligently about everything under the sun, and in which books, newspapers and periodicals are read constantly. As soon as the child expresses an interest in picture books these should be supplied in abundance, and thereafter one or both parents should find time every day to read to him. In this way he will come to want to read for himself. Indeed many intelligent children do learn to read in just this informal way, before ever they go to school. Motivation is the key to learning to read, as it is to learning in general.

The question arises as to whether reading ability, or disability, can be inherited.

> "Congenital dyslexia, a peculiar difficulty with learning to read, also tends to run in families (Drew, 1956, and Hallgren, 1950)....A clinical syndrome has been identified called congenital language disability, consisting of a combination of any of the following deficits: markedly delayed onset of speech (in the presence of otherwise normal developmental milestones), poor articulation often persisting into the teens, poorly established hand preference or frank leftism, marked reading difficulties, either complete inability or marked difficulty for acquiring a second language after puberty (Eustis, 1947, Gallagher, 1950). Intelligence is usually not affected.
>
> "The familial occurrence of congenital language disability is well documented through a number of

> published pedigrees....After a survey of all published cases we may well agree with Brewer's conclusion that congenital language disability is probably a dominant, sex-influenced trait with at least fair penetrance....Both global language-facilitation and global language-difficulties may be attributed to inherited factors." (The parentheses above are the author's, while the emphases are mine.)
>
> Lenneberg, 1967, p.249.

It would seem, therefore, that verbal ability, and hence reading ability, or verbal disability, and hence reading disability, may be inherited. However, both ability and disability can also be induced, and certainly enhanced or aggravated by environmental factors. And it is not always possible, or profitable, to say where nature ends and nurture begins. In a minority of cases parents may be intelligent, and good and avid readers, and yet their children may not follow in their footsteps either because they have not inherited the same capacity, or more probably because they lack the inclination.

While there is generally a correlation between intelligence and reading attainment,

> "There are always some children whose achievement in reading is much below the level that one would expect from their intelligence scores. Among the children who have been referred to the writer as complete non-readers there have been several with I.Q.'s of 115 to 125."
>
> Albert Harris, 1955, p.196.

Harris does not give reasons for these exceptional cases at this juncture, but in the case histories which he discusses later it is apparent that the causes are often either perceptual or emotional, or both.

> "The opposite finding - of reading ability substantially higher than intelligence level - is less common. Dull children do sometimes score a year higher on reading tests than on intelligence tests, and a difference of two years is rare but not impossible. Such findings are to some extent the result of errors of measurement in the tests, and are also to some extent due to unevenness in the child's mental development."
>
> Ibid., p.196.

The factors bearing on achievement in reading are clearly numerous and various. However, the teaching of reading should be based on the following foundation:

(i) Normal vision, hearing and speech.
(ii) Adequate general intelligence.
(iii) Considerable language experience and an extensive spoken vocabulary.
(iv) A lively interest in words and books.

In addition a measure of physical and mental maturity in the learner is essential. The child's eyes must be able to focus binocularly on large print and he must be old enough to fixate on letters and words, and hold them steady while he decodes them. He must have matured sufficiently to have an attention span which will enable him to concentrate long enough to arrive at the meaning of a few simple sentences. The satisfaction of understanding a short printed message will stimulate him to make further efforts. He must be able to move his eyes steadily and in focus from left to right with a minimum of regressions and see-saving movements. Uncoordinated eye-movements can only lead to confused seeing and articulatory errors such as mispronunciations, substitutions (reading one word for another), refusals, additions (inserting extra words), omissions (leaving words out) and reversals (reading words backwards).

It is only when the child has learnt to read simple material aloud fluently, and with enjoyment, that he is ready for a developmental reading course.

2.2 Conception

Developmental reading itself is not new, though of course many of the techniques, methods and devices by which it is propagated are, as are the reading exercises which go to make up developmental reading programmes. Once a pupil has been taught to read and write, the prime function of the language studies programme, and indeed one of the prime functions of the whole educational process, is to increase his proficiency in these two complementary skills to the point where he is completely literate. This is achieved by a variety of ways and means according to circumstances and in

accordance with the practices and precepts of the day and age, and of the society of which the pupil is a member. Thus his reading prowess is developed, or furthered, to the limits of his ability and as far as educational provisions and opportunities will allow. It is not always developed in a systematic or scientific way, but it is developed none the less.

The developmental reading courses and programmes which have gained in prominence and popularity in the last two decades aim to achieve systematically, through intensive, comprehensive, purposeful, judiciously spaced and carefully controlled practice on specially graded material that which has hitherto been achieved haphazardly, through occasional informal and largely unsupervised practice on all sorts of suitable and unsuitable material. But in each case the aim is the same, to develop, or further, basic and rudimentary reading skills to the point where the reader can read aloud or silently with maximum efficiency and effect, and with maximum enjoyment.

2.3 Definition

Developmental reading is essentially further training in reading inasmuch as it aims to develop basic reading skills. It seeks to refine, or sharpen, reading proficiency.

> "Developmental Programs. The primary purpose of this type of program is to develop all pupils to their maximum reading use and capacity as part of the regular work of the secondary school. The training is intended to reinforce and extend those reading skills and applications acquired in previous years and develop new skills and appreciations as they are needed to comprehend and enjoy advanced and complex reading materials. These objectives imply that all pupils will be given further instruction in the basic skills of word analysis, rate, comprehension, and vocabulary, as well as advanced training in the application of reading in the content fields, guidance in free reading, reading-study techniques, organisational and reference skills."
> Reading in Florida Secondary Schools, 1966, p.3.

> "Reading is a developmental process which is never completely mastered. Improvement can be made in using reading as a process for learning all through life."
> Braam and Sheldon, 1959, p.2.

2.4 Corollary

On 13th October, 1969, I wrote to the Encyclopedia Britannica Extension Service to tap their brains of their expert consultants:

> "What is developmental reading, how does it work, and what results does it achieve? What reliable experimental evidence is there that it works (i) with children, and (ii) with adults? When is the earliest that a developmental reading course should be started and what preconditions in the learner are necessary for its success? What is (are) the best programme(s) available at present?"

On 3rd December, 1969, I received the following unsigned reply:

> "We have now completed as full an investigation into Developmental Reading as is possible in the circumstances, but we regret that we have found no extensive reference and no source dealing with the topic in such a way as to provide the detailed information that you require.
> "It appears, from the short accounts that we have been able to see, that this is a fairly recent American term, denoting less a particular method than an overall progressive programme for the improvement of reading skill and covering skill, comprehension, vocabulary, etc. We would refer you to the work by A.J. Harris, How to Increase Reading Ability, where the type is defined (in opposition to "functional" and "recreational" reading) and its components listed; Harris does not, however, discuss the application of a developmental programme, as such, but deals with the factors involved, as do other writers on the teaching of reading. We would also refer you to the latest edition of the Encyclopaedia of Educational Research, listed below. Apart from this, the solely American use of this concept (we have not found it in British sources) has considerably limited our material, since relatively few recent American works of this type are available to us....
> "We suggest that this concept is of a general rather than a particular programme, comparable with ideas of the progressive teaching of reading current outside the U.S.A. and covering such considerations as method, teaching aids etc."

Obviously the paucity of sources which they were able to consult - they referred me to 4 books and 4 periodicals - prevented them from answering any of my questions adequately. They imply that developmental reading courses are "progressive" and their brief description seems to agree with my definition above.

It seems, too, that the American and British interpretations of developmental reading might well be different. The British view appears to be that the child's reading will develop incidentally when teaching is "progressive", whereas the American view seems to be that his further reading requires specific, concerted attention at all times. However, the difference is probably in emphasis rather than fundamental.

Since developmental reading appears to be "a fairly recent American term" a further definitive description of a developmental reading course from an American source would not be amiss at this point:

> "The regular developmental reading program...is a long-term program to develop all aspects of reading ability, including values. Although the program has clearcut, preplanned guidelines, there is no routinized daily ritual to which all teachers adhere. Instead, each teacher bases his approach largely on pupil interests. These of course, are guided interests inasmuch as they are stimulated by leading ideas.
> "As interests intensify, children are led towards fundamental reading goals. They learn to follow directions, to recognize values placed on words and phrases. They are urged to search for 'glittering' words (compare my 'colouring in' words - see 5.5, p. 264) and to identify dull ones.
> "Recognition of central thoughts and themes is emphasized as well as how to isolate important details. Locating facts, finding proof, organizing data, generalizing, interpreting meanings, imagining, predicting outcomes and drawing conclusions are all part of the developmental reading process. Learning to skim, to use indexes, to develop precision and avoid carelessness are important. Skill in oral reading and intelligent listening are also goals of the program.
> "Developmental teaching procedures include the use of numerous regular and reference reading books as well as periodicals. Simple research ideas are formulated from pupil interests, and projects are developed at appropriate levels of difficulty."
> (The emphases and interpolation above are mine.)
> Bottomly, 1961, pp.6-7.

Clearly the so-called "regular developmental reading program" has much in common with the English Studies programme, with Reading as its core, in South African schools. It seems to differ in that it is more highly structured, more comprehensive and more pupil-centred than ours: in essence it differs more in shading than in content.

From the above description it is also clear that the S.R.A. Reading Laboratories and devices like the Controlled Reader and the Tachistoscope, together with the materials that are projected through them, can constitute a part of the "regular program", but should never constitute the whole of it. Innovations like the E.D.L. machines and the S.R.A. Reading Laboratories can usefully supplement but never supplant other reading materials and activities.

2.5 Development

The marvellous Sixties are perhaps characterised by something far more mundane than lunar landings and heart transplants: during this decade probably more common people throughout the world have been affected by The Scramble For Literacy than by any other single event. During the last ten years millions of children and adults have learnt to read and write, while equally important, in the interests of the communication which is so essential for international understanding and co-operation in this shrinking, divided world, millions more have learnt to read and write more efficiently. As the frontiers of knowledge expand so the pace of education accelerates: Glen Doman's book, How to teach your baby to read, is eloquent evidence of this. And the pacemaker - the educated man - can only stay out in front by stretching his intellect and energies to the uttermost. In order to inform himself of the multitude of world events which impinge on him daily, as well as to keep up to date with his own specialised concerns and interests in work and play, he must read and write more and more, and to increasingly better effect. Consequently, since reading is at the core of the whole educational process - we learn to read in order to read to learn - rapid reading, or speed reading, has come more and more into its own since the last world war. This is particularly true of the United States where most executives have seemingly taken a crash course in rapid reading during the last ten years.

In their highly competitive, materialistic society a sense of urgency seems to characterise their every thought and action: everything has to be done as quickly and efficiently as possible.

> "Moreover, with our advancing technology, instead of decreasing, the pressure is constantly increasing - man now must work hard at trying to keep apace of the machines he has invented to help him get his work done faster. This was aptly illustrated by an ironic incident in the reading clinic on the University of California campus. A topflight executive had been so pleased with the improvement in his reading speed in a first course that he enrolled in an advanced class. Later he came to class obviously dejected, bemoaning the fact that 'After a semester of hard work I became just able to read through a paperback novel as I flew across the continent - this was twice as many pages as I used to read before I took the course. Last week I took my first jet to New York, and so help me, it went so fast I was right back where I started - I only got half-way through my book!'"
>
> Holmes and Singer, 1966, p.110.

We learn to read faster in order to save time, in order to learn to read faster still. There is obviously a danger that we will end up chasing our own tails at a dizzy rate, and quite futilely.

Inevitably Big Business has climbed onto the bandwagon and obscured much of the gold in the ideas underlying the promotion of faster, more efficient reading with a dross of dollars and ballyhoo. "After 15 hours study on our Psycho-Dynamic Reading Course you will be able to read the entire works of Will Shakespeare, or Freud, or the Bible, in 1½ hours. Send £175 to Mularky, etc." (An example quoted by Prof. G. Spache at the International Reading Congress held at the College of Education, Johannesburg, in 1967.) But the extravagant claims made for rapid reading courses "dreamed up on Friday and sold on Monday" (Prof. G. Spache again) should not deter us from seeking to uncover the gold in the concept of developmental reading (as opposed to rapid reading) and seeking out the good courses, or the good features in a course, from amongst the host of shoddy, spurious articles.

At this juncture it is worth pointing out that the incidence of reading retardation in American schools does not appear to have diminished in the last twenty years.

> "Substantial evidence over a considerable period of time exists...that little if any progress has been made in reducing the number of significantly underachieving pupils in reading, estimated by Traxler (1949) from various studies to include from 10 to 25 percent of the school population by the end of grade 6. The recent rapid growth of special reading programs and remedial facilities, especially at the junior and senior high school and college levels, indicates the persistent presence of a very substantial percentage of underachieving readers at the upper grade levels."
> Theodore Harris, 1969, p.1085.

The State of Florida was given £ 22,000,000 by the Federal Government in one year, these monies to be used solely for research into ways of improving reading achievement. It hardly seems remarkable, therefore, that "Reading has been taught to students of Syracuse University since 1925." (Braam and Sheldon, 1959.) Nor do I think that we in South Africa have reason to be complacent. Obviously in our young, robust, multi-racial and multi-lingual society we need to increase both literacy and standards of literacy if we are to hold our own in the International Community: and one of the ways in which this can be achieved is by improving standards of reading in our schools, colleges, universities and homes.

2.6 Distinction

Rapid reading and developmental reading are not the same thing, although the ability to read more rapidly is fostered by every developmental reading programme, and therefore to some extent rapid reading is contained in, or subsumed by, developmental reading. But a good developmental reading programme aims to do far more than merely increase the rate of silent reading. Rapid reading courses, by definition, only aim to increase the speed of silent reading while maintaining comprehension, or understanding, at about 70% of correct responses to questions asked on every exercise. On the other hand a good developmental reading programme aims to improve reading within the integrated field of English studies, which

includes oral and written expression and language study, as well as reading silently and aloud with fluency and accuracy, and with full understanding and appreciation.

> "The past few years have found reading frequently given the leading role in the drama of communication, with other major players seemingly relegated to upstage positions. Out of the range of the spotlight perhaps, but closely related to the skill of reading are the three other facets of the language arts, listening, speaking, and writing. Even as actors in a play combine their efforts to create dramatic effectiveness, so each of the language arts is concerned with a common goal - that of communication. Each of the four must be considered along with the other members of the cast, each dependent upon and contributing to the performance of the others for an effective presentation....
> These interrelationships are further emphasized by Loban in his study of the language of elementary school children. He reports positive relationships among reading, writing, listening, and speaking."
> Reading in Florida Secondary Schools, 1966, p.112.

> "Reading must be viewed as one element in an integrated programme for language development, i.e. it must be allied to oral work, controlled and free written work, spelling and dramatic activities."
> Tansley, 1967, p.6.

It is also important to remember that "the act of reading is a thinking act" (Prof. G. Spache), and that no useful purpose is served by increasing the rate of reading to the point where it outstrips the rate of thinking. At all ages and at all stages a person's reading rate must synchronise with his thinking rate.

Speed and power of reading are the two most important components of the reading process at the higher levels in which we are presently interested. Rate of reading, as it applies in developmental reading, is self-explanatory save perhaps that it should be stipulated that we refer to rate of silent reading in this context. Power of reading, however, is more difficult to define. It is certainly both compound and complex.

"Comprehension refers to the ability to understand what is read. Power in reading carries with it the additional ability to use the information gained from the material read to solve problems or answer questions. Comprehension denotes only a knowledge of, but power implies a working knowledge and use of, information and concepts derived from reading (authors' emphasis). Likewise, power in reading implies the creative ability of the reader to manipulate mentally what he has read in order to integrate it with what he already knows and thus gain insight into new relations that were not given to him in the reading per se. That is, the most powerful reader uses reading as an effective tool for his creative thinking.
"Proceeding up the academic scale grade by grade, one finds that at each level the meaning of the printed page becomes increasingly difficult for students to comprehend. This, of course, is due to a variety of factors: the increasing complexity of the sentence structure, the style of writing, the vocabulary, and the greater depth of ideas and concepts used. Concomitantly, there is an increasing demand for the use of reason by the student in interpreting and applying what has been read in order to answer questions and solve problems which go beyond the information given. He cannot resolve such problems simply by a mechanical application of the facts and concepts as presented. Power reading, therefore, implies a contribution on the part of the reader! And the demand increases as he progresses in his school career (my emphasis).
"The essential elements in the educative process are the ideas stored in books - profound and trivial, good and bad, classical and new; but the heart of the educative process is the power of the mind to read, understand, interpret, reason with and use such concepts (authors' emphasis)....Power of reading, then, is that aspect of reading which emphasizes reading as reasoning."
Holmes and Singer, 1966, pp.117-8.

It must be obvious from the above quotation that power and speed of reading are interdependent to some extent, and that they will vary in direct proportion.

> "General reading is a composite of 'speed' and 'power' of reading, and underlying each component is a multiplicity of related and measurable factors."[1]
>
> Holmes and Singer, 1966, p.9.

Holmes and Singer worked out a "matrix of intercorrelations for the variables in the total sample of 400 high school students" and arrived at a correlation of 0.594 between speed and power:

> "The correlation of 0.594 between Speed and Power of Reading makes it evident that an appreciable relationship exists between these two criteria."
>
> Ibid., p.39.

Furthermore both power and speed depend on the same factors to a large extent, namely intelligence[2] (which is probably the most important single determinant of reading performance), attitude,[3] concentration,[4] and background knowledge.[5] It must also be clear

[1] Compare the different, but related functions of Power Builders and Rate Builders in S.R.A. Reading Laboratories, see 4.3 ; pp.133-40.

[2] "As the child grows older, intelligence plays a greater role in determining his reading achievement.... Lennon's analysis (1950)... found increasing correlations between reading ability and intelligence, from .34 for the second grade to .85 for the eighth grade."
Chall, 1967, p.150.

[3] "Thus the chief contribution of experimental programs is not so much the improvement of academic skills and acquisition of information, as it is the development of desirable attitudes - the aspect of education that is largely neglected by traditional programs.... "What educational psychologists are discovering is that motivation for learning is based on attitudes...."
Lindgren, 1967, p.388 and 395.

[4] "A striking example of reciprocal causation is apparent in the way in which students learn to concentrate as a result of being placed under pressure during repeated speed drill. Many people complain that their speed is poor because they have difficulty in concentrating. But when conditions demand rapid reading with comprehension, concentration is an inevitable byproduct. The habit of striving to read rapidly for information then results in a habit-formation of concentration, which in turn makes for greater speed."
Holmes and Singer, 1966, p.174.

[5] "The importance of a schema of background knowledge, a framework of tried and true ideas against which new concepts are tested and into which new knowledge is fitted, cannot be underestimated: "Range of information appears to be the most ubiquitous variable, because it contributes in varying degrees to each of the five major primary substrata factors (authors' italics).... "For the evidence definitely shows that the greater the store of information, the easier the task becomes." (authors' emphasis).
Ibid., p.78 and p.171.

from what Holmes and Singer say above that if a reader has power he will also have speed, though the rate at which he can read, or the rate at which he chooses to read, will depend not only on his "power" of reading ("power" being used in Holmes's and Singer's sense) but also on his habitual attitude to reading, which may well be a function of his total personality (some people, despite their intelligence and educational advantages, are habitually slow readers), and on his specific attitude to the reading material to which he is applying himself at the time (most people elect to read autobiographical material at a slower, more thoughtful rate than they read fictional narrative material, for example).

So perhaps it would be more profitable, and more intelligible, to define both speed and power of reading - but particularly power of reading - in terms of their attributes than in abstract, hypothetical terms. Once again Holmes and Singer are helpful in both respects. I will not go into their very complex and recondite substrata-factor theory of reading here, save only to say that they seek to analyse and define the infinite independent and interdependent factors,[1] intellectual and affective, which go to make up the reading process; and that they isolate, or "precipitate", no less than 54 of these, excluding the "criterion tests" for Speed and Power of Reading themselves, at three different levels (there appears to be an almost infinite regression and diversification of component skills in the reading-thinking process), and that at the end of their exhaustive analyses they are left with unexplained residues of between 22% (for Power of Reading) and 44% (for Speed of Reading) which they hypothesise are "probably (due to) sustained effort and desire to know" (in the case of Power of Reading) and "probably (due to) motivational habit and desire for speed" (in the case of Speed of Reading). Elsewhere (p.12) they ascribe these elusive and unclassifiable percentages to "attitudinal factors", amongst other things, and throughout their book the importance which they give to motivation, or "conative factors", is most noticeable.

[1] Unfortunately Holmes and Singer refer to the interdependence of these factors in ugly jargon: they speak of the "interfacilitation of substrata factors", "intracerebral communication, or working systems", and of "associative conceptualization stimulated by the cortical activity of perceptions" (their italics) (p.155), all of which only serves to further complicate something already extremely complex.

Certainly motivation and application are crucial to the development of more efficient, faster reading, and it is a point to which I will return repeatedly in later chapters when I discuss specific developmental reading programmes. Let me say here and now, however, that any developmental reading programme that does not at once capture and sustain the interest and attention of the pupil is bound to fail. Obviously the teacher has a considerable role to play in this regard: a good teacher can make a mediocre programme, while a bad teacher can mar a good programme, but no teacher, no matter how competent, dynamic and enthusiastic, can sustain pupil interest for, say, five hours a week for a period of 12-15 weeks (which is the suggested length of many concentrated developmental reading courses) in a really bad programme in which the passages are dull, the style stodgy, and the exercises unimaginative and repetitive.

In regard to speed of reading they say:

> "Speed of Reading is basically a psychoeducational process which cannot be divorced from linguistic abilities. It is also true that the more rapid a reader becomes, the more apt he is to have perfected the use of his linguistic abilities and to draw more heavily upon his range of information and perceptual and mechanical aptitudes to meet the competition of his peers."
>
> Holmes and Singer, 1966, p.104.

In regard to power of reading they say:

> "Discovery of the word embedded[1] test as a primary substrata factor underlying Power of Reading in both groups ('powerful' as opposed to 'non-powerful' - my brackets) brings out the importance of visual-verbal perception in an area which is considered primarily cognitive and linguistic. This finding, coupled with the heavy reliance of the non-powerful group upon <u>both vocabulary in isolation and vocabulary in context</u> (my emphasis - in later chapters I shall return to the pre-eminent need to enlarge sight

[1] "The Word Embedded Test is another exercise in figure and ground, using both meaningful and nonsense verbal symbol combinations. A simple word is embedded, or hidden, in four different nonsense letter combinations, and the student is asked to abstract from the four the <u>largest</u> meaningful and common element making up a word. Samples: aboato boato erboat anboat. (Hidden word: <u>boat</u>.)"

Ibid., p.26.

> vocabulary and improve word-attack in developing further reading skills), in contrast to the powerful group's utilization of auding[1] and verbal analogies at Level I, points directly to the basic premise of the Substrata-Factor Theory that excellence in Power of Reading is in the main an audiovisual verbal processing skill of symbolic reasoning (authors' italics). The more powerful the reader, the greater his dependence upon verbal reasoning over and above his knowledge of words; the less powerful the reader, the greater his relative dependence upon knowledge of words."
>
> Ibid., p.122.

So in essence, (i) speed of reading depends heavily upon background knowledge, once a minimal functional competence has been achieved: thus the more we read and learn the greater will be our frame of reference and the more we will be able to skim judiciously in order to pick up the main points and get the author's drift; while (ii) power of reading (which is what developmental reading programmes and teachers of further reading are primarily concerned to foster) depends heavily upon the reader's verbal reasoning ability, or his verbal intelligence, and the extent of his vocabulary. Yet even at this primary, and oversimplified level we can see the extent to which these "factors" overlap and hence the extent to which speed and power of reading interdepend. In respect of (i), obviously what we know is contained and "stored" in words: therefore the more words we know the more percepts and concepts we will have and the quicker we will be able to "process" new material. Background knowledge and vocabulary therefore interpenetrate, to a large extent. In respect of (ii), our ability to reason adroitly and draw inferences quickly will enable us to understand the writer's argument more easily and hence read his text more quickly.

Any attempt to anatomise anything as complex as the whole reading process through a classification and evaluation of the parts of the process - which do not function separately anyway - can never succeed completely. The whole is invariably more than the sum of the parts. Nevertheless Holmes's and Singer's work, like all pioneering projects, is worthy of our attention and respect.

[1] "The California Auding Test by Caffrey (1952) is designed to estimate the ability of students to understand spoken English."
Ibid., p.26.

Another important point that needs to be made in this distinction between speed and power of reading is that the one is not significantly diminished as the other is increased: in fact just the opposite has often been found to be the case:

> "The use of instruments...produced marked gains in rate of reading with equivalent gains in comprehension."
>
> Warren, 1962, p.11.

> "Before 253 and 242 w.p.m., and 72% and 79% comprehension; after, 397 and 331 w.p.m., and 89% and 85% comprehension."
>
> Solan, 1967, an abstract from Tables 1 and 2 on p.6.

However, Stanford E. Taylor sounds a timely note of warning in this regard:

> "Rate motivation without modification of basic habits can cause tension and discomfort, and may result in actual increase in fixations and regressions as the inefficient reader strives to cope with reading material under pressure....
> "The success of acceleration techniques depends to a large extent on the type and range of training materials and type of comprehension required. The student should always be started on material several grades below his instructional level and should eventually be returned to material at his grade level."
>
> Stanford E. Taylor, 1962, p.7.

> "An analysis of these eye-movement photographs shows that the gain exhibited by these seemingly above-average trainees was comparatively slight, and there are suggestions that their gain in performance could be, in part, attributed to drive and motivation during testing, and that when they attempted to read 'dynamically', they appeared to resort to a skimming and scanning-like process, with substantial loss of comprehension (my emphasis)."
>
> Stanford E. Taylor, 1968, p.17.

Other research workers have found the same sort of thing:

> "Comprehension decreased during the course with the fast readers maintaining better comprehension."
>
> Stevens and Adams, 1968, p.168.

Obviously, therefore, power of reading, as measured by comprehension, and rate of reading, will only increase conjointly within the reader's ability to improve and up to a certain optimal level of competence.

2.7 Description

As I have said earlier reading requires both perceptual and interpretative skill. In the event of either perceptual or mental malfunction we falter in our reading, and our efficiency is diminished. Both perception and interpretation are improvable, and this is no doubt why "There is now an integrated 12-year program in American schools and colleges." (Prof. A.J. Harris speaking at the aforementioned Reading Congress, 1967.)

> "We see indisputable evidence that the rate gains achieved by various devices are not secured by mechanically greatly increasing the span but probably by inducing quicker perceptions (my emphasis)."
>
> Spache, 1960, p.6.

> "The more experienced reader always attempts to organise what he sees....The primary value of short exposure training, therefore, in reading improvement, is...to increase the accuracy and precision of perception, and to develop the reader's ability to organize perceived material more rapidly (my emphases)."
>
> Earl A. Taylor, 1957, p.5.

> "A developmental reading program must be designed to develop, maintain and perpetuate perceptual and basic (interpretative) reading abilities (my emphasis and interpolation)."
>
> Solan, 1967, p.4.

The limit to which these two interdependent parts of the reading process are improvable is determined in large measure by the individual's visual and mental acuity.

I do not propose to talk about the physiology of perception here: for one thing it should constitute the subject of a separate investigation, and for another most of us have sufficiently good vision not to be bothered unduly in actually following with the eye lines of print on a page. However, it is important to note that a good developmental reading programme takes account of the experimental findings of optometrists and other specialists in this regard: for example, most reading material in these programmes is presented in columnar form because it has been found that people can read ± 6 words in a line ± 80 mm. long more quickly and easily than they can read, say, ± 10 words in a line 100 mm. long. The shorter lines no doubt facilitate rapid fusion on the return sweep from the end of one line to the start of the next.

Most of us lose time on this return sweep because, having binocular vision, our eyes have to re-fuse after a rapid movement from right to left, and the longer this sweep the more they tend to diverge, and the more likely we are to focus at the beginning of the wrong line, which in turn leads to regressive eye movements, "picking up the thread" again, and other time-wasting practices.

As far as intelligence is concerned, "The level of intelligence is not critical in learning to read unless the I.Q. is below 60." (K. Gardner speaking at the aforementioned Reading Congress, 1967.) But obviously the more intelligent the child the more easily he should learn to read, and the more efficient a reader he should become:

> "Ability grouping in American High Schools is generally done on the basis of reading comprehension tests."
>
> A.J. Harris, 1967.

> "Reading tests forecasted later attainment better than tests of non-verbal ability, and the best single predictor of the reading ability of children aged eleven was the same reading test given in the preceding year (r=0.82)."
>
> Morris, 1966, p.305.

Holmes and Singer claim that "Mental Age" is one of the most important predictors of reading performance: they claim that it accounts for between 20% and 40% of the relative efficiency of both speed and power of reading. According to them "Mental Age", or intelligence, manifests itself in the reading act by enabling the reader "to relate ideas, infer relations, abstract and generalize; in short, to reason while he is reading." (Holmes and Singer, 1966, p.11.) Furthermore, when the authors prepared "the profile comparison of the cooperant abilities, interests, and problems manifested by the 108 most powerful and the 108 least powerful readers in the total sample of 400 high school students",

> "The general tendency for the non-powerful to show concomitant deficiencies in verbally intellectual and linguistic areas is dramatically apparent. In contrast to the low scores of the non-powerful group...the most powerful readers demonstrate definite assets in these same abilities.

> Most remarkable in their profile are the extremely high scores in visual verbal meaning, verbal analogies, auding, vocabulary in context and isolation, range of information, phonetic association, word sense, homonymic meaning, and Latin and Greek roots (all of which fall under the headings of 'Mental abilities' or 'Linguistic abilities' and all of which yield significant differences at the 1% level between 'Powerful' and Non-powerful' groups - my brackets)."
>
> Holmes and Singer, 1966, p.118.

Developmental reading courses aim to improve both perception and interpretation of the printed word, but since intelligence varies both quantitatively and qualitatively rather more than vision does when both are applied to something like reading, it may be supposed that a developmental reading course will improve the processing more than the perceiving of data. For example tachistoscopic and Controlled Reading training (which are the cornerstones of the E.D.L. philosophy and method) improves concentration (and hence performance) as much as it improves perception. It takes the average adult 1/100 sec. to perceive, or read, and $\frac{1}{4}$ sec. to interpret, or recognise, a word and there is an obvious physical limit to the amount of improvement which can be effected through "hardware" practice. A person may be able to skim at 3000 w.p.m. but he cannot actually read at much more than 700 w.p.m. because it is physically impossible to do so. Eye-movement photography and optometric studies have proved that it is impossible.

> "For even the most efficient readers, 800 w.p.m. is the practical limit for thorough and inclusive reading. This condition results from the fact that few, if any, readers have an average span of over 2.7 words while simultaneously averaging the higher speed activity of 5 eye stops per second (2.7 words per eye stop x 5 stops per second x 60 seconds = 810 w.p.m. - author's brackets). This is not to say that people cannot be taught to skim and scan at apparent rates of thousands of words per minute. However, eye-movement photographs taken of persons involved in skimming and scanning show that only certain lines are read, and even those may not be read in total (Grayum, 1953; Mason and McDonald, 1964; Taylor and Frackenpohl, 1961 - author's brackets). In other words, skimming and scanning can be described as processes of looking and reading."
>
> Stanford E. Taylor, 1965, p.13.

Needless to say the more words that a person knows the faster he should be able to read because the quicker his brain will recognise and interpret words and phrases. Training in quick and accurate word recognition is more important to efficient reading than training eye-movements and trying to widen perceptual span, or eye-grasp as the Americans often call it. It does not pay to make the reader too self-conscious of his eye-movements: it is meaning rather than mechanism which counts.

> "People who attempt to control their eye-movement patterns find that they must concentrate so hard on trying to feel what they are doing that they lose the thread of thought."
>
> Ibid., p.11.

Devices, or "hardware", do not widen the visual span because the retina cannot be changed. So a person cannot be trained to read in phrases or groups of words. Our eyes make 90 fixations per 100 running words, reading at 300-400 w.p.m., so if we increase our speed we simply select some words and phrases and drop others.

> "No studies to date have shown that training to widen span has resulted in the ability to see in phrases during continuous reading. Feinberg's study (1949) suggested that the physiological limitations of the eye will probably prevent readers from ever reaching this goal. It is rather startling to note that despite the findings of over a hundred studies of eye movements, writers of reading improvement texts have persisted in this misconception. Perhaps they have done so because they know a person can see three or four words when staring at print or when words are flashed tachistoscopically. This is possible because the seeing situation is static, allowing time to assimilate the less distinct impressions that occur in the periphery. The situation is in direct contrast to that encountered during reading, when retinal impressions are superimposed on preceding ones at the rate of three to five per second in a dynamic act where the kinesthesia of the ocular activity and the sequence of impressions further reduce the rather tenuous peripheral impressions. In addition, there is the demand

> for continually organising the multiple ideas presented in reading material. Consequently, the span of recognition in reading is distinctly smaller than that occurring and measured in static seeing situations (Taylor, 1957) and may be thought of as 'salvageable' span."[1]
>
> Ibid., p.12.

Adaptability, and the ability to vary one's pace of reading according to the difficulty of the material, combined with the ability to skim and scan, are some of the keys to faster, more efficient reading.

> "Remember, flexibility is the important factor in improvement, not speed alone. Flexibility in reading is considered to be that aspect of reading which causes the reader to be both adaptable and versatile. The flexible reader adapts his reading to the purposes with which he approaches the printed page, the degree of his own familiarity with the subject of the material. The goal of a flexible reader is to obtain the desired degree of understanding with the greatest amount of efficiency."
>
> Braam and Sheldon, 1959, p.17.

[1] In this regard it is worth noting what Stanford E. Taylor, who is the originator of E.D.L. devices and programmes, has to say about the function of instruments like the Tach-X Tachistoscope and the Controlled Reader in fostering reading skills. It is emphatically not to widen eye-span or to train fixation patterns, or to triple reading rate.

> "The primary contribution of instrument techniques lies in the control they exert and the training effect that they have on the subskills employed by the reader. Improvements can be made in (1) binocular coordination and motility by accelerated presentations, (2) visual discrimination and visual memory through flashed or timed exposure, (3) directional attack by left-to-right presentations, and (4) verbal experience by the inclusion of certain comprehension-building and study approaches with the content presented during instrument training. Unfortunately, many people still regard reading instruments solely as timing or motivating devices and rarely explore the discrete training functions they offer."
>
> Stanford E. Taylor, 1965, p.13.

It follows that a sound developmental reading programme should foster flexibility:

> "Since efficient reading is planned purposeful reading utilizing the most effective techniques for the material, purpose and the reader's situation, the need is clearly indicated for assessment and then planned development of reading flexibility. This objective should be begun as early as the fifth grade with those students who have mastered the fundamental processes (which he has previously defined as '5th grade fundamental reading skills'[1])....
> "Change of pace in reading, then, is a hallmark of the effective reader."
>
> McDonald, 1968, p.9 and p.10.

In order to generate efficiency and flexibility in reading all the experts and authors of developmental reading programmes stress the importance of the acquisition of an extensive sight vocabulary.

[1] Certainly flexibility should be induced in older pupils and/or pupils of 8th grade ability, or Reading Ages of 12.0+, and in college students, but I myself think that McDonald may be a little premature in aiming to train flexibility in children with no more than 5th Grade, or South African Standard 3, reading ability:

> "Taken together, the results of these studies showed that the primary child is too immature to acquire the most advanced types of skills and that certain skills must be introduced and mastered in the middle and upper grades (Grades 7 to 12 - my brackets), at the earliest."
>
> Bamman, 1961, p.41.

Obviously, until they are really proficient readers with Reading Ages in excess of 12.0 on standardised Word Reading and Comprehension tests, and until they are wide and mature readers into the bargain, there is no point in training children to be selective in their reading, and regularly to practise techniques such as skimming and scanning, not to mention more dubious techniques such as swirling, reading down the centre of a column with only one fixation per line of ± 6 words - "Thus far no photographs, even of proficient skimmers, have shown a person's eye moving straight down the center of a column or page of print." (Stanford E. Taylor, 1965, p.13) - and indenting, all of which are devices to force the reader to drop words and "get the drift" of a passage. After all, it is futile to drop words until you know what words you are dropping.

"Vocabulary is central to both communication and thinking, and the only way to gather vocabulary is by extensive reading in a wide variety of sources. The reading programme must be rich and varied to avoid intellectual malnutrition."

Harris, 1967.

"Rate, comprehension and vocabulary must develop interdependently. Size of vocabulary is one of the most important determinants of rate and understanding."

Spache, 1967.

"A leading object of this work is to enable the scholar, while learning to READ, to UNDERSTAND, at the same time, the MEANING of the words he is reading."

Fries, 1963, p.10.

"Since words are the keys to meaning, the first task in teaching children and adults to read should be to develop skill in word recognition."

Gray, 1956, p.110.

"Vocabulary improvement, then, can be as easy as increasing our passive vocabulary - the number of words we recognise and understand. These words will then be available when we need them."

Herrick, 1963, p.39.

"Below each selection is a glossary in which all the difficult words in the selection are defined. When you have finished the second reading of the selection, look up in the glossary the meanings of all the words which you do not know.... Certainly, this ability to recognise word meanings is basic to the reading process."

Guiler and Heath, 1958, pp.viii-ix.

"A good reader has a large vocabulary."[1]

Braam and Sheldon, 1959, p.29.

[1] These authorities seem to imply that vocabulary is an inventory of words the isolated meaning of which it is necessary for the reader to acquire in order to increase his reading efficiency. This is probably an unintentional oversimplification. It is the meaning of words in conjunction which is paramount. In developmental reading exercises vocabulary questions should require the reader to educe the meaning from the context: for example, "In this passage 'flight' is used in connection with (i) bees (ii) running away (iii) aeroplanes (iv) stairs (v) imagination" (Double-Up, 1968, p.71). In this instance the multiple choice question serves a dual function: it at once extends the meaning of the word 'flight', and clarifies its particular meaning in this context.

Holmes and Singer found that the highest of the inter-correlations between the 54 variables affecting the speed and power of reading which they sought to isolate and investigate was between power of reading and vocabulary in context:/

> "The largest zero-order correlation in the P column is between Power of Reading and vocabulary in context (r=0.785). Vocabulary in isolation, auding ability, range of information, verbal analogies, and visual verbal meaning all follow in close array (r's=0.779, 0.745, 0.742, 0.727, and 0.671 - author's brackets)." (This does suggest that these sub-skills overlap to a large extent - see p. 29).
>
> Holmes and Singer, 1966, p.67.

In fact "Vocabulary in Isolation" (16%) and "Vocabulary in Context" (16%) together make up 32% of the first order variables ("Predictor Level I") which account for the 75% of "Power of Reading" which Holmes and Singer were able to "precipitate". This means that size of vocabulary directly affects power of reading to a highly significant extent. As far as speed of reading is concerned "Vocabulary in Context" makes up some 20% of the second order variables ("Predictor Level II") and "Vocabulary in Isolation" some 50% of the Third order variables ("Predictor Level III") in the three "Substrata factor Levels" which "undergird" the 55% of "Speed of Reading which the authors were able to isolate at "Substrata factor Level I"; which is to say that size of vocabulary significantly affects speed of reading as well, but at one or two removes, according to the substrata theories of Holmes and Singer. This indirect lower order contribution of vocabulary to speed of reading is borne out by the lower correlations between "Vocabulary in Context" and "Vocabulary in Isolation" with "Speed of Reading", .579 and .571 respectively. In fact, "in (their) battery, visual verbal meaning is the most valid predictor of Speed of Reading." (p.56) When they compare the performance of bright and dull subgroups within the primary group of 400 high school pupils they come to the conclusion that "the vocabulary factors are extremely important to both groups." (p.107)

Every developmental reading programme that I have seen has numerous word-building exercises: work with prefixes and suffixes, and roots; synonyms and antonyms; classifications, and the like. (Children enjoy working through these to a point, the point being the point of saturation which of course varies from one child to another, and from one programme to another, but which for the average 12-year-old in Standard 5 working on an S.R.A. Reading Laboratory seems to be about 4 Power Builders a week, or ± 1 concentrated hour all told, on somewhat mechanical, time-consuming exercises. Most boys enjoyed the Rate Builders, the 'How well did you read?' sections of the Power Builders, and the Listening Skill Builders the most. They liked the 'Learn about words' sections of the Power Builders least - see 4.3, pp. 134-5.)

Developmental reading programmes then, aim to

(i) increase vocabulary;
(ii) improve concentration;
(iii) maintain comprehension of questions asked on every passage at the 70% level, at least;
(iv) step up the rate of reading (and erradicate such hindrances as sub-vocalisation and regressive eye movements);
(v) foster flexibility (in older, more mature and proficient readers).

They all set out to do this by moving the reader systematically through carefully graded passages which he has to read against time, after which he has to answer a number of multiple-choice questions on what he has just read. The passages themselves may be either narrative or descriptive-informative, but in practice narrative passages give way progressively to descriptive-informative passages as the reader advances in age and proficiency. All passages should be rigorously controlled in four respects:

(i) the familiarity and suitability of particular topics to particular age groups;

(ii) the length and complexity[1] of sentences;

(iii) the number of polysyllabic words;

(iv) the number of words that are unfamiliar.

Students are advised to work on the programme regularly and frequently, usually for a period of 3 months:

> "It is recommended that a schedule of frequent, relatively short periods of time be established for doing the exercises....Setting aside a short period (20-30 minutes) per day to attack the problem of improving reading efficiency is most desirable. Such a schedule will produce much better results than devoting a full evening, or half a day once a week, to the improvement of reading skills."
> Bream and Sheldon, 1959, Introduction.

> "The (S.R.A.) Laboratories have proved most effective when scheduled over a continuous block of time; it is therefore advisable for teachers... to follow the recommended fifteen-week schedule.... The suggested seven-week period of daily work provides a logical introduction to and reinforcement of the reading and listening programs; the sessions during the following eight weeks sustain initial improvement and ensure maximum retention of skills presented and practised in the program.
> "It is not recommended that the program be spaced, say, once a week during the entire school year, because the principle of reinforcement (author's italics), firmly established by research in the psychology of learning, would not be given a chance to operate in a once-a-week schedule. With proper timing, there is a carry-over of one day's learning that reinforces that of the next. When practice periods are spaced too far apart, forgetting sets in and carry-over is diminished. During the earlier stages of a learning process, practice is most efficient when it is closely spaced."
> S.R.A. Reading Laboratory IIIA, Teacher's Handbook, p.13.

In addition, those taking the course should practise the disciplines suggested by the author(s) assiduously, both when they are working on

[1] The construction of a sentence, and the ideas contained in it, govern its complexity. A sentence made up of four clauses is usually more complex than one made up of two clauses, and one expressing abstract thoughts is usually more difficult than one expressing concrete ideas.

the programme, and also elsewhere in their study courses, and in their recreational reading.

> "Learning to read, therefore, means developing a considerable range of habitual responses to a specific set of patterns of graphic shapes. Habits develop only out of practice....
> "We believe that we must give thorough and systematic practice not only through the transfer stage (beginning reading stage) but through the building up of a superior ability to read productively (developmental reading stage - my brackets)."
> Fries, 1963, p.121 and p.215.

> "Reading is also a process that demands continuous and specific practice in order that efficiency be maintained at a high level."
> Braam and Sheldon, 1959, Introduction.

> "The importance of the 'early' acquisition of reading skill is emphasised." (Obviously the earlier a child learns to read the more time and opportunity he will have to practise and perfect his new skill.)
> Morris, 1966, p.336.

2.8 Differentiation

There are important differences between the old and the new approaches to developing further reading skills. Not only have new and ingenious devices such as the Tach-X Tachistoscope and the Controlled Reader been pressed into service with demonstrable success, but also the actual reading exercises have changed inasmuch as the mechanical level of difficulty of material is now carefully controlled (vocabulary and sentence length are the two variables which are most easily and consistently controlled), and the comprehension questions are now far more imaginative and searching. In the older type of exercise questions set on a passage were nearly always open-ended and merely tested what the reader remembered of some of the facts, and not always important facts, either: for example,

"When did the vixen find a chance to escape?"

is not as important as an understanding of how she escaped, but it is more easily answered and marked, of course.[1] Though the questions

[1] This question follows 'A Woodland Tale', an adapted story by Oliver G. Pike in a compendium entitled The Splendid Quest by C.F. Allan, M.A. Ph.D., McDougall's Educational Co., Ltd., Edinburgh, no date given, pp.129-131.

were often transparent, tediously full answers were required of the reader: in answer to the above question the pupil was usually required to write:

"The vixen found a chance to escape when the men went away for lunch."

In most modern developmental reading programmes the questions are multiple choice and require intelligence and insight on the part of the reader, as well as a recollection of the salient facts. They aim to test what he understands, or infers, from the facts, and from the author's tone and stance. Furthermore, they can be answered quickly and economically:

> "One of the more important ideas presented in this story was that (a) people can call forth unusual courage in an emergency (b) it is foolish to attempt to be what you're not (c) parents should not tease their children (d) things that appear impossible seldom are."
> E.D.L. Controlled Reading Study Guide GH, p.150.

Having made his decision the reader simply records either the letter which precedes the alternative of his choice, or, at most, the alternative itself as a mnemonic and an aid to orthography. (When a conservative teacher who still favoured the answer-in-full-because-it-makes-sense challenged the soundness of this departure from tradition, I answered to this effect: (i) when you are asked the time you do not customarily reply, "the time is 6 o'clock"; (ii) children seldom page through their old English exercise books, and if they do it is to review marks, and perhaps to re-read the occasional composition, not to check on a number of mechanically recorded comprehension exercises.)

There are two other points in favour of the above multiple-choice example. Firstly, the student is required to discriminate between four equally plausible answers, and if he is to choose rightly he must have both a good grasp of the facts of the story and some conception of the author's purpose. Secondly, questions like these require further careful reading beyond what is required in the passage, or in a straightforward recall question like "Who took part in the dance?" (The Splendid Quest, p.129.) This type of question, therefore, insists on a proper understanding

and appreciation of a passage; and comprehension questions, whether oral or written,

> "are properly conceived not as tests of understanding, but as aids to understanding.... There is no point whatever in asking questions merely for the sake of asking them."
> Whitehead, 1966, pp.36-7.

Admittedly, multiple choice questions have their shortcomings. For example, they pre-structure the problem to some extent, and test recognition rather than recall. Also they admit of guessing, however many plausible alternatives are offered. Where open-ended questions permit of a reasoned response they can make good some of these shortcomings and serve a very useful function. They allow the reader to express himself in his own words, and this is not possible in a multiple-choice question. Thus there is certainly a place for really searching open-ended questions in developmental reading programmes. The more variety there is in the type of questions the more the reader has to think and the more adaptable he should become. Moreover his interest is more likely to be sustained if the questions are varied.

In any event the emphasis in developmental reading courses is on intelligence, efficiency and economy. Not only does the reader read against time and with a constant sense of urgency prevailing, but also he records his answers quickly and precisely, thus enforcing attention and concentration all the time. Finally, more often than not, he marks his own work and records his own progress graphically, which all adds interest and purpose to the exercise when viewed from the learner's point of view. In short, the learner's motivation is sustained throughout, mainly because he has become the focal point of the learning situation and the onus is on him to learn, more than on the teacher to teach.

Another important development is that today the Readability Level of the material and the Reading Age of the learner are matched. Consequently, there is no danger of the reader being frustrated or bored by having to read material that is either too difficult or too easy for him. Passages written, or re-written, for the specific purpose of being included in a carefully graded set of developmental reading exercises are complete in themselves

and therefore satisfying. They avoid the pitfalls so pungently described by Whitehead:

> "More fundamental (and irremediable - author's brackets) than the unsatisfactoriness of the appended questions is the unsatisfactoriness of the extracts themselves. Despite claims to the contrary, these are seldom satisfactorily graded either for appeal or for difficulty. Worse still, they are almost invariably either too short or incomplete. Read in their original setting in the books from which they have been torn they might perhaps have more to offer; presented as they are in inglorious and fragmentary isolation the reading of them is bound to be a tantalising and depressing experience instead of an enjoyable and satisfying one."
>
> Whitehead, 1966, p.71.

Whitehead's tacit plea here, and in the earlier quotation, is for original and complete passages, supported by intelligent, searching questions, which will extend the reader's knowledge and understanding. In his view there should be more oral questioning, and discussion, than is commonly the case in schools at present. He obviously abominates the hybrid which is neither specific and testing on the one hand, nor original and good literature on the other.

I see his point, and I have a lot of sympathy with it. I, too, hate to see a good book mutilated by having an extract lifted from it and clumsily vivisected by a lot of superficial questions. But I am bound to say that I have tried precisely this approach myself in a truncated, experimental programme entitled, Ten-Up, which I have described briefly in 1.1, and that I found it highly successful in one respect: contrary to Whitehead's opinion, and no doubt his experience, and my own expectations, it *did* motivate children to read some of the original whole works of which the extracts used were but parts. An extract from Gerald Durrell's My Family and the Other Animals was very successful in this regard, and both the part and the whole were much enjoyed by 12 and 13-year old boys and girls in Standard 5. I only abandoned the approach in favour of the original stories in Double-Up because (1) I wanted third year student teachers to experience directly and fully the difficulty of writing to a tightly controlled vocabulary, sentence length and story length, while still retaining

a measure of spontaneity, originality and freshness; (ii) it proved virtually impossible in recasting to preserve the vivacity and wit of the original: for one thing extended dialogue is precluded because it breaks up the regular pattern of eye-movements which it is one of the objects of developmental reading programmes to establish; and for another a situation like some of those in My Family and Other Animals can be so funny that some readers have to stop to laugh, which of course infects and distracts others and dissipates some of the urgency and concentration that should characterise the silent reading part of a developmental reading period. I do not mean to suggest that there is no room for humour in a developmental reading programme; far from it. But the stories must not be so riotously funny that the class pauses to laugh uproariously. The humour must be quiet, I think, and if the class are to enjoy it as a class it should be when the story is read aloud afterwards, in other words after the class has read it silently and answered the questions. This is when the class can relax and share the joke - which should be all the funnier for being read aloud - with one another and the teacher (see 7.1 , p. 356). Unfortunately all too few developmental reading programmes afford opportunity for this so important oral work which both consolidates ground covered in the silent reading session and extends pupils' knowledge and enjoyment.

Whether passages are original or adapted, there is always a danger when writing to a carefully controlled vocabulary and sentence length that the final product will seem flat and colourless - "written to a formula", in fact. The simple word is often the best word, but if, for example, we substitute "unhurt" for "undamaged" in the sentence "The gun roared and kicked, the snipe flew away undamaged, and Larry with a yell of fright fell backwards into the irrigation ditch" we lose a subtle nuance and a modicum of the humour in the passage from My Family and Other Animals referred to above. What Flesch says in trenchant criticism of the Look-and-Say, or Whole Word, method of teaching reading, as opposed to the Phonic method, can be extended to further reading, if only to make us aware of the dangers of oversimplifying texts.

> "The great game of vocabulary cutting has been the main idea of the reading 'experts' for the past ten or fifteen years....
> "The truth is...that any normal six-year-old child loves to learn letters and sounds. He is fascinated by them....The fun in reading lies in the great game of deciphering a hidden meaning - just as the fun in writing lies basically in encoding a message....
> "To me, those artificial 'stories' (in Look-and-Say readers) are in themselves proof that the word method is no good....
> "Reading...doesn't mean recognizing twelve hundred words by sight. It means being able to decipher and understand any word within one's vocabulary and the vocabulary of an average college freshman, for instance, has been estimated by Seashore to be 158,000 words. How does a child or a teen-ager learn to read 156,800 (sic) words he hasn't met in his three basic readers? There is only one way: he has to know something about phonics."
> (The emphases are Flesch's, the parentheses mine.)
>
> Flesch, 1955, p.58, p.74, p.129 and p.131.

Thirteen years later Jesse Reid makes the same point, but notes that new research into psycho-linguistics

> "constitutes a promising breakaway from what he (Roberts, G., 1967 - author's brackets) has elsewhere described as an over-preoccupation on the part of research workers with the lexical and mechanical aspects of learning to read."
>
> Reid, 1968, p.144.

It must be remembered, too, that a developmental reading programme should expand vocabulary so that the child's mental horizons are extended and his concepts enriched:

> "I have found that most of these slow-learning children are without a sufficient vocabulary to enable them to understand what is put before them. My complaint is that the result has not been an intensive effort to improve their knowledge of language but an increasing amount of published material produced in order that they can work with the vocabularies they have."
>
> A Correspondent, T.E.S., 12th April, 1968.

This, then, is the very real danger of writing to a controlled vocabulary, and a strictly enforced level of difficulty: one risks losing spontaneity, vitality and precision. And the more elementary the programme the more difficult it is not to be constrained by these factors. I do not think it is desirable, or profitable, to attempt to write, or compile, a really vivid and entertaining set of stories of, say, fifty passages at a readability level according to the Spache formula of less than 9.0, or to set really challenging and searching questions on material of a lesser readability level.

Furthermore I do not think that it is educationally sound to launch a child with a Reading Age of less than 9.0, or even 10.0, on a strenuous course of what in most programmes is virtually unrelieved silent reading. He is not intellectually or socially or emotionally ready for it. At this still rudimentary level of proficiency he needs, and indeed wants, to read aloud, to an audience if possible.

2.9 Caveat

Developmental reading is not a remedial or corrective tool. It should be used primarily in the service of normal pupils who are achieving nearly up to, or up to and in excess of, their potential. Programmes and machines should only be used as corrective devices in the following circumstances:

(i) If instruction is completely individualised and the course handled by a qualified remedial reading teacher, or by someone who knows something about and who is in sympathy with reading failures.

(ii) If the programme itself is entirely individualised, as is the S.R.A. Reading Laboratory, and even then the course should properly be conducted by a remedial reading teacher.

(iii) If the programme can be modified in such a way that the less able pupils can work at a pace that suits them, and on material and assignments that extend them without distending them (see 7.1, pp. 359/365), and once again it is preferable that a qualified remedial reading teacher be in attendance.

Devices like the Controlled Reader and the Tach-X Tachistoscope can do more harm than good if they are used for large group instruction when there are children in the class who are retarded in reading, or even who are below the class average in a bright group. Such children should either be excluded from the group altogether, or given separate unobtrusive individual instruction, if this is possible, and similar goals but different assignments which are within their capabilities. If backward and retarded readers are not identified and treated differently from the rest of the group they will grow progressively more frustrated and will either disengage completely or become truculent. In any event they are likely to become behavioural problems and disruptive influences in the class simply because they cannot manage the work.

In this regard what applies to the pupil of normal ability and attainment who has occasional difficulty with aspects of reading instruction, applies even more pertinently to the backward and/or retarded reader:

> "Each of these programs is designed to be used with a minimum of teacher participation. In fact, there is little for the teacher to do except in cases where students are having difficulty performing the tasks assigned to them. It is my opinion, however, that these materials in their present form can be used more effectively as practice exercises (author's italics) after the teacher has taught the skills than as instructional lessons. No amount of practice in reading situations where difficulties are present can replace the guidance needed for learning new responses to them (my emphasis)."
>
> Karlin, 1964, p.61.

2.10 Summary

Developmental reading programmes and courses are designed to develop reading efficiency in the learner once he has achieved the basic skills necessary for minimal functional reading proficiency. The programmes are designed to develop competence and speed in silent reading, and they set out to do this by moving the reader systematically and sequentially through a series of graded reading exercises. In the hands of a capable teacher these should

(i) enlarge vocabulary,
(ii) improve concentration,
(iii) increase speed and accuracy,
(iv) improve motivation and attitudes,
(v) enhance comprehension,
(vi) broaden knowledge,
(vii) heighten understanding and appreciation, and
(viii) sharpen critical faculties.

The more the developmental reading course can be integrated with and extended by other communication skills - oracy, written expression, drama - and complemented by other subjects, the more successful and enjoyable it is likely to be, and the more far-reaching and permanent gains in reading efficiency should be.

CHAPTER THREE

THE EXPERIMENTAL DESIGN

"The effective control of such a matrix of variables challenges even the most sophisticated and advanced experimental designs."
Theodore Harris, 1969, p.1084.

3.1. Mounting the Experiment

Research into learning is always extremely difficult because of the multitude of variables which must be taken account of. When one surveys all these variables before one actually begins experimental work in the classroom, and contemplates the rigorous controls that must be continuously applied once the experiment is under way, one is daunted, and tempted not to start at all.

> "The control of variables, and ensuring that extraneous factors that are not included in the hypothesis are prevented from operating and confusing the outcome of the experiment, is difficult to establish. In the first place, the carrying out of an experiment must not violate the principles of good teaching. Secondly, there is a limit to the extent to which the human being can be manipulated for experimental purposes, and it is frequently necessary to compromise between what is administratively feasible and what is scientifically rigorous. The situation must not be so rigidly controlled that it becomes so artificial that the results are inapplicable and meaningless from the standpoint of the actual situation.... Nevertheless, control is essential since there would be no way of knowing what caused the results if it were not applied. The experiment must provide the basis for calculating the probability that the phenomenon which did occur was the result of the experimental factor rather than of the operation of extraneous factors."
> Richards, 1965, p.2.

Jeanne Chall, an authority in the field of reading research, confirms Richards's views.

> "It is incumbent upon the investigator to 'equate' the two groups in anything that may in itself influence results for good or bad. If this cannot be done when the experimental and control groups are first formed (and 'equate' being set in inverted commas suggests that it cannot - my brackets), it should be done through the use of proper statistical procedures when the results are analyzed."
>
> Chall, 1967, p.81

Despite the best efforts of the experimenter to "equate" the experimental and control groups, he must always fall short of infallibility. Consequently, Fisher's remarks are of some comfort:

> "Whatever degree of care and experimental skill is expended in equalizing the conditions, other than the one under test, which are liable to affect the result, this equalization must always be to a greater or lesser extent incomplete and in many important practical cases will be grossly defective."
>
> Fisher, 1949, p.19.

Nor can "statistical procedures", however sophisticated and vigorous, reveal the complex totality of improvements which a purposive, systematic and integrated course of instruction can effect. For example, statistical techniques cannot measure adequately changes in attitudes. As Sally Berkey says in an article entitled A Successful High School Developmental Reading Program,

> "The majority of our students make gains which cannot be measured statistically."
>
> Berkey, 1967, p.43.

So, however meticulous and exacting the experimenter is, he must be careful in his interpretations and cautious in his conclusions.

At this juncture Vera Southgate offers sound advice. What she says of research into the teaching of reading to beginners applies equally to the teaching of further reading to older children:

> "Researchers designing experiments with different approaches to reading in different schools or classes should consider the need to match many more of the variables than has usually been the case. And teachers whose attention is drawn to these interacting variables will be better able to evaluate the conclusions drawn from such experiments.... Experimenters obviously cannot control or match all of the relevant factors present in the reading tuition-learning-situation. Some order of priority of variables must therefore be established with those factors most closely affecting reading progress at the top of the list.... The aim should be to match the total reading formulae of classes as closely as possible." (The emphases are mine.)
> Southgate, 1968, pp. 23-9.

The following are the principal variables which have reference in this experiment:

(i) socio-economic background and size of family;
(ii) whether children were boarders or day scholars;
(iii) type of school, private or government;
(iv) numbers of children in the class and whether classes were streamed or unstreamed;
(v) ages, innate abilities and attainments of pupils in each class;
(vi) pupils' scholastic history, including the number and location of schools attended.

Much of this data was obtained from an analysis of the questionnaires which the children completed at the termination of the tutorial period, and which is summarised under 3.5. In fact, there was no great difference in the various experimental and control classes between either size of family or socio-economic status of parents (as revealed by the occupation of the breadwinner in the family), and certainly not sufficient difference between groups to warrant special consideration of socio-economic factors in the matching of groups. Since all five schools had a similar quota of boarders, this difficulty fell away too.

Practical difficulties severely limited the choice of schools and the programmes to be used in them. Firstly, there are only ten European schools in Grahamstown, one of which is Afrikaans medium and therefore unsuitable for this experiment. Secondly, eight of the other nine schools are segregated by sexes, five being Boys' Schools and three being Girls' Schools. It was obvious that I could not teach outside Grahamstown because of the distances involved. One of the Girls' Private Schools could have been approached, of course, but this would have introduced yet another variable, namely the difference in sexes, and since it was impossible to achieve the experimental ideal of both boys and girls dispersed throughout the ability spectrum in large unstreamed classes, it seemed preferable to settle for a sufficient number of boys of all abilities rather than girls because research on both sides of the Atlantic has repeatedly revealed that boys are not as advanced in linguistic attainment as girls at this level.[1] Therefore, it could be argued legitimately that if developmental reading benefited boys it should also benefit girls, at least equally.

[1] "Most studies of reading achievement, especially of the lower elementary grades, have found that girls perform better than boys. Reading failures are also more characteristic of boys. The reasons given vary; some writers favour a social-cultural explanation, mentioning, for example, that most teachers are women or that reading materials and methods are more interesting to girls. Others cite developmental differences, stating that girls at the same chronological age have more advanced 'brain organisation' or are more mature physiologically."

Chall, 1967.

"In reading, differences between the mean scores for boys and girls decrease as the children get older, but girls remain in the lead over the three years (Standards 2-4; 8.0-10.0). At the second year junior stage only, was this difference statistically significant.... Since sex differences in the number of 'poor' and 'good' readers in relation to age are probably of even greater interest to educationists than differences in the general reading standards of boys and girls, this question was also considered.... In March, 1955, when the average age of the children was eight years seven months, there were considerably more poor boy readers and fewer poor girl readers than might have been expected (P=0.001). A year later this sex difference had been reduced but it was still significantly in favour of girls (P=0.01), whilst, in March 1957, a further reduction had taken place so that the number of boys with poor reading ability was only just significantly greater than that of the girls (P=0.05)."

Morris, 1966.

It would have been preferable to use only Private Schools because these attract children of similar background, and because classes are comparable in numbers, composition, and spread of innate ability and attainment, while aims, curricula and methods of teaching are similar. But at least three schools with an annual enrolment of thirty or more boys were needed and since one of the three Private Schools had only fifteen boys in Standard 5 (the level at which it was proposed to experiment), we were forced to turn our attention to the Government School.

At this stage a switch to Standard 6 classes was contemplated but boys in these classes are in the Senior Sections of the four local schools and work under greater pressure because of the ubiquitous examination system and because teaching is even more formal and specialised at this level than at the Standard 5 level. This is particularly true of the Private Schools where fee-paying parents tend to measure progress by marks and positions, and finally by national examination results. Since the Headmasters of these schools are answerable to a Board of Governors, they have to provide the sort of education that the parents desire for their children. Thus the Headmasters have to ensure that their pupils are learning as hard and as fast as they can for as much of the school day as possible. Teachers teach under similar pressure in order to get through the considerable syllabus and be implicitly assessed by the same examination results on which their pupils pass or fail.[1] Consequently there is precious little time for experimentation in education, or for cultural activities. Another objection to using Standard 6 classes was the fact that both Standard 6's at one of the schools it was proposed to use had already embarked on S.R.A. Reading Laboratory courses. So it was decided to use Standard 5 classes.

[1] "Many teachers are convinced that the surest way to obtain good results is to give out dictated notes - and, as a Chief Examiner once remarked in my hearing, 'I have examined some very competent teachers in my time'."
Whitehead, 1966, p.245.

Once it was resolved to approach the Government School, another variable was introduced. Government Schools in the Cape Province work to a four term year, while Private Schools work to a three term year. This caused the discontinuous period of tuition on the three reading programmes to differ considerably. At School E I taught for three weeks from Monday 27th May to Friday, 21st June, and then for another nine weeks from Tuesday 16th July to Friday 13th September, and finally for the last six weeks from Tuesday 8th October, to Friday 15th November. On the other hand, at School F I taught for eight weeks from Monday 27th May to Friday 19th July, then for a week and a half from 29th May until 6th August, the end of their second term, and finally for a continuous period of ten and a half weeks from Thursday 5th September to Friday 15th November. (The teacher teaching to Double-Up at School AB in King William's Town followed a pattern similar to mine at School E, while the two teachers teaching Double-Up at School C in Grahamstown followed my pattern at School F.) It will thus be seen that, although the breaks for vacations and examinations were differently spaced in the tutorial continuum, the breaks themselves were of similar duration and probably no more disruptive in one school than they were in the other. (Nor were progress and results affected to any significant extent in Schools AB and C.) It should also be borne in mind that it would have been physically impossible for the same teacher to teach all classes for the same periods at the same time every day, any more than it is possible to teach different groups of children the same thing in exactly the same way on separate occasions. In fact, it was only possible to equate aggregate teaching times and periods, from week to week, as far as possible.

Two further points made by Vera Southgate are important in this context:

> "I think that the most decisive factor influencing childrens' reading progress is the beliefs and attitudes of the staff about the importance of reading.... I am convinced that competent teachers of reading, with a strong belief in the importance of reading, produce good results whatever the combination of factors in their classes.... The experiments of Harris and Serwer (1966) led them to conclude that the time spent on reading instruction was an important variable affecting reading progress and possibly more important than the instructional methods employed."
>
> Southgate, 1968, p.27.

I ensured that the time spent on direct S.R.A. and E.D.L. instruction, and the time spent on ancillary supportive activities, was the same from week to week in Experimental Groups E and F. So on the first experimental leg both of the above conditions were fulfilled in the experimental classes in which I taught. I could not stipulate what formulae were to be followed in the Control School D; indeed my experimental purpose required that I describe rather than prescribe what went on there during English periods.

Unfortunately, it was impossible to control the three experimental classes in Schools AB and C as carefully in respect of these two conditions. In the first place, the teachers (and the type of school and pupil) were different; and in the second place, Group B was only able to complete up to Test 6 whereas Group C finished a full two-thirds of the programme, up to Test 7, in 6 months: clearly, therefore, Group C either spent more time on comprehension or less time on discussion and complementary activities than Group C. It must be remembered that School AB was 80 miles from the centre of operations, and therefore it was impossible to hold regular meetings with the staff:

> "Regular meetings at intervals throughout the research project can help to ensure that agreed methods and procedures are continued. For, as Morris (1966) and Chall and Fieldman (1966) note, teachers rarely do what they say they do."
>
> Ibid., p.29.

Nevertheless, I was able to visit the school twice during the tutorial period of 6 months, in July and again in August, and each time what I saw of actual lessons in progress, and children's records, satisfied me that Mr D was working on the same lines as Mrs T and Mrs M at School C. In the event, on the second experimental leg, what differences there were in size and background of class, teacher approach and time spent on the programme, did not make much difference to the results, as will be seen in due course. But where there were significant differences between Experimental Group C and Experimental Group B, as well as between Experimental Group C and Control Group A (see pp. 416-7), it is not possible to attribute these to the developmental reading programme. They could have been due to the difference in teachers, or the difference in the social milieu of the pupils, or the difference in school regime, or the difference in the size of the classes, or the difference in peer-group aspirations and pressures, or to a combination of two or more of these factors.

However, if it was a disadvantage not to have the same teacher teaching all three Double-Up experimental classes under the same roof, having different teachers in the three classes, but nevertheless teachers with whom the boys were thoroughly familiar rather than an entirely new face, must have reduced the notorious "Hawthorne Effect".

> "Both the teacher and the class are likely to be affected (by the novelty of the experimental method) and any unconscious motivation attributable to the 'Hawthorne Effect' would possibly be of a higher order in the experimental class due to the greater publicity and attention given to it. The teacher could well display more than usual pleasure and approval, so raising the pupils' motivation to a conscious level. Rosenbloom (1961) goes as far as to claim that '...in educational experimentation, no matter what the hypothesis is, the experimental classes do better than the control classes.'"
>
> Richards, 1965, p.9.

Jeanne Chall supports Rosenbloom's view:

> "The innovators I observed, no matter what their new approach, had the spirit of pioneers.... It was hard to get the new innovators to admit that some children were failing under the new approach. They were all convinced that they had attained better results since initiating the new program."
>
> Chall, 1967, p.272.

As she says further on,

> "Good teachers are constantly searching for good methods."
>
> Ibid., p.309.

While no doubt this is true in large measure of all teachers who engage in experimental work, it must be less true of regular teachers on a school's establishment than it would be of someone like myself coming in from outside, moreover with a vested interest in the programme under test.

> "In the case of taking advantage of conditions which already exist there is no artificiality as members of the classes work in their normal environment."
>
> Richards, 1965, p.5.

There is another attendant advantage about the design of the present experiment. A tutorial period of 20 weeks spread over 2-3 terms should be long enough to admit of measurable gains, and long enough to allow the effects of novelty to wear off.

> "The courses should be of sufficient duration to ensure that changes are sufficiently noticeable for measurement. The fact that the variable of novelty would be neutralised to some extent is an added advantage of the course of reasonable length."
>
> Ibid, p.8.

Finally the choice of which programme to launch in which school was restricted by the fact that E.D.L. had to be taught in School F because this School was the only institution in Grahamstown which had the two expensive machines through which the programmes

are presented. Since School E was the school at which the S.R.A. Reading Laboratory had already been introduced at the Standard 6 and 7 levels, it was decided to launch S.R.A. IIIA Laboratory in Standard 5 there because the pupils would then graduate to the IIIB Laboratory in Standard 6. Being at once familiar with the intricacies of the Laboratory, and practised in the method of working through it, they would be able to start at the higher level the following year with maximum effect. Previous knowledge and skills acquired would stand them in good stead and progress would be more or less continuous.

Accordingly the three schools concerned were approached in good time and tutorial programmes mounted as set out in Table 2. For these groups the Control Group was a large Standard 5 group drawn from one of the elite schools in the Eastern Province. Socio-economically this group appeared to have a slight edge on the experimental groups in Schools E and F (see Table 13), and it was a far bigger group. However, I was able to split the three Standard 5's in this school into two control groups, and thereafter I was able to match all control and experimental sub-groups in ability and attainment, and nearly numerically, although this was not achieved without considerable calculation and manipulation.

	Std. 5A	Std. 5B	Std. 5C	Total Tested	Total Used
School D (Control)	40	35	29	104	100
School E (Experimental: S.R.A.)	23	22	-	45	44
School F (Experimental: E.D.L.)	20	16	-	36	36

TABLE 2

"Total Tested" represents the actual numbers of boys tested in May, 1968. Absenteeism, migrancy, matching and educational subnormality reduced the numbers to those set down under "Total Used".

The second experimental leg was then mounted, though here one of the experimental classes, and the control class for all three experimental classes, were located in the same School AB, the Control and Experimental Classes being designated A and B respectively. The two Standard 5's in this school were parallel and unstreamed which was ideal from an experimental point of view.

	Std. 5A (Unstreamed)	Std. 5B (Unstreamed)	Total Tested	Total Used
School AB Group A (Control)	43	-	43	41
School AB Group B (Experimental: Double-Up)	-	43	43	41
School C (Experimental: Double-Up)	(Streamed) 24	(Streamed) 23	47	46

TABLE 3

The discrepancies between "Total Tested" and "Total Used" are accounted for by migrancy or illness.

There were additional variables of which I was well aware, but which I could not control if the project was ever to get under way. The chief of these are implicit to some extent in (ii), (iv) and (vi) above.

> "The most important school variable of all is the teachers....After the attributes of their population and material conditions had been considered, each school's success or failure in promoting good reading standards and/or progress seemed to depend primarily on the quality of its head and secondarily on that of its staff."
>
> Morris, 1966, p.72.

> "The teacher is a crucial variable in reading instruction."
>
> Theodore Harris, 1969, p.1085.

Though it was possible to ascertain the number of schools that children had attended, it was impossible in the time available and with such small numbers, either to ascertain or equate the quality and the status of these schools, particularly since a developing country like South Africa has a fairly mobile labour force and consequently a large turnover of pupils in its schools (see Table 12 on p. 115). Ideally one should know not only the number of schools attended by each child but also the number, qualifications and qualities of each teacher he has had in each year prior to the experiment (Primary Schools have a high turnover of staff due to marriage among their predominantly female establishment, and fairly rapid promotion among the male teachers; also, many of the married women who make up the back-bone of the teaching profession in Primary Schools are two-year trained, and, although one must assume that the third year of training increases a teacher's competence, it would be wrong to impugn the quality of the two-year trained teacher on this score). Furthermore in any experiment dealing with reading it is important to know what method of beginning reading was used in the child's first three years of education, the first two in the Infant Classes, or Sub-standards, and the third in Standard 1, the vital transition year to the more formal regime and curriculum of the Junior School.[1] Then, too, it is important to know what sort of reading environment he has enjoyed both at school and at home from Infants 1, or Sub-standard A, through to Standard 5. While the latter is not likely to have changed much, unless the child's parents have divorced, separated or died, the former differs considerably from school to school, and sometimes from class to class in the same school. Things like the number, suitability, availability and condition of books in the class or school library, the quality, variety and purpose of illustrative material around the classroom and the frequency with which it is changed, are vital motivating forces in every classroom.

[1] Joyce Morris describes the case history of a little girl who made excellent progress in reading throughout her two years in Infant School, but who was classified as a retarded reader at the end of her first year in the Junior School: as far as could be ascertained, she grew to hate reading because of her dislike of her Standard 1 teacher. She was of slightly above average intelligence and when she came into the charge of a perceptive and sympathetic teacher whom she liked and respected, she quickly made up leeway and finished the year reading well up to her chronological age.

Morris, 1966, pp. 288-295.

The ingenuity and skill of the teacher in devising a variety of supplementary consolidational reading materials and activities such as flash-cards and word games is also tremendously important.

> "One of the reasons why some poor readers do not retain what they have been taught in reading lessons may be in fact that they are not provided with incentives and reinforcement in the form of related, follow-up activities."
> Ibid., p.238.

Even if it had been possible it is doubtful whether it would have been worthwhile to attempt to assess and describe, let alone equate, all these variables. For example, any attempt on one observer's part to evaluate anything as complex and subjective as teacher competence must be both controversial and suspect. It is always difficult to know where to stop in any research into human learning, particularly when the research is undertaken in the field instead of the laboratory, but if one is exacting to the point of pernicketiness, one risks losing sight of the wood for the trees and of getting thoroughly discouraged into the bargain. So I confined myself to defining and attempting to control the major variables enumerated above.

3.2 The Testing

In a study of this sort the importance of the initial and final testing programme is obviously crucial. What should the experimenter test, and how should he test it? What tests should he use? Should they be individual or group tests? How much time should he budget for, and if one school is unwilling to grant him the time or the facilities which he seeks, how far can he modify his testing programme in all schools so as to obtain the minimal data necessary to proceed with the tutorial programme?

In order to assess adequately linguistic ability and achievement it seemed wisest to draw up a list of essentials and desirables and to rank these in order of priorities, always bearing in mind that "Valid tests which prove satisfactory homogeneity must be administered so that subsequent interpretation of results may be based on firm foundations." (Richards, 1965, p.6)

Thus:

Essential

1.	A group test of silent reading ability:	Schonell - 15 mins.
2.	A group test of verbal intelligence:	N.B.E.S.R.T. - 27 mins.
3.	A group test of vocabulary attainment:	N.B.E.S.R.T. - 12 mins.
4.	A group test of spelling attainment:	Schonell - ± 45 mins.

Desirable

5.	A group test of verbal reasoning ability:	Moray House - 45 mins.
6.	A group test of attainment in English:	Moray House - 45 mins.
7.	An individual word reading test:	Schonell, Vernon, Burt or Holborn - probably 5+ hours per class of 35 pupils.
8.	An individual test of speed, accuracy and comprehension:	Neale Analysis - probably 6+ hours per class of 35 pupils.
9.	A group test of speed of silent reading:	N.F.E.R. Continuous Prose Test[1] - 7 mins.
10.	A group test of non-verbal ability:	N.B.E.S.R.T. - 28 mins.
11.	A group test of personality:	California Test[2] - ± 1 hour.

[1] "The test is intended largely to be used where teachers feel that this aspect of reading needs investigating and any evaluation of results must at least at this stage (1965), be subjective. It is hoped ultimately to establish typical rates for children at different points in their secondary schooling (British children in Forms 1-6 are roughly the same age as South African children in Standards 5-10), but so far little data is available."

Manual, 1965, p.1

[2] "Personality factors are clearly of fundamental importance not merely in helping to define the limits of an individual's ability but also the special talents he develops and the style in which he engages in his characteristic pursuits. 'Personality' variables - whatever they may be - are yet another determinant of thought processes."

Thomson, 1966, p.201

I cite the California Test merely because it is an example of the kind of questionnaire-type personality test that I might have used, not because it is necessarily the test that I would have chosen to use.

The more measures of ability and attainment in English in general and reading in particular that I could get the better I would be equipped to discuss changes in performance which might result from the developmental reading courses, but it was obvious that I would not have the time to administer all eleven tests to all of three hundred or more children. At this stage, then, two main factors determined the final choice of tests:

(i) Time: since it was necessary to test all the children in as short a period as possible to equalise opportunity for achievement at the start, the pupils being distributed in five schools in three different centres, and since I would have to start teaching as soon as possible in order to get in twenty weeks teaching before re-testing at the end of the year to ascertain gains (I reckoned that twenty weeks teaching, or sixty hours' work on a programme was the minimum necessary to achieve statistically significant gains), it was obvious that I could not really afford more than a day testing in each school; furthermore, if all the children in a particular group could be tested on the same day absenteeism would not reduce numbers.

(ii) The availability of tests that had been standardised locally: if I wished to see whether my samples were representative of South African English-speaking European children I would need to use South African norms.

I now drew up my basic testing programme, and resolved to include as many tests from the supplementary list as time permitted:

TEST PROGRAMME (in order of administration)

Primary or Core Tests

1. New South African Group Test (N.S.A.G.T.), Intermediate[1], the three sub-tests of Verbal Intelligence,

   (i) Classification of Pairs of Words (7 mins.)
   (ii) Verbal Reasoning (15 mins.)
   (iii) Analogies of Words (5 mins.) ..... 27 mins

2. South African Silent Reading Group Test (S.A.S.R.G.T.), Junior Form A (May) and Form B (Nov.), the first three sub-tests,

   (i) Vocabulary (12 mins.)
   (ii) Comprehension of Paragraphs (24 mins.)
   (iii) Comprehension of Sentences (18 mins.) ..... 54 mins

3. Schonell Spelling Tests S1 Test A (May) and S2 Test B (Nov.) ..... 45 mins

   Time allowed for instructions and rest periods ..... 54 mins
   Total 3 hours

Secondary or Supplementary Tests

4. Schonell Silent Reading Test R4[2] ..... 15 mins

5. Moray House Verbal Reasoning Test 66 (May) and 60 or 66 (Nov.) ..... 45 mins

6. Moray House English Tests 35 (May) and 34 or 35 (Nov.) 45 mins

   Time allowed for instructions and rest periods ..... 45 mins
   Total 2 hours 30 mins

In theory it would seem nearly possible to cram all six tests into a 5 hour teaching day. In practice, however, I had my work cut out to get through the Core Tests in a morning. Firstly, there was the problem of numbers and getting all children seated, settled, equipped with pencil and rubber, "breaking the ice" and briefing them briefly as to the purpose and operation of the test.

[1]Since there was no parallel alternate Form, the same Form, namely the Intermediate, was used in May and again in November.

[2]Since there was no parallel Test or Form available, the same Test, namely R4, was used in both May and November.

Secondly, the issue and collection of test booklets, and answer sheets where necessary, occupied considerable time. Thirdly, the dictated Schonell Spelling Test took longer to administer with large numbers (there were 105 in School D and 86 in School AB) because it was necessary to go very slowly and repeat oneself more than would be necessary in a smaller group. It would have been preferable to test the boys in their separate classes, but there was not sufficient time. In fact, it was only in Schools AB and C that I was able to complete the Supplementary Tests as well, and in both May and November this took an additional half day. I departed from my Core Test schedule insofar as I switched the S.A.S.R.G.T. with the Schonell Spelling Tests in order to vary the type of thinking and response required of the testees, and give them a change from concerted silent reading.

The next step was to draw up the Test Timetable below. As can be seen it was necessary to work to an extremely tight schedule and on the days that I travelled to King William's Town and Port Elizabeth I was on the road at 6.00 a.m. In addition, I had to fit in with the end-of-year exams which made time-tabling and testing more difficult. However, everything went according to plan, thanks to the cheerful co-operation of all concerned.

TIMETABLE

Initial Testing	Final Testing
Friday 10th May - School AB	Friday 22nd November - School D
Monday 13th May - School AB	Monday 25th November - School E
Wednesday 15th May - School D	Tuesday 26th November - School F
Thursday 16th May - School F	Wednesday 27th November - School C
Tuesday 21st May - School E	Thursday 28th November - School AB
Friday 24th May - School C	Friday 29th November - School AB
Saturday 25th May - School C	Saturday 30th November - School C
I began teaching at School F on Monday 20th May, and at School E on Monday 27th May.	I stopped teaching at Schools E and F on Tuesday 19th November.

TABLE 4

Carbon copies of the results of the tests were made available to Schools AB, C, D and F, together with some comments and tentative diagnoses which I thought might be helpful to the teachers concerned, (see Appendix E , pp.483-5).

3.3 The Tests

No single test, nor battery of tests, is perfect. At best a standardised test of ability or attainment is only a rough measure of the testee's achievement at a particular point in time, and it is wrong to ascribe absolute validity or reliability to any test result. My experience with the N.S.A.G.T. in School C in particular proves this. The correlation between the Standard Scores (V.I.Q.'s) achieved by 42 boys in the combined Standard 5A/5B in May and November was a moderately high .785 (see Scattergram and Calculation in Appendix D, p.481), while the correlation for Sub-group C(1) (N.16, May mean 120.5, Nov. mean 129.6) was a moderate .602. Thus the most intelligent 25% of boys in the combined Group C (Standard 5A/5B) varied the most, from which it may be inferred that the more intelligent the child, the more improvable he is. These fluctuations occur after a mere seven months in a cognitive area which is supposed to be relatively stable in its tested form.

> "The error of measurement is an index of the variation in I.Q. which is due to chance. By taking the error of measurement into consideration, the score can be seen as lying in a range which includes the scores which would be obtained from many applications of the test, rather than the score obtained from one specific application....
> "From Table 7(a) the error of measurement for the total score of the combined group is 5.7 for raw scores and 3.0 for standard scores or I.Q. points. That means that the chances are 2 in 3 that the score obtained on retesting will not differ from the original score by more than 5.7 raw scores or by more than 3.0 I.Q. points."
> Manual for N.S.A.G.T., p.12.

In the combined Group C no less than 17 out of 42 boys, or 40%, differed by more than 10 "I.Q. points" between May and November, which is substantially more than the Standard Error of the test would lead one to expect.

Lest it be supposed that the correlation for Group C was atypical I calculated the correlations for Groups A, B, D, E and F as well. On the same formula they came out at .889, .834, .869, .847 and .899.

The relationship between the verbal intelligence quotients of the same groups of children tested on the same test within a relative short period of time was therefore moderate to high, but individuals within groups, particularly in the 110-140 range varied considerably. Furthermore, boys in the Experimental Groups varied more widely than boys in the Control Groups: only 15 of the 132 Control boys, or 11.4%, compared with 41 of the 160 Experimental boys, or 25.6%, increased or decreased by more than 10 points in V.I.Q. between May and November (most of the fluctuations were the result of gains among boys in the top 25% of the sample). In other words, there were twice as many wide fluctuations in the Experimental Groups as there were in the Control Groups, so it is possible that exposure to developmental reading courses exaggerates changes in V.I.Q.

In order to gain a further insight into the differences between the gains made by Control and Experimental Groups on the N.S.A.G.T. I calculated the difference between the mean gains effected by the Control Group and the two Experimental Groups on the Double-Up experimental leg, and the mean gains made by the Control Group and the two Experimental Groups on the S.R.A.-E.D.L. experimental leg, both at the coarse Phase I Level. The analysis of variance on the Double-Up experimental leg for 39 Control boys and 41 and 44 Experimental boys yielded an F value of 4.14. Since 4.14 3.[illegible], but 4.78 (F .05/.01 for numerator 2 and denominator 121 df = 3.07/4.78 approximately), I concluded that there was a significant difference among the 3 mean gains. I then calculated the difference between the mean gains of the three groups and found that the only significant difference occurred between the two Experimental Groups, B and C: since 2.73 2.54 (but 3.09) the difference was significant at between the 5% and 1% levels. I decided that part of this difference at least might be the result of test sophistication: Group B was more familiar with the N.S.A.G.T. than was Group C, having completed it during 1967 with the Regional Educational Psychologist, and therefore would not be likely to make as great gains on the retest as Group C. The Standard Error of the test, too, might help to account for the difference. Nevertheless it confirms that individuals, and whole groups, can vary considerably

in measured verbal ability, even in the space of a few short months. The analysis of variance on the S.R.A.-E.D.L. experimental leg for 95 Control boys and 42 S.R.A. and 33 E.D.L. Experimental boys yielded an F value of 2.69. Since 2.69 3.05 (F .05 for numerator 2 and denominator 167 df = 3.05) there is no difference among the mean gains in this case.

If one accepts that tests of verbal ability measure what has been done as much as what can be done, and that so-called verbal intelligence is largely verbal attainment,[1] then the reason for the individual variations in performance is apparent: just as Group C, and in particular the boys in Sub-group C(1) improved on the N.S.A.G.T., so too did they improve on the Schonell Silent Reading Test R4 and on the two Moray House Tests (see 7.5, p. 411). The correlations between these three tests between May and November were .701 (Schonell S.R. Test R4), .766 (M.H.V.R.T. 66 and 60), and .867 (M.H.E.T. 35 and 34), very similar to the correlations achieved on the N.S.A.G.T. These correlations compare very favourably with a correlation of .88 between the 3 verbal sub-tests of the N.S.A.G.T. and the S.A.S.R.G.T., which was the degree of agreement obtained when 459 boys and girls were tested on both tests during the standardisation of the two instruments, (see Manual for N.S.A.G.T., p.13). I maintain, therefore, that all the tests that I used were substentially tests of scholastic attainment, and that the three Verbal sub-tests of the N.S.A.G.T. are no more tests of purely innate verbal ability than chess and bridge are tests of pure skill; further, that verbal ability can only be measured in terms of attainment.

I calculated a number of other Correlation Coefficients, using the same Product Moment method and formula (see Appendix D , p. 481). These are set out in Table 5 below. Noticeably the correlations are nearly all of the same order, namely, .6 to .7. Only once does it rise to .8. It seems, therefore, that these tests all tap

[1] "Our intelligence tests measure developed intelligence more or less effectively, and I myself would maintain that no test can reveal the innate potential."
Prof. P.E. Vernon in a letter to The Times Educational Supplement, 6th June, 1967.

the same reservoir, and they are all valid measures of linguistic achievement, and reasonably reliable into the bargain. But just as obviously it would be unwise to predict what a particular boy's Verbal Intelligence level might be on the basis of, say, his Reading ability, and even more unwise to predict his V.I.Q. from his Vocabulary score. None of these correlations is as high as those achieved by Groups A, B, D, E and F on the test (May), re-test (Nov.) of the N.S.A.C.T. In fact they are of the same order as the test re-test of the Schonell Silent Reading Test R4 (.701) and the Moray House Verbal Reasoning Tests (.766), though lower than the Moray House English Tests (.867). I was surprised that the correlation between the Moray House V.R. and English Tests, and between the Moray House V.R. and Schonell S.R. Test R4, was not higher: indeed I calculated them in the expectation that they would be higher than the first order correlations between these tests and the N.S.A.C.T. However, the fact that they are only moderate, although all three tests were devised and standardised in Britain, confirms the imprudence of predicting performance in one area on the basis of performance in another area. Though the two areas may overlap, and the two performances have a lot in common, there may be a substantial difference between them in at least 25% of cases, if these figures are accepted. The numbers involved are not large - 41-43 comparisons in the case of Control Group A, and 83-88 comparisons in the case of Experimental Groups B and C - but the degree of agreement in all cases is sufficiently similar to support the conclusion that verbal ability is multi-faceted and that success in one area does not automatically lead to similar quantitative success in another area. Had I been able to give the Schonell and Moray House tests to Groups D, E and F I do not believe that their correlations would have been any different. Nor do I believe that the correlations between V.I.Q. and Paragraphs and Sentences would have been any higher than between V.I.Q. and Schonell S.R. Test R4. Inspection of scores achieved on both, in comparison with N.S.A.C.T. scores, suggests a correlation of the order of .6, and it did not seem worthwhile to work out the correlations precisely in view of the moderate agreement between Paragraphs and Sentences of .679 and .692 obtained with 270 Control and 319 Experimental comparisons (see pp. 77-8). They would certainly not have been as high as the overall correlation between the 3 sub-tests

of the S.A.S.R.G.T. and the 3 verbal sub-tests of the N.S.A.G.T.: for 459 boys and girls, and in about 1958, this came out at .88 (see Manual for N.S.A.G.T., p.13). I did not calculate the correlation between the Schonell Spelling Tests and any of the other tests either, because I could see from inspection that it would not have been higher than .7 and more probably of the order of .5.[1]

Another point to emerge from this Table is that in 10 out of 12 cases the correlations between verbal intelligence tests and attainment tests were slightly higher in November than they were in May. Perhaps this slight convergence can be attributed to growing familiarity with the tests. It seems reasonable to suppose that practice will improve performance, and hence agreement between tasks requiring similar skills.

Otherwise the differences between the correlations achieved by the Control Group on the one hand and the Experimental Groups on the other are neither large enough nor consistent enough to justify any firm conclusions in favour of one or other Group.

[1] Nevertheless there is no doubt that spelling and reading are generally related, as a correlation of this order suggests.

> "Reading and spelling are closely associated because many of the abilities required for one are also required for the other. The correlation between scores on reading tests and scores on spelling tests usually falls in the range of .80 to .85 (Nellie L. Peake, Relation Between Spelling Ability and Reading Ability, Journal of Experimental Education, vol. 9 of 1940, 192-193). This is a high relationship and indicates that good spellers who are poor readers or good readers who are poor spellers are comparatively rare. The vast majority of reading disability cases are also extremely poor spellers. Analysis of a pupil's errors in spelling often helps in understanding his reading difficulties, and remedial teaching in reading and spelling can often be carried on together with profit to both."
>
> Albert Harris, 1955, p.5.

> "The high positive relationship between reading success and spelling abilities has also been noted by many investigators in the United States as well as Malmquist's study of reading disability in the first grade in Sweden."
>
> Theodore Harris, 1969, p.1079.

Needless to say this is why I regarded a measure of spelling ability and achievement as essential in this experiment.

For example, in 6 out of 6 cases the correlations achieved by the Experimental Groups in November were higher than those achieved by the Control Group, but already in May the correlations achieved by the Experimental Group exceeded those achieved by the Control Group in 4 out of 6 cases. Then, although the correlations within the Experimental Group in November were higher than those within the same Group in May in 5 out of 6 cases, the correlations within the Control Group were also higher in November than in May in 5 out of 6 cases; and the differences between the 6 Experimental Group and the 6 Control Group correlations are slight, and only just favour the Experimental Group.

			V.R.G. Group A May	V.R.G. Group A Nov.	V.R.G. Groups B and C May	V.R.G. Groups B and C Nov.	E.G. Group A May	E.G. Group A Nov.	E.G. Groups B and C May	E.G. Groups B and C Nov.
V.I.G.	C'rol Group A (N=41)	May	.638				.798			
		Nov.		.705				.645		
	E'tal Groups B and C(N=87)	May			.672				.783	
		Nov.				.747				.812
V.R.G.	C'rol Group A (N=41)	May					.672			
		Nov.						.766		
	E'tal Groups B and C(N=87)	May							.640	
		Nov.								.788
			R.G. Group A May	R.G. Group A Nov.	R.G. Groups B and C May	R.G. Groups B and C Nov.	VOCABULARY Group A May	VOCABULARY Group A Nov.	VOCABULARY Groups B and C May	VOCABULARY Groups B and C Nov.
V.I.G.	C'rol Group A (N=41)	May	.692				.504			
		Nov.		.747				.562		
	E'tal Groups B and C(N=87)	May			.835				.537	
		Nov.				.758				.734
V.R.G.	C'rol Group A (N=41)	May	.568							
		Nov.		.583						
	E'tal Groups B and C(N=87)	May			.645					
		Nov.				.743				

TABLE 5

A developmental reading course may narrow the gap between potential and performance in allied areas and complementary skills, and so bring the student up to the mark, but these figures are inconclusive. Further investigation in this direction might prove productive, however.

Having analysed some of the pre-test results in order to get some idea of the reliability of the test instruments in this experiment, I now proceeded to examine the principal tests themselves in the light of my calculations.

Notwithstanding their limitations, standardised tests of attainment are useful measuring devices and fairly accurate predictors. Assuredly some tests are better than others, but unfortunately the weaknesses of particular tests often only reveal themselves during evaluation. This was my experience with the S.A.S.R.G.T. which I had confidently preferred to the Schonell Silent Reading Test R4 for use in Schools D, E and F, where I did not have time to give both tests. I chose it because it was devised for South African children and standardised in South African schools, and because it provided a measure of vocabulary acquisition and a double measure of silent reading ability, namely comprehension of (i) Paragraphs, and (ii) Sentences. However, I should perhaps have been warned by the vagueness and ambiguity of the Manual in this regard:

> "To a large extent Paragraphs and Sentences measure the same aspect, namely reading comprehension; therefore it will seldom be necessary to apply both these tests. Paragraphs are, however, a more reliable test, and are recommended for this reason, although the tester may find that under certain circumstances Sentences are the more suitable. Should the tester find that these two tests complement each other, he may use both."
>
> Manual for the Silent Reading Tests, 1963, p.19.

No figures are adduced to show that the Paragraphs sub-test is more reliable than the Sentences sub-test, and how the tester is going to find that the two complement each other without first using both is a moot point. In practice I found that there was little agreement between the results achieved on the two sub-tests and the Rank Difference correlations that I calculated in May came out at .03, .05, .09, .14, .21 and .31[1], while the overall Product-Moment correlations at Phase II Level (the second phase of the tabulation of results - see 3.4 hereunder, and Appendix B, pp. 472-5) in both

[1] These correlations must be qualified: on short 20 to 25 point scales a small difference in raw score can mean a considerable difference in rank, and hence to an unduly large reduction of the Rank Difference Correlation Coefficient.

May and November for the Control Groups on the one hand and the Experimental Groups on the other came out at a moderate .679 and .692. This is less than the correlations achieved on N.S.A.G.T. between May and November and does not engender confidence in the accuracy and reliability of the two silent reading comprehension sub-tests as measures of achievement, or progress. There can be little doubt that the test items are poorly graded (see Table 6 below). Of the 270 Control and 319 Experimental comparisons possible at Phase II Level, 130/270, or 48%, and 150/319, or 48%, varied more than 5 points/20% (5+/25 or 5(+)/20) from Paragraphs to Sentences in May and/or November; and variations were 6-7% greater for both Experimental and Control Groups on Form B (Nov.) than on Form A(May). Furthermore, of those who varied more than 5 points/20%, no less than 21 Control boys, or 8%, and 27 Experimental boys, or 9%, varied by 10 points/50% or more (12+/25 or 10(+)/20), 6% in all in May on Form A, and 10% in all in November on Form B. It would seem, therefore, that neither the Paragraphs nor Sentences sub-tests are parallel on either Form A or Form B of the S.A.S.R.G.T. (Junior). Nor do the A and B forms of either sub-test appear to parallel one another.

> "At least for research purposes, we must seek methods of developing truly parallel measures at different ages or, if this fails, finding statistical and other procedures for taking into consideration both the changing nature of a particular characteristic as well as the changing nature of the measurements of the characteristic."
>
> Bloom, 1966, p.219.

Significantly the Regional Educational Psychologist generally used only the Paragraphs sub-test. This test might be all right as a rough diagnostic tool but it proved to be inadequate for the purpose of measuring the gains in silent reading ability over a 6-month period. Indeed, on the evidence set out in Table 6 he might have been better advised to use only the Sentences sub-test, despite the Manual's unsupported claim that "Paragraphs are, however, a more reliable test". An appraisal of two items, one in Paragraphs (Form A) and the other in Sentences (Form A), may serve to substantiate the contention that the grading of items in Paragraphs is not comparable

Paragraphs/Sentences sub-tests,
Forms A and B. (May)

Paragraphs

Marks	C.G.F'cy	E.G. F'cy	Total		
25	1	3	4		
24	2	1	3		
23	4	7	11	116	
22	9	17	26		
21	16	22	38		
20	16	18	34		458
19	29	25	64		
18	16	29	45		
17	26	40	66		
16	26	26	52	342	
15	29	35	64		
14	16	24	40		
13	26	17	43	21	
12	14	17	31	22	
11	9	13	22		
10	5	5	10	117	
9	5	5	10		
8	5	7	12		
7	5	5	10		126
6	1	2	3		
5	5	1	6		
4	0	0	0	9	
3	0	0	0		
2	0	0	0		
1	0	0	0		

Sentences

Marks	C.G.F'cy	E.G. F'cy	Total		
20	0	0	0		
19	1	2	3		
18	6	2	8	50	
17	6	10	16		
16	8	15	23		295
15	16	23	39		
14	16	17	33	245	
13	18	34	52		
12	18	30	48		
11	41	32	73		
10	34	33	77		
9	31	31	62		
8	25	33	58	266	
7	18	24	42		
6	8	19	27		299
5	9	6	15		
4	10	5	15	33	
3	0	2	2		
2	0	1	1		
1	0	0	0		

TABLE 6

If these frequencies were represented graphically Sentences would be normally distributed whereas Paragraphs would be negatively skewed, and if the two frequency curves were superimposed there would only be ± 50% overlap, or agreement. The heavy negative skew reflects unfavourably on the grading of the items in Paragraphs when compared with Sentences.

to the items in Sentences. Noticeably no boys in either the Control or Experimental Groups got full marks for Sentences in either Form A or Form B, while four boys got full marks for Paragraphs on one or other Form. An error analysis revealed that more boys failed on item 24 of Sentences (Form A) than on any other item, so I compared item 24 with items 27, 28 and 29 of Paragraphs (Form A).

24. To what new fates, my country, far
And unforeseen of foe or friend,
Beneath what unexpected star,
Compelled to what uncertain end,
Across the sea that knows no beach
The Admiral of nations guides
Thy blind obedient keels to reach
The harbour where thy future rides.

In this passage the poet describes ...

A. his love for his country
B. the dangers that might assail his country from the sea
C. How many enemies are just waiting for a chance to attack his country
D. the unexpected happenings in the life of a nation
E. how a country's future is guided by Providence.

The poetic construction, and the poet's meaning being carried over eight lines, makes the sense of the excerpt elusive to an adult, never mind a Standard 5 child, and the five alternatives to the question do not make the testee's choice any easier. The perceptive child will certainly detect a love of his country in the poet's style, and the reverential "thy", so he may justifiably choose A. On the other hand, he might choose B with as much reason: "fate", "unforeseen", "foe", and "uncertain" all have a minatory ring about them, while "sea", "keels" and "harbour" leave no doubt that any danger that threatens will come from the sea. But "unforeseen" and "uncertain" might equally well tempt the reader to plump for D. He would need to be pretty well read and intelligent to link "fates" with "Providence"; and he would need to have insight beyond his years to catch the poet's metaphor in "the sea (of life)". (Lest the reader is now unsure himself, the correct answer, according to the marking stencil, is E.) The boys who guessed probably had a better chance of getting this one right than those who manfully battled with four extremely difficult choices.

The fact that perfect health is the normal state of man has often been overlooked in the past, and yet every hospital, every clinic, every doctor, surgeon and dentist is evidence that this is the case. The aim of each is to eradicate disease, illness, and other injuries to the body. Our Lord himself bore witness to this constantly in His teaching and in His miracles, and He taught that what sin is to the soul, is what sickness and disease are to the body. It is, therefore, necessary that everything possible be done to safeguard the health of the individual, of the home, of the village and the nation. In this the school can play its part by teaching children the laws of health, by establishing health ideals, and providing wholesome and healthy forms of recreation.

27. It says that we have doctors, dentists and hospitals because...

A. nobody can be perfectly healthy
B. there is too much sin in the world
C. people do not have enough exercise
D. the school does not play its part
E. we believe that everybody should enjoy perfect health

28. We are reminded that Christ himself taught us...

A. to keep our bodies clean and healthy
B. not to sin
C. study the laws of health
D. to love our neighbours
E. to look after the health of others

29. For whom do you think this paragraph was written?

A. Doctors
B. Dentists
C. Children
D. Teachers
E. Parents.

Apart from the ambiguous opening sentence - far from every hospital, every clinic, every doctor, surgeon and dentist being evidence that "perfect health is the normal state of man", the sentence is so ponderously constructed that all these facilities and specialists seem to testify just the opposite - this prose passage is obviously easier to understand than the equivalent passage of poetry in Sentences. The questions, too, are easier inasmuch as they do not require as much insight and language experience.

There are also a number of typographical errors in the B Form which admittedly are more irritating than damaging, but which, when taken in conjunction with the other faults of the tests, undermine one's confidence in them further. In Sentences we read "rumming" for "running" and "conscieous" for "conscious", while in Vocabulary we read "Devliverance means A. withdrawal B. betrayal C. confinement D. freedom E. suppression" and, worse still, "Insolvent means A. impudent B. coy C. bashful D. meek E. lonely". In the latter case the carelessness of the proof-reading is inexcusable because a youngster who knows perfectly well that "insolent" means "impudent" could lose a mark on this item unless the tester had gone through the test with a fine tooth-comb beforehand. But the error that undermines this particular user's confidence most is apparently one of translation from Afrikaans to English: No.4 of the Practice Examples for Sentences (form B) reads, "I was deeply moved when I saw the poor cripple hobbling along on crutches, and casting imploring looks at the passers-by, who hurried along on their sound legs without so much as glimpsing at their unfortunate fellow-being." An Afrikaans version of the last clause might read "wie op hulle sterk bene aangejaag het sonder om na hulle ongelukkige medemens te glimp nie." How easy for the inexpert translator to render "te glimp" as "glimpsing at" rather than "glancing at", and for the predominantly unilingual proof-reader to miss an idiomatic error of this sort. In any event, however the error came about, it creates a very bad impression, occurring as it does in an English reading test.

Another drawback of both the N.S.A.G.T. Intermediate and S.A.S.R.G.T. Junior Forms A and B, when used at the Standard 5 level, is the lowness of the test ceiling. The effects of this, combined with uneven grading and a foreshortened scale, are manifold and detrimental when the tests are used for research purposes:

> "In a large number of studies it will be found that the changes by the students who score initially low are greater than the changes for the students who were initially high. We suspect that this unevenness of change scores may be largely attributed to the unevenness of the measuring scale. This unevenness stems from the combined effect of a ceiling on the test as well as the greater difficulty of the test items which can make the difference at the high end of the scale."
>
> Bloom, 1966, p.211.

In May 37 boys, or a little more than 10%, scored 135+, or above the 99th percentile, on the N.S.A.G.T., and/or 15.6+, or above the 95th percentile, on Vocabulary and/or Paragraphs and/or Sentences. Thus these boys could show no improvement on one or more of these tests at the end of the year. Unfortunately, I could not have predicted this beforehand, so I did not consider alternative tests. However, since these boys had no room in which to improve on the November post-tests, I wrote to the N.F.E.S.R. for advice. My letter of 25th May, 1968, read in part:

> "I am in a dilemma. I find after extensive testing at the Standard 5 level that about 10% of the children that I have tested, who are presently 12.0-13.0, have reached the ceiling of both N.S.A.G.T. Inter G and S.A.S.R.G.T. Junior, Form A. Consequently I cannot arrive at their true Mental Ages, V.I.Q.'s (for purposes of my research into reading I am only interested in V.I.Q.'s), and Standard Placements. Extrapolation is inaccurate and not always possible in cases like these. As I am interested in the gains children will make after a 7-month period of developmental reading instruction, and as I would expect this brightest 10% to make the most spectacular gains, I hardly think it would serve any useful purpose to give them the B Form of the S.A.S.R.G.T., Junior, and a repeat of the N.S.A.G.T. Inter G (in the absence of a parallel form) at the end of 1968 - they would merely hit the ceilings of these tests again. Can I therefore give them the Senior Forms of the N.S.A.G.T. and S.A.S.R.G.T. and claim thereafter that any gains made are real and reliable? In other words can I compare with validity results achieved on N.S.A.G.T. Inter G and S.A.S.R.G.T., Junior, Form A with N.S.A.G.T. Senior S or T, and S.A.S.R.G.T., Senior, Form A or B? Example: a boy (12.6) has standard placements of 15.6+, 15.6+ and 15.6+ for Vocabulary, Paragraphs and Sentences respectively on S.A.S.R.G.T., Junior, Form A in May, 1968, and a M.A. of ± 18.0 (arrived at by extrapolation) and an I.Q. of 144 on N.S.A.G.T. Inter G, also in May, 1968; I give him the N.S.A.G.T. Senior, Form S and S.A.S.R.G.T., Senior, Form A in November, 1968, and he achieves a M.A. of 19.0 and a V.I.Q. of 151 on the former test, and Standard Placements of 17.9 and 17.3 for Vocabulary and Paragraphs on the

> latter test; can I claim that he has made a significant gain, perhaps as a result of the developmental reading course that he has undertaken? If you advise against using Senior Tests for these children because they are still in Standard 5, and/or too young, what alternative Verbal Intelligence Test should I give them? Surely it would be both a waste of time and invalid to give them the N.S.A.C.T. Inter C again after a time lapse of a mere 6-7 months, particularly since ± 25 of the children I have tested are already 13.0 and 14.0 and should properly be in Standard 6 anyway."

N.E.E.S.R.'s reply of 11th July, 1968, read:

> "With regard to the problems which you are experiencing, I regret to inform you that the intermediate and junior forms of the N.S.A.C. Tests and Silent Reading Tests are not absolutely parallel to the senior forms of these tests. You therefore cannot claim a significant gain as a result of your developmental reading course, either by retesting with the same tests or by retesting with the senior forms. The only scientific solution to the problem would be to use a control group."

Since this left most of my questions unanswered, I wrote again on 16th July, 1968:

> "I have four control groups. This is not my problem. The difficulty is this: a number of children in both the experimental and control groups have hit the ceiling of both the N.S.A.C.T. Inter C and the S.A.S.R.C.T. Junior, Form A, at the outset of the experiment. Thus they cannot register any measurable improvement on these, or parallel (S.A.S.R.C.T., Junior, Form B) tests, if I give them these tests at the end of the experimental period. All that I will be able to say of these children is that they are still at the 99th percentile, and therefore off the scale of these particular tests. That is why I ask whether the Senior Tests are continuous with (not parallel to) the Junior and Intermediate Tests."

On 7th August, 1968, I received the following response:

> "I have to inform you that the raw scores of the Senior Series of the New South African Group Test are not continuous with the Junior and Intermediate Series. This principle also applies to the Silent Reading Tests."

Needless to say, I was enquiring about standard scores and not raw scores. However, I decided at this stage that it would be unprofitable to pursue the matter further, and resolved to stick to the letter of the law and use the N.S.A.G.T. Inter again, and the S.A.S.R.G.T., Junior, Form B, on the re-test in November. If as I predicted, the top 10% of boys made the greatest gains, I would either have to drop them from the matched Sub-groups, or use their raw scores to demonstrate significant gains (if this was possible) or rely on the less favoured 90% to make sufficient headway to make up for the loss of the top 10%. In the event I employed a combination of these resorts in treating the results.

To the best of my knowledge the S.A.S.R.G.T., Junior, was last roughly standardised[1] in 1962, and since there is no mention of a date in the Manual for the New South African Group Test it is not possible to say precisely when it was standardised. However, from dates mentioned in the S.A.S.R.G.T. Manual it seems probable that it was standardised in 1958. It would therefore seem obvious that it was high time that both tests were re-standardised. In this Space Age standards of achievement can rise steadily and often dramatically, and I suggest that attainments of South African children could have risen measurably in the last 5-10 years. A slightly above average score of 10 years ago

[1] "As the contents of this revised edition of the tests differed only slightly from the previous tests which had been thoroughly standardised, a preliminary application with a view to item analysis was not required. The norms had to be recalculated, however, on account of these slight alterations. To do this, the test was applied in its final form to a representative sample of the European school population of South Africa.... During the first half of 1962, the Junior Series was applied to pupils in Std.6 to Std.8. A representative sample of about 2,830 pupils was drawn in the same way as in 1958. Forms A and B were again distributed equally among them so that about 470 pupils in each standard and from each language group answered the test."

Manual for Silent Reading Tests, 1963, pp.5-6.

may very well approximate to the norm today. For example, the 86 boys whom I tested at School AB had mean V.I.Q.'s in May and November of 108 and 109 with a range of 83-137. The M.H.V.R.T. was standardised in Britain, and hence the norms are not applicable to South African children. Nevertheless the means achieved on this test must give us pause for thought: in May and November they were 90 and 93 and the range 70-130. It is a curious coincidence that the mean of these four means comes out at exactly 100. If the scores on the N.S.A.G.T. were plotted a negatively skewed curve would result; if the scores on the M.H.V.R.T. were graphed we would get a positively skewed curve. This means that a number of boys who are assessed as above average in verbal ability in South Africa on a South African test would be classified as below average in verbal ability in Britain on a British Test. Admittedly anomalies are inevitable in anything as complex and controversial as ability assessment. Admittedly, too, standards and judgmental criteria alter from one community to another. Nevertheless, South Africans and Britons both speak the same language so obviously there should be a measure of agreement in their standards and in the tools by which those are assessed. Certainly the disparity between the M.H.V.R.T. and the N.S.A.G.T., which clearly favours the latter in all three Groups, both in May and November (see Table 7 on p.87), seems to confirm that the results derived from the three Verbal sub-tests have come to flatter South African English-speaking pupils and that the tests should be restandardised and the norms revised.

There are considerable individual differences between the S.A.S.R.G.T. (May and November) on the one hand and the Schonell S.R. Test and the M.H.E.T.'s (May and November) on the other, but insofar as Standard Placements are comparable to Reading and Spelling Ages, Reading and Spelling Quotients and English Quotients, there is a similarity between the means of Groups A, B and C (see Table 7 below). Unfortunately, there was not time to give Groups D, E and F the Schonell and Moray House Tests as well.

One of the difficulties of comparing the British tests with the South African tests arises out of differences in the Standard Scales: the Schonell and Moray House test raw scores convert to deviation quotients and developmental ages, whereas N.B.E.S.R. test raw scores convert to stanines, standard placements and percentiles, on the American pattern. Both practices have their merits and demerits. Quotients give a fairly precise numerical value to a raw score which is helpful as long as they are accepted with reservation, bearing in mind that any measure of ability is only relatively stable because of the complexity and plasticity of intelligence. Stanines, on the other hand, normalise scores and distribute them more roughly in broader categories. For example, one child might achieve an attainment quotient of 95 and another 105 on the same test, and yet both would come under the 5th, or median, stanine. In other words, stanines absorb the smaller inevitable variations in performance on successive testings, whether they be near together or far apart in time. Thus they reduce practice effect on re-testing to a large extent. However, stanines are not as satisfactory as quotients for measuring increments and decrements precisely because they are more coarsely calibrated. This is why I found the standard placements and percentiles more useful for my purposes, even though they might not be as reliable as stanines:

> "The stanines are more reliable than the standard placement norms.... Whenever making important decisions or drawing conclusions, stanines should be used rather than standard placements as stanines are a standard scale."
> Manual for Silent Reading Tests, 1963, p.20.

Developmental ages are useful because they permit of immediate comparison with the child's actual age. Thus if a child of 12.0 has a Reading Age of 11.0 we can say at once that he seems to be retarded by something like a year in his reading. Of course where standards differ as they seem to do between South Africa and Britain, this may be no great advantage. At all events judgments on the basis of developmental ages need to be cautious as I hope to have suggested by my tentative phrasing above. Percentiles are amongst the most useful measures of ability provided that they are interpreted cautiously like deviation quotients. Since they distribute raw scores linearly on a 100-point

scale percentiles show one at once where a child falls in relation to the population from which he is drawn.

Another weakness of the S.A.S.R.G.T. only became apparent when I started to convert raw scores to standard scores.

> "Since stanines are applicable only when the tests are applied during the third term, pupils' scores should be corrected should they be tested during any other term. It will then have to be calculated what score a pupil would have obtained had he been tested during the third term. This means that a few marks will have to be added to or deducted from his score. This difference in score should be obtained from the norms tables for standard placements. Example: A certain Standard 6 pupil does the Language Usage Test, Form B of the Junior Series, English First Language. Should he do the test during the second term, it can be seen from table 16 that 56-53=3 marks should be added to his score. Should he do the test during the fourth term, 58-56=2 marks should be subtracted from his score. It is obvious that these modified scores are no longer completely reliable and it is therefore better to apply the tests during the third term." (The emphasis is the writer's.)
>
> Ibid., pp.19-20.

This is all very well as far as the Vocabulary sub-test goes because it is made up of 50 items and any adjustment necessary in testing in the second and fourth terms of the Standard 5 year never involves more than 2 marks. Nevertheless, if a testee scores 24 in both May and November, his corrected raw scores of 23 and 26 convert to Standard Placement Ages of 12 years 3 months and 12 years 9 months, a considerable difference for what is practically the identical score. But when we come to the Paragraphs and Sentences sub-tests, which have raw score scales of 25 and 20 respectively, the correction is ludicrous. For example, a raw score of 16 on Paragraphs is the norm for 3rd and 4th terms, Standard 5, and 1st and 2nd terms, Standard 6; it covers an age range of 12.6-13.2. If a boy scores 15 in 2nd term, Standard 5, his score is corrected to 16. The tester now has the choice of 4 Standard Placements, and 4 Standard Placement Ages, or of taking the median Standard Placement/Standard Placement Age. It was decided to take the mid-point of the range in cases like these, and of course there were many of them in both Paragraphs and Sentences

because raw scores of 9-20 (Paragraphs) and 6-16 (Sentences) have to be distributed over 24 terms (1st term, Std. 3-4th term Std. 8) and an age range of 10 years 1 month - 15 years 6 months (see Table 16 on p.32 of the Manual). Then, too, the Manual makes no reference to schools working to a three-term year. Technically I would have been within the law, as set out in the Manual, if I had only corrected in November in Schools C and F which work to a three term year. Practically of course this would have been wrong, and in the event I corrected in precisely the same way for all pupils in all schools. This may seem like cavilling but scholastic tests are supposed to be reasonably precise instruments, and therefore the instructions which govern them should also be precise and all-inclusive, taking proper account of all contingencies that might arise. The underlining in the above quotation is both apposite and ironical under the circumstances.

The shortcomings of such short scales and the problems of converting Raw Scores to Standard Scores on these short scales, are high-lighted by a comparison with the Moray House Tables of Norms. On a 100-point raw scale (the Verbal Reasoning Tests are made up of 100 items, and the English Tests have 120 items) a testee who scored between 30 and 60 would have to score 10 extra points to advance 5 points in V.R.Q., while one who scored between 60 and 80 would advance 6 points in V.R.Q. for every 10 points he gained in Raw Score. For example, if a boy of 12.0 scores 60/100 on V.R.T.66 he has a V.R.Q. of 97, whereas if he scores 70/100, or 80/100, he earns a V.R.Q. of 103, or 109. A score of 90/100 would yield the same 12.0 year-old a V.R.Q. of 119, while 99/100 would reward him with a V.R.Q. of 136. In other words, the calibrations of the Standard Scale approximate to the normal distribution curve, as they should. The way that the Moray House Scales are constructed counteracts to a large extent chance (which is always a factor to be considered in an objective, multiple-choice answer type test), and variations in performance due to feeling off-colour or nervous. The effect of practice is also reduced. Thus

the test-retest reliability of the Moray House tests is increased.[1]

The faults of the S.A.S.R.C.T. are illustrated in Table 8 below. These means might not worry a teacher or a headmaster unduly because they do indicate some slight improvement in most cases, at least in uncorrected scores. In any case classroom practitioners will probably be using the tests for individual diagnostic purposes, or merely to confirm that the overall level of attainment is up to standard, and for these purposes the tests would seem to be adequate. But for the research worker who is trying to measure quantitative gains precisely the results summarised below are inconclusive and misleading.

The difference between a mean gain of 11 months and 5 months - Group B's improvement in uncorrected and corrected Vocabulary Standard Scores between May and November - could well be the difference between significance and insignificance. Yet this same difference in uncorrected and corrected Standard Score means corresponds to a difference in Raw Score means of a mere 5 points (23/50 to 28/50), or approximately 3 corrected points (24/50 to 27/50) according to Table 16 of the Manual. In a sub-test made up entirely of multiple choice items 3 points can be gained or lost by chance. The Paragraphs and Sentences sub-tests are even more susceptible to chance because they are made up of only half the number of items in the Vocabulary sub-test. Furthermore it is twice as difficult for a testee to make appreciable gains on a test which is half as long, particularly when his scores are adjusted to the third term of the academic year. This gives rise to the absurd situation where the majority of Experimental and Control groups actually decline in corrected Sentences mean scores between May and November. The only groups that do not decline are Groups A and B, both of which scored comparatively low on the pre-test (Form A).

[1] "Tillinghast and Renzulli investigated the reliability of the Peabody Picture Vocabulary Test under conditions of group administration through slide projection of the test stimuli. The sample was 158 subjects in grade 4, 126 in grade 5, and 130 in grade 6, representing five classes in each grade.... Forms A and B were administered consecutively with a brief rest period, then repeated five weeks later. Raw scores were used in computing product-movement coefficients. The alternate form reliabilities approximated those of the test manual while test-retest reliabilities ranged from .73 to .85. <u>However, combining the two forms into a longer test produced the higher and more consistent reliabilities of .90, .88 and .84 for grades 4, 5 and 6 respectively. The authors recommend the longer test for this reason, and because the combined test reduced practice effects materially over a 5-week period.</u>" (The emphasis is mine.)

Harris, Wayne, Barrett and Mattingly, 1969, p.308.

Where there is any movement in Raw Scores, whether it be up or down, it is minimal. Once again there is not sufficient room for the testees to show whether or not they have really improved. Moreover testees should not be penalised for scoring in the upper registers initially: the most able pupils should show some of the greatest improvements.

The discrepancies between the corrected means of Paragraphs and Sentences Standard Scores in Groups E and F are inexplicable. Group E actually ends up by being 2 months superior to Group F in Paragraphs in November, after starting out in May at a disadvantage of some 12 months. Yet in Sentences Group E ends up 12 months behind Group F, and 15 months in arrears of their own performance in Paragraphs at the same time on the same test (Form B). Notwithstanding this considerable variation there is a difference of only 2 points (10/20 to 12/20) between Group E's and Group F's mean score in Sentences in November. These erratic results suggest that it is the tests and the norms which are at fault here, rather than the testees. These and other anomalies will no doubt strike the reader when he studies Table 8.

I did not use the Language Usage sub-tests of the S.A.S.R.G.T. because I did not have the time and because in any case I did not think the 36 minutes required to complete the test would be time well spent. I was guided by my experience of using both the A and B Form Language Usage sub-tests with the pilot Standard 5B during 1967. The test itself has a number of faults. Firstly, quite a few of the items in it are either nice grammatical points of debate amongst grammarians rather than for prescription to school children. Secondly, a number of examples are contrived and stilted, and would not be likely to occur in the reported speech of educated adults, never mind in the essentially functional and colloquial speech of children in the throes of being educated. Thirdly, some of the correct answers are open to debate, and the incorrect alternative is now acceptable. Fourthly, there are cases where at least two of a choice of four words would do equally well to complete the sense of a sentence, yet the Scoring Key does not permit argument. For example, item 73 on Form A reads, "She suffers ---- toothache" and the Scoring Key allows only "from". If a person can ache with pain, I do not see why he should not be allowed to suffer with toothache. Item 89 on Form A reads "Such men

Groups	N	May, 1968 Uncorrected Vocab.S.P.	May, 1968 Corrected Vocab.S.P.	Nov., 1968 Uncorrected Vocab.S.P.	Nov., 1968 Corrected Vocab.S.P.	May, 1968 Uncorrected Paras.S.P.	May, 1968 Corrected Paras.S.P.	Nov., 1968 Uncorrected Paras.S.P.	Nov., 1968 Corrected Paras.S.P.	May, 1968 Uncorrected Sent's S.P.	May, 1968 Corrected Sent's S.P.	Nov., 1968 Uncorrected Sent's S.P.	Nov., 1968 Corrected Sent's S.P.
D	104	13.3	13.5	13.6	13.2	12.10	13.3	12.9	12.9	12.7	12.7	12.7	12.2
E	45	12.1	12.2	12.10	12.7	12.1	12.6	12.9	12.9	11.10	11.10	11.11	11.6
F	36	12.8	12.9	13.7	13.4	13.0	13.6	12.7	12.7	12.8	12.8	12.11	12.6
A	43	12.3	12.5	13.0	12.8	12.4	12.8	13.1	13.1	12.0	12.0	12.9	12.3
B	43	12.3	12.5	13.2	12.10	12.5	12.10	13.2	13.2	12.2	12.2	12.9	12.4
C	45	13.4	13.6	13.8	13.5	13.4	13.8	13.8	13.8	13.2	13.2	13.3	12.10
Means		12.8	12.10	13.5	13.1	12.8	13.2	13.0	13.0	12.5	12.5	12.8	12.3
RS's†		(25)	(26)	(28)	(27)	(16)	(16)	(16)	(16)	(11)	(11)	(12)	(11)

TABLE 8

†RS's = Equivalent Raw Scores

as (they, them) ought to be punished". Everyman would surely say simply, "Such men ought to be punished". Items 92 in Forms A and B read, "Was it John you loved? No, it was not (him, he)" and "Was it Mary you loved? No, it was not (her, she)." Partridge reports, though significantly he does not rule, on this vexed point:

> "_it is me_ for _it is I_ 'is a form of speech frequent in current English and used even by educated speakers, who would not, however, say 'it is him', 'it is her', 'it is us', or 'it is them', these being generally regarded as vulgar or dialectal. The sound-analogy of (_it is_) _he_, (_it is_) _she_, (_it is_) _we_ has no doubt furthered the use of _me_ as a regular and natural form of expression in such cases', which is not to say that Dr Onions (_An Advanced English Syntax_) recommends its use...'_it's her_ (or _him_ or _us_ or _them_) is justifiable when its use is exclamatory. (In America, _it's me_ is acceptable colloquial English; that is, it is used in good speech. There is no occasion to write it. _Us_, _him_, _her_, _them_ are less common after _to be_, and their acceptableness is disputed. However, when a pronominal subject is not followed by its verb, the pronoun often appears in the objective case. That is, the habits of word-order are stronger than the habits of inflexion. We expect subject + verb + object - author's parenthesis.)"
>
> Partridge, 1967, pp.159-60.

From what Partridge says, it is clear that the use of "him" and "her" in these two sentences is at least defensible, and probably permissible in the view of linguistic experts, yet the Scoring Key rules otherwise. Item 39 on Form B reads, "He possessed the (1. capacity, 2. ability, 3. power, 4. strength) to concentrate for hours." We talk of "the power of concentration" so it seems logical to accept the "power to concentrate" as well. One speaks of a "capacity for concentration" so "capacity to concentrate" seems acceptable, too. Yet the scoring key accepts only "the ability to concentrate". Item 40 on the same Form reads, "From the window of a distant cottage a light (1. shone, 2. blazed, 3. flared, 4. glimmered.)" "Glimmered" obviously makes the best sense though most people would say "shone", and would accept that it completed the sense of the sentence equally well. Needless to say, however, only "glimmered" is allowed.

But my principal reason for omitting the Usage sub-tests is ably expressed by **three** American writers:

> "Horace...observed that use was the sole arbiter and norm of speech and Montaigne...said that he who would fight custom with grammar was a fool....
>
> "Constant change is the outstanding characteristic of a live language used by an intellectually active people....
>
> "The ultimate authority of standard American English is the actual usage of educated people...."
> Anderson and Stageberg, 1966, p.283, p.296 and p.305.
>
> "The only guide to what a word should mean is what it actually does mean in the mouths of the people who use it....
>
> "'Correct' can only mean 'socially acceptable', and apart from this has no meaning as applied to language....
>
> "The entire attempt to set up absolute standards, rigid norms, for regulating people's language is destined to failure from the outset because...1. there is no authority that has either the right or the ability to govern people's usage; and 2. such an authority, even when it has been set officially... can never find valid standards by which to govern usage....
>
> "'Good' language is language which gets the desired effect with the least friction and difficulty for its user....
>
> "As the great Byzantine emperor and law-codifer Justinian put it...a mistake that everybody makes is no longer a mistake."
> Hall, 1953, p.4, p.13, p.26, p.27 and p.29.

This does not mean that language can do without grammatical rules, but it does mean that linguists should distinguish between rules which are cardinal and rules which are marginal. Unfortunately many of the items included in the S.A.S.R.C.T. usage tests are based on marginal rules which are most susceptible to change and interpretative differences.

Joyce Morris, in her study of standards and progress in reading in Kent Primary Schools, used two non-verbal tests in her test battery "To estimate the degree of association between reading attainment and non-verbal ability" (Morris, 1966, p.7). Had I had sufficient time I would have liked to use the three sub-tests of non-verbal ability in the N.S.A.C.T., but these take an additional 28 minutes, excluding additional time taken up with instructions and rest periods, and I simply could not afford this. (I put a test of non-verbal ability 10th on my list of test priorities - see p. 67.) Had I been able to do this several advantages would have accrued. I would have had two additional measures of "innate" ability, the Standard Score, or N.V.I.Q., derived from the sum of raw scores achieved on the 3 non-verbal sub-tests, and the Composite Standard Score derived from the sum of raw scores achieved on all 6 sub-tests converted from a separate column on the tables of Norms. In terms of the criteria laid down in the Manual for the N.S.A.C.T. I would have been able to claim absolute reliability for all Standard Scores because I would have complied with the procedures under which the tests were standardised, to the letter. As it was I had to depart from the instructions because I administered the test in a truncated form: I could neither alternate the verbal and non-verbal sub-tests as is laid down in the Manual, nor could I give a 15 minute interval after sub-test 3 because at this stage the testees had only done verbal sub-test 2 and therefore did not qualify for a rest. I do not believe that these minor departures affect the reliability of my results; nevertheless I am bound to draw the reader's attention to them. I should also add that I administered the three verbal sub-tests in exactly the same way, and in exactly the same order in relation to the other tests in both May and November, so that there can be no doubt that the results are reliable for incremental purposes, even if it is possible that they might have been slightly different on both occasions had I administered the non-verbal sub-tests as well.

Seemingly there might have been a third advantage: it is possible that the N.V.I.Q.'s might have been lower than the V.I.Q.'s. They would thus have reduced the mean composite I.Q. to something more in line with the means obtained on the various attainment tests. I pursued this possibility further. I was able to obtain the results of a Group Testing Programme conducted at School AB during 1967. The mean N.V.I.Q. and composite I.Q. in Group A on the N.S.A.C.T. Inter was 105 and 104, while the mean N.V.I.Q. and composite I.Q. in Group B was 101 and 101, so it seems unlikely that the N.V.I.Q. would have had any reducing effect in 1968.

In passing it is illuminating to compare the 1967 and 1968 test results. In 1967 the mean V.I.Q. of both classes was 102, while in 1968 it rose to 109 (May) and 110 (Nov.) in Group A, and 108 (May and Nov.) in Group B. The considerable measure of agreement between the 1968 scores suggests that the differences in the testers, the test situations and the testing procedures can affect results significantly. On the other hand, the retest reliability of the N.S.A.C.T. seems to be reasonably high if the tests are administered by the same person in the same way within a fairly short period of time, i.e. 6 months to 1 year (see correlations discussed on p. 71). The Regional Educational Psychologist asked me why I did not avail myself of his 1968 N.S.A.C.T. results at School E rather than test all the boys again (he had tested both Standard 5's at this school just a few weeks before my arrival in Grahamstown). Admittedly this would have given me a measure of their non-verbal intelligence, but then I would have had to extend my testing programme at the end of the year to include the 3 non-verbal sub-tests. However, my main reason for not wishing to use his data was that

> "When comparing scholastic achievement, it must be remembered that scores on previous attainment tests cannot be considered reliable unless they are the results of the same tests (or parallel forms of the same tests) which have been administered by the same teacher and marked by the same marker.... 'The accumulation of past experience, as a basis for testing significance, is as insecure in theory as it would be inconvenient in practice.' (Fisher, 1949)."
>
> Richards, 1965, p.6.

I considered a number of other tests of silent reading ability before deciding to use the Schonell Silent Reading Test R4, but most were unsuitable for children of this age with a wide age and ability range. Of the 319 boys that I tested in November, the oldest was 16.2, and the youngest was 11.6; the highest V.I.Q. was 145+(R.Q. $\pm$ 115) and the lowest was 79 (R.Q.72). I would have liked to use A.F. Watts's Sentence Reading Test 1 (N.F.E.R., 1958), but it was designed for and standardised on children 7.6-11.1, and consequently the norms do not extend beyond C.A.11.1. Unlike the Moray House Tests extrapolation is discouraged by implication:

> "The scores at the extremes of the range are not inconsiderable. It is suggested, therefore, that the scripts of children whose raw score is below five should be further examined, and the scores themselves used with caution. Nor should too much stress be laid upon differences between the test scores of children who have a raw score of more than 30."
> Manual for Instructions for Sentence Reading Test 1, 1964, p.4.

Daniels and Diack's Graded Test of Reading Experience, No.12, covers much the same range as Schonell S.R. Test R4, namely 6.0-13.7 as compared with 6.8-13.9, and a similar number of items, 50 as compared with 40, but there is no time limit and it is therefore not easily administered in large groups. The N.F.E.R. Secondary Reading Test, consisting of two sub-tests, namely Vocabulary and Comprehension, would have been admirable at the Standard 6 level, or even at the Standard 5 level, had it not covered much the same ground as the S.A.S.R.G.T. If I had known beforehand what I know now I would probably have used this test in preference to the S.A.S.R.G.T. Since I was primarily interested in increments rather than standards of achievement, the loss of South African norms would have been no great disadvantage. Certainly I would not have been able to argue inductively from my sample to a larger school population, but one treads on dangerous ground anyway when one begins to generalise, so this would have been no bad thing. I did not consider American tests such as the Gates-MacGinitie Reading Test (Teachers' College, Columbia University, New York) because they, too, tended to duplicate the S.A.S.R.G.T. and I did not have time to use such a comprehensive

check test. In essence I required a quick group test to yield an additional measure of silent reading comprehension and a R.Q. that I could compare with the quotients derived from the N.S.A.G.T. and the Moray House Tests, and the Schonell Silent Reading Test R4 seemed to fit my requirements as well as any, and better than most.

I decided to use the Schonell Graded Word Spelling Tests S1 and S2 rather than the N.B. Spelling Tests Series 3 and 4 for four reasons:

(i) I wanted to ascertain whether a testee could spell words correctly, not whether he could recognise, or guess, which one of four words was incorrectly spelt, or whether indeed they were all correctly spelt, in which case on the N.B. Spelling Tests he is required to mark a fifth alternative.

(ii) I guessed that Series 3 would be too easy for many boys, and that if they attained the ceiling of the test in May they would not be able to show improvement in November. (As with the Junior and Senior Forms of the S.A.S.R.G.T., Series 3 and 4 of the N.B. Spelling Tests are not continuous and though one can obtain a Standard Placement and a Median Test Age from Table 10.2 of the Norms, one cannot obtain a Stanine from Table 10.1, nor can one obtain a Percentile from Table 10.3.1 because children in Standards 3-5 should confine themselves exclusively to Series 3. How one assesses the limits of the ability of superior spellers is unexplained.)

(iii) A dictated test interposed between the N.S.A.G.T. and the S.A.S.R.G.T. gave the testees a break from reading under pressure combined with hard, concentrated thinking.

(iv) The grading of the N.B. Spelling Tests seemed to me to leave something to be desired.

However, I did use the N.B. Spelling Tests as an interim check on progress in August and I used them again in November as a check on

the Schonell Graded Word Spelling Test, Form B, and to see how Standard Scores compared. I found only a measure of general agreement between them inasmuch as the rank order of May/August and November means on both tests for all five groups was much the same (see Table 9 below). However, individual performances varied widely in every group.

May/Aug., 1968. Rank Order			Nov., 1968. Rank Order		
Group	Schonell S.1. S.A.	N.B. Sp. Test S.P.	Group	Schonell S.2. S.A.	N.B. Sp. Test S.P.
1. Control Group D	12.4	13.9	1. Control Group D	13.0	14.8
2. E'mental Group C	12.1	13.10	2. E'mental Group C	12.7	13.4
3. E'mental Group B	11.10	13.7	3. Control Group A	12.2	13.4
4. Control Group A	11.8	13.1	4. E'mental Group B	12.2	13.2
5. E'mental Group F	11.6	13.2	5. E'mental Group F	12.2	12.11
6. E'mental Group E	11.6	12.8	6. E'mental Group E	12.2	12.7

TABLE 9

There is a similar degree of difference here between the South African and the British Tests as that which occurred between the N.S.A.G.T. and the H.H.V.R.T. (see p. 87).

In the event the Schonell Tests served better than the N.B. Spelling Tests for my purposes. Firstly, chance was all but eliminated in the former because testees had to know how to spell a word correctly in order to get it right. Alternatively, they had to have a pretty good knowledge of the phonetics of English, and the various rules and exceptions, as well as extensive reading experience, to spell words like "prologue", "colonel" and "toboggan" correctly. Secondly, the highest mark obtained on Test S1 in May was 96/100 and in fact only 13 boys scored 90 or more then, so there was plenty of room for improvement in more than 95% of cases in November. And even those boys who scored in the 90's mostly improved: for example, A17 moved from 91 (S.A.14.1) to 95 (S.A.14.6), AA2 moved from 90 (S.A.14.0) to 93 (S.A.14.4), CCC1 moved from 91 (S.A.14.1) to 93 (S.A.14.4), and 1D3 (the best speller in all 5 schools) moved from 96 (S.A.14.7) to 97 (14.8). Of course these boys could not increase their S.Q.'s but this was of minor importance.[1] Thirdly, N.B. Spelling Test,

[1] The designations A17 etc., and the abbreviations S.A., and S.Q., are explained on p.(v) and fold-out p.(vi).

Series 3, Form A, proved to be too easy for 11% of boys in all schools, and 22% of boys in School C, when it was given to them in August. That is to say 11% scored 41/45, or 91%, or more in August. In November 10% of all boys tested scored 41/45, or 91%, or more on N.B. Spelling Test, Series 3, Form B. Fourthly, the grading of the N.B. Spelling Tests is uneven. For example, item 45 on Series 3, Form B, requires the testee to spot "exitedly". The misspelled words in the preceding 3 items are "revinue", "convers" and "hellicoptor". "Excitedly" may be commonly misspelled, but it is far more commonly used in this and other forms - "excite", "excited", "excitement" - than are "revenue", "converse" and "helicopter", and therefore should have been corrected many times in the child's written English assignments. We generally learn to spell best those words which we most frequently use. Indeed, this very point is stressed in the Manual:

> "Words commonly used in written language were therefore taken as the basis."
> Preliminary Manual for N.B. Spelling Tests, no date given but norms were calculated in 1963, p.1.

In Series 3, Form A, item 30 reads: "A. sinsearly B. reconcile C. disposal D. fragrant E." Not surprisingly at least one boy, C21B, marked "reconcile", probably because he did not know what it meant. If the word had been "reckoning", with which he would no doubt be as familiar as with the other three, he might have had another look at "sinsearly". Furthermore, "sinsearly" precedes "mirical" (item 39) and "eclips" (item 40) by 9 and 10 places and he rightly marked both the latter words as being incorrectly spelt. In Series 4, Form B, item 41, "giddyness" is relatively easy to spot because it is a word with which children of 12.0 are thoroughly familiar. "Boquet" precedes it by 12 places, and occurs in company with "neurotic", "truculent" and "nonsensical". Finally, there can be no excuse for a published test containing an item like this: "37. A. expensively B. spotlessly C. unconnected D. unhindered E." (Series 4, Form A.) E is obviously correct, yet the stencil shows A. Either the stencil was wrongly cut or "expensively" should be misspelled. Or perhaps the testee should take it that "expansively" is the incorrect version of "expansively". (Needless to say, it is a source of great irritation when one has a large

stock of test papers to mark and the marking stencil does not fit. The marking stencil for Series 3, Form B, has to be constantly shifted in order to get the answers to appear in the right windows.)

Though Spelling Ages and Standard Placements are not strictly comparable, it is interesting to compare the mean November Standard Scores of all classes on the Schonell Tests and the N.B. Tests (see Table 10 below).

It seems to me that the most valuable point made in the Manual is this:

> "It must be borne in mind that when converting raw scores to standard scores these raw scores are interpreted in terms of or compared with the achievement of the standardization groups. It is probable that with the passing of time these standardization groups will not remain representative of the population." (p.11.)

One must hope that N.B.E.S.R. will soon act on this probability and withdraw this series of Spelling Tests for item analysis, extensive revision (possibly followed by a split-half reliability test) and restandardisation. As it stands at the moment, it does the Bureau no credit at all.

Developmental reading programmes and courses aim to improve reading efficiency, and since speed of reading is one of the major components of efficiency, it was highly desirable that I test boys' speed allied to comprehension. There are measures of speed built into all three experimental programmes: the Starting Level Guides and the Rate Builders in the S.R.A. IIIA Laboratory (see 4.2), the Controlled Reader exercises in the E.D.L. lessons (see 5.1), and the timed silent reading of passages in Double-Up (see 7.1). I could have tested the speed and comprehension of the Experimental Classes by these means, continuously, but it would have been unfair and unsound to assess the Control Classes, or indeed the Experimental Classes, with any one of these tests because the testees in all but one Group would have been relatively unfamiliar with them and consequently handicapped in comparison to the Group which had been working with them from week to week. Besides, none of these tests have been standardised because it is unnecessary to standardise measures which are intrinsic to a particular programme, and integral

	Gr.A	Gr.B	Gr.C (5A)	Gr.C (5B)	Gr.D (5A)	Gr.D (5B)	Gr.D (5C)	Gr.E (5A)	Gr.E (5B)	Gr.F (5A)	Gr.F (5B)
S.G.W.S. Test S1 (May)	11.8	11.10	13.0	11.1	13.0	12.4	11.5	11.8	11.3	12.2	10.9
S.G.W.S. Test S2 (Nov.)	12.2	12.2	13.5	11.9	13.7	13.1	12.3	12.4	11.9	12.11	11.4
N.B. Spelling Test Series 3 and 4:											
Forms A or B (Aug.)	13.1(A)	13.7(A)	15.3(A)	12.6(A)	14.7(B)	13.10(B)	12.7(B)	13.5(A)	10.10(A)	14.3(A)	12.0(A)
Forms A or B (Nov.)	13.4(B)	13.2(B)	14.8(B)	11.9(B)	15.9(A)	14.6(A)	13.5(A)	13.4(B)	11.9 (B)	13.8(B)	11.11(B)

TABLE 10

Underlined figures were arrived at after giving both Series 3 and Series 4 to testees in that class, and then converting the raw score which yielded the higher Standard Placement to a Median Test Age. In fact the highest Standard Placement/Median Test Age that it is possible to achieve on Series 3 is Std.7, Term 4/14 years 10 months, which corresponds to a raw score of 40/45. The letters in brackets signify the Form used, either A or B. Judging from these figures the testees seem to have found the A Forms of both Series 3 and 4 of the N.B. Tests easier than the B Forms. In 10/11 cases the means for the A Form exceed by 1 month to 1 year 2 months the means for the B Form, no matter which Form was used first(in August), and in the 11th case, in Group A, the difference is negligible. Allowances have not been made for testing in the fourth instead of the third term. If these had been made, they would have reduced the November means by approximately 3 months. In other words, they would have reduced, but not eliminated, the difference between Forms A and B. The Manual quotes a correlation of .90 at the Standard 5 level (N.483) between A and B Forms of Series 3, and a correlation of .82 at the Standard 6 level (N.485) between A and B Forms of Series 4. The results tabulated above suggest that the two Forms of Series 3 and Series 4 did not parallel one another as closely on this experiment as correlations of this high order would lead one to expect.

teaching rather than testing components.

It would have been uneconomical to use only the Rate section of the Neale Analysis, and in any event I did not have time to administer individually to 320 testees a test of Reading Rate which involves reading 6 stories, or 1585 words, aloud. I was primarily interested in silent reading rate coupled with comprehension, not in the diagnosis of errors in word recognition and attack.[1] Obviously what I needed was a standardised group test of Reading Rate, preferably as part of a battery assessing accuracy, vocabulary and comprehension.

The N.F.E.R. Secondary Reading Test 3, the Continuous Prose speed test, would have suited my purposes if South African norms had been available, or even if reliable British norms had been available, but I was only able to obtain a set of provisional norms from N.F.E.R. in April, 1969. Another disadvantage seems to me that it is not purely a test of speed of reading:

> "Test 3 consists of two long prose extracts with periodic brackets from which the child underlines one word to continue the sense."
> Manual of Instructions for Secondary Reading Tests, 1965, p.4.

Inevitably some children's rates of reading will slow down as they pause to consider which of five words best completes the sense of a sentence. The two prose passages are continuous, and the choice of words is easy, for example, "When we saw the white ship behind the black (men, crows, dirt, board, rocks)..." Nevertheless the introduction of a number of words which are unconnected with the running sense of the passage, and which the child must read in order to discard from the overall meaning, must surely make at least the slower reader even slower. The speed test that I eventually designed myself is perhaps a rough measure of reading rate, inasmuch as it consists of only one short 300-word passage from which rate is calculated, but at least the reader does not have to interrupt his reading, no matter for how short a period, in order

[1] It seems to me that one of the weaknesses of the Neale Analysis is that it requires children to read aloud as fast and as accurately as they can, with the main focus of attention being on reading individual words and whole sentences correctly, rather than on meaning, and then to answer a number of oral comprehension questions on what the passage was about. I would think that testees would score more highly in comprehension if they were allowed to read silently and concentrate on meaning.

to complete the sense.

Unfortunately, the Speed of Reading Test has been dropped from the Revised Edition of the S.A.S.R.G.T. Junior:

> "The Revised Edition....The items which constituted the Vocabulary, Paragraphs and Sentences Tests were already of the multiple-choice type so that only slight alterations were required....As it was not possible to adapt the Speed of Reading Test for use with separate answer sheets, this test had to be omitted altogether."
> Manual for the Silent Reading Tests, 1963, p.1.

As I knew of no other Rate of Reading Test, and as my Test Schedule was already overloaded, I did not test reading speed in May.

However, so convinced was I of the need to obtain some measure of this vital facet of reading efficiency that I set about devising my own speed-cum-comprehension test as soon as my teaching programme was under way. I wrote ten narrative type passages and set eight multiple-choice questions on each. The passages were 300-500 words in length and all of the same readability level, namely ± 9.6 as determined by the Spache Readability Formula. I decided on a comparatively low level of difficulty so that no child would be unduly handicapped by having to puzzle over long words or by having to grapple with long sentences. Next I arranged the passages into two nominally parallel parcels each consisting of a 300-word, a 350-word, a 400-word, a 450-word and a 500-word story in that order. I then applied both tests to a group of 19 boys in the Standard 6 Scholarship class at School C. Each test took 15 minutes and each was completed at the same time on two consecutive days, the 8th and 9th July, to be exact. I then marked the tests and analysed the errors by adding up the total number of correct responses to every question. Where I considered that the total for a particular question was low in relation to the total for other questions on that passage, I revised the question. As a further check on each set of 8 questions, I used something similar to a split-half analysis. Since the first 4 questions dealt with incidents mentioned in the passage, and the last 4 with words and phrases occurring in the passage, the meaning of which depended on their context,

I added up the correct responses to the first 4 questions and the last 4 questions on each story separately. Where there was a marked discrepancy I further revised questions to bring the two totals into line. Of course it is impossible to equalise the actual content of different stories - one would have to equalise children and their experiences and interests to achieve this - and since there were still differences for which I could not account between total scores on different stories, I re-ordered the two parcels, swopping passages of the same length so that total scores on all five passages were nearly equal. Thus whereas the original test parcels had been made up of Passages A1, A2, A3, A4 and A5, for which the total had been 451/760, and Passages B1, B2, B3, B4 and B5, for which the total had been 473/760, the reshuffled parcels were made up of B1, B2, A3, B4 and A5, for which a total of 461/760 was obtained, and A1, A2, B3, A4 and B5, for which the total was 471/760. I could not bring them any closer together than this, nor did I feel that I needed to since the correlation between the two original tests was .9 on the Product-Moment Formula. (The reshuffled Parcel 1 appears in Appendix F pp. 486-95.)

Ideally, I should then have administered both reshuffled test parcels to a large representative sample of boys to ascertain whether I had successfully nearly equalised them. But I wanted to give the tests to the Private School Experimental Groups before 16th July when the Government Schools reconvened and my teaching load returned to normal. I would then be hard pressed to find time to visit King William's Town and Port Elizabeth to test Groups A, B and D as close in time to testing Groups C and F as possible in order to make valid comparisons between them. Also I wanted to test all boys as soon after May as I could so that as much time as possible should elapse between the first and second testings. I reasoned that the longer the time lapse the more likely the Experimental Groups would be to show significant increases in speed and comprehension. So I went ahead and tested according to the following programme. However, I did subsequently test the parallelism of the two test parcels with 15 Standard 5 boys of mixed age and ability at School G, and came up with a correlation of .7 on the Product-Moment Formula. On such small

samples one or two large differences can reduce a correlation significantly, so I was not unduly perturbed. However both parcels would obviously benefit from more extensive testing, and possible further revision and reshuffling, if they were to be used as predictors of silent reading comprehension ability. It must be remembered, though, that I was using them primarily to measure reading rates, and for this purpose I considered them to be satisfactory.[1]

Parcel I		Parcel II	
Group F:	12th July	Group E:	13th November
Group C:	10th July	Group F:	19th November
Group E:	7th August[2]	Group D:	22nd November
Groups A and B:	8th August[3]	Group C:	27th November
Group D:	9th August[4]	Groups A and B:	28th November

The tests were administered in the following way. Firstly, it was explained to the class that they would have exactly fifteen minutes to read five stories, or 2000 words, and to answer 40 multiple choice questions, 8 on each story. Secondly, it was stressed that they must read as fast as possible in order to retain as much of the story as possible, so that when they turned over a sheet they would not have to waste time turning back to the passage, and skimming in order to find the answer to a particular question. Thirdly, it was impressed upon them that they must only mark one of the four alternatives that attached to each question, unless they were specifically told to mark two. Fourthly, they were told that

[1] These and other exercises were all included in the junior programme to Double-Up which I constructed during the course of 1968. This programme, entitled Buck-Up, is discussed in 7.9. After testing all Control and Experimental Groups on Test I (Parcel I) in July/August, and being satisfied with the results, I took a further five exercises from Buck-Up and put Test III (Parcel III) together. I used exercises for which the boys in Std. 3 had obtained the same mean mark as they had for the exercises in Tests I and II. I used Test III as a long-range follow-up at School C with those boys who were staying on in the Scholarship Class the following year. (see 7.6)

[2,3,4] I could only test in August in Schools AB, D and E because I could only find the time to do so when Schools C and F went down for their Spring holidays on 6th and 8th August. But when one takes holidays into account an equal tutorial time intervened between May and July, and between July and November, in Schools C and F; and between May and August, and August and November, in Schools AB, D and E.

they would only be timed on the first passage because they would all be starting subsequent passages at different times and therefore it would be impossible to time them as a group: "As soon as I say 'Go', read that first story as hard, as fast and as closely and accurately as you can. Then the moment you've finished look up at the blackboard and take the last time that I've written down and note this at the bottom of page one. Do this before you start answering the questions, and don't forget to do it, whatever you do, otherwise we won't be able to calculate your reading rate. Then go on and answer the questions set out on the back of the first passage, and as soon as you've finished, go straight on to the next story. If you finish before I say 'Stop', go back over your work if you feel like doing so." I wrote the times in columns for quick and easy viewing, and put up the time every 10 seconds after the first 30 seconds (I judged that no one at this stage would read at more than 600 words a minute) up to 3 minutes 0 seconds (nor did I imagine that anyone would read at less than 100 words a minute). Fifthly, the "booklets" of five passages were handed out upside down and the wrong way round with the questions for the last story uppermost. The test was then started and the times were written up as indicated. After 3 minutes I stopped noting the time and circulated quietly and unobtrusively to ensure that boys were marking only one alternative. Sixthly, after 15 minutes the class was stopped and told to turn back to the first page of the booklet. "Check to see that you've written down a time beneath that first story. Now write your name in the top right hand corner and then put down your pencils." The papers were then collected.

This speed-cum-comprehension test completed my test battery.

To sum up, at the end of the May test session the tests that I used for all groups gave me standardised measures of

(i) Verbal Intelligence;
(ii) Vocabulary;
(iii) Silent Reading Comprehension (2); and
(iv) Spelling Attainment.

In addition for Groups A, B and C, the groups engaged with Double-Up on Experimental Leg II, I had standardised measures of

(v) Verbal Reasoning;

(vi) English Attainment, and
(vii) another measure of Silent Reading Comprehension.

Then by mid-August further tests gave me a standardised check measure of
(viii) Spelling Attainment, and
(ix) and an unstandardised measure of Reading Rate-cum-Comprehension.

By the end of the year I had retested all Groups on (i), (ii), (iii), (iv), (viii) and (ix), and the Experimental Groups and Control Groups for the Double-Up Leg on (v), (vi) and (vii), as well, on the same or parallel forms of these tests.

3.4 The Tabulation of Results

Having marked all the various standardised test papers which the testees sat in May, the raw scores were converted to standard scores (initially uncorrected in the case of S.A.S.R.G.T. Vocabulary, Paragraphs and Sentences), and these were listed against the names of the testees set down in alphabetical order. Means were then calculated and carbon copies of these sheets were promptly dispatched to the various Heads for their information and possible action. Results were tabulated by classes at this stage for the following reasons:

(i) All groups were to be taught in the same heterogeneous classes in which they had been placed at the beginning of the year.
(ii) Initially I wanted a broad, complete picture of children in whole classes.
(iii) This was the quickest way to get the results back to the schools where they might do most good and the easiest way for the teachers to assimilate them.

This completed Phase I of the exercise.

Because the tables of norms of the two N.F.E.S.R. tests are constructed according to ages and/or classes and because many of the children tested were overage and a few underage for Standard 5, it was decided to split each class into 3 Sub-groups, those of the "correct" age for Standard 5 (11.11-12.10 on 1st August, 1968), those

overage (12.11 or more on 1st August, 1968), and those underage (11.10 or less on 1st August, 1968). Then, because of the multifoliate nature of the abilities and attainments tested, verbal intelligence was taken as a base and pupils were ranked in their 3 sub-groups on V.I.Q. The tables were then extended to include unranked attainment data. Thus the boy with the highest V.I.Q. in one experimental group came only 4th, 4th and 5th on the 3 silent reading sub-tests and 4th on the Schonell Spelling Test. Consequently, although various groups were matched for aggregate verbal intelligence, with a minimum of adjustment by way of dropping boys from some groups in order to match them with others, they were not matched in the 3 component aspects of verbal intelligence tested, being Classification of Pairs of Words, Verbal Reasoning, and Analogies of Words, and nor were they matched for attainment. In other words the means of all but verbal intelligence scores varied widely (see Appendix B , pp. 472-5). The fact that the mean V.I.Q.'s of the various groups matched with only one minor adjustment was a little surprising.

At this juncture, too, individual testees in various groups were rendered anonymous by means of a coded designation. The single capital A denotes Group A in School AB. A numeral after the letter denotes a boy in the "correct" Standard 5 group, 11.11-12.10. Two capital A's, followed by a numeral, denotes a boy in the overage group, while three capital A's, followed by a numeral, signifies a boy in the underage group. The single capital B applies to Group B in School AB; C denotes Group C, D Group D, E Group E and F Group F. Under each letter head boys are listed according to their ages and classes: thus CC2 is the second boy in the overage group of Group C, and he is in the A class, while CCC2B is the second boy in the underage group of Group C, and is in the B stream. Because of the greater numbers at School D in the "correct" and overage groups, Group D was split into two equal Control groups, each comprised of a "correct" age group, 1D or 2D, and an overage group, 1DD or 2DD. Since there were only 4 boys in the underage groups, 3 in 5A and 1 in 5B, they were run together, and the fourth boy, the one in the B stream, was designated DDD4B.

The rest of the group was first designated either D or DD according to age, and then numbered consecutively in alphabetical order: thus D1 was first in alphabetical order in 5A, DD1 second, and D2 third. The last "correct" age boy in 5A was D23 and the last overage boy was DD8. So the first boy in 5B was designated D24B, and the second boy, who happened to be the first overage boy in the class, DD9B. Boys in 5C were numbered consecutively end on to 5B and designated in the same way. By not duplicating numbers within each D, or DD Sub-group, and by appending B and C to the code numbers of boys not in the A stream, I ensured that no one would be counted twice and that the reader would be able to tell at a glance how boys in various streams were distributed in the matched groups when their ability groups within the school were disregarded. Thus boy 2D51C, who stands 3/14 in rank in the top half of Sub-group 1D, stands out at once as a lad who is misplaced in 5C (see other examples in Phase III, Appendix C, pp.476-80). Boys in the B streams of Schools C, E and F were designated in the same way, that is to say numerically consecutive to the A classes with a B appended so that they stand out at once in a rank order. It is interesting to see how many B streamers infiltrate the ranks of the A streamers, both in verbal ability and in linguistic attainment, when they are treated in this way. Phases II and III provide ammunition for those who are in favour of non-streaming, and the abandonment of strict ability grouping. Having already tabulated the smaller groups in Schools E and F, I was now able to see at a glance that I would not be able to match four of the boys with some of the highest V.I.Q.'s in Standard 5A at School D. So I dropped them and split the remainder thus: the lad with the highest V.I.Q. became 1D3, the lad with the second highest V.I.Q. 2D2, the third highest 2D7, the fourth 1D8, the fifth 1D19, the sixth 2D51C, the seventh 2D21, the eighth 1D5, the ninth 1D22, and so on. When I calculated the means of Sub-groups 1D, 2D, 1DD and 2DD, there was no significant difference between them and the means for Sub-groups E, EE and F and FF (see Appendix C, pp.476-80). In order to test for significance between the mean differences I used a t test (Milton-Smith, 1964, pp.87-90).

Because of the shortcomings and variations in matching revealed in Phase II, each of the three Sub-groups, the "correct" age Sub-group, the overage Sub-group and the underage Sub-group, was now separately ranked on each of the three Silent Reading sub-tests, and the Schonell Spelling Test as well. In addition, Groups A, B and C were ranked separately on the two Moray House Tests and the Schonell Silent Reading Test. Finally the N.S.A.G.T. total raw score was broken down into the three component sub-tests and these were listed separately, though not in a separate rank order from the V.I.Q. It was necessary to see whether a developmental reading course would enhance performance in one specific aspect of verbal ability, say Verbal Reasoning, rather than another, say Analogies of Words, but since all three sub-tests require considerable verbal reasoning ability it was found that there was no significant difference between the means achieved by the various Sub-groups either in May or again in November. If a boy improved significantly in one he was just as likely to improve in the others. Boy C17 is a typical example taken at random: in May his V.I.Q. was 106, made up of scores of 14/25, 12/25 and 16/25; in November his V.I.Q. rose to 117, made up of scores of 18/25, 17/25 and 19/25. There are numerous other examples in the Appendix C , pp. 476-80.

Then, because there were sufficient numbers in the "correct" age and overage Sub-groups, they were split into two smaller groups with about 10 boys in each. Theoretically, although testees should have been dispersed more or less equally on either side of V.I.Q. 100, in practice the "correct" age group at least had to be split at about the 110 mark in order to achieve parity of numbers. In addition, there were sufficient "Standard 7" (13.8+ in May, 1968) overage boys in Group EE to justify a "Standard 7" as well as a "Standard 6" overage group. There were also a few "Standard 8's" who were dropped at this stage. Later the "Standard 7's" were also statistically "cancelled" because there were not enough of them in other groups to warrant statistical treatment. The underage "Standard 4's" were discarded for the same reason. Unfortunately there was often a disparity between ability and attainment between groups and consequently it was not always possible to equalise numbers. Quite a lot of juggling had to be done in order to match groups.

yield a detailed picture of possible increments in all facets, and at all age, ability and attainment levels into which both Experimental and Control Groups had been broken down at this stage. Alternate columns were left blank for Phases II and III so that the November results could be speedily filled in when they came to hand and individual progress, as well as progress made by whole Sub-groups, could be seen at a glance. Since I was not so much interested in individual comparisons at Phase I level an adjoining page was left blank for the November results. As in May this Phase was completed first, and carbon copies were sent to the schools in some cases before the end of the term. In addition a summary of means was extracted by Christmas, and at this stage the reader will find it instructive to overview this "coarse" picture. In fact the painstaking break-down of the results in Phases II and III, the results of which are discussed in detail elsewhere, does not materially alter this picture. (See Table 11 on p. 113.)

3.5 The Questionnaires

In order to ascertain things like socio-economic status, size of family, and number of schools attended, as well as the boys' reactions to various aspects of the three programmes, all five groups completed questionnaires in November. The two Control Groups only completed Questions 1-7 of the questionnaire on a separate spirit-duplicated sheet, while Group E completed the questionnaire for S.R.A. students, Group F the questionnaire for E.D.L. students, and Groups B and C the questionnaire for Double-Up students. The answers to questions 8-17, 8-14 and 8-17 on the three Experimental Group questionnaires are summarised elsewhere; the answers to common questions 1-7 are summarised below in Tables 12, 13 and 14. These are the gist of questions 1-7:

1. Boarder or day boy? If boarder for how long? (See Table 12.)
2. How many brothers and sisters have you? (See Table 12.)
3. How many schools have you attended? (See Table 12.)
4. Where is your home town?

5 and 6. What do your parents do for a living? (See Table 13.)

7. What are your 3 favourite periods? (See Table 14.)

		Boarders	Av. Number of years as boarder	Day Boys	Number of siblings		Number of schools attended	
		N.	Mean Time	N.	Mean	Mode	Mean	Mode
Experimental Leg I	Group D	8 (8%)	1.0y	96 (92%)	2	1	1.5	1
	Group E	19 (42%)	2.5y	26 (58%)	3	3	2.0	1
	Group F	29 (83%)	2.5y	6 (17%)	2	2	1.5	1
	Sub-totals I/Means	56 (30%)	2.5y	128 (70%)	2+	2+	1.6z	1ϕ
Experimental Leg II	Group A	20 (48%)	2.7y	22 (52%)	3	2	2.0	2
	Group B	22 (52%)	2.7y	20 (48%)	3	2	2.0	2
	Group C	36 (78%)	3.7y	10 (12%)	2	2	2.6	2
	Sub-totals II/Means	78 (60%)	3.0y	52 (40%)	3	2	2.2	2
	Total/Mean	134 (43%)	2.8y e	180 (57%)	2e	2	1.9e	1z

TABLE 12

+xzϕ Because of the disproportionately greater number of boys in Group D, I calculated these figures on a proportional basis and worked to the nearest whole number in the case of siblings.

x Because of the disproportionately greater total number of boarders in Groups A, B and C, I calculated this figure on a proportional basis too. There is only a small percentage of boarders in Group D because it is a large urban school fed by a built-up upper-middle class area.

e Since there were proportionately more boys represented in Sub-total I, I calculated these figures on a ratio of 13:18, and worked the second figure to one decimal place, as with the other figures in the same column.

z 120 boys had been to only one school, whereas 107 boys had been to two schools.

The following points emerge from Table 12 above:

(i) Excluding Group D, where all 8 boarders are in Std. 5C (see Head's reason in Appendix E) there are virtually the same number of boarders as day boys in the A and B streams of Schools E, F and C.

Eventually, however, all groups were matched in all facets. When the November results came to hand not only were the underage and grossly overage groups dropped but also the two "Standard 6" overage Sub-groups were run together to facilitate statistical analysis. This is not reflected in the Tables (in Appendix C) as they stand because if these results were omitted, and/or rationalised, the picture would be incomplete and changed.

In matching the various Control and Experimental Sub-groups I had to eliminate significant differences between means. In order to test the significance of the differences between means I used the method advocated by Milton Smith in Chapter IX of his book, A Simplified Guide to Statistics for Psychology and Education, the chapter entitled, "Tests of Significance of Small Samples: Fisher's Table of t", Section 3, The Significance of a Difference between the Means of two Small Uncorrelated Samples. I used the formula and method for Uncorrelated Samples rather than those for Correlated Samples because

> "we say that data are correlated when they consist of two sets of measurements of the same individuals, repeated measurements of the same individuals with the same scale, or measures made upon twins or siblings."
> Downie and Heath, 1965, p.133.

Since I was interested in differences between groups, rather than in individual differences within the same group, and since my matched groups and sub-groups were often of unequal size anyway, it was apparent that I could not treat the data as correlated.

It was intended that comparisons at Phase I level would indicate how a whole experimental class had responded totally to a developmental reading course when compared with a whole control class; that comparisons at Phase II level would show whether as a result of a developmental reading course differentials between standardised test scores of scholastic ability on the one hand, and attainment on the other, had altered within the 3 Sub-groups of each Experimental Group as compared with the 3 Sub-groups of each Control Group; and that comparisons at Phase III level would

(ii) Boys in Schools, E, F, AB and C which draw from a broad cross-section of the population, and which have a number of farmers' sons on their books (see Table 13 below), come from larger families than boys in School D, which draws from a narrow cross-section of the population, a number of parents being professional people (see Table 13 below): 3.5 is the average number of children per family in Schools E, F, AB and C, as against 3.0 in School D.

(iii) A boy (from farming stock) in the bottom half of Standard 5B at School AB came from the largest family: he was one of 10 children.

(iv) There do not appear to be any marked differences between Groups in either Experimental Leg in any of the factors represented here. Nevertheless there are bound to be differences between individuals in one group and individuals in another in one or more of these factors, which is the main reason for comparing matched groups rather than matched pairs.

> "It is obvious that only a fraction of the population can be paired (as with identical twins), and that invariably there would be a substantial segment of each class which matched no one in the other group. These pupils would have to be excluded from the study, so reducing the size of the sample and introducing artificiality into the situation by reducing the class size below the normal enrolment."
> Richards, 1965, p.4.

I included the question "Where is your home town?" in order to get to know the boys better. Furthermore travel is a great educator and I believe that children learn a lot, quite incidentally and informally, from those of their peers who come from distant parts. In fact I found that all five Groups had their share of "lads from afar" so they were comparable in this respect too.

Classification by jobs is always difficult. Does the man who has presumably pulled himself up by his boot straps, and whose son describes him as a "Managing director", fall into the "Professional category" when he undoubtedly earns more than a teacher? How does one classify a "Plumber and Gas Merchant", or a "Seageant in the Police" for that matter? Any system of job classification,

whether it be by income of occupation, is bound to produce some anomalies. I considered using the Hall Jones system of classification:

> "... the classification of occupations into eight grades suggested by Hall and Jones (1950) was adopted. In descending order of socio-economic status there are described as: professionally qualified and highly administrative; managerial and executive; higher grade inspectional, supervisory and other non-manual; lower grade inspectional, supervisory and other non-manual; skilled manual; semi-skilled manual; routine manual."
> Morris, 1966, p.18.

However, I rejected their index for two reasons:

(i) In the South African context, I did not see how I could differentiate nicely between "higher grade inspectional" and "supervisory and other non-manual", nor between "supervisory and other non-manual" and "lower grade inspectional supervisory and other non-manual"; nor, for example, could I see precisely how I should classify a man who "Works at Textile". In other words, the scale was not coarse enough for discriminative purposes in a small South African sample.

(ii) The last two categories virtually fall away in South Africa due to job reservation for the different races.

Finally, after much discussion, I drew up my own system of classification, and classified the 30% breadwinners, as described by their sons, accordingly. In essence I designed the system to fit the people whom I had to classify. Where both parents worked I disregarded the mother's occupation on the assumption that she was not the main bread-winner, and listed only the father's occupation; and where the father was deceased, I took the mother's occupation. The discrepancy of 5 cases between the number presented in Table 12 and the number presented in Table 13, is due to four boys either not answering this question at all, or being too inexplicit to permit of classification (one boy in Standard 5B at School D simply wrote "He works"), and one boy being an orphan.

A number of boys described their fathers' occupations curiously. These are listed hereunder with the somewhat arbitrary classifications in parenthesis. In coming to a decision I was partly guided by what I knew of the boys themselves, and their capabilities:

"Plumber and Gas Merchant" (Category II: Self-employed businessman)
"He is employed on the Railways" (Category III: Railway clerk)
"Man in charge of justice" (Category III: Clerk, unspecified)
"Works with shoes" (Category IV: Artisan, unspecified)
"Seageant in the Police" (Category III: Policeman)
"Sales engineer" (Category III: Salesman)
"Superintendent at Metal Box" (Category IV: Foreman)
"Skin broker" (Category II: Broker)
"Head of the Expenditure in Port Elizabeth Railways (Category III: Railway clerk)
"Works at Embassy Motors" (Category IV: Mechanic)
"He is a Polititian farmer and can go back to medicine (Category I: Doctor)

One further item of interest arising out of the answers to questions 5 and 6 concerns the number of working mothers. Of the 103 mothers who worked in order to supplement their husband's incomes (there were 14 widows who no doubt had to work to earn a primary income), 57, or 55%, were mothers of boys in A streams and 46, or 45% were mothers of boys in B and C streams. Seemingly one third of wives whose husbands were the main breadwinners had elected to go back to work for one reason or another. A good many of these were helping their husbands in their various business enterprises.

I included the question "What are your 3 favourite periods" partly to see whether there was not perhaps a relationship between the pupil's competence and assessed success in the use of his home language and his liking for it (English is much better liked than Afrikaans, for example, and no doubt the reverse would apply in Afrikaans medium schools), but it is also obvious that there is a correlation between preference for a subject and liking for the teacher; and it is difficult, and invidious, to say where the one begins and the other ends.

Group I	Overall rank	Total votes	"Weighted" votes * in classes											
			Group D			Group E		Group F		Gr.A C'ite	Gr.B C'ite	Group C	
			5A	5B	5C	5A	5B	5A	5B	5A	5B	5A	5B
English+	1	173	21	15	22	13	12	24	16	14	18	19	13
Mathematics	2	120	24	28	24	8	0	7	11	9	8	5	5
Geography	3	114	30	13	10	14	11	3	8	5	3	15	7
History	4	92	17	20	6	5	2	6	0	4	2	22	12
Afrikaans	5	86	16	21	29	3	0	4	1	6	4	2	6
Scripture	6	23	6	4	5	2	2	2	2	0	0	0	0
Group II													
P.T.	1	316	27	27	26	47	51	27	25	81	86	-	-
Art	2	196	32	25	24	16	23	-	-	5	3	37	36
Woodwork	3	128	9	10	9	20	24	5	12	35	39	-	-
Science x	4	113	26	31	8	10	2	-	-	20	17	12	7
Choir/Music/ Singing	5	108	32	23	22	0	0	-	-	23	27	0	4
Hygiene	6	90	39	26	22	1	0	-	-	4	2	-	-
Library	7	72	-	-	-	0	3	-	-	31	37	16	16
Speech/Drama	8	65	-	-	-	0	4	28	14	-	-	2	17
Latin	9	14	-	-	-	-	-	6	-	-	-	3	5

TABLE 14

* A first choice was given a weighting of 3, a second choice 2, and a third choice 1.

+ Grammar, "Compo" and Literature, as well as "Reading Lab. period" (mentioned by 2 boys in Group E) and "Rapid Reading" (mentioned by 2 boys in Group F), are all included under this broad heading.

x "Biology" and "Nature Study" are subsumed under this heading.

Group I is the "common core" of six subjects taken by all eleven Standard 5's; Group II is made up of "optionals" which vary between the two Private Schools, and between the Private Schools and the Government Schools. There are some surprising omissions from the "common core": for example, Science in Group F, Art in Group F, and P.T. in Group C. The "common core" is surprisingly small, and markedly academic. Admittedly most schools provide cultural and "manual" additions in the form of Speech and Drama, Singing and Woodwork, but nevertheless the curriculum is still heavily biased towards skill and content subjects, which lend themselves readily to assessment through written examinations. Noughts indicate subjects which were taken but not preferred by any students; dashes indicate subjects not offered.

Judging from Table 14 preferences and study programmes are sufficiently similar in all five schools to suggest that no one Group was unduly advantaged or disadvantaged in respect of general educational provision. Obviously, however, there was considerable variation in teacher competence, motivation, aspirations, and tradition, none of which intangibles can be assessed accurately, let alone equalised.

No doubt I could have given the boys attitude and personality tests as well.

> "Suitable attitude tests dealing with attitudes to school, teachers in general and teachers in particular, could be given, preferably by a stranger. The application of a test of self-concept would also be of value. Statistical analysis of this and other factors of sex and boarder-day pupils should be made."
>
> Richards, 1965, p.6.

However, I had to stop somewhere if I was ever going to get started, so I contented myself with the questionnaire.

Some while later, though, a colleague who was also engaged in research, tested the boys in Groups E, F and G on the I.P.A.T. Children's Personality Questionnaire (Institute for Personality and Ability Testing, Illinois, U.S.A., 1968) in pursuance of his own research, and passed his results on to me for my interest. There is no point in analysing these in any detail because comparable statistics are not available for Groups D, A and B. Nevertheless from the 14 first order factors and the 7 "Second-Stratum" factors which he extracted I have taken 3 first order factors and 2 "Second-Stratum" factors and set these down briefly in the form of means for each Group. When they are compared with the mean results of my standardised tests there is a broad measure of agreement between them. For example the A stream classes invariably emerge with higher Intelligence, Scholastic Achievement and Creativity factors than the B stream classes, though I must add that in every class there are individual results which disagree markedly with the results achieved on the standardised tests which I used. I include Factor O, "Self-assured vs. Apprehensive", because "This is the factor most directly concerned with pervasive subjective distress" (Manual, p.5), and

because I want to show that there is little difference between Group means on this important affective criterion, at least not on a 10-point scale. Nor is there an appreciable difference between the means on Factor G, "Expedient vs. Conscientious", and since this factor obviously expresses motivation I regard the degree of agreement between Groups, and between A and B classes within Groups, as important. If the figures in Table 15 are accepted as indicative then there does not appear to be a significant difference between Groups in affective respects any more than there is in intellectual respects.

Low Score	High Score	Group C		Group E		Group F	
		5A	5B	5A	5B	5A	5B
Factor B: "Less Intelligent	vs. More Intelligent"	7.1	5.8	7.5	5.1	6.7	5.5
Factor G: "Expedient	vs. Conscientious"	4.0	4.0	5.0	4.6	4.1	4.4
Factor O: "Self-assured	vs. Apprehensive"	5.4	6.0	6.1	6.4	6.3	6.5
"Second-Stratum" Factor: Scholastic Achievement		1.9	1.6	3.1	0.9	2.1	1.8
"Second-Stratum" Factor: Creativity		5.4	4.8	4.5	4.1	5.4	4.1

TABLE 15

3.6 The Organisation of the Teaching Programme

A 12-hour week teaching load (3 hours per week in each of four classes) may seem light, and indeed it is by regular teaching standards. But when one is teaching in two different schools, and teaching unfamiliar material,[1] and when one is at full stretch in the teaching situation, then 12 hours per week is enough. I realised in advance,

[1] I had never used an S.R.A. Laboratory myself before in a classroom, although I was familiar with its operation at second-hand, and had lectured on the individualised laboratory approach and method for a few years prior to embarking on this project. Nor had I used the Tachistoscope and Controlled Reader before, save briefly in October, 1967, when I had visited Grahamstown on a reconnaissance and called in at School F to see how the machines worked in practice - I had seen them demonstrated for the first time in July, 1967, in Johannesburg while attending a Reading Congress.

therefore, that this was the most that I could hope to undertake and did not envisage any serious difficulties in working out a time-table with the two schools involved. In the event, however, it proved more difficult than I had imagined mainly because of the tight schedule to which Standard 5's work in an examination-oriented system. If periods were to be sacrificed to a research officer by one or more specialist teachers in each school, how were they going to get through the syllabus? On what were the boys going to be examined at the end of the term, and who was going to examine them? Not that the Principals themselves were unco-operative: far from it, in fact. But educational field research can have a disruptive effect, and they were properly concerned to ensure that the balance of their charges' education was not upset, that nothing important was omitted in order to accommodate an innovation, and that disarrangement of teaching times and personnel be kept to a minimum.

Having sounded out the position in the two schools beforehand I decided to approach School F first because there the times between the Junior and Senior schools had to be synchronised to permit staff teaching at both schools to get through their allotted stints. Furthermore, the room in which the machines were permanently mounted was used by both sections and it was extremely difficult to match the extra 4 periods per week which I was given with each class in the Reading Room, with the few times each week in which the room was free. (Prior to my arrival each of the two Standard 5's had had one period per week on Rapid Reading: I now took over this period, and an additional two as well, while the teacher who had previously taken both classes during these periods came in periodically to observe, and possibly to get some new ideas.) With some neat juggling of a very complicated time-table - it was one of those time-tables where one movement causes a chain reaction - I was fitted in with a minimum of alarums and excursions.

I now approached School E to see whether they could accommodate me in the remaining times available. It took some doing, and I had to be extremely nippy on a Thursday when I stopped teaching Standard 5B at School F at 11.35 a.m. and was scheduled to start teaching Standard 5B at School E, over a mile away, at 11.40 a.m.

(What with having to move the S.R.A. Reading Laboratory, the Student Record Books and the boys' files from another room in which they were kept, and setting out the various materials necessary for the lesson, we hardly ever got started before 11.45 a.m.) The times, particularly in School E, were not always ideal - I had to compete with the weekly cadet parade, and a plangent and ofttimes discordant brass band, on the field immediately adjoining the classroom block, on the last period of a Friday afternoon - yet they were the best that could be managed. My weekly time-table, and break-down, read as follows :

Monday:	8.30- 9.10	School F	Std.5B (Rdg.Room)	40 mins
	9.15- 9.55	School F	Std.5A (Rdg.Room)	40 mins
	10.40-11.40	School E	Std.5A (S.R.A.)	
	2.10- 2.45	School F	Std.5A (Extension Work)+	35 mins
	2.45- 3.20	School F	Std.5B (Extension Work)	35 mins
Tuesday:	8.30- 9.10	School F	Std.5A (Rdg.Room)	40 mins
	9.15- 9.55	School F	Std.5B (Rdg.Room)	40 mins
	10.40-11.20	School E	Std.5B (S.R.A.)	40 mins
	2.15- 2.50	School E	Std.5B (Extension Work)	35 mins
Wednesday:	8.30- 9.30	School E	Std.5A (S.R.A.)	60 mins
	11.05-11.45	School E	Std.5B (S.R.A.)	40 mins
	1.00- 1.35	School E	Std.5A (Extension Work)	35 mins
Thursday:	9.15- 9.55	School F	Std.5A (Extension Work)	40 mins
	9.55-10.35	School F	Std.5B (Extension Work)	40 mins
	10.55-11.35	School F	Std.5B (Rdg.Room)	40 mins
	11.40-12.40	School E	Std.5B (S.R.A.)	60 mins
	2.10- 2.45	School F	Std.5A (Rdg.Room)	35 mins
Friday:	9.20- 9.50	School E	Std.5A (Extension Work)	30 mins
	2.15- 2.50	School E	Std.5B (Extension Work)	35 mins

School E			School F		
5A	5 x 30 min. p.p.w.	2 hrs 30 mins	5A	3 x 40 min. p.p.w.	2 hrs 0 mins
	1 x 35 min. p.p.w.	0 hrs 35 mins		2 x 35 min. p.p.w.	1 hr 10 mins
		3 hrs 5 mins			3 hrs 10 mins
5B	2 x 40 min. p.p.w.	1 hr 20 mins	5B	4 x 40 min. p.p.w.	2 hrs 40 mins
	2 x 35 min. p.p.w.	1 hr 10 mins		1 x 35 min. p.p.w.	0 hrs 35 mins
	2 x 30 min. p.p.w.	1 hr 0 mins			3 hrs 15 mins
		3 hrs 30 mins			

When one or other school was on holiday my teaching load was halved and I was able to go down to Port Elizabeth and across to King William's Town for interim testing as already described, and to check up on Double-Up's progress at School AB. I shall describe the content and method of my teaching in detail in Chapters 3 and 4.

+The complementary exercises which the boys undertook in all four experimental classes come under the heading of "Extension Work". I elaborate in detail in 4.6 and 5.5.

CHAPTER FOUR

DEVELOPING FURTHER READING THROUGH S.R.A. (SCIENCE RESEARCH ASSOCIATES) READING LABORATORIES

> "The Reading Laboratory series is based on the significant differences that exist among students in both learning rate and learning capacity."
>
> Don H. Parker, 1964, p.6.

4.1 Some prefatory remarks

Don Parker, the originator of the S.R.A. Reading Laboratories, was one of the pioneers of individualized reading programmes in the U.S.A.:

> "In 1948 the author, through his early work as a reading specialist, became aware that the typical classroom situation was not conducive to individual growth in learning. In attempting to offer a better learning situation for each pupil, some teachers had divided their classes into two or three groups. But even in grouped classrooms there remained the problem of instructing eight or ten individuals - each different in learning rate and capacity - who did not fit conveniently into any one group. There was also the question of what to do with the other students while the teacher was not working with them....
> "With the aid of teachers, parents, and the children themselves, the author began work on a program that would make available, in a single classroom, reading instructional materials at several levels."
>
> Parker, 1964, p.4.

Basically Don Parker designed a comprehensive programmed reading kit:

> "The Reading Laboratory series is a twelve-year developmental reading program extending from the primary grades into college. The series, unique in that it takes into account individual differences among students in the classroom, has been constructed on multilevel principles - that is, prepared and presented at different levels of reading ability and skill development. This and the built-in Laboratory learning process enables each learner to start where he is in reading achievement and to move ahead as fast and as far as his learning rate and capacity will let him."
>
> Ibid, p.3.

Because there is so much carefully controlled and presented material in each Reading Laboratory, and because there are no less than ten Laboratories, it would have been a physical impossibility for one man to put together the whole series by himself in the space of a few years. So Don Parker engaged a team of experts to work on the series, and the first Laboratories rolled off the presses in the early 1960's, just a few years after Parker had presented his unpublished doctoral thesis entitled Improving Reading and Study Skills in Secondary Schools Through Greater Individualization of Instruction by the Use of Multilevel Materials, Teachers' College, Columbia University, 1957.

In the various hand-books Parker is described as the author of the Reading Laboratory Series. This is somewhat misleading as it suggests that he wrote much of the material used in the Laboratories, whereas the various passages for comprehension are all lifted from other sources. This is not to say that they have not been rewritten according to the exacting demands of over-all length, sentence-length and controlled vocabulary, but certainly the passages themselves are neither Don Parker's nor his team's original creations. However, he and members of his team wrote all the questions and exercises which are based on the various passages, so to this extent he could be described as the author of the series, although I feel that he is more properly described as the originator of Reading Laboratories and leader of the team which put the series together.

4.2 "Basic Assumptions of the Multilevel Philosophy"

The twelve points mentioned hereunder, together with the heading above, are quoted directly from the hand-book already referred to, which is included together with a longer, more detailed Teacher's Handbook in every Reading Laboratory, because these points are essential to an understanding of Don Parker's method. Needless to say they are fundamental to all properly structured learning situations, and integral to any successful programme.

1. "Where two or more students participate in a learning situation, significant individual differences exist in both learning rate and learning capacity.

2. "Students in an average classroom are distributed on a normal curve of individual differences with relation to both learning rate and capacity.

3. "The distribution for rate and the distribution for capacity will likely be different: thus not all students will be able to learn the same skills, or learn the skills they do learn at the same rate. Therefore the learning opportunity for each child must be completely individualized.

4. "Learning will be most efficient if the learner has the opportunity to start where he meets a reasonable degree of success and is allowed to move ahead as fast and as far as his learning rate and capacity will let him.

5. "Most skills to be taught can be ranked on a continuum of difficulty from easy to hard.

6. "It is possible to find out where a student is on the continuum of difficulty, to start him where he is, and to let him move ahead as fast and as far as his learning rate and capacity will let him. (The Starting Level Guide, of which there is one in every Student Record Book, determines where the student should start, so that the teacher does not have to undertake separate standardised tests, and match the results to the material in the Laboratory, in order to determine where a pupil should start in a particular programme; nor does he have to use even more dubious rule-of-thumb, subjective techniques in starting individuals at different points. However, the results of the Starting Level Guide are not infallible and adjustments may have to be made once children are launched into a particular Lab. Moreover, it is helpful to match the results achieved on the S.L.G. with any standardised measures of reading ability that the teacher may have, and to determine the pupil's starting-point in the light of a combination of both measures. If this is done it is less likely that pupils will have to be set back to an easier level, if it is found that they are out of their depth at the level at which the S.L.G. indicates they should start. If a lad is put back a colour it can well have a deleterious effect on his attitude to the Laboratory, as I shall describe in 4.4 hereunder.)

7. "Regardless of his learning rate or capacity, the student should be allowed to see and feel his progress - to experience the satisfaction of forward movement.

8. "Maximum learning of skills takes place when the learner finds success and reward in the learning activity itself as well as in its end result.

9. "A feedback of the results of one's specific performance is essential to achievement of a higher level of performance. This feedback should be both immediate and long-range. Feedback should be received by the learner while his performance is still fresh in his mind and before his next attempt at a similar task. Thus he can continue his profitable behavior and redirect his less effective behavior.

10. "The increased use of self-correcting materials that provide both immediate and long-range feedback can result in more efficient training in the use of many skills required for success in both school and life.[1]

11. "Growth and development in the acquisition of academic skills, like physical growth and development, cannot be regulated by the semester, nor will they proceed at the same rate for all individuals. Therefore the materials and procedures that each individual needs for his next growth steps must be available when he needs them.

12. "Training is not to be confused with education. But thorough training in basic academic skills can facilitate education as life, rather than for life."

Parker, 1964, p.5.

[1]Implicit in Points 7-10 above is that all-important Law of Learning, E.L. Thorndike's Law of Effect: "Responses that are accompanied or closely followed by satisfaction are more likely to happen again when the situation recurs, while responses accompanied or closely followed by discomfort will be less likely to recur." (Lovell, 1963, p.117) Lovell goes on to enlarge upon the Law of Effect, and his elaboration bears importantly on the above 4 points: "Later, in 1932 and 1933, Thorndike made a fresh study of the Law of Effect, using human beings instead of animals. His new evidence led him to give much greater weight to reward than to punishment. The latter did not so much break the bond between the situation and the response; rather it caused the learner to try other moves which would bring him reward. Some psychologists think that the Law of Effect is the most important single principle in learning theory today." (Ibid., p.118. Compare Stones, 1966, p.58 and p.230.)

Parker makes no mention of the necessity for practice in the development of reading skills, but the practice which is the basis of E.L. Thorndike's Law of Exercise[1] is implicit in Points 7-12, and in particular in Points 9-10 when feedback, or reinforcement, is specifically mentioned. Obviously practice is a condition of feedback: there can be no reinforcement unless solutions to problems have been repeatedly attempted. Thus on pp.18-19 of the Student Record Book for Reading Laboratory IIIA, six "vowel patterns" are described and a number of examples are given of each "pattern". These are immediately followed up by a page of "Practice with Vowels" (p.20) in which the student is required to complete 48 examples with the help of the rules set down on the preceding pages. He then turns to p.106 of his Record Book and marks his work. Further "Practice with Vowels" exercises crop up regularly throughout the Power Building section of the IIIA Laboratory. For example, in Orange P.B.1, Section C of 'Learn about Words' sets out five pairs of words as examples and then says, "The letters a, e, i, o and u are vowels. When one vowel is in the middle of a word or accented syllable, the vowel is usually short (˘). (Your Student Record Book tells you more about this rule.)" The student is then required to work through six examples on his own, which he corrects from a Marking Key as soon as he has finished his P.B. Thus he practises new knowledge and skills continually, and consolidates gains in word-building, word recognition and the like all the way through the course. As Parker himself points out,

> "Repetition is essential in learning any skill - whether it is operating a typewriter or learning to read. Simple skills naturally require little practice, whereas more complex ones must be performed again and again before they can be mastered. Most important, however, slower learners require more repetitions or practice with a skill than do average or faster learners. The Reading Laboratory series offers ample opportunity for the student to practice skills until he has achieved proficiency."
>
> Parker, 1964, p.10.

[1] "The response to a situation becomes associated with that situation, and the more it is used in a given situation, the more it is associated with it. On the other hand, disuse of the response weakens the association."

Lovell, 1963, p.117.

Parker's philosophy is based on the theories of learning postulated by C.L. Hull and B.F. Skinner. In other words he believes that students working through his programmes will learn largely through a process of conditioning. This is at once apparent if we compare the way that Lindgren and Lovell sum up operant conditioning, and the way in which Parker describes how children learn verbal skills:

> "Research with operant conditioning makes use of the simple observation that living organisms tend to repeat behavior that is satisfying and to avoid behavior that is not. The experimenter can thus manipulate and 'shape' the behavior of experimental subjects by presenting stimuli that have satisfying effects whenever the subjects show any behavior that is of the type he is seeking. The presentation of such stimuli is said to 'reinforce' the behavior in question."
>
> Lindgren, 1967, p.254.

> "We may say that in the Stimulus-Response Associationist type of learning theory, learning takes place through the establishment or strengthening of bonds between stimulating conditions and the response. But for this to happen the stimulus, the response and the reinforcement must take place together in time. Responses that are followed by reductions of needs tend to be repeated, and those not followed by reward or need-reduction tend to disappear."
>
> Lovell, 1965, p.120.

> "Psychologists acknowledge that maximum learning takes place when the learner receives an immediate indication of how well he has performed a task. Such indication constitutes a reward not only for having made a particular response but also for having undertaken the learning activity in the first place. The skill-learning process has often been described as stimulus-response-feedback-reinforcement or stimulus-response-feedback-redirection. For example, if the recognition of compound words is being taught, the learner will first be exposed to the two words that make up the compound word. In perceiving the words 'base' and 'ball', he receives a stimulus. He then makes a response by pronouncing or writing the compound word 'baseball'. After receiving feedback telling him that his response

> was correct, he repeats the process to reinforce his learning. He goes on to other compound words (such as 'grand/father', 'work/man', and so on) until he grasps thoroughly the idea that a compound word is made up of two smaller words. On the other hand, if his response was not correct, the feedback will redirect his efforts."
>
> Parker, 1964, p.11.

More recent experimental research suggests that learning by trial and error, and according to Skinnerian tenets, may not be as simple or as neat as is suggested here.

> "In 'programmed instruction' the subject matter is spread out in very small steps and interspersed with questions which oblige the reader to think about every item as he goes along. One of the originators, Skinner, considered that the student's answers should be checked at once and that the success rate should be something like 90%. But the experimental work does not entirely bear out Skinner's views. The amount of learning appears to be much the same whether the students are checked at once or later or not at all. And if one then argues that the logical order of progression from one step to another must be a vital factor, one finds further unexpected evidence: a batch of students who took a scrambled course in mathematics did as well as a group who took the course in its proper order. The evidence broadly suggests that the essential elements are the sub-division of the material into many small steps in simple language, and the interspersion of many easy questions. "At any rate, pupils have sometimes made quite phenomenal progress by this means. Programmes do not yet always give enough attention to the solving of problems in fresh situations, or to relating the academic material to relevant experience; but they are improving rapidly."
>
> Collier, 1965.

It is apparent that much has still to be learned about the ways in which students learn from teaching programmes, whether they be linear or branching. That they can and do learn a lot from them, particularly in the way of skills, is not in any doubt, but how and why they learn still requires elaboration and explanation.

Chomsky, from the psycholinguistic standpoint, warns of the dangers of oversimplification and of the "structuralist and behaviourist approaches" in attempting to explain the genesis and development of language in all its complexity.

> "The system of linguistic competence is qualitatively different from anything that can be described in terms of the taxonomic methods of structural linguistics, the concepts of S-R psychology, or the notions developed within the mathematical theory of communication or the theory of simple automata....What is involved is not a matter of degree of complexity but rather of quality of complexity....
> "Honesty forces us to admit that we are as far today as Descartes was three centuries ago from understanding just what enables a human to speak in a way that is innovative, free from stimulus control, and also appropriate and coherent. This is a serious problem that the psychologist and biologist must ultimately face and that cannot be talked out of existence by invoking 'habit' or 'conditioning' or 'natural selection'."
>
> Chomsky, 1968, p.4 and p.11.

Later, in the same series of lectures, he makes specific reference to Skinner in the following critical terms:

> "Skinnerian concepts can be well defined and can lead to interesting results, in a particular experimental situation. What is at issue is the Skinnerian 'extrapolation' to a wider class of cases."
>
> Ibid, p.87.

4.3 The Multilevel method

Every Reading Laboratory is made up of three sections:

(i) Power Builders.
(ii) Rate Builders.
(iii) Listening Skill Builders.

(i) Power Builders. These form the core of the Reading Laboratory, and take up two thirds of the box into which all the Laboratory materials fit so compactly. Each P.B. consists of a passage for comprehension, followed by a number of multiple-choice comprehension questions under the heading, 'How well did you read?', and a number of language exercises under the heading, 'Learn about Words'. The student reads the passage first, following the SQ3R method. After some practice exercises in the Student Record Book which the class work through with the teacher, and after further practice on the first two or three P.B.'s, the student becomes habituated to :

> Surveying - glancing at the illustrations and the title of the passage, then skimming through the passage for key words and pausing only to read the first sentence and last paragraph with any care;
> Questioning - priming himself with pertinent questions, the answers to which will fall into place when he goes on to read the passage carefully (compare the method of scanning the questions before reading the passage to which they refer, which is what the student working on Double-Up is required to do - see 7.1, pp.359-60);
> Reading - reading the passage carefully and with full attention;
> Reviewing - going over the main points in his mind's eye so that everything fits into place and makes sense, which may entail further skimming;
> Reciting - consolidating the review and bringing it sharply and steadily into focus.

He then goes on to answer the questions, some of which test factual recall and others of which test understanding. The latter inferential questions succeed the easier factual questions, which partly prepare the way for the more penetrating and subtle, 'Did you get the point?' questions. He is not required to waste time by answering the questions in full sentences: he merely writes down the letter preceding the alternative of his choice in the appropriate space on a page of his Student Record Book. (See 2.8, pp.45-7 for a discussion of this type of response.)

He now goes on to answer the 'Learn about Words' section which is sub-divided into:

A - finding the words in the passage which fit a number of given definitions: for example, "Find the word in the paragraph that means 1. unwilling to give up (Paragraph 1) 2. coming near (Paragraph 2) 3. upset; stirred up (Paragraph 5) 4. pest (Paragraph 12)";

B - deciding on the meanings of words from their context in the passage: the student is given three choices, for example, "'play' (in Paragraph 2) means to A. act B. have fun C. gamble", and he has to decide which is correct, casting back to find the word in the passage if necessary;

C and D - working with words and building vocabulary by studying and applying rules which govern the formation of words (exercises include work with vowels, consonants, digraphs and consonant blends; compound words, synonyms and antonyms, homonyms, dictionary skills, contractions, prefixes and suffixes, and base words).

His reading and comprehension times are calculated and graphed separately: when he starts reading he notes the time, and when he stops reading he notes the time and works out how long he has taken; he then notes the time when he starts on the 'How well did you Read?' section and works straight through until he has finished both this and the 'Learn about Words' section. This is the time-consuming part of the P.B. and takes anything up to 30 minutes to complete. The steps are so gradual and the exercises sufficiently repetitive and mechanical that they tend to pall on students after a while. The more intelligent children get irritated by having to spend a lot of time on what for them is tedious and trivial drill, and the less intelligent children get frustrated with having to spend even more time on what for them is a laborious exercise. It is virtually impossible to make work of this nature sustainedly interesting without the intervention of the teacher.

"The only real criticism made of the Power Builders was in fact that the phonic exercises were not sufficiently varied."
Moyle, 1966, p.2.

When he has completed a P.B. in its entirety to the best of his ability, the student comes up and collects his P.B. key card from the box and marks his work. He does not waste time ticking the right answers; he merely circles the wrong answers and fills in the correct response, letter or word, alongside. (In this regard the authors ignore an important motivational spur: a page of neat ticks, preferably in red, vastly encourages a pupil, particularly a younger pupil in the primary school.) He then completes his block graphs in the appropriate colour. In the IIIA Laboratory there are 10 colours which mark the Grade Levels of both Power Builders and Rate Builders. These are, in order of difficulty, according to published Grade Levels, and a personal application of the Spache Readability Formula to a cross-section of P.B.'s:

Orange	(Grade 3.0, or R.A.L. ± 8.0)
Silver	(Grade 3.5, or R.A.L. ± 8.6)
Olive	(Grade 4.0, or R.A.L. ± 9.0)
Blue	(Grade 5.0, or R.A.L. ± 9.6)
Brown	(Grade 6.0, or R.A.L. ±10.0)
Green	(Grade 7.0, or R.A.L. ±10.6)
Red	(Grade 8.0, or R.A.L. ±11.0)
Tan	(Grade 9.0, or R.A.L. ±11.6)
Gold	(Grade 10.0, or R.A.L. ±12.0)
Aqua	(Grade 11.0, or R.A.L. 12.0+)

American Grades 3.0-12.0 correspond to South African Standards 1-10, so theoretically the IIIA Laboratory should be suitable for all primary and secondary pupils. In practice, however, the above readability levels do not take account of the "concept level", or "ideational level", of the passages: thus, whereas Aqua P.B.'s would not be beneath South African Matriculation students, Orange P.B.'s would be above most Standard 1's and 2's, so that the effective range of the IIIA Laboratory in South African schools reduces to Standard 3-Standard 10 and could probably be contracted further to Standards 4-8, in which classes it is likely to be most effective. It is significant that the authors state that "The Power Builders have

been carefully selected and attractively designed to interest adolescent" (Teacher's Handbook, 1964, p.26). The material in first three P.B. colours has an interest level in advance of its readability level, and would probably not "engage" many children younger than 10.0. Nevertheless I do not agree with Mr K.D. Moss, Senior Inspector of Schools, Ministry of Education, Rhodesia, when he says in a letter dated 13/5/69, "We have not recommended the IIIA for use with Standard 5 pupils, unless they were well above average in reading attainment." There is easier material in the IIIA Laboratory to cater for all but the most retarded readers in Standard 5, over the short, concentrated course that the authors recommend.[1] However, this is not to say that either the IIA, IIB or IIC Laboratories would not be more suitable with a Standard 5B over an extended course, such as we undertook, than the IIIA Laboratory. I shall elaborate in 4.6 hereunder.

Needless to say students enjoy filling in their graphs in colour and very soon the competition to escalate through the colours becomes difficult to contain.

"Students begin work with multilevel Power Builders in a color level assigned on the basis of their Starting Level Guide scores." (Ibid., p.26) I have already discussed how the S.L.G. works (see p. 127).

The material in the P.B.'s (and the R.B.'s) is predominantly non-fictional. Furthermore non-narrative articles on such topics as scientific discovery, exploration, history (mainly American), animal lore and sport outnumber true stories in the ratio of 2 to 1 in the Brown and Green (Grades 6.0 and 7.0) sections of the Laboratory.

[1] At de la Salle College in Manila, in the Philippines, a Grade 7 Honors Group, which must be roughly equivalent to Standard 5A in Group E, worked with a IIIA Reading Laboratory: "The main teaching material used was the S.R.A. Reading Lab. IIIA....Though designed specifically for the secondary grades, the multilevel materials contained therein made the box just right for the course as pupils could start with the low level articles and graduate with the proper guidance to the higher levels."
(Roldan, 1965, p.2. See also 4.4, p.150.)

In the lower sections (Grades 3.0 to 5.0) there is a slightly higher proportion of true narratives, while in the higher sections (Grades 8.0 to 11.0) virtually all the material is of the expository non-narrative type. Articles and stories are taken either from magazine sources such as Catholic Digest, Colliers, Esquire, Good Housekeeping, The National Observer, Astounding Science Fiction, Saturday Evening Post, and Technology Review; or from books such as Richard Halliburton's Complete Book of Marvels, The Overloaded Ark by Gerald Durrell, Requiem for Twelve Cows by George Rehm, Strangest of All by Frank Edwards, Talent and Geniuses by Gilbert Highet, and The Sea for Sam by W. Maxwell Reed. In either event, therefore, the material that students read is adapted from some other original source, so it is always possible that a student will find that he has read the original version of an article or story. Then, although the subject matter generally captures the student's interest and attention, the passages are stereotyped in shape and form and there is seldom anything about their style to excite the reader. He comes away informed rather than regaled.

(ii) Rate Builders. These are the second most important component of the Reading Laboratory and take up about a sixth of the box. (The last sixth is fitted with P.B. answer key cards, Rate Builder answer key booklets, the two manuals and coloured pencils. The Student Record Books are kept in the two separate open-ended "cushions" in which every Laboratory is packed. Nothing has been omitted and nothing is wasted!) The primary function of Rate Builders (R.B.'s) is to increase rate of reading: "Rate Builders, short multilevel reading selections followed by comprehension check items, encourage students to increase their reading speed while maintaining or improving their comprehension of materials read" (Ibid., p.30). As with the P.B.'s, there are fifteen R.B.'s in each of ten colours and their readability and interest levels correspond closely to that of P.B.'s. In fact the R.B.'s are like truncated P.B.'s in that the passages are shorter, ranging from ±100 words in Orange to ±250 words in Aqua, and the 'Learn about Words' section is omitted. The student is required to read the passage and answer 5 (in Orange) to 9 (in Aqua) multiple choice questions in 3 minutes. The easier R.B.'s give 3 choices in each

question; the harder R.B.'s give 4 choices in each question. So not only is the student required to read more, and more difficult material, but also he has to think harder to decide between answers as he progresses through the colours: for example the fifth and last question on Orange R.B.1 reads "Once they are at sea, the lemmings A. swim to a nearby island B. stop and return inland C. drown", while the ninth and last question on Aqua R.B.1 reads "Implied but not stated: In the eighteenth century A. British rule was more democratic than French rule B. the French people greatly admired their kings C. Voltaire changed his name to escape imprisonment D. French taxes were used to satisfy royal wishes." All the passages are non-fictional but as the student advances through the colours the passages become progressively more abstract and complex.

The same S.L.G. determines the point at which the student "notches in" to the R.B.'s. Generally speaking, though, he progresses through the R.B.'s faster than he does through the P.B.'s because they are so much shorter and less exacting. Once a class is familiar with all three sections of the Laboratory, or after the second week of a fifteen week crash course (which is the optimum length of the course suggested by the authors, working for roughly an hour a day, five days a week for the first seven weeks, for an hour a day for three days a week for the next two weeks, and for an hour a day for two days for the last six weeks), the average student copes easily with three R.B.'s in a session (which is as many as the authors recommend), or at least one P.B. per session. It is suggested that a Listening Skill Builder (L.S.B.) be used with two R.B.'s in a typical R.B. session from the fifth week onward, and that there be three R.B./L.S.B. sessions for every four P.B. sessions so that students proceed through the three sections of the Laboratory "in step". Nevertheless most students tend to get ahead faster in R.B.'s than they do in P.B.'s. They do not seem to need to work through as many R.B.'s as P.B.'s at any particular level to achieve the required degree of proficiency suggested by the authors for promotion to the next colour, which is the same for both P.B.'s and R.B.'s:

> "Although there can be no set rule, it is generally felt that the student consistently achieving from 95 to 100 percent in thirty to forty minutes in five to eight sessions should be moved to the next color level. If he is achieving less than 70 percent within approximately forty minutes, he should move to the color level immediately below the one to which he was assigned. If a student is achieving between 70 and 85 percent in a similar amount of time, he is correctly placed and should continue in his assigned level. Some students may do only eight or ten Power Builders or Rate Builders in a color level before moving up. Most will do more: some will do all.... There is a wide range in the number of Power Builders or Rate Builders a student needs to read within a color level. At least five Power Builders are required to expose the student to all the skills presented within a color level, but a student will more commonly complete between eight and ten."
> Teacher's Handbook, 1964, p.35 and p.36.

Although no mention is made here of the number of R.B.'s the average student needs to complete in order to win promotion to the next colour (as with P.B.'s his comprehension should be a consistent 80%-100% of the questions asked over at least five P.B.'s or R.B.'s before he is promoted), the authors allow for differentials in progress through these two sections of the Laboratory: "A student may move ahead more quickly in Power Builders than in Rate Builders. On the other hand, the exact opposite is entirely possible. In other cases students progress somewhat evenly in both" (Ibid., p.40). Of the 45 Standard 5 boys who worked with me on the IIIA Laboratory 28 were 2 colours ahead in R.B.'s, 17 were 1 colour ahead, and none were "in step" or behind in R.B.'s, as compared with P.B.'s, by the end of the 20-week course. The boys in the A stream were generally further ahead than those in the B stream: of the 28 boys who were 2 colours ahead in R.B.'s 19 were in the A stream; of the 17 who were 1 colour ahead only 5 were in the A stream. The youngsters themselves thought that R.B.'s were easier than P.B.'s and most of them liked them better because they could get through them more quickly and literally see more progress, in terms of shaded "tube" graphs, for a smaller expenditure of effort. Furthermore correction of R.B.'s is not as lengthy and exacting as correction of P.B.'s.

After marking his work from a Rate Builder key booklet, and correcting and learning from his mistakes, as with P.B.'s (I shall have more to say about this in 4.6 hereunder), he completes the graph at the back of his Student Record Book in colour. He then marks off the two or three R.B.'s that he has completed in the period on the matrix on the front cover of his book. One of the most impressive aspects of the S.R.A. programmes is their compactness and attention to detail. Indeed, some South African and Rhodesian teachers find the Teachers' Handbooks too detailed. I myself feel that with anything as vital as reading, and with any method as tightly and meticulously structured as the Reading Laboratory, it is better to give too many instructions than too few and that it is better for the authors to take themselves too seriously than too lightly. After all the competent and experienced teacher can always dispense with those he does not need, whereas even he may err in substituting or improvising where the instructions are either absent or inexplicit. Less experienced teachers would certainly flounder in the absence of precise, logically ordered instructions.

One of the big advantages in having 15 R.B.'s (and 15 P.B.'s) at each level is that anything up to ten students in a class can work on the same colour and need not "jam" for material, even when they have worked through, say, 10 of the 15 R.B.'s available in that colour. And where learning is so individualised, and there is so much physical movement all the time, it is essential that pupils should not have to "hang about" waiting for material, and that there should not be arguments as to who should have a particular R.B., or P.B., at any particular time. Needless to say students can work through both R.B.'s and P.B.'s in any order.

(iii) Listening Skill Builders. The function of Listening Skill Builders (L.S.B.'s) is basically to improve students' attention and concentration, though the authors are more expansive:

> "Listening Skill Builders teach students to approach listening as a skill - to recall, evaluate, and organise knowledge gathered aurally. Students learn the techniques of active listening through a better-listening formula called TQLR (Tune in, Question, Listen, Review). This formula leads students to better listening habits, just as SQ3R leads them to effective reading habits."
>
> Teacher's Handbook, p. 33.

As I have said, once students have been introduced to L.S.B.'s which it is recommended they be only in the fifth week, and even then in conjunction with R.B.'s, L.S.B.'s and R.B.'s are tackled in the same period, one L.S.B. to two R.B.'s. The boys with whom I worked enjoyed L.S.B.'s and found them a pleasant variation from P.B.'s and R.B.'s mainly because it is enjoyable to listen to someone read an interesting passage aloud, and because it requires less effort to gather the facts from someone else than it does to gather them for oneself. None the less they were unanimous in agreeing that L.S.B.'s did not benefit them as much as either P.B.'s or R.B.'s (see 4.8 hereunder), and the fact that there are only 10 L.S.B.'s, and that the students are only introduced to them after they have really got their teeth into P.B.'s and R.B.'s, indicates that they are considered to be of lesser importance than either P.B.'s or R.B.'s.

The method is simple. The teacher settles the class, and removes such distractions as rulers, razor-blades, "fly-catties", and the like. Then, after a brief introduction, he reads with as much expression as possible a non-fictional, self-contained passage about 1200 words long. Next he instructs the pupils to turn to the appropriate page of their Record Books and complete 6 multiple choice questions (there is a choice of 4 alternatives in each). When they have finished he turns up the key in the Teacher's Handbook and the children mark, preferably by discussion rather than dictation. Finally they convert their scores to percentages, as with P.B.'s and R.B.'s (there is a conversion table provided in the back of every Student Record Book), and complete the usual "tube", or block, graph. The first L.S.B., appropriately enough, instructs the students how to use TQLR to maximum effect.

4.4 Results of S.R.A. Reading Laboratories in the U.S.A., Puerto Rico, Venezuela, the Phillipines, the U.K. and Australia

The editors of S.R.A. Reading Laboratories state:

> "The author later instituted a series of experiments designed to test the effectiveness of the multilevel instructional process. Initial experiments showed student gains of ten to fifteen months of reading achievement over a three-month instructional period. In an experiment involving 456 seventh-grade students in Charlotte, North Carolina, the group

> using multilevel materials showed a gain of 112 percent over the control group using one-level materials. Before publication the READING LABORATORY method was tested over a period of six years, on an estimated six thousand students in Florida, North Carolina, and Westchester County, New York."
> Individualized Learning through the Reading Laboratory series, p.4.

While one can appreciate the need for brevity in a 23-page introductory booklet of this sort, these grand yet vague claims for the proven success of S.R.A. Reading Laboratories are no substitute for a few precise facts and figures. For example, the editors do not define "reading achievement". Do they mean (i) results achieved on a standardised word reading test, individually administered, or (ii) results obtained on a standardised comprehension test, group administered, or (iii) increments in vocabulary as measured by a standardised group test, or (iv) increase in speed, again as measured by a standardised group test? Or do they mean a combination of all these skills measured both individually by a word reading test and in the group by a comprehensive test of comprehension, vocabulary and rate, such as the Gates-MacGinitie test? Then how did various gains compare with results achieved by control groups, whenever these were used during this trial period? In the case of 456 seventh-graders (who correspond to South African Standard 5 pupils), how long did it take the experimental group to show "a gain of 112 percent over the control group"? The customary 15 weeks suggested by the authors? And was the gain sustained thereafter? In short this statement is altogether too sweeping to convince. It leaves too many questions unanswered. And yet it is the only paragraph in either Individualized Learning through the Reading Laboratory series or the Teacher's Handbook which attempts to provide supportive evidence of the success of Reading Laboratories in the schools. Perhaps in the U.S.A. they are too well-known to need support, or the 45 books and articles listed under Selected Readings[1] are more readily available there than they are in South

[1] Individualized Learning through the Reading Laboratory series, 1964, pp.21-23.

Africa, or elsewhere. In any event it seems a pity that there is not anything a little more substantial by way of evidence in the Teacher's Handbook for the harassed classroom practitioner to take in swiftly. Such a person has neither the time nor the inclination to delve into sources which are difficult to obtain anyway. Alternatively the authors, or editors, might either suggest a standardised reading test, or devise and standardise their own test, to measure increments objectively and accurately. Their own test could be included in the kit, or in the Teacher's Handbook, in which case it would supply one of the very few lacks in this extremely comprehensive series.

The affluent society in the U.S.A. is well able to afford full-scale reading centres, or reading units or reading laboratories, as they are variously called, in their large metropolitan high schools. Consequently S.R.A. Reading Laboratories are often only one component in a matrix. The following excerpt will probably make many reading teachers envious:

> "The mechanical instruments in each laboratory consist of the following: one tachistoscope, one Controlled Reader, one Tachist-O-Flasher, several S.R.A. Reading Accelerators, several Shadowscopes, several ear phone systems, and one tape recorder. Graded films and tapes are available for these instruments. There is a great variety of reading materials in each laboratory. Carefully selected for interest as well as instructional level, these materials range from Grade Two through Fourteen. Among the graded reading materials are the following: S.R.A. Reading Labs; S.R.A. Pilot Libraries; S.R.A. Better Reading Books by Elizabeth Simpson; Be a Better Reader series (Prentice-Hall) by Nila Banton Smith; Transfer Reading Manual, Educational Developmental Laboratories...."
>
> Berkey, 1967, p.40.

There is all this, and much more, to serve "15 students at a time" drawn from a high school population of six thousand students attending four high schools in the Centinela Valley Union High School District in south-west Los Angeles. Not only is the unit well equipped; it is also well staffed: "Four special reading laboratory teachers, one for each of the high schools, were hired

to work under the supervision of two co-ordinators. These laboratory teachers were instructed to work with and help reading teachers in their respective schools and to conduct the program according to the plans of the overall program." (Ibid., p.39) In fact the "reading laboratory", so-called, is mounted in two separate rooms and "when the students are thoroughly motivated and are ready to go into the reading laboratory for their training, the class of 30, which is homogeneously grouped for English I, is divided in half. The regular English teacher takes 15 of these students into one of the two reading laboratories; the special reading laboratory teacher takes 15 in the other."

Highly specific and carefully structured provisions for reading instruction like these are certainly not atypical of American schools, and many of the reading courses offered are either recommended or mandatory for every student at some point or points in his high school career. Although S.R.A. Reading Laboratories are only one of the components in this complex it is worth noting the gains made by students who complete these courses because S.R.A. Laboratories must contribute significantly to these gains, and because they are very similar to the gains claimed for S.R.A. Laboratories on their own.

> "The testing instrument used in our program is the Nelson Silent Reading Test (Houghton Mifflin).... Three forms of this test are given to all ninth-grade students. Form A is given to the students before they begin their laboratory training. Form B is given at the end of the laboratory session to see how much progress has been made during the training period. Form C is given at the close of the school year to determine carry-over and the amount of achievement made during the entire year. The improvement made by our first semester students during the school year 1964-1965 indicates that the reading program has merit. The average reading level of our students at the beginning of the program was seventh grade, seven months (7.7). The average reading level at the end of the laboratory session was eighth grade seven months (8.7). This makes a total gain of ten (10) months in eight weeks, more than one month for each week of instruction. At the end of the school year, after the students had gone through their follow-up program, the average reading level was ninth

> grade, five months (9.5), a gain of eight months (.8) since the laboratory period. These figures show that an overall increase of one year and eight months (1.8) was made during the school year. These gains are typical of the growth throughout the six-year period."

It is worth noting, however, that these dramatic gains only served to bring the pupils up to their correct grade level.

The author goes on to point out that students gain in other observable, but immeasurable, respects:

> "Significant also is the fact that the majority of our students make many gains which cannot be measured statistically. The strength of the total program is mirrored in the students themselves. Along with their appreciable improvement in reading, our students gain self-confidence. They develop socially as well as educationally. Many students, for the first time, begin checking books out of the classroom and school libraries. Almost all our students seem to have a more favourable attitude toward reading and toward school in general."

If my own experience does not confirm the author's results at least I am able to endorse her views.

Recently a number of reports from the Exchange File of Dr Don H. Parker have come to hand, and 12 of these are summarised briefly hereunder.

1. <u>Reading Improvement among Fifth Graders Using the S.R.A. Reading Laboratory IIA</u> by Miss Myrtice K. Locke, Butler, Georgia, 1962.

A class of 27 fifth grade boys and girls with I.Q.'s ranging from 92 to 124, and a mean I.Q. of 105.8, gained more than 15 months in reading achievement, as measured by the California Achievement Test, Forms X and Y, in 4 months of instruction. On the pre-test the class average on the Total Comprehension Score was 5.48. On the post-test the class average was 7.0.

Individual pupils gained from 0.8 to 3.9. Only one child regressed, -0.7. Gains in Vocabulary were nearly twice as great as gains in Comprehension, 5.28 to 7.17, or 1.89, compared with 5.82 to 6.90, or 1.08.

2. Study of the Measured Results while using S.R.A. Reading Laboratories in the Fourth Grade for an Eleven Week Period, author unnamed, Brownsville, Texas Public Schools, Spring, 1963.

The subjects of this experiment were "students in forty-five sections of the fourth grade." They were given "a Standardized reading test" at the outset and at the conclusion of an eleven week course." "The normal gain for this period of time for a typical group would be 3 months. The median gain for these sections was 7 months."

3. Some Thoughts about the S.R.A. Reading Laboratory by Brother Leonard Courtney, FSC, St. Mary's College, Winona Minnesota, 1959.

> "Last June I was requested to direct a summer reading program in a large Chicago private school. The program was designed to remediate some of the boys who would be ninth-graders the following September....
> "There were 84 pupils in the program, 79 of whom were eighth-graders, five being regular high-school students. They were divided into three small groups for 90 minutes of reading instruction daily through a five-week period. The initial 50 minutes of each period were devoted to the use of the S.R.A. Reading Laboratory, as directed, and the remaining time to small-group instruction in some principles of word identification....
> "The small-group instruction in word-identification was not particularly successful, and was not a part of the Reading Laboratory program, so that the good results ought to be attributed principally to the main instructional device, the Reading Laboratory." This may be so, but nevertheless it remains an unproven assumption.
> "The intelligence of the pupil-group was low-average, only a handful being over 100 in I.Q. At the beginning of the course only eight students were reading at 8.0 (Stanford) or better. None were above 8.5. The average reading grade-level was 6.4."

By the end of the course the average reading grade-level had increased to 7.7, an average improvement of 1.3 years per student. Apparently only 15 pupils failed to improve.

Brother Courtney concludes by drawing attention to "a few hazards", two of which are worth noting:

(i) "Individual competition frequently develops, hardly conducive to maximum results." He makes no mention of cheating, though this is often a result of excessive competition between pupils.

(ii) "The teachers must take great care to direct students into personal analysis of work and progress, or the whole technique might become very mechanical." This was my own experience. (See also 4.8, pp.206-7 and p.212.)

4. An Experimental Project in the Teaching of Reading with the S.R.A. Reading Laboratory by William Bullock, Jnr., and Robert C. van Brook, Glen Ellyn Public Schools, Illinois, 1960.

In this experiment 46 Fifth Grade pupils in two different schools were given Form Am of the Iowa Silent Reading Test as a pre-test. They then had six weeks' instruction on a Reading Laboratory, or 30 sessions of 50 minutes each. Finally they were given Form Bm of the same Reading Test to measure gains. No Control group was used. Nevertheless the authors subjected their results to statistical analysis - the techniques used are not stated - and came up with the results summarised below:

	Levels of Significance of Difference between pre- and post-tests		
Sub-test	Group 1	Group 2	Total Sample
Rate	Nil	Nil	5%
Comprehension	1%	1%	5%
Directed Reading	Nil	1%	1%
Word Meaning	1%	Nil	Nil
Paragraph C'hension	Nil	Nil	5%
Sentence Meaning	5%	Nil	1%
Alphabetizing	1%	1%	1%
Use of Index	1%	1%	5%

In two cases, that of Rate and Paragraph Comprehension, the difference only becomes significant when the groups are merged and numbers increased. However in two other cases, that of Comprehension and Use of Index, the merging of the two groups actually reduces the level of significance from 1% to 5%. No reason is given for these ambiguous results. Then in Group 2 the difference between pre- and post-test results on the Directed Reading sub-test is significant at the 1% level, while in Group 1 the difference is insignificant. In the next sub-test, Word Meaning, the situation is reversed: Group 1 achieves a difference which is significant at the 1% level while Group 2 makes no statistically significant gain. There is no clearly discernible pattern of progress, yet both groups appear to have gained from their Reading Laboratory courses in different ways. This could be due to differences between individual pupils which were disguised when the groups were matched originally on the basis of mean ability and achievement; or to differences in teacher-approach; or to limitations of the test instruments; or to a combination of two or more of these factors.

5. Bridging the Gap by Donald Jalbert, Lyons Falls High School, New York, 1959.

A group of 18 tenth grade students worked for 45 minute class periods over a period of 4 months on an unspecified S.R.A. Reading Laboratory. The 6 girls and 12 boys in the group had had no formal instruction in reading since Grade 8. They were given the California Reading Test, advanced level, 1957 edition, Form X in the pre-test and Form W in the post-test. In the pre-test they ranged in reading ability from Grade 7.5 to Grade 15.0. "It is this diversity that suggested the use of multi-level materials with the group." In the post-test they ranged from Grade 9.2 to 15.7. "The average score on the total test at the beginning of the term had been Grade 10.8. It was now 12.0.... The average gain for the group was 1.2 years." Individual total gains ranged from 0.1 to 4.5 grade scores. Only two students failed to improve, one of whom regressed -0.9. In this experiment the mean gain in Comprehension exceeded that of Vocabulary, 11.0 to 12.6, or 1.6, compared

with 10.5 to 11.5, or 1.0. "It is worth noting that substantial gains were made both by individuals who were superior at the beginning of the term and by students who were below grade level."

At the end of the course students were asked to write an evaluation of their work on the Reading Laboratory.

> "Written responses...showed that students believed they were making progress. They seemed to be more aware of their own strengths and weaknesses than they had been....Even without the objective evidence presented above, a strong favourable reaction from students is often justification enough for using an educational method (my emphasis)."

In conclusion he makes another important point:

> "The project may have had some effect on teaching in this small rural school (my emphasis). Influenced in one way or another by the apparent success of individualized instruction, the following changes took place during this term: the social studies teacher requested a list of supplementary materials from the State Education department and sought books of appropriate difficulty for supplemental readings assigned in his course; the science teacher gave lessons to his students on reading techniques useful in dealing with science text books; the library acquired a new set of encyclopaedias written at a simpler level than the set previously in use; the eighth grade teacher experimented with individualized methods of reading instruction."

6. Multi-Level Bi-lingual Pilot Study, author unnamed, Commonwealth of Puerto Rico, March-May, 1967.

In a 3-month instructional period 497 pupils in unspecified classes gained 7 months in Spanish reading achievement and 24 months in English reading achievement. The tests used are not specified. "An equal number of children were tested as controls. These groups made gains beyond their 3-month expectancy due to 'Hawthorne effect' but gains of multilevel groups in Spanish were 190% more than controls; in English multilevel groups gained 500% more than controls."

In poor, under-developed countries savings must be effected wherever and whenever possible, and this writer finds that "the cost per pupil is less than with traditional textbook materials."

7. Multi-level System Experiment, author unnamed, Usaid, Venezuela, October-February, 1966-7.

In this study 3247 students in Grades 3,4,5 and 6 were split up into a control group (1514 students) and an experimental group (1733 students). They were given unspecified reading achievement pre-tests and post-tests and at the end of 13-week tutorial period on "traditional teaching methods" and "the multilevel system", which presumably included work with S.R.A. Reading Laboratories, the experimental group had gained 5.67 "test score points" more than the control group (the experimental group made 13.97 "additional gain" over the expected gain for 3 months, and the control group made 8.30 "additional gain" over the same period). The experimental group achieved "68% more learning" (writer's emphasis) than the control group. "In terms of grade levels, the experimental group made nearly two grade levels of growth in reading achievement during the 3-month instructional period." The writer accounts for the above-average gains made by the control group in terms of the Hawthorne Effect.

8. Speed-reading for Seventh Graders? by Aurora H. Roldan, de la Salle College, Manila, Philippines, 1965.

Here 20 students in Grade 7 were put through "the Honors Accelerated Reading Program" which was a course of instruction on S.R.A. Reading Laboratory IIIA lasting 10 weeks working "an hour-long session twice a week". They were given "the standardized Diagnostic Reading Survey Test" at the outset and at the end of the tutorial period and they increased in Speed by 84 w.p.m. (267 w.p.m. to 351 w.p.m.[1]), in Vocabulary by 8% (88% to 96%), and in Comprehension by 11% (74% to 85%). In the absence of a control group there is, of course, no yardstick by which to measure these gains, but it is doubtful whether they would prove to be statistically significant.

[1] On Leg I of my experiment the Standard 5A in Control Group D increased from 250 w.p.m. to 355 w.p.m. without the benefit of any developmental reading programme, and seemingly solely as a result of practice on the Interim Test which they had completed 3 months previously in August, 1968.

	Class A : 24 children Jan. 1965: Mean C.A. 9.9; Mean M.A. 10.4		Class B : 30 children Jan. 1965 : Mean C.A. 10.4; Mean M.A. 10.5	
Term 1 (12 weeks): "S.R.A. Work"	Jan. 1965		Jan. 1965	
	Mean C'hension R.A.	9.8	Mean C'hension R.A.	10.9
	Mean Word R.A.	10.5	Mean Word R.A.	10.7
	Apr. 1965		Apr. 1965	
	Mean C'hension R.A.	10.11	Mean C'hension R.A.	11.6
	Mean Word R.A.	10.10	Mean Word R.A.	10.11
	Mean C'hension R.A. gain	1.3	Mean C'hension R.A. gain	0.9
	Mean Word R.A. gain	0.5	Mean Word R.A. gain	0.4
Term 2 (12 weeks): "Normal English Work"	July 1965		July 1965	
	Mean C'hension R.A.	11.1	Mean C'hension R.A.	12.6
	Mean Word R.A.	11.1	Mean Word R.A.	11.6
	Mean C'hension R.A. gain	0.2	Mean C'hension R.A. gain	1.0
	Mean Word R.A. gain	0.3	Mean Word R.A. gain	0.7
	Jan.-July Total Gains:		Jan.-July Total Gains:	
	Mean C'hension R.A.	1.5	Mean C'hension R.A.	1.9
	Mean Word R.A.	0.8	Mean Word R.A.	0.11

Term 1 (12 weeks): "English Workbooks-Ridout New Reading-Readers' Digest"

Term 2 (12 weeks): "S.R.A. Work"

TABLE 16

9. A Report on the Use of S.R.A. Reading Laboratory IIA

by Donald Moyle, Lecturer in Education, Edge Hill College of Education, Ormskirk, Lancashire, 1966.

This report is best summed up diagrammatically (see Table above). The author himself tested all the children in both classes in January, April and July. He used the Schonell Silent Reading Test R4B to assess comprehension reading ages and the Schonell Graded Word Reading Test to arrive at word reading ages. The former was administered to the group and the latter was given individually. He spent three 45-minute periods per week with each class in order to equalise the teacher variable. He attempted to overcome the "salutary effect of new material" by introducing "materials previously unknown to the children" in Class B during Term 1 while Class A were

working on the new S.R.A. material: "This it was felt would test the S.R.A. material more severely." Judging from the results presented above it may have done this: Class B made up 0.9 years on the average in Comprehension and 0.4 years on Word Reading during Term 1, while Class A, after the initial boost of the Reading Laboratory during Term 1, were only able to make up 0.2 years on the average in Comprehension and 0.3 years in Word Reading on "Normal English Work" during Term 2. Nevertheless it could be argued that the experimenter did not teach as well to the traditional material with Class A in Term 2 as he had to the new material with Class B during Term 1. Alternatively, the slightly less intelligent Class A might have virtually reached their peak in reading achievement working on the Reading Laboratory during Term 1 and been able to do little more than consolidate their first term's progress during Term 2. In any event the difference in gains in mean Word Reading attainment between January and April in Class B and April and July in Class A is too slight to be significant, so all in all it does not seem as if any firm conclusion on this point can be reached on the evidence presented here.

The final averages were distorted to some extent because "15 pupils had reached the ceiling of the comprehension test norms." In such small groups this can have a marked effect on results. Nevertheless there seems to be little doubt that the S.R.A. material had a marked effect on silent reading comprehension in both cases and an appreciable effect on word reading ability in Class B. Furthermore, Class A did not regress during Term 2 after their dramatic spurt in comprehension during Term 1 while they were working on the S.R.A. Laboratory, so it would seem that gains were maintained, at least in the short term.

> "Obviously children could not maintain such rapid growth over a long period, but it might be argued that the laboratory should be used less intensively over a longer period of time."

Even if it were to continue to be used intensively as the author suggests, and even if children did not improve on the level of proficiency achieved after spending the first term of a 3-term year on the Reading Laboratory,

> "they would in fact have achieved a higher level than that normally achieved during an academic year and could spend two terms giving more time to other areas of the curriculum."

The differences between comprehension and word reading test results may be attributed largely to the small numbers, and to the differences in mean Comprehension R.A.'s in January between the two classes. Nevertheless it is clear that individuals vary considerably in performance from one test to another. This is due to differences between the tests as well as to differences within individuals. Thus when allowance is made for Class A's lower attainment in comprehension in the January pre-test, Class B did appreciably better than Class A in comprehension over the two terms that the experiment lasted. The differential gains on the two different types of test indicate that much depends on the choice of test instruments in research of this sort. (Compare my findings with larger groups: see Appendix T, pp.582-90.)

10. Report on the use of S.R.A. Reading Laboratory IIB by C.R. Pearce, Hyvots Bank School, Edinburgh, Scotland, 1960.

In this case 40 children in a Primary Class 7B were given 3 months instruction on the Reading Laboratory for a period of 12 weeks. They worked on the Laboratory for up to an hour every day for the duration of the course. The report is mainly descriptive and only two standardised measures of attainment are quoted, namely "the Transfer Verbal Reasoning Test" which was used in both September, 1960, as a pre-test and in January, 1961, as a post-test. In September the mean V.R.Q. was 96.4 and in January it was 103.2, a gain of 6.8 points, part of which could no doubt be attributed to practice effect. Nevertheless the writer concludes that "As these tests involve reading ability, it is possible that there may be a significant difference between the results of these two tests."

Comparing his figures with mine (see 6.3), and taking into account the small numbers, I doubt very much whether this gain would prove to be statistically significant, even had a matched control group made no comparable gains at all.

Some of the points made by the writer are well taken:

(i) "In the course of the term's work the children read a great variety of stories, probably more than they could read by any other scheme in which comprehension work is involved." (See 4.8, p.205.)

(ii) "The passages for reading are not short snippets followed by extensive lists of questions, which destroy interest. The actual reading is paramount...'Why' questions are as numerous as 'what' questions, and distinguishing fact from opinion is a calculated attempt to make this study relevant to real life situations."

(iii) "Certain specific phonic work involving long and short vowels is either unnecessary for our pupils or even misleading as to Scottish speech practice (e.g. distinguishing between long and short 'oo' in such words as 'book' or 'boot')."

(iv) "Work on the Reading Laboratory sets a pattern for development of similar work in other parts of English or in other subjects."

(v) "The class teacher feels that oral expression has deteriorated slightly this term as the only expression work in English has been in poetry or other subjects. She thinks she will easily rectify this next term: but this might prove more serious with younger classes." (See 2.8, p.51 and 7.3, pp.387-9.)

11. Report on Use of Reading Laboratory IIA with Classes Primary 6B and 5B at Tullos Primary School, Aberdeen Scotland, author unnamed, 1963.

Numbers of children involved in this experiment are not given. Some 45 minutes per day for a 3-month period were devoted to work on the Reading Laboratory, and it was found, "In the first 2-3 weeks especially, that nearly double the time stated in the Teacher's Handbook was being required to get through the daily task. Gradually, as the children became more familiar with the material, the time taken reduced to approximately 45 minutes per lesson."

The Schonell Reading Test (unspecified) was used to pre-test and post-test both classes, and the Class 5B made up 9 months in 3 months (9.5 to 10.2), while the Class 6B made up 11 months in 3 months (10.3 to 11.2). These Reading Ages are based on Aberdeen norms. Since no control group was used, and since no account was taken of practice effect or of the Standard Error of the Test(s), it is not possible to say whether these gains are statistically significant, although like most of the results in the other experiments which I have discussed, they seem to be impressive.

The comparison between Schonell standardised test results and "Reading Laboratory Reading Ages" is interesting. Presumably the latter were derived from the Grade Level of the material on which pupils started and finished, and are, therefore, rough. Nevertheless, there is a wide discrepancy between them which underlines the need for careful choice of a test instrument, and a rigorous testing procedure, in any experiment of this sort. The average increase in "Reading Laboratory Reading Age" in Class 5B was 21 months (7.10 to 9.7), while in Class 6B it was 20 months (8.5 to 10.1). In other words, although both classes appeared to make up much more ground in "Reading Laboratory Reading Age" than in "Schonell Reading Age", they started so much further back on "Reading Laboratory Reading Age" in the pre-test that they were still substantially behind on this measure of reading ability as compared with "Schonell Reading Age" in the post-test. Teachers may be so eager to enhance their pupils' performance that they may delude themselves into confounding apparent progress with real progress.

12. <u>Reading Improvement Among High School Students Using the S.R.A. Reading Laboratory</u>, author unnamed, Western Australia Secondary Schools, 1959.

In a pilot study undertaken to prepare the way for the main experiment "a First Year academic class of 44 students and a Second year non-academic class of 48 students" at Armadale High School gained "10 grade months" over a 3-month period, June-August, 1958, working on S.R.A. IIIA Laboratory. "Testing of students was carried out before and after the 3 months' use of the Laboratory using the A.C.E.R. Reading Tests Form C, which test Word Knowledge, Speed of Reading, and Reading for Meaning. As the A.C.E.R. Medians for Grade

Norms exist only for Grades 4 to 7 Primary, those for years 1, 2, 3 Secondary were estimated by extrapolation of the existing norms."

In April-July 1959, the same Laboratory was more extensively tested with 971 students dispersed through 36 classes in 7 High Schools. 581 students were in their 1st year and were distributed fairly evenly over A, B and C streams; 334 students were in their 2nd year, 81 being in the A stream, 122 in the B stream and 131 in the C stream; 156 students were in their 3rd year, 50 being in the A stream, 25 in the B stream and 81 in the C stream. Over-all the 971 students were fairly evenly divided between the 3 ability groupings of A, B and C streams. The same reading comprehension test, "Reading Test Form A", was used for both pre-testing and post-testing. This test was specially constructed by "the Research Section".

> "It was composed of four passages of reading with 5 questions of information and inference type on each passage and with a 16 minute time limit. The reliability data for this test are N=325, S.D.=3.97, r (calculated by the Kuder Richardson Formula 20)=0.82, and P.E. (probable error of measurement)=1.2. A total of 1675 students were included in the pre-test. From these a sample approximately representative in terms of the three streams of students was selected....On the basis of this sample grade median norms for secondary school years one to five were calculated and those for grades 6 and 7 estimated by extrapolation downwards. In an effort to estimate the practice effect of testing and re-testing with the Reading Test Form A over a period of 3 months, the test and re-test procedure was carried out with a control group of 100 first year students who experienced the normal school programme. The average improvement shown was that which would be expected on the basis of the First Year grade median norms for 3 months normal schooling."

The 971 students gained a mean 13.4 "grade months" in 3 months' work on the Reading Laboratory. 1st Years gained 12.8, 2nd Years gained 13.1, and 3rd Years gained 16.0 "grade months". 368 students who were classified as "retarded" on the results of the pre-test gained 24.3 "grade months", 275 "average" students gained 13.9 "grade months", and 328 "advanced" students gained

gained 7.2 "grade months". Thus it would seem that retarded readers[1] have most to gain from the Reading Laboratory (compare H.B. Pont's conclusions on pp. 158-60). On the other hand this seeming advantage to the "retarded" pupils may be partly due to the test instrument, it may well have proved easier for pupils who scored in the middle and lower registers of the test initially to improve on their scores than for pupils who scored in the upper registers and closer to the ceiling of the test. This certainly proved to be the case with the S.A.S.R.C.T. (see 3.3, pp. 82-5 and 6.2, pp. 340-4). In any case since no control group was used the experimenters could not determine whether these gains were statistically significant. However, from the results achieved by the 100 students who were employed to test the effect of practice on the test instrument, increments might have proved to be significant, particularly since fairly large numbers of students were involved in the experiment.

Judging from these 12 reports, it would seem certain that S.R.A. Reading Laboratories do improve the efficiency of silent reading significantly. But it must be pointed out that in the majority of cases no control groups were used, and therefore it is impossible to test the significance of gains statistically. Furthermore, even when a control group has been set up, the experimenters have not tested the statistical significance of the gains made by the experimental groups. Though some reports are better than others most of them leave much to be desired. The test instruments are sometimes unspecified; little or no account is taken of standard errors of measurement, the effect of practice and the Hawthorne Effect; and conclusions are reached on the basis of pre- and post-test results deriving from a single test, and often the same test, too, rather than a parallel form. The writers are primarily educators rather than research workers and are therefore not greatly concerned with the significance of gains. As long as gains seem to them to be real and appreciable, and as long as they are supported by an enthusiastic response from both staff and pupils, they are satisfied.

[1] Retardation must not be confounded with backwardness and dullness in this context.

Perhaps this is as it should be because they are busy people whose first concern is to teach more effectively. But there is a danger that they may be deluding themselves to a degree. Teachers are sometimes so responsive to an educational innovation that they teach more effectively to it, and then do not distinguish between gains made as a result of their boosted performance and gains which may be attributable to the innovation itself. This of course is how the Hawthorne Effect came to be noticed. In order to measure real progress in learning it is necessary to be detached and clinical in one's evaluation. A control group is essential and large, representative samples and a battery of standardised tests are desirable. And finally it is vital that all results be subject to rigorous statistical analysis before judgment is passed and pronouncements made.

One of the most telling reports on the value of S.R.A. Laboratories that I have read appeared in Britain in 1966. It is restrained (in contrast with so many other more ambitious yet less well-documented reports), objective and perceptive and I quote at length from the main findings and conclusions because everything that the author says is confirmed by my own experience.

> "The overall effect of the experiment in all schools has been to raise the mean reading quotients of all the groups involved. The mean reading quotients of the experimental groups were not found to have been raised significantly more than the control groups...(Both experimental and control groups were given a silent reading test - Schonell R4 - before the experiment was begun, and from the results of this test a reading quotient, used to overcome age change during the experiment, was obtained for each pupil - author's brackets)...It is clear from the results that the carrying out of this experiment has had a beneficial effect on the reading of the pupils concerned in the experiment. The mean reading quotients of the experimental groups and the control groups are higher than at the beginning of the experiment. However, the results of the follow-up (7 months after the completion of the experiment - author's brackets) seem to suggest that this improvement does not derive specifically from the S.R.A. reading laboratory but more from the carrying out of an experiment.

"While engaged on the experiment and immediately following it the S.R.A. groups did appear to be better readers. However in the months which followed the difference between experimental and control groups was almost eliminated...

"The reading laboratory is really a 'crash' programme in silent reading instruction. It is a short twelve week programme and is not designed to be used continuously throughout the primary school. It boosts a child's reading ability. However, every child has a 'ceiling' of attainment at any particular developmental level, depending partly on personality and partly on intelligence, since obviously one cannot go on increasing the child's reading ability indefinitely. It would appear, then, that the reading laboratory simply enables pupils to reach their ceiling, or at least a higher level of attainment, more quickly and those not using the laboratory take, in the presence of an indirect stimulus, several months more. It is interesting to note that careful examination of the data collected indicates that, in general, pupils in all schools were working at a level below that which one would have predicted from their V.R.Q.'s. This seems to suggest that with normal teaching methods, that is without the stimulus of an experiment or S.R.A. laboratory or similar apparatus, children will work at a level below that of which they are capable. It is more easily seen, then why the control groups were affected. Using this concept of 'ceiling attainment', the King's Park results could be explained on the basis of over teaching. That is, the ability of the pupils has apparently, for a short time, been raised, perhaps by conditioning in a technique, above their actual ceiling. The lack of reason in the process then facilitated forgetting after the constant practice had ceased (the experimental group at King's Park actually regressed 0.7 points in R.Q. during a 7-month period, the first 3 months of this being taken up with S.R.A. Reading Laboratory instruction: at the outset the mean R.Q. was 110.0, while at the end of this time the mean R.Q. was 109.3 - my parenthesis). This retrogression is similar to that which occurs, on occasion, with the poorer pupils of adjustment classes.

"It is not a substitute for the class reading lesson since it is too narrow. Concentrating on silent reading, it ignores the fields of recreative reading, oral reading and reading and interpretation. Nor does

it appear to be better than the normal class lesson for improving silent reading, only quicker. However, the laboratory is, to a large extent, self-administered and puts the responsibility of organization on the pupils, giving the teacher the new role of 'learning consultant'. Any method of teaching which removes the burden of routine from the teacher is obviously worthwhile since it allows the teacher to discover and solve more individual problems. Also the scoring procedure is valuable in that it familiarizes the pupils with the detailed keeping of results and reading of charts. Its place in the normal class would then seem to be that of an extra whose main worth lies in the fact that it is 'different' and thus arouses greater interest.

"However, from what has been said above it can be seen that the laboratory is capable of raising the reading level quickly. If some child was reading well below his developmental level, that is if his reading age was well below his mental age, then the laboratory would be avvery suitable method of instruction. (In fact Mr K. Gardner uses it for precisely this remedial purpose in his Reading Clinic attached to the Institute of Education of Nottingham University; he finds it useful because it contains new and different material on which children have not failed before - my parenthesis.) Thus it would seem that the reading laboratory would be very suitable for use in adjustment classes where the aim is to bring a child quickly up to a level at which he can again join his class."

Pont, 1966.

The most comprehensive and searching report that I have read on the use of S.R.A. Reading Laboratories outside America comes from Australia.[1] I think this report is particularly relevant to the South African context because South African and Australian societies have much in common. For this reason, and because the Report itself is so detailed and pragmatic, I propose to treat of its findings and recommendations in detail, and to relate them specifically to my own experience.

[1] Moore, W.E., The Effects of S.R.A. Laboratory Usage with Fifth Grade Children, Technical Report, Research Bulletin No.29, Department of Education, New South Wales, 1968, 40 pp.

> "This report is concerned with an evaluation of the Science Research Associates Reading Laboratory (Elementary Edition, which is now the revised IIA Laboratory - my brackets) in fifth grade (which corresponds to Standard 3 in South African Schools - my brackets) of the primary school. A controlled experiment was conducted in a sample of schools of the Western area of New South Wales with the aims of ascertaining firstly, its effects on the development of reading skills and secondly, its influence on pupils' scores in group tests of intelligence. The schools were representative of the state's departmental primary schools in regard to range of class size and school size, urban or rural home backgrounds of pupils, and arrangement of classes in single sex or mixed groupings. The reading skills considered were Word Knowledge, Speed of Reading and Reading for Meaning and, in intelligence measurement, group tests of verbal and non-verbal ability were used." (p.2)

Nowhere in the Report is there any mention of the year in which the experiment was conducted but since the Report came out in 1968, I assume that it took place in either 1966 or 1967. It was mounted in the second term of a three term school year because "a course in the reading laboratory requires a continuous period of twelve weeks". None of the 29 Fifth Grade teachers who took part in the experiment were specially trained, or primed, to teach to an S.R.A. Reading Laboratory. Furthermore, no criteria of teacher competence or efficiency were applied to the participating teachers, so that it can be assumed that the Hawthorne Effect was not enhanced, at least, though it must necessarily have been present to some extent, as it is present in any novel teaching situation or new method.

As far as the pupils were concerned,

> "374 pupils from 14 classes in a total of 9 schools were tested before and after a twelve week standard reading programme, and 404 pupils from 15 classes in a total of 11 schools were similarly tested and followed the S.R.A. Reading Laboratory programme for the same twelve weeks. The pupils following the standard course (control group - author's brackets) could be expected to show normal growth, practice effect and regression effect in the differences between initial and final test results. The differences between initial

> and final results of the pupils following the reading laboratory course (experimental group) would also reflect these factors and additional difference could be tested to ascertain the influence of the reading laboratory." (p.7)

The author adds an important rider to his statement:

> "Although this comparison was necessary for experimental purposes, it is important to acknowledge that the S.R.A. Reading Laboratory is a learning device which is designed to play a role within the curriculum. There is no evidence in this study to suggest that the reading laboratory may act as a total curriculum substitute and such practice is not advocated." (p.3)

The control group followed "the standard practices adopted for the teaching of reading in the fifth grade of New South Wales schools", which practices are mainly comprised of

> "Children's reading, which should include:
>
> (i) Carefully chosen poems and stories covering a wide range of topics.
>
> (ii) Magazines and other readers supplied by the Department of Education.
>
> (iii) Simple textbooks (use of encyclopaedia).
>
> (iv) Reading around a central topic and in content subjects." (p.4)

There follows a time-table break-down:

> "The suggested time allocation for reading (including library practice - author's brackets) is 165 minutes per week or slightly more than 30 minutes a day. For the twelve weeks duration of the investigation a total of 33 hours learning time would have been directed to reading activities in control classes....During the twelve weeks' duration of the investigation some 27 hours learning time was directed to the S.R.A. Reading Laboratory. Library and other reading activities accounted for a further six hours, so that experimental and control groups spent very nearly equal lengths of time on reading during the period of the investigation." (pp.4-5)

With the proviso that "these statistical conclusions do not provide incontestible proof that real differences have been found, but rather that the odds supporting such conclusions are 20 to 1 (5 per cent level) or 100 to 1 (1 per cent level)" (p.9) the main results are summarised as follows :

> "A small positive influence, statistically significant at the 5 per cent level,[1] was found on scores of the Intermediate-D group verbal intelligence test. Item analysis revealed that this influence was largely confined to a small group of items with less than one-third of the items which comprised the test producing 80 per cent of the difference. Similar effects were found for the Otis-AD group verbal intelligence test.
> "With scores on the Jenkins Non-Verbal intelligence test, equal increases in scores, consistent with practice effect, were recorded by each of the experimental and control groups. No influence attributable to the laboratory was found in these test results.
> "The experimental group pupils demonstrated highly significant advantage in word knowledge tests over the control group pupils. The pupils experiencing the laboratory course demonstrated, on the average, 28 per cent more improvement between pre-test and post-test than did the other pupils.
> "No evidence was found to suggest that the laboratory had any influence on pupils' speed of reading.
> "In reading for meaning, evidence was found to suggest that the reading laboratory produced a mean effect to the extent of 11 per cent additional improvement in scores over that shown by control pupils. This additional improvement was statistically significant at the 5 per cent level." (p.3)

The author elaborates briefly on the experimental group's gain in word knowledge or vocabulary:

> "When the pupils were classified into bright, average and slow learning groups the significant differences included only the average and slow learning groups. No evidence was found to suggest that the laboratory was more influential in improving the word knowledge of bright pupils than would be a standard reading course." (p.12)

[1] The statistical technique used was an analysis of covariance.

My results tend to confirm his findings. The vocabulary test he used contained 100 words of increasing difficulty. On this test 404 experimental pupils and 375 control pupils scored pre-test means of 31.6 and 28.2 respectively, and post-test means of 38.5 and 33.6, yielding a nett difference of 1.4 in favour of the experimental group. When the F-Test of Covariance was applied to these figures it yielded a value of 21.33, which proved to be significant at the 1 per cent level of confidence. The vocabulary test I used contained only 50 words of increasing difficulty, which must sharply reduce pupils' chances of making statistically significant gains in word knowledge. On this test 30 experimental pupils and 60 control pupils scored initial test means of 23.2 and 26.8 and final test means of 25.1 and 26.5, yielding a nett difference of 2.2 in favour of the experimental group. As can be seen the control group actually regressed 0.3, which no doubt is partly the fault of the tests, but which calls to mind H.B. Pont's conclusion that the Laboratory is likely to be most useful as a corrective device designed to bring pupils who have fallen behind their true developmental level quickly up to scratch. Though no test of significance was applied to the gains made by the coarsely matched groups at Phase I level, when the groups were split into 3 Sub-groups as described elsewhere (see 3.3, pp.108-10), there proved to be no significant difference between the pre-test and post-test means of the various experimental and control Sub-groups. Thus it is safe to assume that this gross difference would not prove to be statistically significant either. It must be pointed out, however, that the statistical procedures for testing the significance of differences between the small uncorrelated groups of my sample are different from the procedures for testing the significance of differences between the large uncorrelated groups of the Australian sample; and further that differences have to be considerably greater in the former instance for them to prove significant. Needless to say, this is why in my experiment differences of 3.6 and 1.4 between experimental and control groups in the initial and final tests were found to be insignificant on a T-test. On both occasions the difference favoured the control rather than the experimental group, which suggests that

the control group had an advantage over the experimental group, both in past and present educational provision, and hence in educational achievement. The experimental group, matched with the control group in verbal intelligence, had more ground to make up, and consequently it is not surprising that they appeared to benefit more from the Reading Laboratory, and complementary activities, than the control group did from "the standard practices adopted for the teaching of reading" at this level. However, it is noteworthy that at the end of the course there was still a mean difference of 1.4 in favour of the control group, which suggests that even a prolonged crash course cannot achieve what good teaching and a supportive home background coupled with high parental socio-economic status, can achieve in the long term.

The way that I split my "correct" age group into two Sub-groups (see 3.3 p. 111) is not strictly comparable with the way that the Australian experimental group was split up. Nevertheless, I, too, found that the second, or slower, Sub-group, made predictably greater gains than the first, or faster, Sub-group.
Between May and November the 10 boys in the top Sub-group E(1), lost 9 points on aggregate scores, while the 9 boys in the bottom Sub-group E(2), gained 38 points on aggregate (see 6. 2, Table 35 on p. 335). In my case, however, this may well have been due to the shortness of the scale and the increasingly steep gradient of difficulty towards the top end of the test, both of which penalise the boy who scores above, say, 30/50 initially. It is impossible for me to say, therefore, that the average child got more out of the Reading Laboratory, at least in respect of vocabulary, than did the bright child. But I would agree that the bright child, who in any event is often an omnivorous reader, will gather his vocabulary from a variety of sources anyway, whereas the average child benefits more from the sort of systematic vocabulary-building exercises that are a feature of the Reading Laboratory precisely because he would not build up his vocabulary as efficiently and quickly any other way.

Moore says something more about the differences that occurred in speed of reading between the experimental and control groups:

> "No evidence was found to suggest that the special reading method had any influence on pupils' reading more rapidly. A pattern of non-significance was repeated through all the analyses performed on speed of reading scores. This applied to sex grouping, intelligence grouping, and grouping based on initial speed of reading test scores." (p.13)

He used a Rate of Reading Test essentially the same as the S.M. Rate Continuous Prose Test (N.F.E.R., 1965) already described (see 3.3, p.103), the only difference being in the level of difficulty of the story:

> "The words used, according to an exhaustive word-count, are well within the vocabulary of the average fourth grade child." (p.12)

I cannot strictly compare his results with mine because my Rate of Reading tests were unstandardised. Furthermore, my pupils were, on the average, two years older than his. This factor probably has little significant bearing on results achieved on comparable vocabulary and comprehension tests, inasmuch as the rate at which vocabulary is acquired and understanding develops is likely to be fairly even beyond a certain point of minimal proficiency which will have been passed by the average Standard 3 or Grade 5 child, I think. But the difference in ages, and hence in fluency and proficiency of reading, particularly of silent reading, is likely to have a significant effect on speed of reading. I do not believe that children can or should be trained to read faster until they have reached a certain level of proficiency which must necessarily be somewhat arbitrary, and which must certainly depend on the individual child, and on a host of attendant variables which relate to his all round development, but which I would nevertheless fix at a Word Reading Age and Comprehension Reading Age of 10.0 regardless of chronological age. Many of the children tested by Moore and his team may not have been sufficiently able or confident in their reading to crack on the pace, whereas most of the boys I tested were fluent enough to respond to pressure to increase their reading rate. Significantly both my experimental and control groups increased their speed of reading

between August and November, the latter seemingly solely as a result of practice on the first 15-minute test (see 6.3, pp.346-52). The difference in rate gain between the two groups actually favours the control group, a gain of ± 90 w.p.m. as opposed to ± 50 w.p.m., but this is understandable if one accepts that the better the reader (as measured by performance in vocabulary and comprehension tests) the more likely he is to be able to accelerate, despite lack of practice. And there can be no doubt that, taken en masse, and despite "technical equalising" on the basis of test results, the boys in Control Group D were distinctly superior to the boys in Experimental Group E in reading experience and competence. Had they not been so superior I think that the difference in rate gain might well have favoured the experimental group, though perhaps not significantly. Unfortunately no speeds are actually mentioned in the Australian Report: results are tabulated according to comprehension scores achieved by selecting the right word from amongst three to complete the sense of a number of sentences spaced evenly throughout the continuous prose passage. So no direct comparisons are possible. However, comprehension in both experimental and control groups' scores increases from the initial to the final test, and the gains, notwithstanding their statistical insignificance, favour the experimental groups in 8 out of 9 cases. So even at this level the Reading Laboratories, and in particular the Rate Builders, seem to accelerate reading, although this is not their main, or most important, function.

As far as reading for meaning is concerned, the author reports:

> "The analyses of results for boys and girls separately revealed a significant sex difference in favour of boys. On the evidence found, the laboratory experience did not influence the reading comprehension of girls to any greater extent than that expected from a standard reading course, but the experimental group boys were found to have a 33 per cent additional increase in mean raw score over that of control group boys. In fact, the statistical significance obtained in the "all pupils" analysis was entirely due to increases obtained by experimental boys....A significant difference favouring the experimental pupils was found for pupils in the average ability range of I.Q. 90 to 110. For bright and slow-learning pupils, chance differences only separated the performances of experimental and control pupils.... It was the experimental pupils in the ability range

> designating the average readers who showed benefit from the reading laboratory course. Slight differences only were found between the performances of experimental and control groups for pupils in the bright and slow reading groups. This result follows the pattern found for the intelligence break-up groups of analyses." (p.13)

Moore and his team used the Schonell R4 Test of Comprehension to measure children's ability to read for meaning, and unfortunately I only used this test with pupils on Experimental Leg II where I found that boys in the two Experimental Groups B and C gained 9 months and 9 months in 6 months as compared with the Control Group A's 6 months in 6 months (see 7.5, p.408). This represents a gain of 50% over the control group, despite the fact that it is statistically insignificant due to the samples being so small. This 50% increment compares favourably with the 38% gain made by the Australian Grade 5 experimental children, and suggests that some of the main benefits of a developmental course accrue in reading for meaning. When the individual increments and decrements achieved on the S.A.S.R.G.T. Paragraphs and Sentences sub-tests on Experimental Leg I are all added together, 170 control scores decreased by -213 points, whereas 60 S.R.A. experimental scores decreased by -14 points. (I criticise elsewhere the tests themselves for this seeming decrease in efficiency of silent reading over a 6 month period, because this regression is demonstrably inadmissible - see 3.3, pp.91-3.) Even if the figure of 14 is multiplied by 3 to counteract the disparity of numbers making up the experimental and control group scores, Experimental Group E has made appreciably better progress in comprehension as a result of their Reading Laboratory experience than Control Group D. The differential mean gains also clearly favour the experimental boys: when the 6 control Sub-groups 1D(1), 1D(2), 1DD, 2D(1), 2D(2) and 2DD, and the 3 experimental Sub-groups E(1), E(2) and EE, are run together the control group has mean scores of 16.7 (Paragraphs) and 11.2 (Sentences) in May, and mean scores of 15.1 (Paragraphs) and 9.7 (Sentences) in November, yielding nett decrements of -1.6 and -1.5 respectively, whereas the experimental group has mean scores of 15.8 (Paragraphs) and 10.2 (Sentences) in May, and mean scores of 16.0 (Paragraphs) and 9.4 (Sentences) in November, giving a nett increment of 0.2 and a nett decrement of -0.8 (see 6.2, Table 35 on p.335). All in all, therefore the experimental

group working on the S.R.A. Reading Laboratory achieved a nett gain of 1.8/25 and .7/20, or 2.5/45 points, or 18% (2.5/13.5 x 100, 13.5 being the average of the pre-test means of 16.7, 11.2, 15.8 and 10.2), over the control group working on the standard reading programme. Again this is not statistically significant because the samples are small and the scales are so short. Nevertheless in this aspect of reading, and as measured by these two sub-tests, the experimental group does not suffer in comparison with the control group at the end of the tutorial period.

The differences between the May/November means and the sum of the individual differences in Sub-groups E(1) and E(2), when these are compared with the results achieved by the control Sub-groups 1D(1) and 1D(2), and 2D(1) and 2D(2), on both Paragraphs and Sentences sub-tests (see 6.2 Table 35 on p.335), are too slight and variable for one to be able to say whether the slower learners and readers benefited more from the Reading Laboratory than did the brighter learners and better readers. As in the Vocabulary sub-test, the higher the reader's score in the initial test, the less room he had to improve in the final test, because of the shortness of the scale, the increasingly steep gradient of difficulty towards the end of the test, and the adjustments which had to be made to raw scores because the boys were not tested in the third term of a four-term year, all of which served to reduce and nullify differences between means and between individual scores.

As far as non-verbal intelligence is concerned, Moore elaborates as follows :

> "The pupils who followed the laboratory course increased their mean scores by 5.1 points, which left a residual difference of 0.3 points favouring the experimental students. The F-test strongly indicated that this difference could only be attributed to chance causes. The manual for the Jenkins test rates practice effect at 4 or 5 points (its precise estimation depends on the I.Q. - author's brackets) for conditions similar to this experiment.
> "The covariance analyses performed on non-verbal I.Q.'s with regard to sex differences and ability groupings also showed a pattern of non-significance." (p.14)

He concludes this section with an important statement:

> "It is widely conjectured that practice in multiple-choice questions influences pupils' success in answering them, but no evidence confirming this assertion has been found in this investigation." (p.14)

As I have already said I did not use the 3 non-verbal sub-tests of the N.S.A.G.T. because of the exigencies of the testing programme. I decided that if I had to omit some tests it would be best to omit the non-verbal tests because work on developmental reading programmes was far more likely to affect verbal rather than non-verbal intelligence and attainment. Moore's experience in Australia justifies my decision.

In respect of verbal intelligence the author again reports:

> "It is with the average learners that the greatest influence on intelligence test performance is exercised." (p.15)

I found the same thing (see 6.2, Table 35 on p.335) but whereas Moore puts this down to the effect of the Reading Laboratory I feel, at least as far as my testees are concerned, that most of the greater improvement registered by the average pupil over his cleverer coeval is attributable to the test instrument. It is easier to make gains in the second and third quartiles of the N.S.A.G.T. than it is to make gains in the fourth quartile: consequently if a testee scores highly in the pre-test he is too near the ceiling of the test to be able to show in the post-test just how much he has gained from his laboratory experience. The Australian research team used two different verbal intelligence tests, the Intermediate-B Group Test, which appears to be very similar to the N.S.A.G.T., Intermediate, and the Otis-AB Group Test. The results achieved on the two tests vary appreciably. On the former test the nett difference between the initial and final test mean gains is .7 in favour of the experimental group (404 experimental and 374 control pupils tested: F=3.65; significant, P .05), whereas on the latter test the nett difference is 3.6 in favour of the experimental group (68 experimental and 70 control pupils tested: F=15.077; significant, P .001). While the smaller number of pupils tested on the Otis-AB test might be said to account in part for the difference, both groups are said to be representative samples, so the difference in the level of significance of the nett difference between the mean gains should not be as great as

this if the variation is only in pupil performance. Differences between the two tests, as much as differences between pupil performances, may account for the difference in level of significance between the Intermediate-D and Otis-AB mean gains. Pupils who score in the middle registers of any test battery have greater scope for improvement and vary more widely in performance, than those who score in the higher registers, and in my experience the use of Standard Scores may reduce, but will not eliminate, these fluctuations. Furthermore testees are likely to appear to greater advantage if more than one test instrument is used because it gives them more than one chance to demonstrate their improvement. Therefore, whether the highly significant improvement in the middle registers should be attributed to the Reading Laboratory rather than to the test instruments is questionable, I think.

The Australian research team conducted an exhaustive item analysis of both intelligence tests to ascertain what facets of ability were enhanced by exposure to the Reading Laboratory. Both tests are made up of a number of "alpha" and "numeric" items and it was found that

> "The nett gain in Raw Score made by experimental pupils was largely confined to a small group of items of predominantly alpha character - 50 per cent of the nett gain (on the Intermediate-D Test - my brackets) was due to the functioning of 14 items for which the contribution to Raw Score made by alpha items was 2:1 over that by numeric items, and thus the 0.7 nett gain in mean I.Q. shown by experimental pupils was largely due to improved performances on 14 items primarily of alpha types and on 12 high-order items from the final quarter of the effective test." (p.19)

Furthermore,

> "The analysis of 'no change' in pupils' responses from initial to final testings showed that control pupils performed with greater stability than did experimental pupils. This higher rate of change shown by experimental pupils was largely due to their responses in a group of high-order items. These had been mostly omitted by pupils of both groups at the initial testing but were correctly answered by a number of experimental pupils at the final testing....
> "The nett movement representing differences between downward and upward movement on items was significantly greater for the experimental group, and this significance was most strongly demonstrated among alpha items." (p.18 and p.19)

Moore concludes:

> "This descriptive analysis of movement on the various items types shows that the two tests produced similar response patterns as a result of influence from the S.R.A. Reading Laboratory. In both tests, major contributions to nett I.Q. difference between experimental and control were made by Word Analogies, Synonyms, Word and Phrase Meanings and Number Series. Smaller to negligible contributions were made by Verbal Reasoning, Letter Series and Numerical Reasoning." (p.21)

I did not conduct such an exhaustive item analysis of the N.S.A.C.T. but inspection of the break-down of the test into its 3 sub-tests, namely Classification of Pairs of Words, Verbal Reasoning and Analogies of Words (see Appendix C , p. 476), shows that there is no significant difference between May/November mean gains between experimental Sub-groups E(1), E(2) and EE on the one hand and control Sub-groups 1D(1), 1D(2), 1DD, 2D(1), 2D(2) and 2DD on the other. Nor is there a discernible pattern of improvement, save only that there is predictably greater upward movement in both experimental and control bottom Sub-groups (E(2), 1D(2) and 2D(2) comprised of those boys with I.Q.'s of 111 or less in May, 1968), than there is in top Sub-groups (E(1), 1D(1) and 2D(1), made up those boys with I.Q.'s of 112 or more in May, 1968), and this for reasons already discussed. Nor is there a discernible difference in favour of the other two sub-tests when they are compared with the Verbal Reasoning sub-test, as the Australian results might lead one to expect.

Although neither the Australian research team nor I can produce evidence of significant gains in rate of reading, both of us would certainly agree that work on Reading Laboratories improves concentration and confidence, and all-round efficiency of silent reading. This is implicit in Moore's finding:

> "With the high order items... the control groups showed a significantly greater measure of no change, and the movement exhibited by members of the experimental group was in an upward direction. This suggests that greater numbers of the experimental group attempted the high order items successfully at the final testing - that is, they penetrated more deeply into the test than did their control peers." (p.37)

The S.A.S.R.G.T. and the N.S.A.G.T. are too generously timed to permit testees to show the full benefit of this increase in reading power and speed, but the Moray House tests are longer and more exacting and pay a higher premium for increased ability to process ideas under pressure, which is probably why Experimental Group C showed a significant gain over Control Group A in respect of English attainment on the Double-Up experimental leg (see 7.5 , Table 42 on p.411, and pp.417-8 following.)

Moore concludes:

> "The findings of this investigation have strongly supported the use of the S.R.A. Reading Laboratory as a powerful instrument for learning. In no respect was any disadvantage discovered from its use. Although some children seemed to perform no better than they would have without using it, the majority appeared to derive substantial benefit. It is important to recognise that the influences found for pupils classified as bright, average or slow-learning refer to average trends only....It would be a false educational policy to deprive children of the laboratory experience on the grounds that the average expected benefit is not great." (p.22)

I would agree that the Reading Laboratory is "a powerful instrument for learning", and a potent supplement to classroom instruction. However, there is an implicit qualification in the last sentence of this quotation: seemingly the "average expected benefit" was not as great as Moore and his team might have been led to expect. We would both agree, I think, that the Reading Laboratory is no panacea, any more than any other teaching aid is a panacea.

4.5 Results of S.R.A. Reading Laboratories in comparable educational contexts in Southern Africa

As I have said S.R.A. Reading Laboratories have long since made their debut in Southern Africa and wonderful claims are made for their success. But these are largely based on subjective impressions and rule-of-thumb assessments. Where standardised tests have been used these have usually been word reading tests and these illuminate only one facet of the reading process, and not the most important one at that. I have not been able to find any published reports of experiments or courses conducted with S.R.A. Laboratories in Southern Africa so I must confine myself to the statistics and remarks furnished by colleagues both in Rhodesia and South Africa.

In a large urban primary school in Bulawayo, Rhodesia, a group of 29 boys and girls in Standard 3A gained 5 months (10.5 to 10.10) between September and December, 1965. They were pre-tested and post-tested individually on the Holborn Sentence Reading Test and the Laboratory they used is unspecified.

An altogether different result was obtained at a small rural primary school where a composite group of 8 Standard 4A pupils and 11 Standard 5 pupils gained 20 months (10.10 to 12.6) between September and December, 1966. They were individually tested on the same Sentence Reading Test and worked with a IIC Reading Laboratory. These children were probably under-achieving in reading and the Laboratory quickly improved their performance.

A useful experiment was conducted in Natal primary schools during 1968 by Dr and Mrs G.H. Hosking.[1]

> "The schools selected for the experiment were located in Pietermaritzburg and Durban. The pupils represented practically every socio-economic strata in our European society. The 507 pupils who were involved were distributed evenly through the upper primary classes. Four S.R.A. sets were used. With average pupils, the sets were used as follows : Standard 2 - Set IC, Standard 3 - Set IIA, Standard 4 - Set IIB, Standard 5 - Set IIC. (By "Set" Dr Hosking means "Laboratory".) This system, however, was not used rigidly. For example, bright class groups in Standard 2 used Set IIA, and dull children in Standard 4 used the same set, i.e. Set IIA."

Dr and Mrs Hosking applied the Burt Word Reading Test individually to all the pupils in the experimental group. In addition pupils in Standard 2 were tested individually on the Neale Analysis of Reading Ability. The S.A.S.R.G.T., Junior, Forms A and B, were used to group-test Standards 3, 4 and 5.

> "The group tests were applied by the accredited testers in each of the schools involved in the experiment, but the actual scoring was done by the writer. Pupils were tested both before and after the experimental period."

[1] Hosking, G. An Experiment Involving the Use of the S.R.A. Reading Laboratories in Primary Schools. In: A Study of Some Aspects of the Teaching of English to English Speaking Pupils in Natal Provincial Schools. Natal University, Unpublished Doctoral Thesis, 1968, pp.402-6.

Unfortunately the experimenters did not use a control group, although in view of the insignificant gains made by the experimental group it is unlikely that there would have been any marked difference between a control and the experimental group.

The experiment lasted 12 weeks and during this period each class worked on Reading Laboratory material for some 60 hours. This meant 5 hours per week, or an hour a day. Any course which is as concentrated as this runs the risk of exceeding the interest and attention span of children of 9.0-13.0 and of palling on them to some extent, at least in the later stages after the novelty has worn off and progress has slowed down. Classes normally finished each session within an hour, but in slower streams some classes took approximately 1 hour 10 minutes per session. With such classes the danger of waning attention, concentration and application are probably greater.

> "The attitude of the class profoundly affected the efforts of the pupils. Cheating seemed to result as a consequence of (a) excessive competition with other pupils rather than with the pupil's own efforts; and as a consequence of (b) a lack or waning of motivation or incentive. Guessing, too, was characteristic of those pupils whose motivation was weak.
> "Though the teachers' handbook suggests that one can put pupils in charge of a S.R.A. Reading Laboratory, experience suggests that the teacher has a major role to play if good organisation, correct marking and strong incentive is to characterise the use of the laboratory. Without these, little can be gained."

Since their results and conclusions are well-documented and pertinent, I propose to report them fully, and set my own comments and comparisons down in parenthesis.

> "Results:
> The compilers of the S.R.A. Reading Laboratories claim that net gains for entire classes range from nine months to one and a half years. This is an impressive but somewhat deceptive claim. It is possible, for instance, that the parameters chosen for control were determined by what the compilers believed to be important, rather than what we believe to be important and relevant to our situation. The duration of the experiment, the number of successive

years during which S.R.A. reading Laboratories were used, the socio-economic composition of the classes, the previous educational experience of the classes involved in the experiment; these and other important factors are unknown.

"Since the norms of all the tests used in the experiment had been re-established within recent months, it was assumed that the results would reflect gains or losses in relation to the current norms in Natal schools. A pilot experiment had shown that pupils appeared to respond according to their abilities, i.e. above average pupils in respect of reading ability gained more than average pupils, and below average pupils scarcely achieved the norm. In view of this, the experimental group was divided into three groups:

(a)	Good Readers:	Reading ages in the initial tests at least one year in advance of chronological age;
(b)	Average Readers:	Reading ages in the initial tests within one year of chronological age;
(c)	Poor Readers:	Reading ages in the initial tests at least one year less than chronological age. (This group approximates the group often labelled backward or retarded. The criterion in the U.S.A. appears to be as above. In U.K. it is usually 85% of chronological age - author's brackets).

"In the Silent Reading Test, paragraph and sentence scores have been averaged to give a reading comprehension score. (This is likely to give a relatively unreliable result, for the reasons that I have already discussed in 3.3. However with the comparatively large numbers which the authors have used, and because of the gross way they have tabulated their results - see Table1 hereunder - this probably does not affect their findings or alter their conclusions.) The table shows the average gain or loss in months after due allowance has been made for the lapse in time between testing. (I assume that this means the gain or loss in months over and above the 3 months' duration of the course.)

Ability Group	Burt, used in Std. 2	Neale, Accuracy used in Stds. 2 & 3	Neale, Comprehension, used in Stds. 2 and 3	S.A.S.R.G.T., Vocabulary, used in Stds. 3, 4 and 5	S.A.S.R.G.T., Comprehension used in Stds. 3, 4 and 5
Good	$2\frac{1}{2}$+	2+	4+	3+	4+
Average	1 +	1+	3+	2+	2+
Poor	1 -	1-	0	1-	0

Table I

Conclusions:

A: "The differences in the response of pupils in Standards 2, 3, 4 and 5 were not significant.

B: "The results as given do not reflect the tremendous differences in the response of pupils within each ability group. In all groups there were individual pupils who made spectacular gains of over a year.

(There must obviously have been a number of pupils at the other end of the scale who made little or no discernible progress. I had the same experience with boys in all three experimental groups, and with boys in the control groups who followed the standard curriculum. Differentials in responses, and progress, are probably as much a function of the developmental cycle, the pupil's ability and personality, and teacher competence, to name only three important determinants of pupil performance, as they are of the methods and media of instruction. In the Double-Up control group 6/39, or 15%, and 11/38, or 29%, made up more than a year in vocabulary and comprehension between May and November; in the experimental groups 12/82, or 15%, and 23/82, or 28%, made up more than a year in these two areas over the same period. In the S.R.A. and E.D.L. control group 7/95, or 8%, and 14/93, or 15%, made up more than a year in vocabulary and comprehension between May and November; in the S.R.A. experimental group 9/41, or 22%, and 8/40, or 20%, made up more than a year, while in the E.D.L. experimental group 11/33, or 33%, and 5/33, or 15%, made up more than a year in these two areas over the same period. The test instruments are probably partly responsible for the insignificant differences between all experimental and control groups. Nevertheless it is doubtful whether differences between control and experimental groups in respect of "spectacular gains of over a year" would have approached statistical significance had different tests and larger samples been used. Human abilities do not fall readily into easily analysed developmental patterns. Nor do they behave predictably when subject to different methods of teaching, and to different teachers. Innovations such as the S.R.A. Reading Laboratory

will develop some children's potentialities more rapidly and dramatically than the normal reading programme would, but it is also certain that by no means all children will respond equally favourably, or that those who do make signal progress will continue to progress, or even retain their gains, once the crash course is over.)

C: "The response varied from school to school. This appeared to be due to factors such as (i) morale and incentive; (ii) whether the programme constituted the whole English teaching programme, or whether it was enriched by other linguistic activities such as reading for pleasure, writing compositions, etc.

(I discuss the importance of the dynamic, integrated approach to language study in 4.6 hereunder, and also in 7.3 in relation to my own programme. Dr Hosking has omitted to mention variations in teacher competence which must account for some of the variations in results between schools. He probably omitted to do so for diplomatic reasons.)

D: "Broadly speaking, the good readers who in any case would be likely to improve at a pace in excess of the norm did so. Average readers too made small but significant gains. ("Appreciable" would probably be more correct than "significant" in this context.) Poor readers boosted their rate of progress to very nearly that of the norm. (This is hardly borne out by the results tabulated above. Furthermore the figures set down in Table I for poor readers are diametrically opposed to one Australian research team's findings - see pp.156-7.) All groups appeared to benefit, not spectacularly, but in relation to their abilities.

E: "There was no evidence to suggest that the laboratory had any influence on speed of reading.

F: "In respect of comprehension, boys may have derived more benefit than girls."

(Another important point should be made, I think. If the mean gain of all three ability groups is calculated, it appears to be of the order of 1½ months in word reading, 1½ months in accuracy, 2 months in comprehension and 1½ months in vocabulary. In other words the nett increments in all aspects of reading measured amounts to about 4½ (3 + 1½) months in 3 months. This is a reasonable return for an educational investment which has taken up some 20% of learning/teaching time over a 12-week period, but it is certainly not spectacular and hardly compares with some of the results cited under 4.4.)

Comments:

1. "Generally speaking, the comments of teachers involved in the experiment were favourable. Comments such as the following were typical:

'I feel that for an A class the laboratory is excellent. My clever pupils really enjoyed it and it has improved their vocabulary.'

'Most pupils would have liked to continue as they have enjoyed doing it.'

'I feel sure that it will be of lasting benefit. Although the system can be a failure if pupil attitudes are incorrect, in my view reading comprehension and understanding has shown improvement.'

'The incidence of careless marking and deliberate cheating remains fairly high. There appears to be little increase in reading ability beyond what might be expected following upon normal lessons. The Lab. IIB is possibly too advanced for these pupils.'

2. "It is difficult to establish to what extent 'Hawthorne effects' account for the gains which were recorded. It is possible that once the novelty of the laboratory wore off, motivation and incentive would wane and gains would become normal.

3. "Some pupils made spectacular progress. Possibly there is much in Stern's theory that pupils progress in steps, showing no apparent progress until something 'clicks' and they make an impressive break-through. (No doubt there is also something in what H.B. Pont says, too - see p.159.)

4. "The results appear to be uniform and consistent. Language is a total phenomenon, and reading ability, reading accuracy, reading vocabulary and reading comprehension are obviously interrelated.

"Comprehension appears to have improved more than other abilities. This may be purely a matter of having acquired and assimilated what Ryle would describe as certain drills and skills: acquisitions which are aids to thinking and which in this respect are a facet of intellectual growth. That these linguistic abilities are unlikely to show spectacular growth is certain. (I agree - see 1.6, p.9 and p.11, and 5.6, pp.291-4.) Comprehension depends on factors such as mental age and complexity of the concept systems. These develop slowly. Words are labels for concept systems. They either evoke concepts or are responses following conceptual processes. When words are read they merely serve as evokers of concepts if the concepts are there to be evoked."

Evaluation:

"In my view the S.R.A. Reading Laboratory is a useful piece of equipment. It is superior to text-books in that it is specially designed to meet the needs of each individual pupil....All ability ranges are catered for. It is not the complete answer. It is a useful tool. It is interesting and appeals to the great majority of teachers and pupils. Integrated with other linguistic activities, it would promote sound teaching. A well devised reading programme in spoken English, a well devised and intelligent approach to written composition, and S.R.A. Reading Laboratory materials used at suitable intervals once or twice a week throughout the year would appear to be a sound approach to the teaching of English in the primary school."

4.6 Teaching to the S.R.A. IIIA Reading Laboratory during 1968

As previously stated I began work with a IIIA Laboratory with two Standard 5's in School E in Grahamstown on Monday 27th May, 1968. My programme and timetable are set out elsewhere. There were 23 boys in the Standard 5A and 22 in the Standard 5B and the numbers did not change throughout the tutorial period. Since there is not much industry in and around Grahamstown there is little migrancy. Nor were there any transfers from one class to the other: once a child has been streamed he quickly adjusts to the standards that are expected of the group of which he is a member, and since boys in this school are streamed from the time they start in Standard 2, most of them are confirmed A or B streamers by the time they graduate to Standard 5.

In teaching, whether it be to 6-year-olds or 26-year-olds, the importance of a good start cannot be over-emphasised. No matter how good the programme or the method, or how apt the pupils, and favourable the teaching conditions, everything finally depends on the teacher. So when I entered 5A and 5B classrooms that morning I was determined to make a good first impression. The boys had of course met me the previous week when I had tested them all together in the school library under the surveillance of the Regional Education Psychologist, but this was the first time that we were meeting on their home ground, so to speak. From this day on, for the next 20 weeks, we would meet every period in these two classrooms. It was therefore vital that we be well met on this first occasion because it would set the tone and the scene for all future meetings.

I made a point of knowing a few names in each class. I had already assessed the results of the standardised tests which they had completed the previous Tuesday so I had a good idea of the distribution of ability in each class, and from whom I could expect the quickest response. I also brought in the Reading Laboratory and displayed this 14" x 10" x 8" attractive "box of tricks" prominently on the teacher's table throughout the lesson. (I soon dispensed with the colloquial designation, "a box of tricks", because the 5B's were quick to pick it up and asked me facetiously the next day, "Is that your box of tricks, Sir?")

Right at the outset I told both classes that they were retarded in reading by approximately 22 months and 14 months respectively when I compared their average "R.P." (Reading Power) with their average "B.P." (Brain Power). This was a simplified interpretation of the results set out in Phase I (see Appendix A, p.461), but accurate enough to motivate them immediately and urgently, and to mark the goal towards which they must work. At the top of the board, then, I wrote our target boldly, in 5A, "2 years in 6 months", and in 5B, "1 year in 6 months". I elaborated on these figures briefly: in 5A I pointed out that no less than 17 boys, or 75% of the class, were not reading up to their potential (as far as it could be measured by the N.S.A.C.T.), while in 5B 12 boys, or 60%, were not reading up to their potential. We all agreed that this was a parlous state of affairs, and promptly defined "parlous" to mark the nadir from which we were starting out. We then discussed how the situation could be remedied, and I summed up on the blackboard:

1. Enlarge vocabulary
2. Improve concentration
3. Increase rate
4. Read more/write more

I then emphasised that this was the last opportunity that they would have to improve their reading before they were launched piecemeal and pell-mell onto the "Matric Treadmill" the following year: "If you're not reading efficiently by the end of this year it'll be just too bad; from next year onwards your teachers will be too busy pouring gallons of facts into your heads to bother about your reading."

Finally in this first session I got them to answer a few questions in writing so that I could get to know them quickly: "In order to teach you I must know you, what you've done, what you can do, and what you hope to do." At the top of their papers they wrote their names and ages. (One boy in 5B claimed to be "Earnest W", and in a subsequent period this led to some pointed remarks about the importance of spelling, and some fruitful word-work: "What does 'earnest' mean? What is a word meaning the same as 'earnest'? And a word meaning the opposite of 'earnest'? Yes, good, 'cheery'. And what about a word beginning with 'j'? 'J-o'? 'J-o-v'? 'J-o-v-i-a-l'? Yes, 'jovial'. Now is W 'earnest' or 'jovial'?" The lad concerned was fat and jolly and the class chorused at once, "Jovial, Sir!" Thereafter he was known as 'Jovial W', and even on the rugby field when he occasionally got the ball and trundled a few yards upfield before being brought down, his pals would shout gleefully, "Go, Jovial, go!") Then they wrote whether they were day boys or boarders, how many brothers and sisters they had, what their fathers did for a living and whether their mothers worked, what their last position in class had been, what their favourite subject was, what sport they liked best and what they hoped to be when they grew up. Again in Standard 5B I got some revealing answers to the last question: "When I complete my schooling, I want to complete my homework"; "When I complete my schooling, I want to do very good business"; "When I complete my schooling I want to read." Certainly their responses helped me to get to know and understand them.

I began our second session together by reviewing some of the facts and figures that I had given them the previous day and restating our goal, or target, as we came to call it, in the form of brisk question and answer and blackboard summary. I did this periodically throughout the tutorial period to keep motivation at a high level. Then I handed out the Student Record Books and the pupils riffled through these and through questions and answers and discussion we clarified the main sections and functions of the book. We then completed the Starting Level Guide (S.L.G.) on the two tear-out pages in the centre of each Record Book and finally collected Books and S.L.G.'s separately.

Thereafter for the first two weeks, until both classes were well and truly launched onto both P.B.'s and R.B.'s, I followed the comprehensive period-by-period instructions laid down in the Manual almost to the letter. Many of these instructions may seem to be laboured and repetitive, but I found in practice, particularly with the B class, that despite slow and careful repetition of instructions many children still made elementary mistakes in working through their first P.B.'s and R.B.'s. There are after all so many things to remember: for example, starting and finishing times for both reading and comprehension, conversion of raw scores to percentages, and marking the completed P.B. or R.B. on the cover to facilitate the issue of subsequent P.B.'s and R.B.'s. Consequently it is easy for even the intelligent, attentive child to make mistakes until he has become habituated to the procedures. I spent hours during the first three weeks checking each boy's Student Record Book, filling in and altering wherever necessary, and writing encouraging comments. I wanted them to see that I aimed to take a real and continuous interest in their progress, and to understand the importance of accurate, neat and complete records. I firmly believe that if children take a pride in their work they will make better progress than if they are allowed to get away with slovenly work. Furthermore, I maintain that if the teacher expects them to take a pride in their work he must take a lively and constructive interest in their progress as it is exemplified in their books. The S.R.A. Reading Laboratory is a good programme, and like all good programmes it throws the onus of learning onto the pupil. But this does not mean that the teacher can or should abdicate progressively as the programme gets under way. Exercises may be self-corrective, self-evaluative and auto-motivational to an extent, but teacher interest and participation are necessary to reinforce these built-in good features. Furthermore, it is desirable that the teacher check on the pupil's marking to ensure that his answers are in fact correct, and that the child is learning from his mistakes. The teacher must follow mistakes up, either individually or in class lessons, if the programme is really going to work to the optimum advantage of all concerned.

I frequently found, too, that I had to fill in students' self-evaluative, "skills to work on" section of each P.B. Finally, if the teacher is thoughtfully teaching to the programme, he is taking an active part in his pupils' learning and so motivating himself. And there can be no doubt that teacher motivation is as important as pupil motivation.

I see that some of my most frequent comments in Students' Record Books were "Good", "Well done", "Splendid" (all three either with or without exclamation marks), "You must work faster, and more efficiently", "Correct your mistakes, and learn from them", "Read closely and carefully", "Right, on you go to Olive" (or whatever the next colour might be), "Another 'century' and you will be ready for Brown", "Keep up the good work", "Make new words used words", and "Fair enough" and "Be careful", two perennial comments of teachers. Sometimes I deliberately used new words in my comments in order to contribute personally to vocabulary growth: "You must be meticulous", "That 100% continues to elude you, doesn't it?", "Try to maintain this level", "You must be conscientious and persevere" and even "Don't be complacent."

Early on in the course I became aware of the dangers of excessive competition - slipshod work in the rush to get onto the next colour, carelessness and cheating - and I stressed that progress was both horizontal and vertical. As the course progressed it sometimes proved necessary to put the pupil back a colour so that he should "grow stronger" before he "grew taller". This happened with R.B.'s more than P.B.'s because pupils completed fifteen R.B.'s of a particular colour a lot more quickly than they finished fifteen P.B.'s of the same or a different colour, and consequently "outgrew their strength" when they were prematurely promoted to the next colour. Whenever I felt that it was necessary for a lad to build additional strength on an easier colour before tackling the next harder colour to the one he had just completed, I discussed the problem privately with him in order that he should understand why he was being put back a colour, and if possible agree that it was in his own interests. I told the classes as a whole that

we moved on to, not up to, a new colour, and that they must not think that a boy who was on a different colour was making better progress than they were. But in reality, and in the highly competitive atmosphere in which they were used to working, this argument did not carry much weight and I am sure was summed up cynically by the brighter boys in the A stream at least as mere euphemism designed to comfort the poorer readers: after all, everyone knew who the best readers in the class were. Nevertheless I persisted with the posture because I believe that children sense and appreciate consideration in a teacher.

By the end of the second week both classes were launched on both P.B.'s and R.B.'s and we had already built up a good working relationship. The boys had been issued with files in various colours of manila and I put their names, standard and school on the outside for the sake of neatness and uniformity. Then on the two inward facing sides I stuck printed forms headed "New words that I've learnt". They were to note new words that they encountered in their Laboratory work in columns which had been ruled for them, and then, in order to make new words used words, they were encouraged to put these new words into good sentences to bring out their full meaning. This they did in an exercise book which they kept in their files and which was variously entitled, in variegated Neo-Magic colours, "Words Alive", "Language Alive" and "Winning with Words". I wanted to suggest at once that what went into these books should be spontaneous, colourful and full of variety. I wanted to invoke a spirit of originality, while at the same time I aimed to set a standard of neatness. Into these books went their verse and prose expressions, their Reading-Writing-Vocabulary-Composition-Spelling cards, "Horsepowers", or vocabulary-building sentences, Word Cricket "Scoreboards" (another vocabulary-building exercise) - indeed any and all activities and records of Reading Laboratory extension work. Thus when they finished a P.B. before the end of a period they could do one of four things:

(i) Note new words in their files, and then, in a so-called 'Horsepower' session ("An increase in vocabulary steps up your 'horsepower'"), put these into meaningful and different contexts

(that is different from the context in which they had just read the word).

(ii) Complete a Reading-Writing-Vocabulary-Composition-Spelling card (see examples in Appendix J , pp. 520-1).

(iii) Write their own Reading-Writing-Vocabulary-Composition-Spelling card which would be corrected and, if good enough, written out neatly and embellished and added to my stock (see examples in Appendix J , pp. 522-3).

(iv) Write some free verse which, if good enough, would be "published" (written out in long-hand and spirit-duplicated in colour) and included in their anthologies (which is what their files ultimately became).

By these various means I successfully catered for that bane of the teacher's life, the early finisher. The options open to him encouraged self-reliance and self-determination, and he was never without a task with which to challenge himself. If he did not feel particularly creative or inventive he could either do a "Horsepower" exercise or a Reading-Writing-Vocabulary-Composition-Spelling card (the latter also affords the opportunity for "low-input" integrative thought inasmuch as the pupil has to choose words to complete various contexts). On the other hand if he had something to communicate he could either put it into free verse or prose (most of the boys in Standard 5B elected to write stories for inclusion in my stock of Reading-Writing-Vocabulary-Composition-Spelling cards rather than write verse, even though I stressed that the verse should be free and that the absence of rhyme did not matter - and could be a positive virtue - as long as the verse went with a beat). The anthology which every boy in both Standard 5's had by the end of the course appears in Appendix N , pp. 528-40. Some lads added personal items of their own which I then stapled in to their files together with the common pieces. Thus at the end of the course their files provided a continuous cumulative record of the creative side of their work with me.

A lot of this work cannot be evaluated by objective, standardised tests and if one considers only the results of published tests, work on the Reading Laboratory, together with extension work, might seem to have paid scant dividends, but I believe that the work set out in the Appendices must also be weighed in the balance before the

Reading Laboratory is found wanting.

> "A sound reading program recognizes the value of continuous, systematic instruction, the utilization of pupil interests, the fulfillment of developmental needs and the relationship of experience in reading to other types of worthwhile activities."
> A Guide : Reading in Florida Secondary Schools, 1966, p. 59.

Implicit in this quotation is the holistic, synthetic philosophy which I believe is one of the keystones of a sound education. Thus if I was charged with doing more than was required, or was necessary in terms of Don Parker's philosophy and instructions, I would answer that I looked upon our work together as a co-operative endeavour, only one of the objectives of which was to increase efficiency of reading. The files and the extension-exercise books, which I collected regularly and marked closely, were my contribution to the co-operative enterprise. They added to the purpose and pulse of my teaching, and increased my enjoyment in my daily contact with the boys. It added that so important ingredient of surprise to the course, and by the end of it some boys were surprising themselves as much as me by their creations. The boys in these two classes were not as prolific as the boys I taught in Group F, but the quality of their creative work was hardly less pleasing.

But perhaps most important of all, their fattening files - they grew from week to week, and there was always something new in them - and their "Words Alive" books proved to them that "Sir" was prepared to work for them in the way that he expected them to work for him. And since most children are basically fair-minded I think I got my fair share of work out of them, whatever the results of the various tests might suggest.

With something as complex and individualised as the Reading Laboratory it is necessary to keep detailed records over and above the individual records summarised so succinctly in the Student Record Books. The earlier lessons, particularly, have to be carefully and precisely planned and I found rough lesson plans, in the form of a daily forecast, invaluable. When I came to plan my

next lesson I used my previous annotated lesson plan as a record, so that lessons were sequential and coherent. Thus my lesson plan, which is really a series of reminders, for 5/6/68 for Standard 5A reads:

1. Berserk (a reminder to myself to correct my own incorrect spelling of the word on the blackboard in a previous lesson).

2. When and why do we skim?

3. Give yourselves space for corrections. (If a student gets a word wrong in the 'Learn about Words' section of a P.B. he has to circle it and write out the correct word in full either next to, or above, his correction, and when the words are long and the child's handwriting big there is precious little space for correction. This may seem a trifling point but in the hurry to get on students are tempted to skimp corrections which they regard as a waste of time. They cannot appreciate that actually writing out a word helps to impress it in the memory. I found that I had always to check on the records of this section of P.B.'s and constantly to remind boys of the necessity and value of corrections, as hereunder.)

4. Some of you, like Roy, have quite a few corrections. Don't let this worry you. You are the ones who'll benefit most, because you're going to learn the most.

On 24/7/68 I noted to remark to the same class:

> Six of you are on another P.B. colour today. But don't let this mislead the rest of you. It is better to make solid horizontal progress than to climb too fast vertically and so outgrow your strength.

On 6/9/68 I noted briefly:

1. Don't be bullied by rhyme.

2. Check David for cheating on P.B.'s (This was a recurrent reminder and between June and November I checked more than 75% of boys in both classes for cheating on either P.B.'s or R.B.'s or both. I did not see myself as Custodian of Morals, but I had to be sure that individuals were making real progress, and not deceiving either themselves or me.)

Towards the end of the course I compared the results of the interim August testing on my speed-cum-comprehension-cum-vocabulary test (see 3.3 , pp. 104-7) with the results of the final November testing on the parallel form of the same test, and diarised to make the following points to the Standard 5A (and the Standard 5B in parenthesis):

1. The same percentage of you finished as in August, namely 13% (in 5B 12% finished in August and 27% finished in November).

2. Your comprehension scores were 6% (15%) improved.

3. Your vocabulary scores were 23% (25%) improved. (This matched an improvement in vocabulary on S.A.S.R.G.T.)

4. You have made a total average improvement of 15% (19%) in accuracy of reading.

5. Your average speed is now 230 w.p.m. (205 w.p.m.) as compared with 175 w.p.m. (177 w.p.m.) in August, so you're 31% (16%) faster now.

6. You have done well and I'm sure we'll find that you've made up those 2 years (1 year) Reading Power when we test you on Monday next.

This seemed to me to be an appropriately encouraging note on which to close the course, especially since I guessed that the results of the standardised tests could hardly be more cheering.

With the Standard 5B my lesson plans, and reminders, were generally more detailed. On 6/6/68 I wrote:

1. Complete 'Skills to work on'. You must decide what your weak points are and what you should do to improve. Turn to p.11 of S.R. Book, look over your P.B. starter and then fill in 'Skills to work on' at the foot of the page.

2. Circle P.B. number in pencil on the cover of your S.R. Book.

3. Turn to p.37 and fill in -
   (i) P.B. Number
   (ii) P.B. Colour
   (iii) Date
   (iv) Reading Time, Starting Time.

4. Read P.B.

5. Fill in Reading Time, Finishing Time, and Comprehension Time, Starting Time. Calculate Reading Time.

6. Answer 'How well did you read?' and 'Learn about words'.

7. Fill in Comprehension Time, Finishing Time. Calculate Comprehension Time.

8. Come up for P.B. Corrector key.

9. Correct carefully and fully. Learn from your mistakes. Ask me if you don't understand an answer.

10. Complete 'How well did you read?' and 'Learn about words' calculations.

11. Return P.B. corrector key and pick up a coloured pencil.

12. Record results.

13. Return pencil and pick up folder.

14. Enter new words and put these into good sentences in a 'Horsepower' entry.

15. If there's time start a card, or a story or poem of your own.

On 7/6/68 I set down the following points:

1. Be careful of spelling - "beter" for "better", "consentration" for "concentration", "spel" for "spell" (one lad wrote for 'Skills to work on', "I must spel properly"), "littel" for "little", "colour" for "collar" (another lad wrote "The colour was detachable very easy" to exemplify the new word 'detachable' and when I pointed out that a colour can fade, but that it is not detachable, he responded at once, "No, Sir, that's 'collar' not 'colour'"), "saw" for "sore" ("The man's larynx was saw") and even "bel" for "bell". (One of the disadvantages of having two official languages is that it makes spelling more difficult and confusing, particularly for slower pupils.)

2. Buy rubbers (all recording in Student Record Books is done in pencil to facilitate neatness and corrections).

3. You must remember to colour in the P.B. you've just finished on your S.R. Book cover.

4. Don't forget to write down the number and date of your P.B. on your Progress Chart.

After the August testing referred to above I noted to exhort the class:

> You must expand your vocabulary. Your comprehension of details if 40% better than your knowledge of words, and until you enlarge your vocabulary, and learn to recognise more words instantly, your reading won't improve much. Your pals in Standard 5A are better readers than you mainly because they know more words than you do.

On 24/9/68 I noted to use Stanley as an example to the rest of the class:

> Congratulate Stanley on his 11th "Horsepower" entry. He's conscientious and industrious (two new words which I put on the board).

I firmly believe that it is precisely notes like these that help one to teach more effectively, and that they are indispensable to a programme as complicated and concentrated as the Reading Laboratory. As I review my jottings I see that my insistence on the proper and full completion of records bore fruit: on 2/9/68 Craig wrote with emphasis and exasperation under 'Skills to work on', "I must not! make stupid mistakes"; while on 5/11/68 Greeme, a boy of distinctly limited ability and poor application, noted rather forlornly, after scoring 38%, 75%, 50% and 50% on four Brown P.B.'s, "I must try harder on Brown." On 22/8/68 William, a deceitful, smarmy youngster, came up to me confidentially at the end of a period after the class had been dismissed, and volunteered, "It's much better now that I don't fill in the right answers when I mark. It's more exciting seeing what I will get (honestly)." Needless to say he reverted to his mendacious ways almost immediately.

> "'All work and no play' does make Jack a dull boy, because work gives expression to only part of our personality; it leaves unexercised some of the qualities with which nature has endowed us. Indeed the character and mental health of a child are developed far more through pursuits outside the ordinary school curriculum than in school work, which most children do as a matter of necessity."
>
> Hadfield, 1963, p.174

"Work that is pleasurable and creative
takes on the aspects of play."
Crow, 1965, p.118

Despite the findings of psychologists and the pleas of educationists, too much education today is still far too formal and desk-bound, mainly because it is easier to teach this way than through heuristic and activity methods. The S.R.A. Laboratories do afford opportunity for moving about and they certainly make learning more interesting and purposeful, while the extension activities already outlined added a measure of variety and creativity to our periods together. Nevertheless, I decided that it would be beneficial to introduce the occasional complementary and consolidative game to their diet, and to this end I devised the game of Word Cricket which I describe in Appendix H.

From time to time a Provincial Education Department Inspector came in to see how the boys were progressing on the Laboratory and each time he went away well satisfied. On one occasion he was so impressed with the poem "The Landing" (see Appendix N , p. 528) that he asked the author to autograph it for him. The reports which he was required to make out were all favourable. Equally the reactions of the Headmaster, interested teachers and students who came in periodically to observe ongoing lessons were all positive. If the work that the boys produced for me, the progress they made on the Laboratory, and their examination results discussed in the next section are anything to go by, our association bore fruit. To judge from their questionnaires the boys seemed to think so, too. As far as the actual teaching to the Laboratory was concerned, therefore, I would say that all went well. One lad in Standard 5B spontaneously remarked on 30/10/68, "Your periods always go so fast, Sir."

The prime function of any course of instruction in any subject is to equip the learner with sufficient skill to proceed on his own, and to motivate him sufficiently for him to want to go further on his own. So what happens in the classroom is only a means to an end, the end being the only education that has any permanent value, namely self-education. Consequently the success of a programme, and of a course like this, must be measured finally in terms of what goes on outside the classroom as a result of what goes on in it.

In other words a course of classroom instruction should start th. pupil on a course of self-instruction: a reading programme which is tackled at school should motivate the student to read more, to better purpose, and with more enjoyment and profit, at home. That is why towards the end of the course I was gratified to receive the following letter from the mother of one of the most unpromising, intellectually and behaviourally, and unrewarding boys with whom I had to persevere in the Standard 5B:

> "I wish to thank you most sincerely for the work which you have been doing with Standard 5. I know that my son Peter's reading has benefited greatly from the course which you have given them. (Oddly enough he was one of the few boys to show virtually no improvement on any of the standardised tests - see Appendix A , p. 465 , Boy EE11B; nor did he improve in the September and November internal examinations: in September he achieved an aggregate of 102/200 for English and came 13/22; in November he scored 78/200 and came 15/22.)
> "It is wonderful, as a result, to go into his room and to find him immersed in a book rather than a radio serial! (In my view this change of attitude is more important than statistically measurable progress, or, in this case, the lack of it.)
> "Could you suggest any similar course which I could use with him next year at home? He himself feels that his reading is much improved (which is more to the point than the results of any tests, I think...) and is anxious to continue the good work (...for precisely this reason).
> "The file of poems...I greatly enjoyed."

4.7 Results of Internal Examinations

I discuss the results of standardised and other objective tests in detail in Chapter Six, so I will confine myself here to the results of internal examinations which were peculiar to Group E. Apart from "Composition and Letter" I set these in September and November, and they were designed to measure what had been learnt in my periods (at 3 hours a week I took virtually all the English) and constructed so that they could be marked objectively. Since it was obviously desirable that the English teacher whose load I had taken over should be informed as to his pupils' progress under my tutelage I submitted the draft papers to him for his approval. He then typed these out himself and had them duplicated. Finally he conducted the actual examination, marked the papers and made out

the reports. He also sat in on the occasional lesson, so that at all stages he knew what was going on and how the boys were reacting to the Laboratory and extension work.

The main paper which I set was the so-called Grammar paper, which I immediately re-designated Language. Firstly I wanted to test the boys' language experience, and secondly I wanted to make them think. Most of the words and phrases were garnered from their work on the Reading Laboratory, from errors made on P.B. exercises and in extension work, and from common errors of construction and usage which I had noted from time to time in local speech and writing (see Appendix G, pp.498-501, Question 6 in both papers). To this extent, therefore, the papers were designed to teach as well as test (in my view this is the only justification for examinations at this level). I intended that they should be both functional and corrective. The November paper followed the same pattern as the September paper to allow transfer to play its part in the learning process. I went over both papers orally with both classes after the examinations so that they could learn from their mistakes and in order to reinforce previous teaching. Both September and November Language and Comprehension papers appear in the Appendix G, pp.498-509. The two Comprehension Tests gave me a check on the results achieved on the August interim test and the November final test of speed and accuracy. Boys in both classes were required to complete the tests in six minutes. The two September passages were each 350 words long, while the two November passages were each 400 words long.

I also set the two Spelling Tests which were made up of twenty words, graded in difficulty, which many boys in both classes repeatedly misspelled. Like the Language Tests, therefore, they were essentially functional and corrective, being teaching as much as testing instruments. I could not forbear to omit "collar" from the September test. The tests appear on p.510 of Appendix G.

The results of these examinations are set out in Tables 17 and 18 below.

	Standard 5A					
	C'hension		Spelling		Language	
	(Sept) 16	(Nov) 16	(Sept) 20	(Nov) 20	(Sept) 79	(Nov) 79
E1	10	10	9	14	36	45
EE1	10	8	10	12	41	57
E2	12	11	10	11	47	63
EE2	9	9	12	14	17	37
EE3	8	9	11	10	30	43
E3	10	9	9	14	40	59
E4	15	13	11	18	47	48
EE4	12	13	5	9	32	49
E5	11	10	11	12	36	46
E6	12	11	12	6	37	48
EEE1	11	9	12	10	46	64
E7	12	13	11	12	56	69
E8	15	14	17	18	75	71
E9	11	11	12	13	34	44
EE5	10	13	15	18	42	53
EE6	9	10	8	10	33	56
E10	12	10	14	14	41	52
EE7	15	13	16	17	55	59
EE8	12	5	8	11	35	51
EE9	13	11	13	15	27	38
EEE2	12	14	12	13	37	51
EEE3	11	9	12	9	33	46
E11	11	8	11	9	36	43
Average	11	11	11	13	40	52
Average %	72%	69%	57%	63%	51%	66%

TABLE 17

Average scores and percentages were worked to the nearest whole number.

	Standard 5B					
	C'hension		Spelling		Language	
	(Sept) 16	(Nov.) 16	(Sept) 20	(Nov.) 20	(Sept) 79	(Nov.) 79
EE10B	7	5	10	6	34	46
EE11B	4	8	8	7	29	49
EE12B	6	7	5	7	30	30
E12B	5	7	11	14	25	45
E13B	8	6	14	13	25	33
EE13B	8	10	12	9	37	49
EE14B	15	14	17	16	57	64
Ab8	10	13	12	14	40	53
EE15B	7	8	12	16	36	46
EE16B	11	12	10	14	47	56
E14B	6	6	10	10	41	45
ESN3	5	8	7	7	16	27
E15B	11	9	9	7	37	41
EE17B	7	8	5	4	20	25
E16B	9	8	11	12	51	48
E17B	9	10	18	19	37	45
E18B	6	8	10	8	14	29
E19B	7	7	14	15	33	38
EE18B	3	4	4	6	33	30
EE19B	4	8	7	8	28	31
EE20B	6	7	8	8	24	45
Average	8	8	10	11	34	42
Average %	46%	53%	51%	53%	42%	53%

TABLE 18

The exam papers for this class were the same as those set for Standard 5A. Boy Ab8 was absent from the initial testing session in May, 1968, and was not given a code number as a result; Boy ESN3 was excluded when the Experimental and Control Groups were matched because he could not be matched on either age or ability. He turned sixteen on 16/9/68 and I classified him as educationally sub-normal. Nevertheless he was one of the most conscientious and consistent lads in the class and made remarkably good progress.

The improvement in Language and Spelling in both classes is noticeable. There is little point in applying statistical tests of significance to unclassified data, yet the improvement is sufficient to suggest real progress in vocabulary and spelling at least. If the two classes are taken together the September and November Language Means are 47% and 60%, and the Aggregate mean

53%, while the Standard Deviation for all four sets of language scores is 12.1. Thus the scores are normally distributed and the tests spread the boys out from 14 to 75, which is precisely the pattern that one hopes for in a test, if it is administered to a small representative sample, because it conforms to the normal curve of distribution of ability in a large representative sample of the population.

It would be idle to look for a dramatic improvement in comprehension. For one thing the scale is too short, consisting of only 16 items, and for another the passages were not equated for difficulty insofar as I did not item analyse them beforehand with another representative sample. The average percentages are appreciably higher than those achieved on the Speed-Comprehension tests which the boys completed in August and November, no doubt because the Speed-Comprehension tests were longer and more exacting and set a greater premium on speed: in August/September 5A scored averages of 45% and 72%, while 5B scored averages of 35% and 46%; in November/November 5A scored averages of 52% and 69%, while 5B scored averages of 43% and 53%.

I cannot legitimately discuss the prose and poetry which the boys wrote for me, many of which expressions found their way into their anthologies, for the same reason that I cannot claim that the group made gains in examined oral and written English expression. However, I think an examination of a typical anthology would reward the reader at this juncture and accordingly refer him to the Appendix N, pp.528-40. Being "published" pieces they have been corrected for spelling, punctuation and clumsy English, but their substance and tone remain unaltered.

4.8 Questionnaires

> "Evaluation of this type of program (a Junior High School Summer Reading Improvement Program) can be done in two ways:
> (1) through standardized reading tests and
> (2) through questionnaires which are sent to pupils or parents at a later date....
> Although test results show a general improvement in speed, vocabulary, and comprehension, the best method of evaluation seems to be through informal methods. All teachers have reported that their pupils have improved immensely in their attitude toward school and reading....A few comments made by parents point out some of the outcomes of this program. 'Pete is now going to the library and getting books on his hobby, boats. His disposition is also better.' 'Margaret is watching less TV and

> reading more.'...These are the results which do not show up on a standardized reading test but which make the work which went into the screening of pupils and teaching of classes worth while."
> Developing High School Reading Programs, 1967, pp.29-30.

I did not quiz the parents as the writer suggests - I preferred to see whether any spontaneous reactions of the sort quoted above would be forthcoming. However, I did quiz the children because I wanted to see what they felt they had got out of our sessions together, and more particularly what they thought of the Reading Laboratory. Very often what a learner thinks he has got out of a particular programme, or course of instruction, bears on his actual achievement, and, more importantly, on his future progress in related fields of study. What we think of ourselves, and how we see our achievements, is every bit as important as what others think of us, and how they see our achievements. Thus a lad like EMilB already described might have made negligible progress as far as I could ascertain from standardized and internal tests. Yet if the results of these tests are not divulged to him, or are told him but played down, he might remain convinced that he has made progress, as indeed he might have in ways not measured by the tests.

> "As Traxler has noted (Traxler, Arthur E., Values and Limitations of Standardized Reading Tests, in Evaluation of Reading, Supplementary Educational Monographs, No.88, University of Chicago Press, Chicago, 1958, pp.111-17), there is an inherent artificiality in reading tests. As the reading process flows by, we dip into the stream to lift out minute samples from which we then describe the entire stream. But no aspect of silent reading can be measured without interrupting the process, for at any moment the pupil is employing a variety of visual, intellectual, and reading skills and processes. Only by repeated samples of normal reading tasks, by observation of daily progress over a period of time and by evaluation of changes in pupil efficiency and variety of his uses of reading can we estimate pupil improvement and the results of our training programs."
> Reading in Florida Secondary Schools, 1966, p.17.

In any event, if this lad's attitude to reading and to schoolwork in general was changed for the better as a result of exposure to the Reading Laboratory, and if he was newly motivated to read on his own and improve himself, then this is more important, and more beneficial, than gains made on a series of tests.

A slightly different questionnaire was given to two different groups of boys in School E, namely, the two Standard 5 classes which worked on Reading Laboratory IIIA with me, and the Standard 6B and Standard 7B classes which also worked on a Reading Laboratory IIIA with one of the English teachers on the staff. I shall tabulate and describe their answers separately.

The first seven questions on all experimental and control group questionnaires are the same and deal with the background, history and interests of the pupils. The responses to these questions are set out and discussed in detail in 3.5, pp.114-21. It therefore remains to detail the answers to questions 8-14 on the Std.5 questionnaire and questions 1-13 on the Std.6B/Std.7B questionnaire. The two Standard 5's answers to question 8 are set out in Table 8 hereunder. The question read, "Put these down (a) in the order in which you liked them, and (b) in order of the good you think they did you: (i) Power Builders; (ii) Rate Builders; (iii) Listening Skill Builders; (iv) Reading/Writing/Vocabulary/Composition Cards; (v) Word Cricket; (vi) Horsepower; (vii) Free Writing; (viii) Other (you say)." Significantly Word Cricket, with its emphasis on co-operative, incidental learning, is the most popular activity in the 5A's estimation. 5B's rating of the game under (a) "Most liked" and (b) "Most beneficial" is not much different from 5A's and indeed the preferences of both classes are remarkably similar. I should add that they completed the questionnaires at different times, and in their own classrooms, so there could be no possibility of "a ripple effect". Although over-all preferences under both (a) and (b) vary considerably virtually every one of the seven suggested activities gets some first choices whether under (a) or under (b), and this, combined with the voting which is pretty close, suggests that a permissive attitude pays off inasmuch as it enables individuals to try a variety of tasks and to make up

their own minds as to what they best like, and what benefits them most. Thus, when the learning situation is "open-ended" to an extent, and learners are allowed to choose their tasks after performing a common first task, and to structure their own learning fields within fairly broad but always purposeful limits, individual preferences diverge widely, as they should.

Activity	(a) Std. 5A		Std. 5B		Activity	(b) Std. 5A		Std. 5B	
	1 Votes	Rank	2 Votes	Rank		3 Votes	Rank	4 Votes	Rank
Word Cricket	138	1	109	2	P.B.'s	111	1	138	1
R.B.'s	118	2	136	1	"Horsepower"	103	2	67	4
L.S.B.'s	109	3	103	3	R.B.'s	92	3	110	2
P.B.'s	92	4	85	4	L.S.B.'s	75	4	78	3
"Horsepower"	75	5	77	6	Word Cricket	74	5	43	6
R/W/C/V Cards	56	6=	82	5	Free Writing	60	6	39	7
Free Writing	56	6=	67	7	R/W/C/V Cards	52	7	63	5
"Poems"	3	8	2	13	"File"	5	8	-	-
"File"	2	9	-	-	"Poems"	2	9	-	-
"Reading"	-	-	10	8=	"Vocabulary"	-	-	11	8
"Writing"[5]	-	-	10	8=	"Writing"[6]	-	-	8	9
"Vocabulary"	-	-	9	10	"Composition"[8]	-	-	7	10
"Reading Poems"[9]	-	-	5	11	"Reading"	-	-	2	11=
"Composition"[7]	-	-	4	12	"Reading Poems"[10]	-	-	2	11=

TABLE 19

1,2,3,4. "Votes" were accorded points, starting with 8 or less points, depending on the number of choices listed, for a first choice, seven or less points for a second choice, and so on down to one point for a last choice, whether it was eighth or fifth of those listed.
5,6. "Writing" presumably refers to the incidental attention paid to the mechanics of writing (see Appendix K, p. 524).
7,8. "Composition" presumably denotes the stories that the boys wrote for "Free Writing".
9, 10. They read their poems aloud from time to time for appreciation.

In answer to question 9, "Do you think Reading Lab has improved your written English? Yes/No. If 'yes', what makes you think so?", 21/23, or 91% in 5A and 22/22, or 100% in 5b thought it had. These were some of the reasons given: "The Lab is very interesting. I like stories on the Power and Rate Builders. I get more marks"; "I know lots of words I didn't know"; "I can

read faster, write faster and have a better vocabulary"; "Because I did a lot of writing and learned knew words and made knew words knew words"; "New words, higher marks in exams, writing free verse"; "I used to fail English in exams. Since the Lab has come I have not failed"; "Because my parent ask me where did you learn those words from"; "I am using better words"; "My mother says I right better English"; "I am writing better, using good words"; "I enjoy writing much more"; "If I compare my reading and writing now with the reading and writing before I started I find I have improved quiet a lot"; "Because I have learnt a lot of new words and know how to youse them."

In answer to question 10, "Do you think you are now a faster reader? Yes/No. If 'yes', (a) how much faster, and (b) how has it done this?", 22/23 or 96% in 5A and 22/22 or 100% in 5B thought that they had increased in speed. Only about half the boys in each class hazarded how much they had improved, and estimates ranged from 20% to 100% in 5A and 5% to 100% in 5B. The mean guess in 5A was 40% which was fairly close to the actual increase of 31% as measured by the August and November speed/comprehension tests, while the mean guess in 5B was 23%, which was also pretty close to the measured increase of 16%. Some of the reasons given follow: "Because we did a lot of reading and it made me understand more"; "Learning to read faster - having an objective"; "By reading a lot of things and getting lots of practice"; "By reading against Time"; "Because we are reading all day and have to read fast. So we got into the habit of reading fast"; "By being forced"; "Because you had to do the things in set times"; "Working with Rate Builders"; "By helping me learn more words and therefore I can read the words faster"; "I have done so much reading during the time that I have learnt to read faster"; "I understand things quicker."

In answer to question 11, "Do you think the Lab has made you a better reader? Yes/No. If 'yes', what makes you think so?", all the boys in 5A and 20/22, or 91% of the boys in 5B felt that they had improved in all-round efficiency. These were some of their reasons: "I can grasp the main ideas. I find I can remember what happened before"; "Can pronounce more words"; "I understand books better, read better and faster"; "I learnt more about words";

"With the use of our files I know a lot of words"; "Because there are words that I did not know and now I have learned them. So when I read books I can understand them if there are hard words"; "Because I can read more complicated books"; "Because now I do not make so many mistakes"; "My read mark has improved"; "My mother says my reading has improved"; "Reading Lab has made me read more" (This from EE11B); "Before the Lab was brought to the class I used to make mistakes and stutter"; "I can read books and enjoy them" (this was quite a common reason); "Because I can pronouns the words better and I do not hesitate so much"; "My sister used to beat me in reading but now I beat her."

In answer to question 12, "Have you ever cheated on any aspect of the Reading Lab? Yes/No. If you have ever cheated, do you think that you learnt less because you cheated? Yes/No", 19/23, or 83% of the boys in 5A and all the lads in 5B owned to cheating; but whereas in 5A only 7/19, or 37% of those who admitted to cheating felt that they had learnt less as a result, 22/22, or 100% of the boys in 5B felt that they had learnt less in consequence, and they were probably right because having less ability to start with the temptation to cheat was stronger, and they stood to learn less because they had more leeway to make up than their colleagues in 5A. Furthermore, the boys in 5A would be more likely to understand a filched answer than the lads in 5B so they might well feel that they were only saving time, not learning less, by cheating. The more intelligent the student who occasionally resorts to cheating, the more likely he is confirm his guesses rather than inform himself in his ignorance.

With questions like this it is always possible that boys will either suppress the true answer, or give the teacher the answer that they imagine will please him. If a great many boys had denied cheating I would have been suspicious, but most of them knew that I knew who was cheating, and that I took the view that they were cheating themselves rather than me. Consequently they had nothing to hide and no reason to hide anything anyway. They certainly were not going to be punished, nor even criticised, for cheating in such a highly competitive environment, and this they knew well. In this regard I experienced an illuminating instance

of peer group pressure in the 5A. Early in October, about three quarters of the way through the course, I drew the class's attention to the increasingly widespread incidence of cheating. They were now thoroughly familiar with all aspects of the programme and, despite constant vigilance on my part, they were often in such a hurry to get on that they skimped corrections, particularly in 'Learn about words' on P.B.'s and marked answers right that were wrong, knowing full well that I could not and would not check each and every boy's different answers every day. Or they were so anxious to maintain a high level on their graphs that they either altered answers or passed wrong answers. I know how many of them felt: if you have achieved say, four 86%'s and three 100%'s in that order for 'How well did you read?', and "Sir" has confirmed that you are nearly ready for the next colour, and you score 43% on your next P.B., it not only spoils the appearance of your block graph but also sets you back in your progress because you will now have to do additional P.B.'s at this level before you proceed to another colour. Under such circumstances the temptation to cheat is well nigh irresistible. I pointed out to the class that I was well aware of these pressures, and that I sympathised with them, but that nevertheless I would rather that they were scrupulously honest with themselves and learnt from their errors than "sweep them under the carpet".

Thinking, then, to put the cheating that I knew was going on in its proper perspective, and to open the class's eyes to its prevalence, I asked for a show of hands to indicate who had ever cheated on any aspect of Reading Laboratory work. Immediately two or three hands went up. Individuals looked around sheepishly to see what other boys were doing. There were muttered asides: "Come on, Ben, I saw you yesterday." Gradually other hands went up. Finally only one boy sat in his seat with his arms folded in front of him . Accusative and derisory eyes fixed on him from all quarters. "Own up, Weedy. You're as bad as the rest of us," some lads said openly. He squirmed in his seat and turned red in the face, but refused to budge. Finally he burst out, "I swear I haven't cheated, Sir!" There were anguished tears in his eyes and there could be no doubt of his sincerity. It was an uncomfortable moment for us all, and I was very sorry that I had put

him to such a bitter test. The next day when I could conveniently do so without making much of it, and when there was no risk of being overheard, I told him quietly that I believed him. Once again he turned crimson and the tears welled. It was still too painful an experience for him to look back on it with equanimity. If their responses to question 11 are to be believed I would guess that at least two other boys had not cheated up to this time, but that they were forced to own up to cheating through the pressure of raised hands and bright eyes.

Though no comment was asked for on this question I was amused, and not a little gratified, when one scallawag in 5B was moved to add, "You'e to cheat but not any more it does not pay." When I reviewed his Student Record Book I found that I had no cause to disbelieve him. His progress latterly was sufficiently erratic to support his claim.

It is instructive to compare these figures with those for Standards 6B and 7B in the same school (see p.213), and with comparable classes in School F (see p.306 and p.327) and Schools AB and C (see p.429). In fact the incidence of cheating on every programme with every teacher in every school is remarkably similar. It is one of the main difficulties which the teacher must be aware of when he embarks on a course of programmed instruction.

There were some perceptive and constructive points made in answer to questions 13 and 14, "What benefits not mentioned above have you derived from Reading Lab?" and "Have you any other comments or suggestions?" The first son of a Senior Lecturer in English at the local University, and the brightest boy in 5A, said simply in answer to question 13, "Fun", but expanded somewhat in answer to question 14, "Take this thing to other schools. Especially X (a local girls' school) where it ought to help the girls to patch up their reading. This was fun. Much better than English Grammar, or reading." Another lad mentioned as a further benefit that the Reading Laboratory "made ge want to read more books". One boy was large in his praise: "It has done a lot of good to me and it should go around the whole world." Other benefits mentioned were the followings "It has made me speak better"; "It is not easy

working on it, but it helps you a lot in today's life, because people are getting cleverer"; "I have learnt lots of General Knowledge from P.B. and R.B. and L.S.B.[1]"; "Mr S. (the English teacher) says I have improved in my compo"; "My mom said that this is a good way of teaching Eng" (yet this same lad, EEllB again, opined in the next breath, "Should not have to many periods of Eng!"); "I am becoming neater. It has aproved my spelling"; "My mom has said that I know more new word than she knows and I know how to yous them and she does not."

These were amongst other suggestions and comments offered: "Have a South African Reading Laboratory made. S.A. spelling. Make an Afrikaans one for Afrikaans children. Have more subjects on S.A. Exciting English is enjoyable. Some P.B.'s drawn out"; "Learnt a lot from the Laboratory. I'm glad that the laboratory teacher takes so much interest in our work"; "I would very much like Mr Pienaar to teach us in Std.6 with a more advanced laboratory"; "I think that Reading Laboratory should go on living"; "We should have it every English period"; "I think that the Reading Laboratory and Mr Pienaar has taut me much better than I would have learnt"; "I think some sections are a bit of a waste but more is important than waste"; "The Reading Laboratory should be made so that a person cannot cheat"; "It would have been more interessenting to me if the Nate Builders and Power-building were in English"; "I like the American storeys very much but some of them are a lot of rubbish"; "Often when I see a word I think it is a new word to me but it is just an American spelling" (certainly variations in spelling seem to bother the slower pupils most: after all they already have their work out out coping with two official

[1]Unfortunately there is no precise means of measuring the information that students gain from S.R.A. materials, particularly P.B.'s and R.B.'s. However, since most of the material is non-fictional and informative, there is little doubt that they do learn a lot from what they read, and that this is one of the benefits which they derive from the Laboratory.

languages without having to accommodate to different spelling conventions within the same language; also in highly formal schools like this one spelling is likely to be overstressed because it is easy to test); "I would like to thank Mr Pienaar wholeheartedly for what he has done for me and my classmates, because he has improved our reading and Spelling tremendously."

The first thing that the boys in Standards 6B and 7B were asked to do on their questionnaire was list their three favourite subjects at school. Comparatively few boys in either class listed English as their favourite subject, 7/32 in 6B and only 2/31 in 7B, and those who listed English as the subject which they liked most, or one of the subjects which they liked most, naturally tended to be more favourably disposed to the Reading Laboratory than those who opted for other subjects. In answer to question 2, "Which Lab are you on, and how long have you been on it?", it transpired that both 6B and 7B had had "10 weeks at the beginning of the year" on Reading Laboratory IIIA.

23/32, or 70% of the boys in 6B and 13/31, or 42% of the boys in 7B felt that the S.R.A. Lab had made them better readers, and these were some of the answers they gave to the second part of question 3, "If 'yes', how has it improved your reading?": "I find I can read a little faster and smoother"; "Because befor I started to do S.R.A. I was a slow reader and could not pronounce the words properly. But now I read quite fast and pronounce the words proper"; "I concentrate more on what I read and therefore I enjoy the book more"; "I read faster and without making so many mistakes in my punctuation"; "It has improved my reading to help me stop stuterring when I read aloud"; "I now understand more of what I am reading"; "Can read more fluently"; "I understand the sentence better now"; "It has helped me to think more clearly about what I am reading"; "Made me concentrate not forget easily what I was reading." Quite a few lads in 7B, which was generally considered to be a difficult, recalcitrant class, felt that they had made no improvement, and the reasons given were variations on the theme "it gets boring afterwards. I am not fond of it." Unfortunately quite a few students in both classes put "I don't

know" or "I'm not sure" in answer to the first part of the question. Seemingly the teacher had not acted on Don Parker's suggestions in regard to periodic conferences:

> "One outstanding advantage of the multi-level program may well be the opportunity it provides the teacher for individual contact with his students....Conferences should range from informal help with directions, a difficult word, or a particular exercise to a more formal period of several minutes duration when the student comes to the teacher's desk for discussion of his goals, his work, and his progress.... A conference near the end of the program is particularly valuable, as it...provides a final self-evaluation for the student while allowing the teacher to assess the value of the work to a particular student."
>
> Teacher's Handbook, 1964, pp.34-5

In answer to question 4, "Do you think the S.R.A. Lab has made you a quicker reader? Yes/No. If 'yes' (a) how much quicker and (b) what makes you think it's speeded up your reading?", 20/32, or 63% of the boys in 6B and 15/31, or 48% of the boys in 7B felt that it had accelerated their reading, but again a fair number wrote "don't know". Estimates of how much they had improved varied. Some boys were cautious: "A little quicker than before", "At least five minutes per 100 pages" (I cannot say whether this is heavy irony or not because I do not know the boy), "About 1 minute", and "Before the time in which it took me to read one page is almost the same as when I have read about 1½ pages now." Others were inclined to be extravagant: "Nearly twice as fast", "I used to take a week to read a book with 237 pages and now take 3 hours", and "I can now read a book in ± 1 hour whereas I couldn't before." These were some of the reasons given for thinking that they had increased their rates of reading: "I can now finish a book quicker than usual", "I used to read slow before but don't now", "I catch on immediately to what I reading", "The quicker I read the more I understand", "I enjoy the book more", "Because I tested myself and found out that I read much quicker than befor"; "Because I read books much easier"; "All the Rate Builders you had to learn to read quickly"; "I had to go fast to finnish in Time";

"You have a certain time in which to do it so you have to read fast"; "I tried to beat my last reading time."

Only 9/32, or 28% in 6B, and 7/31, or 23% in 7B felt that the laboratory had improved their written English and these were some of the reasons given. "It has improved my spelling"; "Spellening"; "It has because I have to know how to spell difficult worlds"; "I can write faster than I usual do but do not always spell the words write" (once again there is this preoccupation with spelling, which is nevertheless execrable); "It has improved my writting english because I write more sence and not rubbish"; "A wide variety of subjects to write on if asked to do so[1]"; "In S.R.A. you have to fill in parts of words"; "I used to have trouble with words but now I know how to spell properly and used the correct words"; "I now get better marks"; "I was never a very good English Writter until our Master gave us the S.R.A. to do"; "I first read whatever there is and therby I am more certain of myself"; "It has helped me to punctuate more carefully."

The answers to questions 6 and 7, "What aspect of the Lab did you enjoy most, Power Builders, Rate Builders or Listening Skill Builders? Give a reason for your choice", and "What aspect of the Lab did you the most good, Power Builders, Rate Builders or Listening Skill Builders? Give a reason for your choice", are tabulated below (see Table 20). These were amongst the reasons given in answer to question 6: "(P.B.'s) more exiting"; "I liked the Power Builder because you can do it in your own time"; "Power Builders. I enjoyed them more than any others"; "Power builders because a lot of them were very interesting"; "It is enjoyable to read stories (in P.B.'s) and then see how much you know by answering questions"; "Because they (R.B.'s) never had so many questions"; "Because you don't have to do long exercises (in R.B.'s)"; "(R.B.'s) did not take so long as the others";

[1] As I have already said one of the adventages of the Laboratory which cannot be accurately assessed, but which is nevertheless appreciated by students and teachers alike, is the extent to which it informs the reader.

"They (R.B.'s) were much shorter and less dificult"; (Slower pupils often do not have as much persistence as brighter children because tasks are not as intrinsically rewarding for them; also their concentration is often weaker and their attention span shorter because it is difficult to sustain interest in an assignment when you have to struggle to understand); "I like it (R.B.'s) because it is a chalange to see if you can finish in time"; "Rate Builders because I had a certain time in which to read a passage and that improved my reading"; "Rate Builders because there is more stories in it"; "Rate Builders because I use to get them always write and get 100% every time for them"; "You get it over with quickly (R.B.'s)"; "Rate Builders because it shorter than a Power builder. Because we could also loaf"; "I was good at it (L.S.B.'s)"; "Listening Skill Builders because it makes you think"; "I understood it (L.S.B.'s) most and got most rite"; "Listening skill builders help you to listen and think."

These were some of the reasons given for feeling that a particular laboratory component had done most good: "Power Builder because we never had a time limit"; "Power Builder. Because sometimes it was easier"; "Power Builders did me the most aspect by seeing new things"; "Power Builders, because I had to concentrate more and therefore I know better"; "Power Builders because it has a lot of thing that you have to do"; "Power Builders, you can go back to what you have just read"; "Power Builders because it showed me how to answer questions"; "Because I got more right in the power builders"; "Power Builders made me think and read carefully"; "It (P.B.'s) is a very entering part of the lab. as you read all history"; "Rate Builders helped me to think quickly"; "The rate builders I did the most good in"; "Rate Builders. It was easier"; "Rate Builder because I concentrated properly"; "Rate Builders it helped me to work faster"; "It (L.S.B.) developed my skill for listening to a teacher talking"; "Listening Skill Builder helped me to pay attention in class."

Component	Best Liked Std.6B Votes	Rank	Std.7B Votes	Rank	Component	Most beneficial Std.6B Votes	Rank	Std.7B Votes	Rank
R.B.'s	14	1	14	1=	P.B.'s	9	1	15	1
L.S.B.'s	7	2	-	-	R.B.'s	7	2	10	2
P.B.'s	5	3	14	1=	L.S.B.'s	4	3	-	-

TABLE 20

A number of boys either said that they did not understand the question, or left the answer blank, or said that they did not know: hence the fact that the total number of votes cast is less than the number of boys who completed the questionnaires. Two boys felt that all three components were equally enjoyable and worthwhile: "I liked all of them"; "They were both as good" (I guess from the latter answer, and the fact that no one in 7B voted for L.S.B.'s, that L.S.B.'s were omitted from their course - hence the dashes in the above table). Only one boy (in 7b) felt that he had gained nothing from either/ any of the two/three components.

The answers to questions 8 and 9, "What did you enjoy most about Reading Lab periods (i.e. the stories, the exercises, doing better than your class-mates, self-correction, graphs, responsibility for your own progress, the way it was taught)? You may put down more than one point here", and "What did you enjoy least about Reading Lab. periods (i.e. lack of progress, repetitive and tedious exercises, the lack of supervision, the fact that the teacher did not mark your work)? You may put down more than one point here", are set down in Table 21 below.

Aspects	Most enjoyed Std. 6B Votes	Rank	Std. 7B Votes	Rank
Stories	17	1	23	1
Excelling classmates	7	2	7	2
Responsibility for own progress	6	3	3	4=
Exercises	5	4	4	3
Graphs	4	5	3	4=
Self-correction	2	6=	2	7
The way it was taught	2	6=	3	4=
"We weren't taught"	-	-	1	-
"I liked everything"	1	-	-	-
"Short stories"	1	-	-	-
"Who got them all right"	1	-	-	-
"See how many times I can get full marks and see how far I can get with the colours"	1	-	-	-
"You did not have to finish at a certain time"	-	-	1	-
"That we could work on our own"	-	-	1	-
"Don't know"	3	-	-	-
	Least enjoyed			
Repetitive exercises:				
"Long Power Builder exercises"	6	1	8	1
Lack of progress	3	2	7	2=
Teacher not marking work	2	3	7	2=
Too much supervision	-	-	3	4
Lack of supervision	-	-	2	5
"Monotonous towards the end"	-	-	1	-
"Not enough time"	-	-	1	-
"Nothing I did not enjoy"	1	-	-	-
"The reading because it takes up most of your time"	1	-	-	-
"The rate builder"	1	-	-	-
"Puzzled at some places"	1	-	-	-
"Don't know"	11	-	-	-

TABLE 21

Since the pupils received no help or guidance in completing this questionnaire a number of boys either wrote "I don't understand" beneath the question, or simply left the space blank. This accounts for the comparative paucity of responses. Nevertheless two things are apparent from this Table:

(i) the passages are popular, despite their American content and idiom, and

(ii) the Reading Laboratory undoubtedly arouses a lively competitive instinct, which the author rather naively thinks can be played down in favour of self-competition.

Question 10 reads, "What do you think is (a) the optimum number of periods per week for Reading Lab,....x....(i.e. 3 x 30 mins), and (b) the optimum duration of a course on Reading Labs,....(i.e. a quarter, a half, a full year, or more than one year)." Many boys did not understand the question as it was framed, and either left it blank or filled it in incorrectly. Some boys answered facetiously. The opinions of those who filled in the answer seriously and correctly diverged considerably, and consequently no definite conclusion can be drawn. However, the consensus of opinion in both classes seemed to be 3-4 periods per week for a semester (the mode number of periods per week suggested was three 30-45 minute periods and the duration of the course most favoured was a half a year). Certainly the vast majority of pupils favoured the shorter course; indeed only five boys suggested that a course on Reading Laboratories should last for a year or more. Of course, much depends on how a programme is taught and how it is integrated with other aspects of the curriculum - whether, indeed , a highly specific programme like an S.R.A. Reading Laboratory is imaginatively extended. But if the teacher follows the instructions and the schedule as laid down in the Manual strictly I can well imagine that a concentrated crash course would get "monotonous towards the end". This is why I so strongly advocate a synthetic, eclectic and creative approach to developmental reading. The skilled and resourceful teacher must think of a host of ways in which to link up work done on the Laboratory with other areas of the study programme, and the inventive practitioner must certainly extend Laboratory work by setting all sorts of challenging related assignments. The multiple-choice type response in the 'How well did you read' section of the P.B.'s, and the comprehension questions in the R.B.'s together with the extended mechanical 'Learn about words' section in the P.B.'s, do not allow for originality. In fact the Laboratory exercises throughout tend to inhibit divergent, creative thinking. It is up to the teacher to be aware of this important shortcoming of individualised programmed material like this, and to make up for the lack of opportunity for self-expression in the programme by using supplementary devices and creating opportunities for correlative original work in his teaching.

An analysis of the answers to question 11 yielded a similar result to the analysis of the answers to question 12 of the Standard 5 questionnaire. 14/28, or 50% in 6B and 22/30, or 73% in 7B admitted to cheating, yet only 8/14, or 56% in 6B and 12/22, or 55% in 7B, felt that they had learnt less as a result. I think that if the teacher had probed a little deeper, as I did with the two Standard 5's, and stressed that the truth was all that was wanted, the number of boys who would have owned up to cheating would have equalled the numbers in the two Standard 5's. I can see no other reason why the numbers and percentages should differ. Certainly there can be little doubt that the majority of boys do cheat from time to time on the S.R.A. Reading Laboratory, yet it is by no means certain whether they actually learn less as a result. As I have already pointed out some cheat because they do not know the answer, while others cheat to confirm that they have the right answer. In any event there is both the opportunity and the motive to cheat on the Reading Laboratory, particularly in the highly competitive systems in which so many South African children work.

Undoubtedly Don Parker is well aware of the temptations to cheat on his self-administrative, self-corrective and self-evaluative programmes, and of the consequences which flow from cheating, but his assumptions are nevertheless a little naive and unrealistic, at least when they are applied in the South African context.

> "The student who cheats may be doing so out of insecurity or laziness. If he is truly having difficulty, he should be moved back to an easier level where he can meet success without cheating, or otherwise helped to overcome his skill deficiencies. Even slow learners easily understand that cheating does not help them. Furthermore, they lose the need to cheat when their efforts meet with success."
> Teacher's Handbook, 1964, p.37.

This may be fine in theory, but I have tried it in practice with only very limited success. A number of boys in the Standard 5B started to flounder once they moved up through the colours on either P.B.'s or R.B.'s or both, either as a result of cheating or as a result of their limited ability. Despite the fact that the gradient of difficulty is gradual through the colours it was too steep for some youngsters. They could work through all the P.B.'s and R.B.'s at one level and still not achieve a sufficiently high standard to warrant promotion to the

next colour. Consequently I had either to promote them despite their unreadiness, and risk confusing or frustrating them with material that was too difficult for them, and on which, needless to say, they could only succeed at a satisfactory level by cheating; or demote them to an easier colour, and risk frustrating them by confronting them with their limited ability and lack of progress, and hence reducing their desire to succeed and disenchanting them with the whole Laboratory. Towards the end of the course I found myself in a cleft stick. I noted in my jotter on 15/10/68, "Those whom I've caught cheating, like William, are now discouraged because they can't cope with the colour they've graduated to, and hate to be put back. (It is all very well for Don Parker to suggest that even slow learners will appreciate that cheating does not help them scholastically, and that they will be inclined to stop cheating once they understand this. But he blithely ignores the fact that cheating often does help children, and particularly the slow learners, socially, and hence emotionally, because as often as not it is the only means by which they can appear to keep up with their classmates. And just as nature hates a vacuum, so a class of children hates a misfit.) Also they can't see visible progress, and lose out in comparison with others. It must all seem such a long hard haul for boys with little brain and less perseverance." And on 12/11/68 I summed up thus: "See Eugene's progress on both P.B.'s and R.B.'s. He's reached his ceiling and only frustration can ensue unless the 'incremental gradations' on the Lab are reduced. Look at Peter, too. He's worked right through 3 colours on R.B.'s and is one of the brightest, and most conscientious and consistent, in a poor class, and yet he is palpably not ready for further vertical progress. Yet he himself would be well aware of the fatuity of further 'horizontal progress'. I reckon that I can <u>feel</u> this class giving up. Even Stanley, the best in the class, is not ready for the Red P.B.'s after doing all Brown and all Green."

This then is one of the reasons why I suggest both a less concentrated and longer course, and also a leavening of imaginative and creative extension work. With the best teaching in the world one cannot accelerate a constitutionally predetermined rate of progress beyond a certain level at any particular point in time. One can only consolidate at that level until the individual is developmentally ready for further progress. And too much "horizontal progress",

or consolidation, can become boring and stultifying. I could perhaps have used an easier Laboratory to start with, such as the IIA which ranges from Grade 2 to Grade 7, and which goes up in half-yearly steps. But I had to order months beforehand to ensure delivery by May, 1968, and it seemed to me that the IIIA Laboratory, with its much higher ceiling (Grade 11 as opposed to Grade 7), and wider range, would be better for the wide range of age, ability and attainment that I was likely to encounter at the Standard 5 level in South Africa. If the Record Books had been the same and interchangeable I could have used both. The IIA would have provided supplementary material and reduced the gradient of difficulty for the slower, weaker pupils. As it turned out, though, the IIIA Laboratory was probably the most suitable because the best pupils in Standard 5A graduated to the highest level of R.B.'s and the third highest level of the P.B.'s by the end of the course. Thus they were ending effectively at Grade 9 level by November, 1968, and would therefore have been marking time at Grade 7 level had they been on Reading Laboratory IIA. As far as Standard 5B is concerned, I guess that if I had "notched them in" laterally to a IIA Laboratory so that they could "grow stronger", they would have grown tired of bumping their heads against their own developmental ceiling, and become progressively frustrated. By the end of this extended concentrated course what they really needed was time "to grow taller" rather than practice "in stretching up". This is why I advocate the gentler gradient and a less intensive course, particularly for slower children.

Many boys failed to answer question 11, "What benefits not mentioned above have you derived from Reading Lab?", presumably because without prompting they could not think of any further benefits. However, the following positive answers were forthcoming: "Interesting stores: teaches us some things: exciting: makes you think"; "I have not only improved my writing but know I attend the librarie more often"; "The enjoyment"; "To read with more expression"; "Understandment"; "It has improved my reading and also my ability of noting all the important parts"; "Understanding the meaning of the story"; "Learned to concentrate more"; "My vocabulary is better"; "Makes English periods go quicker"; "Filled up periods which we would

have spent on grammar"; "It has helped me to work more faster". On the other hand these were some of the negative opinions: "Don't know" (oft repeated); "Have not derived any benefits"; "I can not think of any"; "None that I know of"; "No benefits because I think that the Reading Lab is a waste of time"; "None whatsoever. Except wasting my time." In fairness to the Laboratory it is probably true to say that the sort of hard case who made the last remark would very likely say the same thing about anything connected with school:

> "A boy who had just left school was asked by his former headmaster what he thought of the new buildings. 'It could all be marble, Sir', he replied, 'but it would still be a bloody school.'"
> Half Our Future, 1963, p.2.

A good many boys also failed to answer question 12, "Have you any other comments or suggestions?" However, these are a representative crop of the constructive comments and suggestions: "You should give a person more time for a rate builder"; "I think that the Lab is a brilliant experiment. It teaches one a lot" (I would guess that this lad was probably one of a minority in 6B who put out a lot of effort, and who reaped a commensurate reward); "I suggest that all pupils do it as I expierisnced it a great help to me"; "I enjoyed the reading lab very much and it increased my liking for english"; "We should have more time in doing S.R.A. We should have one year to do it"; "That there should be more of the S.R.A. in schools"; "It is a very good thing but one does get board of it if you do it very day"; "It gives one a break from other work"; "This taught me just how good I was and how clever I am."

These are a sample of the negatively critical opinions: "I think ordinary english is better than the lab because you do not do any grammar with the lab"; "They should have a bigger range of colours"; "Ordinary Grammar is better for one's English"; "Take S.R.A. back where it came from"; "No - only that we should not do it at school because it is a waste of time"; "Give it up! It wastes time"; "S.R.A. is all right for awhile but afterwards it gets boring and you just start fooling around"; "No I think it is just junk." One lad sums up at some length, trenchantly, "The first thing is to

get a better teacher to teach it to you then secondly half the class are not intrested and just cheat. They are wasting your time as well as everyones elses."

No doubt the "A" stream boys in these two classes would have got more out of the Laboratory because they have more to put into it in the first place. And they would have had more to say for themselves, and would have expressed themselves more cogently and correctly. Nevertheless the responses of the boys in these two difficult classes indicate that if the Reading Laboratory did nothing else, it stimulated them to think, and polarised opinion as to the relative merits and demerits of the innovation. Notwithstanding the fact that 25% of the boys in Stds.6B and 7B professed to be negatively disposed towards the Laboratory by the end of the course I guess that it did them more good than a series of formal English lessons based on the textbook and the syllabus would have done. The negative disposition of this 25% seemed to arise mainly out of their own intransigence, and out of the intensive nature of the course and the way it was taught, rather than out of any inherent faults in the Reading Laboratory itself.

CHAPTER FIVE

DEVELOPING FURTHER READING THROUGH E.D.L. (EDUCATIONAL DEVELOPMENTAL LABORATORIES) DEVICES AND PROGRAMMES

> "There is a conviction on the part of all who understand the function of instrument techniques, that they play an indispensable role in the balanced reading program of today and will play an increasingly important part in the schools of tomorrow, as the need is felt to teach more content in less time and to develop each student to his fullest potential."
> Stanford E. Taylor, 1962, p.8.

5.1 The principal ingredients

The E.D.L. approach to the teaching of reading is essentially mechanistic. The two devices through which E.D.L. materials are projected, namely the Tach-X Tachistoscope and the Controlled Reader, are indispensable to any E.D.L. course. These two machines, though simply designed, are technically impressive and their novelty impact on a group of students is greater than that of the S.R.A. Laboratories. Both the Tachistoscope and the Controlled Reader are basically filmstrip projectors which have been ingeniously modified.

The Controlled Reader projects 35 m.m. filmstrips. Complete prose passages of varying length and difficulty are printed on every filmstrip, and a complete programme, or "book" of stories and articles, is made up of 25 filmstrips. Each "book" is matched with a Study Guide which contains the same 25 passages in precisely the same format as they are printed on the filmstrips, that is to say in columns with 5-6 words per line on the average. The only difference is that the filmstrip presents the material in one continuous column without an illustration at the head, while the Study Guide presents the same material in 3 adjoining columns per page over two pages with an illustration on the first page. In addition to the passages for comprehension every Study Guide contains the comprehension questions which the reader has to complete on a separate answer sheet when he has read the story from the screen. There is also a series of vocabulary

exercises which relate to each passage, and these the reader should work through as a useful preparation to reading the story itself.

The Controlled Reader projects the filmstrip either as "open" or as "closed" lines at speeds ranging from 60-1000 words per minute. In the "open" line technique the passage is exposed whole line by whole line, while in the "closed" line operation it is exposed a few words at a time through a slot which moves from left to right. The slot is slanted so that it "leads the eye on". The machine can be operated manually by disengaging the cam and putting it "in neutral". Otherwise its automatic operation can be stopped and started by means of an arrestor button when the teacher wants to make a point, or when he wants to play word games with the children. When the machine is operated manually, or by using the arrestor button, material can be projected sufficiently slowly to permit beginning or backward readers to read aloud. However, the machine's main function is to improve the speed and efficiency of silent reading. A high degree of concentration is necessary because once a strip has started there is no opportunity for the reader to regress to check the meaning of a word or sentence. His attention and concentration are enforced by the inexorable forward movement of the strip through the machine:

> "With no chance to look back, the students must be 'on their toes' visually and mentally.... During training, the moving slot makes possible improvements in visual mobility and co-ordination. The reading rate is set to challenge the reader, so that the slot always unfolds fresh material. Directional attack improves as the reader develops an economy of fixations, makes fewer regressions (regressions are virtually impossible if the reader is being pushed at any speed above 100 words per minute - my brackets), thus broadening his span of recognition. Controlled Reading brings about marked improvement in interpretive skills. Comprehension improves as the reader becomes more proficient visually and reads easily and comfortably. Because there is no possibility of rereading, he learns to concentrate, read aggressively and accurately, organize his thoughts rapidly and remember well."
>
> Reading Instructional, 1966.

At the time of writing there were available a comprehensive selection of filmstrips taking the reader from the Readiness and Pre-primer stage (sets 4c and 4d) through to Grades 13-14 (levels 13-14, Set MN). In addition there are a set of "Comprehension Power Filmstrips", which are designed to give Grades 3-6 an opportunity for the oral comprehension and discussion that is so important to the social and emotional, as well as the intellectual development of the child.

The Tach-X Tachistoscope also projects 35mm. filmstrips, but in this case series of numbers, letters and geometrical figures and lists of words are printed on the strips. In addition there is a "Write-on Filmstrip Preparation Kit" available which allows teachers to prepare their own lessons. Various "Training-Test Sheets" and "Tach-X Progress Sheets" are also available, though teachers may dispense with these in favour of their own modified records which the school office can usually readily cyclostyle or spirit-duplicate. The Tach-X is manually operated, but the material is automatically exposed at pre-set speeds ranging from 1½ seconds to 1/100 of a second. Thus the teacher introduces the strip into the machine, sets the speed at which he wants to flash the material on the screen, presses a button which blurs the focus by pushing the lens forward, winds the strip on manually (it automatically clicks into place to expose the next frame on the filmstrip), and presses the button which brings the blurred material sharply into focus for an instant before the eccentric cam pushes the lens forward and out of focus again. The students then record what they saw and when they are ready the teacher/projectionist again presses the button which brings the same material sharply and steadily into focus to enable the students to correct their responses. He then presses the button again, the strip blurs, he winds on to the next frame and the procedure is repeated.

> "Tach-X training helps the beginning reader to build visual discrimination skills and to stabilize a sight vocabulary; it helps the older student to sharpen his powers of visual perception and retention....Students first learn how to pay careful attention to detail, to see in a left-to-right fashion (there is nothing in the device, or the material, which actually trains students to perceive from left to right, as the slanted slot in the Controlled Reader trains them to read from left to right - my comment and brackets), and to remember more of what they see. Later, exposures of words allow students to transfer their accurate, aggressive seeing skills to meaningful content. Flashed words can serve as a basis for spelling exercises, word analysis, vocabulary building and other activities."
>
> Reading Instructional, 1966.

A price-list is not germane to the present study. Suffice it to say, however, that both the capital cost of the two devices and programmes, and the recurrent expenditure necessary for renewing things like bulbs (which do not last long) and Study Guides, and supplementing programmes, is high.

5.2 Content and method of the E.D.L. series

Educational Developmental Laboratories was incorporated in 1954 and the first programmes, to be used in conjunction with the two devices, came out shortly afterwards. Since then the organisation has mushroomed and programmes have proliferated to the point where students of all ages, from beginners to adults, are generously catered for. The filmstrips and Study Guides that I used on the Controlled Reader came out in 1963 and 1964, and the vocabulary filmstrips that I used most frequently on the Tach-X first came onto the market a year or so earlier.

The E.D.L. programmes were compiled by a team of experts headed by Stanford E. Taylor. The content of the material to be projected through the Controlled Reader is similar to the content of the S.R.A. Power Builders and Rate Builders. Thus most of the passages are either non-fictional articles or true narratives taken from such

sources as The New York Times Magazine, True, The Man's Magazin Newsweek, American Heritage, Science Digest, The Saturday Evenin, Saturday Review, and Boys' Life. Articles which derive from the and similar magazine sources form the bulk of the more advanced programmes, from series GH upwards. They are interesting and informative, but lack spontaneity, originality and stylistic variety. They tend to be written to a formula and are often prosy. There are more stories, mostly true, in the less advanced programmes, from Series F downwards and these are adaptations from such diverse sources as A Bridle for Pegasus by Katherine B. Shippen, Wild Animals of the Five Rivers Country by George Cory Franklin, The Elephant's Bathtub by Frances Carpenter Huntington, Hallenbeck's Legends of the Spanish Southwest, and Strangely Enough by C.B. Colby.[1] In addition in the more junior programmes there are a number of first-hand non-fictional articles and historical narratives written by Catherine E. White. But these are written to the same formula as the adaptations, and are American in orientation and idiom. Like the adaptations they generally engage the South African child's interest, but they lack invention and sparkle, and none of the passages are written in a form or style which the reader might wish to emulate.

In other respects E.D.L. courses and methods differ from S.R.A. Reading Laboratories. Whereas the latter are highly individualised the former are generally used to instruct groups. The S.R.A. Reading Laboratories require the teacher to organise, evaluate and advise, casting him in the role of learning consultant. The E.D.L. devices require the teacher to be something of a technician, casting him in the role of operator rather than instructor. In fact E.D.L. programmes are easier to teach to than S.R.A. Reading Laboratories because the machines take over much of the teacher's load. E.D.L. lessons do not have to be prepared, which is not to say that they do not go better for preparation. In E.D.L. sessions the whole class

[1] These are some of the sources of the passages which make up Controlled Reading Study Guide F. In this and Controlled Reading Study Guide GH, which fall in the middle of the series A to MM, catering for Grades 1 to 12, 34 of the 50 passages are non-narrative, discursive articles. Most of the other 16 are true narratives. Original fiction is virtually excluded from E.D.L. and S.R.A. programmes.

usually works on the same material at the same time, regardless of spread of ability and attainment. The material is usually projected to the middle of the ability range. There is a two-fold danger in this. Firstly, the average teacher may become a mere technician, neither preparing his lessons, nor previewing his material. Secondly, he may not extend his lessons upwards or downwards to accommodate individual differences to some extent; alternatively he may make no effort to group pupils according to ability and get them working on the two machines in turn. Even a highly competent and experienced teacher would find it difficult to teach two groups in the same room at the same time because it requires two screens, a redisposition of furniture, and numerous other physical adjustments. Moreover the teacher must be highly organised and have excellent control, because while he is busy with one group of youngsters on one machine, he must trust a reliable pupil to operate the other machine for the other group. Then the oral responses of the group working on the Tach-X - and it is desirable that they should respond orally - may well distract the group working on the Controlled Reader, who need every bit of concentration that they can muster to read unremittingly at speed. Significantly in the experiment described under 5.3 on p. 233 the Americans did not attempt to work two groups in the same room under one teacher. These dangers will emerge more clearly in 5.5 of this chapter when I go on to describe how I taught to these two devices.

The S.R.A. laboratories are self-contained and portable, and can easily be set up in the normal classroom. By contrast the E.D.L. devices need to be housed in a special room. The machines can be mounted in an ordinary classroom, provided that it can be blacked out, but it is desirable that they be mounted semi-permanently in a special room because the machines are very expensive and the risk of damaging them if they are frequently moved is greater. Moreover, it takes time to set them up, and erect a screen, in the ordinary classroom.

And finally it is desirable that the fairly extensive filmstrip library, and the numerous Student Study Guides which are used at different levels, be kept in one place. The Study Guides are fairly thick books - Study Guide KL, for example, has 167 pages - and are merely stapled together with three staples. In addition they are soft covered, and readily shed their covers and pages with frequent handling.

There are Teachers' Guides for both devices which describe the teaching possibilities inherent in the machines, but the Controlled Reading Study Guide is more explicit and concise. The authors first point out the benefits of Controlled Reading as they see them. It is the type of training which,

> "if carried out regularly and systematically, will help you to accomplish the following:
>
> You will become more accurate in your seeing.
>
> You'll find it easier to concentrate and to focus your attention in reading.
>
> You'll become faster and more systematic in the way you organize the ideas presented.
>
> You'll become more comfortable and more efficient during reading.
>
> As a result, you'll find yourself reading faster with better comprehension, and deriving more enjoyment from all your reading."
>
> Controlled Reading Study Guide KL, 1963, p.5.

The authors then describe briefly how the Reading Eye camera works, and how eye-movement photography illuminates perceptual patterns and habits.

> "The number of words or word parts taken in every time the eyes stop (span of recognition - authors' interpolation) can be determined, since it is possible to count the eye stops and divide this into the total words read. You might have heard that good readers have a wide span of recognition, taking in large groups of words, perhaps even sentences, at each eye stop. This is merely hearsay, and not supported by evidence from research.

> All eye-movement studies show that the most exceptional readers rarely see more than 2½ words per eye stop. But the real difference between below-average readers and above-average readers lies in the fact that better readers have developed an adequate span of recognition and, at the same time, an orderly and systematic directional attack.[1] This combination produces the most effective reading, for the eye acts much like a television camera in the way it scans and feeds pictures to the mind, which sums them up to achieve understanding."
>
> Controlled Reading Study Guide KL, 1963, p.6.

The authors conclude this section with an important notice:

> "Eye-movement photography has also shown repeatedly that we have little conscious control over what we do with our eyes during the act of reading. When people attempt to reduce the number of eye stops or regressions through conscious effort, they usually find that they cannot do so, and in the process they deprive themselves of comprehension." (Compare my remarks on p. 38 of 2.7.)
>
> Controlled Reading Study Guide KL, 1966, p.6.

They sum up the advantages of the Controlled Reader thus:

> "1. While using a device you do not have to worry about what your eyes are doing. You can concentrate completely on the information in the selection, while you are learning a more efficient reading attack.
>
> 2. The left-to-right exposure of reading materials discourages rereading and habitual regressions.
>
> 3. Because the reading material is only exposed for a short period of time and is then covered up, you develop confidence in your ability to grasp ideas from a first reading rather than relying on rereading.

[1] On the other hand it may be that they have learned to "process", or interpret, words and ideas faster, and learned to choose judiciously from amongst a meaningful sequence of words those that are essential to carry the sense forward. In other words it may be that they have learned to drop words, phrases, sentences and sometimes whole paragraphs that are not essential to the meaning of a story or article. I maintain that the crucial activity in reading is not so much perception but rather interpretation, and that it is interpretation and selectivity which must be improved if the reader is to learn to read more rapidly and effectively.

> 4. Reading at a slightly higher-than-usual rate helps you to cover the material more thoroughly but in fewer eye-stops. At the same time this higher rate encourages you to be more attentive, to see and react more quickly, and to organize your thoughts more completely.
>
> "The end result of Controlled Reading will be to increase your competence in all reading situations to a higher level. Moreover, Controlled Reading helps you to develop many fundamental skills necessary to becoming a truly versatile reader, one who alters his approach when reading various kinds of material for various purposes...
>
> "Of course, the effectiveness of Controlled Reading is dependent on the manner in which you schedule your training sessions, for as in the training or retraining of any habit, practice must be regular and frequent. To achieve maximum success, the Controlled Reader should be used approximately 3 times a week for a minimum of 25 sessions. (Each Controlled Reader film set contains 25 films - author's brackets.) Occasionally, additional sessions are required."
>
> Controlled Reading Study Guide KL, 1966, pp. 6-7.

The authors then describe a typical Controlled Reader lesson which I will omit at this juncture because I discuss a typical Tach-X-plus-Controlled Reader lesson under 5.5.

To sum up this section, therefore, it is envisaged that the two devices used in conjunction will sharpen perception and improve interpretation, thus improving the reading process by increasing concentration, enlarging vocabulary and refining comprehension. I would say that the main function of the Tach-X is to enlarge vocabulary and speed up word recognition, while the main function of the Controlled Reader is to increase rate of silent reading without detriment to comprehension.

5.3 Results of E.D.L. devices and programmes in U.S.A.

The Rev. Eusebius Arundel, Associate Professor of Education at St. Bernadine of Siena College, Loudonville, N.Y., reports:

> "Though every year we work with more and more youngsters who show almost every type of reading disability, we have maintained a steady advance in the average reading gain for a given period of time. This average gain for fifteen ninety-minute classes has increased 75 per cent since the adoption of controlled reading."
>
> Reading News, 1968, p.4.

Unfortunately he does not state in this article how much "the average gain" is. His omission is all too common in so many reports which eulogise these aids for the spectacular improvements they effect in reading, and which then describe these improvements in the most general and diffuse terms instead of producing the figures to support their claims. There are all too few well-documented reports dealing scientifically with the effects of exposure to the two E.D.L. devices.

Then, too, there appears to be considerable disagreement among the experts and research workers in their claims and recommendations. Stanford E. Taylor says this:

> "Acceleration practice techniques were designed for use by competent readers who can read grade level material comfortably and efficiently at rates in excess of 350 words per minute, and who have indicated by their good comprehension that they have mastered the skill of careful and inclusive reading. Since these devices have no directional attack control, they should not be used in an effort to improve the performance skills of functionally inefficient readers."
>
> Reading Instrument Usage, 1962, p.7.

> "People who attempt to control their eye-movement patterns find that they must concentrate so hard on trying to feel what they are doing that they lose the thread of thought."
>
> Eye-Movements in Reading: Facts and Fallacies, 1965, p.11.

Clearly the more inefficient the reader, the more he will be hindered by concentrating on the mechanics of perception, and by trying to improve his rate of reading, before he is sufficiently proficient to read relatively simple material really fluently. It is previous and unwise to stress mechanics and rate before building up basic competence and confidence. And it is doubtful whether the Controlled Reader should be used primarily as a remedial reading tool as the Rev. Arundel suggest above. In Taylor's view, it might appear to improve reading superficially, in respect of rate, for example, but might actually do more harm than good.

However, while I accept and confirm much of what Taylor says above, particularly his remarks about inefficient readers, I cannot see that "acceleration practice techniques" should only be initiated once the reader has attained a reading speed of 350 w.p.m. Presumably he thinks of the Controlled Reader as different from other "accelerating devices, whether they employ a falling shutter, moving band of light, descending rod, audible timing click or moving second hand" (Reading Instrument Usage, 1962, p.7), and assuredly it is more sophisticated than other reading accelerators - for one thing it does train directional attack, and for another it does not permit of regressions and "wavy" eye-movements from one line of print to another. Nevertheless, one of its primary functions is to accelerate reading, at whatever level it is used. Yet if one were to abide by his prescription above, its use as a reading accelerator would be precluded with all but the most efficient pupils and adults who already read at rates in excess of 350 w.p.m. This seems to me to be overstating the case, and I quote from another article of his to clarify my point. In this article Taylor presents a table, part of which sets out the mean reading speeds achieved by students in Grade I through to College (see Table 22 hereunder). As can be seen from this table, even the average College student does not approach a reading speed of 350 w.p.m., yet surely it would be absurd to

	GRADE LEVEL *												
	1	2	3	4	5	6	7	8	9	10	11	12	Col.
Rate with Comprehension (Words per minute)	80	115	138	158	173	185	195	204	214	224	237	250	280

* "First-grade averages are those of pupils capable of reading silently material of 1.8 difficulty with at least 70% comprehension. Above grade I, averages are those of students at midyear, reading silently material of midyear difficulty with at least 70% comprehension."

TABLE 22 [1]

suggest that the Controlled Reader should not be used at this level, and at lower levels, primarily as a reading accelerator.

Elsewhere in the article he goes on to say this:

> "The primary contribution of instrument techniques lies in the control they exert and the training effect that they have on the sub-skills employed by the reader. Improvements can be made in (1) binocular co-ordination and motility by accelerated presentations, (2) visual discrimination and visual memory through flashed or timed exposure, (3) directional attack by left-to-right presentations, and (4) verbal experience by the inclusion of certain comprehension-building and study approaches with the content presented during instrument training. Unfortunately, many people still regard reading instruments solely as timing or motivating devices and rarely explore the discrete training functions they offer."
>
> Eye-Movements in Reading: Facts and Fallacies, 1965, p.13.

This again appears to contradict, or to take no account of, his statement about rate of reading in the other article.

[1] Extracted from Eye Movements in Reading: Facts and Fallacies, p.7. Originally this table appeared in Grade Level Norms for the Components of the Fundamental Reading Skill, by Stanford E. Taylor, Helen Frackenpohl and James L. Petee, E.D.L., 1960.

Improvement in these four aspects of reading is partly effected through the gradual increase in the rate of exposure on the Controlled Reader. The increase in rate is one of the main means by which efficiency is increased, and one cannot improve one without improving the other. I maintain that the Controlled Reader is designed to function as an accelerator to some extent, and to a greater or lesser extent, at all levels, and that this is indeed one of its prime functions, whatever Taylor may say to the contrary. A speed test is included in virtually every battery of American standardised reading tests. Rightly or wrongly it is one of the criteria by which reading efficiency is measured from Grade 3 onwards. Therefore, it is idle to suggest that instrument training should not be primarily directed, at least in part, to the acceleration of reading in all but severely retarded and/or backward readers. Obviously one should not stress speed at the lower levels where proficiency is still only moderate, but it will still be a factor to be considered at these levels. It is only when proficiency is still rudimentary that reading rate is irrelevant. Forbes Bottomly bears me out in the conclusions that he comes to as a result of an experiment which I shall describe hereunder.

> "1. The major use of the Controlled Reader should be in boosting reading speed, although it appears to have a beneficial, if delayed, effect on reading comprehension and vocabulary development....
> 4. The Controlled Reading program appears to have a more immediate effect upon reading speed in the fifth grade than in the eighth. (Thus it appears to be more effective as an accelerator at the <u>lower</u> rather than the higher level of proficiency, which seems to doubly contradict Taylor, first insofar as he maintains that the Controlled Reader should not be used primarily to increase reading rate at either of these levels, and second insofar as he implies that the less proficient the reader the less efficient the Controlled Reader will be as an accelerator - my parenthesis.) It also appears to have a greater value in boosting reading speed among the pupils in the lower socioeconomic area of the city than among those in the upper socioeconomic area. (This, too, would seem to run counter to

what follows from Taylor's arguments, inasmuch as one would imagine from what he says that the more advantaged pupils would be the better readers, and hence capable of greater increases in speed - my parenthesis.)"

An Experiment with the Controlled Reader, 1961, p.8.

The whole question of reading speed is a vexed one, and perhaps its importance has been overstressed. Certainly it has caused considerable dissent amongst educationists. In an article describing the improvement of reading efficiency in High School students, Harold A. Solan includes a table entitled Eye-Movement Norms, the Fundamental Reading Skill taken from E.A. Taylor's article The Spans, Perception, Apprehension and Recognition, American Journal of Opthalmology, Vol. 44, Part I, October, 1959, from which I have extracted the reading rates for comparative purposes (Stanford Taylor's reading rates - see Table 22 on p. 229 - are set down in brackets). At Grade 3 the rates are identical, but at every other level there is a variation of 7% to 27% between the two tables.

Grade	1st	2nd	3rd	4th	5th	6th	Jr. H[1]	H.S.[2]	Col
Rate of C'hension in words per min.	75 (80)	100 (115)	138 (138)	180 (158)	216 (173)	235 (185)	255 (204)	296 (237)	340 (280)

TABLE 23

1. "Junior High" is made up of Grades 7, 8 and 9.
2. "High School" is made up of Grades 10, 11 and 12.

E.A. Taylor's data, from which this table is derived, is the result of an analysis of 5,000 cases.

Furthermore, it is not a consistent variation: sometimes it favours Stanford E. Taylor's students and sometimes E.A. Taylor's cases. In my view these fluctuations are to be expected in anything as malleable and variable as reading rate. Of all the

reading skills it is probably the most unpredictable and difficult to measure precisely. It is its very variability which renders suspect any statement about significant improvements in it as a result of practice on a mechanical pacer.

Even if we compare an experimental group with a control group, and there appears to be a significant difference in rate of reading between them as a result of training on some device, we must be careful not to draw unwarranted conclusions about the efficacy of the device as an accelerator. For example the difference in gain might be apparent and superficial, rather than real and permanent. Studies of reading at higher levels are still too few and primitive to yield conclusive results on which to base judgments about the comparative benefits to be derived from different developmental reading devices and programmes, and experts in this young field are still too few and new for their pronouncements to be accepted uncritically.

With these cautions in mind I turn to four carefully controlled and precisely quantified pieces of research.

(1) The Massapequa Junior High School Reading Program, Mary Bay Warren writing in Journal of Developmental Reading, Summer, 1962.

> "As a part of a general effort toward improved reading instruction in the public schools of Massapequa, New York, it was decided to investigate the effect of a controlled reading program at the junior high school level.... "All pupils were eighth-grade "B" track students[1] of average mental ability not currently receiving reading instruction other than a regular course in English.

[1] Presumably these students are roughly equivalent to S.A. Standard 6 B-stream pupils. American reporters invariably seem to omit the ages of students from their tables and discussions, so it is not possible to compare them precisely with their South African counterparts. Also this writer does not say how many "tracks" there were in the two schools concerned, so it is impossible to define their relative abilities and attainments.

> "Two groups of twenty-five students were selected, one group from each school, on the basis of I.Q. scores and the Iowa Silent Reading Test, Form Am."

It proved difficult to equate groups because the mean I.Q. of the non-instrument group (112.5) was significantly higher than that of the instrument group (106.2). However, despite this difference, the two groups did not differ significantly on the "Total Grade Equivalent" of the six sub-tests of the Iowa Form Am pre-test. In addition, there proved to be no significant difference between the two groups when their eye-movements were photographed while reading standardised reading test cards.

> "A schedule was set up for twenty-one sessions based on three periods per week for seven weeks. Two teachers judged to be of equivalent ability conducted parallel classroom presentations. At the completion of twenty-one sessions, all subjects were retested with the Iowa Silent Reading Test, Form Bm, and a second eye-movement photograph.
>
> "Each group used identical reading and perceptual material, but in one group certain instruments were used to present the material.
>
> "The following outline is a composite of several sessions and illustrates how the program was conducted.
>
> "A. Perceptual Training - non-verbal. 'Warm-up' period of five to seven minutes consisted of twenty exposures of five and six digit numbers.... The instrument group used a tachistoscope (EDL Tach-X). The non-instrument group used hand-held cardboard with window slits and other self-motivating techniques with identical digit exercises in printed form.
>
> "B. Vocabulary development and review. Words from the reading selection to follow were written on the board. The 'seeing, hearing, writing, and using' procedure was followed. Students checked dictionaries or wrote their own meanings and then created original sentences with the words....
>
> "C. Building background and motivation. Using the vocabulary words from the selection, the instructor elicited ideas from students as to probable story content and discussed their speculations....

"D. Reading. The instrument group read with a controlled rate projector (EDL Controlled Reader). During beginning sessions, rate was set at 200 w.p.m, slightly faster than the mean tested rate of the group, and 'easy' (fourth-grade level) selections were read. In subsequent sessions, rate and content difficulty gradually increased.... During final sessions, junior high selections were read at 200 w.p.m. The non-instrument group read the same selections in book form. The same motivation, vocabulary, and background-building techniques preceded the reading. Students were timed and encouraged to read as rapidly as was consistent with good comprehension.

"E. Comprehension quiz and discussion. Both groups took a comprehension quiz of multiple choice and general concept questions on the selection. The tests were teacher-scored, but students kept their own records.

"F. Perceptual training - verbal. The instrument group wrote ten words from tachistoscope exposures. The non-instrument group copied the same ten words from printed sheets by briefly uncovering the word and then writing it...."

At the end of the course the students completed a questionnaire and nearly all indicated that they felt that their reading had improved as a result of growth in vocabulary, comprehension, speed, dictionary work and accuracy. Many students wanted the course to be extended.

Teachers commented on the motivational value of the instruments. When "scientific material", which contained "more thoughts per unit of time", was projected, students sometimes slowed down, but rate went up again on narrative filmstrips. (Though I did not alter the rate for "scientific" passages, or passages containing relatively unfamiliar and comparatively intractable factual material, I found that my pupils' comprehension scores for these passages fell off too.)

In the non-instrument group teachers had trouble with the rather clumsy improvisations for tachistoscopic training. Students eventually discarded the cardboard shutters and used their hands instead.

Likewise in the non-instrument group it proved difficult to increase rate without loss of comprehension. Teachers used reading techniques such as SQ3R (see 4.3, p. 133) to increase speed and comprehension. In a few cases it was necessary to urge slower reading when comprehension decreased too much. Most students in the non-instrument group seemed to continue at their own "comfortable rate" rather than risk diminished comprehension scores at an accelerated rate.

At the conclusion of the course the students completed the parallel Form BM of the Iowa Silent Reading Test, and also the Eye-Movement Photography Test. The results of both pre- and post-tests are summarised in Table 24 below.

	Pre-test		Post-test		Gains		Difference in Gains
	Non-instrument	Instrument	Non-instrument	Instrument	Non-instrument	Instrument	
Iowa S.R.T. Rate	7.02	7.39	8.22	11.78	+1.20	+4.39	+3.19
Total Gr. Eq.	7.52	7.62	8.78	10.16	+1.26	+2.54	+1.28
Photo. T.							
Fixations	121. 9	117. 1	123. 3	102. 3	+1. 4	-14. 8	-16.2
Regressions	25. 3	22. 8	31.51	21. 6	+6. 2	- 1. 2	+ 7.4
Rate + Comp.	173. 5	191. 2	205. 5	271. 6	+32. 0	+80. 4	+48.4
Rel. Eff.	1.23	1.59	1.42	2.12	+ .19	+ .53	+ .34

TABLE 24

After training a significant difference at the 1% level existed between the two groups in favour of the instrument group for rate of reading, "Total Grade Equivalent", the rate with comprehension,

and relative efficiency (found by dividing the rate by the number of fixations added to the number of regressions). In addition there was a difference between the two groups, again in favour of the instrument group, for rate of reading (here the figure of -16.2 has a positive value in that it represents a reduction in the number of fixations which occurred during the reading of the "standardized reading card"), and regressions (the non-instrument group actually made more regressions in the post-test than in the pre-test, probably as a result of trying too hard to increase rate - the figure of +7.4 in favour of the instrument group represents a decrease in the number of regressions which occurred during the reading of the test passage). The difference was not significant in these two instances.

These results seem to confirm that one of the main values of the Controlled Reader is that it systematises eye-movements and reduces bad habits like regressions which result in uneconomic reading.

Warren concludes:

> "Though this study consisted of a short program with a limited number of students, and while the training was confined to only part of what would normally be included in a total reading program running for one or two semesters, the difference in achievement of the two groups was pronounced."

She implies that the difference between the two groups might have been even greater had the course been longer and more comprehensive. However, it is incorrect to assume that the same rate of gain would have been maintained over a longer tutorial period, and with more intensive and varied instruction. Gains in the short term may be appreciable, particularly on a concentrated course (see 4.4, p. 151), but over a longer course students tend to decelerate as they reach their ability and developmental ceilings.

Further, Warren produces no evidence that these pronounced gains were maintained beyond the end of the course. It may well be supposed that some students at least would settle back to their own "comfortable rate" once the machine stopped pushing them.

Notably the difference in mean gain in rate with comprehension between the instrument group and the non-instrument group is significant in both tests, and the additional more reliable evidence of the Eye-Movement Test strongly confirms the difference found in the Iowa Test in favour of the instrument group.

The writer points to a difference in the mean scores attained on the Paragraph Meaning sub-test (one of the six sub-tests on the Iowa battery) in favour of the non-instrument group, and conjectures that this might be due to "such study skill techniques as SQ3R" which were not included in the instrument group's programme. She concludes, and rightly I think, that "a reading program must be balanced, stressing a variety of techniques." Obviously the programme which becomes totally machine orientated will prove sterile in certain respects. Yet it would be equally wrong to discount the values of the two devices, and exclude them from the reading programme because they are unconventional reading aids and mechanisms rather than sentient creatures. The eclectic, synthetic approach which I favour should utilise them to best advantage, without overworking them.

(2). An Experiment with the Controlled Reader, Forbes Bottomly writing in Journal of Educational Research, Vol.54, No.7, March, 1961.

> "The purpose of the experiment was to find out if a special short-term reading program involving the Controlled Reader might be more effective in boosting reading speed and comprehension than the regular developmental reading program of the Spokane schools. The investigators wished to know whether the device might have some value as a future integral part of the long-term developmental program. They set their experiment up to answer four specific questions.

> (1) On the average, will pupils gain more in reading speed under the Controlled Reading program than under the developmental program? (2) Will they gain more in reading comprehension, in vocabulary development? (3) On the average will pupils who acquired skills under the Controlled Reading program retain them as well as those who acquired them under the developmental program? (4) Is scholastic ability more a function of gain in reading ability under the Controlled Reading program than under the regular program?"

Experimental and control groups were set up in the fifth and eighth grades of two Spokane elementary schools, and involved 460 pupils in all. Experimental and control groups were matched on age, ability (the Otis Quick Scoring Mental Abilities Test was the test instrument), attainment (on the basis of scores achieved on the Stanford Achievement Test), and sex. In both groups children of all shades of ability were represented. "The null hypothesis regarding mean differences in age and test scores between the two groups was found acceptable at the .01 level of confidence in each school on each level." The experiment at both levels was conducted between 13th October, 1958 and 9th January, 1959. Pre-tests and post-tests took place immediately before and immediately after the experimental period; and in addition "five months after its termination different forms of the same reading tests were given to all participants." The fifth grade pupils had five 40-minute lessons per week and the eighth grade students had four 40-minute periods of reading instruction per week. The experimental pupils "were divided into three groups within each classroom on the basis of their initial reading speed scores." Thereafter each lesson followed much the same pattern as that described in the previous experiment under the sub-sectional headings B, C, D and E. The only major departures were: (i) during the reading practice phase of the lesson the story which had been projected the previous day was projected first, presumably as a warm-up; then the new story was presented;

(ii) "each daily lesson also included a short period of reading from a book at a level deemed comfortable for the pupils in terms of vocabulary", which practice might have facilitated transfer from the projected material to the printed page. The time for these additional exercises was no doubt gained at the expense of tachistoscopic number and word drills. Initially the Controlled Reader was set at a rate "below the rate planned for them." Whenever most of the pupils in a group achieved better than 80% on the comprehension check the speed was increased. Those who found this speed too fast for them were moved to a lower group, df this was possible, while those who found it too fast were moved up to a higher group, again if this was possible. "Pupils in the control group proceeded with the regular developmental reading program."

These were the main findings:

(i) Although both groups gained in all three test categories on the post-test, namely in speed, comprehension and vocabulary, no significant difference between them was found at School A except in vocabulary in the eighth grade. At School B, in the lower socioeconomic area, both the mean reading speed and the vocabulary scores of the fifth grade experimental pupils increased significantly in comparison with the scores of the control pupils. Unfortunately no actual figures are quoted.

(ii) In grade five and grade eight in both schools the experimental students who scored in the upper third of their group on the Stanford Achievement battery achieved a significantly higher mean score in reading at the end of the course than did the comparable control group pupils. However, the individual reading scores of the handful of readers in the fifth grade who read at speeds in excess of 300 words per minute either remained constant or actually declined in the post-test.

(iii) "Growth factors" were used to judge retention of gains. "Growth factors" were gains in scores between the post-test and the re-test on an alternate form of the same test five months later. With only one exception, that of the eighth grade in School B, the mean growth rates of the experimental group significantly exceeded those of the control group.

This suggests that the skills acquired during the Controlled Reading course were late in developing, "revealing themselves after the pupils had returned to participate in their regular developmental reading classes." (Compare the results of Coyne's follow-up, see 5.4, p. 261 , hereunder.)

(iv) No significant difference was found between experimental and control groups when those scoring in the upper third, middle third and lower third of their classes on the Otis Mental Abilities test were compared by an analysis of variance. It was concluded that scholastic ability as measured by this test was not enhanced by exposure to the Controlled Reader. (My own results confirm this finding - see 6.2)

Bottomly's finding that it was pupils who scored in the upper third of their group who appeared to gain most from the experimental course suggests that the more able pupils get more immediate measurable benefit from practice on the Controlled Reader than do the less able pupils. The progress and reactions of boys in my Experimental Group F leads me to concur with Bottomly, but unfortunately my own experimental results do not support his findings, mainly because of the limitations of my test instruments, I think. However the fact that the small minority of very fast readers did not appear to improve bears out Pont's conclusion that S.R.A. Reading Laboratories, and other reading aids such as the Controlled Reader, quickly bring the under-achiever up to the mark, but that once a pupil is achieving up to his potential such aids can do no more than keep him at this level - see 4.4, pp. 151-3. As Bottomly himself says, "It should not, perhaps, be used with pupils who already read rapidly." Certainly there appears to be some regression towards the mean in these experiments - see 6.1 , p.333.

The fact that skills possibly learnt during the Controlled Reading sessions only really came to light five months later may be due to factors other than the experimental course. Since these experimental classes were no doubt taught by different teachers to the control classes during the period January to June, 1959, and since the educational provisions for them might have been qualitatively and quantitatively different in consequence, the writer cannot claim that the Controlled Reading programme was solely, or even primarily, responsible for so-called "growth factors". Nevertheless, he is right to conclude that it must have had some long-term benefit, motivational or skill-building, or both, and to recommend in consequence that, "Since the experiment showed the greatest benefits of the Controlled Reading program accruing after the program had terminated, it should be considered as a natural element of the long-term developmental reading program" (my emphasis). Unfortunately I could not follow the boys in Experimental Group F through into mid-1969 to ascertain whether similar "growth factors" would not have become apparent because the Headmaster insisted that the Standard 6's, as they became in 1969, continue with one or two sessions in the Reading Room every week. Yet even had I observed a similar effect I should not have been able to isolate its cause precisely any more than Bottomly could.

(3). The Improvement of Reading Efficiency: A Study of Sixty- Three Achieving High School Students, Harold A. Solan, O.D. writing in The Journal of the Reading Specialist, Vol.7, No.1, October, 1967.

> "The following data are from a developmental reading program conducted at Teaneck High School, Teaneck, New Jersey. The students were primarily from the tenth, eleventh and twelfth grades. They attended twelve two-hour sessions at the rate of one session per week. Following the initial testing procedures, the weekly training program included:
>
> (1) Tachistoscopic Training
> (2) Controlled Reader Training
> (3) Vocabulary Training
> (4) Transfer Reading
> (5) Skimming and Scanning
> (6) Study Skills."

It can readily be seen from the width and depth of this training programme why two-hour sessions were necessary. It must be remembered that these students were 16 to 18 years of age. I do not believe that younger students could readily adapt to such intensive training over extended two-hour periods.

The test instrument was the Iowa Silent Reading Test and the scores of the 63 students, "the enrolment of six successive classes", who completed the course are summarised in Table 25 below.

RESULTS OF IOWA SILENT READING TEST, ADVANCED.

	Rate		C'hension	Word
	w.p.m.	P'tile	P'tile	Meaning P'tile
Before	258	55	72	85
After	397	92	89	91

RESULTS OF EYE MOVEMENT PHOTOGRAPHS.

	Rate		C'hension	Word Meaning	Fixations	Regressions	Span of Recognition
	w.p.m.		Percent	P'tile	per 100 words	per 100 words	in words per fixation
Before	242	(296)	79	-	97 (83)	17 (15)	1.03 (1.21)
After	331		85	-	74	9	1.35

TABLE 25

The four figures in brackets are taken from E.A. Taylor's article The Spans, Perception, Apprehension and Recognition in The American Journal of Opthalmology, Vol.44, No.4, Part I October, 1957.

Since no control groups were used no statistical analyses are justified, or possible. However, the gains made in all aspects of reading are appreciable, as usual. From the comparative figures in this Table it seems that the Controlled Reader does subserve and systematise perception. Nevertheless there are

considerable variations in rate (w.p.m.) between the results of Iowa Silent Reading Test and the results of Eye Movement Photographs, which cast some doubt on the reliability of these measures. For example, the rate on the former test increases 54% (from 258 to 397 w.p.m.), whereas the rate on the latter test only increases 38% (from 242 to 331 w.p.m.). Moreover, before it is argued that both increases are considerable, and likely to prove statistically significant, it must be pointed out that no account has been taken of practice effect, which I found proved to be considerable in my experiment (see 6. 2 and 7. 5).

Notwithstanding these reservations the results of this experiment definitely indicate that the two E.D.L. devices, and the numerous E.D.L. programmes, can enhance reading skills considerably, inasmuch as they improve both perception and interpretation. The author keenly defines the role of the Controlled Reader in this context:

> "The Controlled Reader trains directional attack.... The left to right moving slot also places a high premium on the ability to perceive correctly and to comprehend and interpret quickly in an organized manner thereby reducing the number of fixations and regressions. The basic advantage of this procedure is that significant improvement takes place in developing <u>involuntary skills</u> such as fixations, regressions and span of recognition. Even after the heightened attention and concentration and the strong desire to read faster which are cultivated during the training program have perhaps worn a little thin, <u>these involuntary reading skills remain.</u>" (The emphases are mine. I would also like to suggest that the longer the training period, or conditioning process, the more persistent and efficient these skills are likely to become.)

The relative permanence and effectiveness of the automatic skills to which Solan refers and of other interpretive skills such as word recognition and the swift grasp of meaning and nuance, depend to a large extent on the degree of transfer that is effected from the machine, or more correctly from the screen, to the printed page.

And as far as I know Solan is the first educationist to draw attention to the importance of training in this regard:

> "A developmental reading program must be designed to develop, maintain and perpetuate perceptual and basic reading abilities. A broad spectrum of material is available. Selections from many periodicals and publications have been collected by various book publishers and are grouped in terms of reading grade, interest, content and skill needs. Many of these books are designed as practice material providing a constant check on reading rate and comprehension. They have the general purpose of transferring the newly learned skills to the printed page and combining them with an improved ability to organize, understand, and interpret the ideas, facts, and attitudes of the writers. A 'transfer' reader is a 'must' in any developmental reading program (he might have added "that uses mechanical devices"; obviously there is not the same need for 'transfer' readers with S.R.A. Reading Laboratories or Double-Up, although this does not mean that there is no need for them) and should be used at every session." (The emphasis is mine.)

He makes one further important point with which my experience with the two devices leads me to concur:

> "A developmental reading program is administered to a group most effectively when the class is homogeneous and limited to 15 students. It should be pointed out that even under these optimum conditions, it is necessary to proceed at a rate corresponding to the average improvement of the class. Fortunately, teenagers with comparable academic records generally progress at about the same rate. Individual instruction is recommended for students whose school average is below B- (Solan's emphasis). Invariably these students have not been able to bridge the gap between the reading done in the school, the developmental reading program, and the reading required in the content areas. Also the student who is not academically proficient is more likely to be unable to sustain effort and as a result requires visual training, an individualized procedure."

(4). A comparison of Various Reading Improvement Approaches, Austin Gelzer and Nicholas J. Santore writing in The Journal of Educational Research, Vol.61, No.6, February, 1969.

At the outset the authors pose a number of questions which come to mind when they survey reports of various developmental reading practices and programmes:

> "1. Do the various rate-building techniques produce the same amount and type of gain?
>
> "2. Do the gains result from changes in perceptual skills themselves, or are they simply the result of intense motivation during the course?
>
> "3. Are the gains produced by the various techniques equally lasting?"

They find with one exception - Mary Bay Warren's report already discussed - "that the literature to date has not provided definite answers to these questions."

In order to try to answer some of these questions they set out to compare the Controlled Reader (guided slot and open-line techniques were compared separately because the former was claimed to train perceptual skills more effectively than the latter), the Shadowscope, the Ratecometer, and Timed Reading. They started with the following hypothesis:

> "Paced training involving left-to-right control will produce improvements in rate, comprehension and performance skills that are superior and more lasting than those produced with techniques which involve pacing only."

Thus they aimed to prove something, rather than to discover something, which is not the best way to go about research of this kind.

The subjects were 159 ninth grade students who scored at the 50th percentile or higher on the Iowa Silent Reading Test in May, 1961. They were divided into 5 matched groups on the basis of intelligence test scores and the results of the Iowa Silent Reading Test. They were pre-tested in October, 1961,

given 6 weeks training, re-tested, given another 6 weeks training and finally post-tested in February, 1962. 114 of the students were subsequently tested again in January 1963 to ascertain "retention of gains". The test instruments for the first three tests were the Reading Eye Eye-movement Photography Test and the Survey Section of the Diagnostic Reading Test, Forms A, B, and C in that order, using only the rate and comprehension sections of the latter test. Only Form G of the "D.R.T." was used in 1963.

It is unnecessary for me to describe how the various devices work, or how they were used on the course. Suffice it to say that each group read the same story material and answered the same comprehension questions. Special books were printed for this purpose, and "all reading material was identical in apparent type size and in the amount of copy that appeared on each line." Each group read in a specially controlled situation in a special room for 20 minutes a day for the duration of the course.

> "The authors acknowledge that the use of any one technique in isolation does not constitute a total reading improvement program.... The reading improvement would undoubtedly have been superior to the results reported here had any of the techniques been integrated into a total reading improvement program."
> (The emphasis is mine. Compare Mary Bay Warren's last point on p. 236.)

Apart from the two groups working on the Controlled Reader, who determined their speed and "rate of progression by mutual consent", all groups worked as individual units. The authors point out that the gains made by the Controlled Reader groups might have been even greater had they been able to work on an individual basis too, but the Controlled Reader Jr. was not then available.

The Diagnostic Reading Test Post-test showed that all five techniques produced significant increases in rate with the Timed Reading group showing the greatest gain (316.6 w.p.m. to 386.6 w.p.m., or 22%). However, this gain was not significantly greater than the gains made by the other groups. Eleven months later the

Controlled Reader (guided slot) group showed the greatest retention of rate gain, significant at the .01 level (Pre-test, 334.3 w.p.m., Post-test, 388.6 w.p.m., Retention-Test 394.5 w.p.m.). This seems to confirm Bottomly's point (iii) - see p. 239. The only other group to show a significant retention gain after 11 months was the Timed Reading group, 372.95 w.p.m., or a decrease of less than 4%. This group's constancy of rate probably arises from the fact that the timed-reading technique was most like the test situation, and supports Solan's plea for "a 'transfer' reader". Both Shadowscope and Rateometer groups fell off significantly, 380.9 w.p.m. to 317.8 w.p.m., or 17%, and 380.33 w.p.m. to 316.6 w.p.m., or 17%. In fact the Shadowscope group ended up slower than they had been at the outset of the course 16 months previously, and the Rateometer group was only marginally faster. The Controlled Reader Open Line group registered an insignificantly small gain, 368.1 w.p.m to 369.6 w.p.m.

The stability of the increased rates achieved by the Controlled Reader Guided Slot and Open Line groups, and by the Timed Reading group, is impressive. The authors did not calculate the significance of the difference among the mean gains of the five groups, either in respect of Pre-testing/Post-testing, or in respect of Post-testing/Retention-testing, but from inspection it appears that there is no significant difference among the Pre-test/Post-test mean gains, and that the only possibly significant difference among the Post-test/Retention-test mean gains is likely to favour the two Controlled Reader groups and the Timed Reading group in comparison with the Shadowscope and Rateometer groups.

The same Diagnostic Reading Test Post-test showed that only the Controlled Reader (guided slot) group made a significant gain in comprehension, a significant gain that was repeated in the Retention-test. Unfortunately again the authors did not test the significance of the differences among the mean gains.

Inspection suggests that it might be significantly in favour of the Controlled Reader (guided slot) group (Pre-test/Post-test mean gains - Controlled Reader, guided slot, 1.41; Controlled Reader, open line, -0.38; Shadowscope, 0.00, Rateometer, -1.24; Timed Reading -2.02: Pre-test/Retention test mean gains - Controlled Reader, guided slot, 2.91; Controlled Reader, open line, 0.67; Shadowscope, 0.47; Rateometer, -0.40; Timed Reading, -0.13).

Eye-movement data in respect of fixations, regressions, span of recognition and duration of fixation indicated that the only significant improvements were confined to the Controlled Reader (guided slot) and Controlled Reader (open line) groups, with the greatest changes occurring in the former group. Gelzer and Santore point out that, although the Shadowscope, Rateometer and Timed Reading groups did increase in rate according to the results of the Diagnostic Reading Test,

> "this increase in rate was not effected by a significant reduction of fixations and regressions, but rather by a shortening of duration. In fact, the ratio of regressions to fixations increased with the Shadowscope and the Timed Reading groups, suggesting less perceptual efficiency and poorer directional attack....It is apparent that the rate changes made by the Controlled Reader (guided slot) group resulted not from a change in duration but solely from a reduction in the number of fixations. The rate changes achieved by the Shadowscope, Rateometer, and Timed Reading groups appear to have resulted primarily from a shortening of duration....It might be concluded that the Controlled Reader (open slot), Shadowscope, Rateometer and Timed Reading groups were performing in a manner that was artificially accelerated by either the testing situation or the motivation of the course."

The authors go on to suggest that the 3 groups that were reading in "an artificially stimulated manner" in the Post-tests achieved flattering results in reading rate in consequence. They imply that their gain in rate might be less permanent than that of the Controlled Reader groups, but as we have already seen this did not appear to be the case with the Timed Reading Group, at least.

Admittedly the Shadowscope and Rateometer groups fell away significantly in rate between the Post-test and the Retention test, but the Timed Reading group only fell away marginally and still ended up slightly faster than the Controlled Reader group (open slot) on the final Retention test. So although this "artificial stimulation" does not increase reading efficiency more than "performance skills" induced by the Controlled Reader (closed slot) do, it is not to be deprecated, I think. Had these groups worked longer on their respective aids, reading under pressure might well have become habitual and the differences between the groups further reduced as they achieved their ceilings.

But this is hypothetical and one cannot gainsay the statistical significance of the gains made by the Controlled Reader (closed slot) group over all other groups in perceptual efficiency or "performance skills". Therefore it may be as the authors suggest:

> "The marked superiority in performance skills of the Controlled Reader (guided slot) group over all of the other experimental groups might explain in part their superior retention and increase in rate and comprehension (albeit that neither is statistically significant, at least in comparison to the Controlled Reader, open slot, and Timed Reading groups) over the eleven-month period." (The parenthesis is mine.)

Neither can one argue with the figures that they produce to prove that timed reading is not superior to devices in reducing the number of fixations and regressions in silent reading:

> "In no case did the Timed Reading group show an improvement in reading performance skills (as measured by the Reading Eye Eye-movement Photography Test - my brackets) which exceeded that made by any of the instrument groups. In the one instance in which a significant difference existed between the Timed Reading group and an instrument group, the Controlled Reader (guided slot) showed a marked superiority (significant at the .01 level)."

Consequently one is persuaded to agree with their conclusions that when used at this level, the Controlled Reader (guided slot) produces slightly greater gains in rate, and gains of a more permanent nature in both rate and comprehension, than do the other two devices, and greater and more lasting gains in comprehension, if not in speed, than does the Timed Reading technique. If a permanent increase in rate without a loss in comprehension is of paramount importance, as it must be with students of above average ability at this stage in their school careers, the Controlled Reader seems to be the most effective means of promoting it because it not only increases motivation, as do all the other devices and techniques, but also modifies perception and demonstrably increases "performance efficiency", in the short-term at least.

> "The Controlled Reader with its guiding slot produced a significantly different type of result from that produced by the other improvement techniques, the chief effect of which lies in pacing or timing."

However, I cannot agree with the authors when they say that

> "It might be further concluded that the slight differences in gain between the Shadowscope, Rateometer, and Timed Reading groups indicate that the means by which the reader was paced was of little consequence."

They overlook the fact that whereas more than 96% of the Timed Reading group's gain was sustained over a period of 11 months only 83% of the Shadowscope and Rateometer groups' gains were sustained over the same period.

At least one authority would no doubt confirm that the Shadowscope and Rateometer, and other such "mechanical pacing devices", produce no significant increase in reading efficiency, and are certainly no more effective accelerators than reading directly from the printed page under timed conditions.

> "The weight of evidence, as illustrated by such controlled studies as those by Hartens (1961) and McDowell (1964), indicates that the reading of the normal materials of instruction under timed conditions is as effective in improving reading comprehension and speed of comprehension as is the use of mechanical pacing devices. The chief value of pacing devices has repeatedly been shown to be their short-term motivational effect, which produces higher and relatively inflexible reading speeds under pacing conditions than the reader is able to transfer and sustain under self-timed conditions. For these reasons, greater emphasis upon flexible adaptation of reading speed to reading tasks under normal instructional conditions appears warranted[1]; on the other hand, extensive investment by school systems in mechanical pacing devices and chief reliance upon their use to increase speed of comprehension appears unwarranted."
>
> Theodore Harris, 1969, p.1092.

However, it is doubtful whether the Controlled Reader falls into the same category of "mechanical pacing devices" with which Harris finds fault.

5.4 Results of E.D.L. devices and programmes in comparable educational contexts in Southern Africa.

Reading News, a trade publication put out for the first time in January, 1969, and thereafter every two months, by the local agents for E.D.L. material, has published a number of reports from satisfied users, but in all these articles there is a dearth of concrete data in support of E.D.L. materials. As in America, writers are loud in their praise, but lacking in proof. Some offer useful practical tips:

> "Instead of going to the expense of buying heavy curtaining or black-out screens I got my house matron to lend me half a dozen old cottage-weave bedspreads which the boys put up in no time as soon as I unlock the doors. 'Standard time' for black-out is thirty seconds. This urgent, purposeful team effort, I find, creates the right atmosphere for the reading lesson."
>
> Butler, 1968, p.2.

[1] See 2.7, pp.39-41.

Others set out to be laudably pragmatic, and finally produce a crop of banal generalities:

> "We live in an age of extravagant theorising. Articles in publications such as this tend to be written in a flourish of theoretical zeal, with scant regard for the practical problems involved in a particular venture. Accordingly, I shall put my thoughts down here in the most straight-forward way of which I am capable.... The specialised reading lesson has a definite place in the high school curriculum. It will not involve tedious reading aloud. (It seems to me that reading aloud can only be tedious if the teacher is unimaginative, imperceptive or incompetent, and in any event this is an unfounded and unsupported generalisation.) It will involve training of those skills which go to make up the reading act. In this lesson, pupils will be trained in perception and in quick, aggressive seeing. (The term "aggressive" is much overused in this context: it becomes almost as obvious, and as tritely commercial, as a trademark.) They will be introduced to a reading programme which will create fluency and confidence, which will concentrate on comprehension and understanding of content. Mere rate of reading will be subservient to its master, comprehension, but will in most cases double or even treble. Pupils will find that they are taught to read critically, and to adapt their attack according to content. In short, a year's correct training will work wonders.... Stellenbosch, (and many other forward-thinking educational bodies, including many schools, - writer's parenthesis) is making extensive use of two specially-modified filmstrip projectors to train the necessary seeing and reading skills. Called the Tach-X Tachistoscope and the Controlled Reader, these projectors have proved themselves in research projects dating back twelve years. (The writer blithely chooses to leave it at that. Even if they have been proved to the satisfaction of American users, they have not, to my knowledge, been proved statistically to the satisfaction of South African users.)

> They use specially-prepared filmstrip material to achieve their purpose, and they work! (Once again the anonymous author fails to adduce evidence.)"
>
> Anon, 1968 , p.3.

If Mr D. Butler does not produce any objective or standardized test results he nevertheless makes some pertinent and helpful comments which are based on his own direct experience:

> "For fifteen year olds we find Set GH is about the right standard.... Our Standard 8 boys start at about 50 lines (i.e. 300 words) per minute and within six weeks most of them can manage 70 lines (i.e. 420 words) per minute. Of course, you will always find boys who are naturally fast, accurate readers, and they are not fully extended at these speeds. Ideally, they should be grouped separately and expected to read at about 540 words per minute - but this is not always possible.... "The main problem I have come across is the lack of variety in the Tachistoscope part of the lesson. Some of the boys in the C stream are definitely bored by having to read and write down numbers flashed on to the screen. I could easily introduce greater variety by using diagrams, words, etc., but by changing the material, the length of exposure and the response, I ipso facto do away with the opportunity of measuring progress, and more important still, deprive the boys of the encouragement which arises from consciousness of progress."
>
> Butler, 1968 , p.2.

The Editor, Mr Dartrey Snow, describes a demonstration with a Standard I, and confirms my experience that it is difficult to find the happy mean at which to project material to a whole class, particularly if it is a large class, as this one seems to have been:

[1]Set GH was designed for American Grades 7-8 which roughly correspond to South African Standards 5-6, yet the Readability level of 3 or 4 sample passages as determined by the Spache Test ranged from 9.0 to 10.0, which only goes to show that mechanical measures of the readability level of a passage, which only take into account "vocabulary load" and average sentence length, are fallible, and misleading to a degree. Much depends on the "ideational level" of the material, as I choose to call it, and this is an intangible that one cannot assess objectively. Nevertheless the level of difficulty of the material is pitched lower than the level of attainment of the students for whom the passages are intended, because it is not primarily intended that the passages should stretch students' knowledge of English, or concept development. The main function of the passages is to increase speed and extend reading experience.

> "We had previously established a speed of 80-100 words per minute for the group, which, for purposes of the demonstration, was the whole class. Accordingly, one little boy found this speed too much for him, while three or four of the better readers were not at all extended."
>
> Snow, 1968, p.3.

Unfortunately Mr Snow does not offer suggestions as to how this problem might be overcome.[1]

By far the most telling report that I have yet read on the use of E.D.L. machines and programmes in South Africa originated in Durban towards the end of 1968. I quote extensively from this report because I consider that it is well documented and very much to the point.

A Standard 4A and a senior hard-of-hearing class in a large Provincial Primary School in Durban worked on E.D.L. devices and materials for the duration of the third term, 1968. These classes were chosen because the experimenter, Miss Coyne, wanted to test for retention of gains in October, 1969, 12 months after the post-test in October, 1968, and 15 months from the beginning of the course in July, 1968; and also because she felt that more should be done in the upper Primary School to develop and extend pupils' reading ability in preparation for the exactions of the Secondary School. The course was made up of 40 one-hour sessions three times a week.

[1] At Siena College, in New York, the Rev. Arundel claims to have overcome the problem of individual differences by dividing classes up into groups of from eight to fourteen children:

> "The adoption of the controlled reading program in the summer of 1954 necessitated a change in our grouping system. In order to provide every child with forty-five minutes of controlled reading, we combined several smaller groups into larger ones. The larger groups proved to be more workable. In addition, the larger group instruction created more interest and motivation as the children were brought together in a more dynamic and stimulating instructional situation."
>
> Arundel, 1968, p.4.

The test instruments were the Schonell Silent Reading Test R4 and Daniels and Diack's Standard Reading Test No.12, both administered in June and again in October, 1968; and the S.A.S.R.G.T. Junior, Form A or B, Paragraphs sub-test, in October, 1968 (additional Post-test), and the S.A.S.R.G.T. Junior, Alternate Form, either A or B, Paragraphs sub-test, in October, 1969 (Retention-test). The first two tests are easily and speedily administered, but do not have a high enough ceiling to allow the best pupils to show what they have gained from a course like this.

> "However, they did provide us with what proved to be an extremely efficient method of grouping pupils. The range in Reading Ages was five years. Because of this wide range in reading achievement, it was decided to work with a minimum of three groups in order to make the programme worthwhile."

Miss Coyne had the assistance of a Lecturer in Remedial Education at the University of Natal and the team of two reduced the pupil/teacher ratio to an advantageous 12:1.

> "I think many of the pupils responded to the smaller group situation where it is possible to cater directly for the needs of the individual. However, I feel that the Tach-X and Controlled Reader could be used almost as effectively with a larger group provided that homogeneous grouping was possible."

During the course she found that the marked difference between the top and bottom groups did not diminish, which confirms Moore's experience with the S.R.A. Laboratories in Australia - see 4.4, pp.167-8. She found that

> "Observing these differences in attitude and performance was one of the most enlightening aspects of the prog_amme."

She and her assistant adhered to a strict routine because they had to be well prepared to give 3 groups Tach-X and Controlled Reader training every period. The machines were set up during the lunch break by the senior hard-of-hearing class.

> "I mention this only because I think that the ease with which machines can be transported and set up in a school has been overemphasised (see 5.2 , p. 223)."

Initially they used Primary and Intermediate numbers for Tach-X perceptual training, mainly because word filmstrips were not available. However they discontinued Tach-X training after 5/9/68, because

> "we felt that the sameness of the activity mitigated against sustained and increasing interest."

The pupils marked their own work but it was found necessary to check their records because in many cases computation caused difficulty.

On the Controlled Reader they used Grade 3 Set 4g and Set E filmstrips.

> "Although the material is good, it has a very strong American bias.... Set E contains only two stories which are not American in content.... South African children are denied the opportunity for greater correlation with their experience and with the school curriculum."
> (Compare my findings under 5.5, p. 274 .)

Miss Coyne's main concern was to promote the achievement of the pupils in her charge, rather than to conduct a carefully controlled experiment. Consequently there was no control group and "additional related language activities were introduced." Thus one cannot say whether or not the gains made by the experimental groups were significant, or indeed whether they were due entirely to the E.D.L. devices and programmes. Apart from the complementary language activities mentioned above, the Hawthorne Effect, and the effect of team-teaching with small groups, must be borne in mind when analysing the results.

Before post-testing the pupils she analysed her reactions to the programme:

> "I felt that it would be difficult to measure effectively on a standardised test how much the pupils had benefited from training on the Tach-X and Controlled Reader as in many respects the approach was a broad one.... I know that the pupils responded to working in smaller groups, the intense concentration required, the novelty of the programme, and the extra practice in comprehension. The reading matter of Set E really did extend the pupils as they had to make inferences.... When we started Set E adaptations and variations were tried out as some pupils tended to be discouraged when confronted by more difficult material. It was as well that we discontinued Tach-X training at this juncture as more time was then available for discussion."

One of the recurrent themes in this thesis is the need for imaginative and effective extension teaching, and for built-in oral and dramatic work, and Miss Coyne notes the same need.

She sounds two warnings before tabulating and discussing her results:

> 1. "In a group situation a wary eye must be kept on the pupils who experience difficulty and prompt attention given...."
>
> 2. "Of the three pupils in the hard-of-hearing class who made little or no progress one was frequently absent and the other two boys have what Rabinovitch would probably diagnose as 'severe primary reading retardation'. There is no easy known answer to this problem and in such cases exposure to the type of programme which we conducted could prove harmful. At one stage I considered removing these boys from the training sessions on the machines as it seemed to be aggravating the existing frustration. Thus it would appear that in cases of severe reading retardation the Tach-X and Controlled Reader should be used judiciously." (See also 2.9, pp.51-2, 5.3, p.244, and 5.5 p. 275. It seems to me that such children need specialised <u>teaching</u>, not a machine.)

On the credit side she notes that three pupils in the hard-of-hearing class made gains in Reading Age of over a year. The pupils in the A Group thoroughly enjoyed the experience:

> "Perhaps this was one of the few occasions during the day when they were fully extended."

She also notes that some good results were achieved in Group B, and that of the six pupils in Group C who had previously been classified as being in need of remedial reading instruction, three made so much progress during the course that their reading achievement at the end of it was considered adequate.

The class teacher of the Std. 4A added some laudatory comments of her own:

> "There is a noticeable difference in the class - a new alertness - a new keenness to look for inferences instead of just accepting the seen words as such. This is not limited to comprehension exercises in reading but has extended to oral discussions and appears to have built up a desire to 'argue' over latent implications and subtle differences in meanings of words. Consequently, pupils are more careful in their choice of words and compositions have improved."

The results of this experiment are summarised in Table 26 below. Miss Coyne listed the 33 children who took part in the experiment individually in their four groups (the hard-of-hearing children constituted a separate fourth group) because the numbers were small and because she was primarily interested in individual children. I have telescoped her figures for the sake of conciseness and because some of her individual results are suspect, and reducing them to average trends gives a more reliable, albeit approximate, picture of progress.

	N	C.A. on 1/5/68	N.V.I.Q.	V.I.Q.	I.Q.	Post-test Reading Speed With Controlled Reader	Post-test Reading Speed Without Controlled Reader
Group A	5	11.1	116	115	116	517	351
Group B	10	11.1	118	111	115	484	338
Group C	8	11.3	115	105	110	319	198
H-of-H	6	14.3	-	-	-	297	195
Total	33	-	-	-	-	-	-
Mean	-	11.8	116	110	114	383	267[3]

	First R.A.[1] Pre-test 1/5/68	First R.A.[1] Post-test 7/10/68	Gains	Second R.A.[2] Pre-test 7/5/68	Second R.A.[2] Post-test 1/10/68	Gains
Group A	11.9	12.5	.10	13.4	14.9	1.5
Group B	10.7	11.10	1.3	11.9	14.2	2.5
Group C	9.11	11.11	2.0	10.9	12.9	2.0
H-of-H	9.9	10.5	.8	10.4	11.7	1.3
Total	-	-	-	-	-	-
Mean	10.4	11.6	1.2	11.9	13.7	1.10

	N	S.A.S.R.G.T. Paras. Form A or B Post-test Oct. 1968 R.S.	S.P.	Paras. Alternate Form Retention-test Oct. 1969 R.S.	S.P.	Gains. R.S.	S.P.
Group A	7	14	12.1	18	14.3	4	2.2
Group B	8	11	10.10	16	13.1	5	2.3
Group C	7	12	11.1	17	13.3	5	2.2
Total	22	-	-	-	-	-	-
Mean	-	12	11.3	17	13.6	5	2.3

Table 26

1. Daniels and Diack's Standard Reading Test, No.12.
2. Schonell's Silent Reading Test B4.
3. This is 70% of the speed with which they were reading on the Controlled Reader at the end of the course.

I am dubious about some of her results for the following reasons:

(i) The reading speeds must necessarily be approximate, and relatively unreliable when the comprehension drops below 70% as it does in 7 cases when the students' reading rate is tested without the Controlled Reader. Obviously these 7 youngsters were determined to "beat the clock" (one lad in Group B, reading at 525 w.p.m. on the machine, jumped to 675 w.p.m. without the machine) and their comprehension suffered in consequence. Furthermore, since the children were not timed at the outset it is impossible to say how much they improved in speed of reading, or to what extent their supposed improvement in speed is the result of training on the machine rather than natural keenness and practice-effect (see 4.4, p. 156).

(ii) She used an unspecified edition of Diagnostic and Attainment Testing[1] to arrive at her "Second R.A.'s", and the Tables of Norms which appear in that edition do not agree with the Tables of Norms in either the 1950 or 1952 editions. The Tables in the latter editions go up to 39/42, and the R.A. corresponding to 39/42 on Table 6, for boys, is 13.9 (as compared with her figure of 15.0), while the R.A. corresponding to 39/42 on Table 7, for girls, is 13.7 (as compared with 15.2, corresponding to a raw score of 38, which is the end of the scale which she used).
The appreciable difference between these figures, and the fact that her Schonell Test results are uniformly substantially higher than either her Daniels and Diack or her S.A.S.R.C.T. results, renders suspect her "Second R.A.'s" in both pre- and post-tests. There are no less than 10 individual differences of more than two years between the two British Silent Reading Tests in May, and 16 in October, all in favour of the Schonell Test. However, since she used the same

[1] Schonell, Fred J., and Schonell, Eleanor F. Diagnostic and Attainment Testing. London, Oliver and Boyd. First edition 1950, second edition 1952.

Norms in both pre- and post-tests, the gains cannot be disregarded, particularly since they are supported by gains made on the Daniels and Diack Test.

(iii) Too much reliance should not be placed on the results of the S.A.S.R.G.T., particularly the Paragraphs and Sentences sub-tests, for reasons already discussed under 3.3.

Despite these qualifications I do not think that there is much doubt that the majority of children made considerable progress in silent reading efficiency, not only during the course but also afterwards, presumably as a result of the impetus given them by the course (compare 4.4, p. 159 , and 5.3, p. 247). Moreover they maintained gains in comprehension as measured by the Paragraphs sub-test of the S.A.S.R.G.T. without any further instruction on E.D.L. materials, or on any other developmental reading programme, after October 1968. By the end of the course, or by October 1969, most children appear to be reading up to their linguistic potential as it is expressed in their V.I.Q.'s, and since many started the course with deficits it would seem as if the crash course got them quickly up to scratch, and that thereafter they were well able to keep up to the mark without any further exposure to developmental reading materials.

However, one cannot say whether these short-term and long-term gains would prove to be significant because no control group was used. I must also add that I saw this team in action and I have no doubt that the improvement registered by these pupils on the course was due to slick organisation and good teaching as much as it was to the E.D.L. devices and programmes. Indeed Miss Coyne was chosen to head the project because of her proven ability.

5.5 Teaching to the E.D.L. devices and programmes during 1968

I started work with two Standard 5 classes at School F on Monday 27th May, the same day that I started teaching to S.R.A. Reading Laboratories with two Standard 5 groups at School E. The programme and timetable which I followed thereafter are set out in 3. 6 p. 124. There were 19 boys in the Standard 5A and 16 in the Standard 5B, and, apart from one new arrival in the A stream at the start of the third term, the composition of the classes did not change throughout the tutorial period. Most of the boys were boarders which no doubt accounts for the stability of the group as a whole. Nor was there any movement between the two classes at this stage in their school careers, although from their verbal ability, and their performances for me, I judged that two or three boys in each class would have been better placed in the other class. But then I could not judge their performance in other subjects. None the less I fear that the approach to streaming in this School, as in School E, is too inflexible, and that once a boy is placed in the B stream he tends to stay there. This is one of the dangers of streaming: children come to realise up to their teachers' expectations of them.

As with the boys in Group E, I made sure on that first Monday morning that I knew a few names in each class when I met them for the first time in the Reading Laboratory, or the Reading Room, as I shall call it hereafter to distinguish it from the S.R.A. Reading Laboratory. From the outset I set out to establish a goal, a good working atmosphere and a co-operative spirit in both classes. I had already drawn up class lists and I had ascertained from the Senior Master each boy's age and last position in class, whether he was a boarder or a day boy, and his home address and father's occupation. Having apprised myself of the Standard 5's backgrounds to a large extent beforehand, I had no need to adopt the same quick questionnaire technique that I used with Group E in order to ascertain their backgrounds, achievements and aspirations.

Since I found that 40% of boys in Standard 5A and 70% of boys in 5B were reading up to their verbal potential (Standard 5A/5B Mean Mental Age: 14.8/12.1; Mean Vocabulary Standard Placement: 13.2/12.1; Mean Comprehension Standard Placement: 13.8/12.1), I did not establish a numerical goal at the outset as I did with the boys in Group E. However, I did point out that the tests that they had undergone had shown me that 7 boys in 5A and 3 in 5B were not working anywhere up to their potential (in fact they were more than a year retarded judging from the standardised test scores), and that there was abundant room for improvement in nearly all cases. Without naming any boy specifically I gave them a few examples of discrepancies between Mental Ages and Reading Ages, and then we resolved collectively that our sessions together would cancel out these debits in attainment. I did not set absolute values on the above figures, particularly those achieved in 5A, because both the N.S.A.G.T. and the S.A.SR.G.T. are relatively less reliable at their upper limits, and since some boys in 5A went through the ceilings of both tests as far as the published norms went, I had to arrive at their ability and attainment levels by extrapolation, which of course reduces reliability considerably. Nevertheless, they did give me a measure by which to gauge progress roughly, and interpreting the data to the boys helped to give point and direction to their efforts from the word go. If the actual measure of retardation, in the A stream particularly, was approximate, and perhaps a good deal less than suggested by the above figures, it did the boys no harm to think of themselves as needing to improve considerably.

Before the first lesson started I had put nine incomplete words on the board to catch their attention and pique their interest immediately. I now drew their attention to these:

"I've been through the stories you've done to date (they had started on Study Guide E the previous term with a regular member of the school staff, and had worked through nine passages), and extracted nine words, one from each, which I've put on the board in 4 different coloured chalks, green for nouns, red for verbs, yellow for adjectives and blue for adverbs, so that you can see at a glance what part of speech a word is and what work it does in a sentence. As you see I've left out some letters which we'll put in in a moment. Now, in order to make new words used words, we must make a note of them and practise putting them into good, meaningful sentences. These words mightn't be new to all of you - I daresay that many of you will remember some of them - but write them down in your files anyway, neatly please, in pencil, just to get your lists started. (I had previously handed out their different coloured manila files, with their name, class and school written on the outside, and printed lists for new words attached within, precisely as I had done with the boys in Group E. I was gratified at the end of the course when, in answer to the question, "What benefits not mentioned above have you derived from 'Rapid Reading'?", F.22B remarked, "I think it is having a file that makes everybody important.") Every day from now on at the end of the Controlled Reader session you're to note down at least one new word, and make sure that you know how to use it. Then from time to time, when we've completed a column or so, we'll play Logo Lotto to revise these words and ensure that we can all use and spell them correctly."

The boys were obviously impressed with their files, just as their counterparts in Group E had been. We discussed the words briefly, and completed them collectively. In the case of "colouring in words" (adjectives and adverbs) we extended their meanings by suggesting synonyms and antonyms. Then we proceeded with the next story in the series, skipping the Tach-X part of the lesson on this occasion because of the time taken up with my introduction.

To give the reader some idea of the content and level of difficulty of the stories these are the nine words that I chose: m e n a g e r i e, g a l l a n t l y, c o u n t e r f e i t, t r a n s c o n t i n e n t a l, r e l i e f, e x c l a i m, g r a d u a t e, p a r a t r o o p e r, r e s p o n s i b i l i t y. In the case of a word like graduate, which can be both a noun and a verb, I wrote it down twice, once in green and once in red chalk, and we exemplified both usages. At the end of the lesson, as always, I collected their files. I did this for three reasons:

(i) I did not want them to enter a lot of outlandish words garnered directly from the dictionary.
(ii) Their files were an awkward size to be kept in their desks.
(iii) Collecting them reduced handling.

That Monday afternoon I met them for the second time, this time in their classrooms, and on this occasion, I handed out the exercise books which they were to keep in their files and in which they would set down their various expressions and complete their other extension exercises. I said that I wanted the work that went into their books to be vivid, spontaneous and memorable, and that the titles they gave their books should typify the spirit of what I hoped would eventually go into them. I then left the choice of title to them, but circulated two sets of Neo-magic felt pens amongst the boys so that they could write in appropriately bright colours. Some of the titles they thought up were "Gateway to Words", "The grapevine of words", "Sparkling words", "Whirlwind of words" and "Power thru' Words". As I have already said I do not believe that it is possible or desirable to study the various facets of communication in isolation, and I hoped that the ground we were going to cover in reading would invigorate their written English. In the event I was not disappointed (see Appendix O , p. 541).

We very quickly settled down to a productive working relationship. I varied our periods together as much as possible so that the routine would not grow monotonous, and yet I preserved the routine at the core of the lesson because this provided continuity and made for efficiency. Furthermore, as Butler has already pointed out in respect of Tach-X exercises, if the teacher varies the lessons too much he "does away with the opportunity of measuring progress, and more important still, deprives the boys of the encouragement which arises from consciousness of progress." Finally children appreciate routine to a certain extent: they like to know where they are, and what is going to happen next, at least some of the time. Collecting their records and extension exercises at the end of every period ensured that their work was checked thoroughly and continuously, and we were always right up to date. They could not fall far behind in their corrections because they never had very many to do, working as we did systematically and in "small bites".

The three lessons which were held in the Reading Room every week took on an established pattern and the variations were invariably on the same theme. Work on the Tach-X always preceded the Controlled Reader exercises. To start with I flashed series of digits on the screen at 1/10 second and the boys noted as many of these as they could. They established their "working level" by counting down from their best scores out of five or six digits, whichever we happened to be doing, until they reached their twelfth score out of twenty. Thus if a boy scored 3 sixes, 7 fives and 9 fours his "working level" would be four because his cumulative total of higher scores was only 10 and his twelfth score was four. He would calculate his "working index", for completion of his graph, by multiplying six by 3, five by 7 and four by 9, and adding the three products. Needless to say this affords the class some useful and purposeful incidental practice in mental arithmetic. They like to see, too, whether they can improve on their previous best and certainly concentrate hard.

However I soon discontinued the digits and substituted words which I felt would be more meaningful, and more useful insofar as there would be more transfer between words and continuous prose than between figures and continuous prose. Since a series of six digits will have relatively far less meaning than six letters arranged to make a word, and since one must perceive each of the six components in order to record the entire series of numbers correctly, whereas it is not necessary to perceive all the letters of a word individually in order to read the word, it may be supposed that number exercises sharpen perception and increase concentration more than word exercises. But this has not been proved and my experience suggests that the obverse might be true. I gauged that words sharpened the pupils' perception and refined their concentration as much as, if not more than, digits and discrimination exercises. Certainly, judging from their responses to questionnaires, the majority of boys seemed to enjoy word exercises more and find them more useful (see 5.7, p. 301).
We worked through twenty words in 15-20 minutes, flashing the first 10 words on the screen at 1/10 second and the second 10 words at 1/100 second for Standard 5B and all 20 words at 1/100 second for Standard 5A. Both classes worked through the same graded lists and by the end of the tutorial period they were on American Grade 8 words. Once or twice I used the Write-On Filmstrip Preparation Kit and gave them words that they had encountered in their previous Controlled Reading sessions. When they had noted and corrected 20 words they worked out their score by multiplying the number of words which they got right by an index of 6 for 20 words flashed on the screen at 1/100 second and an index of 5½ for 10 words at 1/10 second and 10 words at 1/100 second. They then completed their graphs which are an important motivational feature of both Tach-X and Controlled Reader exercises. Finally they noted their new words in their files before previewing the Controlled Reader Story.

While they were completing their records and previewing, I would note in various forms on the blackboard any likely new words garnered from the story. I might make them into anagrams; or omit letters; or after the class had read the story through the Controlled Reader and completed the comprehension check, direct the boys to find the words in the passage which meant the same or the opposite. I always aimed to challenge them and make them think, and pack the lesson as tightly as possible.
When they had completed their preview they shut their Study Guides and read the story either on the closed (slotted) line or on the open line exposure. They preferred the closed line, and we used it in a 2:1 ratio, because it insisted on an orderly left to right eye-movement and made it easier to read on, particularly at slower speeds. At speeds over 400 w.p.m., however, the slot moves so rapidly over a line that it is more of a distraction than an aid, and quite a few boys preferred the open line because it enabled them to pick up sufficient words in a line to follow the story or the argument. Inevitably at speeds over 400 w.p.m. you have to drop words and at these advanced speeds on the Controlled Reader only one or at the most two fixations per 6-word line are possible, and the reader has a split-second longer to fixate and interpret on the open line than he does on the closed line. However, the slower reader and thinker has difficulty in accommodating to material projected at over 250 w.p.m. whether it be exposed on the open or closed line, and whatever the level of difficulty, because he cannot process incoming data quickly enough and hence gets confused and frustrated (see the boys' comments under 5.7).

This, then, is one of the principal hazards of the Controlled Reader when it is used for class instruction. Even in the small classes in which I worked there was a wide range of ability and attainment and I found it very difficult to hit upon a happy mean which would be within the grasp of the slower readers and yet still extend the faster readers.

Finally I pitched the speed at about the middle of the second quartile. This was too fast for the boys in the fourth quartile but it fully extended those in the second and third quartiles and stretched most of the lads in the first quartile too. I found that increasing the speed on the machine did not increase youngsters' speed off it as measured periodically from their speed in reading directly from their Study Guides (see 5.6, p. 288), so I did not accelerate the machine as we proceeded. (Compare 4.4, p. 156 and 4.6, p. 189. See also 6.3 , p. 346.)

Towards the end of the course I substituted an Oral Comprehension Power Filmstrip for one of the Written Comprehension lessons every week because it gave variety and a further dimension to the course, and because it gave opportunity for some lively oral work. But the core of the course consisted of the Story Filmstrips followed by written comprehension checks, and from 27th May to 19th November we worked through 52 stories (E10 - American Fifth Grade material-to GH13 - American Seventh/Eighth Grade material). Standard 5A read a lot of the easier E and F level material at 520 w.p.m., but when the gradient of difficulty got steeper towards the end of the F level filmstrips I reduced the speed to 400 w.p.m. Standard 5B read most of the same stories at 340 w.p.m, though I increased the speed of the machine to 400 w.p.m. for 14 stories in the middle of the F series. When this did not noticeably increase their speed of reading when they read directly from the printed page, and when the slower youngsters' comprehension and attention started to fall off, I reverted to the more comfortable 340 w.p.m.

The boys kept their record sheets in their files. This was a further advantage of the files: they enabled boys to keep their records neat and intact throughout the course, and since they recorded their responses and completed their graphs on numerous separate pieces of paper which they stapled or paper-clipped together this would not have been easy otherwise.

As with the two classes working on S.R.A. IIIA Reading Laboratory at School E, I kept a continuous record-cum-forecast of progress in both classes. Extracts in chronological order from this rough record provide a commentary on my teaching and give an idea of the sort of difficulties one encounters in using E.D.L. devices and programmes. On 3rd June, 1968, there is this note:

> "Your indexes, or your reading efficiency ratings, have risen in many cases even though your comprehension scores may have fallen slightly. Why? Because you're reading faster (I had stepped up the rate of exposure on the Controlled Reader by 100 w.p.m. in 5B and 160 w.p.m. in 5A). Warning: don't be tempted to cheat yourselves by reading the story, or as much of it as possible, in the preview period, or by casting back to the story when answering questions. If this new speed is too fast for the majority of you we'll adjust in good time. Remember that you're only reading stories written for 9.0's - 10.0's."
> (The Readability Levels of two stories, namely E13 and E25, as measured by the Spache Readability Formula, were 8.1 and 10.4, and the passages have an "ideational level" of 10.0 - 11.0, and appeal most to children in this age range.)

On 6th June I diarised to draw the boys' attention to some good descriptive phrases that they had used in a report of an avalanche written during an extension lesson, and motivated by a spirit-duplicated handout, in colour, which read in part, "Here are two news flashes: 1. Earthquake in Chile. Mountain collapses on a village. Thousands feared killed. 2. Beatles arrive in Port Elizabeth. Pandemonium at the Airport. Seventeen teenagers treated for shock. Enlarge on either one or both 'skeletons' using your own words and phrases as far as possible. Here are some phrases of mine to get you in the mood and give you some idea of what it must have been like to have been present at either of these two disasters. You may borrow some of them if you wish: gigantic avalanche, terror-stricken faces, the thunder and scrunch of cascading rock.... unruly youths, hair awry, silly slogans, taut jeans, patient policemen....":

> "The following to read out their vividly factual reports....Note these phrases, terror-stricken people surged forward, screams were drowned by the thunder of falling rock, the heavens were breaking up, the earth shuddered. B.M. has already finished his second column of words - and as you see they're cropping up in his writing already."

At this point I should mention the other extension activities that I introduced early on in our association. Like Word Cricket (see 4.6, p. 192 , and Appendix H) I devised the game Logo Lotto (see Appendix H) to extend and consolidate vocabulary. At the end of every game all the players had to put some of the new words that had cropped up into sentences or little "stories" to bring out their full meaning. There is little doubt that the recording part of the exercise - "making new words used words" - gave the boys pause for thought and required imagination and ingenuity. I noted some of the more quaint and piquant examples for my records:

> "He looked very elegant after he'd been embalmed";
> "The tense old chicken new that she soon would be the king's relish and would be nice and crisp";
> "The old lady dressed stylishly and was always escorted by an elk and an albatross";
> "The puny man who was wearing denim jeans saved the sophisticated woman in the treacherous water";
> "The rebellious boy's hair was all tufted and awry";
> "The plump lady shrieked when she saw the gigantic snake creeping down the ravine to its hole";
> "'I am no indolent boy!' retorted the limber prince";
> "After the man saw his bewitched wife, he lunged forward and killed her. He then strutted out of the door, and told his son what he had done. His son told the police, who kept him in custody. He relented in jail, where all he got was a good larruping" (my comment here was "A macabre little piece", giving him another new word for his trouble!).

This little yarn was written by F13 in Std.5A:

> "After a while the corrupt man found himself in a predicament. The house that he was hiding in had to be demolished. He gathered all his belongings and put them in his old car, but the car would not start. There was a defect in the ignition. So he gathered a few of his most valuable belongings and started walking. The day was sultry and he did not make much progress. Finally, after a few days, the police took him into custody."

The following example will give the reader some idea of what the standard of written English was like among the slower members of Standard 5B:

> "A duck is sit on the water of a pond near
> the river. It does not now what is going on.
> A sudden gun shot and the duck was died.
> A potcher and and his dog had a scrumtus meal."

Then there were the free-writing periods. I must explain how I motivated them. The tanker "World Glory" broke in half some miles off the South African coast in July 1968, and oil slicks threatened Durban beaches. Under the heading "English must be topical" (new word) we discussed the disaster and then put ourselves in a seaman's place and set down our vivid, on-the-spot impressions, they in their "Whirlpool of Words" books, and I on the blackboard, spontaneously, and partly in colour, as they wrote. We did the same with "I like" (see Appendix O , pp. 546-8). Then on the eve of the August holidays I told them what I was going to do, again on the blackboard, while they reciprocated by telling me what holidays meant to them (see Appendix O, pp. 550-2). I read them excerpts from Dylan Thomas's 'Conversation about Christmas' and 'Holiday Memory' and this provided the inspiration for the composite poems, 'Christmas Time' and 'All the fun of the fair' (see Appendix O, pp. 559-62). (Thomas's adjectival insistence and florid style may pall on the adult, but there is no doubt that his robust writing and coruscating imagery catches the imagination of 13.0 year olds, and invigorates their writing.) I played them tape-recorded excerpts from a long-playing record, 'Safari', and the composite poem, 'Sounds in the African night', was the result (see Appendix O , p. 563). On each occasion I wrote while they wrote. They got the idea that they could write about anything, however mundane, as and when they felt like it, in whatever medium they chose. 'Brothers', 'Haircuts', and 'Stars' are three examples (see Appendix O , pp. 555-6). 'Exams' was motivated by an exchange of pieces between ourselves and Experimental Group B. And so their imaginations were unfettered and their jottings snow-balled. "Write to me whenever you feel like it, about whatever you think or feel at the time" was my standing injunction, and it bore fruit.

Word associations and Silent Sessions helped to liberate some boys' imaginations, too. I used word associations

(i) to fill in the odd five minutes at the end of a lesson, or to challenge the quick finishers while others were finishing off assignments or records,

(ii) to give variety to lessons,

(iii) to reinforce vocabulary, and

(iv) to see whether certain words like "black" and "clouds" would evoke the most usual immediate associations of "white" and "rain", or whether the more creative boys would come up with some unusual associations.

Torrance and others who have done research into creativity have used this technique to test originality, which is one of the components of creativity. I threw out a word and the boys had to write down the first "response" word that came to mind. Then I gave them another two words and after each they immediately wrote down the first word with which they associated the "impulse" word. Then they surveyed their three responses swiftly, underlined one of them and elaborated briefly (see Appendix M, p. 527). Some of their "haikus" are directly derived from stories that they had just read on the Controlled Reader and which, because of their dramatic appeal, had made a vivid impression on them: "The volcanic explosion absolutely obliterated the island and annihilated all the islanders." The recency of an experience is an important determinant of short-term memory. Others were less precisely defined and compact: "A beautiful blue sky. The white clouds riding the air. An aeroplane is flying across the sky." This expression has a dreamy, free-ranging quality about it, and is more spontaneous and unpretentious than the previous one. Some were down-to-earth, like their authors: "The water was freezing cold that day when I dived into the swimming pool." There were none that had that really unusual, bizarre quality which one associates with great originality, but then they were being educated in an orthodox environment.

I think this is why the Silent Sessions were not more popular. The only stimulus they had was a spirit duplicated hand-out with a few examples of what I wanted and a number of blank spaces in which they were to draw and write. These I handed out without a word and then, through gestures, indicated what I wanted them to do: they were to add to and embellish the scribble patterns as they liked, and then interpret them vividly in brief descriptive passages. I circulated two examples of my own, and then got busy on the blackboard myself. Not a word was spoken throughout the lesson. I thought that they would enjoy the departure from the usual "chalk-and-talk" lesson, but in the event the situation was too novel and unstructured for most pupils to appreciate. However those who did relax, and enjoy themselves, produced some lively and original pieces (see Appendix L , pp.525-6).

On 17th June, I remarked:

> "When material is unfamiliar, and non-fictional, like E19, 'New York City Underground', comprehension drops." (5A's mean comprehension for fifteen E level stories was 83%, yet for E19, and two similar passages, namely E16 and E17, the 'Great Frog War', a story about American railroad construction, and 'Leonardo da Vinci', it dropped off to 78%, and 78% and 70%. Obviously when reading at speed and under pressure previous knowledge helps a lot.)

On 20th June, I recorded:

> "Children like to see and feel progress: 'Please, sir, can we see what our starting speed looks like now.'"

One of the earliest pieces of free verse that I received from one of the slower members of 5B, who was 13.9 at the time, read:

> "I would like to go to the sun
> But if I do go there I would
> Have don the gratest thing
> So I am shure I cant do that.
> I would like to go on the sea
> But I fear that if I do that
> The ship might sink
> The I might be aleot by a wail
> I would like to saw in the air
> Like a eagle in the air
> Or like an owl at night
> When it goes on its flight."

Needless to say this boy was both backward and severely retarded in reading, and the only way he could be sure of getting a good comprehension score at the speed at which I projected material for the majority of the class was by cheating. For such boys an entirely individualised programme and approach is essential (see 2.9, pp.51-2). Significantly he said in his mid-course review (see pp.277-81): "I think that the session with you has helpt me in that I can reconise words verry much more easily. But otherwise I have not liked the seoions", while in the questionnaire that they all completed at the end of the course, he summed up, "I don't like thees periods thats why I havent profeted from them." He rated oral and written comprehension as the two things that he liked least, and two of the three things that he felt had done him the least good, and this at the bottom of the two lists of eight items. He was probably right in feeling that he had gained very little if anything from the periods spent in the Reading Room: his V.I.Q. increased from 90 to 96 between May and November, but at least part of this increase can be attributed to practice effect, while his attainments in comprehension, vocabulary and spelling showed no discernible improvement.

On 1st July, I diarised to warn boys not to enhance their comprehension scores by sundry sharp practices:

"I hope none of you are cheating yourselves."

I knew very well that some were, of course, just as I was well aware that boys in Group E were cheating on Reading Laboratory exercises, but I was reluctant to have "open season" on boys like the one described above because peer group pressure in the competitive environment in which they were so used to working requires that a lad should seem to get a respectable mark, however this is achieved; and the only way that at least three boys in the 5B could consistently get a reasonable mark (of 60 per cent or so) was by cheating. But I did want them to know that I knew, and understood, what the temptations to cheat were, and that I knew how they cheated: when they marked their own work, as they did for the most part, since that is what the authors advocate, and since it is in keeping with the self-administrative, self-evaluative

spirit of the programme, they could either "accidentally" mark wrong answers right, or change a wrong answer, or leave a blank and fill in the correct answer, either A, B, C or D; or they could look at the correct answers surreptitiously beforehand during the brief preview period - the answers are in a "grid" on the back page of each Study Guide. (One of the main disadvantages of both E.D.L. and S.R.A. programmes is that the answers are pre-determined by the authors. This enables pupils to cheat. Furthermore it does not require the teacher to work out the correct answers for himself beforehand, so that he can guide the pupils in their thinking and justify his choices orally through discussion and argument, at the same time allowing the pupils to do likewise. If children are encouraged to prove that an answer is right, and can discuss and perhaps dispute the merits of different answers, the temptation to cheat is diminished and the children learn much of incidental value through "the rub of minds". It might take longer, but it is time well spent.) Cheating can of course be reduced if the teacher marks all the students' records, but then they will not learn from their mistakes. Theoretically, they are supposed to check back to the story to see where, how and why they have gone wrong, but in practice, despite my frequent reminders that they should learn from their mistakes, there was seldom the time or the incentive to check their mistakes. Nevertheless they probably learnt more by marking their own work, and checking where they went wrong as time and inclination permitted, than they would have done had I marked their work and returned it a day, or days, later, and then required them to see where they had gone wrong when "the scent (and the incentive) was old and cold." Furthermore, if I had marked their work it would have suggested to some of them, at least - probably the very ones who most needed to cheat to compete, and so retain their self-esteem - that I did not trust them, and they would have become frustrated and dejected.

On 3rd July I noted:

> "5A are not ready for the open line yet, at least not at 520 w.p.m. They cannot process ideas fast enough, and are inclined to get lost in the middle of lines."

On 13th July I remarked:

> "'Beter' for 'better' is a common spelling error" (as with boys in Group E).

On 16th July I reminded myself to separate two boys whom I suspected were working in collusion. At the same time I wrote, in good time:

> "Do not over-encourage in a highly competitive society, and particularly with less able pupils - it encourages cheating."

On 29th July I received an unsolicited piece of verse, entitled 'Words', from one of the most willing and least able lads in 5B:

> "Words are courlefull
> brite with light.
> Words talk you in to it.
> Word look courlerfull."

He might not have made spectacular progress in reading, but at least he was writing freely and enthusiastically. (See Lemmer's comments under 5.6, p. 298.) The last line of this poem may have been suggested by my use of coloured chalk.

At about this time the Headmaster asked me for a progress report which he could include in his Annual Report. I decided to sound out the boys themselves for their reactions to the course thus far, and accordingly asked them to record their candid comments anonymously on slips of paper. It seemed to me that their collated remarks would at once inform the Headmaster and enable me to plan my further teaching more effectively.

These were some of the criticisms levelled at the Reading Room sessions:

> "My vocabruary has improved but I'm not so sure about my reading. The reading and monotonous routine in these periods make me feel rather sick of these periods. Sometimes the fast speed of the rapid reader puts my mind into a bad state, and gives me a headache....

The rapid reading is too far from my eyes, and I can't go back for a word.... I think that these machines make your eyes run the right way, but when I have to read a book my eyes arent being led any way by a machine."
(The emphasis here is mine. The whole question of transfer, and of real improvement effected by the Controlled Reader, is crucial - see 5.4, p. 244 , and 5.6 , pp. 287-91.)

"With the space moving over the line you are inclined to either miss a word and when you go back it has already past and then you cannot make sense of the next few lines, because you have lost track. In the open line sessions I always seem to understand it better than I do with the space on the line.... My eyes also water with the fast moving space."

"Rapid reading does not give time to blink."

"I think that the Reading Lab hurts my eyes and only ruins them they seem to get very saw. I also think that it has taken up to many periods."

"I think that the reading machine is set to fast at 520 words a minute and it makes me giddy."

"Well I don't much like the Rapid Reading machine. I don't have time to read a sentence. The Tach-X is allright because I can read the words."

"In the afternoon I get tied and it hurts my eyes slightly. I also think the controlled reading is to fast and I can't take everything in."

"One thing I do not like is when you are reading from the machine. You can't think, and you just have to stare at the writting and your eyes start burning and watering. This I do object to. I do not like waiting for the word or the number to be flashed on the screen."

"I myself think that I havent benefited at all. Even with my vocabulary. I might learn new words, but I soon forget what they mean."

"There are a few things that I don't like about it. The first is the speed is a bit too fast, only some boys can read the speed at which we go, it should be brought down a wee bit. But then on the other hand the vocabulary helps us, but then I can't remember them." (This last remark, and the previous commentator's remark in the same vein, underlines the need for purposeful and regular consolidation of vocabulary picked up from E.D.L. materials.)

"I can see the full reason of having these lessons except the rate that we are reading at. My eyes seem to wander off the screen when we drop to a lower speed." (He was in Standard 5B and yet he felt that a speed of 400 w.p.m. was too slow for him. As we have seen most of his classmates felt that the speed was too fast for them. Clearly it is not easy to determine the ideal speed at which to project material for any group, no matter how small and homogenous. The ideal must be a machine and a private booth for every pupil - see p. 329 .)

"The numbers and words have been great fun but when we went up to eight digits I found it very hard. I prefer the words because you can guess what the end part of the word is if you didn't see it."

"Tach-X the words I find are better than the numbers. I did not like the numbers at all."

"The vocabulary sessions get a bit boring after a while."

"The stories are interesting, but we should have oral ones more often."

"I also think we should have a reading period (oral) with a set reading book (e.g. 20,000 leagues under the sea)." (These two comments show that the 12.0 - 13.0 year old still feels the need for reading aloud and oral work.)

"I think all these reading sessions have helped me little and a lot of reading would teach us the same stuff that we have learned if not more. I prefer the proper grammar to this."

"At times I don't like the lessons in the Laboratory. Particularly on a hot dreary day. For the price of the machines I don't think its worth buying them. Perhaps the Tach-X words machine is the better one for me. I think my vocabulary has improved a little."

"I don't see how I've improved in my reading. I am reading no more fluently now than last year."

"Quite frankly I don't see what the rapid reading helps. I don't mind the tak-X."

"I think the machines are a waist of time."

These were some of the favourable comments on the Reading Room sessions:

"I think that the word machine is good because when you read a book and you see a word which you saw on the rapid words you recognise it and if you dont then you put it in your file where you remember it."

"We have been doing a lot of reading, in the biganning I thought it was terrible but now it is getting better every day. I think it is because I am reading better so I understand the stories I read in the lab."

"The stories often teach me something."

"The reading has defnately quickened my reading. And if you become Traffic Cop the numbers help spoting the number plate of cars."

"It makes me concentrate more than usual. There is only one thing against it is that we have it to often in a week. I say we should have it about 4 times a week." (The emphasis here is mine.)

"I truly think that the new words that I've learnt has really startled my parents. I come up with a sentence that I could never have made up last Christmas Holidays."

"I finish my library books in a weekend what is more it is really good fun and I enjoy coming to school."

"The periods have flown while we have been at Rapid Reading."

The comments below are a fair reflection of the majority's views on the classroom extension activities:

"I enjoyed the one game of Word Cricket better than any other Loggo Lotto games.... I think the silent session was not worthwhile. I have learnt to improve my hand writing."

"Logo Lotto and Word Cricket are o'kay. They see whether you remember how to spell and use the words."

"I think that I have learnt a lot of new words from word cricket and logo lotto."

"I enjoy Loggo Lotto. Which I think is an exciting game."

"I have especialy enjoy Loggo Lotto, though I have not yet won any prizes. Silent sessions and word cricket, too, are lovely."

"I think that every minute of Mr Peanu's English has made an improvement to my ideas and writing. Mr Peanu teaches in the rightway, a child needs incouragement and that is just what he has been giving us with Logo Lotto etc."

The ground that the boys cover in their collective critique is extensive[1] and it is perhaps surprising that the periods in the Reading Room in particular come in for so much adverse comment. Their criticism certainly helped me to revise some of my opinions, and modify some aspects of my teaching. For example, I reduced the speed of the Controlled Reader for both classes: I came down from 520 to 400 w.p.m. in 5A, and from 400 w.p.m. to 340 w.p.m. in 5B, which I would have done anyway when the gradient of difficulty of the stories steepened as it does from the F to the GH series, but which I decided to do immediately to show that learning and teaching is a co-operative enterprise, and that I was quite prepared to act on their suggestions if I considered them sound. I also ensured that they had at least one oral session on the Controlled Reader every week hereafter, instead of with whimsical periodicity, as heretofore.

I certainly did not abandon the creative side of the classroom extension lessons, despite some lads' predictably sour reactions to "poetry". I called it "free expression" and encouraged them to express themselves in prose or (blank) verse - "don't be bullied by rhyme, it's the beat, the rhythm, not the rhyme, that counts" - whichever they found easiest and most expressive. Nevertheless, it is difficult to overcome the suspicion and conditioned disapproval with which so many boys reared in a segregated and formally academic environment look upon the arts, and certainly no permanent break-through can be achieved in the space of a few brief months. In June, 1969, I went to watch some of the lads I had taught play in a rugby match. One of the biggest boys in 5A, and one of the promising young writers in the group - see 'The Party' and 'Snow' (Appendix O , p. 552 and p. 553) - was also the captain and the most rumbustious forward in the pack. When I asked him to drop me a few lines, he was embarrassed and abashed. "No, Sir, no more poetry. I left that behind in Standard 5", he protested vehemently, as though rugby and writing, whether in prose or poetry, could never be bedfellows. None the less, while I was teaching

[1] More than 80% of the boys in Experimental Group F are represented in these remarks.

these leds I determined to persist with the creative aspects of the extension lessons because of remarks like "I like the class sessions a lot because we have been able to find out a lot about each other", and "I have enjoyed writing my poems and am rather proud when they are put in 'I say'" (which was a space on a notice board in the hall of the Junior School on which pieces of merit were displayed). I agree whole-heartedly with Durham:

> "I should like to make a special plea... for a greater use, in the classroom, of outstanding poems written by children (writer's emphasis). Far too many people - including most teachers - labour under the mistaken idea that children's verse writing can never rise above doggerel. Nothing could be further from the truth. Many poems written by children are ideal texts for children. The feelings expressed, the idiom, brevity and vision of many children's poems have a directness and immediacy which show a passionate involvement with life as seen by the child."
>
> Durham, 1969, p.160.

I cannot forbear to quote an example of what he means. This is a haiku written by a 14-year-old boy:

Pool

Still, evening mirror
Pebble,
And my water-face crept away in silken rings.

The authors of E.D.L. programmes are obviously aware of the need for oral work or they would not have written an Oral Comprehension series. Yet having worked through a number of selected exercises in Comprehension Power Series C-6, I found in August that these were unsatisfactory for a number of reasons:

(i) If you introduce questions at intervals in a narrative you break the continuity and inevitably dissipate interest.

(ii) If you are both technician and teacher you must keep your finger on the arrestor button while you are questioning the class, and in that position, and in a semi-blacked out

room, you lose the face-to-face, direct and animated contact with a class that is so important in sustaining interest in an oral lesson.

(iii) Inevitably in such a situation, and in such an atmosphere, some pupils will "free wheel"; concentration slackens and pupils heave a sigh of relief when they realise that there is only one chance in twenty that they will have to answer the next question, and that in any event they will not be penalised if they do not know the answer - this lesson is "off the record", as it were.

(iv) It is undesirable, and often impossible, to project oral material, which requires the students to follow detailed instructions in sequence, at the same speed as they are used to reading passages for written comprehension; therefore, the oral exercises cannot be continuous with other aspects of work on the Controlled Reader, and must necessarily seem to be introduced for the sake of variation rather than to promote more efficient silent reading.

(v) The content of some of the exercises lends itself to this "variety-is-the-spice-of-life" construction: 'Get it Right', an exercise on pp. 31-33 of Comprehension Power Series C-6, entertains, but it is hardly calculated to develop reading. This particular exercise is designed to get students to follow instructions, many of which are silly: for example, in frame 10 (there are twenty frames) the writer says, "If you believe, when you finish this paragraph, that you have made no mistakes so far, whistle 'Yankee Doodle'."
If the serious instructions, with which these light-hearted ones are mixed, are followed correctly, each pupil, by the 20th frame, should arrive at a figure the last two digits of which give him his date of birth and the third (and fourth) last digit(s) the month in which he was born.
He thus gets a laugh out of the exercise, and a new party trick too.

On 19th September I noted to ask 5A what "spontaneous" meant. It is vitally important in the teaching of reading to follow up new words and to give additional spaced practice in their use so that they become part of the pupil's usage as well as recognition vocabulary. Interesting repetition has long been recognised as fundamental in the teaching of reading; and the acquisition of vocabulary, and the immediate recognition of new words, are two of the most important aspects of training in further reading. Vocabulary must be taught systematically. If the teacher does not reinforce new words encountered in E.D.L. materials they are apt to slip quickly beneath the threshold of recall. Therefore it behoves the teacher to note some of the most important new words that he introduces, and to diarise to revise them from time to time. Teaching is often such a hectic hurly-burly that if he does not make a written note to recapitulate in this way he will forget to do so and the effectiveness of his teaching will be reduced. Furthermore, such notes help him when he comes to draw up his tests and terminal examinations, which should teach as much as they test.

From time to time I made a note of irritating American usages and, if there was time after a Controlled Reading session, I would ask the boys if they had noticed anything peculiarly American about the passage. They were quick to pick out American spellings like "color" and "harbor", of course, and after some practice they came to be able to pick out phrases and sentences like "He had gotten word through to officials" ('Its the Ham in Them', F.23, Controlled Reading Study Guide F, p.96) and "The Whale dove to the bottom of the sea" ('Ichabod Paddock', GH1, Controlled Reading Study Guide GH, p.10). They also became increasingly quick to pick up slangy idioms like "the biggest, strongest, meanest crew on the island" ('Ichabod Paddock'). This sort of exercise should have sharpened their ciritcal faculties, and prepared the way for literary criticism. Also it provided the modicum of variety which is vital to lessons like these if pupil interest is to be sustained (see pupils' comments under 5.7 below).

Teaching is full of surprises. I was marking late one night, and was coming to the end of the sort of stint that every teacher knows so well - the same trite, tedious tenor from thirty or so uninspired pens. I opened another dog-eared book, expecting another prosaic piece, and there was 'As Time Goes By'. This poem was subsequently published in the School Magazine, which is largely made up of Senior School activities and contributions, with the additional note "aged 11" underneath, the only contribution in the magazine to earn this subscript. It also takes pride of place in Aware, that important by-product of my research into developmental reading. It is, of course, included in Group F's anthologies (see Appendix O , p. 549).

On another occasion a far more unlikely lad came up with this striking line in what was otherwise just another of his pedestrian efforts: "I like Sunday because I can go and speak to God." What more simple and direct statement of faith can one have? When one is working on a functional skill like reading it is essential to weld it to more creative, expressive aspects of language study, if only to invigorate one's teaching.

Finally on 22nd October I recorded the following dialogue:

> " 'You mean to say that you got 80% for comprehension, John. (GH5, 'Duel at 70 miles an hour', is an exciting, incident-filled story, which is difficult for the slower reader to follow at 340 w.p.m. 5B scored an average of 74%, which was about average for them, but John usually scored 40-50%, so this was exceptional for him.) 'Yes, Sir,' he replied proudly, and there was no doubt from his pleased grin that he had scored 80% honestly. 'How did you manage it?' 'I just took a guess, Sir.' " [illegible]

This is one of the hazards of programmes like E.D.L. which phrase all their comprehension questions in the multiple choice pattern. When there are four choices the chance of inspired guessing paying off reduces to 25% per answer, and something less than this for 10 answers. However, occasionally luck does favour the pupil and an uncharacteristic result is thrown up. This probably does more good than harm because it boosts the reader's morale, but nevertheless it distorts profiles of progress, and casts doubt on the accuracy and reliability of scores. Furthermore, multiple

choice questions test recognition more than recollection, and consequently are easier and less searching than open-ended questions. Also it is easier to cheat on questions of the former type, since it is easier to fill in, or alter, a letter during marking than it is to fill in, or change, a word or phrase. In my opinion, therefore, a proportion of the comprehension questions in any developmental reading programme, perhaps 20-40%, should be of the open-ended type to counteract inspired guessing and to virtually nullify chance.

5.6 Cumulative Records and Results of Tests and Internal Examinations

As with Group E's results on S.R.A. Laboratories I discuss the results of the standardised and other objective tests in Chapter Six, so it remains for me to mention the results of day-to-day Controlled Reading scores of which I kept a running record, and the results of internal examinations which were peculiar to Group F.

One of the most noticeable features of the course was the way that speed of reading directly from the printed page, and resultant comprehension, remained relatively constant throughout. 5A and 5B achieved mean speeds of 300 and 240 w.p.m. and average comprehension scores of 80% and 73% over 6 test sessions (the same passages were used to test each class), which must be compared with mean Controlled Reading speeds of 450 and 360 w.p.m. and average comprehension scores of 80% and 77% over 46 ordinary reading sessions. In 5A reading rates ranged from 160 to 500 w.p.m., while in 5B speeds ranged from 140 to 400 w.p.m. The mean test speeds were fairly consistent over a period of time, and are confirmed by the mean rates attained on my tests - see Table 27 below.

Date	Story	R.L.[1]	Mean Rate in w.p.m. Std.5A	Std.5B
1/ 7/68	E25[2]	10.4	347	258
6/ 8/68	F13	9.6	287	236
5/ 9/68[3]	F14	9.0	275	212
8/10/68	F25[4]	9.7	305	240
10/10/68	GH1[5]	10.1	281	239
18/11/68	GH13	8.6	305	252
12/ 7/68	Test I[6]	7.5	241	235
19/11/68	Test II[7]	7.5	322	252

TABLE 27

[1]The Readability Level of all passages was determined by the Spache Formula.

[2]The last story in the Grade 5, Series E, selection.

[3]Immediately after the August vacation.

[4]The last story in the Grade 7, Series F, selection.

[5]The first story in the Grade 7, Series GH, selection.

[6,7]These "Parcels" of 5 passages and 40 comprehension questions are described in 3.3, pp.104-7. Only the first passage of 300 words was used on each occasion to determine the individual's rate of reading.

As can be seen reading rates fluctuated more at the higher speeds achieved amongst the more intelligent boys in the A class than they did amongst the less intelligent slower readers in the B class. The final mean speed achieved by 5B on GH13 on 18/11/68 was identical to the mean speed attained on the timed 300 word test passage on 19/11/68, while in 5A there was only a difference of 17 w.p.m. between GH13 and my 300-word passage.

Of course individuals varied widely from these means in both classes, but they did not vary much from one test to another, from which I conclude that any acceleration that is effected by the Controlled Reader takes place early in a training course and that thereafter youngsters tend to consolidate at this speed; further that there are seldom if ever dramatic or sustained increases in rate of reading at this level.

Since teaching to the two E.D.L. devices during 1968, a comprehensive catalogue E.D.L. Multi-Media Instructional Programs and Systems, 1969, has come to hand, and I note that "Reading Efficiency Checks" are now available. These could be profitably used to ascertain transfer from the Controlled Reader to the printed page, rather than requiring the students to read periodically directly from their Study Guides as I did.

> "The Reading Efficiency Checks are designed to be used at intervals during a reading improvement program to determine the extent to which a student has improved his reading rate while maintaining adequate comprehension. Seven booklets are presently available to complement Controlled Reader films on levels 4 through 13. Reading Efficiency Check booklets... each contain five short reading selections, each with ten comprehension questions. The selections and comprehension questions are prepared to the same specifications as those used in the Controlled Reader Sets they parallel, in terms of length, content, and readability level.... While the checking of rates and comprehension scores during Controlled Reading indicates the student's progress as a result of instrument training, the Reading Efficiency Checks show him the extent to which his rate and comprehension can be maintained during the reading of book-form material. As his training progresses, the student will find that more and more of his Controlled Reading rate can be sustained, and at times even exceeded, in the reading of book materials. (My experience described above makes me doubt this unsupported claim.)

> In classroom use, students are timed during their reading of a selection from the Reading Efficiency Check booklet. They then answer comprehension questions as directed, and their answers are checked against a key in the back of each booklet. A chart is provided for computing reading in words per minute. During a typical 30-session program, teachers find the use of the Reading Efficiency Checks most effective during the 10th, 15th, 20th, 25th and 30th sessions of the course, at which time they take the place of the Controlled Reading Films." (p.45).

On the average pupils seem to read from the printed page at two thirds of the speed at which the machine is set. And this ratio of 2:3 seems to remain fairly constant, regardless of individual differences from average trends. Hence FF2 was able to read Grade 6 material on the open line at speeds in excess of 520 w.p.m., although the Controlled Reader was set at 400 w.p.m. for the average boy in 5A, and still score 70% or more. Yet his rate of reading dropped to ± 400 w.p.m. when he read directly from his Study Guide or a printed test passage. Similarly at the other end of the same class F15 was forced to read at 400 w.p.m. from the machine when his habitual reading rate from the printed page was 160 w.p.m. Consequently he only achieved comprehension scores of 20%-40% when reading from the screen. At 160 w.p.m. when reading directly from his Study Guide, he consistently achieved marks of 60%-70%, and it is reasonable to predict that he would have been able to sustain this level of comprehension at speeds of up to, but not exceeding, 250 w.p.m. on the Controlled Reader.

On three separate occasions boys in Standards 8A, 8B and 8C, working on American Grade 9/10 material (Filmstrip Set IJ), achieved average speeds of 400 w.p.m. (520 w.p.m.), 320 w.p.m. (460 w.p.m.), and 280 w.p.m. (420 w.p.m.), the figures in parenthesis being the settings on the Controlled Reader. (The boys in these three classes had 1 period per week in the Reading Room for the whole of 1968.)

These speeds are respectively 77%, 70% and 67% of the speeds set on the Controlled Reader. It appears, therefore, as if the more intelligent boys benefit more from reading acceleration devices and courses insofar as more of the mechanical acceleration is retained on transfer. Nevertheless, I doubt whether relatively short, concentrated courses with mechanical accelerators like the Controlled Reader do permanently increase habitual speed of reading significantly at any stage. Certainly in the classes in which I taught the Controlled Reader did not appear to accelerate habitual rate of reading significantly, and I consider that at this level at all events being pushed against the clock when reading from the printed page does as much to accelerate reading rate in the short-term as any of the expensive and sophisticated machines. Practice has its maximum effect when the practice material and method are most like the archetypal tasks, performance of which the practice is designed to improve. I would concede, however, that Controlled Reading (with the slot), whether it be used for a short or extended duration, does more to modify perception and train "performance skills" (see 5.3, p. 249) than any other technique. But whether the improvement of these "performance skills" significantly improves interpretation, and hence rate of reading, is still unproven, and may well be doubted at the level at which I worked.

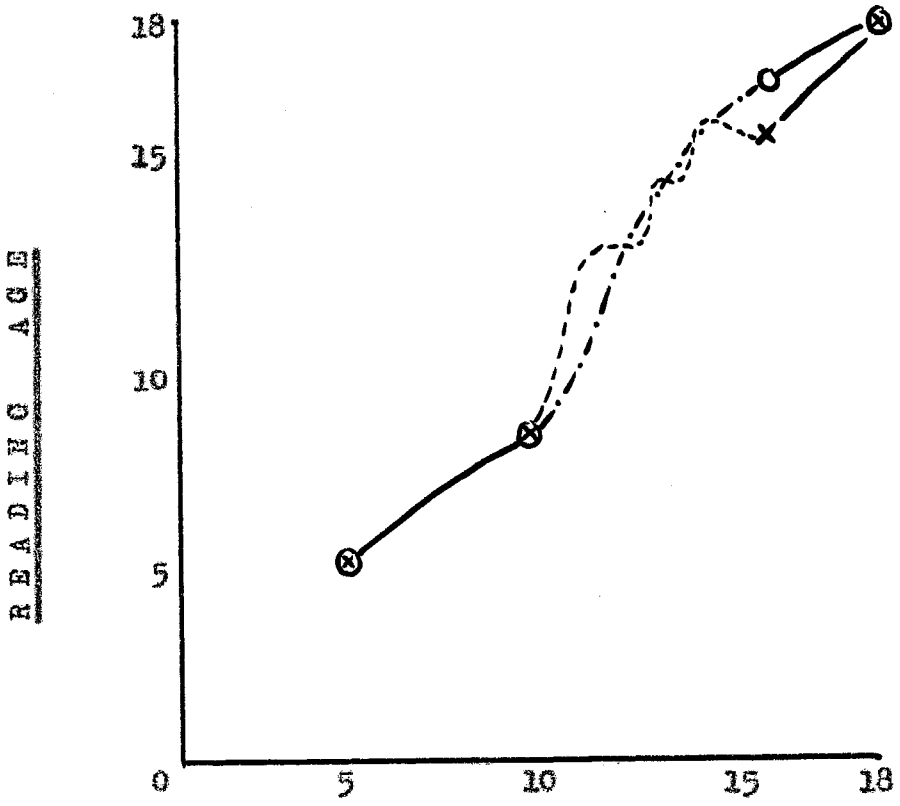
Another highly significant point is the tremendous range in reading rate in all these classes, a range that increases in the higher classes as abilities and attainments tend to diverge increasingly. The range on individually timed passages from IJ Study Guides in 8A (25 boys, Av. Age: 15.8) was 230-650 w.p.m, the mode speed being 420 w.p.m; in 8B (27 boys, Av.Age: 16.5), 180-550 w.p.m, mode 320 w.p.m.; and in 8C (19 boys, Av.Age: 16.8), 170-480 w.p.m, mode 250 w.p.m. Clearly with these numbers, and this range, in each class it is educationally undesirable to project material at one speed for the whole class.

Ideally what is required is, say, 6 machines for small sub-groups within each class (a separate machine for each pupil would be prohibitively expensive); or an essentially individualised approach to reading acceleration.

Unfortunately I could not gauge whether the boys in 5A and 5B had increased their rate of reading "from scratch", if at all, and how much the Controlled Reader was responsible for this acceleration, if any, because both classes had already had a term's work on both devices when I took them over. But I can certainly state with confidence that their speed of reading both on and off the Controlled Reader did not increase significantly between August and November, and that by the end of the course they were no faster, nor more efficient, than the boys in Control Group D with whom they were matched. Indeed as far as mere rate is concerned they suffered distinctly in comparison (see 6.3, pp.346-8). There can be no doubt about it: the Controlled Reader did not accelerate Group F's reading in the short term to the point where they made up the leeway in speed and efficiency between themselves and Control Group D.

The Standard 8 boys achieved a noticeably higher rate of reading with more difficult material than the two Standard 5 Experimental classes - 300-400 w.p.m. on the average on Grade 9 material as compared with 250-350 w.p.m. on the average on Grade 6 material - but I believe that this difference is principally a function of increased maturity and more practice in day-to-day reading directly from a variety of texts than it is of training on the two reading devices. I maintain that the Law of Diminishing Returns applies to reading acceleration. It is possible to accelerate rate of reading quite dramatically with a very little practice on any developmental reading device or programme, one of the features of which is to increase rate of reading (this is the partly the function of the Controlled Reader in E.H.L. programmes, of the Rate Builders in S.R.A. Reading Laboratories, and of timing children's silent reading in Double-Up and Buck-Up).

However there seems to be an invisible ceiling which is partly determined by the pupil's developmental age, partly by his innate ability, partly by his educational experiences, and partly by his attitudinal and emotional set; and when he approaches this ceiling, his rate of reading, which is effectively determined by the rate at which he can process, or interpret, incoming data, slows down until it virtually stops. No matter how hard he is pressed he will not be ready to make further progress until he is older and has developed further, physically, intellectually, socially and emotionally. Since development is multi-faceted, interdependent, sequential and continuous, it follows that this psychological ceiling, or limit, changes, and probably increases infinitesmally, from day to day. But growth is also slow, and uneven: gradients of growth of varying inclinations are succeeded by plateaus of varying lengths on which consolidation takes place. Therefore it follows that a crash course in any subject will not be as effective as a less intense and longer course, if optimum advantage is to be taken of child development. If a pupil is not achieving up to his potential - and very few pupils realise up to their maximum capacity in all subjects all the time - then the concentrated course may quickly bring him up to that potential. But it will not take him beyond it. The prolonged, less concentrated course may take longer to bring him up to scratch, but it is likely to keep him at his most efficient level for longer and consolidate gains more effectively at the same time. Most authors of developmental reading programmes advocate periodic refresher courses to ensure precisely this effect. Also E.D.L. and S.R.A. courses are constructed to extend over American Grades 1-12 so that a pupil can "notch in" at any level, and at any age between 7 and 18. Thus if he has a concentrated course at Grade 5 level when he is twelve, he can take his refresher course from Grade 6 material at Grade 6 level when he is thirteen. (see Fig. 1 below).



⊗——⊗ Progress in reading prior to and after developmental reading courses

x- - - - -x Progress in reading during a short intensive developmental reading course followed up by two refresher courses

o-.-.-.-.-o Progress in reading over a 'low input', long-range developmental reading course.

FIGURE 1

I do not mean to suggest in this figure that a " 'low-input', long-range developmental reading course" should last for five years, though I see no reason why it should not last for two, or even three, years for an hour a week. Since I want to show where reading begins and how it proceeds in relation to the developmental continuum 0-18 years, I have had to compress my illustration, and in order to show clearly how I visualise progress on the two different types of courses I have extended the lines which represent progress on the two courses over five years. Actually, though, this section of the graph should be compressed, or the "y" axis stretched, so that the two courses extend over 2-3 years.

I have said that innate ability is undoubtedly one of the determinants of the height of this psychological ceiling all along the developmental curve. My observations, and the results of exams and tests, including the periodic checks of reading rate working directly from the Study Guides without the intervention of the Controlled Reader, confirm that the more able the scholar, and the greater his linguistic attainment expressed in school examinations and standardised tests, the faster and more efficient his silent reading is likely to be (see Table 28 below). Certainly it seems possible to predict tentatively, yet with reasonable accuracy, a student's verbal intelligence from his effective rate of reading, in other words from a combination of his silent reading speed and comprehension. As I suggest elsewhere - see 6.3 p. 348 - reading efficiency is an amalgam of rate and understanding.

> "The important consideration in reading instruction is not speed but rather accuracy and precision so that comprehension may be adequate."
>
> Earl A. Taylor, 1957, p. 9.

Since I had been given half the English periods in Standard 5, I had to set one of the two examination papers in July and November. As with Group E, I set the Language and Comprehension questions while my colleague set the Composition and Grammar questions. In November I set the Standard 5's at School F the same paper as I set the Standard 5's at School E, while in July I set a similar functional English paper which was at once designed to review what they had learnt for me and to consolidate new knowledge, particularly vocabulary. As such, therefore, it was both a testing and a teaching instrument. Since I did not see the boys again after the November examination I was not able to go over this paper with them, but we reviewed their July paper thoroughly and corrected both orally and in writing. Both Standard 5's did the same paper and on both occasions, as with Group E, their results were normally distributed, though slightly negatively skewed in comparison to Group

E's results, which are set down in parenthesis for the common November exam paper: July, mean 63%, S.D. 18.4, range 22%-90%; November, mean 67% (60%), S.D. 15.2 (14.1), range 35%-91% (31%-89%). The negative skew in an internal test at this level is not a bad thing because youngsters of 12.0-13.0 are often dismayed and discouraged by a mark of less than 50% which they regard as very bad. At this stage most of the internal ratings are enhanced and it is very often only when they come to write external examinations in the High School that 40% takes on a different meaning.

There is little point in statistically analysing uncorrelated, unstandardised data, and for this reason I have not calculated correlation coefficients between July and November results. Nor have I tested for significance between the difference between the July and November means. However, I have compared the July and November percentages superficially and find that in 22 of the 35 possible paired comparisons, less than 10% separates the boys' performances on the two exams. Therefore I deduce that the two papers measure materially the same things. Consequently the improvement of 4% (63% to 67%) between July and November suggests that pupils have gained in vocabulary and command of language at least, not as much as Group E, perhaps, who advanced from 47% to 60% between September and November, but perceptibly none the less. Some of Group E's improvement must be attributed to practice effect - their November examination was styled on exactly the same lines as their August paper. But the same cannot be said for Group F - their November paper was different to their July paper in many respects (see Appendix G, p. 496). It must be remembered, too, that Group E started further back, and finished further back, on the same paper in November (60% as compared with 67%), and so the differential gains between the two groups are not strictly comparable. It would seem, however, judging from the results of internal tests, that Group F, like Group E, benefited from their developmental reading courses.

5A Boy	November, 1968 V.I.Q.	Rank Order	Vocab. P'ile	Rank Order	C'hension P'ile +	Rank Order	English Exam % ++	Position	Reading Rate in W.P.M.	Rank Order	Reading Eff'cy +++	Rank Order
F1	145+	1	82	11	83	5½	74	4	260	13½	73	9
F2	126	6	70	15	70	8½	71	7	360	6	58	11
F3	122	11	82	11	35	17	63	15=	600	1½	104	5
FF1	123	9½	82	11	84	4	68	9	180	17½	41	16
FF2	125	8	97	1	75	7	77	3	360	6	122	3
F4	121	12	87	6½	45	15½	65	13	260	13½	65	10
F5	112	15	64	17½	68	10	66	12	200	16	52	14
F6	123	9½	84	8½	95	1½	67	10	300	10	81	7
FF3	106	17	74	13	60	11½	63	15=	300	10	48	15
F7	110	16	70	15	55	13½	63	17	300	10	54	13
F8	138	2	96	2	93	3	70	8	450	3½	126	2
F9	130	4	56	19	18	19	61	18	160	19	34	18
F10	137	3	88	5	83	5½	77	2	450	3½	135	1
F11	126	6	95	3	95	1½	81	1	600	1½	108	4
F12	120	13	87	6½	70	8½	60	19	300	10	57	12
F13	126	6	93	4	55	13½	74	5	300	10	78	8
F14	103	18½	64	17½	30	18	56	20	230	15	40	17
F15	103	18½	84	8½	45	15½	64	14	180	17½	27	19
F16	118	14	70	15	60	11½	67	11	360	6	101	6
Mean	122		80		64		68		322		74	
5B												
F17B	124	2	74	5	70	2½	61	4=	230	9½	39	9
F18B	117	3	90	2	77	1	74	1	360	2	104	2
F19B	116	4	80	3	35	8½	61	4=	300	5	60	5
Ab9	84	15	36	12	6	15	40	16	300	5	45	7
Ab10	100	10	64	7	42	7	48	9	230	9½	44	8
F20B	103	7½	64	7	60	4	55	8	a	a	a	a
F21B	106	5	64	7	17	11	58	6	300	5	75	4
F22B	105	6	56	9	35	8½	47	10	450	1	126	1
FF4B	82	16	15	14	4	16	44	13	200	11½	8	15
FF5B	94	14	28	13	13	12½	45	11	300	5	51	6
FF6B	98	11½	78	4	50	5	62	3	200	11½	28	11
FF7B	96	13	4	16	13	12½	41	15	95	15	10	14
FF8B	102	9	44	10	33	10	57	7	130	13½	16	13
F23B	130	1	95	1	70	2½	68	2	260	8	83	3
F24B	103	7½	15	15	12	14	43	14	130	13½	18	12
F25B	98	11½	40	11	43	6	45	11	300	5	33	10
Mean	104		53		37		52		252		49	

TABLE 28

\+ This is an average of Percentiles achieved on Paragraphs and Sentences sub-tests on S.A.S.R.G.T., Form B.

++ Both classes sat the same internal examinations from which these percentages are derived.

+++ Efficiency = $\frac{\text{Rate x Raw Comprehension}}{100}$

As can be seen there is a broad measure of agreement at all levels between ability, achievement in reading and in written English, and reading rate and efficiency. Where there are marked discrepancies there is a good reason for them. F9 is Afrikaans-speaking at home - hence the difference between his ability and achievement; F2, F3, FF3, FF4B and F25B are all inefficient readers at this rate and when their comprehension scores are taken into account their Rank Orders fall 5, 3½, 5, 3½ and 5 places which puts their reading efficiency ratings more in line with their performance elsewhere; on the other hand, F1 and FF23B are efficient at this comparatively diminished rate, and their efficiency Rank Orders are 9 and 3, which again accords with their performance elsewhere. The Product-Moment Correlation Coefficient between V.I.Q. and Reading Efficiency is .606, and between the English Exam and Reading Efficiency is .601, which is of the same order as the correlations set out in 3.3 (see p. 76). So there is a similar positive relationship between linguistic ability, as measured by the N.S.A.G.T., and Reading Efficiency, as calculated according to the above formula, and between the internal English Examination and Reading Efficiency.

At this juncture I quote from a report submitted by the teacher who shared the English teaching with me during the second and third terms, 1968, in the two Standard 5's at School F:

> "As the year progressed the beneficial results of Mr Pienaar's experiments became increasingly evident, especially as regards vocabulary enrichment amongst the lower Stream boys.... Much improved facility in reading aloud could be noticed. Boys who had formerly read with great difficulty, e.g. FF4B, FF8B, Ab.9, F24B, became increasingly more adept at oral work and reading aloud. Amongst the A-stream boys the most startling results were in the written work division. A veritable 'blossoming forth' of creative writing bears ample witness to this. Boys with natural ability not only had their communicatory tools sharpened but also - and most important - were actively encouraged to produce creative writing of a spontaneous nature. Improvements in both output and technical facility in boys of the calibre of F1 and FT2 were apparent. Mr Pienaar's methods undoubtedly stimulated interest and motivation. For example, two boys, F12 and Ab.9, who had formerly been indifferent pupils, became keenly interested in creative verse-writing. Several poems written by these boys were subsequently published. (F12 is the boy already referred to above, who gave up writing poetry because he found it incompatible with rugby. I refer to the boys by their coded designations so that the reader may refer to Appendix A, p. 461, to check on their "performance profiles".)
>
> "During the past six months (January-June) I have been teaching History to the lower of the two streams on which Mr Pienaar conducted his experimental work. I have noticed that the general standard of literacy has been superior to that of the same stream which I taught in 1968."
>
> A. Lemmer, July, 1969.

This sort of statement may not prove anything, but it does suggest that boys enlarged their vocabularies significantly, and that this directly benefited their reading, and their oral and written fluency. It also lends support to the synthetic, eclectic approach to the teaching of language.

The examination papers appear in Appendix G, and there is no need for me to discuss them here. However, I would like to quote four examples of responses from Ab.9 and F24B, both boys mentioned in the report above as being amongst those who had gained conspicuously from the experiment, because they exemplify the lowest levels of ability and language experience with which I had to deal, and because their answers show how difficult it is to set an examination paper for such a wide range of ability. Ab.9 corrected the sentence, "The St. Andrews player booted the ball on with a prominent nose" thus: "The St. Andrews player had a prominent noise when he booted the ball on." When he was asked to put fifteen out of twenty words into clear and vivid settings to bring out their full meaning he put all his adjectives into the same boat and launched it forthwith: "That night the sea was dismal, dank, gaunt, ominous and awry it was a relish sight." F24B corrected the sentence "People which live in glass houses shouldn't throw stones" thus: "People which live in houses with lots and lots of windows shouldn't throw stones." When asked to complete the narrative passage by choosing fifteen of twenty given words to fill in the blanks, he wrote amongst other things, "The gruffy sun shone tautly.... miraculously he stumbled across the only water within miles, a brackish poised pool surrounded by a few corpulent palms...." Ab.9 scored 42% on this paper, while F24B scored 40%. They both beat 3 other boys in the Standard 5B. If examinations serve no other purpose they certainly show the teacher what he has failed to teach effectively!

5.7 Questionnaires

As at School E I set the boys at School F two questionnaires, the first being for boys whom I taught in the two Standard 5 Experimental classes, and the second being for boys in Standards 4, 6, 7 and 8 who worked in the Reading Room with other teachers. Some questions which dealt with the E.D.L. devices and programmes themselves were common to both, while others, which related mainly to the extension periods, were peculiar to the Experimental Group questionnaire. I will review the Experimental Groups's responses first. Then I will review the other classes' replies, distinguishing between the different classes because their responses vary according to their developmental level to some extent. Also the Standards 4, 6 and 7 were taught by a different teacher to Standard 8 and this could have influenced their attitudes to the course.

I have already dealt with Standard 5's answers to questions 1-7 in 3.5. Their responses to question 8 are tabled below (see Table 29). The two classes completed the questionnaire separately under my supervision in two successive periods, so there was no possibility of collusion. Their preferences under both (a) and (b) are very similar, and where they differ there are good reasons. 5B did not feel that "Written Comprehension" had done them as much good as did 5A, and they were probably right (see their comments under 5.5 and their responses to questions 16 and 17 hereunder). On the other hand they rated "Tach-X words" as having done them more good than did 5A. Once again they were probably right: since they started with smaller vocabularies than their colleagues in 5A more of the words that they encountered in Tach-X sessions were new to them and consequently they stood to gain more than boys in 5A, in theory at least. In practice, however, responses like Jimmy's in the July examination (see 5.6, p. 299 above) show that their limited ability and restricted language experience handicapped them in making new words used words.

8. "Put these down (a) in the order in which you liked them, and (b) in order of the good that you think they did you: (i) Written Comprehension from Controlled Reader (ii) Oral Comprehension from Controlled Reader (iii) Tach-X numbers (iv) Tach-X words (v) Word Cricket (vi) Logo Lotto (vii) Free Writing (viii) Other (you say)."

(a)

Activity	Std.5A Votes[1]	Std.5A Rank	Std.5B Votes[2]	Std.5B Rank
Word Cricket	141	1	97	1
Logo Lotto	137	2	95	2
Free Writing	106	3	59	4
Tach-X Words	82	4	74	3
Oral C'hension	69	5	56	5
Written C'hension	64	6	39	8
Tach-X Numbers	63	7	54	6
Silent Session	34	8	29	9
"Dylan Thomas"[5]	11	9	-	-
"Sounds at Night"[6]	-	-	46	7

(b)

Activity	Std.5A Votes[3]	Std.5A Rank	Std.5B Votes[4]	Std.5B Rank
Written C'hension	117	1	64	5
Word Cricket	101	2	82	2
Free Writing	100	3	67	4
Tach-X Words	97	4	99	1
Logo Lotto	89	5	68	3
Oral C'hension	77	6	59	6
Tach-X Numbers	48	7	50	7
Silent Session	29	8	21	8
"Sounds at Night"[6]	7	9	20	9

TABLE 29

1,2,3,4. "Votes" were accorded points, starting with 8 or less points, depending on the number of choices listed, for a first choice, seven, or less, points for a second choice, and so on down to one point for a last choice, whether it was eighth or fifth of those listed.

5.6. "Dylan Thomas" and "Sounds at Night": see 5.5 , p. 272 above.

In answer to question 9, "Do you think the Lab sessions have improved your written English? Yes/No. If 'yes', what makes you think so?", 9/20, or 45% in 5A, and 9/15, or 60% in 5B, answered in the affirmative. These were some of the reasons given: "Yes: in learning new vocabulary, and quickening my senses, at seeing a word"; "It's helped me in putting my pieces of writing together properly and taught me how to use fiery words"; "Yes, because they give you knew ideas for writing"; "It makes you consentrate more"; and the inevitable, "Yes it has because my English marks have come up buy about 15%."

In answer to question 10, "Do you think the classroom sessions have improved your written English? Yes/No. If 'yes' how?", the division virtually disappeared in 5A (19/20, or 95%, answered yes), and diminished noticeably in 5B (10/15, or 67%, decided that they had). The reasons that those who answered in the affirmative to both questions gave often differed from question 9 to question 10, as the following exemplify: "Yes. I'm learning to write free verse"; "I think it is fun writing, using certain new words in loggo lotto"; "Yes. Because when playing Logo Lotto and Word Cricket we help each other by the different sentences we make up and the explanations of many words" (this underlines the need for supplementary oral work, and demonstrates that children can and do learn a lot from one another in a flexible, child-centred learning situation); "Yes. It's also helped me in putting my pieces of writing together so as to make a good story"; "Yes, mainly because of the descriptive adjectives"; "Yes. Because we saw other children's mistakes and that helped us to learn from them" (see Appendix I, p. 519). Amongst those who answered "No" to question 9, but "Yes" to question 10, these were four of the reasons given: "Yes, I think because of learning to write poems etc. and being able to write our own work" (what he is getting at here, I think, is the way that sutdents were encouraged to write freely and spontaneously whenever they had something to say, regardless of whether or not I was on hand at the time); "I think that class sessions has improved my written English because I am now writing much better compositions"; "Yes. Because things are explained in a way you can understand, vividly" (this from F1, the author of 'As time goes by'); "Yes. It has made us regognize new words, and to use them in creative writing." I think the greater percentage who felt that the classroom sessions had benefited their written English, together with the reasons quoted above, lend support to my contention that imaginative, purposeful and enjoyable extension work is necessary to reinforce the developmental reading programme, and integrate it with the total English Studies programme.

In answer to question 11, "Do you think the Controlled Reader has made you a better reader? Yes/No. If 'yes', how?" only 8/19, or 42% in 5A, but 10/15, or 67% in 5B, thought that it had. However, quite a few boys gave good reasons for feeling that they had improved: "I think the Controlled Reader has improved my reading very much, and it has also improved the alertness of my eyes"; "Yes. Because I learn to concentrate more now" (in my view this is probably the main benefit to be derived from the Controlled Reader); "Yes, it has encouraged me with my own reading so I could read faster and I could keep up with Controlled Reader"; "Yes a little. It has made me take more interest in what I am reading and I want to read more" (if it motivates students to read more on their own, as these two boys suggest, then this must be another important point in its favour); "I was very gerky and now I can glide along with ease" (the same lad says elsewhere on his questionnaire, however, "I can read faster but it hurt my eyes.... and it gives me a headache"); "Yes it has when I see a hard word I can read it" (the Tach-X machine must take a large measure of credit where vocabulary enlargement is concerned).

One boy in 5A said that he was not sure whether or not he had improved, deppite the periodic timed tests reading directly from the Study Guide, and the results of my speed-com-comprehension tests in August and November, all of which were discussed with the boys subsequently. In fact they worked out their own reading rates, comprehension scores and efficiency ratings on the former. Nevertheless it must be admitted that these criteria have their shortcomings: for one thing speed in individual cases can fluctuate quite considerably from one short ± 1000 word passage to another, and for another comprehension cannot vary much on a short 10-point scale made up entirely of multiple-choice items. What is needed are standardised pre-tests and post-tests of vocabulary, comprehension and rate to measure increases in efficiency accurately. The results of these should be discussed with the boys, and the meanings of such terms as Reading Ages and Standard Scores

explained to them, or their results interpreted to them in a form which they can readily understand, so that they can really see what progress they have made. I firmly believe that children of this age need to know how they stand so that any progress they may make spurs them on to greater efforts. In fact this lad appeared to make some progress in Vocabulary - Standard Placements/Percentiles, 13.5/68 (May), and 13.11/78 (Nov) - but apparently regressed in Comprehension - Standard Placements/Percentiles in Paragraphs and Sentences, 15.6+/95 and 14.9/86 (May), and 11.11/30 and 11.6/30 (Nov.). The improvement in his V.I.Q., however - 109 (May) and 122 (Nov.) - when taken in conjunction with the improvement in Vocabulary, casts considerable doubt on the validity as well as the reliability of his Comprehension Standard Scores. My criticism of the test instruments (see 3.3 , pp.77-86) has reference here.

The lad himself had this to say in elaboration: "I have always been rather a fast reader and I could read quite well before." When he read directly from his Study Guide he attained speeds of 430 w.p.m. (1/7/69), 375 w.p.m. (6/8/68), 420 w.p.m. (5/9/68), 460 w.p.m. (8/10/68), 410 w.p.m. (10/10/68) and 520 w.p.m. (18/11/68). On my two tests he read at 360 w.p.m. (12/7/68) and 600 w.p.m. (19/11/68). He therefore appears to be a habitually fast reader and reads considerably faster than the average American Junior High School pupil, who is said by E.A. Taylor to achieve a speed of 255 w.p.m. (see 5.3, p. 231). In fact, according to the same paper (Taylor, 1957, p.5), he reads faster than the average American High School pupil, who reads at 296 w.p.m. and the average American College student, who reads at 340 w.p.m. The fact that this lad did not improve significantly in rate, although at these high speeds he predictably fluctuated considerably, accords with the findings of another piece of research which I have already discussed in detail (see 5.3, pp. 237-41):

> "When the individual reading scores of the handful of fifth-grade pupils who read very rapidly (above 300 words per minute - author's brackets) were examined, it was discovered that all of these either scored lower, or nearly the same, on the <u>after</u> test than on the <u>before</u> test."

(The Chicago Reading Test, which measures speed, comprehension and vocabulary, was used for both pre-tests and post-tests, different parallel forms of the same test being used "before and "after".)

Bottomly, 1961, p.7.

In answer to question 12, "(a) What is the optimum speed of the Controlled Reader for you? (b) Do you prefer to read through the slot, or the open line?", the mean speed preferred in 5A was 320 w.p.m. (range 240-400 w.p.m.; mode 300 w.p.m.), while in 5B it was 290 w.p.m. (range 150-360 w.p.m.; mode 350 w.p.m.) In 5A 12 boys, or 63%, preferred the open line, while 7 boys, or 37%, preferred the slanted "window". I was surprised to find that the majority of boys in 5B, too, preferred the open line, 9/15, or 60%, as against 6/15, or 40%. I had thought that with the slower, more hesitant readers the slot moving steadily over successive lines of print would train the eyes to "slide" easily and systematically from left to right, thus eliminating regressive eye movements and facilitating perception and interpretation. By contrast reading on the open line does not train eye-movements and when the speed is stepped up the reader is required to "snatch at" words in order to follow the argument. Once the reader falls behind on the open line he is inclined to get confused and discouraged and read wildly, sometimes losing the thread completely. I can only conclude, therefore, that at a setting of 340 w.p.m. on Grade 5-6 material, the majority of pupils in 5B were not being over-extended. However, it is significant that 3 of the 4 slowest readers in the class preferred the slot to the open line. One boy in 5A who averaged 300 w.p.m., put "both", which suggests that the faster readers adapt equally well to either exposure, and that it is as well to alternate the two because it encourages flexibility and probably facilitates transfer in reading from the machine to reading directly from the printed page.

In answer to question 13, "Do you think the Controlled Reader has made you a faster reader? Yes/No. If 'yes' (a) how much faster? and (b) how has it done this?", 9/19, or 47%, in 5A and 7/14, or 50%, in 5B thought that it had, and the mean estimate of the increase in speed was 50% for both classes. As I have already said (see 5.6), I do not believe that the Controlled Reader does significantly increase the reading rate of the majority of pupils, and a number of these boys obviously agree with me. Only 3 boys thought that it had accelerated their reading rate "a lot". These were some of the more cogent reasons given: "By teaching the eyes of a person to move faster"; "The open line moves along at a faster speed, and I am forced to read faster"; "When I read or follow other boys reading I find I go far ahead of them, also I understand more easily when I read fast"[1]; "My eyes have been following the controlled reader and have got used to the speed. When I read a book now my eyes follow the words just as fast"; "By reading a lot and if you practice you naturally do better"; "I think by forcing your eye along and then you just do it naturally"; "Because it makes me consentrate more than I used to." One lad who answered in the negative wrote, "No. Because I'm used to reading at a set speed."

Question 14 put the matter of cheating before the boys: "Have you ever cheated on any aspect of 'Rapid Reading'? Yes/No. If you have ever cheated, do you think that you learnt less because you cheated? Yes/No." As with boys working on S.R.A. Laboratories at School E, and the boys working on Double-Up at Schools AB, C andG, the vast majority owned to cheating at some time or another. In the Experimental Group at School F 18/19 boys, or 95% in 5A, and 13/15 boys, or 87% in 5B, admitted cheating, but 8/18

[1] "In addition the average rate of reading for the students increased from 272 words to 474 words a minute with marked improvement in comprehension.

Braam and Sheldon, 1959, Introduction.

"The investigator and teachers found that the reading speed and comprehension of the students increased hand-in-hand."

Beckley, 1963, p.12.

in 5A and 7/13 in 5B who affirmed that they had cheated felt that they had not learned less as a result. Presumably they either cheated to confirm an answer, rather than to inform themselves in complete ignorance; or they felt that they learned as much by cheating as they would have by honest means; or they decided that cheating to gain marks in contextual comprehension (working from the Controlled Reader) and to gain marks in the recognition of words (working from the Tachistoscope) either did not teach them anything that they did not know already, or was not of sufficient consequence to leave a memory trace. Of the three alternatives suggested I favour the third. At the time it is as well to know that "Madeleine had left the fort in order to ...c. get water for the fort" (Controlled Reading Study Guide F, p.107), but this piece of intelligence is not likely to be long retained because it has no functional value outside the exercise in which it occurs. There is of course more permanent functional value in vocabulary building exercises, particularly if meaning is stressed, and new words met in Reading sessions are followed up in Extension (Oral and Written) sessions, but even here the private language of many pupils is so severely restricted that they seldom exercise their new-found knowledge, thereby entrenching it. It is only in the rather artificial classroom situation that they use their new words in comparatively forced and stilted contexts. Classroom usage is what Bernstein calls public language and this "best speech" is often so different from ordinary, colloquial speech that it excludes itself as an effective mode of communication. I am not suggesting that these boys would have been less inclined to cheat if they had felt that what they were learning was more useful. I am only suggesting that many of them did not feel that they had learned less as a result of cheating because they sensed that the facts they needed to know immediately to score marks bore little relation to the long-term skills that they were acquiring independently of the facts.

> "'Of education information itself is really the least part' (Butler)."
>
> Durham, 1969, p.40.

In answer to question 15, "Did the use of colour on the black-board help you in any way? Yes/No. If 'yes', how?", 13/19, or 68% in 5A and 6/15, or 40% in 5B felt that it had. These were the two reasons given by those who answered in the affirmative: "I can always remember that 'red' means 'verb'" (the main purpose of using colour was of course to mark the function of words in meaningful contexts); "Because it made the words look so luminous and they didn't look so drab and dreary as normal words do."

Question 15, "What benefits not mentioned above have you derived from 'Rapid Reading'?", evoked the following responses: "I have learnt many interesting facts from the stories"; "I have learnt quite a lot about American States and so improved my general knowledge"; "Rapid Reading has improved my handwriting. (See Appendix K, p. 524). The tach-X has definitely improved my spelling"; "I am more independent in the writing of compositions and poetry"; "Enjoyment"; "Taking notice things around me e.g. Nature"; "In the Rapid Reading where the teacher askes questions after all the paragraphs" (he is referring to the Oral Comprehension passages); "I like free writing because I like expressing my feelings in words"; " It has made my eyes follow the story. When theirs a noise you don't wander off any more"; "It has made my talking better and I speack more fluently. When I first came I stumbled now I am all right the words that I have whritten in my file have helped me because I have learnt words which I have never heard in my life before" (this from Ab.9 referred to in the English teacher's report under 5.6 above); "My writing has improved and I can write poetry quite easly now. The words just come to my mind. Another thing is my consintraction and my Vocabulary of words and I have enjoyed all the sessions."

I received some forthright and sensible comments and suggestions in answer to question 17, "Have you any other comments or suggestions?": "I think one Graphy and Histor would benefit me more" (one must try to avoid "stealing" periods that students like in order to fit a developmental reading course in);

"I think the class should be devided for the slow and the fast, we should also have more time and a completely new lab, new desks and it must be made in the junior school" (the latter part of his suggestion has been acted upon in 1969); "I wish we could split the class up into two for the Rapid Reading. I enjoy the walk up in the sun and the cool air. (You obviously cannot please all the customers all the time!) I wish the desks did not slant so much. (Their cluttered files were always cascading to the floor.) I wish the class next to us would keep quiet" (as I pointed out, however, and as at least one student seems to have appreciated from his response to question 15 quoted above, working through noise sometimes is a good discipline and helps to strengthen concentration); "I suggest we should have a chart on which each pupil can score marks for the work he does"; "I don't like these periods thats why I haven't profeted from them" (this boy was one of the slowest readers in the class and lacked language experience; in addition he showed no enthusiasm or perseverance; so not only was a setting of 340 w.p.m. on the Controlled Reader too fast for him, and many of the words projected through the Tach-X beyond him, but also, since he expected to be defeated by both the machines and the material in the first place, he ended up by more or less disengaging); "I have a comment to say. It has heart my eyes so much already."

The remaining boys in Standards 4, 6, 7 and 8 who completed the second questionnaire were made up as shown in Table 30 below. Noticeably the average age of the boys increases between the A and B streams, and again between the B and C streams. There were only 2 Standard 7's and it is significant that the A class had no time to spare for the reading machines. Also significant is the fact that the B and C streams in Standard 8 spent more time in the Reading Room than did the A stream. No doubt this was because the boys in the A stream worked to a more crowded curriculum, and were in any case more efficient readers and therefore did not need as much reading practice and vocabulary extension as the boys in the slower streams.

	Std.4	Std.6				Std.7	Std.8			
	One Class	A	B	C	Total	B	A	B	C	Total
Numbers	23	23	22	17	62	22	25	27	18	70
Av. Age	12.1	13.9	14.0	14.3	14.0	14.8	15.8	16.5	16.8	16.3
Length of E.D.L. Course	9 mths ± 45 periods	9 months ±45 periods				6 mths ±30 p'ds	9 mths 18 p'ds	1 yr 27 p'ds	9 mths 30 p'ds	- -

TABLE 30

The answers to questions 3, 4 and 5 are tabulated below (see Table 31). One cannot draw any definite conclusions from these figures because they are the result of opinions rather than factual statements. Nevertheless what the boys think they have achieved, and what they believe they can now do, is pertinent because in the teaching situation the training of attitudes is as important as the development of the intellect. If a student feels that he has made progress it indicates that he probably has made, or will make, real progress. Conversely if he feels that he has got nowhere the chances are that he will not have made, nor will make, significant progress.

3. Do you think "Rapid Reading" has made you a better reader? Yes/~~No~~. If 'Yes', how?

Std.4	Std.6				Std.7	Std.8			
	A	B	C	Total	B	A	B	C	Total
21 (91%)	9 (39%)	12 (52%)	12 (71%)	33 (53%)	12 (55%)	18 (72%)	22 (82%)	17 (94%)	57 (80%)

4. Do you think "Rapid Reading" has made you a quicker reader? Yes/No. If 'yes' what makes you think so?

18 (78%)	16 (70%)	12 (52%)	16 (94%)	44 (71%)	12 (55%)	19 (76%)	25 (93%)	15 (83%)	59 (84%)

5. Has "Rapid Reading" improved your written English? Yes/No. If 'yes' how?

13 (61%)	7 (30%)	8 (36%)	7 (41%)	22 (35%)	11 (50%)	12 (48%)	13 (48%)	9 (50%)	34 (49%)

TABLE 31

Clearly the majority of pupils in all four classes feel that "Rapid Reading", and in particular practice on the Controlled Reader, has made them faster, and more effective readers. Boys in the B and C streams seem to feel that they have gained more than boys in the A streams, which accords with the opinions of boys in Standards 5A and 5B. Their reasons below bear on this point. Summing up I would say that boys in the B and C streams have more leeway to make up, particularly in regard to vocabulary, speed and fluency, and therefore more of them feel that they have made progress, and considerable progress at that, than their colleagues in the A streams. The difference in teachers may account for Standards 6B's and 7B's responses to questions 3 and 4 differing from Std. 8B's responses to the same questions.

Those who felt that "Rapid Reading" had made them better readers gave the following reasons: in Standard 4, "Because I can scim the word"; "It has made me a much better reader and I read much more"; "It makes me pay more atension"; in Standard 6A, "In that I pick up more out of a story than I used to"; "It has made me more fluent and I don't stutter as much"; "I remember the book better when I've read it. I also understand it better"; in Standard 6B, "It has made me able to read without going back to the beginning of the sentance to find out what I've read like I usto"; "It makes me remember the story a bit better"; "It helped me comprehend to what I read"; "It has increased my interest a lot"; "I get much more enjoyment out of a book"; in Standard 6C, "I find that I read without having to stop and go over the paragraph. I can take in a lot more"; "Yes because I take in much more and rember easly"; in Standard 7B, "I am able to read with out jumping around the page. It also help me to read with more ease"; "Better concept of English, and has made my mind clearer, has helped me to remember facts - and has speeded up my book reading speed"; in Standard 8A, "I can scan the reading better now"; "I have been able to read much faster and accurately since I started"; "It has sort of trained my eyes to take in everything";

"It has made me concentrate and trained my eyes to run rythmically from left to right"; "It makes my vision sharper"; "It increases your reading rate and enables you to 'pick out' the words quicker when you read them"; in Standard 8B, "Yes. It has helped me to read fluently and quickly, and being able to remember what I have read"; "Yes. It has trained my eyes to swing from left to right and has also stopped me from moving my lips"; in Standard 8C, "Yes. It has taught me to read faster and not dawdle over one word"; "Yes. It has...made me think quicker and read quicker. It hurries you so you try to read faster"; "Yes, it has got me to read in a systematic way."

Those who felt that "Rapid Reading" had not made them better readers gave the following reasons: in Standard 6B, "Not really. I have always liked reading and it hasn't helped me at all"; in Standard 7B, "No. Can't read it probaply"; in Standard 8A, "No! I do not think so because the class speeds are too fast for me." One boy gave a paradoxical answer: "I can read a little bit more easlier not because of the reading machine though" (Standard 6B). Another qualified his response: "Yes, but not very much better. The rest of the class has advanced too fast for me" (Standard 8B).

The boys who decided that "Rapid Reading" had made them faster readers made these points: Standard 4, "Because the machine will not go back over a word you miss and soon you get used to not leaving out words"; "I can read a library book in the set time in sted of taking it back late and paying a fine"; Standard 6A, "Been reading more books and remembering all of them"; "We know that the scanner travells at a certain speed - and so imagine that while we are reading we imagine we have a scanner in the book"; "Because I can read a 200 page book in 11 hrs. whereas I could only do it in 16 hrs"; Standard 6B, "Well, it has made my eyes spot words quicker and then know the meaning of the word, what the word is, quicker" (this lad is thinking primarily of word work on the Tachistoscope, I think);

Standard 6C, "I think this because my graph has been showing this"; "Well before I could only do 5 pages in about 15 minutes now I can do it in about 5 pages in 10 minutes"; Standard 7B, "I'm able to read more in less time"; Standard 8A, "The controlled sweep from left to right helped a lot"; "We started off at a low speed which was fairly difficult to read. Then we went very high, and I couldn't read it well. When we went back to the slower speed, it was simple to read"; (whether or not this boy actually accelerated in reading directly from the printed page, as a result of practice on the Controlled Reader, he felt that his ability to process data at a certain speed had increased, and so his confidence was boosted); Standard 8B, "It has speeded me up because I only read a word once, and don't go back to check up"; "I have got out of the habit of reading a passage over again to understand it"; "I often get some one to time me for a minute while I'm reading. I then count how many words I read in a minute. My number of words has definitely increased"; "Yes, 60 words per minute faster, I seem to be more at ease when I read"; Standard 8C, "The speeding up is due to the fact that concentration is essential" (my emphasis); "Yes. Before I use to read slowly and never had any competition. Now I have competition to see how fast I can read and how well I can understand it to answer the questions." From the foregoing remarks it appears that a number of students are newly conscious of their reading habits and watch themselves reading with a new alertness and purpose. They seem to have internalised some of the systematic viewing and urgency of the Controlled Reader sessions.

The students who felt that "Rapid Reading" had made them very little, if at all, faster made these remarks: Standard 6B, "Slightly, I think the machine has helped a little bit but also getting more knowledge as you grow older" (this pupil seems to be aware of the importance of growth, and maturation in the educational process); "Rapid Reading makes you miss many words and it hasn't helped at all";

Standard 6C, "A bit faster but can't remember much" (perhaps what is needed here is additional training in flexibility: this could be done by projecting at different speeds material which varies in both content and level of difficulty; or by working directly from the printed page, and training the students to adjust to different reading materials in different ways); Standard 7, "Not much. It is too fast for my liking" (of course this is not so much a criticism of the Controlled Reader as of the way it was used, however difficult it may have been to use it in any other way); Standard 8A, "It has only made me quicker in that I do not have to go back on things I have read"; Standard 8B, "Not allowed to go slow and enjoy your reading." (To my mind this is the most important objection of the lot: if you are the sort of person who likes to savour words then the inexorable mechanical insistence of the machines becomes both irritating and frustrating.)

Those who believed that "Rapid Reading" had improved their written English gave these reasons: Standard 4, "It has because I used better words"; "By helping me spell better"; "Helps me in composions a lot"; Standard 6A, "Yes. Seeing how words are used and also punctuation"; Standard 6B, "It has improved my spelling and comprehension. And it has improved because I can put sentences together better than before"; Standard 6C, "Helped to be able to pronounce difficult words and given me good meanings"; Standard 7B, "Have learnt new words, as well as certain facts from the stories"; Standard 8A, "Yes it has, in that I can now spell a lot more words, and I know the meaning of many more words"; Standard 8B, "It has introduced to me good English"; "Yes, only a glance is needed to spell a word correct"; "It has taught me to concentrate and to think before I write"; "I should think so because I can write faster and a lot easier without having to think about my next sentence in too much detail"; "Yes. The vocabulary befor the reading has helped. Especial when you see the words later on the screen used in sentences"; Standard 8C, "The spelling of words has but not the actual reading machine"; "Yes. It has helped me to think more clearly beforehand what I am thinking of and how to put it to paper quickly." The more numerous and better reasons advanced by the Standard 8's, in comparison to those advanced by the Standard 6's and 7, is a tribute to the teacher rather

than to the material, or the machines. As far as the machines and the programmes are concerned it is the Tachistoscope and word exercises which are mainly responsible for the growth in vocabulary which many boys mention. When the exercises are intelligently presented and interestingly varied there is no doubt that Tach-X word drill does promote significant gains in vocabulary (see 6.3, p. 339). No doubt sessions on the Controlled Reader consolidate these gains, but in my opinion it is the Tachistoscope which is primarily responsible for producing them.

The answers to questions 6, 7, 8 and 9 are tabulated below (see Table 32). The dashes indicate that these classes had no experience of the Comprehension Power Series C-6, and therefore could not express an opinion about the enjoyment or worth of oral comprehension. When you only have a class for 1 or 2 periods a week in the Reading Room there is hardly time for oral comprehension. Nor is there the same need for it to provide variety, and opportunity for discussion (see the points made hereunder by individuals who felt strongly about the tedium of repetitive exercises). Standard 8A had only one period per week in the Reading Room and there can be little doubt that their limited time was most profitably spent on word drill on the Tach-X and silent reading comprehension on the Controlled Reader. Yet it is noticeable that no less than 13 of the 21 negative votes cast in answer to question 9 went to "Repetitive and tedious exercises", and that after only 18 periods in the Reading Room, and with a dynamic teacher in charge into the bargain. In answer to questions 6 and 7 these lads in Standards 4 and 6 say that they enjoy oral comprehension exercises for the following reasons: "I enjoy it most because we can discuss it after each paragraph. And it has a story"; "I like discussing the story and asking things that I don't know"; "I like it because it has some shape and it goes slower.... It was talked about and I could remember the facts"; "You can give your own views on the Topic"; "I enjoy reading exiting

stories, and I can follow the words more clearly because it is slower"; "I prefer oral exercises as you have a break between each paragraph to rest your eyes and don't get tired of the same old thing"; "Because we don't have to concentrate so much." (There is no doubt that oral comprehension is not as exacting as silent reading with written comprehension, and it certainly provides welcome relief for the less able student, particularly after a concerted session on the Tach-X. As one boy in Standard 6B said, "The oral exercise because it is the easiest.")

If further evidence of its efficacy and popularity was needed it is provided by the stated preferences of boys in Standards 5 and 6. In Standard 5A and 5B it ranked only after Tach-X word drill in popularity, if classroom activities are omitted; while the same boys rated it nearly as useful as written comprehension exercises and word drill (see Table 29 on p. 301). In Standard 6 it scored more votes under question 6 than either Tach-X word or number drill, and under question 7 it is rated to be more useful than Tach-X number drill. Clearly, therefore, there is a place, and a need, for oral comprehension exercises, particularly in the concentrated E.D.L. course where variety is at a premium.

It appears that Tach-X word drill is considerably more popular with the Standard 8's than with the Standard 4's, 6's and 7's. It is also more popular with the Standard 5's (see Table 29 on p. 301) than it is with the Standard 4's, 6's and 7's. This is mainly due to the way that that part of the lesson was handled, rather than to what was actually projected, or to differences in outlook, expectations and maturity of pupils, I think. The projection of digits and words requires thoughtful, thrustful "follow through" on the part of the teacher more than the projection of the stories does because the stories are entertaining and self-sustaining on their own.

To some extent no doubt I led the pupil's responses, particularly in questions 8 and 9. I doubt whether I would have got much response from the lower classes and the slower streams had I not made some specific suggestions, and it is noticeable that

not many boys found it necessary to go beyond the suggestions that I offered them (see individual divergent responses below). No doubt this is one reason why "Repetitive and tedious exercises" gets such a chorus of opprobious response. However, it does seem safe to assume from the overall considerable majority for "Stories" under question 8, and for "Repetitive and tedious exercises" under question 9, that these are respectively the most and least favoured aspects of the Reading Room sessions. The latter majority adds emphasis to my plea for variety in these machine-centred lessons, and for the inclusion of oral comprehension material as a needful leaven in a highly concentrated loaf. Likewise Controlled Reader written exercises and Tach-X word drills emerge with clear majorities in questions 6 and 7, with Tach-X word drills and Controlled Reader written exercises being clear runners-up in each case, so that their enjoyment and worth in the students' eyes cannot be gainsaid. The Controlled Reader oral comprehension exercises would certainly have come into the popularity reckoning if Standards 7 and 8 had been exposed to them, and Standard 4 given more then a taste of them, but it is unlikely that they would have displaced either written comprehension or word drills in the pupils' estimation of usefulness.

Tach-X number drill is rated both popular and useful in Standards 6, 7 and 8 and I put this down in part to the teacher and in part to the aptitudes and interests of the pupils: for example in Standard 6A the one boy who professed to prefer Tach-X number drill more than any other exercise did so for a negative reason, "I prefere the number drill because I can't keep up with the Controlled Reader written exercises." In Standards 6B and C there were a number of boys who also preferred numbers for similar reasons: "It has made me see nos. much quicker"; "Number Drill because it has improved my alertness in taking down a car number"; "I got the best marks for number drill"; and "I remember numbers best." In Standard 7B these reasons were given: "Exesises eyes";

"It increase the speed of my eye"; and "It improved my concentration." The Standard 8A's who opted for numbers gave more cogent and positive reasons: "Because I can now look at no. plates once and I know the number, also it keeps you wide awake"; "It trains you to be observant and is more fun"; whereas the boys in 8B and 8C said that they liked number drill for the following reasons: "I like the number drill for there is no spelling to do"; "Because I am more capable with figures"; "Because it gives you a will to beat your neighbour"; and, eloquently, "Number drill! I win a game of seeing a car's number plate on the road (in answer to question 6)....Number drill! I cannot read well (in answer to question 7)." Just as oral comprehension serves as a leaven in the loaf, so number drill affords the less able pupil a chance to succeed in competition with his brighter classmates. Both have their uses, but not quite in the way that the authors of E.D.L. intended, perhaps.

A surprising number of boys in Standard 6B - 12 in all - criticised number drill under question 9. Two boys elaborated: "The Tach-X number drill, and they were boring"; and "Number exercise. A waste of time." Probably there was some discussion about this question which resulted in "a ripple effect". However it does suggest that the teacher must be convinced of the value of number drills, if he is going to use them, and should indicate to his pupils the practical value of time spent on them. I myself am doubtful that they serve any really useful purpose. The projection of words probably sharpens perception as much, while in addition it extends vocabulary and improves spelling, both of which virtues pupils are quick to appreciate, as these remarks, in response to questions 6 and 7, indicate: "It has got some sense in it"; "Because I like spelling difficult words"; "Because it helps me to pick up words easilier"; "Well now I can spel much better"; "English Vocabulary has always fascinated me"; "My eyes were lazy"; "Speeded up your recognition of words, and thus increases reading speed"; "Because I find that you are able to check your spelling

immediately after you have written the word"; "It gave me some idea of my common spelling mistakes as well as posing a challenge to spell new words by just glancing at them." (One lad in 6B professed to like Tach-X word drill best because "I could speel much better." Judging from his other responses his spelling was indeed execrable. Nevertheless he might have meant just what he said, namely "I could play - 'speel' being Afrikaans for 'play' - much better." This was after all a very lively class.)

I remain unimpressed by the authors' reasons (already discussed - see 5.2) for including whole boxes of number filmstrips, and other meaningless material, in their libraries. Perhaps a boy in Standard 7B should have the last word: "I was not very good at Tach-X number drill, but when a word is flashed on the screen I could get an idea of it and the rest I could spell." The Gestalt School's Law of Closure appears to be usefully operative here.

Those boys who voted for Controlled Reader written exercises in answer to questions 7 and/or 8 made these points by way of clarification: Standard 4, "I think it is more entertaining"; "Because the stories are usualy quite intresting and it is a brake from hard work"; "It is nice reading and I like to answer the questions and find how much I got"; Standard 6A, "The stories are exciting"; "Because I like reading better than doing numbers or oral exercises"; Standard 6B, "It is more fun and it has helped my General Knowledge"; "I have always been fond of small stories"; Standard 7B, "I find it more enjoyable reading than just looking at flashing numbers"; "It set a fine pace."

There were of course a small minority of boys at opposite poles who either claimed to like "None in particular", or "None. It has no value at school", or who said bluntly that they "Didn't enjoy anything"; or who were unreservedly enthusiastic, claiming to like "Everything", or saying "I enjoyed it in every aspect", though at least one lad who came out strongly in favour did so for exceptionable reasons: "I enjoyed the periods because we don't do any work." One boy in Standard 6B maintained that no aspect of "Rapid Reading" had done him any good: "None. Made a persons eyes sore." The same lad said that the only thing about the

course that he had enjoyed was "The wasting of a period." At least one other lad, a boy in Standard 7B, agreed with him: "I don't enjoy it because I am not gaining anything." Most pupils, however, were reasoned and restrained in their criticism, and made a number of telling comments.

In answer to the questions "What did you enjoy most and least about 'Rapid Reading'" various additional points were made which are deserving of note. Just as some pupils seem to prefer to correct their own work - "I like correcting myself", "Wastes time having the teacher mark it and also saves the teacher a lot of work" - there are those who prefer to have their work checked by the teacher - "I would like the teacher to see I had made progress", "I would prefer the teacher to mark the papers", "The teacher should mark the work." The happy mean probably lies in occasional teacher correction and continuous teacher interest and awareness. The majority of those who have something to say about supervision complain about over-supervision: "I do not like a fussy teacher", "Too much supervision: can't talk, read comics etc", "Too much supervision as all of the explaining and going over of instructions makes me bored." Most boys who appreciate the teacher's back turned to them do so for devious reasons: "I play to much in class", "Play around", "Because I don't pay attention." In answer to question 9 one boy in Standard 6A resented "Not being able to read the Controlled Reading guide." Presumably he found the preview tantalising, particularly if the story promised well. Then, too, many people like to ponder what they read, and this is not possible when you are being pushed remorselessly by a machine. Both Standard 6A and 6B were lively classes and seemingly discipline sometimes got a bit ragged judging from those boys' answers to what they liked least: "Too much noise made by other classmates"; "I disliked the lack of progress. Some chaps really hold up the class by being stupid on purpose. Also I think more could be done in a period."

Teaching devices do not make the management of children any easier. In response to the same question two boys, one in Standard 6A and the other in Standard 8A, made reference to cheating: "Sometimes you are tempted to cheat"; "The cheating in the class." A rather forlorn remark from a boy in Standard 6C - he liked least "The lack of progress because they were going too fast with the reading rate" - once again highlights the difficulty of determining the most suitable speed setting on the Controlled Reader for even a comparatively small group. Needless to say he was not the only pupil in these classes to complain of the speed of the Controlled Reader. One boy in Standard 7B felt that he had "Progressed very slightly because there were not enough periods set aside to become good at Rapid Reading" (at that juncture he had had 6 months, or ± 30 periods, of instruction). Another lad in the same class most appreciated "the trust reposed in you (which) gave me more confidence in myself." Also in answer to question 8 a pupil in Standard 8A said that he enjoyed the stories most, and found the periods "relaxing - different from other periods"; while a classmate found that the "Rapid Reading" periods were a "challenge to your self". A boy in Standard 8B was disheartened by "The lack of progress after so long."

The answers to question 10, "(a) What is the optimum speed of the Controlled Reader for you? _____ w.p.m. (b) Do you prefer to read with the slot, or the open line?" are tabulated below (see Table 33). I include Standards 5A and 5B in the Table so that the

	Std.4 (1 class)	Std.5 (2 classes)	Std.6 (3 classes)	Std.7B	Std.8 (3 classes)
Preferred Mean Speed in w.p.m.	320	305	390	365	400
Slot	9(41%)	13(38%)	41(67%)	9(43%)	24(35%)
Open Line	13(59%)	21(62%)	20(33%)	12(57%)	45(65%)

TABLE 33

It is interesting to compare these figures with those quoted under 5.6 for Stds. 5 and 8 (see p. 290). In most cases classes seem to read directly from the printed page at about 80% of the rate that they prefer to read from the Controlled Reader. In other words they choose to be pushed by the machine up to speeds 20% greater than they read from the printed page under timed conditions.

reader may follow the preferred reading rates through on an uninterrupted "gradient of acceleration" from Standard 4 (Av. Age 12.1) to Standard 8 (Av. Age 16.3). Standard 4 boys seem to favour a disproportionately high speed, but then it must be remembered that they were reading simpler material than the Standard 5's, 6's, 7's and 8's. Standard 6 boys also appear to have chosen surprisingly high speeds. But the boys in these classes, and the boys in Standard 4, had had considerably more practice on the Controlled Reader than either the Standard 7 or the Standard 8's (see Table 30, on p. 310). The Standard 5 boys appear slow by comparison with the Standard 4's and 6's but they were reading more difficult material than the 4's, and their estimates were probably more conservative, and more accurate, than the 6's because of the periodic tests where they read directly from their Study Guides. The boys in Standard 5A and 5B had a good idea of what their reading rates were off the machine, and probably moderated their estimates of optimum speeds <u>on</u> the machine accordingly.

Of course one cannot place much reliance on these estimates since they are no more than opinions which depend on a number of variables: for example, the teacher, the most frequent setting on the Controlled Reader, the level of difficulty of the reading material projected through the Controlled Reader, the number and frequency of practice periods, and the ages and abilities of the pupils. Furthermore these figures do not indicate what the pupils' <u>effective</u> reading speeds <u>off</u> the machines were. Nevertheless they are helpful insofar as they give some indication of what speeds youngsters of various ages and abilities feel capable of working to towards the end of a period of instruction on the Controlled Reader. As I have already suggested above (see 5.6) their effective reading speeds directly from the printed text are likely to be 2/3 - 3/4 of these rates. Therefore if the Controlled Reader is set at 2/3 - 3/4 of these speeds at the outset of the course, and built up to these settings gradually during the course, it should be possible to increase most students' reading rates, and reading efficiency ratings, by 25% to 50%, <u>while the students are on the course</u>, and provided that they are conscientious and co-operative.

With the exception of the Standard 6's most boys seem to prefer the open line, especially at the higher exposure speeds. I can only assume that the Standard 6's became more accustomed to the slot and consequently decided that they preferred it to the open line. Certainly an average speed of 410 w.p.m. in Standard 6B and 385 w.p.m. in Standard 6C cannot easily be reconciled with a preference for the slot. At this rate the slot moves so rapidly across the line that none but the most efficient readers could read more than 2-3 words per line of 6 words. Furthermore, the movement of the slot at this rate tends either to distract or hypnotise the reader, as I have already pointed out above. However, since a fair number of pupils seem to prefer the slot at any speed, the teacher should alternate the two types of exposure. If he does so it can do no harm, and could perhaps promote perceptual "dexterity".

The answers to question 11, "What do you think is (a) the optimum number of periods per week for 'Rapid Reading' and (b) the optimum duration of a course on 'Rapid Reading'", varied widely. The majority of boys in Standard 4 thought three 40 minute periods a week for 6 months would be ideal, though four boys favoured a one semester course, while four favoured either a two or three year extended course. More than half the boys in the three Standard 6's suggested 2 periods per week for one year, though here again there was considerable variation. Sixteen pupils spread evenly between the 3 classes favoured the shorter quarter or semester course, usually made up of 2-4 periods per week (generally speaking the longer the course the fewer periods per week were advocated). Two boys suggested more than 5 periods per week, and four scholars, all in Standard 6B, thought that Rapid Reading should continue "All your school career." Seemingly for one reason or another the boys in Standard 7B were not as impressed with the sessions in the Reading Room as were the boys in the more junior Standards, and the majority voted for 1 period per week for 1 semester. Those who did not vote thus mostly voted for 2 periods a week for one year.

Only one boy thought that "As much time as possible" should be devoted to 'Rapid Reading'. No doubt their comparatively diminished enthusiasm is partly the result of increased maturity and a changing outlook - boys of this age tend to evaluate education quantitatively, and by the examination yardstick - and partly an expression of the pupil-teacher relationship. The vast majority of boys in all three Standard 8's opted for 1 or 2 periods per week spread over a year. Two boys, one in Standard 8A and the other in Standard 8B, indicated that if they had their way instruction on the two devices would be abandoned altogether.

The overall consensus therefore favours the longer, less concentrated course, which runs counter to the ideas of E.D.L. programmers, who advocate short, intensive crash courses of 12 or so weeks duration, working for at least 30 minutes a day for 5 days a week on the two devices. Having now used both machines myself, and having experimented with different programmes, techniques and methods, and having watched two other teachers at work in the Reading Room, I am dubious as to whether it would be possible to sustain pupil interest and attention in a concentrated course of this kind. Not only do the majority in all classes favour an extended course, with only one or two periods per week in the Reading Room, but also their responses to the question "What did you enjoy least about 'Rapid Reading' periods" clearly indicate that many students found the sessions grew monotonous, notwithstanding that only one or two periods per week were devoted to 'Rapid Reading'. And they remarked on "The boring repetition and tedious correction", and "The same routine", no matter who took them. It is possible that students would not make dramatic progress in reading rate, or efficiency, on an attenuated course, but what gains they did make might well be more sustained as a result of longer, lighter, exposure. Moreover, pupils distributed along the whole normal curve of distribution did not gain significantly in anything other than vocabulary, according to the standardised tests of ability and attainment which I used (see 6.2); and they had a 20-week intensive course on E.D.L. devices and programmes.

My experience, therefore, does not support the claims made for the outstanding success of short, intensive courses on E.D.L. developmental reading programmes in improving reading. Certainly individual students of all ages and abilities will make dramatic gains in reading attainment and in attitudes to reading as a result of exposure to E.D.L. material, or any other sound developmental reading programme, for that matter. But statistically this is neither here nor there, and in any case it has not been proved that even these statistically insignificant, albeit dramatic, individual gains will be maintained once the crash course is over. So I would tend to be guided by my own experience, and by the responses of these 212 boys in Standards 4,5,6,7 and 8 in School F, in mounting E.D.L. courses in a school, and I would favour the extended course of a year's duration, working 1-2 periods per week, at the Standard 5, 6 or 7 level, with periodic short refresher courses thereafter to consolidate and perhaps increase gains made on the long course. In the first place the attenuated course would not be as likely to bore the pupils; in the second place it would give them abundant time and opportunity to practice new techniques and skills outside the Reading Room, thus increasing the possibilities of transfer and of permanent gain from the E.D.L. programmes; and in the third place it would permit of more periods on the timetable, and time, to extend the developmental reading course into and integrate it with other aspects of the English studies programme - for example, students should be actively encouraged to use new words garnered from E.D.L. filmstrips and Study Guides in their written English (needless to say I believe that the same teacher should operate in both the Reading Room and the classroom so that precisely this interdependence of English studies can be built up; failing this the Reading teacher and the English teacher should collaborate closely at all stages and at all times, which they often failed to do at School F and which is no doubt why the E.D.L. periods were not more enthusiastically received by some boys, and why they were not found to be more worthwhile).

The answers to question 12, "Have you ever cheated on any aspect of 'Rapid Reading'? Yes/No. If you have ever cheated, do you think that you learnt less because you cheated?", are summarised in Table 34 below. Once again I have included Standard 5's responses, although I have set these down and discussed them elsewhere, so that the reader can take in the complete picture at a glance and make all the comparisons he may wish to without having to cross-refer. It appears that boys of different ages and abilities and working with different teachers, (or working on different programmes, for that matter - see 4.6 and 7.7), are neither more nor less honest as a result of any of these differences. As with the Standard 5 boys, and the boys working on developmental reading programmes in other schools, the more intelligent boys in the higher classes generally felt that they had not learnt less as a result of cheating, whereas the boys in the slower streams and/or more junior classes often felt that they had learnt less because they had cheated. Cheating on E.D.L. devices and programmes is as prevalent as it is on S.R.A. Reading Laboratories, and probably more widespread than it is on Double-Up, though with all three

	Std.4	5A	5B	Std.5	6A	6B	6C	Std.6	7B	8A	8B	8C	Std.8
Cheated	22 (96%)	18	13	31 (91%)	22	20	15	57 (92%)	19 (86%)	25	20	16	61 (87%)
Learnt less as a result	13 (59%)	10	6	16 (52%)	3	5	7	15 (24%)	6 (32%)	3	8	5	16 (26%)

TABLE 34

The percentages given under "Learnt less as a result" are percentages of the totals under "Cheated", and not of the number of boys in the class.

programmes a great deal depends on the teacher and the quality and amount of his supervision. Nevertheless, no matter how strict and conscientious the teacher, the temptation to cheat exists on any developmental reading programme, or on any form of programmed instruction for that matter, and it behoves the teacher to be aware

of the temptation, and the ways in which youngsters do cheat, even if, for good and sufficient reasons, he does little or nothing about it. If he is not aware that a youngster is cheating he will not be able to gauge his progress accurately, and the whole exercise will lose purpose and value. This is why I strongly advocate continuous attention to students' records, and frequent collection of these records for checking and tactful, encouraging marking. The teacher's lively and sustained interest in a student's progress is the best deterrent to cheating that I know of. In answering question 14 a boy in Standard 8A put it in a nutshell, "Suggest teacher marks work for more realistic scores."

In answer to question 13, "What benefits not mentioned above have you derived from 'Rapid Reading'?", the following additional points were made: in Standard 6B, "SILENCE" (I presume that this boy is expressing heartfelt relief for the break from the declamatory explanatory lesson!); "Having an almost free period" (it certainly is a relief from more academic studies, or "a brake from full time school rutine" as another lad in the same class put it, but it should be a change rather than a holiday!); in Standard 7B, "A taste for reading"; two boys in this class also remarked that "It gives a break in school monotony"; in Standard 8A, "I have now been able to learn swatting subjects easier e.g. Geography and History"; "Appreciation for english writing"; "Makes a person alert because he cant go to sleep in a period like this"; "The ability to read important things and neglect insignificant waffle"; a further two boys found these periods a relief: "Free period. Relaxation"; in Standard 8B, "A period which the master in charge does the least talking"; "None - worsen my eye sight"; "I am now able to write fairly large, difficult words understanding their meanings at the same time"; "Rapid Reading, I think, has helped my reading rate tremendously. I can now get through a book in 2 days, whereas before it took me a couple of weeks to finish a book, that is, if I did not disregard it because of lack of understanding"; in

Standard 8C, "To do your own work!" (the same boy went on to suggest, under question 14, "We should mark each others work at the end of periods" - clearly the cheating that went on irked him); "I have proved to myself that I can read better than I thought I could and that it has helped me in essay writing and in my general outlook towards essay writing and reading."

In answer to question 14, "Have you any other comments or suggestions"?, many of the points made by the Standard 5 boys, and already mentioned above (see p. 308), were confirmed by these classes:

(i) Periods which pupils enjoy should not be sacrificed to "Rapid Reading" - "We have given up our P.T. periods", and "I'd rather do P.T." from the Standard 8A's, with the further linked suggestion from another lad in the same class that "Rapid reading should be optional."

(ii) Each class should be sub-divided into small groups on the basis of reading ability, or even into individual units - "The class should be divided into different groups i.e. those that can't read fast, those that can read very fast etc" from a youngster in Standard 6A; "The pupils should be seated in cubicles with their own private screen on which the work is shown, like a small sized Television screen" from a perceptive pupil in Standard 6B.

(iii) Background noise tends to be very distractive - "Do not have a class next door", "Don't have noises from neighbouring classes", "There is always another class next door making a noise and we can't really concentrate and I'm sure the class on the other side think the same way."

(iv) Some pupils complained of eye-strain because of the angle of the screen or the rapidity with which material was projected - "I suggest that something done about the film while reading for it hurts the eyes and you have to think then you lose some of the line", and "Also that 'blurr' before showing the numbers on the screen hurts my eyes", are yet other criticisms on the same theme advanced by two boys in Standard 8B.

"Rapid Reading" periods also have their devotees and detractors in these classes: "I think they should not stop it" (Standard 4); "Make it an important part of school leaving i.e. compulsory for all classes" (Standard 8A); "English exams should be written in this manor" (Standard 8B); "I think we should have more periods during the week. Rapid Reading is a benefit to you in your future life. Specially the new words" (Standard 8C); in contrast, "I do honestly think it is a waste of time. We could learn more" (Standard 4); "The reading Lab is boring. It is really lousy" (Standard 6C); "Waste of time especially during J.C. and especially when it is the last term" (Standard 7B); "I find Rapid Reading, exept for the stories, is very boring. If it wasn't for the interesting stories I would fall asleep", and "Yes - demolish it" (Standard 8B).

In addition these points were made: "We should be able to read by ourselves and get timed" (as I have said, for the person who loves language the Controlled Reader is altogether too insistent); "We should not have so many graphs etc. It should be worked out more systematically"; "There should not be so much noise in the class"; "I think that the boys tend to go into a state of uncontrol-ness. There should be a bit more respect for the teacher and a bit more self control on the boys' part"; "I think that there should be a male teacher as the blokes mess around and you cannot concentrate"; "Too much noise.... We need a strict male teacher"; "Loudspeaker for the teacher"; (the tenor of these last five remarks, all from boys in Standard 6A, clearly demonstrates the need for firm control and capable classroom management during these periods); "The teacher should be stricter"; "The teacher should sit at the back of the class on a small platform and they can see the pupils messing around"; "There should be more cooperation by scholars" (these comments from boys in Standard 6B support those of their colleagues in Standard 6A and underline the need for authority in these lessons); "Need beter versillities"; "We should have a bioscope kind of room with all luckdurious activities"; "It should have more variations and not be so dreary"; "Single desks because you might talk to someone sitting next to you and miss the

word"; "We should do more reading and less numbers" (further points made by boys in Standards 6B and 7B); "Perhaps the value of the passage could be pointed out e.g. value of similes, figures of speech etc" (here, surely, is a pupil's plea for the integrative approach which I so strongly recommend); "The question book should not have the answers in it as there is much cheating"; "In the Rapid Reading that 'click' after each sentence makes me loose concentration. If the machine were quieter it would be much easier to concentrate" (when one is trying hard to concentrate a regular mechanical noise, like the metronomic ticking of a clock, can be obtrusive); "If you are a good guesser you can do well. If you are not you do badly" (compare my remarks about the limitations of multiple choice questions above, 5.5, p. 286); "When reading with the rapid reader I do not absorb as much of the story as reading it from the book. After half the year it was a waist of time because my reading rate did not increase" (here is another student who found the Controlled Reader too "pushful"); "The periods are too short for the amount of work we do in one period"; "I don't think that each period should begin with numbers, because this tires the brain and I find it hard to keep up later on when reading time comes. The words on the other hand do not cause you to be so tired and also make you concentrate" (from this remark it would seem that number drills might have a retroactive inhibitory effect in some cases. These last were made by boys in Standards 8A, 8B and 8C).

I have analysed these questionnaires thoroughly because inevitably in the teaching situation we tend to see things through the teacher's eyes as he stands on the apron rather than through the pupil's eyes as he sits restively in the pit. Consequently however conscientious and considerate we may be there will be things which we miss simply because we cannot put ourselves in the pupil's position. The questionnaire, if it is honestly and thoughtfully completed, is one way of getting over this problem, and I suggest that if we weigh the subjective evidence set down here together with the evidence presented under 5.5 and 5.6 above, and in 6.2 and 6.3 hereafter, we will be able to structure our developmental reading courses to better advantage for all concerned.

AN EXPERIMENTAL INVESTIGATION OF THREE DEVELOPMENTAL READING PROGRAMMES

by

Peter Thomas Pienaar

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FORM OF CITATION

Throughout this dissertation a shortened form of citation has been used. For example, instead of an extended acknowledgment by way of a footnote, Chall, J. Learning to Read, the Great Debate. New York, McGraw-Hill Book Company, 1967, p.88, this reference will appear briefly thus, Chall, 1967, p.88, directly after the quotation. Should the reader wish to ascertain details of publication he may consult Bibliography on pp.591-8.

DESIGNATION OF GROUPS AND INDIVIDUAL BOYS

In order to ensure that schools and pupils remain anonymous they have been given coded designations. The letters D and A on their own denote Control Groups D and A. The letters E, F, B and C on their own denote Experimental Groups E, F, B and C. In Experimental Phases II and III, in which groups were subdivided and matched (see Appendices B and C, pp.472-80), Control Group D was split into 2 matched Control Groups because there were sufficient numbers to warrant it. These two Control Groups are designated 1D and 2D respectively. In addition in Experimental Phases II and III each Group was subdivided into Sub-groups thus:

1D(1), 2D(1), E(1), F(1), A(1), B(1), C(1) - the top Sub-groups in the "normal" or "correct" Standard 5 age range of 11.11-12.10 at the beginning of the third term.[1]
1D(2), 2D(2), E(2), F(2), A(2), B(2), C(2) - the bottom Sub-groups in the normal or "correct" Standard 5 age range of 11.11-12.10 at the beginning of the third term.
1DD, 2DD, EE, FF, AA, BB, CC - the "overage" Sub-groups i.e. those boys who were 12.11 or more at the beginning of the third term.
DDD, EEE, AAA, BBB, CCC - the "underage" Sub-groups i.e. those boys who were 11.10 or less at the beginning of the third term.

The letters D, E, F, A, B, C, in conjunction with a numeral, thus, D12 or F13, refer to specific pupils in the "correct" age range. The letters DD, EE, FF, AA, BB and CC, with a numeral following, as BB5 or CC13, denote pupils in the "overage" (for Standard 5) category. The letters DDD, EEE, AAA, BBB and CCC, with a numeral after, as DDD1, denote the small minority of pupils in the "underage" (for Standard 5) category. There were no underage pupils in Group F.

[1] See Manual for the Silent Reading Tests, 1963, p.24.

GLOSSARY

For brevity and ease of reading I have abbreviated technical terms, names of tests, and components of reading programmes to which I frequently refer. For the sake of compactness I have also shortened terms like "Comprehension" when they are used in tables. This glossary may be folded out for easy reference while reading.

C.A.	Chronological Age
C.G.	Control Group
C'hension	Comprehension
C'ite	Composite
C.R.	Controlled Reader
Dec.	Decrement
E.D.L.	Educational Developmental Laboratories
Eff'cy	Efficiency
E.G.	Experimental Group
E.Q.	English Quotient
F'cy	Frequency
Inc.	Increment
I.Q.	Intelligence Quotient
L.S.B.	Listening Skill Builder (component of S.R.A. Reading Laboratories)
M.A.	Mental Age
M.H.E.T.	Moray House English Test
M.H.V.R.T.	Moray House Verbal Reasoning Test
N.B.E.S.R.	National Bureau of Educational and Social Research
N.B.S.T.	National Bureau Spelling Test
N.F.E.R.	National Foundation of Educational Research
N.S.A.G.T.	New South African Group Test (of Intelligence)
N.V.I.Q.	Non-verbal Intelligence Quotient
Paras.	Paragraphs
P.B.	Power Builder (component of S.R.A. Reading Laboratories)
P'ile	Percentile
p.p.w.	periods per week
P'tion	Position
R.A.	Reading Age
R.A.L.	Readability Age Level
R.B.	Rate Builder (component of S.R.A. Reading Laboratories)
R.Q.	Reading Quotient
R.S.	Raw Score
S.A.	Spelling Age
S.A.S.R.G.T.	South African Silent Reading Group Test
S.'ces/Sent's	Sentences
S.D.	Standard Deviation
S.G.W.S.T.	Schonell Graded Word Spelling Test
S.L.G.	Starting Level Guide (component of S.R.A. Reading Laboratories)
S.P.	Standard Placement
S.Q.	Spelling Quotient
S.Q.3.R.	"Survey, Question, Read, Review, Recite" (a technique advocated in S.R.A. Reading Laboratories)
S.R.A.	Science Research Associates
S.S.R.T.	Schonell Silent Reading Test
T.Q.L.R.	"Tune-in, Question, Listen, Read" (a technique advocated in S.R.A. Reading Laboratories)
V.I.Q.	Verbal Intelligence Quotient
Vocab.	Vocabulary
V.R.Q.	Verbal Reasoning Quotient
w.p.m.	words per minute

CHAPTER ONE

How my interest in developmental reading began, and how this project started. A synoptic view of the project.

CHAPTER TWO

Developmental Reading, what it is, how it works, and how it fits into the scheme of learning to read/reading to learn. A review of the general literature.

CHAPTER THREE

Mounting the experimental side of the project. A critical appraisal of the test instruments.

CHAPTER FOUR

Experimental Leg I: S.R.A. Reading Laboratories. A review of the literature specific to S.R.A. materials. The teaching programme. Experimental Group E versus Control Group D. Examination and other non-standardised test results. Questionnaires.

CHAPTER FIVE

Experimental Leg I: E.D.L. devices and programmes. A review of the literature specific to E.D.L. materials. The teaching programme. Experimental Group F versus Control Group D. Examination and other non-standardised test results. Questionnaires.

CHAPTER SIX

Experimental Groups E and F versus Control Group D. Standardised and non-standardised objective test results. Statistical analyses.

CHAPTER SEVEN

Experimental Leg II: Double-Up. The 1967 try-out. The 1968 experiment in South Africa. Experimental Groups B and C versus Control Group A. Examples of written work. Standardised and non-standardised objective test results. Statistical analyses. Questionnaires. A follow-up in 1969. Double-Up in Canada, 1968-9. The primer programme, Duck-Up.

CHAPTER EIGHT

Conclusions and Recommendations

CHAPTER SIX

A STATISTICAL ANALYSIS OF THE STANDARDISED TEST RESULTS, AND THE RESULTS OF MY SPEED-CUM-COMPREHENSION TESTS.

"Evaluation becomes our real challenge."
Gladys Alesi, 1965.

6.1. Perspective

That hours and hours of endeavour, on so many people's parts, should ultimately be reduced to a few salient figures at once impresses and depresses me. It impresses me because the distillation process has been so long and difficult: there were times when my supervisors and I thought that we might never bring it to fruition. And it depresses me because these few impersonal figures, these droplets, cannot possibly sum up what individual children achieved on this exercise. It is as well, therefore, to put these results into proper perspective before detailing them and discussing their statistical significance.

> "It is common practice to employ a reading test before and after training to determine pupil gains in various skills. Such practice implies that both scores are highly accurate and stable and that any large difference between them is due to the training. Such a practice implies that the tests measure the skills emphasized in the program in material comparable to the training materials. Often, none of these assumptions are correct. All reading test scores are liable to a sizable error rather than being exact.... In many cases, the test score does not actually represent the pupil's working level for he may not be able to perform at the test level in classroom materials, for a variety of reasons. Moreover, he certainly will not read equally well in all types of materials at this level. Furthermore, the test score does not accurately reflect the instructional level for classroom reading tasks, or the levels of materials suitable for independent reading.
> "... After training for six weeks, John retests on another form at 9.1, an apparent gain of three months. The usual interpretation that the program resulted in a more than normal gain for John is not necessarily accurate, for several reasons. The amount of gain is well within the standard error measurement for this test and may not reflect any significant change, unless there are many informal indications of progress in major reading tasks. Secondly, many pupils

> show a temporary, significant gain in test score in the first few months of exposure to a new program, but no further gains in subsequent training. John's gain does not prove that his improvement is permanent nor that it will continue, even if there are evidences that it is real. We have no means of determining these facts from the test score without concrete evidence in the classroom reading tasks of changes in reading habits and practices. (Furthermore, the gain might well be due to practice effect, at least in part, particularly if the pre-test and post-test are separated in time by a mere six weeks.)
>
> "Judgments of pupil improvement as the result of a training program must be guided not only by the probable error in measurement but also to other trends in pupil change. Over any considerable period of time such as several months or a semester, there is a distinct tendency for pupil scores to shift to a point closer to the normal. Scores of very poor readers are apt to move upward while extremely high scorers tend to regress. Unless these changes are greater than the inherent probable error they are not meaningful. Bright pupils tend to show almost immediate improvement during the early part of the training, and relatively little gain thereafter. Other pupils improve more slowly during the first third of the program but accelerate in learning during later periods. These trends raise significant questions regarding the assumption that learning progresses at a regular rate or at the same rate for most pupils. The recognition of these trends demands that judgment of pupil improvement must be based on a variety of evaluations and samples of pupil work as well as careful estimates of pupil potentials."
>
> (The emphases and parenthesis above are mine.)
>
> Reading in Florida Secondary Schools, 1966, pp.15-16.

Statistical techniques, no matter how rigorous, cannot take account of all these variables. Consequently, even if there does transpire to be a significant difference between the mean gains of experimental and control groups, this must be interpreted only tentatively as being due to the experimental course, or new method. Additional evidence of such changes is always desirable, whether or not it be mainly subjective and observational. Conversely if no statistically significant changes in achievement occur this does not mean that the experimental groups have not benefited significantly from the

experimental treatment. Once again subjective, observational criteria can be helpful in this event.

6.2 The Statistical Analysis of Standardised Test Results

Analysis of variance was used to test the significance of the difference between the mean gains of the various Sub-groups at the ultimate stage of matching and tabulation of results, namely at the Phase III level.

> "Circumstances sometimes require that we design an experiment so that more than two samples or conditions can be studied simultaneously. When three or more samples or conditions are to be compared in an experiment, it is necessary to use a statistical test which will indicate whether there is an over-all difference among the k samples or conditions before one picks out any pair of samples in order to test the significance of the difference between them.
> "If we wished to use a two-sample statistical test to test for differences among, say, 5 groups, we would need to compute, in order to compare each pair of samples, 10 statistical tests.... Such a procedure is not only tedious, but it may lead to fallacious conclusions as well because it capitalizes on chance....
> "Cases have been reported in the research literature (McNemar, 1955, p.234 - author's brackets) in which an over-all test of five samples yields insignificant results (leads to the acceptance of Ho - author's brackets) but two-sample tests of the larger differences among the five samples yield significant findings. Such a posteriori selection tends to capitalize on chance, and therefore we can have no confidence in a decision involving k samples in which the analysis consisted only of testing two samples at a time.
> "It is only when an over-all test (a k-sample test) allows us to reject the null hypothesis that we are justified in employing a procedure for testing for significant differences between any two of the k samples (my emphasis).
> "The parametric technique for testing whether several samples have come from identical populations is the analysis of variance or F test. The assumptions associated with the statistical model underlying the F test are these: that the scores or observations are independently drawn from normally distributed populations; that the populations all have the same variance and that the means in the normally distributed populations are linear combinations of 'effects' due to rows and columns, i.e., that the effects are additive. In addition, the F test requires at least interval measurement of the variable involved."
>
> Siegal, 1956, pp.159-60.

Test	Sub-groups				Numbers				Mean V.I.Q.'s (May)				Mean V.I.Q.'s (Nov.)				Mean Gains				Sum of Individual Gains				Significance of Difference among Mean Gains+
N.S.A.G.T. Inter. 3 Verbal sub-tests	1D(1)	2D(1)	E(1)	F(1)	13	14	10	12	122.8	122.2	121.2	123.2	124.8	125.5	120.8	127.4	+ 2.0	+ 3.3	-0.4	+ 4.2	+26	+46	- 4	+ 51	Nil(0.57<2.82)
	1D(2)	2D(2)	E(2)	F(2)	12	12	9	13	105.1	103.6	99.9	101.6	108.0	108.8	104.4	110.2	+ 2.9	+ 5.2	+4.5	+ 8.6	+35	+63	+41	+112	Nil(1.80<2.82)
	1DD	2DD	EE	FF	18	16	11	7	107.4	107.7	105.3	102.7	109.4	106.8	104.4	104.3	+ 2.0	- 0.9	-0.9	+ 1.6	+37	-14	-10	+ 12	Nil(0.87<2.80)
S.A.S.R.G.T. Juniors, Forms A and B: Vocab. sub-test									Mean Raw Scores (adjusted) out of 50																
	1D(1)	2D(1)	E(1)	F(1)	12	12	10	12	32.7	31.3	30.2	33.2	29.5	29.7	29.3	34.0	- 3.2	- 1.6	-0.9	+ 0.8	-38	-19	- 9	+ 10	Nil(1.98<2.83)
	1D(2)	2D(2)	E(2)	F(2)	8	8	9	13	18.8	21.5	17.7	21.1	22.4	21.3	21.9	26.7	+ 3.6	- 0.2	+4.2	+ 5.6	+29	- 2	+38	+ 73	0.05 P 0.01 (3.40>2.88)*
	1DD	2DD	EE	FF	8	12	11	7	28.9	24.1	21.5	23.7	27.5	25.8	23.9	26.3	- 1.4	+ 1.7	+2.4	+ 2.6	-11	+21	+27	+ 18	Nil(1.06<2.86)
Paras. sub-test									Mean Raw Scores (adjusted) out of 25																
	1D(1)	2D(1)	E(1)	F(1)	13	14	10	12	19.1	19.6	18.8	19.3	17.1	18.1	18.5	17.3	- 2.0	- 1.5	-0.3	- 2.0	-16	-21	- 3	- 14	Nil(0.84<2.81)
	1D(2)	2D(2)	E(2)	F(2)	12	12	9	13	13.8	13.2	13.4	15.1	12.7	11.4	14.0	15.2	- 1.1	- 1.8	+0.6	+ 0.1	-13	-21	+ 9	+ 2	Nil(0.90<2.83)
	1DD	2DD	EE	FF	18	16	10	7	16.9	16.3	15.0	17.3	16.3	14.0	15.2	14.3	- 0.6	- 2.3	+0.2	- 3.0	-13	-37	+ 2	- 21	Nil(1.82<2.81)
S'egg sub-test									Mean Raw Scores (adjusted) out of 20																
	1D(1)	2D(1)	E(1)	F(1)	13	14	5	12	13.8	14.1	13.8	14.4	12.4	12.1	12.4	13.6	- 1.4	- 2.0	-1.4	- 0.8	-17	-28	- 7	- 10	Nil(0.51<2.84)
	1D(2)	2D(2)	E(2)	F(2)	12	12	14	13	9.2	7.7	9.1	8.9	8.6	8.2	8.2	9.4	- 0.6	+ 0.5	-0.9	+ [illegible]5	- 7	+ 6	-12	+ 7	Nil(0.97<2.81)
	1DD	2DD	EE	FF	18	16	10	7	11.6	10.2	9.9	12.0	9.5	9.7	9.6	9.9	- 2.1	- 0.5	-0.3	- 2.1	-38	- 8	- 3	- 15	Nil(1.27<2.82)
S.G.W.S.T. Form A and B									Mean Raw Scores out of 100																
	1D(1)	2D(1)	E(1)	F(1)	10	11	10	12	75.6	76.4	74.3	76.3	83.3	82.2	80.1	86.3	+ 7.7	+ 5.8	+5.8	+10.0	+77	+64	+58	+121	Nil(1.57<2.85)
	1D(2)	2D(2)	E(2)	F(2)	8	7	9	13	61.0	61.3	61.4	59.7	72.6	68.0	67.9	64.6	+11.6	+ 6.7	+6.5	+ 4.9	+93	+47	+58	+ 64	Nil(2.88<2.89)
	1DD	2DD	EE	FF	9	9	11	7	67.5	67.8	63.1	59.9	77.6	78.1	71.8	70.4	+10.1	+10.3	+8.7	+10.5	+91	+93	+96	+ 74	Nil(0.18<2.90)

TABLE 35

+Figures in brackets show the calculated value of the F Ratio followed by the F Ratio required for significance at the 5% level.

*Further calculations revealed that the only significant difference lay between F(2)'s mean gain of 5.6 and 2D(2)'s mean loss of -0.2 (e .05-2.81, and e 3.12 > 2.81).

Letter D denotes the Control Group, letter E the Experimental Group working on S.R.A. Reading Laboratory IIIA, and letter F the Experimental Group working on E.D.L. devices and programmes. Coded designations with bracketed numbers - e.g. 1D(1) - indicate the two Sub-groups into which each "correct" age group was split. Thus 1D(1) is the top Sub-group composed of the more able boys in "correct" age Control Group 1D, while 1D(2) is the bottom Sub-group composed of the less able in "correct" age Control Group 1D. The matching of the Sub-groups in May was tested and validated by the procedure described in Smith (1964), pp.87-90. The various Sub-groups are of unequal size because of the exigencies of the matching procedure. It was impossible to maintain parity of numbers and match the means at the same time. The numbers within Sub-groups drawn from the same schools vary from test to test because the matching by rank order altered the composition of each Sub-group and necessitated dropping boys from one Sub-group and adding them to another, or, if they could not be matched at all because of their superior attainment (a number of boys at Control School D fell into this category in respect of their attainment in Vocabulary and Spelling), dropping them altogether. Originally in Phase III the overage group, comprised of those boys who were 12.11-13.7 on 1/8/68 was split into two, as with the 11.11-12.10 age group. But after matching there were insufficient numbers to treat them separately so they were run together again for purposes of statistical analysis. There were also insufficient numbers in the underage group, those boys who were 11.10 or less on 1/8/68, so they were dropped. This was unfortunate because some of the most dramatic gains were made by boys in these minority underage groups. For example, the three underage boys in School E, boys EEE1, EEE2 and EEE3, gained 10.3 points in V.I.Q. (May mean, 122.0; Nov. mean 132.2) and 9.7 words in spelling (May means, 64.3, S.A.11.5; Nov. means, 74.0, S.A.12.5). The 14 boys who were 13.8+ on 1/8/68 were dropped because they were grossly overage. No less than 9 of the 14 came from School E, while the remaining 5 came from School D. It is a result of the Cape Education Department's policy of promotion by ability rather than age. Raw Scores were used in the 3 S.A.S.R.G.T. sub-tests because Stanines are too coarse and Standard Placements are too approximate. Raw Scores were also used in the Schonell Spelling Test, because they are as sensitively discriminative as Standard Scores and because they can be compared directly with S.A.S.R.G.T. Raw Scores.

The present experiment appears to satisfy all the criteria stipulated in the last paragraph above.

I used the solution set out in the section Homogeneity of a Set of K Sample Means. K>2. Case of Unequal Size Samples (Bernstein, 1965, pp.43-5) as the basis for my calculations. This solution was followed for all tests (Verbal Intelligence; Vocabulary, Paragraphs and Sentences; and Spelling) and for all comparisons between sub-groups (see Table 35 on p. 335). My calculations for the difference between the mean gains of 1D(2), 2D(2), E(2) and F(2) in respect of the S.A.S.R.G.T., Junior, Forms A and B, Vocabulary sub-test, are set out below.

Ho (or Null Hypothesis): There are no differences among the mean gains in Vocabulary Scores of the four groups.

	1D(2)	2D(2)	E(2)	F(2)
Total gains	+29	-2	+38	+73
Individual gains^2 and summed	261	132	314	549

Sum of total gains$_2$ = 138
Sum of total gains^2 = 1256

N-1 = 8+8+9+13-1 = 37

Calculation

$$\frac{29^2}{8} + \frac{-2^2}{8} + \frac{38^2}{9} + \frac{73^2}{13} - \frac{138^2}{38}$$

$$= 105.1 + 0.5 + 160.4 + 409.9 - 501.2$$

$$= 675.9 - 501.2 = 174.7$$

$$= 1256 - 675.9 = 580.1$$

$$= 1256 - 501.2 = 754.8$$

In this case, we divide the mean square due to means (totals) by the mean square from the within group calculation (also known as the error mean square), since it is the variation due to the means which we wish to test.

Mean Square $\frac{174.7}{3} = 58.2$ and $\frac{580.1}{34} = 17.1$

F. Ratio $\frac{58.2}{17.1} = 3.40$

From Table IX (on pp.134-7), we find F .05 for numerator 3 and denominator 34 df=2.88. Since 3.40 > 2.88 (but < 4.42 which is the corresponding value for F .01), we reject Ho and conclude that there are significant differences among the four mean gains.

It now became necessary to test the sample mean gains separately, to determine which gains were different and in which direction. The proper test is that of a multiple comparison among means. From inspection it was obvious that the significant difference must be between the November mean gains of F(2)(5.6) and either or both 1D(2)(3.6) and 2D(2)(-0.2). I tested the smallest difference first, namely that between F(2) and 1D(2), and when this resulted in no significant difference I tested the difference between F(2) and 2D(2).

Calculation	Calculation
$S^2p = 17.1$, therefore	$S^2p = 17.1$, therefore
$Sp = \sqrt{17.1} = 4.136$	$Sp = \sqrt{17.1} = 4.136$
$c = \frac{5.6 - 3.6}{4.136\sqrt{1/8 + 1/13}}$	$c = \frac{5.6 - .0.2}{4.136\sqrt{1/8 + 1/13}}$
$= \frac{2.0}{4.136\sqrt{.202}} = \frac{2.0}{(4.136)(.45)}$	$= \frac{5.8}{4.136\sqrt{.202}} = \frac{5.8}{(4.136)(.45)}$
$= \frac{2.0}{1.861} = 1.07$	$= \frac{5.8}{1.861} = 3.12$

M is the number of paired comparisons possible among 4 means found by $C_2^4 = 6$.

From Table XIII, for M=6 and 34 df, we find Q .05=2.81 approximately.

Since 1.07 < 2.81, we accept Ho and confirm that there is no significant difference between mean gains of F(2) and 1D(2).	Since 3.12 > 2.81, we reject Ho and confirm that the mean gain of F(2) is significantly larger than the mean gain of 2D(2).

Therefore it emerges that the bottom of the two "correct" age E.D.L. experimental Sub-groups has gained significantly in vocabulary over the tutorial period in comparison with only one of the control Sub-

groups with which it was matched. In fact when the two bottom "correct" age Control Sub-groups are merged the difference among the mean gains of 1.9 for 1D(2) + 2D(2), 4.2 for E(2), and 5.6 for F(2) is not significant - F Ratio 3.05<3.28 (F.05). Thus the difference between the mean gains of F(2) and 2D(2) can be largely discounted because it is not repeated in either F(2) versus 1D(2) or in F(2) versus 1D(2) + 2D(2). It can be seen that although there was no significant difference among the means of the four Sub-groups in May when they were matched on the basis of their pre-test scores, nevertheless the difference between 2D(2)'s mean score of 21.5 and 1D(2)'s mean score of 18.8 is 2.7. Consequently the significant difference between the mean gains of Control Sub-groups 1D(2) and 2D(2) can be accounted for in terms of the difference between their May means.

At this point I decided to test whether E(1) + E(2) on the one hand, and F(1) + F(2) on the other, did not produce a significantly greater mean gain than either 1D(1) + 1D(2) or 2D(1) + 2D(2). The mean gains of the two bottom Control Sub-groups 1D(2) and 2D(2) differed in one direction while the mean gains of the two top Control Sub-groups 1D(1) and 2D(1) differed in the opposite direction. Thus they appeared to compensate to some extent. Also I wanted to see whether merging the Experimental Sub-groups, E(1) + E(2), and F(1) + F(2), on the one hand, and the Control Sub-groups, 1D(1) + 1D(2), and 2D(1) + 2D(2), on the other, would not extend the significance of the difference among their mean gains from the bottom Sub-groups to the combined bottom + top Sub-groups. Once again I followed Bernstein's procedure in order to work out an analysis of variance among the mean gains of the four merged groups, and came up with an F Ratio of 4.08. Since 4.08>4.04 (F.01), I rejected Ho and concluded that there were significant differences among the four mean gains at the 1% level of confidence. In other words the greater numbers and greater aggregate gains in the merged groups not only spread the significance of the difference among the mean gains from the bottom "correct" age Sub-groups to the merged bottom+top "correct" age Sub-groups, but also increased the significance of the difference from between 5% and 1% levels of confidence to the 1% level of confidence. The difference among the Experimental and Control Groups in respect of Vocabulary mean gains therefore extended throughout the "correct" age ability spectrum.

I now tested the difference between mean gains of +3.32 for F(1) + F(2) and -.45 for 1D(1) + 1D(2). I arrived at a c value of 2.68 and since 2.68<2.71 (for m=6 and 80 df., c .05 = 2.71 approximately), I accepted Ho and concluded that the difference must be between F(1) + F(2)'s mean gain of +3.32 and 2D(1) + 2D(2)'s mean gain of -1.05. This time I obtained a c value of 3.12. Since 3.12>2.71, but<3.27 (for m=6 and 80 df, c .01 = 3.27 approximately), I rejected Ho and confirmed that F(1) + F(2)'s mean gain of +3.32 was significantly larger than 2D(1) + 2D(2)'s mean gain of -1.05. The difference between E(1) + E(2)'s mean gain of +1.53 and 2D(1) + 2D(2)'s mean gain of -1.05 was not significant, so the only significant difference occurred between the whole "correct" age Experimental Group which had been working on E.D.L. devices and programmes and the whole "correct" age Control Group 2D(1) + 2D(2) which had been working to the normal departmental English syllabus. Once again, therefore, the greater aggregate gains in the merged groups increased the significance of the difference in mean gains between F(1) + F(2) and 2D(1) + 2D(2). It also nearly moved the difference in mean gains between F(1) + F(2) and 1D(1) + 1D(2) into significance. I concluded that the "correct" age boys who had worked on E.D.L. devices and programmes had gained significantly in vocabulary over the "correct" age control group but not over the "correct" age S.R.A. Reading Laboratory group. I concluded further that the "correct" age Experimental Group working on the S.R.A. materials had not gained significantly in vocabulary over the "correct" age Control Group. Vocabulary exercises on the Tach-X Tachistoscope are probably mainly responsible for Sub-group F(1) + F(2)'s significant improvement, although the Controlled Reader and the classroom extension lessons must take their share of the credit.

Although the S.R.A. Experimental Sub-groups did not make statistically significantly greater gains than the various Control Sub-groups in vocabulary I would point out that the differences between the aggregate individual gains consistently favour both Experimental Groups: +56(E(1) + E(2) + EE, N.30) and + 101(F(1) + F(2) + FF, N.32) both represent advances, whereas -20(1D(1) + 1D(2) + 1DD, N.28) and 0(2D(1) + 2D(2) + 2DD, N.32) represents an overall loss. Had the numbers of pupils taking part in the experiment been greater, there is little doubt in my mind that the Experimental Groups working on S.R.A. Laboratories would have made statistically significant gains in

vocabulary when compared with Control groups working on the normal English studies programme. The improvements registered by E(2) and F(2) were more marked (and were statistically significant in the case of F(2)) than the mean gain registered by F(1) and the slight loss registered by E(1) because it is easier to move from mean raw scores of 17.7 and 21.1 to means of 21.9 and 26.7 than it is to improve on means of 30.2 and 33.2 on a fairly steeply-graded 50-item test (see 3.3 pp. 82-5). This is another reason why it seemed desirable to merge the Experimental and Control Sub-groups to see whether significant differences were not distributed over the entire ability spectrum in the 11.11-12.10 age group.

What I have said about it being easier to improve on a comparatively diminished pre-test score when there are only 50 items in a test, and the gradient of difficulty is steep, particularly towards the end of the test, applies equally to tests of 20 and 25 items, although here the reduced scale restricts both the good and the poor student. This is why there is so little movement in the Paragraphs and Sentences sub-tests, when they are compared with the N.S.A.G.T. and the Schonell Spelling Test. The function of the May and November Mean V.I.Q.'s columns is to show how the means of Sub-groups stand in pre- and post-tests in relation to the ceilings of the tests themselves. Two of the functions of the "bridge" column, Sum of Individual Gains, are to high-light the differences in gains between the tests, and to reinforce my criticism of the alternate A and B Forms of the S.A.S.R.G.T., Paragraphs and Sentences sub-tests (see 3.3 pp. 92-3). Significantly it was much easier to match Sub-groups on these two sub-tests on the basis of their pre-test performance than it was to match them on the other three tests. This was because the differences between individuals were reduced on the shorter scales, and hence the differences between means was reduced commensurately. Unfortunately this also reduced the differences between mean gains to insignificance.

The picture is altogether different on the other 3 tests in the battery, as is evident from Table 35 , and I now turned my attention to the second near significant difference, between the mean gains of Sub-groups 1D(2), 2D(2), E(2) and F(2) on the Schonell Spelling Tests, Forms A and B. Whereas with Vocabulary the difference

between the mean gains of Sub-groups 1D(2), 2D(2), E(2) and F(2) could be extended upwards to produce significant differences in Sub-groups 1D(1), 2D(1), E(1) and F(1), examination suggested that it would not be possible to extend the mean differences in spelling upwards with a view to moving the difference among mean gains in the merged "correct" age Sub-groups into significance. A comparison of the means achieved by the consolidated 11.11-12.10 Sub-groups at Phase II level confirmed this. From May to November, 1968, Control Group 1D moved from 73.8 to 82.0, a mean gain of 8.4/100; Control Group 2D moved from 75.5 to 80.7, a mean gain of 5.2/100; Experimental Group E moved from 68.2 to 74.3, a mean gain of 6.1/100; and Experimental Group F moved from 67.6 to 75.0, a mean gain of 7.4/100. Clearly, therefore, the mean differences between the split and reduced groups at Phase III level tended to cancel one another out: for example, the mean increment of 8.4 in Control Group 1D became 7.7 and a dramatic 11.6 in Control Sub-groups 1D(1) and 1D(2), whereas the mean increment of 7.4 in Experimental Group F became a considerable 10.0 and 4.9 in Experimental Sub-groups F(1) and F(2). Bernstein's Test of Homogeneity of a Set of K Sample Means, $K>2$ yielded a figure of 1.43, and since $1.43 < 2.73$ (F.05) I concluded that increments were evenly spread throughout the eight "correct" age Sub-groups despite the difference between the F ratios of 1.57 and 2.88 (see Table 35 on p.335). The high F ratio of 2.88 was largely due to the disproportionate gain made by Sub-group 1D(2) (a mean gain of 11.6) in comparison with both Experimental Sub-groups E(2) and F(2) (means gains of 6.5 and 4.9) and the other Control Sub-group 2D(2) (a mean gain of 6.7). Neither the E.D.L. programmes nor the S.R.A. IIIA Reading Laboratory brought about dramatic improvements in spelling, though work on the Tach-X seemed to advantage Sub-group F(1) quite a bit more than work on the Reading Laboratory seemed to benefit Sub-group E(1): only one boy out of ten in Sub-group E(1) gained more than 10 words, whereas no less than eight boys out of twelve in Sub-group F(1) gained more than 10 words, and one of these eight gained 20 words, an improvement of 27% in 7 months. The better spellers in F(1) and F(2) made greater gains than the poorer spellers (10.0 compared with 4.9), whereas the differences between the other three pairs of Sub-groups were negligible (7.7 compared with 11.6, 5.8 compared with 6.7, and 5.8 compared with 6.5). It seems possible, therefore, that the emphasis on spelling in Tach-X word sessions (see 5.5 p.267)

improves the better spellers more than it does the weaker spellers, and that it advantages the better spellers in a class more than work on a Reading Laboratory does. Sub-group F(1) also ended up 3%-4% better than Control Sub-groups 1D(1) and 2D(1).

Nowhere else in Table 35 do the differences between mean gains approach significance. A study of the sum of individual gains generally favours the two Experimental Groups, particularly the two classes at School F. For example, 32 boys at School F gained a total of 175 points in V.I.Q. whereas 85 boys at School D could only muster 193 points between them. (However, in sharp contrast the 30 boys in School E gained a meagre 27 points in V.I.Q.) Similarly in the Vocabulary sub-test the same 32 boys in School F picked up 101 points in adjusted raw scores (only 8 boys, or 25%, failed to improve), while 60 boys in School D came up with a negative score of -20 points (33 boys, or 55%, failed to improve). The 30 boys in School E did better this time: they advanced by 56 points (only 8, or 27%, failed to improve).

As far as comprehension of paragraphs and sentences is concerned, there are 19 losses and only 5 gains between May and November, 1968. (See Table 35, column 6.) In the Paragraphs sub-test 85 boys in School D lost a total of 121 points in adjusted raw scores (no less than 50 boys, or 59%, fell back), while 29 boys in School E gained a mere 8 points (11 boys, or 38%, fell back), and the 32 boys in School F lost 33 points (22 boys, or 69% fell back). When the gains of the four "correct" age Sub-groups are summed they yield the following totals: 1D(1) + 1D(2), -29; 2D(1) + 2D(2), -42; E(1) + E(2), +6; F(1) + F(2), -12. From the difference between 2D(1) + 2D(2) and E(1) + E(2) of 48 points it seemed to me that there might be a significant difference among the November mean gains of these four merged groups. But the calculation, again using Bernstein's Test of Homogeneity of K Sample Means, K>2, yielded an insignificant value: $1.37 < 2.71$ ($F.05$ for numerator 3 and denominator 91 df=2.71).

In the Sentences sub-test the results, if anything, were worse. 85 boys in School D lost a total of 92 points (44 boys, or 52%, fell back), the 29 boys in School E lost 22 points (17 boys, or 52%, fell back), and the same 32 boys in School F lost 16 points (15 boys, or 48%, fell back). Of course this is not a true picture.

I have already discussed the faults of the tests in 3.3, and the apparent losses are mainly the result of these faults: the Paragraph and Sentences 25 and 20 point scales are too short for children to show measurable gains in the short term; the adjustment necessary if the children are not tested in the third term of a four-term year considerably reduces any gains children may make on this short scale; the tests themselves need to be further item-analysed and restandardised. Nevertheless both Experimental Groups come through the three sub-tests with total "credit balances" whereas the two Control Groups emerge with substantial "debit balances", and this despite the effectively foreshortened scale of the Vocabulary sub-test, and the manifestly foreshortened scales of the Paragraphs and Sentences sub-tests: 1D(1) + 1D(2) +1DD, -124 points; 2D(1) + 2D(2) + 2DD, -109 points; E(1) + E(2) + EE, +42 points; and F(1) + F(2) + FF, +50 points. While these are not statistically significant figures they do suggest that the two developmental reading programmes have made a perceptible difference to the vocabulary and comprehension scores of the boys in the four experimental classes. It must also be recognised that it is virtually impossible to make significant gains on such short scales in such a short period of time. Consequently the foregoing analysis suggests that developmental reading courses improve comprehension as well as vocabulary.

This, then, is another function of the "bridge" column in Table 35 , Sum of Individual Gains. It indicates that the two Experimental Groups have benefited from their exposure to developmental reading courses, despite the paucity of statistically significant differences between mean gains. It should also help the reader to gauge just how far means have to diverge before significant differences occur in small, uncorrelated samples.

From Table 35, it appears that the majority of gains are made in the bottom of the two Standard 5 "correct" age 11.11-12.10 groups, and that it is generally in these "lower halves" that the difference between the mean gains comes closest to significance - indeed the only significant difference to occur appears between F(2) and 2D(2) in the Vocabulary sub-test. This is understandable. After all, it is easier to improve on a relatively low score, particularly on a short scale, than it is to improve on a comparatively high score.

In the Paragraphs and Sentences sub-tests the majority of boys to fall back came from the top half of the Standard 5 "correct" age 11.11-12.10 group. They found it difficult to improve on scores of 15-18 out of 25 particularly when they lost one mark for being tested in the fourth instead of the third term.

The differences between the mean gains usually come closer to significance on the longer scales. The only significant difference occurred on a 50-point scale, while the only nearly significant difference occurred on a 100-point scale (which effectively reduced to 50 points because only 7 of the 116 boys represented in the Spelling band of Table 35 scored less than 50/100 on Schonell Spelling Test, Form A, in May, 1968). The shorter the scales the smaller the variances. If I had tested individually all the boys on the 130-word Vernon Word Reading Test in May and November, I have little doubt that I would have come up with a few more significant differences. Many of the claims for the success of developmental reading programmes are based on dramatic gains made by children in word reading. Such claims are largely unjustified because word reading, or "barking" tests as they are sometimes called, measure only one facet of the multifaceted reading process. Claims for the success of any reading formula should be based on the satisfactory results achieved on a number of different group or individual tests. Certainly the efficiency of silent reading, as measured by speed and comprehension, is crucial in this regard. That is why I elected to use the S.A.S.R.C.T., despite its shortcomings, rather than individual word reading tests. Ideally, though, it would have been better to use both.

Judging from these results, and from what I have said under 3.3, it is apparent that a great deal depends on the tests used to measure gains in research of this nature. In fact, whether gains prove to be significant or not may depend primarily on the test instruments.

6.3 Analysis of my Speed-cum-Comprehension Tests

I devised these tests to meet the lack of a rate of reading test in my test battery, and in an attempt to make good one of the shortcomings of the S.A.S.R.C.T. Paragraphs and Sentences sub-tests, namely the shortness of the scales (there are 25 and 20 comprehension

items in the two discrete S.A.S.R.C.T. sub-tests, whereas there are 40 comprehension items in my consolidated speed-cum-comprehension test - see 3.3 pp.104-5). Also I wanted a group test that measured speed and comprehension simultaneously and I knew of no published test that did this.

However, I must make it quite plain at the outset that I make no claim for the absolute reliability of the figures set out in Table 36 below. For one thing my ad hoc tests are unstandardised and the parallelism of the two forms, particularly in respect of comprehension items, is somewhat doubtful (see 3.3 p.106). For another rate of reading is a notoriously variable commodity, and difficult to measure accurately at any one point in time, never mind at two points in time separated by approximately 3 months (see 5.6 p.288). In my opinion eye-movement photography is the only reasonably accurate means of checking speed of reading, and even then allowance must be made for practice effect, for variations in the "ideational level" of passages of seemingly equal mechanical level of difficulty, and for variations in the background knowledge and interests of the reader. (We generally read material that we know something about, and which interests us, faster than we read unfamiliar material, and it is impossible to equalise pupils' previous knowledge and interests, any more than it is possible to equalise the intrinsic appeal and nuances of meaning of two different passages.) If the same passage was set on both occasions practice effect would be likely to increase and the second comprehension score would be invalidated because memory traces would contaminate it.

Despite these difficulties, the comparative figures are illuminating, particularly where they are supported by other measures of rate as they are in Group F, and whatever their limitations these two tests appear to be both valid and reliable measures of reading efficiency. For example, they are properly discriminative in respect of both rate and comprehension, as the figures in Table 36 illustrate. The 40 comprehension items provide a sufficiently extended scale particularly when rate comes into the reckoning, to differentiate nicely between individuals and groups. Then not only do the results of these tests correlate with verbal intelligence, the more intelligent individuals being the more efficient readers, but also they distinguish

clearly between both in-Groups (A, B and C streams) and inter-Groups (Experimental Groups E and F and Control Group D). The differential mean gains in efficiency between in-Groups, which are essentially ability groupings, are proportional to verbal intelligence means in all 7 classes. Therefore the tests seem to fulfil very adequately the function for which they were intended, and deserve careful consideration in this context.

	July/August, 1968, Means					November, 1968, Means				
	N.	V.I.Q.	Rate in W.P.M.	C'hension	Eff'cy+	V.I.Q.	Rate in W.P.M.	C'hension	Eff'cy+	Gain in Eff'cy
Control School D										
Std. 5A	40	123	250	58%	60	125	355	64%	94	34
Std. 5B	35	106	238	45%	43	109	322	52%	66	23
Std. 5C	29	101	189	38%	31	103	260	45%	49	18
Exp. School E										
Std. 5A	23	113	175	45%	35	116	230	53%	53	18
Std. 5B	22	98	177	35%	27	99	205	43%	37	10
Exp. School F										
Std. 5A	19	118	241	55%	56	122	322	58%	74	18
Std. 5B	16	98	235	45%	45	104	252	45%	49	4

TABLE 36

$$^{+}\text{Mean Efficiency} = \frac{\frac{\Sigma(\text{Rate} \times \text{Raw C'hension Score})}{100}}{N}$$ (calculated to the nearest whole number)

This Mean Efficiency formula is derived from E.D.L. Controlled Reading programmes:

> "Multiply your rate in w.p.m. times comprehension score to obtain your reading index, a score that reflects the balance between your reading rate and the understanding with which you read. For example, if your rate were 200 words per minute and you answered eight questions correctly, your index would be 160(200 x 80%)."
>
> Controlled Reading Study Guide KL, p.9.

The "index", or efficiency rating, is apparently reduced to a more manageable figure by dividing by 100.

The reader may wonder why the Control boys did not make comparable gains on the S.A.S.R.G.T. It is true that they did not, but the difference between them and the Experimental lads was only significant in Vocabulary and then only in respect of one of the three Sub-groups separated out at Phase III level, although as I have already argued in 6.2 above, the difference spreads to the whole "correct" age Sub-group due to increased numbers and greater aggregate gains. Notably there was no significant difference between the Control and Experimental groups in either of the two Comprehension sub-tests. Judging from Table 36 above I think that there might have been and that it might have favoured the Control Group, if both Paragraphs and Sentences sub-tests had been less generously timed. On the other hand there might have been a significant difference in favour of the Experimental Groups if I had used a different Control Group. Certainly I do not think that a more typical Control Group would have appeared to be significantly enhanced in both rate and comprehension without having had any specific training in acceleration techniques.

I have not distinguished between classes in Table 37 below because classes are not strictly comparable either in numbers or ability. For example, one can hardly compare 15 boys in Standard 5B at School F with either 35 boys in Standard 5B or 29 boys in Standard 5C at School D. Furthermore I am well aware that the three groups were not strictly equal in attainment in July/August when they did the pre-test and that insofar as I did not match them at this stage I cannot claim that the following statistics are anything more than suggestive. However I did test the difference between the May V.I.Q. means for significance, and found on a t test that the difference between Control Group D (111.1) and Experimental Group E (106.2) was barely significant at the 5% level: $1.98 > 1.96$. Since 4.9 was the largest difference between means in May I judged that the difference between Control Group D and Experimental Group F would be insignificant; and that the differences in November would be between Experimental Group F (113.8) and Experimental Group E (108.1), and again between Control Group D (113.5) and Experimental Group E (108.1). I also tested for significance among the mean gains made by all three groups in V.I.Q. at this coarse Phase I level. I used an F test and arrived at a figure of 2.69. Since $2.69 < 3.05$ (F. 05 for numerator 2 and denominator 167 df=3.05 approximately) I accepted Ho and concluded that there was no significant difference among the mean gains in V.I.Q. between May and November, 1968. Despite the fact that there are

insignificant differences among the three Groups in respect of assessed verbal ability, there are other intangible but no less real differences which we can only adumbrate. Yet it is precisely these immeasurable differences in experience, background, orientation and attitude which account in large measure for the difference in reading efficiency between Group D on the one hand and Groups E and F on the other.

I have not tested for significance of difference between reading rates and comprehension in either July/August or November. It does not appear that there is likely to be a significant difference in comprehension, but it certainly does look as if reading rates differ significantly in both pre-tests and post-tests, and with good reason, too, as I shall point out in a moment. I have only tested the significance of what seem to me to be the most useful and reliable figures: the mean gains in efficiency are derived from both reading rate and comprehension, and are also the result of two separate tests, both administered in precisely the same way in the same carefully controlled situation by the same tester.

Standard 5	N.	July/August, 1968, Means				November, 1968, Means				Mean Gains in Eff'cy
		V.I.Q.	Rate in w.p.m.	C'hension	Eff'cy	V.I.Q.	Rate in w.p.m.	C'hension	Eff'cy	
Control School D	94	111.1	229	48%	45.3	113.5	318	55%	70.8	25.5
Exp. School E	45	106.2	176	41%	31.3	108.1	218	48%	44.6	13.3
Exp. School F	34	109.5	238	50%	51.3	113.8	291	52%	63.1	11.8

Table 37

$$\text{Mean Efficiency} = \frac{\frac{(\text{Rate} \times \text{Raw C'hension Score})}{100}}{N}$$

In passing it is interesting to compare the American Grade 7 mean rates of reading of 195 w.p.m. (see 5.3, Table 22) and 235-255 w.p.m. (see 5.3, Table 23 , and Table 25) with the rates above. However, it would be facile to conclude on these slight and variable grounds that rate of reading in American Grades 7 was inferior to rate of reading in South African Standards 5. It is also interesting to compare the rates achieved by Group F with the results of the periodic tests which I conducted in the Reading Room (see 5.4, p. 288).

Bernstein's Test of Homogeneity of K Sample Means, K>2, reveals that there is a significant difference among these mean gains in efficiency: F .01 for numerator 2 and denominator 170 df=4.73, and 7.71>4.73 by a substantial margin. I then compared the three mean increases in efficiency with the following results:

(i) Control Group D v. Experimental Group F, 3.13>2.94

(ii) Control Group D v. Experimental Group E, 3.47>2.94

(iii) Experimental Group E v. Experimental Group F, 0.39<2.39

(for m=3 and 170 df, c .01=2.94, and c .05=2.39, approximately). Consequently I rejected Ho in the case of (i) and (ii) and confirmed that there was a significant difference between the mean increases in efficiency of the Control Group D on the one hand and the Experimental Groups E and F on the other, and that the difference distinctly favoured the Control Group. I accepted Ho in the case of (iii) and concluded that there was no significant difference between the mean increases in efficiency between the two Experimental Groups, and that on the evidence of these tests S.R.A. Laboratories and E.D.L. devices and programmes appeared to be equally effective accelerators and improvers of silent reading. I concluded further that neither of these experimental aids was able in the comparatively short space of 12 weeks to close the gap in silent reading efficiency, as measured by a combined speed and comprehension test, between the Control Group and the two Experimental Groups. This gap in favour of Control Group D is not as apparent in July/August, at least not between Group D and Group F, as it is in November, between Group D and both Groups E and F, because by the time the Experimental Groups were tested in July/August, Group E had had a full 6 weeks on S.R.A. IIIA Reading Laboratory, and Group F had had not only a full 6 weeks with me in the Reading Room working with the two E.D.L. machines, but also the benefit of a period per week in the Reading Room for the duration of the first term 1968, prior to my arrival. Consequently their July/August "starting" rates must be somewhat in advance of what they would have been had they been tested at the beginning of the year, in the case of Group F, and at the beginning of the tutorial period, in the case of Group E. Furthermore if H.B. Pont and other investigators are right (see 4.4 and 5.3) it is in the earliest stages of a developmental reading course that the pupils take the greatest strides, so that the speeds of 176 w.p.m. (Group E) and more particularly 238 w.p.m. (Group F) in July/August

probably represent a considerable increase already, in which case these boys would not be capable of as much improvement as Control Group D. This supposition is borne out by the following facts:

(i) Group E and Group F increased in speed of reading at a comparatively diminished rate between July/August and November, 42 w.p.m. and 53 w.p.m. compared with 89 w.p.m. for Group D, and that on top of a competitive 229 w.p.m. in July/August without any practice in reading against the clock.

(ii) Group F showed virtually no increase in comprehension between July/August and November, and only a 24% increase in efficiency in comparison to Group E's 45%. Admittedly Group E started further back and therefore had more room in which to improve, but neither Experimental Group could match the Control Group for absolute improvement as measured by the final efficiency rating and the proportionate improvement in efficiency.

(iii) 7 boys in Group E, or 18%, and 5 boys in Group F, or 15%, regressed in reading efficiency ratings between July/August and November, whereas a comparatively lesser number of boys in Group D - 11, or 12% - fell back between July/August and November.

At this point I would like to quote in part from a letter I wrote to the Headmaster of School D shortly after marking and evaluating this part of the post-test programme:

> "(i) More than 80% of all boys have improved in speed of reading and the average improvement is at least 30%.
> (ii) More than 70% of all boys have improved markedly in comprehension and vocabulary, and the average improvement in reading efficiency is at least 50%....
> "Without any special treatment your boys compare more than favourably with all the experimental classes. This is obviously due to a combination of genetic and environmental factors, but nevertheless the school must take a large slice of environmental credit....
> It surprises me that they are as proficient as this. I would guess that 90% of your boys are reading up to their Mental Ages, and this is very good ...."
>
> Personal communication of 7/12/68.

For the reader's benefit I should reiterate that these boys were drawn from a select area and that more than 40% of them had parents in the professions, parents who no doubt read and read and read.

> "In general children's reading standards are closely associated with their home circumstances."
>
> Morris, 1966, p.22.

Also I should add that they had been educated in a highly competitive environment and that they thrived on a scholastic challenge. I think this is why practice effect is so marked in their case. Being keen and highly competent, one experience of a novel test was sufficient to familiarise them with the requirements of the test and to prime them for the second performance. They were certainly not an ideal Control Group for the reasons that I have already suggested. Nor do I believe that they were typical or representative of the South African English-speaking school population. This must be apparent when they are compared with Control Group A (see 7.5, pp.421-2). The question arises, what would they have done if they had had the benefit of one of the developmental reading courses? What spectacular feats would they have achieved with the help of the Controlled Reader and the Tachistoscope, or an S.R.A. Reading Laboratory? My own feeling is that these aids would have made very little difference to the <u>mean</u> reading efficiency rating in these classes, precisely because the mean rating was already so high. At this stage of their development I feel that most of these boys were achieving at, or near to, their ceilings and that any further high-pressure instruction would merely have consolidated gains already made and perhaps have brought about marginal increases in rate of reading.

I would like to stress that the improvement in Control Group D's rate of reading between August and November was effected <u>without any practice whatever in acceleration techniques apart from practice three months previously on the pre-test</u>. Nor was the gain in rate made at the expense of comprehension: on the contrary the Group's comprehension improved too, almost in direct proportion. The Control Group's gain in rate alone easily exceeded any improvement that Experimental Group F was able to make on the most sophisticated mechanical accelerator yet devised. Indeed, when I processed Group D's

November results I was so taken aback by their rate of reading, not to mention their over-all efficiency, that I decided that I must have made a mistake in my timing techniques, or that they must have exaggerated their own rates by carelessly or wilfully noting the wrong time. So I returned to Port Elizabeth specifically to check their rates of reading on longer passages, and in their three separate classes so that I could keep a close check on them all the time. Admittedly, and predictably, individual rates did vary considerably, but the mean reading rate for 95 boys in 3 classes (there were 10 absentees) fell by a mere 10 w.p.m., from 330 w.p.m. to 320 w.p.m. (and the 10 absentees were not the slowest readers!) There can be no doubt that this was an exceptional Control Group, yet they were scrupulously matched in every possible measurable way with both Experimental Groups. It is small wonder, therefore, that I have some doubts about the Controlled Reader being a more effective accelerator than timed reading techniques (see 5.6, pp.287-91; and also 5.3, pp.231-2, and pp.248-9). If the primary function of the E.D.L. devices and the S.R.A. Laboratories is to accelerate reading, they may be judged to have failed on this experiment. But both were designed to do far more than simply to speed up silent reading, and in other respects they succeeded, as I hope I have shown in 4.6, 4.7 and 4.8, and in 5.5, 5.6 and 5.7.

If the results of my supplementary speed-cum-comprehension tests do nothing else they suggest that speed is not, and must not be made to be, the cardinal aim of a developmental reading course. Moreover they suggest that mechanical aids and the concentrated, highly specialised short-term developmental reading course is no substitute for continuous skilled instruction in reading from a variety of books - instruction and material which stretch the reader at every turn - over a period of years in an invigorating educational climate.

CHAPTER SEVEN

DEVELOPING FURTHER READING THROUGH DOUBLE-UP

> We learn to read, then we read to learn. Therefore those who would be well educated must needs be well read. And those who would be well read must needs read well.

7.1 The Try-out in 1967

I have already discussed briefly Double-Up's origins and its history before it arrived on the South African educational scene in January, 1968 (see 1.1). However, I must go back to the beginning of 1967 in order to describe in some detail the first full try-out of the programme because if the results of this assay had not seemed promising, I would probably never have embarked on this research project.

My experience with various exercises with which we experimented in 1966, and which were subsequently included in Double-Up after they had been revised, led me to believe that the writing of the programme could be completed as planned during 1967, and that a full-scale run-through in a pilot class was now needed. In order to determine the lowest limits at which the programme could be usefully used I approached the Headmaster of a Government co-educational two-stream Primary School in a working class area with the request that my wife, who had been assigned the Standard 5B for 1967, be permitted to work through Double-Up for some three hours a week for the whole year, in lieu of all formal reading. In other words I proposed that Double-Up should take the place of group reading, paired reading and audience reading on the time-table. He agreed to my request and early in February the class of twenty boys and eight girls did their first exercise. At this stage Double-Up was in three parts primarily because the second and third parts were not yet complete but also because 44 sheets stapled together down the spine are easier to handle and less likely to shed pages than 112 sheets so bound. Part I was made up of the Introduction, four 350 word passages to lead the pupils into the programme, Test I, nine 400 word passages, Test 2, nine 450 word passages, Test 3, nine 500 word

passages and Test 4. It was decided that the class should complete Part I in the first term, and Parts II and III in the second and third terms, and everything went according to plan (see Table 38 on p. 380).

The majority of children, many of whom were grossly retarded in reading and, worse, resistant to reading anything but comics, responded immediately to the new material, despite the lack of illustrations and the poor quality of the duplication. As the course proceeded even the most sceptical and resistant were won over by a combination of the features of the programme that virtually every child enjoyed, reading aloud, recording progress graphically in colour, and oral extension work. They particularly enjoyed the Points for Discussion, especially when these required group or individual art work: "With the aid of the chalkboard, describe this historic battle. Say how it ended." (Double-Up, p.19); mime or drama: "Enact the ambush and massacre" (Ibid., p.57); dressing up and improvisation: "Conduct your own mannequin parade and select, or elect, the best dressed person, or persons, in the class" (Ibid., p.65); or word games coupled with general knowledge and sharpened by competition: "Think of five words connected with whaling, make anagrams out of them and swop your anagrams with someone else. See who solves his anagrams first" (Ibid., p.179). The class teacher followed explicitly the instructions set out in the Introduction, and these were written into the 1968 published edition with only minor alterations and some extensions - notably the class teacher's evaluation of the programme, children's opinions and a child's story inspired by the adventures of Martin the Matabele Ant. This redoubtable insect features in three stories in Double-Up, "Martin the Matabele Ant goes big game hunting", "The return of Martin the Matabele Ant" and, sadly, yet appropriately, since it is the last episode in the saga and also the last story in the book, "The end of Martin the Matabele Ant". (I cannot forbear to mention the last two discussion points which relate to this final episode:
1. "Enact Martin sitting at his ease with all the antlets cavorting around him, and also mime his last desperate battle."
2. "What epitaph do you think should have been written on Martin's tombstone? Paint the burial of Martin, or any other scene from his

adventures, in your next art lesson.") The "italicised" portions of the Introduction below are the additions to the 1967 "edition". I decided to omit entirely from the 1968 edition one paragraph in section 4, and this paragraph I have set in inverted commas within brackets. My reasons for omitting it are set outside the inverted commas, but within the same set of brackets. The two footnotes are designed to elaborate points pertinent to this thesis and were not included in the original introduction.

Introduction

(1) The applicability and purpose of the programme

It is suggested that the ninety nine exercises which comprise this programme be given to those children in Standard 5 who have a reading age of at least 11.0, and to those children in the lower standards of the high school who are handicapped because they are slow readers and yet who read up to their chronological ages. It must be emphasised that this is not a remedial reading programme but rather a set of carefully graded passages designed to refine basic reading skills a n d i m p r o v e r e a d i n g e f f i c i e n c y a n d c o m m u n i- c a t i o n s k i l l s. The readability level of the passages, as determined by the Spache Test, ranges from 10.0 to 11.6. The four 350 word passages are included chiefly to familiarise pupils with the demands of the programme and to give them confidence; the four 850 word passages at the end of the programme are included to challenge the brightest pupils and extend the most efficient readers.

(2) How to go about Double-Up

It is envisaged by the authors that the programme be covered in the course of a full academic year working through three exercises a week. It has been found that 30 minutes is quite sufficient to complete an exercise. This means that not more than 1 hour 30 minutes need be allocated to reading in any one week. The suggested breakdown of a lesson is as follows :-

(i) Issue booklets and instruct children to open them at the page on which the questions for a particular exercise are printed; allow 1-2 minutes for the pupils to scan the questions.

(ii) "Is everyone ready? Remember that you have exactly 2 minutes to read 350 words (or whatever number of words there happen to be in the passage). Right, go!" The children then turn over their pages and start reading.

(iii) When 2 minutes is up, "Stop reading. Turn back to the questions and answer them as quickly, as shortly and as neatly as possible without referring back to the passage." Allow 4-5 minutes for this (see the specimen answer sheet below).

(iv) "Finish the one you're on (nearly everyone should have finished by this time anyway). Turn back to the passage. James, will you start reading." One child, or two or three children, then read the passage aloud with as much expression as possible.[1] This takes about 5 minutes uninterrupted reading time and the teacher should note words mispronounced and come back to them rather than interrupt the flow of the story.

[1] Developmental reading programmes should pay more attention to reading aloud than they do.

> "The case for a very considerable amount of properly directed and properly used oral reading from the very beginning throughout the transfer stage and through his second stage of development rests primarily on the need to develop along with the automatic responses to the bundles of contrastive graphic shapes that actually are present in the writing, the ability to supply or produce the appropriate, or at least an appropriate, set of intonation and stress patterns that fit and display evidence of a total cumulative understanding."
>
> Fries, 1963, p.207.

> "More explicit attention in particular is needed to recognise and further the role and values of oral reading as a communication process in view of the predominant emphasis, both theoretical and practical, upon silent reading in American reading instruction."
>
> Theodore Harris, 1969, p.1085.

The point made by Pearce under 4.4 (see point (v) on p.154) needs to be underlined. Young children in particular need to read aloud, whether or not they are already reasonably fluent readers. Pronunciation and expression can always be improved, and in any case children who have achieved a degree of proficiency like to show off their skill. Moreover, it often helps the less able readers to follow while the better readers read. It increases their understanding and appreciation and gives them an example "within their reach" on which to model their own reading.

(v) "Now let's answer the questions." The children do this orally with a minimum of direction and help from the teacher. They should read out the entire question before answering as this facilitates fluency and understanding. The pupils can mark their own or one another's work as the teacher thinks best. Answers to multiple choice questions should be written out in words rather than numbers (see example below) as this aids orthography and makes reference easy. No half marks should be awarded.

(vi) "Mark out of ten and record on your graphs." Since the first five questions deal with comprehension of the text, and the second five with vocabulary and usage, scores should be recorded as, say, 4/5 and 3/5, setting the latter 'vocabulary' score on top of the former 'comprehension' score and showing an aggregate of 7/10 made up of two different coloured or shaded blocks (see example below). Thus at a glance the teacher and the pupil can see whether the pupil's mastery of language is up to his silent reading ability. Obviously the former will depend on the latter to a considerable degree but nevertheless it has been found that there can be a consistent disparity of 2-3 marks between comprehension and usage and that it is usually usage that suffers in the comparison. The remedies will be obvious to both teacher and pupil. A youngster is quick to see that the more words he has at his command the richer will be his writing and reading, and the new words that he encounters in Double-Up should crop up regularly in his written composition. Needless to say the children get considerable satisfaction out of recording their progress.

(vii) "Now let us look at the points for discussion." If there is not time these can be omitted but since children derive such a lot of pleasure and benefit from discussion and dramatic work - it enhances their visualisation and deepens their understanding - we have found that much is lost if they are omitted. In addition a successful climax to one lesson causes the pupils to look forward to the next, and once the children have settled down to the routine of the programme there should be some ten minutes left for the discussion points - and any other teaching points that the teacher may want to make - at the end of a 30-minute period.

And if there isn't time the teacher who is teaching in a flexible, permissive regime will probably want to borrow the occasional fifteen minutes from the following period to take up the points for discussion. Some of those points may be completed at home ("Men of men", No. 11; "A visit to the dentist", Nos. 11 and 12), or picked up in other lessons ("Tragedy", No. 12, in a drama lesson; "The spell that went haywire", No. 12, in an art lesson).[1] In any event, the booklets should be collected at the end of the period to prevent priming.

There are ten 600 word test exercises interspersed at regular intervals throughout the programme. The pupil must be given as long as he likes to read these, and either the teacher can time him, ticking off the time every five seconds on the blackboard, or he can time himself. When he has read the passage he should turn immediately to the 10 contextual questions, which he must not be allowed to see beforehand, and answer as before. He will then read over and correct in the normal way, calculate his reading speed in words per minute, and record both score and reading speed as shown below. If teachers are so minded they can use Test 1 (immediately after the four 350 word exercises) as a means of determining the fixed time to be allowed throughout the programme. Thus :

Reading time - $3\frac{1}{2}$ minutes
Therefore reading speed is $600/1 \div 3\frac{1}{2}$ or 170 w.p.m.
(to the nearest 10 words)

[1] This emphasis on discussion and dramatic work bears on what has been said on p. 356 in the earlier footnote. The oral justification of the right answers to questions, supplemented by further related and animated discussion, provide an opportunity for argument and the expression of ideas. Children need such opportunities in order to develop confidence, fluency and eloquence. The wise and adventurous teacher will create such opportunities where none are specifically suggested by the authors of the programmes because they understand the child's need to express himself in words and actions. But many pedestrian teachers have neither the imagination nor the inclination to depart from the printed page. It is these teachers who need the impetus of argument to determine the best answers to questions, rather than an authoritarian and stultifying answer key, and who require the suggestions for oral and dramatic work which are a feature of Double-Up.

If this transpires to be the average reading speed of a class where there is no great range of ability then the teacher might well allow 3 minutes rather than 2 minutes for each of the subsequent exercises. If 3 minutes are allowed then a child achieving a minimum score of 7/10 in the 800 word passages might be assumed to be reading effectively at 270 w.p.m. Naturally individuals reading at substantially less than 170 w.p.m. on Test 1 should be allowed an even longer time to read passages 6-99. The class teacher might like to divide his class into groups, on the basis of results achieved in Test 1, and allow a different reading time for each group. But whatever the initial reading time allowed it must be kept constant throughout if reading efficiency is indeed to double up.

The programme is flexible. As already indicated teachers may wish to allow 3 or 4 minutes reading time instead of the suggested 2 minutes. However, if 2 minutes reading time is allowed, definitely not too little in respect of the 350 word passages since most twelve-year olds with reading ages of 11.0 and more should be able to read at 175 w.p.m. at a reading level of 10.0-11.6, then by the end of the year pupils should be reading at approximately 400 w.p.m. and this we have found is not beyond the reach of the above average primary school child. Nor do we think that it should be beyond the reach of the average child in the junior standards of the high school, and certainly it must be attainable in the case of near matriculants.

If it is found, however, that children's scores are falling off drastically as the length of passages increases, and that they are getting discouraged in consequence, the teacher should allow a slightly longer time to read the longer passages. Experience indicates that some children in Standards 4 and 5 who read 350, 400, 450 and 500 word passages in 2 minutes need 2½ minutes to do justice to 550, 600 and 650 word passages and 3 minutes for 700, 750, 800 and 850 word passages. In other words they cannot comfortably double their reading speed and efficiency in the course of one year, though they can increase it by half as much again. Obviously the teacher must continually check children's progress and adjust to individual needs.

Teachers may be critical of the fact that pupils are encouraged to read the questions first. It could be argued that they will then skim to find the answers to the questions rather than read for the story. The longer the passage the greater the weight of this argument. However, having tried both practices, namely the customary practice of reading first and then answering the questions,

and the new departure of scanning the questions before reading the passage, the authors are of the opinion that the latter practice promotes more efficient reading because:

(i) the five contextual questions are spread throughout the passage, so the pupil has to read the whole passage anyway if he is going to be able to answer all the questions;

(ii) many questions require inference on the part of the reader, and inference requires close, concerted reading;

(iii) the pupil becomes habituated to reading "pointedly" in the shorter passages and since his speed is built up gradually this good habit persists in the longer passages without detriment to speed or understanding;

(iv) in questions 6-10, the pupil gains by having his attention directed to possible new words, phrases and idioms at the outset inasmuch as the meaning of these words often becomes explicit from the context in which he subsequently sees them;

(v) he sees beforehand proper names like Chaminuka which might slow down his reading if seen for the first time in the passage.

It is, therefore, the author's considered opinion that once children have become used to the practice of seeing the questions first they gain rather than lose.

(3) <u>The need to improve reading efficiency</u>

It is, of course, imperative that children understand why they are undergoing a course in more efficient reading. They must be told of the benefits to be derived from an ability to read quickly. It is not to make them "smart" or to give them a skill to show off to others. It must be realised that the average reader wastes a good deal of time in unnecessarily slow reading. Being able to read through material more quickly will naturally mean that the reader has more time to spend on other activities. This ability may also mean the difference between a good and a bad mark for any piece of work in subjects requiring extensive reading, or again the difference between just managing to cope with study requirements and having time left over for leisure.

(4) <u>How to improve reading efficiency</u>

(i) Sharpen concentration - distractions during reading should be reduced to a minimum;

(ii) Eliminate regressive eye movements - the pupils must constantly strive not to look back and not to waste time on unfamiliar words. A strip of card which the reader moves steadily down the page above each line of print as he reads helps to enforce concentration, and facilitates rapid focusing on the return sweep at the beginning of each new line.

(iii) ("Extend the pupils' eye span by reducing the number of fixations per line. This eye-grasp technique, probably more than any other, results in a gain in speed and comprehension. At the outset the children should be divided into pairs facing each other. While one reads the other should study the reader's eyes and count the number of fixations per line. Thus children will come to appreciate the importance of reducing the number of these eye-grasps in building up their speed. The children should be shown that it is possible to look at one word and see the words on either side, and that with practice it is possible to see more and more words on either side of the fixation, thus cutting down the number of halts per line and increasing the reading rate. Material that is relatively easy to read will facilitate the mastery of this technique."
After discussion with Professor G. Spache and other experts whom I met at a Reading Congress in Johannesburg in July 1967, I scrapped this entire paragraph as being both unproven and unsound. As I have already suggested in 2.7 the idea that perceptual span can be extended, by any means whatever, is both naive and fallacious.)

(iv) Eradicate lip-movements. Children may seem to be muttering to themselves while reading silently, being quite unaware that they are doing so. They should be told of this and that it does slow down the reading rate. Most children should be able to correct this habit but those children who find difficulty may be helped by holding the side of a bent forefinger against the lips. Sub-vocalisation is a similar bad habit. Here the reader vibrates his vocal cords while reading silently, resulting in grunts and groans. This grunting is

often inaudible, but the child should be asked to test for sub-vocalisation by holding his Adam's Apple to feel for vibration.[1]

Extend vocabulary - this is partly the function of questions 6-10 in each exercise. Reading speed and efficiency depend on (a) the speed with which the mind can "process" ideas contained in words, and (b) the number and duration of eye fixations per line of print. Therefore it will be obvious that the greater the individual's sight vocabulary the quicker he will recognise and interpret words and phrases. Some teachers may like to make flash cards of new words and present these to the children after they have met them in stories. Teachers who have done this find that first encounters with new words are thus reinforced and that new words treated in this way become used words, cropping up regularly in children's free writing.

(vi) Encourage children to apply efficient reading techniques to all the material that they read so that concerted, economical reading becomes habitual. It must be stressed that simply going through this programme, however carefully and conscientiously, will not in itself double reading speed and efficiency. The techniques and skills involved here must be practised assiduously whenever the reader sets eye to print.

(5) <u>What children and teachers think of Double-Up, and what it has achieved so far</u>

The stories in <u>Double-Up</u> are original, in the child idiom, interesting and exciting and locally "flavoured" in many instances. Children enjoy working through the exercises as the following unedited comments from children in three Standard 5 classes - a 5A in a 3-stream school, a 5B in a 2-stream school and an unstreamed 5 in the third school - clearly illustrate:

[1] This suggestion, too, is now of doubtful value:
"There is no valid experimental evidence...that exceedingly high reading rates claimed for some readers are due to complete short-circuiting of the motor-speech center; rather the motor-speech center still appears to be involved, to a minimal degree."
Theodore Harris, 1969, p.1083.

"The stories are very interesting ranging from ghosts to apsolute fun."
"It has been fun doing the tests and I am sorry that we won't be doing it again."
"I enjoy speed reading very much, since it is just about the only time I get to read then write about what I've just read."
"I like speed reading because I enjoy competing with myself."
"I enjoyed speed reading immensely it was great fun after doing arithmetic all morning. I am now much more interested in ordinary reading at home."
"I enjoyed speed reading very much and I think it should go on, even in High School ... I used to long for Wednesday morning and also used to try to beat my last weeks score."
"The stories in that book are very nice and interisting to read.. the story I like best is the one about when three men were sailing in a dug out canoe."
"I quite liked the tests although they were hard ... the best story in my point of view was The spell that went Haywire. It was very amusing."
"My favourite test was the last one called 'Fun and Games', I thought it was very comical. Although I got poor marks for it."
"The best story that I like is the one about the gorilla. I laught."
"The lepard and the crocodile is my best because there is ixitment in it and in all the other."
"I think Airborne is the best the drama is also great."
"The best story I have read in the double-up is, Husky's last ride. It was exciting and sad ... the graph at the back is very good also."
"I like the question very much."
"I liked the story Martin the Matabele ant ... I liked double-up very much it helped me a little bite in my reading it was very nice having double-up in 5B ... I wish the year was longer."
"I think you must write more stories."
"The best one that I liked the best was Martin the Matabily ant when he shoots the froglets and then falls down a lion-ant hole but the sad part was when he got killed."
"My school work has improved, and it is easy to read the hard problems because Double up makes you think of what you are doing."

Children not only enjoy working through the programme but also are aware of the benefits that accrue:

"I think speed reading has helped me a great deal. It has made my reading much faster and has widened my vocabulary a great deal."

"I felt that the speed reading did me a lot of good. It taught me to remember all that I read. It also taught me to read carefully and quickly .... We had to write carefully and correctly otherwise it could have been mistaken for a wrong answer or a spelling mistake."
"I think speed reading benefits you in many ways. One it helps your Vocabulary Two it helps your reading and by helping you to read faster it helps you to gain information faster. It trains your mind in consentration. I think that all the junior and senior schools should do speed reading as a class subject."
"The stories we had in the big books have helped me to read faster. It has also helped me to use my brains and to write faster and neater. I have learnt to read clearer and pronounce them clearer to."
"When I started Double-Up I had a very low reading age and just in one year my reading has gone up two years 6 month and I am very pleased."
"I enjoy double up because 1) I like exciting stories my favourite story was about a mosquieto called Minny in There ain't no justis 2) My reading age at the beginning was 10 years 5 months now it is 12 years 3 months."

The class teacher of the unstreamed Standard 5 referred to above had this to say in part: "The children in my group tended to regard this exercise as a three times a week test and were loath to do it more than that. I feel that had I had more than half an hour, and therefore time for discussion and drama, the children would have got so much more out of the passages. I could also have given the children more experience with new words learnt in order to cement them in their minds.

"About the passages themselves - I feel they were of very suitable interest level. The class especially seemed to enjoy the amusing stories such as, 'Fun and Games' and 'The spell that went haywire'. The boys enjoyed the ones on motor-bikes and sport....

"On several occasions I have noticed that new words learnt have been included in the succeeding exercises. This is a good idea ....

"Questions such as 'Hot is to cold as descend is to ...' were a new type of question to the children but they now cope with this sort of question very well. I think this sort of question is good as the children have to think whether they are opposites or similes, and they have to make sure they know what the question is asking.

"The group was very surprised to hear that they had all nearly doubled their reading speeds, but they were also very thrilled....

"The graphs were a great success. The children really enjoyed being able to see how they were progressing. Lately a couple of children have got full marks for a test. This really pleased them and I think encouraged them."

In three months (one term) this class improved eight months on the Schonell Silent Reading Test B (Test R4). They came up from 12.4 to 13.0.

I asked the teacher of the Standard 5B to try the programme to determine the lower limits at which it was applicable, and at the end of the first term she had this to say:

"I tried this reading programme somewhat reluctantly at first, as my class is a Standard 5B in a two-stream school, and the average Reading Age at the beginning of February 1967 was 9 years 1 month. I felt that Double-Up was devised for pupils with a much higher Reading Age, but I agreed to give it a term's trial. Interest level in my class was naturally much higher than that of the normal 9 year old, and they were bored with the books of a suitable Reading Age.

"Right from the beginning they found the stories in Double-Up interesting, and this was the motivation they needed. I adapted reading times to suit their slower reading, dividing them into three groups, group 1 to read the passage in 3 minutes, group 2 to read it in 4 minutes and group 3 to read it in 5 minutes. As in most slightly backward classes they did not really enjoy doing the comprehension exercises but they all realised their value. Most of the pupils really did want to improve the standard of their reading, as they are old enough to realise how vital this is, particularly as they are on the threshold of High School careers. The method of recording progress in a graph form stimulated their interest as they could watch their progress and show off their improvements. Reading the passages aloud was a great aid to their actual reading ability as the rest of the class were watching and waiting to correct errors. The questions for discussion, and the drama, led to other things, even once to an impromptu grammar lesson! A class of this sort enjoys drama, but it is often aimless; drama connected with one of these passages had meaning, as they had read and discussed the stories beforehand, and many of these stories were full of action and easy to dramatise.

"As the term progressed, I knew from listening to their reading that there had been an improvement, but I was extremely pleased to be able to present their re-tested Reading Ages at the end of April, 1967, to my Headmaster. The class average was then 9 years 11 months, an average improvement of 10 months in 3 months. (On both occasions she used the Burt word

reading test). I was particularly pleased because this is a slow class, and I consider this improvement quite remarkable. For a number of years now these children have shown an improvement in reading of a few months per year - most depressing! Suddenly there is this great leap, some pupils improving as much as 2 years! I shall continue using this reading programme for the rest of this year and hope that the pupils will consolidate their reading progress."

This class went on to complete the programme in the course of the year and by December, 1967, the average Reading Age on the Schonell word reading test was 10 years 8 months, an improvement of 19 months, truly a double up! (In August 1967, the Reading Age was found to be 10 years 6 months on the Vernon word reading test). No less than 9 children, or 35% of the class, improved more than 2 years in this period. At the beginning of the year 5 children (or 20% of the class) were reading up to their I.Q.'s; at the end of the year 21 children (or 75% of the class) were reading up to or in excess of their I.Q.'s, and this in a class where 10% of the pupils had I.Q.'s of less than 80 while a further 75% had I.Q.'s of less than 90; furthermore 75% of the children were boys and reading retardation in boys is considerably more stubborn than it is in girls.

Any purposive, concerted attack on reading will produce good results but I don't believe that any other programme or device could have produced better results.

Professor George Spache, eminent American educationist and indefatigable research worker in the realm of reading, had this to say about Double-Up: "The stories are good. Children will enjoy them"; while Mr. Keith Gardner, English educationist particularly well-known for his work with i.t.a. and remedial readers, and author of numerous articles and books such as Towards Literacy, said, "I like this very much - especially in relation to the context of the teaching environment .... I guess that there should be something for everyone here."

But perhaps the greatest encouragement comes from a girl in the Standard 5B referred to above. This child was so taken with Martin the Matabele Ant that she was moved to write this story for the school magazine:

MARTIN THE MATABELE ANT LEARNS TO SWIM

It was a nice warm day just after the summer rains had fallen, and there was a little puddle of water near Martin. Martin decided to learn to swim. His wife Mandy knew how to swim so she helped him to swim. First Mandy taught him the dead man's float, but Martin went down, and bubble, bubble, up and down he went. Quickly Mandy dived in and rescued him. Martins face was not quite like it was before he started. It was going grey with fright. So Martin said, "I want to go to bed. I will have lessons

tomorrow." Mandy said it was all right. The next morning Martin was well again. This time he managed to float. Mandy said, "This is how you swim. First you stand on a pebble or stone, then, put your legs out and push with your feet." Martin did what Mandy said. He floated and pushed just as Mandy had said. He paddled and went halfway across. The pool as four inches long.

Martin couldn't swim that far. Luckily there was a stone in the middle. Martin scrambled up and sat panting on the little stone. Sad luck! Martin slipped of the stone and knocked himself unconscious on the ground. He was unconscious for another day. The doctor said he would be all right. But, if he bumped his head on the same place he might die. When he did recover the puddle was all dried up, and there was no hope of learning to swim properly. It was one week before he wanted to swim anyhow. Again more rain had fallen but this time Martin was prepared. He and some other Gants (Gentleman ants) pulled out the saucer where it could get rainwater inside. This saucer was one and a half inches wide. Martin soon learnt to swim properly and he learnt to swim long distances. A long time after that Martin won first prize and also became Champion Gant of all ants.

Figure 1.

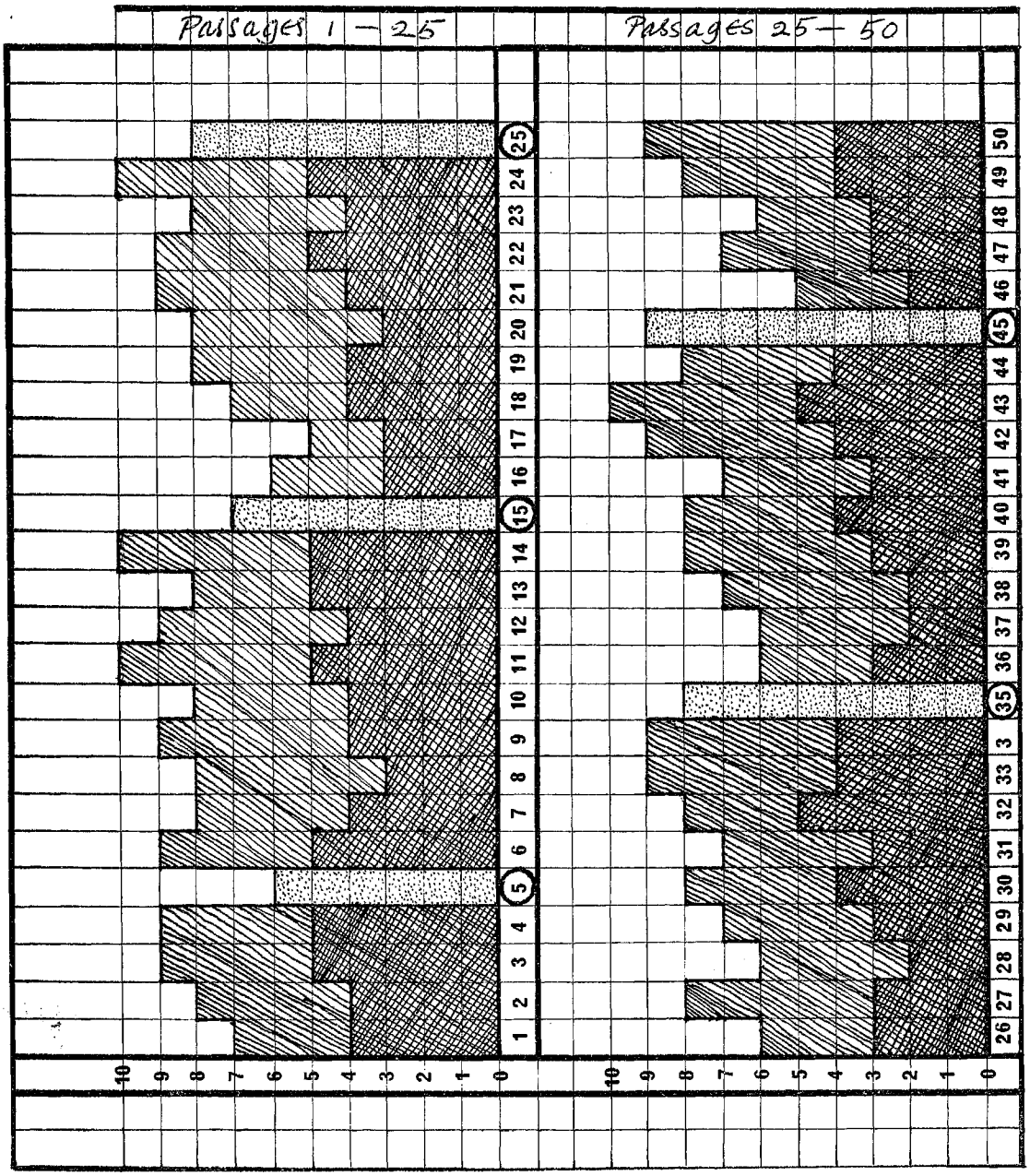
Experience has shown that a quadrille exercise book is quite adequate for a whole year's work. In fact if four exercises are completed on each side of a page no more than fourteen pages are needed and the rest can be torn out at the outset. Thirteen pages are then used for answering questions and the last page can be used for recording. The children can draw up their own answer pages as shown hereunder.

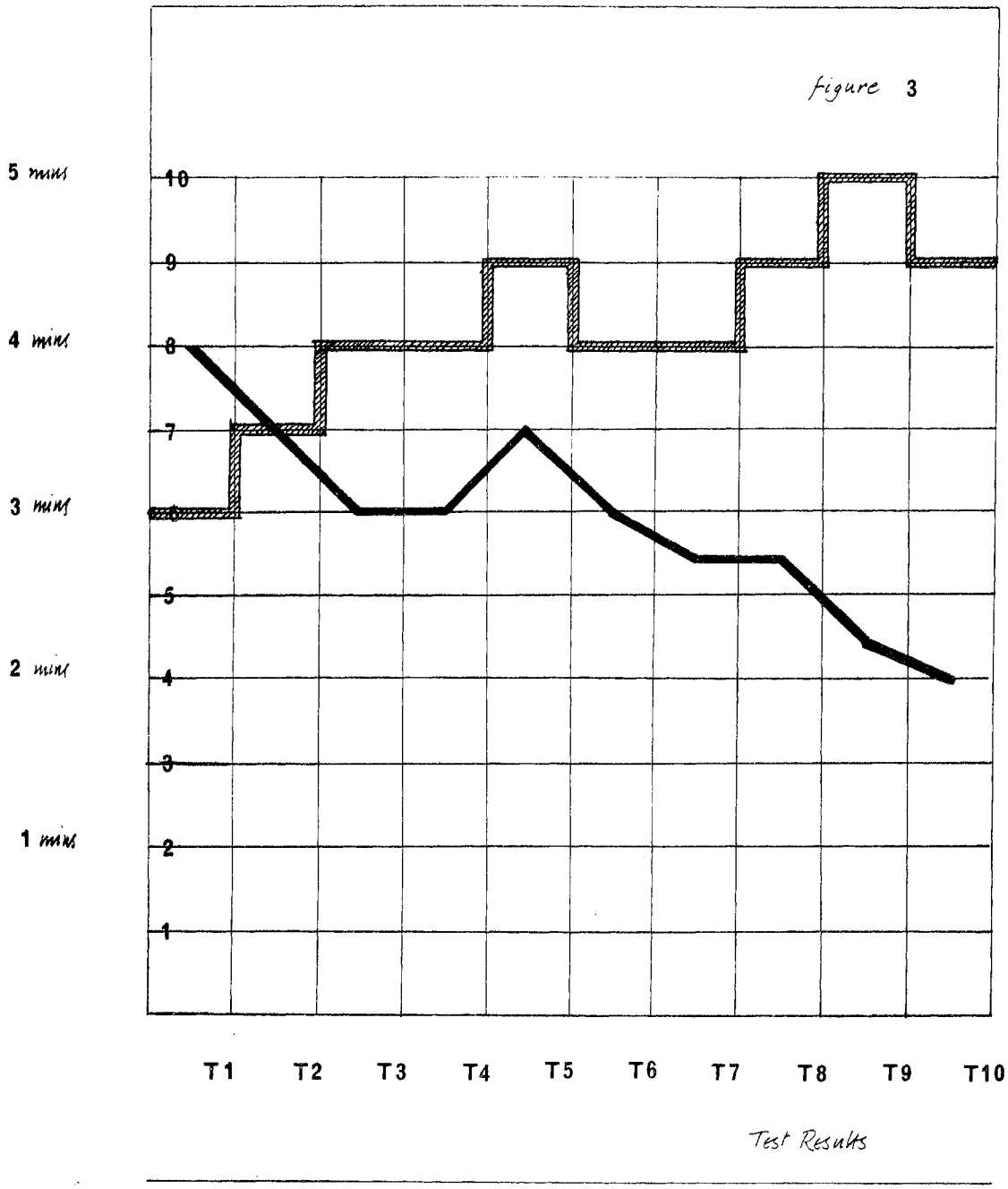
	10/6/68 Passage 1	12/6/68 Passage 2.
1.	Calypso	A single-engined monoplane
2.	Colts	Into an arena
3.	Seven feet	Five thousand feet
4.	Cream	Red
5.	Rugged	Silk
6.	Branded	The wind
7.	Outrun, outstrip	A powder-puff
8.	Strong	Seemed to hang suspended
9.	Wildly	Spellbound with dread
10.	Cascaded	Everyone sagged with relief

	14/6/68 Passage 3	17/6/68 Passage 4.
1.	A cell	Blondin
2.	Any sound	Iron bars
3.	Under a table	Salt
4.	At the foot of the wall	Balanced on a chair
5.	Effortlessly	Roof-tops
6.	Furtively	Slack
7.	Unfamiliar	Fascinated by his feat
8.	A lounge	A National Anthem
9.	Boldly	Perilous
10.	Held his breath	Ramshackle

Figure 2

If pupils wish they can record exercises of different lengths in different colours, i.e. 350 words in red and green, 400 words in blue and yellow, test exercises in black, and so on. However, to avoid a rainbow effect and to make for easy interpretation, we recommend that two colours be used throughout, say red and green.




figure 3
5 mins
4 mins
3 mins
2 mins
1 mins
10
9
8
7
6
5
4
3
2
1
T1
T2
T3
T4
T5
T6
T7
T8
T9
T10
Test Results

Since first impressions are so important the reader will want to gauge for himself the impact that the first page, and the first story, made upon the young readers. Thus the questions for the first story in the 1967 "edition" appear below, while the story to which they relate appears on page 372. Two further exercises follow on pp. 373-6 so that the reader may get an impression of the gradual increase in length with the level of difficulty remaining constant, together with some idea of the variety of narrative material in Double-Up. Then follows the third of the 600 word tests on pp. 377-8.

QUESTIONS

1. The machine from which the sky-diver parachuted was (i) a helicopter (ii) a twin-engined biplane (iii) a jet fighter (iv) a single-engined monoplane (v) a glider.

2. He was going to parachute (i) into an arena (ii) onto an aerodrome (iii) into an amusement park (iv) into a field (v) into a court-yard.

3. He jumped from a height of (i) two thousand feet (ii) three thousand feet (iii) four thousand feet (iv) five thousand feet (v) six thousand feet.

4. What colour was his uniform?

5. Of what material was his parachute made?

6. (i) Fear (ii) clouds (iii) the wind (iv) the engine (v) the noise buffeted the sky-diver standing braced in the open hatch.

7. Black velvet is to night and a knife is to a cold wind as (i) a powder-puff (ii) a rag (iii) a kite (iv) thunder (v) lightning is to a cloud.

8. Which of the following terms does not describe the sky-diver's headlong descent (i) plummeted (ii) spreadeagled in space (iii) crucified on the rushing air (iv) seemed to hang suspended (v) dropped like a stone.

9. "A thousand white faces gazed up at him in mute horror" means that the crowd was (i) spellbound with dread (ii) hysterical (iii) shouting with relief (iv) slightly startled (v) quietly expectant.

10. The crowd is described as crumpled because (i) it was a hot day (ii) they were all dressed in old clothes (iii) they were shouting so loudly (iv) everyone sagged with relief (v) no one really cared.

FOR DISCUSSION

11. What is the most dangerous sport in the world?

12. How is a sky-diver dressed and equipped?

Down to earth

The wind buffeted the man crouched in the open hatch of the little monoplane. It clawed at his clothes as he waited tensely for the right minute to jump into space. He watched the patchwork quilt of the city pass by under him with deceptive slowness. The green square of the arena in the middle of the great fair seemed no bigger than a child's handkerchief from five thousand feet up. A powder-puff cloud scudded past the plane but the sky-diver's eyes were fixed on the ground. He judged that he was now right above that little green handkerchief and he flung himself out of the plane and into the arms of the eager wind. He plummeted down, a small figure spreadeagled in space and looking like a red rag nailed to the blue sky to the crowds on the ground. For eight long seconds he floated free, crucified on the rushing air. Then he pulled his ripcord. His parachute streamed out behind him but failed to open and break his headlong fall. The crowd gasped in horror as the sky-diver dropped like a stone towards the ground, the long red ribbon of his sheathed chute trailing uselessly in the air behind him. Frantically he pulled the release cord of his emergency chute. The pack strapped to his front snapped open and the wind whipped the uncoiling silk over his shoulder. The ground raced to meet him. A thousand white faces looked up at him in mute horror. He was only seconds away from eternity. The rushing wind filled his ears. Then, like a miracle, his parachute opened, and for a few brief moments he seemed to hang suspended before he landed on the green grass not twenty feet away from the crowded stands. He rolled over without thinking, as he had been trained to do, and found himself standing stiffly, unbelievably alive, staring stupidly at the crumpled crowd. Then came a roar of relief and people ran on to the field to shake the hand of the man who had missed death by a hair's breadth.

QUESTIONS

1. What did the writer first crouch behind (i) a grape vine (ii) a peach tree (iii) a pine tree (iv) a fence (v) a trellis?

2. How many people went on this raid?

3. State precisely what type of footgear the night watchman was wearing.

4. How high up the tree was the author perched when the light was switched on?

5. Were their bicycles (i) leaning against the fence (ii) lying in some grass (iii) hidden in some bushes (iv) lying in a ditch (v) leaning against a peach tree?

6. Nimble is to agile as crafty is to wily and furtive is to (i) stealthy (ii) open (iii) gnarled (iv) fearful (v) frozen.

7. Apprehensively means (i) carelessly (ii) fearlessly (iii) angrily (iv) fearfully (v) blindly.

8. Luscious means (i) sour (ii) small (iii) rotten (iv) sweet (v) vivid.

9. Which of the following phrases means the same as "groped", (i) searched blindly (ii) marched forward (iii) staggered aimlessly (iv) stopped hesitantly (v) strode calmly?

10. Which <u>one</u> of these phrases is the odd one out (i) probed the darkness (ii) winked off (iii) flooded the courtyard (iv) sounded heavy (v) went out?

FOR DISCUSSION

11. Describe a trellis, using the blackboard to help you.

12. Act out the raid described in the passage.

Night raid

We flitted furtively from the fence to the row of pines silhouetted against the night sky - sentinels on guard. My heart beat fast with fear and excitement as I crouched behind the trunk of a gnarled pine. Then, when I saw the others safely reach the gloom of the orchard, I glanced apprehensively from left to right and dashed from my place of safety to cross the seemingly vast expanse of open ground between the trees and the orchard. My feet crashed through the undergrowth and my heart pounded deafeningly in my ears, but at last I reached the refuge of the welcoming shadows. I called softly to my four comrades and, huddling together, we discussed our plan of action before splitting up. Jack and I moved stealthily down the vineyard, peering between the leaves for bunches of ripe grapes. At first they all looked alike but as our eyes became accustomed to the dark we were able to pick out bunches of luscious black and purple grapes. As we groped our way further into the vines, I was suddenly arrested by a sound. I stiffened, hardly daring to breathe, my heart pounding against my ribs like a big bass drum. As we crouched there, frozen to the spot, I heard the steady crunch of hob-nailed boots. The night watchman was patrolling the orchard on his nightly rounds. His torch probed the darkness inquisitively and his breathing sounded heavy in our ears. But the tension soon relaxed as his footsteps grew fainter and his torch winked off into the darkness. Picking with renewed vigour we moved along the trellises. Then we attacked the laden peach trees and crammed our pockets with what we could not eat. Suddenly, as I sat perched seven feet up in a swaying peach tree, the brilliant glare of a light flooded the courtyard adjoining the orchard. Shutting my eyes, I pressed myself against the branches. I broke out in a cold sweat and my hands began to slip on the smooth bark. After what seemed hours - although it could only have been minutes - the lights went out, plunging the courtyard into soft darkness once more. An owl hooted and far in the distance a dog barked. The moon came out, bathing the orchard in a pale glow. We decided not to tempt fate any longer and hurried back to where our bicycles lay in the whispering grass.

QUESTIONS

1. Sneak was (i) a magpie (ii) a crow (iii) a raven (iv) a parrot (v) a vulture.

2. What was written on the old oaken door?

3. On what page did Wilfred find what he was looking for?

4. Which one of these ingredients did not go into Wilfred's potion, (i) scorpions (ii) venomous snakes (iii) spiders' eyes (iv) bats' ears (v) rats' tails.

5. Is the writer (i) deadly serious (ii) pulling our legs (iii) haywire (iv) a lover of animals (v) a wizard himself?

6. "Festooned" means (i) wicked (ii) cracked (iii) draped (iv) tattered (v) dilapidated.

7. To potter around is (i) to mouch about (ii) to run amok (iii) to work hard (iv) to go on the spree (v) to dance a jig.

8. Which is the odd word out, (i) ghastly (ii) grisly (iii) dark (iv) dreadful (v) gleeful?

9. Mildewed is to musty as cracked is to (i) beady (ii) bony (iii) heavy (iv) crumbling (v) warty.

10. "Agitatedly" sounds to mean (i) quietly (ii) gleefully (iii) evilly (iv) anxiously (v) aimlessly.

FOR DISCUSSION

11. What does B.Sc. stand for? What do these abbreviations stand for, M.A., M.P., M.C.C., D.B., O.H.M.S., P.P.S., P.T.O., P.W.D., R.N., R.E.P.? Can you think of another ten common abbreviations?

12. Draw a Snark on the black board, or create one in your next art lesson.

The spell that went haywire

Once upon a time, many many years ago there lived a very, very wicked wizard whose name was Wilfred Drool. He dwelt in an ancient, crumbling castle which stood on top of a barren hill. The stone walls were cracked and damp and festooned with poison ivy. No living thing dared approach the castle save old Sneak, the hoary black crow, who sat by the hour on the tallest turret watching the world with beady black eyes and occasionally ruffling his tattered black feathers to keep out the biting wind. Inside the most dilapidated tower the wicked wizard pottered around all day in his dingy black clothes, rubbing his bony hands together and cackling evilly to himself. Many years before he had been to university to become a scientist but he had been expelled when he turned a professor into a bull-frog. That is why he always wrote "B.Sc., failed" after his name. Wilfred cast all his spells at night when all was dark and ghastly. For years he amused himself in this way but eventually he grew tired of his own grisly company and so he decided that he needed a pet. No ordinary pet would do for such an extraordinary wizard so the weird and wicked Wilfred decided to consult his dustiest and mustiest book of spells for some dreadful ideas. He took out a big bunch of keys and unlocked an old oaken door with "Evil Spells Library" engraved on it in crooked, black letters. Pushing his way through the cobwebs he took down a mildewed volume from the topmost shelf and turned its creaking pages until he came to page one hundred and one, and there he found the very thing he was looking for, a Snurk. Wilfred didn't waste any time. He immediately put his biggest and blackest cauldron on to boil and collected all the things necessary for his potion, poisonous adders, bats' ears, spiders' eyes, rats' tails and thirty drops of dragon's blood to thicken the mixture. All these he threw into the boiling broth and then he shuffled round and round muttering magic words and rubbing his hands together gleefully. Finally a great column of green smoke shot out of the cauldron and there was a boom like thunder. When the smoke cleared Wilfred had vanished and all that was to be seen was a small bewildered-looking frog crouched by the cauldron, and two minutes later when the little green frog hopped agitatedly out of the front door, Sneak, ever on the look-out for a tasty morsel, swooped delightedly.

Which all goes to show that warty wizards and freckly frogs have a lot in common and that professors should be treated with more respect.

Test 3

Pickles's last battle

The Game Scout and I set out for Nanke at half past seven on a wet Good Friday morning. I did not have a mackintosh and within the first fifteen minutes I was wet through. The fine rain blew directly into our faces as we made our way through dripping undergrowth. The soaking grass was head high in places and, even when the rain ceased, the overhanging trees showered us with moisture. Pickles was having a grand time. He bounded ahead of us, his eager nose to the ground, hot on the trail of some tantalising scent. Then he would come haring back, his white tail waving like a flag, just to make sure that we were following.

At eight o'clock we forded a strongly running stream and then squelched through an adjoining vlei. The rain started again as we began climbing up and around a tangle of streaming granite kopjes. If the light didn't improve I would probably have to be content with just viewing the Nanke Bushman paintings. We crossed another sodden vlei and high on the shoulder of a kopje overlooking the marsh two large male baboons barked mockingly at us. Pickles took up their challenge and barked excitedly in return. Then he plunged recklessly into the dripping grass and headed directly for the kopje. I whistled sharply to recall him but his blood was up and he paid me no heed. Flashes of white and waving grass marked his progress through the marsh and then he disappeared into the tangled undergrowth. I watched the two sentinels anxiously but they didn't move. Then a frantic chorus of yaps, barks and screams came from the undergrowth. Pickles had obviously caught up with one of the troop and had it at bay. The two lookouts hesitated barely a moment and then with a series of ferocious barks they plunged down the steep side of the kopje into the screen of vegetation at the bottom. Both the Scout and I broke into a clumsy run and I called frantically to Pickles as we floundered through the mud and rank vlei grass. Twice I fell over tussocks in my anxiety to get to Pickles. An anguished howl greeted me as I scrambled to my feet the second time. Heedless of a sharp pain in my twisted ankle I plundered on. Pickles's yelps were now drowned by savage snarls and barks. Seconds later the Game Scout and I crashed through the matted vegetation and came upon a terrible scene. The two large baboons were literally tearing Pickles to pieces. The Game Scout reversed his stick and set about him lustily. I had no weapon but being beside myself with anger and grief I laid about me with my camera. So furious were we that the baboons gave way before our onslaught at once and fled up the kopje.

We turned our attention to Pickles. He was in a pitiful condition. The baboons had ripped open his stomach and laid bare his ribs. He was bleeding from a jagged wound in his neck, too, and whimpering feebly. As I gazed into the pleading eyes of my faithful pet my own eyes filled with tears. Three minutes ago he had been so full of beans, and now he lay stricken. The Game Scout touched me on the shoulder. I looked up at him and he gestured mutely with his heavy stick. I nodded slowly and then stroked Pickles gently for the last time. I straightened up and turned away. The rain was falling softly as I stumbled out into the vlei again.

QUESTIONS

1. What day of the year was it?

2. It says the dog bounded ahead of the two men because (i) he was following a tantalising scent (ii) he was after a buck (iii) he was scouting out the land (iv) he was badly trained (v) they were old and tired.

3. What is likened to a flag in this passage?

4. What was the main object of his little expedition (i) to give Pickles some exercise (ii) to photograph some baboons (iii) to catch butterflies (iv) to paint some Bushmen (v) to photograph some Bushmen paintings?

5. The two large baboons are referred to as (i) sentinels (ii) savages (iii) monkeys (iv) murderers (v) cowards?

6. Where were the two baboons when the author and the Game Scout first saw them (i) on a kopje (ii) on a boulder (iii) in the undergrowth (iv) up a tree (v) crossing a vlei?

7. The vlei grass is described as (i) long (ii) rank (iii) muddy (iv) green (v) matted.

8. With what did the author lay about him?

9. What is the word used to describe Pickles's condition after his fight with the baboons?

10. What put Pickles out of his misery (i) the two baboons (ii) loss of blood (iii) an injection (iv) a bullet (v) a blow?

7.2 The Results of the 1967 Try-out

Before embarking on the course, the children's mechanical Reading Ages were assessed on the Burt Word Reading Test. Then periodically, during the course of the year, their Reading Ages were again assessed to determine progress: in April (at the end of the first term) the Burt Test was used again, together with Schonell's Silent Reading Test R4; in May (at the start of the second term) the South African Silent Reading Group Test, Junior, Form A, was used to assess Vocabulary and comprehension of Sentences and Paragraphs (we dispensed with the Usage sub-test for reasons already discussed in 3.3); in August (at the end of the second term) we used the Vernon Word Reading Test while in November (after completion of the programme

at the end of the third term) we used the South African Silent Reading Group Test, Junior, Form B to measure increments in vocabulary and comprehension, and the Schonell Word Reading Test to measure gains in mechanical reading (the latter was administered by the Headmaster to give us an independent check on our mechanical reading assessments of January, April and August). The rate of gain is plotted in Figure 2 below, while the over-all gains are summarised in Table 38 on p. 380. Individual gains are set out in detail in Table 39 on p. 381 and the mean rates of reading and comprehension scores are plotted in Figure 3 on p. 382.

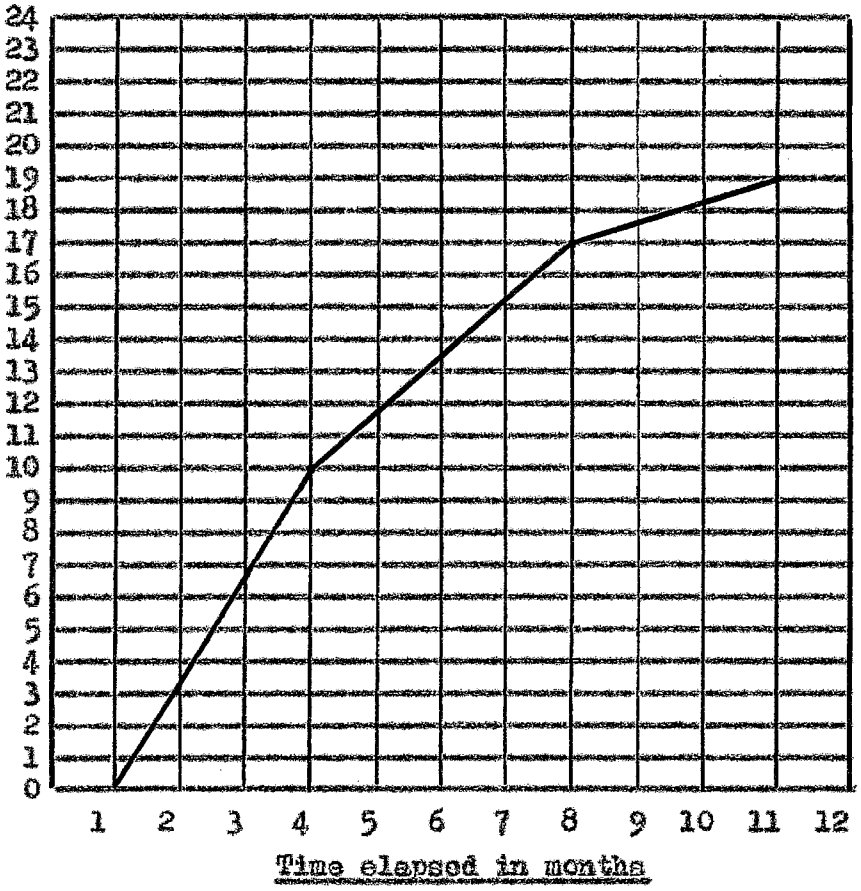


Figure 2. There was a dramatic initial improvement in Word Reading in the first term. The rate of improvement slowed down during the second term, although the class still gained 7 months in 4 months. Then predictably in the third term the rate of development slowed down markedly. It seemed almost as if the class needed time to get its breath after its spectacular spurt in the first and second terms. I view the last 4 months as a plateau on which consolidation took place. It would have been incredible if children of their diminished ability and disadvantaged home background had kept up the same hot pace over the whole course (85% of the class had I.Q.'s of less than 90, and some 30% spoke Afrikaans at home). Indeed, it is much to their credit that they did as well as they did. (See Introduction, pp. 365-6 , and Table 39 on p. 381).

1st Term 1967 (24th January-28th April)	Part I: 4x350 word passages (65%) Test 1 (75%) 9x400 word passages (63%) Test 2 (55%) 9x450 word passages (64%) Test 3 (58%) 9x500 word passages (47%) Test 4 (45%) A total of 35 exercises	Feb. Mean R.A.: 9.1 (Burt Re-arranged Word Reading Test) April Mean Silent R.A.: 9.11 (Schonell Silent Reading Test R4) April Mean R.A.: 9.11 (Burt Re-arranged Word Reading Test) (Word Reading increment Feb-April: 10 months)
2nd Term 1967 (25th May-18th August)	Part II: 9x550 word passages (58%) Test 5 (38%) 9x600 word passages (56%) Test 6 (58%) 9x650 word passages (54%) Test 7 (60%) A total of 30 exercises	May Mean Aggregate Raw Score: 53/100 (South African Silent Reading Group Test, Junior, Form A, Vocabulary, Paragraphs and Sentences sub-tests) August Mean R.A.: 10.6 (Vernon's Graded Word Reading Test) Word Reading increment April-August: 7 months)
3rd Term 1967 (13th September-8th December)	Part III: 9x700 word passages (53%) Test 8 (48%) 9x750 word passages (61%) Test 9 (60%) 9x800 word passages (61%) Test 10 (60%) 4x850 word passages (65%) (A total of 34 exercises) Av. mark on passages: 58% Av. mark on tests: 56%	December Mean Aggregate Raw Score: 64/100 (South African Silent Reading Group Test, Junior, Form B, Vocabulary, Paragraphs and Sentences sub-tests) Mean increment: 11/100, or 11% in 7 months. December Mean R.A.: 10.8 Schonell's Graded Word Reading Test Word Reading increment August-December : 2 months.
	Summary: A total of 99 exercises was completed in approximately thirty-six weeks, working through an average of three exercises each week, and spending approximately three hours a week, or one hundred and eight hours a year, on Double-Up.	Summary: In 10 months a class of boys and girls whose average age was 12.2 in mid-year, and whose mean I.Q. was 85, improved in Word Reading by 19 months. The standards of the three word Reading Tests used were corrected according to the Table "Corrected Standards on Burt, Vernon, Schonell and East Sussex Graded Word Reading Tests, and Schonell Graded Sentence Test".

TABLE 38

Boys/ Girls	C.A. on 1/2/67	R.A. in Feb.	R.A. in April	R.A. in Aug.	R.A. in Dec.	Total gain/ loss	Raw Score[1]	Raw Score[2]	Total gain/ loss	I.Q.	R.Q. in Feb.	R.Q. in Dec.
B1	11.7	8.3	9.11	10.3	10.6	+2.3	69	84	+15	78	71	85
B2	11.10	9.4	10.11	11.7	11.5	+2.1	71	95	+24	92	79	90
B3	12.6	8.1	9.0	a	9.1	+1.0	37	a	-	89	65	68
B4	11.3	9.4	11.0	11.8	11.9	+2.5	54	96	+42	91	83	96
B5	11.3	7.10	8.6	10.3	10.3	+2.5	32	55	+23	89	70	91
B6	11.5	9.2	10.0	10.4	10.9	+1.7	51	61	+10	85	80	87
B7	11.4	7.6	8.6	9.3	9.6	+2.0	a	52	-	-	66	79
B8	11.0	10.0	11.1	11.8	12.4	+2.4	70	80	+10	-	91	104
B9	11.8	8.3	8.7	9.9	9.5	+1.2	70	58	-12	84	71	75
B10	12.5	10.6	10.11	10.3	11.0	+ .6	42	61	+19	74	85	83
B11	11.1	10.11	11.3	11.9	12.2	+1.3	54	80	+26	89	99	102
B12	12.11	7.10	8.1	9.1	8.6	+ .8	42	42	0	93	61	62
B13	12.7	8.7	9.2	10.3	10.7	+2.0	51	52	+ 1	84	68	80
B14	11.4	8.3	10.1	10.2	10.5	+2.2	41	65	+24	89	73	86
B15	11.10	9.11	11.7	11.6	11.9	+1.10	84	91	+ 7	83	83	92
B16	11.5	9.4	10.4	a	11.0	+1.8	a	30	-	81	82	90
B17	11.4	10.0	11.2	11.1	11.9	+1.9	33	56	+23	76	88	96
B18	11.7	8.2	9.3	10.1	10.1	+1.11	63	67	+ 4	83	71	82
B20	13.3	a	9.1	10.0	10.9	-	a	33	-	-	a	77
G1	11.1	10.5	11.7	11.7	12.3	+1.10	70	98	+28	94	94	103
G2	11.3	8.6	9.5	10.2	10.4	+1.10	42	60	+18	85	76	86
G3	11.3	8.4	8.7	9.0	8.6	+ .2	54	41	-13	89	74	70
G4	11.9	10.1	10.6	10.5	10.5	+ .4	42	48	+ 6	81	86	81
G5	12.3	8.5	9.5	10.8	10.3	+1.10	58	70	+12	-	69	78
G6	12.9	10.4	10.4	10.6	11.1	+ .9	42	70	+28	81	81	84
G7	11.9	10.0	10.0	10.8	11.0	+1.0	43	a	-	83	85	87
G8	11.11	8.3	10.3	10.1	10.1	+1.10	52	68	+16	84	69	79
Means	11.9	9.1	9.11	10.6	10.8	+1.7	53	64	+11	85	78	85

Table 39

Just as reading aloud exemplifies only one facet of the reading process, so word reading tests measure only one aspect of reading ability. Nevertheless "barking-at-print" tests, as some educationists call them, are indicative of over-all reading attainment, and the improvements in word reading revealed in this table are significant of an all round improvement in reading, an improvement that is underscored by the increments achieved in comprehension and vocabulary on the South African Silent Reading Group Tests. The improvement in vocabulary was particularly noteworthy.

The boys made more dramatic gains than the girls, though this was partly because they were more retarded to start with. No less than 40% of the 20 boys made up two years or more on word reading while none of the 8 girls made up quite as much leeway. Moreover, most significant and gratifying of all was the improvement in the mean Reading Quotient which by December matched the mean Intelligence Quotient. In 10 months the class made up 7 points in mechanical reading. Expressed another way an 8% average deficit in reading was erased in 10 months and by the end of the year only 3 children (2 boys and 1 girl) were still significantly retarded in reading, whereas at the beginning of the year, 11 children (8 boys and 2 girls) had R.Q.'s of 10 or more points below their I.Q.'s, and were consequently retarded by more than 10%.

1 and 2: An aggregate of scores achieved on South African Silent Reading Group Tests, Junior Forms A and B, Vocabulary, Paragraphs and Sentences.

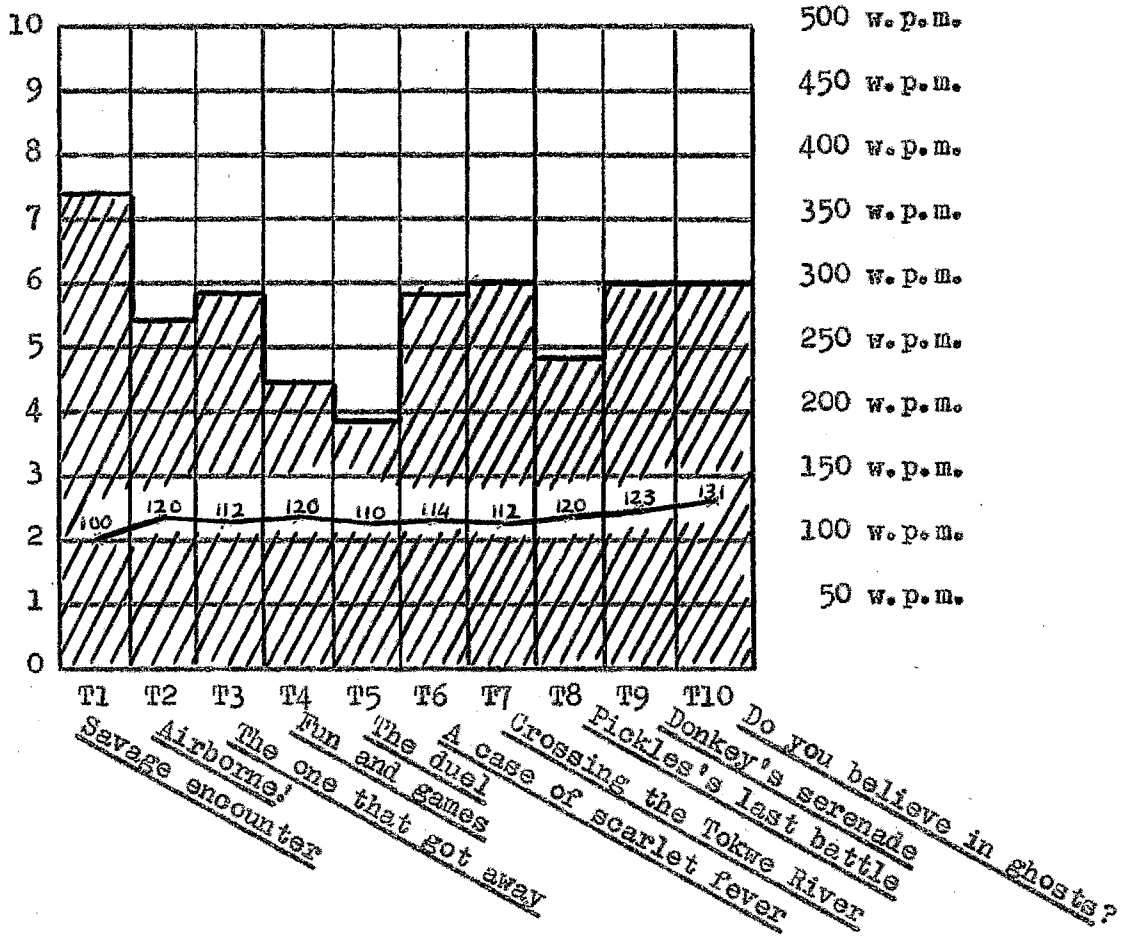


Figure 3

The increase in the class reading rate was insignificant in comparison with the increase in word reading ability, but this was only to be expected since they did not have the general ability, nor the reading ability, even at the end of the course, to really push the pace. However, there is a slight upward trend in the graph from Test 8 onwards, and comprehension is at least maintained at the 60% level at the same time. The erratic pattern of mean comprehension scores caused me some concern, but after a careful scrutiny of the passages and an error analysis of the questions, I only altered five questions (three in Test 2, one in Test 3 and one in Test 8). We decided that too much haste combined with carelessness and poor visualisation had caused the comparatively

poor score on Test 4; and that unfamiliarity with Slot-Car Racing, plus the girls' lack of interest in it, accounted for the diminished score on Test 5. The alterations we made satisfied us that we had done everything possible to equate the levels of difficulty of the questions. It would have been unwise and artificial to attempt to eliminate all fluctuations in such a small, unrepresentative group, and the only way to have been more precise would have been to apply the tests to large random samples. Even then the 10-point scale is too short to show up any but gross inequalities. Means and measures of dispersion on such a short scale can vary very little, and furthermore they tend to mask significant individual differences. Results achieved on the tests completed by boys in School AB and C during 1968 prove that it is virtually impossible to eliminate variances. Here the tests were done in a different order, but mean results still fluctuated, and the fluctuations were different from those above (cf. Figs. 4 and 5 on pp.404-5. See also Table 41 on p. 404 .) Interests partly depend on ability, background and opportunity and since interests largely determine a child's out-of-school experiences I found that boys in School C, who nearly all had direct experience of Slot-Car Racing, even if they did not own a track themselves, did significantly better than boys in School AB, many of whom had never even seen Slot-Car Racing (the former averaged 74%, while the latter averaged 46%).

As can be seen from these results, the year's trial served its purpose.

I now know that the programme could be used successfully with twelve and thirteen year olds of well below average innate ability who were also backward and retarded in reading. From shorter trials with students on Teaching Practices and extension courses during 1966 and 1967, and a term's trial with a Standard 5A in another big two-stream school in Bulawayo in the second term of 1967, I judged that the programme would be suitable for boys and girls in the age range eleven to thirteen, provided that their Mental and Interest Ages neither exceeded nor fell short of their chronological ages by more

than three years in their fourteenth year. Thus a gifted child, one with an I.Q. of 130+ falling in the top 2½% of the population, would probably outgrow this programme in his fourteenth year, while an educationally sub-normal child, one with an I.Q. -70, falling in the bottom 2½% of the population, would probably not be able to cope with Double-Up before his sixteenth year. But for the vast majority of pupils in this range, it appeared that the programme would prove both suitable and productive.

7.3 Double-Up at work in 1968-9

The educational research worker usually undertakes either a longitudinal or a cross-sectional study of the variable which he plans to investigate. A combination of the two methods is a major undertaking because it requires continuous long-term management of large numbers and the control of a great many variables. Usually these complex combination projects are mounted by teams of experts because of the expense, time and work involved, and because of the necessity for continuity of management and rigorous control at all times. Most individual research workers undertake cross-sectional studies because they are easier to handle and do not take so long to work out. Because I was alone and had limited time and resources at my disposal and because of external geographical and educational factors over which I had no control, I had no choice but to undertake a short-term study of limited dimensions along cross-sectional lines. However, I would have liked to do a longitudinal study of both experimental and control groups over a period of two years at least, because there is still some doubt as to whether gains made as a result of developmental reading courses are permanent. On the one hand there are findings like those reported under 5.3 (the results of the Bottomly experiment - see p. 239 , point (iii) in particular), and 5.4 (the results of the Coyne experiment - see p. 261 in particular). On the other hand there are authoritative statements like these:

> "While engaged on the experiment and immediately following it the S.R.A. groups did appear to be better readers. However in the months which followed the difference between experimental and control groups was almost eliminated."
>
> Pont, 1966.

> "In cases where the change in rate can be attributed largely to a reduction of duration, and where the final duration is exceptionally brief, the increased rate is usually the result of a greater effort or drive on the part of the student during the test and does not represent a real or lasting change in performance (my emphasis)."
>
> Stanford E. Taylor, 1968, p.6.

> "...Reading under rate pressure is apparently an abnormal, less efficient process in most instances...There is a characteristic pattern of reading for most subjects which is employed consistently except under rather abnormal conditions (my emphasis)."
>
> Spache, 1960, p.9.

In an activity as complex as reading there are innumerable variables which bear on performance, not the least of which are the test instruments used to measure gains. An experimental group may very well make significant increments on one test and not on another. Thus it is advisable to use more than one test before pronouncing on the effectiveness of a particular programme. It is equally important to ensure that early gains are sustained for a considerable period after the termination of the course before making any claims for the success of a particular method or programme in improving reading performance.

> "To really find out which system is better, tests should be made after two or three years, in the third grade, or perhaps the sixth grade, or even at the end of high school. (The author is referring to gains made on beginning reading courses - my brackets.) Only then will the difference between the two methods really show up."
>
> Flesch, 1955, p.54.

In the event the paucity of statistically significant gains made as a result of the 20-week tutorial programme, and as measured by the test instruments which I have already criticised under 3.3, obviated the need for further testing to see whether gains were maintained. Nevertheless, it might have been a different

story had I used different tests, and/or larger numbers; or had the experimental groups completed the programme (see 7.6 hereunder).

In fact I was able to undertake a longitudinal study of only one child during 1968-9, and this study appears in Appendix S.

During 1968 on Experimental Leg II I concentrated mainly upon a shorter study of two experimental groups working on Double-Up. From 27th May to 6th December, 1968, 90 boys in three different Standard 5 classes in two different schools worked through two thirds of Double-Up: the 47 boys in Experimental Standard 5A and 5B at School C completed 58 passages and the first 7 tests, while 43 boys in the Experimental Standard 5B, which was unstreamed and parallel to the Control Standard 5A at School AB, completed 49 passages and the first six tests. The programme was taught to the three Experimental classes by their respective English teachers in some of the periods which would otherwise have been devoted to Composition, Language Study, Poetry and Literature. If the examination results of Control Group A (Standard 5A at School AB) are compared with those of Experimental Group B (Standard 5B at School AB) - both Groups were taught throughout by the same English teacher, and sat the same examinations in June, September and December - it is apparent that Experimental Group B lost nothing by departing from the syllabus for three periods a week (see Table 40 below).

	Control Std.5A	Experimental Std.5B
June English Aggregate	61.6%	65.0%
Sept. English Aggregate	58.9%	66.6%
Dec. English Aggregate	66.0%	66.0%

TABLE 40

By the same token, they do not appear to have gained anything that can be measured by examinations of this kind (see December examination papers, Appendix G , pp.511-4. In this regard the "italicised" portions of the following report by the English Teacher concerned, are apposite.

"When I was asked to teach Double-Up to my Standard 5 boys, I was immediately struck by the wide range of opportunities which the course offered. Not only could this improve the comprehension and reading of my boys, but also their vocabulary would be enriched and a wide variety of oral and written composition work could stem from the many stories.

"The boys entered upon the course with tremendous enthusiasm and interest. The idea of having them chart their own progress in graphs is very good as the boys took a lively interest in their own progress as well as their progress in relation to the other boys in the class.

"Unfortunately I found that time was too limited to do full justice to the course. Because I was doing specialised teaching in several classes, I found that when we had completed a passage, the period was up and the Points for Discussion would have to wait - often until the next day. This tended to squash the creative side of the work completely. The boys hate having to come back to a thing once they have finished it. I cannot stress enough the need to maintain interest in the creative side by completing the Points for Discussion, as far as possible, immediately after the completion of the passage.

"Many of the boys were not terribly keen on the acting out of the stories. I could only put this down to the fact that many of them were growing lads and rather self-conscious about anything which appeared to be 'cissy-ish'. Once again I found that lack of time was a big factor here, as the clanging of the bell and the arrival of the next teacher broke any atmosphere which had been created.

"I do not think that one could improve on the subjects used in the many passages. At no time did interest in the subject matter wane, and no one story was universally disapproved of. Where there was disapproval in a story, there was always a group ready to defend its merits and the discussions which followed were keen, heated and generally beneficial to all involved.

"To sum up briefly:

(a) Even though the boys only completed up to Test 6, tests prove that Double-Up has made a marked improvement in their reading speed, comprehension and vocabulary.

(b) The boys (and their teacher) certainly found the course far more interesting and satisfying than the normal course laid down by the syllabus.

(c) A l t h o u g h Double-Up c e r t a i n l y d o e s p r e s e n t u n l i m i t e d p o s s i b i l i t i e s f o r r e a l l y e x c i t i n g a n d c r e a t i v e e x t e n s i o n w o r k, I w a s u n a b l e t o e x p l o i t t h e s e o w i n g t o t h e t i m e f a c t o r - a r e s u l t o f s p e c i a l i s t t e a c h i n g. S p e c i a l i s t t e a c h i n g, a n d t h e n e c e s s i t y t o b r e a k o n e ' s l e s s o n a n d m o v e o n w h e n t h e b e l l r i n g s, n u l l i f i e s a n y g a i n s m a d e i n t h e c r e a t i v e s i d e o f Double-Up."

Much the same limitations were imposed on the programme at School C. Here, too, the periods were 35-40 mins. long and the various specialist teachers taught formally and to a crowded syllabus and a tight schedule. Nevertheless the programme was competently taught within these limitations and the boys in both classes made gains in all aspects of communication. However, one of their recurrent complaints in the questionnaire completed at the end of the course was that they grew tired of Double-Up when they had to work through three or four stories a week in this rather stereotyped, sedentary way. Children of this age need lots of variety and activity in the learning situation and if the Points for Discussion are repeatedly omitted the course for the less able students at least becomes a dreary progression of comprehension exercises. The fact that the slower children do not achieve consistently high marks, and are not likely to show sustained improvement in their results, only adds to their frustration. It also encourages them to cheat, something which is an endemic hazard in any teaching programme. Dramatisation is particularly important for the less able children because it

clarifies nebulous, muddled concepts and reinforces a tenuous grasp of actions and events. Admittedly dramatic activity is disruptive, time-consuming and difficult to manage, but it pays such handsome dividends that it is a pity that teachers have so little time for it. They would do well to inform themselves of research into child development: children need to act in order to develop physically, intellectually, socially and emotionally.

Apart from this omission the teachers followed the instructions and suggestions set out in the Introduction in the spirit as well as the letter. I sat in on a number of lessons in all three classes and decided that there was no need to revise or add to any of the points made in the Introduction. The teacher in School AB divided his class into three groups on the basis of reading times taken for the first test. By this time the boys had worked through the first four 350-word passages and become familiar with the requirements of the programme so they could be expected to perform reliably on Test 1. Individual abilities varied so much in this large class that it was essential to group them. Thereafter the first group of 15 youngsters was given two minutes to read a story, the second group of 18, three minutes, and the third group of 10, four minutes. He grouped the boys roughly in rows so that he could quietly and informally stop a group reading without disturbing the other groups. Despite the large numbers and the organisational problems involved, the management was effective, the supervision continuous, yet unobtrusive, and the teaching purposive. As the passages lengthened he found that the boys could not comfortably keep up so he sensibly increased the reading times by an elastic thirty seconds so as to ensure that the majority of boys finished a passage before having to answer the questions. Unfortunately he did not exploit the possibilities of flash-cards and word work related to the stories to the full, and consequently the children's vocabularies were not as far developed as they might have been, nor was their written composition work markedly invigorated by the programme.

The two ladies teaching in School C did integrate developmental reading with other aspects of English, particularly written composition, and they used a number of topics and themes suggested by stories in Double-Up as springboards for children's compositions. Furthermore, Mrs M. in Standard 5B used flash-cards to good effect to extend and reinforce pupil's vocabularies, and she was convinced that their compositions were more interesting and lively as a result. I believe that I, too, detected an improvement and the examples which follow illustrate how Double-Up influenced both the content and the style of boys' writing in these two classes. It would be futile for me to try to analyse compositions written early in 1968 and those written late in the year in an attempt to prove that there was a significant development in ideas, vocabulary and sentence construction. In the first place I would need to quote all of a number of boys' compositions in order not to beg the question (one could prove whatever one wanted to prove by a judicious selection of examples), and in the second place any piece of imaginative writing, like any other art form, is infinitely more than the sum of its parts: thus a compound sentence and an adjectival-adverbial usage count would be an artificial and inadequate measure of improvement. So it seems best simply to quote a number of examples of imaginative writing, together with their archetypes, as tangible evidence of the way Double-Up was used to stimulate children to write freely.

Example 1

Passage 38 : The dog fight[1]

> Dogs are like people; they take a little while to get to know and accept one another. When the Martins moved into number seven Buster discovered that there was a spaniel on one side of him, a dalmation on the other and a labrador opposite, not to mention a dachshund, a ridge-back, a poodle, a fox-terrier and two alsatians in the same road. The dachshund and the poodle presented no problems. They yapped excitedly when he approached but as soon as he bared his teeth they got out of his way and returned to the safety of their own gardens. The spaniel put on a brave show of barking and growling but as soon as Buster called his bluff

[1] See Double-Up, p.92

in a swift, silent charge he turned tail and fled. The dalmation seemed to consider himself a cut above the other dogs in the road, particularly the burly newcomer whom he treated with complete disdain. Since the dalmation was twice as big as the bull-terrier Buster was not unduly put out by the spotted dog's snobbishness, particularly since he had bigger headaches in the shape of the two alsatians, the ridge-back, and the labrador. But it was the fox-terrier, Digger by name, a dog of his own size and ferocious temper, who promised to give him the most trouble.

One morning Buster strode out of his front gate into the road, and trotted off towards the dog's favourite lamp-post on the corner. Half way down the road he noticed that Digger was following him, and when he got to the lamp-post the fox-terrier was close on his heels. Buster did not allow himself to be hurried, however, and finished his business. He then circled the lamp-post to confront Digger. Now he and the fox-terrier stood face to face and slowly the hair rose on both their backs. They circled one another slowly, stiff-legged and bristling, neither giving an inch. Buster bared his yellow teeth and growled throatily. Digger showed his fangs and responded with a bubbling snarl. Then suddenly the two dogs closed in a flurry of flashing teeth. They moved so fast that it was impossible to follow their movements. Hair and saliva flew and savage snarls accompanied the slashing, mauling battle. Within seconds their slavering jaws were tinged with red froth as fangs drew blood. The fox-terrier ripped Buster's battle-scarred ear and Buster responded by taking a chunk out of Digger's shoulder. Then with incredible speed the bull-terrier lunged and knocked the fox-terrier off his feet. In a trice he had him by the throat and Digger's snarls changed to strangled gasps as he struggled futilely to escape the vice-like jaws of his opponent. His claws scrabbled wildly at the bull-terrier's chest but nothing he could do could break that terrible grip. Had it not been for his thick collar and the timely arrival of the post-man, who ripped the two dogs apart bodily, Buster would surely have killed Digger. As it was the fox-terrier was on the sick-list for a week and when he again appeared on the road he kept his distance. Word seemed to get around to the other dogs too, and from that day on the newcomer was accepted as one of the boys, or should I say dogs!

The second question for discussion read, "Describe the worst dog-fight that you have ever seen", and a lad in Standard 5A wrote the following story.

A Dog Fight

Early one Sunday morning, as everybody lay asleep in their beds, a ferocious Bull-Mastiff faced an old Spaniel. The owners of the two dogs were completely unaware of the scene that took place.

With vicious growls, the former faced his opponent. He was crouched, ready to spring at the throat of his elderly and somewhat calm enemy. The only sign of fear being a shiver in his hindquarters. Soon the fated scrap had begun and the silent, crisp air was rent by sharp yelps. The fight was a fight to the death, and it soon seemed near the end as the black Mastiff held the throat of his snarling enemy. But, with an experienced squirm, the Spaniel was soon free and on his feet once again. It was obvious the younger dog had the upper-hand because of his quickness. However, the elder was more experienced in this part of a dog's life, so it was pretty even. By this time the owners were both awake. Watching his dog with confidence, one of them looked out of his bedroom window. Meanwhile, the other, as soon as his frustrated wife had woken him from his peaceful slumber, was out of the window in a trice with a broomstick as his weapon. He waded into the dog fight half asleep, but was soon fully awake! Realising his plight, he soon stopped the dogs with the help of his teenage son, who poured a bucket of cold water over all three of them! He emerged, triumphant, sopping wet with blood streaming out of his calf. Quickly taken to hospital he was fixed with stitches.

Fortunately the two dogs both survived and lived to fight again. Both owners were soon back in bed and the incident was forgotten by all, except the two dogs.

C6.

Examples 2, 3 and 4

Passage 28 : Ton-up[1]

The finishing touches were complete. 'The Special' was ready to go. The gear, clutch and brake levers had been adjusted to suit my riding position. The tank had been filled with the normal petrol-benzol mixture and the oil sump with Castrol R. The megaphones had been fitted

[1]See Double-Up, p.68

securely and the entire power-unit had been systematically checked. I pulled on a crash-helmet, over-leathers and half-boots, strolled outside and climbed onto the machine which in a short while was going to do the ton. Pulling in the clutch, I kicked over the engine to circulate the oil. Then, settling into position, I beckoned to a mechanic to give me a push. When the bike had gathered enough momentum I engaged second gear and let out the clutch. The back wheel skidded momentarily, but soon got the engine turning. 'The Special' spluttered, coughed and then cleared herself with a mighty roar. I changed down to first gear to clear the carburettor and the engine backfired obediently. In first gear the speedometer needle soon registered forty five m.p.h.; then a quick downward flick of the gearshift and away we went in second. Another downward flick into third and again into top, twisting the throttle wide open in every gear, and we were doing eighty. By this time it was necessary for me to hug the tank to cheat wind resistance, but still the wind howled around my head and threatened to tear me off. I could just hear the hum of the tyres above the throaty roar of the twin exhausts. I could not tell if the white blur in the middle of the road was a dotted or continuous line and the white rocks at the side of the road seemed to rush at me as I screamed past. When the speedo needle was hovering around one hundred and ten I eased off a little. Approaching a corner, I slowed down and flicked the gearshift into third. Acceleration out of the corner was amazing and I was overjoyed with our tuning efforts. To test the 'bike's braking efficiency I slowed down to forty and then stood on the brakes. Miraculously the machine came to a grinding halt in about fifty feet. On the way back I took my time and began to think ahead to the coming race meeting. If 'The Special' performed as it had today we were bound to get a place.

When we were a mile from home I again gave her her head and opened the throttle wide. The needle was hovering around the hundred mark when a jack-rabbit leapt out of the grass on the verge of the road straight into the path of the hurtling machine. There was a thump and for one heat-stopping second I thought I would lose control. An embankment on the right of the road loomed before me and I corrected in the nick of time. I braked gently and sighed with relief as the needle unwound and we lost way. It had been a close shave!

The boys liked this story so well that Mrs T. decided to give them an opportunity to write something similar, even though in this instance the Points for Discussion did not suggest this type of follow-up. The examples show the relish with which the boys wrote.

Some of the technical terminology and descriptive words are derived directly from Ton-up, but to my mind these lend authenticity and realism to their writing. The personification - "the green machine was still breathing down my neck" - and the identification of the rider with his machine - "The needle registered No m.p.h. as we steadily gained on the leader" - are also "caught" from the passage, but they are used naturally and add vivacity to their stories. Noticeably these lads are sufficiently original and imaginative unconsciously to want to alter any devices that they choose to adopt.

The Special

I laced up my half-boots, slipped into my leather overall, took my rubber gloves in my hand and walked uneasily over to where my mechanic was checking over my machine, "The Special". Then he wheeled my machine to the start and wished me good luck. I was very confident that I would get a place because "The Special" had performed magnificently on the test run. I slipped on my crash-helmet, pulled down my goggles and kicked the starter simultaneous to my six opponents.

A crowd of thirty-thousand had turned out to watch the annual motorbike and were now waiting tensely for the green to go down.

As it dropped down there was a roar as all the 'bikes took off. Mike Spence, on a green Honda, and I were neck and neck in the lead. I went through the gears smoothly and the needle was touching 90 m.p.h. But the green machine was still breathing down my neck. On the straight before the S bends I pulled ten yards ahead of him doing 110 m.p.h. I then slowed up and went weaving through the S's. Mike Spence tried desperately to catch up and didn't slow up enough and went careering into the bales of straw. On my second lap I saw the straw on fire and firemen were rushing around with foam hoses. On the fifth lap I was still far in the lead. "The Special" was performing even better than on the test run. On the eighth lap I was confident that I had the race in the bag because I only had two laps left.

When I passed the pits Bert my mechanic, beckoned me to come into the pits. Then I turned round to see I was leaving a steady oil trail. I had an oil leak! I quickly swung into the pits where Bert hastily filled my oil tank with the special CASTROL R.

Then I went back onto the track. I was half a lap behind so I gave it all I could. I did an average of 100 m.p.h. I caught up and passed all the others accept Jack Fielding who was in the lead. I drew level with him. We were still level on the home straight. Then I made "The Special" go all out. I pulled ahead and passed the checked flag first two yards ahead of Jack.

I took the huge silver cup and bowed galliantly in front of the crowds. There was a mighty roar from the crowds.

05.

A Close Shave

The last minutes before the race ticked by slowly. The Special's engine had been thoroughly checked and the fuel tank was full. She was now ready to do battle.

The 'bikes were lined up along a bold white line. The starter looked at his watch, the chequered flag high above his head. The engines were revving loudly, when the flag flashed down. I let go the clutch and the cold engine coughed and spluttered momentilary, but with a sudden roar she started off. I flicked the gearshift down into second, and after a short while into third. By now the speedometer needle registered eighty-five m.p.h. I was on the trailing 'bike's tail when I flicked her into top and we soon passed it, doing almost a hundred m.p.h.

By the time the needle flickered around 110 m.p.h., I could see the leaders about 300 yards ahead. With my chest on the fueltank, we steadily gained on them. We lost way around a sharp bend, but we were soon in hot pursuit again.

Suddenly the Special began to jerk, and as I searched the engine for the fault, I noticed one of the spark-plugs was loose. I put my foot rapidly on the brake, and we screeched to a halt in about 50 feet. I jumped of the saddle and quickly pressed the sparkplug into place, not heeding the heat which came through the gloves. I jumped on, and in a flash we were away again. By now, wewere way behind the leaders. The engine roared loudly as we raced at 115 m.p.h., the fastest the Special had done. The wind threatened to pull me off, but my tight grip on the handle-bars prevented me from falling off.

Before long we were close behind the leaders. I was determined to catch them before the end. The Special was certained showing its great ability.

When I was about 300 yards nearer, I noticed three of the leaders were sagging behind a sleek, black 'bike. I passed them about 200 yards from the winning posts, and the leader was about 50 yards ahead of me. The needle registered 120 m.p.h. as we steadily gained on the leader. There were 100 yards to go and we were about 5 yards behind the leader. The rider noticed me close behind and gained speed. At about 25 yards to the finish, we were almost wheel to wheel. I put on an extra burst and both 'bikes flashed past the winning post. The result was a great blow for the Special. The black 'bike, namely the Panther, had won by a hair's breadth.

Nevertheless, the Special had shown its wonderful ability as a winner.

C16.

A Dead Tie

The race was about to begin and I crouched on the special's saddle tense and nervas. The other two competitors seemed quite relaxed, then the starter's gun barked and we were off. The wind buffeted me as we touched ninety.

The embankment loomed up. we roared into another straight, we were now lying second. My arms ached as we passed the five mile mark. The machine in front back-fired and skidded into the side of the track, where it stopped abruptly. The rider kicked the starter and the motor roared into life again. We were in the lead at last.

Number three a red machine, snatched the lead from us, though we tried desperately to overhaul it, it was too far beyond our reach. Then it skidded and turned, throwing it's rider, groaning onto the track. I slowed down as we approached him, stopped, dragged him off the track, and laid him on the grass verge. The other machine roared past. We were now truly last, about two hundred yards from the leading bike. On the last lap we reached it, roared through the last straight, wheel to wheel, then the other bike's engine coughed and spluttered, but started again. It gave a terrific spurt of speed, we levelled as we flashed past the winning flag, as the crowd roared with excitement. It was a dead heat.

The spectators cheered as we received the laural together. The injured man had broken a leg and two ribs and, he was admitted to hospital before the race ended.

C17.

Examples 5, 6, 7 and 8

Martin the Matabele Ant goes big game hunting.[1]

Being fully half an inch long and a glossy black all over Martin was one of the best looking ants in Antville. His magnificent mandibles were quite capable of slicing through a tall blade of summer grass and his strength and courage were legendary. He was the idol of all the lants (lady ants), and all the gants (gentlemen ants) in Antville envied him his hunting prowess - it was rumoured that he had once overpowered a full grown tik-tok beetle with his bare pincers. The ants in pants also envied him his success with the lants, many of whom swooned at the mere sight of him. Even the most beautiful lant in Antville, Mandy the Mayor's daughter, loved the mighty Martin.

One hot and sultry day just after the summer rains had broken (two feelers of rain had fallen the previous day), Martin decided to go big game hunting. Immediately he set off to the local gun-ant and bought a new heavy bore Lee-Antford rifle (a sawn-off darning needle hollowed out by the village black-ant) and twenty rounds of ammunition (special blackjacks), all for ten flying-ants' wings. Two days later he arrived in the jungle fifty ant-miles (just over a mile) away. It was in this tangled maze of grass and weeds that the terrible rhinoceros beetle lived. But Martin was not dismayed, even when he came across the fearsome creature's fresh tracks in a clearing. In fact he decided to sleep in that very clearing that night and set about building a shelter out of an old paw-paw leaf. Finding a pea-pod handy he dragged it under the paw-paw leaf and promptly retired for the night. Being such a manly ant he didn't bother with blankets but merely lay on his back with his six legs straight up in the air, and within minutes he was snoring gently while a light rain pattered on his paw-paw leaf and the mosquitoes serenaded the moon.

Next morning he set up an ambush beside the nearby waterhole (an old ink-well). He crouched behind a pile of pumpking pips for nearly an hour before the fearsome rhinoceros beetle put in an appearance. Then it marched out from behind a dandelion looking very irritable and snorting ferociously. It was fully ten pincers long but Martin never flinched. Taking careful aim he loosed three blackjacks one after the other. The first one glanced off the beetle's armour-plated flank, but the next one struck him in the chest, and the third one hit him right between the eyes. His eyes crossed and he bellowed with pain. Martin had given him the worst headache he'd had for years and he felt distinctly sick. However, he hadn't got his terrible reputation for nothing and, shaking his head vigorously and uncrossing his eyes, he prepared to charge. But Martin fired again and stopped him in his tracks with a blackjack in his snout. The monstrous beetle

[1]See Double-Up, p.90

sneezed so violently that he burst a blood-vessel and expired on the spot. Triumphantly Martin approached his kill, lopped off its head and started back to Antville with his trophy.

Three days later he made headlines in the local newspaper, the Antville Herald. He was also made Hunt of Antville and given Mandy's pincer in marriage.

The boys in Standard 5B in particular took to Martin immediately and when given the opportunity to write up his next adventure they produced some ingenious and amusing stories.

Martin the Matabele ant explores the human body

Martin the Matabele gant was going to attempt to explore the gigantic human Body. He was doing this to prove his courage to Mandy, his future wife. He knew a small boy who often came for a walk with his dog and rested on a stone near the ant-heap wherein Martin lived.

Martin said goodbye to Mandy and set off to wait for the boy. He did not have to wait long for the boy was early. He clung onto the boy's pants and then climbed to the boy's ear where Martin spent the rest of the day. The boy retired to bed early and soon was snoring. Martin crossed his hugh cheek and started up his nose. The wind was blowing backward and forward, up and down so Martin had to cling on with all of his six legs. Martin soon came out in the boy's throat where the wind wasn't blowing such a gale. He adventured down the boy's gullet and found it terribly stuffy . He then went back to the boys ear via his mouth and spent the night and the next day till the boy took his dog for another walk that afternoon.

He then was happily married to Mandy and carried on with adventures.

CCC2B.

Martin goes flying

Martin now had enough money (Flying ants wings) to take up flying lessons. He went to the Flying club for ants to see if he could join. The next morning he was at the club with all his flying kit. He was shown his blue plane (a dragonfly) wich he would train in.

He got on behind his instructor and they were off, he held on with both hands but he slipped and felt himself falling. His parachute (a leaf) opened then he felt a jerk, and as softly as a feather floated down.

He landed with a thud that shook every bone in his body. When he came to his senses he was in bed. He had failed the first time but he will fly yet.

CC7B.

Martin the Matabele Ant Goes Hunting again

Martin had killed the ferocous rhineosorous nettle with his gun.

And now there was a large preying mantis in the village killing and eating the young and old ants and he couldent care who the mayant (mayor ant) sent to stop him.

So the next day Martin recived a letter by ant-post from the mayant asking him to come and kill it. (the fearful mantis).

He immediately went to the gunant and bought the newest model Leeantford rifle and twenty nine rounds of ammunication (specially grown blackjacks).

He set of early next morning with his gun and ammunition over his shoulder. He caught the safri bus (two small beetles) at 10 o'clock to the area in which the mantis was. Suddenly the beetle went wild and took off it was the terrible mantis! He had taken the beetle to eat! He was truly monstrous. The other beetle bus had hidden under a leaf. Martin fell from the other bus and hurt one of his six legs.

"Owch!" he yelled under his breath "I'll get you, you brute!" He took careful aim and let lose four shots at the brute one hit the mantis in the eye and the other three in his tummy.

"OOh you horrible ant you. Look what you did to my lovely tummy!" sobbed the mantis, and rushed at him. Martin shot it in the neck and it fell dead. Then the townspeople came to greet him. They had slowly gathered while the battle had raged. They carried him shoulder high to the village and he made headlines in the ant herald next morning.

C22B

Matabeleant

Ant-general Matabele charged forward, his anttroops behind thrust their bayonets (thorns) into the enemy.

Matabele's double edged sword (a blade of grass) swung wildly as he decapitated one of the enemy antriflemen.

They charged through the enemy, turned around and charged straight back at them this time catching them in complete confusion, they cut them to pieces, the thin black body of Matabele leading the way through the redants. Matabele was the hero of the day having lead his blackant army against the much hated red ants and beaten them. (Something unic.)

CC10B

Aware, a 28-page anthology written by children for children, was one of the important by-products of this research project, and the composite poem The Last Battle, made up of excerpts from a number of poems, was directly inspired by that stirring episode of Rhodesian history, Allan Wilson's last stand. The degree to which these 12 year old boys projected in writing their dramatic poems is amazing. Rhodesian history is not in their syllabus and they had no stimulus other than the 600 word story and the second Point for Discussion, "Put yourself in the place of one of these gallant Troopers. What would your thoughts have been as the Matabele closed in?" The uniformly high standard of their compositions may be gauged from the fact that no less than 13 out of a class of 24 contributed to the final poem.

Example 9

Passage 42 : Men of men[1]

> The burning tropical sun beat down upon the green mopani forest, while drops of rain from the previous night's storm dripped from the trees onto the sand-veld below. It would have been pleasant to sit in a tall tree and watch all the activity going on around, but for the steamy heat and the breathless hush that hung over the veld. Except for the dripping water, all was strangely still. Even the birds were quiet in the tree tops and nothing disturbed the ominous silence.
>
> In a small clearing thirty four young men were gathered, looking at one another expectantly. Horses stood or lay in a circle around them, some dead, some dying, and none of them understanding the drama that was being played in their midst. One attack had been withstood, and now together they stood, thirty four young men from the Bechuanaland Border Police and from the newly formed British South Africa Police awaiting the next attack. In the group one man stood out, a young Scotsman, his plaid distinctive in that khaki and brown company. He had come from Fort Victoria with his troopers who had sworn to follow him to the ends of the earth if necessary. They had met up with Forbes's patrol in Bulawayo, had joined forces with him and headed north to chase the fleeing enemy. For a week they had pursued the Matabele relentlessly and then the

[1] See Double-Up, p.104

previous day they had crossed the wide, yellow Shangani River, now in full spate behind them. Late the previous night they had been surrounded by the mighty Matabele army, stronger than the Zulu army at the height of its power. Now, their retreat cut off by the raging river behind them, there was nothing left for the white men to do but to stand and fight. Around them in the dense bush, unseen and unheard, lurked the black hordes, peering out of yellow-rimmed eyes towards the clearing. They crouched at four foot intervals, their gleaming bodies tense with anticipation of the carnage to come. Their commander, one of Lobengula's most trusted Indunas, Njaan, a wizened old man who had seen action throughout Souther Africa over the last seven decades, prepared for the final assault. It wasn't going to be as easy as he had thought. He had told Lobengula the previous night that they would despatch this small band of white men with ease in the morning. Then they would cross the river to where the main force was in camp, and attack the lily-livered whites instead of fleeing from them. But the dawn had come and gone and it was now late afternoon, and these gallant white soldiers had held the full force of the Matabele at bay for ten hours. No wonder Njaan was to say later, "These were men of men and their fathers were men before them". The Impis were restless and Njaan could no longer restrain them. So he decided that it was time to move in. In the clearing, gathered round a solitary ant-heap, the thirty four young troopers awaited the advance. Major Wilson issued them all with a piece of paper and a pencil and each one of them from Jack Robertson, a tall, dour Scot, to young trooper Dillon, seventeen and just out from England, wrote last letters to their homes and loved ones. Then, proud and erect, the young men stood in the centre of the clearing and sang "God Save the Queen". The Matabele army gathered and thirty four young men prepared to die valiantly in order that they might live forever in history.

The Last Battle

(Thirty-three young men died with Major Allan Wilson on the Shangani Patrol near the Shangani River on 4th December 1893. In the words of an old Induna who was present, "These were men of men, and their fathers were men before them". These might have been their last thoughts.)

I sit here with a lump in my throat,
Wondering why I ever joined the Police Force,
Wondering why I ever took that oath
To follow my Major....
The sleek black hordes creep nearer and nearer,
With spears and assegais in hand.
Fear creeps slowly up my spine,
And drips steadily down my forehead.

I give a fearful glance at my apprehensive comrades....
As we stand in the clearing,
Desperate and hopeless, yet proud and defiant,
I think longingly of the cool river
Which runs close to my home,
And the people who have played
Such an important part in my life,
Desperately wishing to see them once more,
Knowing that this is the end,
Wondering at the futility of the way
We are going to die.
Suddenly a sinister rustling awakes
A sensation of horror
As I think of the savage Matabele,
Wondering if death will be
Long and drawn out,
Or quick and sharp....
A heavy, ominous silence settles upon the clearing.
The only sound is the distant roaring of the river in flood,
The river that has cut off our retreat.
My mouth is dry and when I wipe my forehead
My hand comes away cold and clammy.
"O God, please help me", I say to myself.
"O God, please help me"....
I feel helpless and hopeless....
We are to write our last letters home.
Home.
The thought brings a lump to my throat....
What can I write on this formidable piece of paper?
A death warrant....
My hands tremble as the blunt pencil scribbles....
My heart is in my mouth,
I write the letter,
The last letter ever to be written
By me.
The dark, vicious figures lurk in the bushes,
Everything still and fearful.
My comrades stand beside me
With faces solemn and jaws set.
Not a whisper among us,
Not the move of a head,
Bold and brave, but still thinking
Of home.
Everything crams my head all at once,
Too much to be held.
Violent visions vanish
Of beautiful, everlasting England
As the time of doom devours
My desperate, devastated mind.
The terrible time ticks by.
Dark shapes, shadowed under the dripping trees,
Loom before me....

With gritted teeth and defiant courage
I must face my doom.
I must not allow my thoughts to waver
From my present predicament.
I must ignore the stream of sweat down my face,
And the prickling feeling at the back of my neck....
My tongue is dry and swollen,
My eyes dull and heavy.
Thousands of Matabele warriors stare at us,
A forsaken band in a hostile land....
The National Anthem,
"God save the Queen".
Goodbye to her, too.
Black figures bob up and down in the scrub.
Now all that is left is death!
Darkness!....
I stand up shakily,
Ready for unwelcome death....
Shall I now, this day, discover Heaven?....
What is it like to be dead?
I am going to find out now.
The Matabele are closing in....
Brown, shining bodies burst out of the bush,
Hurdling the horses' bodies....
Suddenly my mind is void of feeling,
The Matabele are upon us....
Pain transfixes me....
O God, please protect me....

C2, C12, C7, C18, C9, C1, C4, C13, C15, C17 Ab1, C14 and C3.

(In all the above examples I have used the ciphers by which I refer to the boys elsewhere so that the reader may look up their ability profiles if he desires.)

7.4 Results achieved on the programme itself

These are set out in Table 41 and Figs. 4,5,6 and 7. As can be seen, boys made steady progress in both speed of reading and comprehension both up the "steps" and in the tests. The four figures show how rate and comprehension increase concomitantly. Comprehension seems to improve with the increased concentration necessary for fast, economical reading. However, it must not be supposed that the rate of reading can be increased indefinitely. Speed and power of reading depend on many factors, and can only be improved within the limits imposed by these factors (see 2.6). Furthermore improvement is often discontinuous and uneven. These curves and block graphs only appear reasonably smooth because they express average trends. Finally, to conclude this section, there are three photographs of children's actual records on p.407.

Passages	Tests	Group B (Std. 5B, School AB)		Group C (Std. 5A, School C)		(Std. 5B, School C)	
4x350 words		66%		78%		64%	
	Test 1		46%		77%		68%
9x400 words		63%		76%		64%	
	Test 2		58%		82%		73%
9x450 words		71%		83%		69%	
	Test 3		64%		70%		57%
9x500 words		66%		75%		62%	
	Test 4		67%		76%		55%
9x550 words		75%		84%		72%	
	Test 5		74%		80%		79%
9x600 words		71%		82%		69%	
	Test 6		78%		91%		85%
9x650 words		-		88%		74%	
	Test 7		-		83%		87%
	Means	68.2%	64.5%	80.9%	79.9%	67.7%	72.0%

TABLE 41 : results in both Experimental Groups, May-Dec., 1968.

The differentials between the A and B streams in School C indicate that both the "steps" and the Tests differentiate nicely between different ability groups.

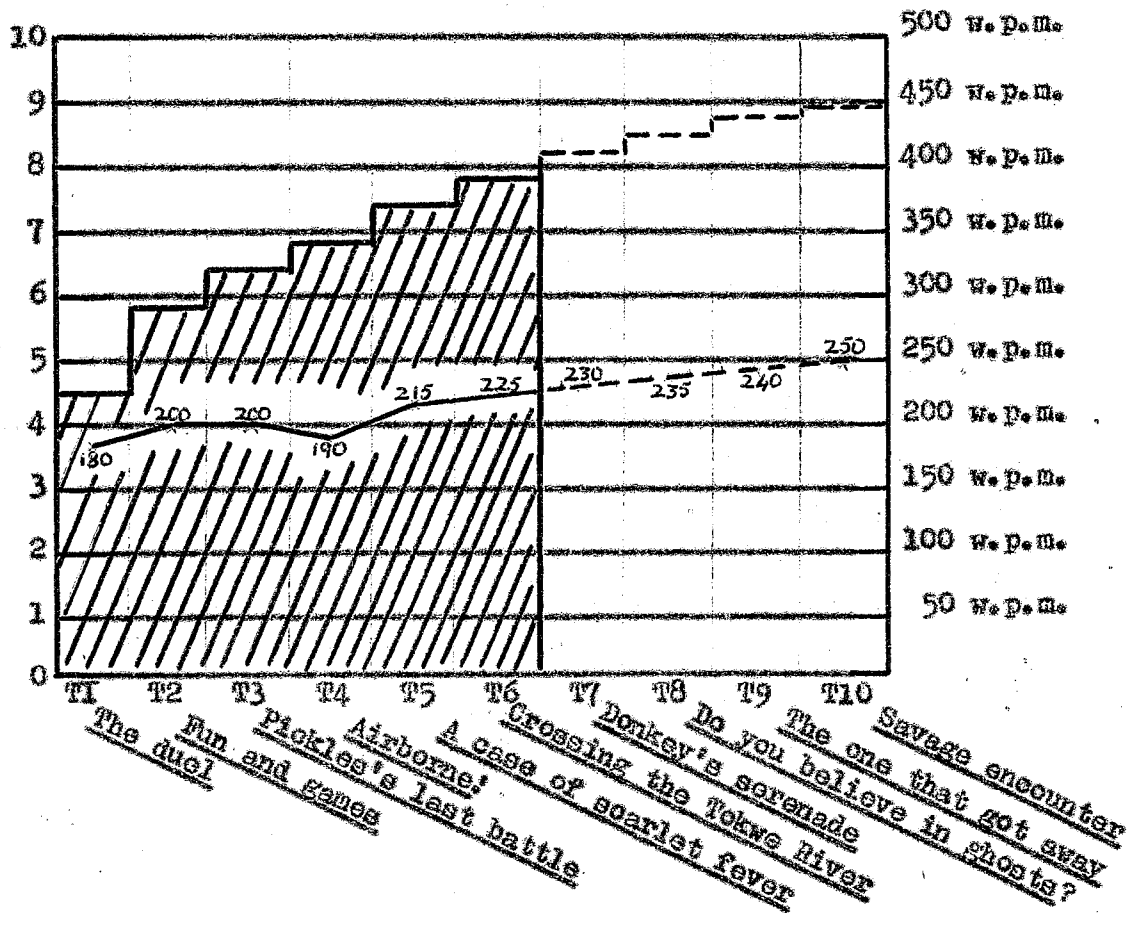


Fig. 4 : Results at School AB, May-Dec., 1968

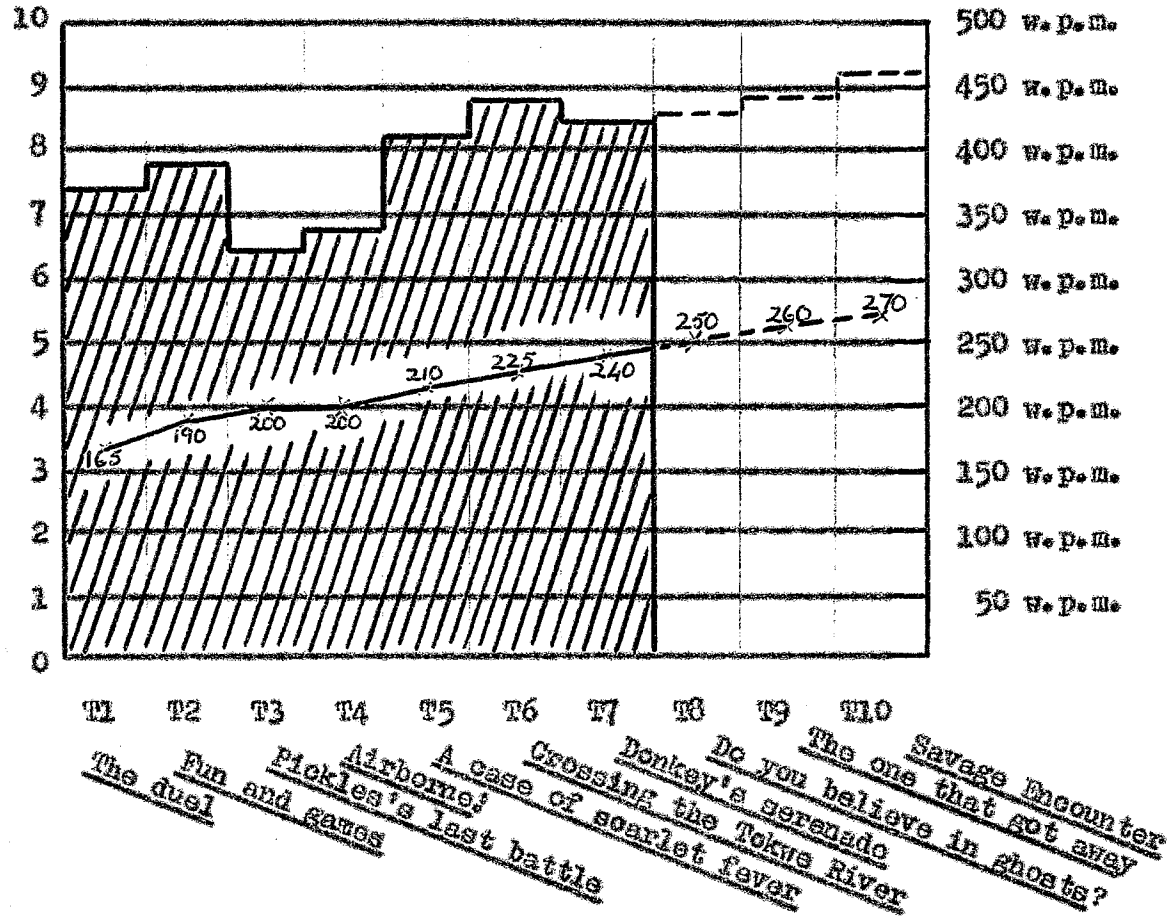


Fig. 5 : Results at School C, May-Dec., 1968

The results expressed here are an amalgamation of the results in Std. 5A and Std. 5B. This gives the same number of pupils and the same spread of ability as the Std. 5B at School AB, and the two graphs are remarkably similar. It is instructive to compare these graphs with Figs. 6 and 7 overleaf. Both the above graphs have been completed on the basis of a proportional expectation calculated from results achieved in the 1967 pilot class. (See Fig. 3 on p. 382.)

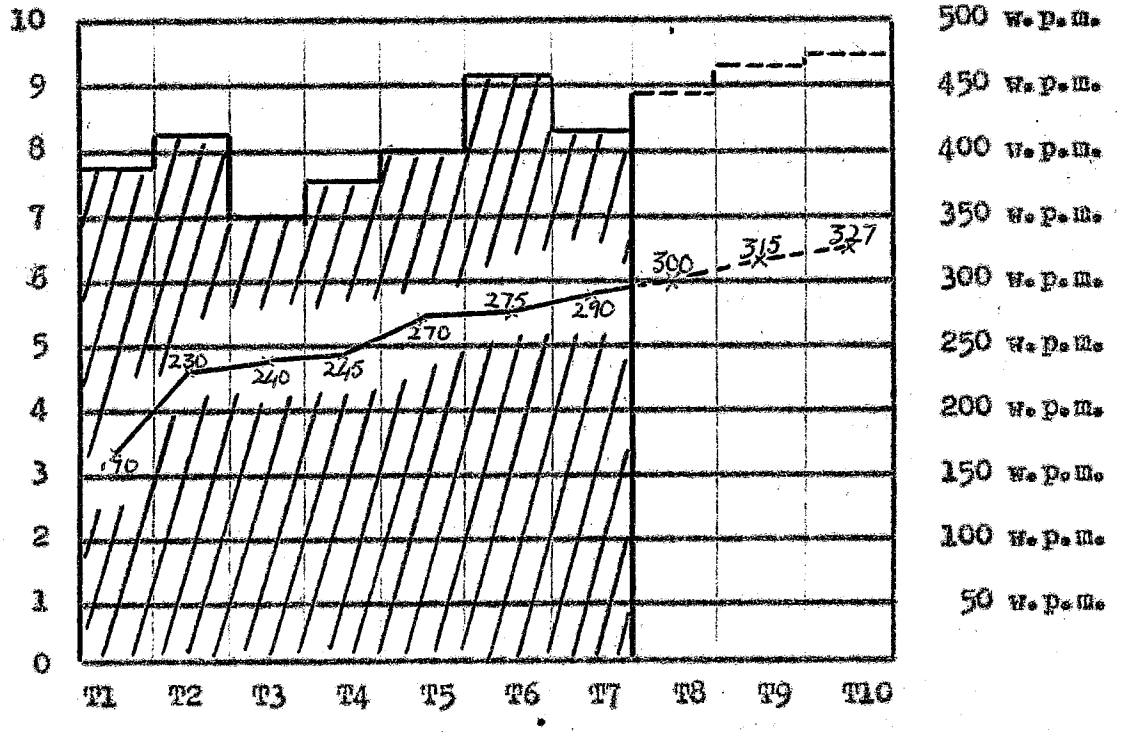


Fig. 6 : Results in Std. 5A of School C, May-Dec., 1968

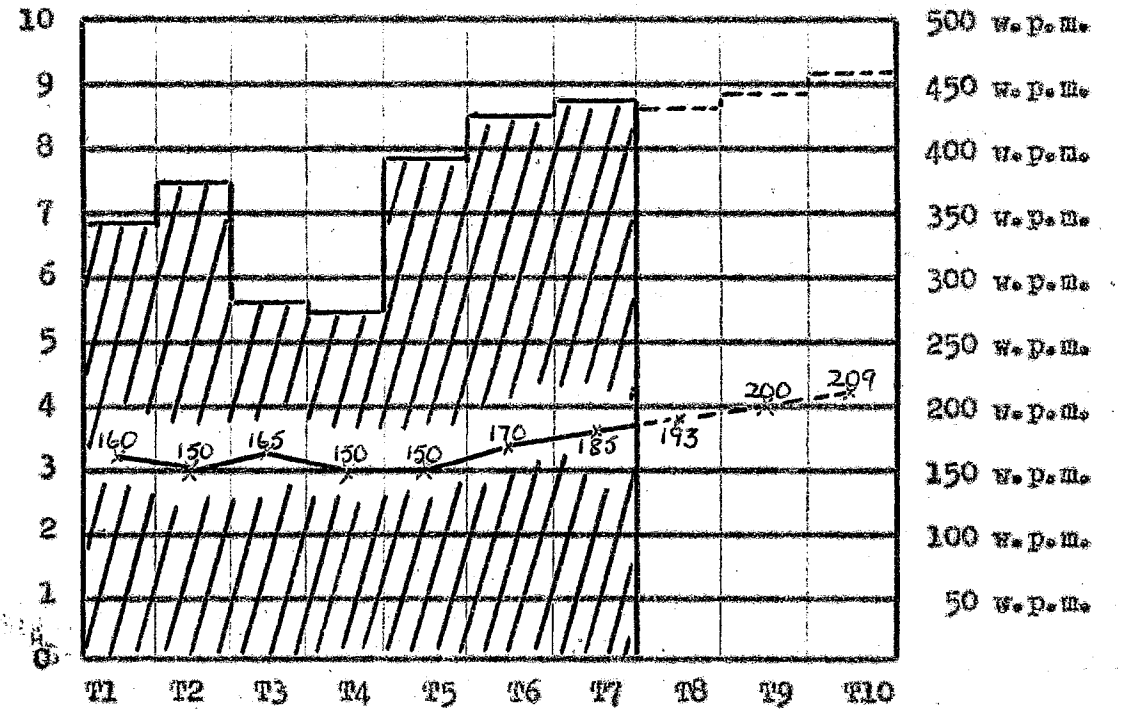
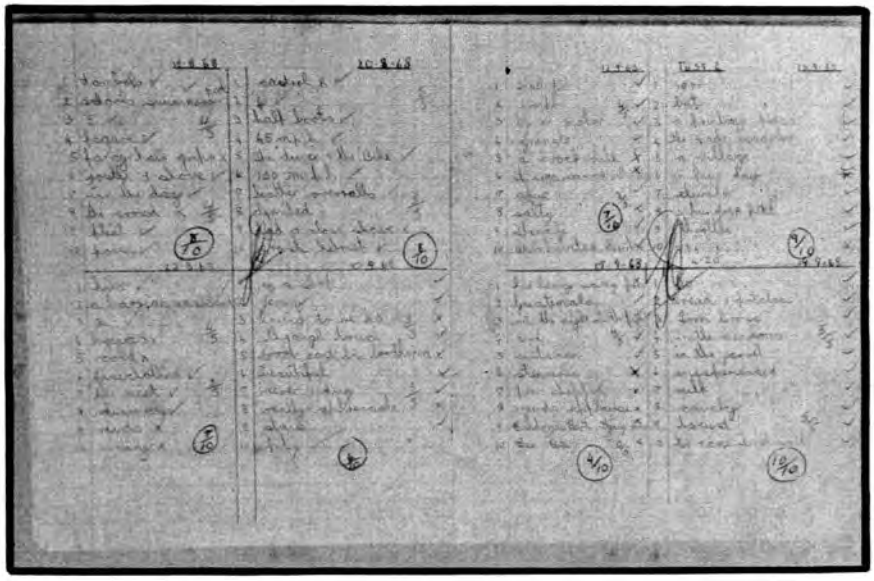
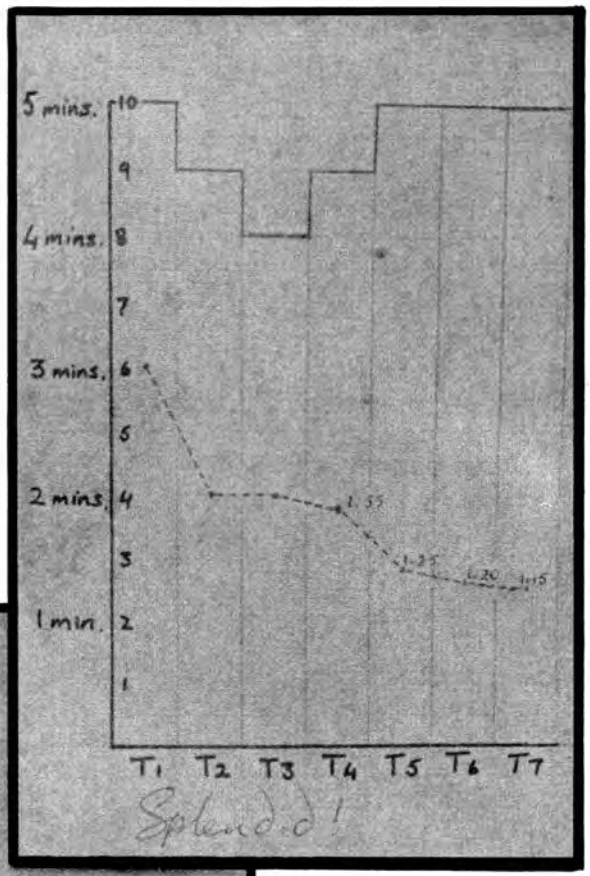


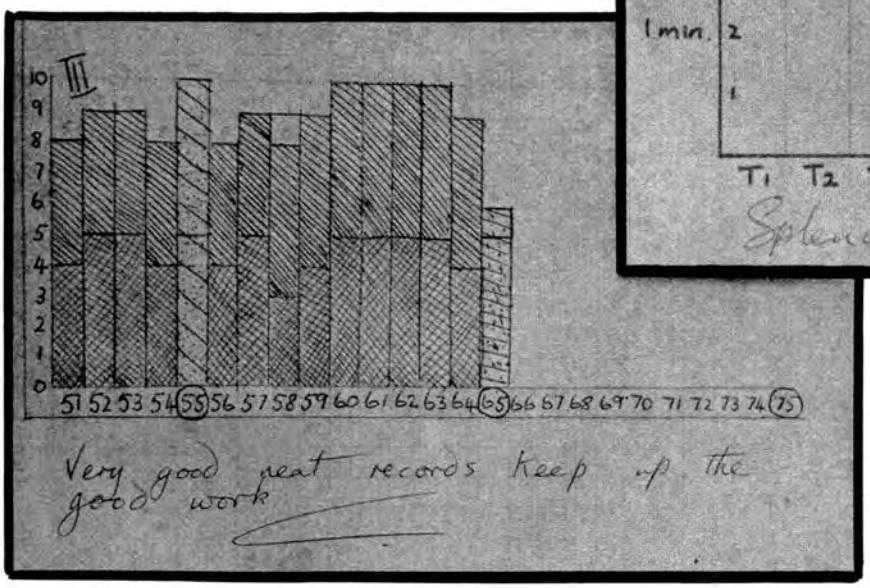
Fig. 7 : Results in Std. 5B of School C, May-Dec., 1968

Once again the graphs have been extended on a proportional basis, and it is interesting to note that the projected peak speeds of 327 w.p.m. and 209 w.p.m. are virtually the same as the 329 w.p.m. and 206 w.p.m. achieved on the 500-word check test which the pupils completed at the end of the third term (see 3.3, p.106 and 7.5, p.420). It is illuminating to compare the reading rates expressed here and those recorded in Figs. 4 and 5 , with those achieved on the Speed-Comprehension Tests discussed and recorded on p.421. The slower stream are roughly 10% poorer in comprehension and consistently 30%-40% slower in rate of reading. The slower boys are also more erratic in both comprehension and speed than their more able coevals in the A stream. (Cf. results set out in 6.3.)



Extracts from boys' records:
above, B5
right, C1
below, C16





7.5 Standardised and other test results

Though the standardised test results yield few statistically significant gains, and though they appear to be disappointing, four factors must be borne in mind in interpreting them.

(i) A number of individuals made appreciable gains, despite the fact that the classes as a whole registered few significant increments.

(ii) The pupils only worked through two thirds of of the programme.

(iii) They worked through the exercises formally and in rigid systems which did not permit of stealing time from other periods to follow up children's interests (see the English teacher's remarks on pp. 387-8): they hardly ever got out of their desks to dramatise or otherwise extend the stories.

(iv) The tests had their limitations as discussed in detail in 3.3. It is probable that individually administered word reading tests, and a comprehensive speed-accuracy-comprehension test like the Neale Analysis, would have yielded significant gains.

Phases I and II yielded no statistically significant differences between the mean gains of Experimental and Control Groups (see 3.4, Table 11 on p. 113 ; Appendix A ; pp. 461-71 and Appendix B, p.p.472-5). However, in Phase I both Experimental Groups gained 3 months more than the Control Group on the Schonell Silent Reading Test R4. The Experimental Groups moved from 11.11 to 12.8 and 11.10 to 12.7 while the Control Group moved from 12.0 to 12.6. Expressed as a percentage of the May Reading Age this may appear to be an insignificant difference, but expressed as a percentage gain of the Experimental Groups over the Control Group it indicates a 50% greater improvement in favour of the Experimental Groups. When we look at Appendix B, p. 475, we find that this marked improvement in silent reading comprehension, which is mainly due to an increase in speed and concentration, is distributed equally throughout the "correct" age,

the overage and the underage Sub-groups: Sub-groups B and C gained 11 months and 8 months; Sub-groups BB and CC gained 9 months and 11 months, while Sub-groups BBB (one boy) and CCC gained 0 months (he reached the ceiling of the test in May) and 10 months, whereas Sub-groups A, AA and AAA gained only 7, 5 and 6 months during the same 6-month period. Unfortunately, these greater gains in comprehension in favour of the Experimental Groups are not confirmed by the S.A.S.R.C.T. results, Paragraphs and Sentences sub-tests, chiefly because the times allotted to both these sub-tests are so generous that there is no premium on speed of reading as there is in the Schonell Silent Reading Test, and also because the scales of the Paragraphs and Sentences sub-tests are considerably shorter than the scale for the Schonell Test - there are only 25 and 20 items in the Paragraphs and Sentences sub-tests, whereas there are 40 items in the Schonell Test.

At first glance it may appear that all 3 Sub-groups in Experimental Group C have made significant gains over both Control Group A and Experimental Group B in all three S.A.S.R.C.T. sub-tests, and the Schonell Spelling Test, until we see that boys in School C did appreciably better on these tests in May than did boys in School AB, and that the difference between their May and December performances is actually smaller in Vocabulary, Paragraphs and Sentences sub-tests than the differences in Groups A and B. Since they were relatively closer to the low ceiling of these three sub-tests in May, the boys in Group C had less room to improve than the boys in Group AB: for example, the Paragraphs and Sentences Tests are so constructed and the items so graded that it is easier to move from 10 to 15 than it is to move from 15 to 20 on a 20-point scale, particularly when you are not pressed for time.

The picture alters somewhat in Phase III. It must be remembered that the boys in "correct" age Sub-groups A, B and C have been ranked here on their May performances in each of the eight tests in the battery, and split into two further roughly numerically equal Sub-groups in each test according to their ranks on that test. Boy A6 is a rather extreme example: when ranked in Vocabulary he came 7/21 and was consequently placed 7/11 in Sub-group A(1); on

Paragraphs he came 17/21 and was accordingly placed 6/10 in Sub-group A(2). It must also be remembered that those boys who for various reasons fell outside the Std. 5 and Std. 6 age range of 11.11-13.7 were dropped at this stage. Now we find that there are some significant differences between various Sub-groups in various tests. These are set out in Table 42 below.

The first of the four significant differences occurred in the N.S.A.G.T. It is perhaps the most significant difference because it is significant at better than the 1% level of confidence and because it occurs in a test of innate verbal intelligence. Inborn ability, both verbal and non-verbal, is commonly supposed to be relatively constant over periods of less than a year, anyway, yet here it fluctuates significantly in those with V.I.Q.'s of 112+ within the space of seven months. Clearly, as I have already argued in 3.3, pp.73-4, so-called innate ability, and particularly verbal ability, is compounded with attainment. The extent of a learning capacity can only be measured in terms of what has been learnt, and it is impossible to differentiate nicely between innate intelligence - what we learn with - and scholastic attainment - what we learn with what we learn with.

> "What we are testing is developed ability
> or aptitude which results from the development
> of whatever innate ability an individual has."
> Stones, 1966, p.285.

Inspection of the "bridge" column in which the individual gains are aggregated shows that the difference must lie between Sub-group C(1) and both Control Sub-group A(1) and Experimental Sub-group B(1). The calculations below follow Bernstein's examples and confirm this assumption. (See Bernstein, 1965, pp.43-5. Compare the calculations below with those on pp.336-7.)

Test	Sub-groups			Numbers			Mean V.I.Q.'s (May)			Mean V.I.Q.'s (Nov.)			Mean Gains			Sum of Individual Gains			Significance of Difference among Mean Gains[1]
N.S.A.G.T. Inter. 3 Verbal sub-tests	A(1)	B(1)	C(1)	10	12	16	120.0	120.2	120.5	120.7	120.8	129.6	+0.7	+0.6	+9.1	+ 7	+ 7	+146	P. 0.01 (6.27 > 5.27)[2]
	A(2)	B(2)	C(2)	10	11	11	103.7	101.6	102.5	106.7	107.4	108.7	+3.0	+5.8	+6.2	+30	+64	+ 68	Nil (0.70 < 3.33)
	AA	BB	CC	14	12	12	102.2	106.2	95.3	104.3	106.7	100.6	+2.1	+0.5	+5.3	+29	+ 8	+ 43	Nil (0.36 < 3.27)
S.A.S.R.G.T. Junior, Forms A and B — Vocab. sub-test							Mean Raw Scores (Adjusted) out of 50												
	A(1)	B(1)	C(1)	10	12	12	28.5	29.7	31.0	29.6	31.4	31.5	+1.1	+1.7	+0.5	+ 1	+20	+ 6	Nil (0.64 < 3.31)
	A(2)	B(2)	-	10	11	-	17.3	17.2	-	20.4	21.7	-	+3.1	+4.5	-	+31	+50	-	Nil (0.91 < 2.09)
	AA	BB	CC	14	12	12	23.4	20.6	25.2	23.7	24.6	25.6	+0.3	+4.0	+0.4	+10	+48	+ 5	Nil (2.63 < 3.27)
Paras. sub-test							Mean Raw Scores (adjusted) out of 25												
	A(1)	B(1)	C(1)	10	12	13	18.9	17.7	17.8	18.1	18.0	18.3	-0.8	+0.3	+0.5	- 8	+ 3	+ 6	Nil (0.54 < 3.30)
	A(2)	B(2)	-	9	11	-	11.4	11.8	-	15.1	14.6	-	+3.7	+2.8	-	+33	+31	-	Nil (0.66 < 2.10)
	AA	BB	CC	14	12	12	14.4	15.9	12.9	15.1	15.6	13.3	+0.7	-0.3	+0.4	+14	- 4	+ 8	Nil (0.78 < 3.27)
S'ces sub-test							Mean Raw Scores (adjusted) out of 20												
	A(1)	B(1)	C(1)	10	13	14	12.2	12.3	12.1	12.2	11.8	10.8	0.0	-0.5	-1.3	0	- 6	- 19	Nil (0.88 < 3.25)
	A(2)	B(2)	-	9	10	-	7.9	7.2	-	9.3	8.3	-	+1.4	+1.1	-	+13	+11	-	Nil (0.22 < 2.11)
	AA	BB	CC	14	12	12	10.1	10.0	10.3	9.6	10.7	10.3	-0.5	+0.7	0.0	- 9	+ 8	+ 1	Nil (0.93 < 3.27)
S.C.W.S.T. Forms A and B							Mean Raw Scores out of 100												
	A(1)	B(1)	C(1)	10	13	16	78.6	76.8	82.3	82.0	76.6	86.0	+3.4	-0.2	+3.7	+34	- 2	+ 59	0.01 P. 0.05 (5.13 > 3.26)[3]
	A(2)	B(2)	C(2)	10	10	11	56.6	60.4	63.3	63.3	65.7	70.5	+6.7	+5.3	+7.2	+70	+53	+ 79	Nil (0.35 < 3.34)
	AA	BB	CC	14	12	12	65.7	69.8	65.3	70.0	73.5	73.5	+4.3	+3.7	+8.2	+53	+47	+ 98	Nil (2.12 < 3.27)
S.S.R.T. R4							Mean Raw Scores out of 40												
	A(1)	B(1)	C(1)	10	12	16	36.4	35.4	37.4	39.0	37.6	40.4	+2.6	+2.2	+3.0	+26	+27	+ 49	Nil (0.30 < 3.27)
	A(2)	B(2)	C(2)	9	11	11	27.8	25.0	26.5	31.0	31.9	30.7	+3.2	+6.9	+4.2	+30	+76	+ 46	Nil (2.06 < 3.34)
	AA	BB	CC	14	12	11	29.6	31.0	28.1	32.5	33.7	31.8	+2.9	+2.7	+3.7	+39	+32	+ 41	Nil (0.20 < 3.27)
M.H.V.R.T. 66 and 60							Mean V.R.Q.			Mean V.R.Q.									
	A(1)	B(1)	C(1)	11	12	13	102.8	101.1	101.1	108.0	103.8	104.4	+5.2	+2.7	+3.3	+57	+32	+ 43	Nil (0.37 < 3.29)
	A(2)	B(2)	C(2)	10	11	4	84.4	85.9	85.3	86.2	88.3	92.8	+1.8	+2.4	+7.5	+18	+28	+ 30	Nil (1.39 < 3.44)
	AA	BB	CC	14	12	11	±85.4	±83.3	±89.6	±87.3	±88.6	±91.5	+1.9	+5.3	+1.9	+26	+54	+ 20	Nil (0.92 < 3.28)
M.H.E.T. 35 and 34							Mean E.Q.			Mean E.Q.									
	A(1)	B(1)	C(1)	11	12	12	105.8	107.4	104.8	106.1	105.4	113.7	+0.3	-2.0	+8.9	+ 3	-24	+107	P. 0.01 (13.37 > 5.34)[4]
	A(2)	B(2)	C(2)	10	11	7	92.1	91.0	90.1	90.4	91.5	99.1	-1.7	+0.5	+9.0	-17	+ 6	+ 63	P. 0.01 (5.91 > 5.57)[5]
	AA	BB	CC	12	10	9	±91.3	±89.3	±88.1	±90.0	±89.1	±92.4	-1.3	-0.2	+4.3	-15	- 2	+ 39	Nil (2.25 < 3.34)

TABLE 42

[1] Figures in Brackets show the calculated value of the F Ratio followed by the F Ratio required for significance at either the 5% or the 1% level.

[2] Further calculations revealed that the significant difference lay between C(1)'s mean gain of +9.4, and both A(1)'s and B(1)'s mean gains of +0.7 and +0.6 (c .05=2.52, and c 2.90>2.52).

[3] Further calculations revealed that the significant difference lay between both A(1)'s and C(1)'s mean gains of +3.4 and +3.7 compared with B(1)'s mean gain of -0.2 (c .05=2.52, and c 2.58 and 2.79>2.52).

[4] Further calculations revealed that the significant difference lay between C(1)'s mean gain of +8.9 as compared with both A(1)'s and B(1)'s mean gains of +0.3 and -2.0 (c .01=3.21, and c 3.86 and 5.01>3.21).

[5] Further calculations revealed that the significant difference again lay between C(1)'s and A(1)'s mean gains of +9.0 and -1.7 (c .01=3.25, and c 3.34>3.25), and between C(1)'s and B(1)'s mean gains of +9.0 and +0.5 (c .05=2.58, and c 2.67>2.58).
Letter A denotes the Control Group and letters B and C denote the Experimental Groups working on Double-Up.
Coded designations with bracketed numbers - e.g. A(1) - indicate the two Sub-groups into which each "correct" age group was split. Thus A(1) is the top Sub-group composed of the more able boys in "correct" age Control Group A, while A(2) is the bottom Sub-group composed of the less able boys in "correct" age Control Group A.

(See following p. 412 for explanatory notes.)

Notes (see Table 42)

The matching of Sub-groups in Hay was tested and validated by the procedure described in Smith, 1964, pp.87-90. The different Sub-groups are unequal in size because it proved impossible to equalise both numbers and means. The numbers and composition of Sub-groups within each large group varies from test to test according to the rank order for each test and the exigencies of matching. The two Sub-groups in the overage group have been consolidated into one large group for each test, designated either AA, BB or CC, because there were not sufficient numbers to warrant separate treatment. The six boys who were underage, being 11.10 or less on 1/8/68, were also dropped because there were too few of them to support statistical treatment. The boys who were 13.8+ on 1/8/68 (there were 8 of them in School AB and 1 in School C) were discarded because they were grossly overage.

Some of the means of the Moray House Verbal Reasoning and English Tests are preceded by ± signs because they are approximate: "When a child's age exceeds 12.0 his E.Q. (or V.R.Q.) may be estimated by entering the table with an age of one year less and subtracting 6 (or 7) from the corresponding E.Q. (or V.R.Q.). For example, a child aged 12.3 with a test score of 60 (or 70) has an E.Q. of 102-6=96 (or a V.R.Q. of 107-7=100). Extrapolation in this manner should not be carried beyond age 12.6" (Manuals of Instructions for Moray House English Tests 34 and 35, and Moray House Verbal Reasoning Tests 60 and 66).

Raw Scores were used in the 3 S.A.S.R.C.T. sub-tests because Stanines are too coarse and Standard Placements are too approximate. Raw Scores were also used in the 2 Schonell tests because they are as sensitively discriminative as Standard Scores and because they can be compared directly with S.A.S.R.C.T. Raw Scores.

	A1	B1	C1
Total gains	+7	+7	+146
Individual gains^2 and summed	435	763	2004

Sum total gains = 160

Sum total gains^2 = 3202

N - 1 = 10 + 12 + 16 - 1 = 37

Calculation

$$\frac{7^2}{10} + \frac{7^2}{12} + \frac{146^2}{16} - \frac{160^2}{38}$$

= 4.9 + 4.1 + 1332.3 - 673.7

= 1341.3 - 673.7 = 667.6

= 3202 - 1341.3 = 1860.7

= 3202 - 673.7 = 2528.3

Mean Square $\frac{667.6}{2}$ = 333.8 and $\frac{1860.7}{35}$ = 53.2

F Ratio $\frac{333.8}{53.2}$ = 6.27

Mean A(1) = 0.7 Mean B(1) = 0.6 Mean C(1) = 9.1

S^2p = 53.2, therefore Sp = $\sqrt{53.2}$ = 7.29

$$C = \frac{9.1 - .7}{7.29\sqrt{\frac{1}{16} + \frac{1}{10}}} = \frac{8.4}{7.29\sqrt{.163}}$$

$$= \frac{8.4}{(7.29)(.4)} = \frac{8.4}{2.916} = 2.90$$

m is the number of paired comparisons possible among 3 means found by $C_2^3 = 3$.

From Table XIII, for m = 3 and 35 df, we find C .05 = 2.52 approximately.

Since 2.90 > 2.52, we reject Ho and confirm that C(1)'s mean gain is significantly larger than both A(1)'s and B(1)'s mean gain.

Why there should be this difference between the mean gains made by C(1) over both A(1) and B(1) is problematic. Obviously it

cannot be due entirely to Double-Up because then B(1) should have made comparable increments. Some of the gain is no doubt due to practice-effect: the boys in Group AB were comparatively more familiar with the N.S.A.G.T. than their counterparts in Group C because they had been tested on it during 1967, whereas the boys in Group C had never seen it before. The same Sub-group C(1) has not made a significant gain over the other two Sub-groups in the three Silent Reading sub-tests, although no doubt this is partly because of the shortness of the scales, and partly because none of the boys in either group had seen the test before. However, the fact that the best dozen boys in Group C had to be dropped because they could not be matched with boys in Groups A and B is probably a more likely reason for the comparatively diminished performance of the remainder on the S.A.S.R.G.T. In effect Sub-group C(2) as it stands on the N.S.A.G.T. rank order becomes Sub-group C(1) on the rank order for the three S.A.S.R.G.T. sub-tests when the composite Group C of 27 testees is "decapitated" in the matching process. Only 8 of the 16 boys who comprise Sub-group C(1) on the basis of V.I.Q. results survive amongst the 12 boys who are listed in Sub-group C(1) on the basis of Vocabulary results, and 4 of the top 6 V.I.Q.'s are lost to the Vocabulary Sub-group C(1); a mere 6 of the sixteen survive amongst the 13 who constitute Sub-group C(1) on Paragraphs, and again 4 of the top 6 V.I.Q.'s scored too highly in May to be matched; and only 7 of the 14 who make up Sub-group C(1) on Sentences come from the top 16 V.I.Q.'s, only 2 of the top 6 V.I.Q.'s being matched in achievement by boys in School AB, and hence being included. There were not sufficient boys in the composite Group C who scored low enough in these 3 sub-tests to be matched with Sub-groups A(2) and B(2) hence the dashes in the Table above. Obviously the boys in School C had achieved more in English than their counterparts in School AB, although ostensibly they were of equal innate verbal ability to start with.

The other significant differences, and the differences in the Sums of Individual Gains, confirm Group C's general superiority in achievement over both Control Group A and Experimental Group B.

On the Schonell Spelling Tests, Sub-group C(1) has made significantly greater gains than Sub-group B(1), as has Sub-group A(1) as well. The significant difference is at the 5% level of confidence. Both 2.79 and 2.58 > 2.52, so therefore we reject the null hypothesis in 2 of the 3 possible comparisons between means gains. It can be seen from inspection that there is no significant difference between A(1)'s and C(1)'s mean gains. So in this case it is Experimental Sub-group B(1) that suffers in comparison with both Control Sub-group A(1) and Experimental Sub-group C(1).

On the Moray House English Tests Sub-group C(1) has improved significantly over both B(1) and A(1). The difference between C(1)'s mean gain of 8.9 and A(1)'s mean gain of 0.3 yields a c value of 3.86. Since 3.86 3.21 (for m=3 and 32df, c .01=3.21 approximately) there is a significant difference between the mean gains, and since the difference between C(1)'s mean gain of 8.9 and B(1)'s mean loss of -2.0 is greater it is apparent that the difference between them must also be significant beyond the 1% level of confidence. There is no significant difference between A(1)'s mean gain of 0.3 and B(1)'s mean loss of -2.0 (c .05=2.52, approximately, and 1.03 < 2.52). In this case, therefore, both the Experimental Group B and the Control Group A suffer in comparison with Experimental Group C. On the same test Sub-group C(2) has also improved significantly over both A(2) and B(2). The difference between B(2)'s mean gain of 0.5 and C(2)'s mean gain of 9.0 is significant at the 5% level (for m=3 and 25df, c .05=2.58, and 2.67 > 2.58). The difference between A(2)'s mean loss of -1.7 and C(2)'s mean gain of 9.0 is significant at the 1% level (for m=3 and 25 df, c .01=3.25 approximately, and 3.34 > 3.25). There is no significant difference between A(2)'s mean loss and B(2)'s mean gain (0.76 < 2.58).

In the absence of statistically significant differences elsewhere in the Moray House English Test and the two Schonell Tests the aggregate gains favour the C(1), C(2) and CC Sub-groups 6 out of 9 times. It is really only in the Moray House Verbal

Reasoning Tests that Sub-groups A(1), A(2) and AA, and B(1), B(2) and BB, do not suffer by comparison and here again most of the top 16 boys in Sub-group C(1) have been dropped because it was impossible to match them: only 7 of the 13 boys in Sub-group C(1) on Verbal Reasoning results came from the original Sub-group C(1), and only 2 of these 7 came from the original top 6. Since one expects those with the greatest potential to make the greatest gains, particularly where the classes are small, the system highly competitive, the teachers effective and aspiring on behalf of their charges, and the peer pressure considerable in a largely closed, residential community, it is hardly surprising that the loss of the leaders substantially reduces gross increments in a group. In fact the 4 who were dropped picked up 29 points between them which would have been sufficient to put Sub-group C(1) ahead of Sub-groups A(1) and B(1) on aggregate at least. In this test Sub-group C(2) is no longer comparable to Sub-groups A(2) and B(2) because it has been reduced to 4 boys.

It is impossible to explain Group C's superiority in any objective or precise way. I have already indicated above why I would expect them to do better than boys in School AB, but while one can attempt to explain superior achievement in terms of selection, motivation, parental aspiration and support, size of classes, quality of teaching, peer pressure and a competitive system, one cannot measure the respective contributions made by these factors. Just as a work of art is more than the sum of its parts, so achievement is more than an inventory of its constituents. Undoubtedly all the factors mentioned above gave the majority of boys in School C an edge over the boys in School AB - my direct observations confirm as much. But I cannot say with any certainty that any group of boys in School C, or indeed any one boy, was superior to any comparable group of boys in School AB, or any one boy, because of any one of, or a combination of, these factors. I would have needed to undertake longitudinal case studies of individuals in order to evaluate, even tentatively, all the constitutional and environmental factors which bear on every child

and I had neither the time nor the opportunity to do this. It took Joyce M. Morris and a team of experts some eight years to complete the research project described in Standards and Progress in Reading, yet she only devotes fifteen of the four hundred and ninety-three pages in the book to case studies of two individuals whose progress she followed throughout their primary and secondary school careers, and into the first years of their working lives. As she says in part under the section headed Multiplicity of Factors in Differential Reading Achievement,

> "Profiles of these exceptional children were examined for common distinctive features such as low intelligence and a dislike of reading....This examination revealed some differences in this direction, but they were insufficiently marked to explain adequately the comparative failure and success of each group. It was concluded, therefore, that this was an unfruitful line of enquiry to pursue as for these children, the reasons lay in the complex interacting pattern of their individual attributes and environmental circumstances which could only be shown by descriptions of their case histories."
>
> Morris, 1966, p.334

It is noticeable that all four significant differences occur in tests with comparatively long scales. There are 75 items in the three Verbal sub-tests of the N.S.A.G.T., 100 items in each of the two Schonell Graded Word Spelling Tests, Forms A and B, and no less than 120 items spread over 17 sub-tests in Moray House English Tests 34 and 35. It is not without significance that two of the four significant differences occurred in the Moray House Tests where there was a premium on speed, concentration, comprehension and vocabulary. There is no pause between sub-tests, as in the N.S.A.G.T. The 120 items are continuous and many slow-reading adults would undoubtedly be hard-pressed to finish the test in the 45 minute time-limit. The testees without exception were taxed by this test. It was sufficiently challenging to extend the brighter children to the utmost, while the slower children were undoubtedly daunted to a degree.

Boys were therefore distributed right along the Standard Score Scale from E.Q.72 to E.Q.132 while the ceiling was sufficiently high to allow those boys who were most improvable by virtue of their innate ability and studious application to gain significantly between May and November. In May, B17 scored 97/120, which converted to an E.Q. of 118; in November he improved to 109/120, or an E.Q. of 121, the highest in the class. A17, with a V.I.Q. of 127, had the second highest V.I.Q. in the Control Class in May. He could not much improve on raw scores of 21/25, 20/25 and 19/25 for the 3 sub-tests, and in November, with raw scores of 19/25, 22/25 and 18/25 on the same 3 sub-tests, he achieved a V.I.Q. of 122 which placed him behind two other boys. By comparison on the Moray House English Tests 35 (in May) and 34 (in November) he achieved raw scores of 102/120 and a notable 117/120 and E.Q.'s of 119 and 129. On both occasions he came out top of the class by a long way, and in November he exceeded the next best boy in both schools, C13, by 1 mark in raw score. C13 was another of those who was able to improve markedly: in May he scored 89/120 for an E.Q. of 110, while in November he scored 116/120 for an E.Q. of 132. Clearly, then, the more items there are in a test, and the more varied and better graded they are, and the tighter the time limit, the more likely a testee is to show improvement, especially after a course aimed specifically at improving those skills measured by the test.

As with the S.R.A./E.D.L. Leg, and for the same reasons, the bottom of the two 11.11-12.10 Std.5 Sub-groups generally made greater gains than their more able cosvals in the top half of the split group. For example on the Schonell Silent Reading Test Sub-groups A(1), B(1) and C(1), 38 boys in all, made up a total of 102 marks, while Sub-groups A(2), B(2) and C(2), 31 boys altogether, improved by an aggregate of 152 marks, and because of the considerable individual fluctuations came a lot closer to achieving a significant difference among Sub-groups than did the better readers. In the main the means of the overage Sub-groups approximate more closely to the bottom Std.5 Sub-groups. In other words, the means of

"top + bottom" Groups A, B and C at the Phase II Level are a little higher than the means of the overage groups. This is understandable since many of the boys in Groups AA, BB and CC had failed a year on their way through the lower Standards, and were neither as bright not as highly motivated as their younger colleagues. The eight boys in School AB who were 13.8 or more on 1/8/68, and hence who were more than a year overage for Std.5, were living proof that failure escalates. They had all failed at least two Standards prior to 1968 and they always looked either resigned, dejected, puzzled, disinterested or truculent. One unfortunate lad needed a shave and always looked untidy and uncomfortable squeezed into his tiny, old-fashioned desk. This same boy (he turned 15.0 on 7th August, 1968) wrote the following eloquent poem:

Exames

Exames is the worst thing on earth.
You have to learn hard for exames
It does'nt matter whether it is exames or not
the teacher still gives you cuts.
I hate exames.

To sum up the results of the standardised tests, it would seem that in the ideal experimental situation at School AB Double-Up did not measurably advantage the Experimental Group in areas other than Vocabulary and Comprehension, and testees only gained in Comprehension when reading against the clock as they had to do in the Schonell Silent Reading Test. In the Vocabulary sub-test, both Sub-groups B(2) and BB scored greater aggregate gains than Sub-groups A(2) and AA, and BB's gain of 38 marks over Sub-group AA and 43 marks over Sub-group CC brings the difference among the mean gains fairly close to significance at the 5% level. Experimental Group C did considerably better in nearly every respect than either Control Group A or Experimental Group B, and some of the credit for this must go to Double-Up. But there are too many human variables and imponderables that come in to the reckoning for me to be able to say just how much of their improvement was due to the programme. Certainly, though, the improvement

in scores achieved on the two Moray House Tests by the entire C Group, and also to a lesser extent by Groups B(2) and BB, suggests that most boys in the Experimental Classes gained in concentration and speed of reading; and it seems fair and reasonable to attribute these gains at least to Double-Up.

As far as other tests are concerned, I used the tests of my own construction already described in 3.3 to measure speed of reading in August and November. The results are summarised below in Table 43 . A statistical analysis of unstandardised data has a limited value, particularly when the testees are unequal as these were by July and August. Nevertheless, as with the S.R.A./E.D.L. Experimental Leg, and for purposes of comparison with results achieved there (see 6.3), I tested the most reliable figures for a significant difference among means. Thus I applied Bernstein's Test of Homogeneity of K Sample Means, K > 2, to the mean increase in reading efficiency indexes between July/August and November. These indexes express the relationship between rate and comprehension and they are also derived from two separate tests. [1] Hence they should be more dependable than any other figures in this Table. My calculations yielded an answer of 4.00. F .05 for numerator 2 and denominator 104 df=3.09. Since 4.00 > 3.09 I concluded that there was a significant difference among the mean gains at between the 1% and 5% levels of confidence. I then tested the largest difference of 15.0 (20.1-5.1) for significance and came up with the value of 2.79. For m=3 and 104 df we find c .05=2.44 approximately. Since 2.79 > 2.44 I rejected Ho and concluded that there was a significant difference between these two mean gains at between the 5% and 1% levels of confidence. Lastly I tested the next largest difference of 8.2 (20.1-11.9), and arrived at a figure of 1.47. Since 1.47 < 2.44 there is no significant difference between Group C's mean gain of 20.1 and Group B's mean gain of 11.9. Nor can there be a significant difference between Group A's mean gain of 5.1 and Group B's mean gain of 11.9.

[1] In addition in November, in order to check the reliability of the rate of reading indexes (see also 6.3, p.352), all three groups were check-tested on a 500-word passage, followed by 8 comprehension questions to ensure that the rate was effective. The mean post-test rates set out in Table 43 overleaf are derived from these consolidated measures.

Standards 5	N	July/August, 1968, Means				November, 1968, Means				Mean Gain in Eff'cy+
		V.I.Q.	Rate in w.p.m.	C'hension	Eff'cy+	V.I.Q.	Rate in w.p.m.	C'hension	Eff'cy+	
Control Group A	33	109.3	180	41%	30.0	110.4	220	44%	35.1	5.1
E'mental Gr. B	29	107.7	248	51%	49.3	107.9	260	52%	61.2	11.9
E'mental Gr. C	45	106.6	244	53%	54.0	112.9	264	57%	74.1	20.1

TABLE 43

+ Mean Efficiency = $\frac{\Sigma\left(\frac{\text{Rate x Raw C'hension Score}}{100}\right)}{N}$

(See 6.3, p. 346 for the origin of this formula.)
The reduced numbers of paired comparisons possible in Groups A and B was due to absenteeism in July/August which was the result of an influenza epidemic.

The significant difference between Experimental Group C's and Control Group A's mean gains occurs despite the difference between their means in July/August, which is markedly in favour of Group C. Since Experimental Groups B and C seem to have made considerable gains already, having been working on Double-Up for some 2 months at this stage, their continued improvement over Control Group C is all the more noteworthy. It is often in the early stages of a course like this that the most dramatic gains are made and thereafter a period of consolidation ensues. Yet here the differential improvement continues, albeit at a reduced rate, over the whole tutorial period. It seems probable that Group B would also have gained significantly over Control Group A, if I had been able to test all three Groups initially in May with these tests. A cursory inspection of the differences in rate, comprehension and efficiency in both pre- and post-tests seems to confirm this assumption. In November Control Group A, with a mean efficiency rating of 35.1, still lagged 14.2 and 18.9 points behind the July/August mean efficiency ratings of Experimental Groups B and C. The differences in rate, comprehension and over-

all reading efficiency are appreciable and consistent at all stages. Furthermore these results confirm the differential gains made by all three groups on the Schonell Silent Reading Test. There both Experimental Groups gained 9 months while the Control Group gained only 6 months in the period May to November; here both Experimental Groups are at least 20% faster and 10% better in comprehension than the Control Group in August and again in November. Since all three groups were matched in innate ability and attainment in May, it seems reasonable to suppose that there would have been no significant difference between them in speed-cum-comprehension had they been tested on my tests, too, in May.[1] Therefore it may be inferred that the differences in speed and comprehension between Control and Experimental Groups in August, no less than in November, are the result of working with Double-Up. The Experimental Groups seem to spurt ahead quickly, and then maintain their lead over the Control Group, except for that part of it which is the result of practice effect, which is made up by the Control Group in the post-test. Also there is a far greater difference between the Experimental Groups and the Control Group in rate, comprehension and over-all efficiency in August and again in November than there is between the two Experimental Groups. In fact the difference between Groups B and C is small on both occasions, which lends support to the contention that the differences between Control and Experimental Groups is certainly partly the result of exposure to Double-Up.

Two other points are worth noting. Firstly, this Control Group performs less impressively than does Control Group D (see 6.3). It is probably far more typical and representative of English speaking Standard 5 classes throughout South Africa.

[1] A t test of the largest mean difference between V.I.Q.'s in May, the difference being between Control Group A, with a mean V.I.Q. of 109.3, and Experimental Group C, with a mean V.I.Q. of 106.6, yielded a t value of .93. Since $.93 < 1.96$ there is no significant difference between the two means.

Secondly these results confirm that comprehension, far from deteriorating as rate increases, actually improves as reading accelerates (see 2.6,p.34). The increase in speed in timed reading directly from the printed page is largely the result of improved concentration and a more concerted approach to reading, which in turn produces an increase in efficiency and a proportional improvement in comprehension.

On 29/11/68 I submitted a provisional report to the Headmaster of School AB, the relevant parts of which I asked him to share with the boys while the tests were still fresh in their minds. I also wanted them to know how they had done before they broke up for the Christmas vacation, and then went on to Senior School.

Points arising from Speed-cum-Comprehension-cum-Vocabulary Test of 28/11/68

1. Boy B13 in the Experimental Class achieved the highest Comprehension + Vocabulary Score out of ± 300 boys in 5 schools - 37/40 or 92%.
2. The Experimental Class have maintained their lead over the Control Class. They are now 17% faster (they were 28% faster in August, but with 25% absenteeism); and they are ± 15% better in comprehension + vocabulary than the Control Class (they were ± 20% better in August).
3. Only 5 boys (or 13%) finished in the Control Class (4, or 13% finished in August), whereas 15 boys (or 37%) finished in the Experimental Class (7 boys or 23% finished in August). This probably partly accounts for 5B's Vocabulary score being 20% better than 5A's on both occasions.
4. The speed range in both classes is similar, 120-550 w.p.m., but though the mode score in November in both classes is 230 w.p.m., and though the majority of boys in both classes read between 200 and 300 w.p.m., 16 boys in the Control Class read below 200 w.p.m., while only 8 boys in the Experimental Class read below 200 w.p.m. Furthermore, while only 2 boys in the Control Class read above 300 w.p.m., 9 boys in the Experimental Class read above 300 w.p.m. Double-Up seems to accelerate and improve those with the greatest potential most.

5. One must remember in all that I have said that only half the programme has been completed in the last 7 months (± 5 months of actual schooling).
Conclusion: Double-Up has benefited the boys, and I believe that it had benefited them even more in ways that this test does not show.[1]

In addition to these tests I used the N.B.E.S.R. Spelling Tests Series 3 and 4, Form A, in August and Series 3 and 4, Form B, in November as checks on spelling achievement. As with the S.R.A./E.D.L. Experimental Leg, and for the reasons already discussed in 3.3, results were inconclusive, and hence have been omitted.

7.6 A follow-up in 1969

On 17th November, 1969, I retested those boys who were still at School C because they were still young enough to transfer to the Top or Scholarship class at the end of 1968. At this stage they had just finished Double-Up, having worked at the last third of the programme which remained unfinished at the end of 1968 for 1 period a week for the entire year. The results that they achieved on these tests are set out in Table 44 below. Since I was not able to test a comparable group drawn from Control Group A at the same time I cannot say whether the gains that these boys made are significant or not. However, they do occur in all three tests, the S.A.S.R.G.T. Vocabulary and Paragraphs sub-tests and my Speed-cum-Comprehension test, and they are appreciable. The results of the S.A.S.R.G.T. sub-tests between November, 1968, and November, 1969, conform to the same pattern as Miss Coyne's post-test (1968), re-test (1969) results (see 5.4, pp. 259-61; see also 5.3, p.247: cf. 4.4, pp.158-9). In her experiment children showed considerable gains a year after they had completed a concentrated 12-week course on E.D.L. devices and programmes. The boys tabulated below made similar gains between November, 1968 and November, 1969, advancing 2.3 years in Vocabulary and 1.3 years in Paragraphs, though in their case they were still working on a developmental reading course, however

[1] See the English teacher's remarks under 7.3, p. 387.

	May, 1968 N17	Nov., 1968 N17	Nov., 1969 N18
	Mean C.A. 11.11	Mean C.A. 12.5	Mean C.A. 13.5
	Mean V.I.Q. 114.4	Mean V.I.Q. 123.6	V.I.Q. not tested
	S.A.S.R.G.T.		
	Junior, Form A Mean S.P.	Junior, Form B Mean S.P.	Senior, Form A Mean S.P.
Vocabulary	13.11	14.0	16.3
Paragraphs+	14.6	14.7	15.10
	Speed-cum-Comprehension Test		
	Test 1 Means	Test 2 Means	Test 3 Means
Speed	255 w.p.m.	338 w.p.m.	371 w.p.m.
Comprehension	57%	61%	67%
Efficiency	61	87	101

TABLE 44

+ The Senior S.A.S.R.G.T. does not have a Sentences sub-test, so I extracted only the means of the two comparable Paragraphs sub-tests in May and November, 1968.

infrequently and haphazardly. Furthermore, in their case a number of boys scored so highly in November, 1968, on the S.A.S.R.G.T. Junior Form B, that it was impossible to convert their Raw Scores to accurate Standard Placements. Where they went off the Table of Norms I gave them S.P.'s of 15.6+, and there were 2 boys in the Vocabulary sub-test and no less than 10 in the Paragraphs sub-test who "bumped their heads" on the test ceiling in November, 1968. This must reduce the reliability of the November, 1968, Vocabulary and Paragraphs means. The Paragraphs mean in particular would probably have exceeded 14.7 if I had given these boys the Senior test then. I must also draw the reader's attention to the correspondence with the N.F.E.S.R. quoted under 3.3. Since the Senior forms are not continuous with the Junior forms of the S.A.S.R.G.T. it would be impossible

in any event to claim absolute reliability or statistical significance for any of the gains made by this little group of boys between November, 1968, and November, 1969. Nevertheless there are indications of sustained improvement here, and it seems reasonable to suppose that Double-Up has played some part in this improvement.

7.7 Analysis of questionnaires

I have already discussed the general form and shape of the questionnaires completed by all boys in Experimental and Control Groups in Nov., 1968; and I have summarised the answers to questions common to all four classes in 3.5. It remains to discuss the questions which specifically relate to Double-Up. In Table 45 below, questions 8-11 are set down and the boys' responses tabulated in order of frequency for ease of comparison. In School C the A and B classes are listed separately so that comparisons between the preferences of A and B streams can be made.

The remaining seven questions are best analysed descriptively. In answer to question 12, "Do you think Double-Up has improved your written English? Yes/No. If yes, what makes you think so?" all 42 boys in Group B, and 40 of the 46 in Group C, replied in the affirmative, while the most common reason given was that their vocabulary had been enlarged: "I am enjoying writing composions and I have lean't a lot more words from Double-Up"; "Because I have learnt knew words"; "I'v got more words from Double-Up getting better marks"; "It has given me much more vocabulary and spelling"; "I find I do not slip on so many words"; "My adjectives have improved in my compositions"; "I've got a better vocabulary." Other reasons given were: "I have been looking forward to Compositions"; "I find composition easier"; "I have done better in exams"; "I enjoy Oral and Composition"; "I am wrighting better comp"; "It gives me ideas of how to write composition"; "I am doing much better in English"; "It helped me enjoy my English compo and also gave me tips for my compo"; "Well because Mr D. (the English teacher) asks me to read and Mr T. (the Headmaster) praises me during our choir periods"; "I can write faster and I can think about what I am writing about better";

School AB Group B		School C Group C(5A)		Group C(5B)	
8. Which aspect, or aspects, of Double-Up, did you the most good? (i.e. reading against the clock, reading aloud, vocabulary questions, points for discussion).					
1st Reading silently against the clock	24(40%)	1st Reading silently against the clock	14(49%)	1st Reading silently against the clock	8(40%)
2nd Reading aloud	17(28%)	2nd Vocabulary questions	8(26%)	2nd Points for discussion	5(25%)
3rd Vocabulary questions	16(27%)	3rd Reading aloud	6(19%)	3rd Vocabulary questions	3(15%)
4th Points for discussion	2(3%)	4th "I think all of them"	1(3%)	3rd Reading aloud	3(15%)
5th "Discussing the new words which we learnt from the story"	1(2%)	4th "Questions on the passage help me to take in more of what I read"	1(3%)	5th "The whole of Double-Up"	1(5%)
9. Which aspect, or aspects, of Double-Up did you enjoy the most?					
1st Reading silently against the clock	30(60%)	1st "Reading the stories"	20(74%)	1st "Reading the stories"	5(46%)
2nd Graphs	7(14%)	2nd Points for discussion	4(15%)	2nd Reading aloud	3(27%)
3rd Reading aloud	6(12%)	3rd Reading aloud	2(7%)	3rd Points for discussion	2(18%)
4th Points for discussion	4(8%)	4th Graphs	1(4%)	4th "Answering"	1(9%)
5th Vocabulary questions	1(2%)				
5th "Answering questions"	1(2%)				
5th "Drama"	1(2%)				
10. Which aspect, or aspects, of Double-Up did you the least good?					
1st Graphs	17(32%)	1st Points for discussion	10(44%)	1st Reading aloud	3(23%)
2nd Points for discussion	11(21%)	2nd Reading aloud (or as one boy put it, "I think that when other people read aloud did me the least good")	5(22%)	2nd Points for discussion	2(15%)
3rd Reading silently against the clock	6(11%)			2nd Reading silently against the clock	2(15%)
3rd Reading aloud	6(11%)	3rd Reading silently against the clock	2(9%)	2nd Answering the questions	2(15%)
5th Vocabulary questions	4(8%)	3rd Vocabulary questions	2(9%)	5th "Marking"	1(8%)
5th "None"/"I liked everything"	4(8%)	5th "Reading the questions"	1(4%)	5th "Answering aloud"	1(8%)
7th "Answering questions"	3(6%)	5th Answering the questions	1(4%)	5th "None of them"	1(8%)
8th "Marking"	2(3%)	5th "Answering the first 5 questions"	1(4%)	5th "I did well in all of them"	1(8%)
		5th "Making the graphs"	1(4%)		
11. Which aspect, or aspects, of Double-Up did you enjoy least?					
1st "I liked everything"	9(25%)	1st "Answering the questions"	11(45%)	1st "Answering the questions"	5(42%)
1st Reading aloud	9(25%)	2nd Vocabulary questions	3(13%)	2nd Points for discussion	2(17%)
3rd Graphs	6(16%)	2nd Points for discussion	3(13%)	2nd "I don't think I didn't enjoy one"	2(17%)
4th Reading silently	4(11%)	2nd Reading against the clock	3(13%)	4th Reading silently against the clock	1(8%)
4th Points for discussion	4(11%)	5th "Reading the questions"	1(4%)	4th "Reading the story again"	1(8%)
6th Vocabulary questions	3(8%)	5th "The tests"	1(4%)	4th "The whole thing"	1(8%)
7th "Answering questions"	1(2%)	5th "Don't really know"	1(4%)		
8th "Marking"	1(2%)	5th "Reading the passage over again"	1(4%)		

TABLE 45

The fact that one boy's "meat" is another's "poison" suggests that you cannot please all the learners all the time. Nevertheless, the strong positive vote for "Reading silently against the clock" suggests that boys relish a challenge, and appreciate the fact that their concentration and speed of reading is improvable. It is surprising that the graphs are not more appreciated but this is perhaps because they tend to fluctuate and also because pupils find the second graph difficult to plot. Oddly enough, the only boy in all three classes who professed to dislike "the whole thing" was one of the best in his Sub-group. Good results do not always win the day, it seems.

"I come higher in class now"; "A little. I make less mistakes and it is easier"; "I can write what I want to say"; "Yes, because so much reading."

In answer to question 13, "Has Double-Up made you a faster reader? Yes/No. If Yes, (a) how much faster?, and (b) how has it done this?" 41 of the 42 boys in Group B felt that it had made them read faster and estimates ranged from "slightly" to 150%, the mean estimate being 57% (compared with the measured increase of approximately 20%); while 41 of the 46 boys in Group C felt that they had gained in speed, estimates ranging from "slightly" to 200%, the mean estimate being 50% (compared with the measured increase of approximately 20% in the case of the A stream boys, and no discernible increase in the case of the B stream boys - compare the results in the Std.5B pilot class depicted in Fig. 7 on p. 406). The most common reason given was "Reading against the clock and I am enjoying what I read"; "Reading against the clock and consentration"; "Reading against the clock and thinking faster"; "By making me read harder and making me concentrate." Other reasons given were "Making my eyes and my brain work faster"; "Improving concentration and read more books than ever before"; "It has trained my eyes to move faster"; "Making me accustomed to the letters"; "It has made me more interested than before in reading and comprehension"; "Because we have trained curself to read fast"; "Forcing my eyes to move faster in less time"; "Reading more books"; "It has trained my eyes to scan the sentences more quickly"; "It has done this by making me read passages quickly and trying to get a shorter time and more marks in tests"; "Yes, because we are timed and I no many more words and I do not stumble over the harder words"; "I took 3.30 sec for Test 6 and for Test 1 4.25"; "By practis"; "By making me read often and try to read faster each time"; "It has done this by improving my vocabulary. And teaching my eyes to go on ahead and pick up the next couple of words"; "(a) very little

but I am able to understand what I am doing easer (b) it has done this by getting hard words and getting to know them."

In answer to question 14, "Have you ever cheated on any aspect of Double-Up? Yes/No. If you have ever cheated, do you think you learnt less because you cheated?" 23 out of 42 boys, or 55%, in Group B admitted that they had cheated, but only 12 of the 23 felt that they had learnt less as a result; while in Group C 25 out of 43 boys, or 58%, owned to cheating, but again only 12 of the 25 felt that they had learnt less as a result (significantly it was the brighter boys who did not need to cheat to score good marks who felt that they had lost nothing by cheating).

The 42 boys in Group B named 16 of the 55 stories they completed as being amongst the three that they liked best, and "Martin the Matabele Ant goes big game hunting" with 25 votes, "Pickles's last battle" with 15 votes, and "The duel" and "Night raid" with 14 votes each, proved to be the four most popular stories. With the boys in Group C 26 of the 65 stories that they completed were chosen amongst the three that they liked best. "Free as Flame" with 14 votes proved to be the most popular, followed by "Pickles's last battle" with 11 votes, "Martin the Matabele ant goes big game hunting" with 10 votes, and then "Ton-Up", "Hazardous home-coming" and "Strike!" each with 8 votes. Only 19 of the first 65 passages failed to get a vote in either School AB or C, or School G, where Double-Up was introduced in August, 1968. This confirms K. Gardner's opinion quoted in the Introduction to Double-Up, "I guess there should be something for everyone here", and supports the claim that the stories are well graded.

These preferences distinctly favour the narrative fictional passages as opposed to the descriptive informative passages. In any case the former predominate in Double-Up because children of this age are usually most interested in adventure stories in which there is action and an exciting climax.

"During the primary grades...boys become absorbed in adventure and mystery tales. They also read fictionalized history and biography."
Albert Harris, 1955, p.408

"Liveliness, narrativeness, conversation and plot are the outstanding positive sources of interest in these compositions; animalness, humor, surprise, fancy, and repetition are contributing but less conspicuous sources of interest; whereas familiarity, moralness, verse form, poetic character, and realism, progressively decrease interest."
Gates, 1930, p.77

Children appreciate new faces and a new approach. "The Dog Show" is certainly not one of the most dramatic or memorable stories, and yet no less than 6 children in the A stream of Group C listed it amongst their favourites. On one occasion I took Mrs T's place in an emergency and "The Dog Show" happened to be the next story in sequence. Since the Champion Fox-Terrier who figures in the passage happened to be my dog I was probably able to give the story the extra authenticity and piquancy that imprinted it on some boys' memories. In every learning situation the teacher is the king-pin and he largely determines children's emotional as well as intellectual responses.

A combined Standard 6A and B in School G also completed the questionnaire in early December and it is worth summarising these boys' responses to questions 8-14 at this point. The answers to questions 8-11 are summarised in Table 46 below.

In answer to Question 12, "Do you think Double-Up has improved your written English?" all 37 members of the combined class answered "Yes", and as with the Experimental Groups the most common reason was "Because I have increased my vocabulary and pronunciations, e.g. oblivion." "Oblivion" occurs in the gory story, "Tragedy", which has a melodramatic denouément: "The Mauler slammed into him ferociously, mercilessly, throwing blow after cruel blow into the sagging challenger. The crowd roared and Moses watched paralysed as Ted was pounded into oblivion."

8. Which aspect, or aspects, of Double-Up did you the most good? (i.e. reading against the clock, reading aloud, vocabulary questions, points for discussion).

1st	Vocabulary questions	22(49%)
2nd	Reading silently against the clock	10(22%)
3rd	Points for discussion	8(18%)
4th	Reading aloud	5(11%)

9. Which aspect, or aspects, of Double-Up did you enjoy the most?

1st	"Contents of different stories"/"The interesting stories"/"The variation of stories"	30(76%)
2nd	"Reading story"	3(8%)
3rd	Points for discussion	2(5%)
3rd	Reading aloud	2(5%)
5th	"Marking"	1(3%)
5th	"Answering the harder questions"	1(3%)

10. Which aspect, or aspects, of Double-Up did you the least good?

1st	"I don't know"/"I am not sure"	13(36%)
2nd	Reading silently against the clock	10(28%)
3rd	"The points for discussion (re-acting parts)"	7(19%)
4th	Reading out loud	4(11%)
5th	"Collecting the books"	1(3%)
5th	"Answering obvious questions"	1(3%)

11. Which aspect, or aspects of Double-Up did you enjoy least?

1st	"I enjoyed it all"	9(25%)
2nd	"Reading out loud"/"Made to read in front of others"	7(20%)
2nd	"Being made to read the story in a short while"	7(20%)
4th	"I don't know"	4(10%)
4th	"Fill up the chart"	4(10%)
6th	"Points for discussion"	2(6%)
7th	"I didn't enjoy the stories so much"	1(3%)
7th	"That I forgot the answer I knew for the questions"	1(3%)
7th	"Reading questions"	1(3%)

TABLE 46

There seems to be a large measure of agreement between the Standard 6's expressed here and the Standard 5's expressed in Table 45 on p. 427 . For example "Reading silently against the clock" and "Vocabulary questions" account for 67%, 75%, 55% and 71% of all answers to Question 8; while "I liked everything" and "Reading aloud" account for 50%, 8%, 25% and 45% of all the answers to Question 10. In answer to this question the negative responses "Reading out loud" and "Made to read in front of others" are interesting. Standard 6's dislike of this aspect of the programme is probably a combination of pubescent bashfulness in a highly competitive society of peers, and, as far as the less able members of the combined group are concerned, a reluctance to suffer in comparison with the more fluent readers. Significantly only 2 boys, or 8% of the Standard 5A in Group C, indirectly objected to reading in front of their class-mates.

The Rector of School G came unexpectedly into the Preproom a few days after the boys had worked through "Tragedy" and found one lad thumping another. When accosted, the thumper volunteered cheerfully, "Please, Sir, I'm pounding him into oblivion!" Other reasons given were "Because some of them (the stories, presumably) are so interesting and you want to learn English"; "Yes, because I seem to spell better and my English is not so bad as it was before"; "I now find I am able to express myself well"; "Yes, because it has broadened my outlook to different aspects of many words and I FIND IT EXITING TO READ THESE STORIES."

However, in answer to Question 13, "Has Double-Up made you a faster reader?" the older boys were a little less optimistic than the Standard 5's: 17, or 46%, the majority of whom were in the A stream, felt that they had not increased their reading rate, and one lad even felt that he was reading "slower" "because I always used to read too fast and I had to slow down in order to read better." Among those who felt that they had accelerated the following reasons were given: "By the time limit to each story"; "By having to rush"; "A great deal faster against the time of which we were given"; "Before I used to just take my time and now I read fast and I also enjoy it"; "Because we no that if we dont finish we wont know anything about the question"; "Because we are made to read it quickly and in this way we get accustomed to reading fast."

In answer to Question 14, "Have you ever cheated on any aspect of Double-Up?" 22 boys, or 60% of the class, admitted cheating, but 12 of these 22, or 55%, felt that they had not learnt less because they had cheated. These are much the same proportions as occurred in all other classes quizzed (cf. 4.8, p.202 and p.213; 5.7, p.306 and p.327; and p.429 above).

In answer to Question 16 and 17, "What benefits not mentioned above have you derived from Double-Up?" and "Have you any other comments or suggestions?" the following came from Experimental Group B: "We do not have enough time for points for discussion"; "I have enjoyed Double-Up, but think we could have done a bit more drama"; "I think this proggram should be on a larger scale and

we should have had more time"; "I think there should be more about hobbies"; "Clear speech. Clear reading. And Double-Up is a change in our school work....We have not done enough discussing of stories. I have benefited from Double-Up. I am very pleased." A number of boys expressed gratuitous commendation at this point. "Double-up has realy relped me in many things and is a good item"; "I earnestly enjoyed Double-Up"; "I have Improved 10.5% in my schoolwork through Double-Up. I wish I could finish reading the book." Experimental Group C had these comments to make: "Think faster. Read faster. More Vocabulary. Read carefully. Sit still and not talk. Only have 3 a week instead of 4. Have more exciting stories. Have a competition between 5A and 5B (needless to say this commentator was in 5A!). Lots more war stories"; "Not enough about horses" (most 12.0's go through a horse-loving phase, and in addition many of these boys were farmers' sons with horses of their own); "Think we should not have to answer questions all the time. If sometimes there were no questions and we could just discuss the story it would therefore be more interesting because it would not be so regular and consistent"; "I think if we could have begun at the beginning of the year it would have been much more enjoyable as four times a week is too much"; "When reading against the clock when you have had practice you should cut the time down, so that the reader can only read through the passage once and well"; "I think Mrs T should do the discussion with us. She only does the boreing points of discussion which makes it uninteresting. We should be able to act some of the things"; "I think we should be given more time to read and do the questions more slowly"; "I think that there should not be a fixed time for reading the passage so the slower readers may be given more of a chance"; "I think that Double-Up should have more skrikie stories and more about hunting, etc."

Once again a number of boys waxed laudatory: "I have discovered that my enjoyment of books has increased because of more understanding of vocabulary"; "It has made my grammar and compo writing much easier and I write quicker"; "I have learned to read

easily and efficiently during the past months, and I think Double-Up is a wonderful thing"; "I think it has done a lot for my English Education."

Most boys in Group G opined that "it is a pleasant way of learning English and most of the stories have been interesting", and offered these criticisms and suggestions: "Should make the reading time a bit longer"; "I think the people who can't read fast should go to the back of the class and read the story till they have finished, then answer them" (as I have said in the Introduction to Double-Up no boy should be repeatedly frustrated by being unable to finish reading a passage in time); "Story's too short"; "The stories are bit too long"; "There should be more action stories"; "If you have Double-Up everyday you have no time for Grammar like adj., nouns, etc. I think that it is much more use to do Grammar than read all week and get no wser in English"; "I think that the stories should have a better ending to them"; "Some stories could be more exciting"; "Suggest the stories should be more grown up"; "The questions should be a bit longer." One lad sagely answered the boy who pleaded for a return to formal grammar: "It is an excellent way of learning English, because when you grow up, people do not want to know what parts of speech you know, they want to know how you speak. And Double-Up certainly helps one to use his tongue."

Of course the answers to questionnaires cannot be conclusive. They are expressions of feeling more than statements of fact, and many of the feelings expressed are either biased or restrained. Nevertheless they can be indicative, as many of the foregoing pretty forthright comments show. In conclusion here are two boys to whom my heart warms: "Double-Up is a good way to learn English and makes the class much better than the dreary old English class"; "Nice bunk period. Get less work to do out of Brighter English."

7.8 Double-Up in Canada, 1968-69

Double-Up was launched in Grades 7A and 7B at Ashbury College, Ottawa, Ontario, in October, 1968. Grade 7 in the Canadian educational system corresponds to Standard 5 in South African schools save only that the Canadian academic year begins in October whereas the South African academic year begins effectively in February. Thus the mean Standard 5 age for A and B stream boys participating in the Double-Up leg of my developmental reading experiment was 12.5 and 13.0 in October, 1968, when they had nearly completed their Standard 5 year, while their Canadian counterparts were 11.9 and 12.8 at the same time, but at the outset of their Grade 7 year. Hence at the equivalent stage of their Grade 7 (Standard 5) school year the Canadian pupils would have been roughly the same age as the South African Standard 5 pupils at Schools AB and C.

The teacher concerned worked through the programme systematically as suggested in the Introduction with only the minor adaptations that one expects, and indeed hopes, that any good teacher will make in the interests of his pupils and his peculiar situation.

> "I have stuck to the Double-Up procedure... but have made one or two innovations which I trust you'll approve of. Before handing out the passages I throw out hints as to the title and contents, and let the class attempt to discover what the passage is about. I find that this introduction stimulates tremendous interest. Secondly, I give positions for the order in which they finish reading the passage - N. America is a very competitive and statistically conscious society!! I have them keep special vocabulary note-books and jot down difficult and useful words. I also take most of my daily spelling words from the Double-Up passages."
>
> Hugh Robertson, 23rd April, 1969.

I replied to this part of his letter thus:

> "I approve your additions, but I think you may be overworking speed at the expense of comprehension...note the discrepancy between speed and accuracy in your test results,[1] which is nearly always in favour of speed (see Table 47 on p. 438 , the differentials between October, 1968, and March, 1969, in scores on the Speed and Accuracy sub-tests)....Further, it seems to me that these youngsters are not yet sufficiently proficient readers, as measured by Accuracy and Vocabulary sub-tests, to push for speed.
> "I particularly approve the integrated approach to spelling, especially since the words used in Double-Up are so tightly controlled."
>
> My letter of 12th May, 1969.

In due course Mr. Robertson returned to my first point thus:

> "I agree, I have pushed speed too much. I'll 'slow down' this year."
>
> 13th August, 1969.

Unfortunately, he was only able to devote 1 period per week in each class to Double-Up so that in the course of the 1968-1969 academic year he only completed 25 exercises, or a quarter of the programme. As he was quick to appreciate this was hardly sufficient to produce significant gains. Nevertheless,

[1] He used the Gates-MacGinitie Reading Tests, Survey E, Forms 1, 2 and 3.

> "Survey E is intended for use in grades 7 through 9. Three equivalent Forms of Survey E are available. Each consists of three parts: Speed and Accuracy, Vocabulary, and Comprehension.
> "The Speed and Accuracy Test provides an objective measure of how rapidly students can read with understanding....
> "The Vocabulary Test samples the student's reading vocabulary....
> "The Comprehension Test measures the student's ability to read complete prose passages with understanding...."
>
> Teacher's Manual, 1965, p.1.

> "I did a test in October 1968 before starting Double-Up, and a second one at the end of March, 1969, and the improvement has been quite impressive, especially when one considers that I only do 1 passage per week instead of the 3 which you suggest."
>
> 23rd April, 1969.

He was sufficiently encouraged after the terminal June tests to say,

> "I'll be doing Double-Up with Grade 6 (1 class), Grade 7 (2 classes) and Grade 8 (2 classes - the original Grade 7 pilot experimental classes) once a week. Perhaps after reading your letter the Head will give me 2 periods per week! (In my letter of 12th May, 1969, I had said in part, "Obviously even 1 period per week on Double-Up is better than nothing, but if you want to improve reading globally, and measurably, you must step it up to 2 p.p.w. at least.")....
> "I like the look of Buck-Up and want to give it a try in Grade 6 this year and probably in Grade 5 the following year."[1]
>
> 13th August, 1969.

Sensibly he reviewed the pupils' progress, as it was revealed in the March standardised tests, with them which no doubt increased their keenness:

> "The kids thoroughly enjoy the weekly exercises, both slow and quick readers. They were also very interested in the results of the two reading tests (October, 1968, and March, 1969)."
>
> 23rd April, 1969.

In his letter of 13th August, 1969, Mr. Robertson included "all the statistics for the whole year". These are set out in Table 47 below. From the results summarised in this Table I drew the following conclusions:

> "1. According to these figures ± 25% of 7A and a shocking ± 70% of 7B were still retarded in reading in June, 1969. (Only 4 boys in 7A were retarded, but in 7B only 4 boys were not retarded, and this despite a mean I.Q. of 101.)....This means that in the Grade 7 intake of 35 boys, 17, or ± 50%, are presently retarded in reading....

[1] See 7.9 hereunder

"2. I tested the increments in Standard Scores according to the directions in the Technical Manual, p.5, and with reference to Table 10 on p.11, and arrived at the figures embedded in the deductions which follow:

October, 1968				GATES-MacGINITIE READING TESTS, SURVEY E, FORMS 1, 2 & 3									
				Form 1 October, 1968			Form 2 March, 1969			Form 3 June, 1969			
Grade	N	C.A.	I.Q.+	S.S.	Grade Level	Grade Score	S.S.	Grade Level	Grade Score	S.S.	Grade Level	Grade Score	Grade Score Gain in 9 m.
				SPEED									
7A	17	11.9	118	56.2	7.1	9.0	62.5	7.6	11.1	61.9	7.9	10.11	1.11
7B	13	12.8	101	45.3	7.1	6.5	45.6	7.6	6.5	46.3	7.9	7.0	.7
8A	22	12.8	120	-	8.1	-	-	8.6	-	57.7	8.9	11.0	-
8B	21	13.6	100	-	8.1	-	-	8.6	-	51.8	8.9	9.10	-
				ACCURACY									
7A	17	11.9	118	56.9	7.1	8.9	61.6	7.6	10.2	62.3	7.9	10.5	1.8
7B	13	12.8	101	46.1	7.1	6.2	46.2	7.6	6.4	49.0	7.9	7.1	.11
8A	22	12.8	120	-	8.1	-	-	8.6	-	60.5	8.9	10.11	-
8B	21	13.6	100	-	8.1	-	-	8.6	-	54.5	8.9	9.11	-
				VOCABULARY									
7A	17	11.9	118	57.4	7.1	9.4	57.7	7.6	9.8	58.9	7.9	10.6	1.2
7B	13	12.8	101	42.0	7.1	5.3	43.6	7.6	6.0	47.0	7.9	7.0	1.9
8A	22	12.8	120	-	8.1	-	-	8.6	-	63.3	8.9	11.10	-
8B	21	13.6	100	-	8.1	-	-	8.6	-	55.1	8.9	10.2	-
				COMPREHENSION									
7A	17	11.9	118	58.8	7.1	9.8	58.1	7.6	9.7	59.8	7.9	10.4	.8
7B	13	12.8	101	49.0	7.1	7.0	49.1	7.6	7.2	47.5	7.9	6.11	.1
8A	22	12.8	120	-	8.1	-	-	8.6	-	62.8	8.9	11.10	-
8B	21	13.6	100	-	8.1	-	-	8.6	-	53.8	8.9	9.9	-

TABLE 47

+ The Intelligence Tests used were The Henmon-Nelson Tests (Iowa State Teachers' College).

(i) Since 5.7 > 2.8, the gain in speed in 7A is significant (both between October, 1968, and June, 1969, by calculation, and between October, 1968, and March, 1969, by inspection).

(ii) Since 5.4 > 2.7, the gain in accuracy in 7A is significant (both between October, 1968, and June, 1969, by calculation, and between October, 1968, and March, 1969, by inspection).

(iii) Since 5.0 > 2.7 the gain in vocabulary in 7B is significant (between October, 1968, and June, 1969). None of the other 5 increments is sufficient to be significant.

"3. It is not surprising that there were not more significant gains when you consider that you only covered ¼ of the programme, and that at 1 p.p.w. over an attenuated period of 9 months, and when you see that 7B were so grossly retarded at the outset (compare their attainment with 8B's in June, 1969: when you adjust for the difference in ages, but not for any difference in I.Q. because there isn't any, nor for differences in 'class composition' because there are foreigners with language difficulties in both classes, 7B are still 2 years behind 8B in all four aspects of silent reading attainment).

"4. It is predictable that the brighter students in 7A, who were significantly more proficient in reading than boys in 7B to start with, should gain more, and gain more quickly, in speed and accuracy than the slower students in 7B. Furthermore the mean speed and accuracy Standard Scores in 7A were diminished in comparison to the mean vocabulary and comprehension Standard Scores at the outset of the course in October, 1968 - 56.2 and 56.9 in comparison to 57.4 and 58.8; thus there was more room for improvement in speed and accuracy than there was in vocabulary and comprehension.

"5. In June, 1969, 7A are already on a par with 8A on Grade Score, and exceed 8A in Standard Score and Percentile (both of which take account of the pupils' age as it is expressed in Grade Level, while Grade Scores, on the other hand, are derived directly from

Raw Scores, and take no account of pupils' age). This confirms that 7A have gained significantly in speed and accuracy despite having had only 1 p.p.w. on Double-Up for 9 months....7A made more dramatic progress in these two areas in the first 5 months. In the last 3 months they slowed down and seemed to consolidate.

"6. It is not surprising that 7B gained significantly in vocabulary where 7A did not because this is precisely the area in which you would expect retarded readers to make up ground first[1] and because it is probably easier on a graded test of 50 items to move from a Standard Score of 42.0 to 47.0 than it is to move from 57.4 to 58.9.

"7. Double-Up appears to have both 'evened out' and scaled up achievement in all four areas: in 7B, for example, the pupils' mean Grade Scores in October, 1968, were Speed, 6.5, Accuracy, 6.2, Vocabulary, 5.3, and Comprehension, 7.0, a range of 1.7 grades. In June, 1969, their mean Grade Scores were Speed, 7.0, Accuracy, 7.1, Vocabulary, 7.0, and Comprehension, 6.11, a range of only 0.2 grades. Furthermore, vocabulary no longer lags significantly behind speed, accuracy and comprehension. In both classes performances at the end of the course are far more even and consistent than they were at the beginning.

"8. When you compare the differentials between 7A and 8A in June, 1969, it is obvious that 7A's gain in speed and accuracy is not the result of 'natural increase', or practice effect. Nor can it be attributed to the standard error of the tests. Double-Up and the teacher, must take most of the credit for it. Though there is not a significant difference between 10.6 and 11.10 - 7A and 8A Vocabulary Grade Scores in June, 1969 - and between 10.4 and 11.10 - 7A and 8A Comprehension Grade Scores in June, 1969 - I am a little disappointed that 7A did not make greater gains.

[1] Compare Table 35 , 6.2, p. 335.

However these findings accord with mine on the present research project: Double-Up improves rate and accuracy of silent reading, and vocabulary, particularly with slower boys, more than it does comprehension.[1]

"9. In October, 1968, 3, 3, 3 and 4 boys in Grades 7A, 7B, 8A and 8B respectively hit the top of the Grade Score Speed, Accuracy, Vocabulary and Comprehension scales, while in June, 1969, 8, 6, 7 and 8 boys hit the top of the same scales....So by June, 1969, approximately 50% of 7A were hitting the top of Survey E 'for grades 7 through 9' (see Teacher's Manual, p.7) in all four constituent sub-tests, and that at the end of Grade 7. In 8A the comparative figures are 11, 10, 14 and 15, or ± 63% of the total number of boys tested and this class is a whole year ahead of 7A in its school career. The comparative figures for 7B and 8B are not nearly as promising. For some reason(s) best known to you folk over there, 7B is a much poorer group than 8B and comparisons are therefore unprofitable."

My letter of 28th August, 1969.

The Canadian results appear to be superior to the South African results detailed under 7.6 above, despite the fact that the Canadian boys spent substantially less time on Double-Up than did their South African experimental counterparts. But there may be good reasons for their seemingly superior performance. Firstly, two of the three significant gains made by the Canadian boys were made in areas which I did not test with any standardised instrument, namely speed and accuracy. I did not

[1] The same holds true for S.R.A. Reading Laboratories and E.D.L. devices and programmes: see 6.2, Table 35 on p.335 and following pages 339-40; and see also 4.4, pp.163-5. It may well be that it is comparatively easier to improve on rate, accuracy and vocabulary scores than on comprehension scores because of the way that the tests are constructed, and because of the different kinds of skill involved in these four aspects of reading. Furthermore it may be that average and below average pupils seem to make greater gains than above average pupils because the test instruments favour those who score lower initially.

test these two aspects of reading because (i) there were no South African standardised tests available, and because (ii) straight rate of reading is such a variable and volatile thing to measure that one can only interpret the results very cauticusly.[1] Secondly, the Gates-MacGinitie battery has many more items than the N.B.E.S.R. Silent Reading battery: there are 36 items in the Speed and Accuracy sub-test (for which there is no S.A.S.R.G.T. equivalent), 50 items in the Vocabulary sub-test (50 items in S.A.S.R.G.T.), and 52 items in the Comprehension sub-test (25 items in the S.A.S.R.G.T. Paragraphs sub-test and 20 in the Sentences sub-test, which would be nearly equivalent to the Gates-MacGinitie Comprehension Test if the two S.A.S.R.G.T. sub-tests were continuous, but as we have already seen they are quite discrete and not even parallel). Consequently the Gates-MacGinitie scales are more extensive, inasmuch as they cover speed and accuracy as well as vocabulary and comprehension, and more extended in the case of Comprehension as compared with Paragraphs and Sentences. It follows that the student has more

[1] The speed test in the Gates-MacGinitie battery is a compound rather than a straight test inasmuch as it measures the <u>effectiveness</u> of reading rate of <u>discontinuous</u> material, not merely the rate at which a pupil reads silently <u>continuous</u> material followed by a few questions to see how well he comprehended and/or how much he remembers. Thus it differs fundamentally from my ad hoc reading rate tests (see 3.3, pp.104-7) and to a lesser extent from the N.F.E.R. Secondary Reading Test 3, Continuous Prose, already discussed, which is a test of the <u>effectiveness</u> of the reading rate of <u>continuous</u> material (see 3.3,p.103). A brief description of the Speed Test is perhaps necessary to clarify these differences:

> "The Speed and Accuracy Test contains 36 short paragraphs of relatively uniform difficulty. Each paragraph ends in a question or incomplete statement, and a choice of four words follows. The student's task is to choose the word that, according to the paragraph, best answers the question or completes the statement. The number of paragraphs he completes in the four minutes allowed provides a measure of how rapidly he reads. The time limit for the test is therefore short enough that few students will be able to complete all of the paragraphs."
>
> <u>Teacher's Manual</u>, p.1.

scope and opportunity to show how his reading has developed and how much it has improved, and that within the area of comprehension at least he has more "room to grow" (unless of course he achieves a very high mark in the pre-test). Thirdly, the test of significance of gains, as laid down in the Manual, is oversimplified and unsophisticated: for example, no control group is required, and a control group is a pre-requisite in any rigorous measurement of human abilities; nor is practice effect and the standard errors of the test instruments mentioned explicitly, though no doubt they have been taken into account in the calculation of the constants which are the substance of Table 10, For assessing significance of gain scores: Values for Computing Minimum Significant Differences between Two Standard Scores for the Same Group on Two Different Forms of the Same Sub-test Taken at Two Different Times within the Same Grade (Technical Manual, p.11). Fourthly, test sophistication, or practice effect, must enhance results to some extent: after all these lads were tested on three parallel forms of the same test within a period of 9 months.

Nevertheless the first-fruits of this additional pilot research project are gratifying. The fact that the teachers concerned have been sufficiently impressed and encouraged to extend the programme to other classes, and to continue with Double-Up with 1969-70 Grade 8's (1968-9 Grade 7's), is in itself significant. It is apparent that the stories in Double-Up have more than merely local appeal, and it would seem that the approach to developmental reading therein advocated meets with the approval of teachers trained for and practising in a different educational system and ethos.

7.9 Buck-Up, the primer programme for Double-Up

When it was suggested to me by one of the Senior Masters at School C that it was the 9.0's and 10.0's in Standard 3 who really needed something like Double-Up, I was dubious. I had hitherto maintained that a minimal word reading and comprehension age of 11.0 was necessary before launching a child onto a developmental reading

programme. I do not dispute that the simpler E.D.L. programmes and S.R.A. Laboratory 1, made up of word games and phonic and "structural word-attack" material, and Primary Grade Laboratories 1A, 1B and 1C, serve useful supplementary functions in the classroom, but in the formative stages of learning to read, I believe that the teacher is more important than the method or the material:

> "A teacher can usually get best results with a method he knows and understands."
> Gray, 1956, p.113

> "Generally, it was what the teacher did with the method itself that seemed to make the difference."
> Chall, 1967, p.270

> "The most important school variable of all is the teachers."
> Morris, 1966, p.XXX

However, I decided to write a few stories at a lower interest level than the stories in Double-Up, and try these out with the Standard 3 boys at School C. The two teachers concerned, one of whom was already using Double-Up in Standard 5, co-operated fully and their reaction, together with the children's enthusiastic reception, encouraged me to write a full-scale primer for Double-Up. Within 6 weeks Buck-Up was born and was in use in Standard 3's. It was first tried out in sheet form, the children working through 3 or 4 stories a week in order to complete 40 stories by the end of the year. I then revised the stories and questions in the light of children's and teachers' responses to them, and in the light of results achieved by the children. Finally I wrote an Introduction to the programme and it was printed in April, 1969. It has come out in the form of a Work Book because younger children find setting out their pages and writing down their answers more difficult and laborious than older children do. They also find it extremely difficult to construct neat and accurate graphs of their results. There are five "steps"

in Buck-Up, each consisting of eight stories. These range from 300 words to 500 words. There are no tests since it would be premature to high-light speed at this stage.

It is too early to say yet how Buck-Up will be received in the schools, and whether it will serve the purpose for which it was intended. However, I include extracts from the Introduction, together with a sample exercise, in Appendix T in order to give the reader some idea of its aim, method and scope. I also include the results of a preliminary survey undertaken during 1969, together with some discussion, so that the reader may form some impression of the programme's potential.

CHAPTER EIGHT

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

"Programmed texts and reading machines can be useful as supplementary devices, but they are not adequate alone."
T.E.S., 16th August, 1968, p.300.

8.1 Summary

At the outset in Chapter One I gave a brief historical outline and overview of this project. Then in Chapter Two I defined and described developmental reading. In Chapter Three I related how this experiment was mounted. In the same chapter I enumerated and discussed various test instruments, both those which were used and those which were rejected. I then explained how I tabulated the test results and supplemented them with data derived from questionnaires. In Chapters Four and Five I have summarised the evidence of other experiments and recounted my own direct experience of the two commercial developmental reading programmes, the S.R.A. Reading Laboratories and the E.D.L. programmes and the two devices through which they are projected, namely the Tach-X Tachistoscope and the Controlled Reader. In Chapter Six I have detailed the standardised and objective test results obtained on these two programmes in this experiment. Then in Chapter Seven I have described in detail my own developmental reading programme, Double-Up, analysing in 7.5 the standardised and objective test results achieved on the programme. In the case of all three programmes, therefore, I have related how they work, what they are designed to achieve, and what they actually did achieve and where they fell short with students on this project. In addition to an exhaustive examination of the test results aforementioned, I have also analysed questionnaires (see 4.8, 5.7 and 7.7), the results of internal examinations (see 4.7 and 5.6), and written English compositions (see 7.3).

In these preceding chapters I have arrived at some conclusions and made some recommendations, either explicitly or by implication, arising directly and immediately out of any discussion of, and pertaining particularly and pertinently to, a specific programme.

Inevitably, however, some of these conclusions and recommendations apply to the other programmes to a greater or lesser degree as well. Therefore some repetition in a wide-ranging study of this kind is unavoidable, and if I repeat myself here again I make no apology for doing so because what follows is a distillate of all that has gone before and seems to me to be crucial to the successful operation of any developmental reading programme. I have tried to order both my conclusions and recommendations into a rough hierarchy, setting down the most important first, and I have tried to be as brief and precise as possible, reducing specific references to previous chapters to the bare minimum and eschewing the temptation to elaborate and argue. Finally I have listed conclusions and recommendations separately. My conclusions are materially an evaluation of the three programmes while my recommendations in the main arise out of this evaluation.

8.2 Conclusions : an evaluation

No one programme appears to be significantly better than either of the other two programmes in promoting all-round improvement in English studies. However, each programme does have some specific advantages over the others both in increasing silent reading efficiency and in improving other aspects of communication.
These may be summed up thus:

1. S.R.A. Reading Laboratories

(i) Instruction and progress is completely individualised.

(ii) Each Laboratory is multi-purpose and multi-faceted: P.B.'s improve power of reading by developing vocabulary and word-attack skills, concentration and comprehension, appreciation and rate of reading; R.B.'s accelerate silent reading and improve concentration and comprehension; L.S.B.'s improve attention and listening skills.

(iii) The carefully graded and comprehensive 'Learn about Words' exercises, which are an integral part of every P.B., systematically develop understanding and mastery of language.

(iv) Each Laboratory is wonderfully compact and can quickly and easily be transported from one classroom to another.

(v) Since there are two quantitatively and qualitatively different kinds of silent reading exercise in every Reading Laboratory, namely the extended passages in P.B.'s, with their attendant extended exercises, and the short passages in R.B.'s, with only 10 or so multiple-choice comprehension questions to answer, S.R.A. Laboratories incidentally promote a certain amount of reading flexibility and versatility.

(vi) A minimum of accommodation is necessary when switching from reading passages on cards in the Reading Laboratory to reading from printed pages in books. Therefore there should be maximum transfer from the Laboratory sessions to day-to-day reading assignments.

2. E.D.L. devices and programmes

(i) The Controlled Reader improves "performance skills" (directional attack, fixation span, and fixation duration) more effectively, and probably more permanently, than either of the other two programmes (see 5.3 , pp. 248 - 50).

(ii) The two devices, and I think the Tach-X Tachistoscope in particular, if it is used to project words, and if the words projected are followed up competently and imaginatively by the teacher, can improve vocabulary significantly.

(iii) The machines have a greater novelty appeal than either the S.R.A. Laboratories or Double-Up/Buck-Up.

3. Double-Up/Buck-Up

(i) Double-Up is eclectic and integrative in its approach. It does not only set out to improve speed and fluency of silent reading. It also aims to increase confidence and competence in reading aloud, speaking and writing. Thus it provides the opportunity for the all important "rub of minds" and peer education, not to mention a host of interesting and challenging extension activities.

(ii) The passages were written specifically for South African children. Therefore they have an intrinsic local appeal both in content and idiom. Furthermore, since the passages are original and mostly fictional narrative, and because

there is opportunity for discussion, the children get ideas for their own written compositions from them. In addition the stories are written in a style and vocabulary on which the children can profitably model their own writing.

(iii) Since the pupil reads from the printed page in Double-Up maximum transfer is effected between the training programme and other reading assignments.

Common merits

(i) They all have carefully controlled vocabularies and readability levels.

(ii) They all expand vocabulary.

(iii) They all extend general knowledge, S.R.A. and E.D.L. materials to a greater extent than Double-Up because of the predominantly factual content of the passages in these two programmes.

(iv) They all improve silent reading, both in speed and efficiency, mainly through enforcing attention and refining concentration.

(v) They are all self-administrative, self-evaluative and self-motivating to an extent.

Just as each programme has certain advantages over the others, so each programme has certain disadvantages when compared with the others:

1. S.R.A. Reading Laboratories

(i) To cheat is a constant temptation, and far too easy (see 4.7, pp.202-4).

(ii) Even if the Laboratory components are thermoglazed, or treated in some other way to extend their life, they quickly become dirty and dog-eared with continuous use. Then P.B. Answer keys, particularly, are often lost, or mislaid, or put back in the wrong place, and this leads to delays, irritations and frustrations. If more than one class and one teacher is using a particular Laboratory blame is invariably shifted, which again irritates and causes ill-feeling. Of course once cards are lost the

efficient functioning of the Laboratory is permanently impaired, because it is difficult to replace missing P.B.'s and R.B.'s at this distance from the American publishers. It is possible to reconstruct P.B. Answer keys, but handwritten substitutes are inevitably inferior to the original check cards. However, it is preferable to make them than to withdraw the P.B.'s with which they are matched because if the latter are taken out of the Laboratory whole sections are soon reduced and an additional strain is placed on the surviving cards. My experience with the S.R.A. IIIA Laboratory has confirmed that other teachers' complaints in these regards have been only too well-founded.

2. E.D.L. devices and programmes

(i) It is difficult to individualise instruction on the machines without going to a great deal of trouble and expense. Grouping, and attendant classroom organisation and pupil management, constitute considerable problems in any attempts to cater specifically for the individual. And yet if the less able scholar is not specially catered for he may very well become discouraged and disaffected, while if the well above average reader in the same class is not extended he "coasts" and is apt to become a behavioural problem (see 5.5, p.268 and pp.277-9, and 5.6, p.291).

(ii) The machines are too mechanical in their presentation of material and pupils are inclined to be mesmerised to a degree. Furthermore, their operation is so predictable and consistent that they soon pall on children, for whom the unknown and the unexpected in human relations within the classroom situation provides the very warp and woof of learning. Perhaps, too, they require an essentially predictable and "imposed" response from the learner, whereas pupils crave variety and like to actively initiate a learning task, or at least occasionally participate in the structuring of such tasks.

(iii) The projection of reading material onto a screen in a darkened room, with pressure on pupils to concentrate hard all the time, strains some pupils' eyes, and probably overtaxes a few.

3. Double-Up/Buck-Up

(i) The programmes are limited in their range: there is neither enough material, nor does it extend over a sufficiently wide age range, to cater adequately for all ability groups between the ages of 8.0 and 18.0.

(ii) In its present published form Double-Up is unwieldy for children to handle. Also the absence of illustrations and the fact that the right-hand margin is unjustified make it less aesthetically pleasing and perhaps physically less easy to read than S.R.A. and E.D.L. materials. However, these faults will be eliminated if and when the programme is reprinted. It will then be printed in three parts, there will be black and white line drawings on every question page and the right-hand margin will be justified.

(iii) Though the stories are exciting there are elements of violence in a few of them which may render them more intelligible and interesting to boys than girls, i.e. 'Tragedy' on p.14, and 'Love at first sight' on p.80.

Common demerits

(i) The material in both S.R.A. and E.D.L. programmes is inclined to be "Readers' Digest-y" in both content and style. The passages are invariably rehashes of articles and stories which have appeared in other publications, and any freshness and spontaneity they may once have had has been blurred in their reconstitution to the exacting requirements of length and readability level. No matter how skilful the writers of abridged and adapted texts are they lose something in the rewriting. Double-Up and Buck-Up are largely exempt from these strictures because (a) there are not so many passages, (b) the stories themselves are original, and were written in the first place by a number of different authors, and (c) when you write to a Readability Level of ± 11.0 (Double-Up) and ± 9.0 (Buck-Up), according to the Spache Formula, you have a fair amount of freedom with regard to vocabulary and sentence length, and a number of different authors with

different styles can exploit this freedom to the greatest possible extent.

(ii) Neither S.R.A. Laboratories nor Double-Up and Buck-Up can hope to train eye movements as effectively as the Controlled Reader. Whereas all three programmes succeed in accelerating silent reading probably only the E.D.L. devices can do this by effectively modifying perception - physically reducing fixation times and extending fixation spans, and enforcing economic eye movements which preclude time-wasting regressions. It has not yet been proved that these perceptual modifications are permanent, and that the efficiency of silent reading is permanently improved as a result, but if the training period is sufficiently long to habituate the eyes and the brain to working in this more effective conjunction, and occasional refresher courses ensure that the improvements are maintained, I can see no reason why they should fall off.

(iii) Neither S.R.A. nor E.D.L. programmes aim to improve reading aloud or oracy, or for that matter written expression, at least not directly. This criticism does not apply to Double-Up/Buck-Up.

(iv) There is the opportunity and temptation to cheat on all three programmes, although it is greatest on S.R.A. Laboratories.

8.3 Recommendations

1. Synthesis

Developmental Reading should be integrated with and complemented by all other aspects of language study. It should be both consolidated and extended by work in other aspects of English. I look upon reading as being the hub of the English Studies wheel. It follows that there is little point in trying to increase mechanical competence in reading beyond the child's reading and linguistic experience. Nor is any useful purpose served by launching him on a developmental reading programme before he is experientially, psychologically and intellectually ready to tackle fairly strenuous silent reading assignments pitched at a Readability Level (based on the Spache formula) of not less than 9.0 years.

2. Instruction

If they are to work to optimum effect developmental reading programmes need to be taught to, conscientiously and systematically. Imaginative supplementary work adds immeasurably to the operational success of the programmes.

3. Vocabulary

The garnering of new words, and their recognition on sight, is crucial to the development of further reading (and writing) skills.

4. Duration and timing

The longer, less concentrated course, with regular, spaced and interestingly varied practice periods, is more likely to sustain students' interest and to result in permanent gains. In order to ensure permanence of gains the courses should be followed up assiduously and/or refreshed periodically. (See also 8.4 hereunder.)

5. Evaluation

(i) Standardised pre-tests and post-tests of reading attainment should be given at the outset and the culmination of every course, whether it be a first course, extended or intensive, or a refresher course. Tests used must be well graded. They must have enough items, and a high enough ceiling, to measure both accurately and sensitively. It is desirable to use parallel forms of the same test for pre-testing and post-testing as this reduces the effect of practice. However if parallel forms are used their parallelism must be beyond question.

(ii) A battery of tests will give a fuller, more reliable picture of gains in achievement than a single test.

(iii) Subjective evaluations of oracy, and of written work, as well as of changes in attitude and of increases in motivation, should also be undertaken (see 6.1, pp. 332-3).

(iv) All assessment should be continuous and cumulative, and records should be kept, and circulated amongst all members of staff. Reading within the field of Language Study is essentially a core subject and should concern every teacher to some extent, no matter what his speciality and to what level he teaches.

(v) Before any firm and finite conclusion is reached as to the merits of a particular developmental reading course or programme, as many as possible of the multitude of variables which bear on the improvement in efficiency of any performance must be identified and carefully weighed. My experience with Control Group D in this experiment is distinctly relevant. Even when one matches scrupulously, and with the utmost rigour, there are imponderables which elude definition. In this case it was these very imponderables which caused the Control Group to gain significantly in reading efficiency, as measured by my ad hoc test, in comparison to both Experimental Groups (see 6.3, pp. 350-2). The easiest and perhaps the best way of surmounting this problem is to work with large numbers over an extended period. Then gains should be real, measurable and permanent. In any case all test results must be subjected to rigorous statistical analysis. Claims for the success of a particular programme or method can only be validated by statistical comparison with results achieved by a control group.

6. Comprehension

Multiple-choice questions should be interspersed with open-ended questions to reduce the effects of chance and/or inspired guessing. Questions should be searching, and require insight and inference, and appreciation of the author's purpose and style, rather than merely a superficial grasp-cum-recollection of the facts (see 2.8, pp. 45-7).

7. Fixations

Physiologically it is simply not possible to increase span of fixation, or span of recognition, beyond a certain level (see 2.7, pp. 37-9). What can and should be done instead is to reduce the duration of fixations by accelerating the decoding of words and the interpretation of meaningful groups of words. This can be effected by tachistoscopic or flash-card drill - in other words by increasing the speed of recognition of a number of words and phrases (Tach-X and flash-cards) and increasing the rate of exposure of "running material" (Controlled Reader and timed exercises). A sense of urgency is important.

8. Cheating

If there is no scoring-key, and if answers can only be arrived at by discussion and mutual consent, the temptation to cheat is reduced at the outset (see 7.1, p.358). If the teacher collects books regularly to check on pupil correction, and/or occasionally mark himself, cheating will be further reduced. However, whatever strategy the teacher adopts he will probably never eliminate cheating entirely, nor do I think that he should attempt to do so in the highly competitive, examination ridden system in which so many South African pupils work. Often the only way that a boy can compete successfully is by cheating, and if he is learning something by so doing, and not doing any other child any harm, his sin is at worst only venal, and at best no sin at all. In any event it behoves the teacher to be aware of the temptation to cheat, and of the ways in which students do cheat, even if he decides to do nothing about it.

9. Hawthorne Effect

Teachers should not concern themselves unduly about the part played by their good teaching in the gains made by pupils working with a new method or learning through a new programme. Innovations in education are often as good for the teacher as they are for the pupil, and if a group registers a distinct improvement as the result of a particular course of instruction, it hardly matters what proportion of the gain is due to the new method and what proportion is due to the rejuvenated teacher. The Hawthorne Effect is something which is best left to research workers to bother their heads about.

10. Remedial work

While none of these programmes was designed for remedial or corrective purposes it behoves remedial reading specialists to take note of the possibilities for remedial work in all three programmes (see 4.4, p.160 and 5.5, pp.257-8). There is little doubt that, with judicious adaptation, they could and perhaps should be used in the rehabilitation of students who have reading difficulties.

8.4 An ideal long-term course

From what I now know first-hand of all three programmes, and from what I have said heretofore, I would suggest the following sequence for classes of above average children:

Standard 3 - Buck-Up (children of this age need integrated oral work to supplement and enliven silent reading sessions): 1 or 2 p.p.w.

Standard 4, First Semester - S.R.A. Reading Laboratory, possibly Lab. IIA: 2 - 4 p.p.w.

Standard 4, Second Semester - Double-Up: 2 or 3 periods per week.

Standard 5, First Semester - Double-Up (continued): 2 or 3 p.p.w.

Standard 5, Second Semester - E.D.L. devices and programmes (to sustain all-round improvement and accelerate rate of silent reading): 2 - 4 p.p.w.

For average and below average classes, as well as for unstreamed and/or composite classes, I would suggest starting this sequence in Standard 4, or even Standard 5, and continuing until the end of Standard 6, at least. I do not advocate the use of the two E.D.L. devices, particularly the Controlled Reader, earlier in such a course because too much pressure too soon can reduce the young reader's morale and dislocate his application while he is still acquiring basic reading skills. Furthermore the machines may build up a resistance to reading in the less able readers in a class unless instruction on them is completely individualised (see 5.5, pp.277-80, and 5.7, p.309).

I would prefer to mount a full-scale, long-term developmental reading course, as distinct from a short, intensive course, at the top end of the primary school and the lower end of the secondary school for these reasons:

(i) There is more time for reading per se, as a skill-building activity, in the primary school than in the secondary school.

(ii) Children of 11.0-13.0 are often more amenable to skill-building activities than older children because they are not yet preoccupied with the bug-bear of external examinations.

(iii) The refinement of reading skills fostered by such a course will be continuous with basic reading instruction: thus a developmental reading course at this stage should capitalise immediately, and to the full, on previous gains, and there will no time or opportunity for bad, uneconomic reading habits to be formed.

(iv) Having learnt to read really efficiently by the end of Standard 5, or Standard 6 at the latest, the student can apply himself timeously and to best advantage to reading to learn, which is after all the essence of secondary and tertiary education. Furthermore, if one accepts that the ultimate aim of all education is self-education, then it is obvious that the sooner reading mastery can be achieved the more time and incentive the student will have to go on and educate himself. The Headmaster of a primary school in Cape Town asked me this question:

"Why is the programme (Double-Up) introduced at the Standard 5 level and not earlier?"
A personal letter dated 8/9/69

I replied in part:

"I believe that it's previous, and unwise to stress speed-cum-comprehension-cum-appreciation - the habits involved in mature silent reading, in fact - before a basic competence in oral and silent reading has been established....Standard 5 is the 'bridge' year between primary and secondary school, and probably the most propitious time psychologically, educationally and child-developmentally to introduce a course of this sort....The Standard 5 child wants to learn to read faster and more efficiently in preparation for the rigours of high school...."
My answering letter of 12/9/69.

In addition to the sequence suggested above I believe that the short refresher course scheduled periodically in the high school, and working on either an S.R.A. Reading Laboratory or an E.D.L. programme, would prove invaluable in maintaining and perhaps slightly increasing reading efficiency.

I do not advocate an earlier start than Standard 3, except perhaps in the case of a few exceptional individuals, because it is

essential that pupils be old enough, and sufficiently proficient, both to be able and to want to read silently for short periods at a time under some pressure. Furthermore, before starting on an exacting further reading course it is desirable that pupils have a fairly extensive background knowledge which will facilitate the acquisition of new information from the printed page. 6.0's - 9.0's, at least, need a skilled and sympathetic teacher, and a receptive audience, more than they need a reading machine and/or programmed instruction, no matter how interesting, well-graded and individualised.

I favour this longer less concentrated course, using a variety of devices and programmes, because I believe that such a course is more likely to promote flexibility and produce permanent gains in reading efficiency, while sustaining interest at the same time, than the short concentrated course. The prolonged course should also foster the right attitudes to reading and make for more enjoyment in the subject because it will not overcharge the student. Furthermore it will ensure that a number of teachers are involved and that a concerted team approach to the teaching of further reading is pursued to the benefit of all concerned. But finally, and most important, it will afford time, opportunity and incentive to weld the developmental reading course into the total English Studies programme so that all areas interdepend and complement one another. Essentially what I have in mind is a process of cross-fertilisation (see 5.7, p.326).

8.5 Further research

While the material and the basic methodology of developmental reading are hardly new - pupils have been doing comprehension exercises at all levels for generations - the ways, techniques and devices in which and through which the reading material is presented certainly are new, and are undoubtedly worthy of concerted and patient study, both cross-sectional and longitudinal. So far research in all quarters of the globe has only scratched the surface. My own research, which as far as I know is a pioneer project in the South African educational field, has shown the need for larger, longer, better controlled, more sophisticated and more

generously manned research projects in this area. For instance, what of the Afrikaans-speaking child, and of the Bantu, Coloured and Asian child, in our multi-racial and multi-lingual society? How will they respond to developmental reading methods and programmes in their own languages and in English as a second language? Then there is the question of valid and reliable tests by which to measure accurately and sensitively, gains made on developmental reading courses. I have roundly criticised the S.A.S.R.G.T. in this thesis, and I devised my own ad hoc speed-cum-comprehension test in an attempt to make good one of the lacks and some of the faults of the S.A.S.R.G.T. I make no extravagant claims for the excellence or reliability of my own test, but I suggest that it does point in a direction in which it would be fruitful to explore further. Indeed I believe that developing new and better reading tests is one of the priorities that deserve the urgent attention of educationists in South Africa today.

In these and other areas it is essential in the interest of national literacy (and hence of international literacy) that further research be undertaken soon, and prosecuted vigorously, by a team of research workers, if possible. I would like to think that the present project has raised the sash a little way, and that those who come after me will be undeterred by the complexity and difficulties of the field that is revealed beyond: indeed I hope they will be encouraged to follow after, to make good my mistakes and to far surpass my modest beginnings in this challenging field.

> "Research is never-ending. It will always uncover more questions than it answers....
> "Each researcher must try to learn from the work of those who preceded him and to add to a unified body of knowledge - knowing that neither he nor anyone following him will ever have the final word."
>
> Chall, 1967, p.306 and p.314.

APPENDICES A - C

The tabulation and concomitant statistical analyses that took place during the marshalling and appraisal of results, and which resulted in the evolution of the three phases described in 3.4 , was extensive. For the sake of conciseness the presentation of these results has been reduced as follows :

	Leg I (S.R.A./E.D.L)	Leg II (Double-Up)
Phase I	Complete	Complete
Phase II	Omitted	Abridged
Phase III	Abridged	Omitted

Phase I has been included in its entirety to enable the reader to overview complete groups as they were constituted in their classrooms, and to enable him to follow individuals through in all the aspects of intelligence and attainment that were pre-tested in May, 1968, and post-tested in November, 1968.

APPENDIX A

Standardised Test Results : Phase I of Experiment Leg I
Control Group D, Standard 5A

Boy	Pre-test, May, 1968								Post-test, November, 1968							
		Schonell		S.A.S.R.G.T. Junior A			N.S.A.G.T.			Schonell		S.A.S.R.G.T. Junior B			N.S.A.G.T.	
		S1 Form A		Vocab.	Paras.	Sent's	Inter.			S2 Form B		Vocab.	Paras.	Sent's	Inter.	
	C.A.	S.A.	S.Q.	S.P.	S.P.	S.P.	M.A.	V.I.Q.	C.A.	S.A.	S.Q.	S.P.	S.P.	S.P.	M.A.	V.I.Q.
2D1	12.1	13.1	108	12.11	14.9	15.4	13.10	113	12.7	13.4	106	14.1	15.6+	11.6	14.10	117
2DD1	12.10	13.10	108	13.6	11.7	11.11	14.4	110	13.4	14.5	108	15.6+	11.7	12.5	16.1	121
2D2	12.5	13.10	111	15.6+	15.6+	15.6+	17.8	141	12.11	13.10	107	15.6+	15.6+	15.6+	17.7	137
1D3	12.7	14.7	116	15.6+	15.6+	15.6+	18.1	144	13.1	14.8	112	15.6+	15.6+	15.6+	17.4	132
1D4	12.6	12.8	101	13.11	13.5	12.4	15.1	118	13.0	13.0	100	12.11	11.3	12.11	16.1	122
1DD2	12.8	12.11	102	15.6	15.4	14.9	16.9	132	13.2	13.7	103	15.6+	15.6+	14.9	18.4	141
1D5	12.5	12.7	101	14.1	14.0	13.8	15.10	127	12.11	13.1	101	14.5	14.9	12.5	17.1	132
1DD3	12.9	13.6	106	14.9	15.6+	12:11	15.10	123	13.4	14.4	108	15.0	15.5	12.11	16.1	121
2D6	12.1	14.1	117	15.3	15.4	15.6+	14.10	120	12.8	13.8	108	15.3	12.10	14.2	15.7	122
Ab3	12.3	a	a	a	a	a	a	a	12.9	14.0	110	14.3	14.9	13.8	15.4	119
2D7	11.9	12.8	108	14.4	14.9	11.5	16.1	137	12.3	13.2	107	14.3	13.5	11.0	17.4	139
1D8	12.0	13.5	112	13.11	14.0	15.4	16.0	133	12.6	14.5	115	13.11	12.3	12.5	17.1	134
G1	11.10	13.11	118	15.3	15.6	14.2	16.9	142	12.4	14.1	114	15.6	15.6+	15.6+	16.10	135
2D9	12.3	14.4	117	15.6+	15.6+	15.6+	15.4	122	12.9	14.8	115	15.6	15.6+	15.6+	17.4	134
2DD4	12.8	12.6	99	15.6+	15.6+	14.2	16.9	133	13.2	13.2	100	15.6	15.6+	15.6+	16.7	126
2D10	11.10	11.11	101	12.1	11.7	11.11	14.1	116	12.4	13.4	108	12.9	11.11	10.6	14.10	119
2D11	12.5	12.10	103	13.11	14.4	12.11	14.7	117	12.11	13.2	102	12.9	11.11	13.8	15.1	115
2D12	11.11	11.10	99	11.10	10.10	10.5	11.10	100	12.5	12.2	98	12.2	14.9	11.6	13.7	109
2D13	12.5	13.8	110	15.6+	13.5	11.5	15.7	124	12.11	14.0	108	13.8	13.5	11.11	18.1	140
2D14	12.6	12.4	99	14.3	11.7	12.11	13.4	106	13.0	12.6	96	14.3	11.11	12.1	15.1	113
1D15	12.1	12.8	103	14.4	13.5	11.5	13.1	107	12.7	13.7	108	13.5	10.1	11.11	14.4	113
1D16	12.3	12.4	100	13.6	12.3	12.4	14.4	115	12.9	13.5	105	13.8	12.3	12.5	15.4	118
Ab4	12.11	a	a	a	a	a	a	a	13.5	11.10	88	13.2	12.10	10.6	13.4	98
1D17	11.11	12.5	104	13.8	14.9	12.11	13.4	111	12.5	13.5	108	13.7	11.3	12.5	14.7	117
1D18	12.2	11.6	95	13.6	15.6+	13.8	15.1	121	12.8	12.8	100	13.7	12.10	11.11	17.1	134
1DD5	12.8	13.7	107	15.6	15.6+	15.4	14.10	117	13.2	14.2	107	13.8	15.6	12.11	18.1	138
1D19	11.11	13.2	110	15.6+	14.9	15.6+	16.1	132	12.5	14.4	115	15.6	14.9	15.5	16.7	132
1D20	12.0	12.5	103	15.6+	15.4	14.9	15.1	121	12.6	13.6	108	13.8	14.0	14.9	15.1	119
2DD6	12.9	12.6	98	14.1	12.10	14.2	15.10	123	13.4	13.8	103	13.7	11.11	12.5	15.4	112
DDD1	11.0	13.6	123	13.5	13.5	12.4	15.1	131	11.6	13.10	120	13.2	13.5	12.11	15.1	126
2D21	11.9	13.8	116	13.11	14.9	14.9	15.10	130	12.3	13.11	114	13.8	15.6+	12.5	17.4	139
G2	12.4	14.5	117	15.6+	15.4	15.6+	17.5	141	12.11	14.6	112	15.6+	15.6+	15.6+	17.7	137
G3	12.7	13.6	107	15.6+	15.6+	13.8	18.1	145	13.1	13.11	106	15.0	15.6+	14.2	18.7	145
DDD2	11.3	14.1	125	15.6	14.9	14.9	14.1	119	11.9	14.1	120	15.6	14.9	13.8	14.7	119
DDD3	11.5	13.8	119	14.4	15.4	14.2	14.7	122	11.11	13.11	117	14.5	14.0	14.2	15.7	128
2DD7	12.8	12.2	96	14.1	15.4	13.8	14.4	113	13.2	13.5	102	14.6	11.11	14.2	15.4	114
G4	12.6	13.5	107	15.6+	15.6+	15.6+	18.3	144	13.0	13.10	106	15.6+	15.6+	15.6+	18.7	145
1DD8	12.9	11.7	91	13.5	15.6+	13.8	14.4	109	13.3	13.4	101	13.11	12.10	14.9	15.4	113
1D22	12.5	11.3	91	13.8	14.0	12.4	15.10	126	12.11	12.10	99	12.9	12.3	13.8	16.10	130
1D23	12.0	12.4	103	11.7	11.2	10.11	12.10	105	12.6	12.10	103	12.6	14.9	11.11	14.1	110
Means	12.3	13.0	106	14.4	14.4	13.8	15.3	123	12.9	13.7	107	14.3	13.9	13.4	16.1	125

Ab3 and Ab4 were absent when the pre-tests were done, and were thus not given coded designations. They were also excluded from Phases II and III. The four gifted boys G1, G2, G3 and G4 were excluded from Phases II and III because their superior intelligence and performances, combined with the greater numbers in Control Group D, made it impossible to match them in Experimental Groups E and F.

A + sign after S.P.'s indicates that the raw scores of these testees exceeded the upper limits of the Tables of Norms for the S.A.S.R.G.T.

Standardised Test Results : Phase I of Experimental Leg I
Control Group D, Standard 5B

Boy	Pre-test, May, 1968								Post-test, November, 1968							
		Schonell		S.A.S.R.G.T. Junior A			N.S.A.G.T.			Schonell		S.A.S.R.G.T. Junior B			N.S.A.G.T.	
		S1 Form A		Vocab.	Paras.	Sent's	Inter.			S2 Form B		Vocab.	Paras.	Sent's	Inter.	
	C.A.	S.A.	S.Q.	S.P.	S.P.	S.P.	M.A.	V.I.Q.	C.A.	S.A.	S.Q.	S.P.	S.P.	S.P.	M.A.	V.I.Q.
Ab6	13.3	a	a	a	a	a	a	a	13.9	13.4	97	13.8	12.10	12.5	13.1	94
2D24B	12.5	12.2	98	13.11	14.9	12.4	13.10	110	13.0	13.2	101	13.8	13.5	11.11	15.1	113
1DD9B	13.9	13.6	106	13.5	11.7	11.5	13.10	107	13.3	13.10	105	13.2	14.0	12.5	15.4	113
2DD10B	13.1	10.6	80	12.7	12.3	11.5	14.4	106	13.7	12.6	91	12.6	11.7	10.1-	15.1	109
2D25B	12.3	13.6	110	13.5	12.10	12.4	10.7	89	12.9	14.0	109	13.2	12.10	10.6	12.7	98
2D26B	12.6	11.4	91	12.9	12.3	10.11	13.4	105	13.0	12.9	97	13.2	11.7	11.0	14.4	107
1D27B	12.7	10.5	83	14.9	15.4	12.4	14.4	113	13.1	11.5	87	13.11	15.6+	12.11	15.4	114
2DD11B	13.1	11.6	88	14.1	15.4	12.11	14.10	110	13.7	12.7	92	12.11	12.3	14.2	14.10	108
2D28B	12.6	11.11	95	13.8	13.5	15.4	12.4	99	13.0	13.2	101	13.11	13.5	12.5	14.1	105
1DD12B	12.10	11.6	90	13.5	14.9	11.5	12.7	98	13.4	12.7	94	12.11	13.5	11.6	13.10	102
1D29B	12.3	13.2	107	14.9	11.11	12.4	12.1	98	12.10	13.11	108	13.8	11.7	14.2	13.4	102
2DD13B	13.8	13.6	107	12.3	12.3	11.5	13.7	108	13.2	12.10	97	11.9	12.10	10.6	13.1	99
1D30B	12.0	11.7	97	11.10	11.11	11.11	13.10	113	12.7	13.0	103	12.9	13.5	11.11	14.10	117
1D31B	12.5	14.1	113	13.5	15.6+	14.2	13.4	107	13.0	14.6	111	12.8	14.0	12.5	15.1	112
2D32B	12.0	12.11	107	15.6+	15.4	15.4	15.1	121	12.6	12.6	100	13.7	11.11	14.2	15.4	121
2D33B	12.1	11.5	94	12.6	12.3	11.5	14.1	114	12.7	11.6	91	10.7	10.1-	10.1-	13.1	103
2D34B	12.1	13.1	108	12.3	10.10	10.1	13.10	112	12.7	13.8	110	12.8	10.10	11.0	13.10	109
2D35B	11.11	11.2	94	12.3	11.7	10.1-	12.7	105	12.5	12.2	97	12.2	10.1-	11.6	14.1	113
1D36B	11.9	12.5	106	11.4	11.7	10.1-	13.4	111	12.4	13.2	106	11.0	11.3	10.1	13.7	109
2D37B	12.0	12.10	107	12.0	11.7	10.1	11.4	94	12.7	13.1	104	11.6	10.1	10.1-	13.7	108
1DD14B	12.9	13.7	107	15.6+	15.4	14.9	15.7	121	13.4	14.0	105	14.6	12.10	12.5	15.4	113
2DD15B	13.0	12.4	95	11.5	14.0	10.11	12.10	96	13.6	13.0	96	12.6	11.11	11.11	12.7	92
1D38B	12.6	12.4	99	11.8	12.3	11.5	13.7	108	13.0	12.9	98	12.8	14.9	12.5	14.4	107
2D39B	12.6	13.11	111	14.1	15.6	13.8	14.1	111	13.0	14.7	112	14.3	14.9	14.9	15.7	117
1D40B	12.5	14.5	116	14.1	13.5	12.4	14.4	115	13.0	14.4	110	12.6	12.10	12.11	15.1	112
2D41B	12.1	11.5	94	12.1	12.10	11.11	13.1	108	12.7	12.8	101	12.3	11.11	11.6	13.4	106
2DD16B	12.11	10.6	81	12.0	12.3	10.5	11.1	89	13.6	12.4	91	11.6	11.7	10.6	11.10	88
2DD17B	12.10	12.2	94	14.3	14.4	14.9	14.7	111	13.4	13.8	103	14.1	15.6+	14.2	15.4	112
Ab7	12.7	a	a	a	a	a	a	a	13.2	13.1	99	14.5	15.6	13.8	15.4	114
2DD18B	12.8	13.0	103	14.6	14.9	11.11	15.7	122	13.2	13.7	103	12.11	15.5	11.11	16.1	122
1DD19B	12.8	11.8	92	12.7	13.5	14.9	14.1	110	13.2	12.8	96	12.11	15.6+	12.5	16.4	124
1D42B	12.0	11.6	96	12.9	12.10	12.4	12.10	106	12.6	13.0	104	12.8	12.3	11.0	14.7	114
1DD20B	12.8	11.7	91	13.6	13.5	11.11	14.1	111	13.2	13.0	99	13.5	13.5	11.0	14.7	109
DDD4B	11.3	12.5	110	13.2	15.6+	14.2	14.1	119	11.9	13.4	113	14.6	14.9	14.9	15.7	128
1D43B	11.11	13.7	114	11.10	10.10	11.5	12.1	101	12.5	13.11	112	13.11	10.10	10.6	13.4	108
Means	12.5	12.4	99	13.2	13.3	12.2	13.6	106	12.11	13.1	101	13.0	12.10	12.1	14.4	109

Ab6 and Ab7 were both absent during the pre-test programme.
A + sign after S.P.'s indicates that the raw scores of these testees exceeded the upper limits of the Tables of Norms for the S.A.S.R.G.T. A - sign after S.P.'s indicates that the raw scores of these testees fell short of the lower limits of the Tables of Norms for the S.A.S.R.G.T.

Standardised Test Results : Phase I of Experimental Leg I
Control Group D, Standard 5C

Boy	Pre-test, May, 1968								Post-test, November, 1968							
		Schonell		S.A.S.R.G.T. Junior A			N.S.A.G.T.			Schonell		S.A.S.R.G.T. Junior B			N.S.A.G.T.	
	C.A.	S1 Form A S.A.	S.Q.	Vocab. S.P.	Paras. S.P.	Sent's S.P.	Inter. M.A.	V.I.Q.	C.A.	S2 Form B S.A.	S.Q.	Vocab. S.P.	Paras. S.P.	Sent's S.P.	Inter M.A.	V.I.Q.
2D44C	12.2	10.7	87	11.8	10.1	10.5	13.1	107	12.9	11.7	91	10.4	10.1-	10.1	12.10	99
Ab5	13.8	a	a	a	a	a	a	a	14.2	11.8	82	12.6	11.3	11.0	12.7	90
2DD21C	12.11	13.1	101	13.8	11.7	10.5	14.1	108	13.6	13.6	100	12.3	12.10	12.5	14.10	107
1DD22C	13.11	11.1	80	11.5	10.1	10.1-	13.1	94	14.5	13.5	93	11.1	10.1-	11.6	12.10	91
1DD23C	13.0	12.1	93	15.3	15.6+	14.9	14.1	105	13.7	12.11	95	12.11	11.7	12.5	15.4	112
2D45C	11.11	10.2	85	12.6	15.6+	12.4	13.7	113	12.5	9.7	77	12.2	12.3	12.5	16.4	130
2DD24C	13.1	11.6	88	12.0	11.2	10.11	12.4	94	13.7	13.0	96	12.2	10.1-	11.6	13.7	97
1D52C	12.4	12.2	99	14.3	14.9	14.9	13.4	100	12.10	12.8	99	14.9	14.9	11.6	15.7	121
2DD26C	13.7	11.6	85	12.0	12.3	11.5	13.4	96	14.1	12.6	89	12.11	11.7	12.11	13.10	97
1DD27C	13.1	11.5	87	12.1	11.7	10.11	14.7	108	13.7	12.5	91	12.0	10.1-	11.6	15.1	109
1DD28C	13.4	12.1	91	14.3	12.3	14.9	14.7	106	13.10	12.7	91	13.5	14.9	12.5	13.10	98
2DD29C	13.7	12.2	90	12.11	10.5	10.1-	12.1	83	14.2	12.7	89	12.2	10.1-	11.0	11.10	87
2D46C	12.3	12.10	105	13.5	12.3	10.11	13.4	108	12.10	14.1	110	12.8	11.7	12.11	15.1	117
1D47C	12.1	12.1	100	14.6	14.0	15.4	14.7	118	12.8	13.0	103	14.6	15.5	12.5	16.1	126
1DD30C	13.4	11.4	85	13.8	11.11	13.8	13.1	97	13.11	12.2	87	12.8	11.7	10.1-	13.4	95
1DD31C	12.8	10.11	86	11.8	11.2	10.11	11.10	96	13.2	10.7	80	12.6	12.10	11.0	12.4	94
2DD32C	13.1	11.0	84	12.11	12.3	12.4	14.4	107	13.7	12.1	89	12.2	10.6	10.1-	14.10	108
1DD33C	12.10	12.2	96	12.1	12.3	11.11	12.4	96	13.4	12.8	95	12.8	12.10	11.11	12.7	93
1D48C	12.2	10.2	84	10.5	12.3	11.5	12.4	101	12.8	10.7	84	10.10	10.1-	10.1-	11.10	95
1DD34C	13.7	9.6	70	10.4	10.1-	10.1-	11.1	84	14.1	10.0	71	11.10	10.10	10.1-	13.1	93
2DD35C	14.11	11.5	77	13.11	11.2	11.5	12.4	86	15.5	12.0	78	13.7	12.10	10.6	13.10	91
1DD36C	12.11	12.0	93	14.3	12.10	11.11	14.7	111	13.5	13.1	98	12.8	12.3	10.1-	15.1	111
1DD37C	12.11	10.2	79	10.10	12.10	10.5	11.7	92	13.5	11.11	89	12.3	12.3	11.6	11.10	89
1D49C	12.7	11.1	88	12.7	12.3	12.4	13.10	109	13.1	12.6	96	12.6	11.11	10.6	14.10	111
2DD38C	13.1	9.10	75	10.1	11.2	10.11	13.1	99	13.7	10.8	78	11.4	11.3	10.1-	13.7	99
2DD39C	12.11	11.5	88	12.9	13.5	11.5	11.10	94	13.5	12.11	96	12.0	10.1-	10.1-	13.1	95
1D50C	12.7	11.4	90	12.0	10.1	10.11	12.1	97	13.1	12.1	92	12.0	10.1-	10.1-	13.1	98
2D51C	12.1	13.0	108	12.1	14.9	10.11	16.0	131	12.7	13.5	107	12.8	14.0	12.5	16.10	132
1DD40C	13.3	10.7	81	12.6	11.2	11.5	12.10	94	13.9	12.2	88	11.10	11.3	10.1-	13.4	95
Means	13.0	11.5	88	12.7	12.2	11.10	13.2	101	13.6	12.3	91	12.4	11.9	11.2	13.11	103

Ab5 was absent from the pre-test programme.

Standardised Test Results : Phase I of Experimental Leg I
Experimental Group E, Standard 5A

Boy	Pre-test, May, 1968								Post-test, November, 1968							
	Schonell S1 Form A		S.A.S.R.G.T. Junior A			N.S.A.G.T. Inter.			Schonell S2 Form B		S.A.S.R.G.T. Junior B			N.S.A.G.T. Inter.		
	C.A.	S.A.	S.Q.	Vocab. S.P.	Paras. S.P.	Sent's S.P.	M.A.	V.I.Q.	C.A.	S.A.	S.Q.	Vocab. S.P.	Paras. S.P.	Sent's S.P.	M.A.	V.I.Q.
E1	11.9	11.11	101	12.3	13.5	10.5	13.7	112	12.3	12.8	103	12.11	11.7	11.11	14.4	115
EE1	12.9	11.5	90	10.7	12.3	10.5	15.1	117	13.3	12.0	91	12.8	13.5	11.0	15.7	114
E2	12.2	11.4	93	13.6	14.0	13.6	14.4	117	12.9	11.8	93	13.11	14.9	12.5	15.7	121
EE2	14.2	11.2	79	10.11	11.2	10.11	13.4	95	14.9	12.2	82	11.7	10.10	11.6	13.7	93
EE3	13.7	10.10	80	12.3	10.10	10.1	12.7	92	14.1	11.2	79	12.9	12.3	11.6	14.7	105
E3	12.5	11.2	90	12.9	14.0	12.11	15.1	120	13.0	11.6	88	12.8	14.9	10.6	15.7	117
E4	12.7	12.10	102	13.8	14.9	12.4	15.1	119	13.1	13.2	101	13.8	15.5	14.2	15.10	120
EE4	14.0	9.8	63	12.3	11.11	11.5	15.4	111	14.6	11.2	77	12.0	11.3	11.11	15.1	106
E5	11.11	11.5	96	12.0	12.3	11.11	14.1	116	12.6	11.11	95	13.2	14.9	12.11	15.4	120
E6	12.5	12.1	97	14.6	14.9	11.11	16.2	130	12.11	12.10	99	13.5	15.6	13.8	16.7	128
EEE1	11.0	11.4	103	14.4	14.0	14.9	13.10	118	11.6	12.4	107	14.5	14.9	14.9	15.10	133
E7	12.4	11.7	95	14.4	15.6+	14.2	16.0	129	12.10	12.4	96	14.5	15.6+	12.11	16.4	126
E8	12.4	14.4	116	15.6+	15.6+	15.6+	17.4	140	12.10	14.7	114	15.6+	15.6+	15.6+	18.4	145
E9	12.7	10.10	86	12.0	10.10	10.5	14.10	117	13.1	11.1	85	12.2	10.10	10.1	14.4	107
EE5	12.9	13.1	103	13.2	11.11	11.5	13.10	107	13.4	13.8	103	13.2	11.11	11.0	13.4	100
EE6	12.10	9.6	74	11.7	13.5	10.1	11.7	92	13.4	11.1	83	12.3	11.7	13.8	13.1	96
E10	12.0	12.11	108	12.7	12.3	12.4	13.1	107	12.6	13.1	105	12.9	11.3	12.5	14.7	114
EE7	12.10	12.10	100	15.6+	15.4	14.9	15.7	121	13.4	14.2	106	14.5	14.0	12.5	16.7	125
EE8	13.9	11.1	81	12.1	13.5	10.11	12.7	91	14.4	11.7	81	13.5	12.10	10.1-	15.1	107
EE9	12.9	11.6	90	11.1	12.3	12.4	14.7	111	13.4	13.4	100	11.4	15.6+	11.0	15.4	112
EEE2	11.4	12.2	108	13.5	13.5	12.4	15.1	129	11.11	13.4	112	12.2	14.0	11.0	15.7	128
EEE3	11.0	10.10	98	12.6	12.10	13.8	13.10	119	11.7	11.7	100	12.11	11.7	11.0	16.4	136
E11	12.2	11.11	98	11.10	14.0	12.4	12.1	100	12.8	12.0	95	13.2	12.3	10.1	14.1	111
Means	12.6	11.8	93	12.9	13.2	12.3	14.4	113	13.0	12.4	95	13.2	13.4	12.1	15.3	116

Standardised Test Results : Phase I of Experimental Leg I
Experimental Group E, Standard 5B

Boy	Pre-test, May, 1968								Post-test, November, 1968							
	Schonell		S.A.S.R.G.T. Junior A			N.S.A.G.T. Inter			Schonell		S.A.S.R.G.T. Junior B			N.S.A.G.T. Inter.		
	C.A.	S1 Form A S.A.	S.Q.	Vocab. S.P.	Paras. S.P.	Sent's S.P.	M.A.	V.I.Q.	C.A.	S2 Form B S.A.	S.Q.	Vocab. S.P.	Paras. S.P.	Sent's S.P.	M.A.	V.I.Q.
EE10B	13.4	10.4	78	11.5	11.2	11.11	13.1	96	13.10	11.6	83	12.9	10.1-	10.6	14.4	102
EE11B	13.6	11.6	85	12.0	10.1	10.1	12.7	92	14.0	11.4	81	11.7	10.10	10.1-	10.10	80
EE12B	13.2	10.4	78	10.5	11.11	10.5	11.10	91	13.9	10.8	78	11.6	11.11	11.0	12.7	91
E12B	12.7	11.11	94	10.11	10.1-	11.5	12.1	97	13.1	12.6	96	12.6	11.11	11.0	12.1	92
E13B	12.3	11.6	94	10.11	12.3	10.11	11.10	97	12.10	12.4	96	12.2	11.11	10.1-	13.1	101
EE13B	14.9	10.6	71	11.5	12.10	11.5	12.4	86	15.3	10.8	70	12.2	11.3	10.6	14.1	+93
EE14B	12.8	13.4	105	13.6	12.3	13.8	13.4	106	13.2	13.8	104	13.11	14.0	13.8	14.4	107
Ab8	13.8	a	a	a	a	a	a	a	14.3	11.8	82	13.2	14.9	11.0	14.7	103
EE15B	13.6	12.6	93	12.0	12.10	11.11	13.1	94	14.1	12.10	91	12.0	14.9	11.11	13.7	96
EE16B	13.1	11.6	88	12.11	13.5	14.9	15.7	117	13.7	12.10	94	13.11	12.10	11.11	15.7	114
E14B	12.6	11.8	93	12.0	12.10	12.4	12.10	101	13.0	12.2	94	11.9	12.3	11.11	14.4	107
ESN3	15.8	9.10	63	11.4	11.11	10.1-			16.2	9.10	61	11.4	12.10	10.1-		
E15B	12.5	11.5	92	11.10	11.11	10.11	12.7	101	12.11	12.2	94	12.6	10.1	10.1-	13.4	103
EE17B	12.11	9.6	74	10.11	10.10	10.1	11.7	92	13.5	9.10	73	11.0	11.11	11.11	12.4	92
E16B	12.0	11.0	92	11.8	12.3	10.5	13.10	112	12.6	12.7	101	12.3	12.10	11.0	13.10	109
E17B	12.7	12.11	103	11.7	13.5	11.11	11.10	95	13.1	13.10	106	11.6	13.5	10.6	13.7	102
E18B	12.1	10.1	83	10.7	12.3	10.11	12.1	99	12.8	10.6	83	10.6	12.3	11.0	13.7	108
E19B	12.1	11.11	99	12.9	11.7	11.11	12.4	102	12.7	13.2	105	11.10	12.10	10.6	12.10	102
EE18B	13.6	10.5	77	10.5	10.1-	10.1	10.10	82	14.0	10.5	74	11.4	10.1	10.1	13.4	95
EE19B	13.6	11.2	83	12.0	11.11	12.4	11.7	87	14.1	11.5	81	10.4	12.3	10.1	11.4	84
EE20B	12.11	11.2	86	12.0	10.1-	10.1-	14.1	108	13.5	11.2	83	11.1	10.1-	10.1	13.1	95
Means	13.1	11.3	87	11.7	11.9	11.5	12.7	98	13.7	11.9	87	12.0	12.2	10.11	13.4	99

Ab8 was absent when the pre-tests were done.
ESN3 was excluded from Phases II and III because of the low level of his ability and his age. Nevertheless he applied himself with commendable assiduity to the Reading Laboratory and made remarkably good progress considering his limited ability.

Standardised Test Results : Phase I of Experimental Leg I
Experimental Group F, Standard 5A

Boy	Pre-test, May, 1968								Post-test, November, 1968							
		Schonell		S.A.S.R.G.T. Junior A			N.S.A.G.T.			Schonell		S.A.S.R.G.T. Junior B			N.S.A.G.T.	
		S1 Form A		Vocab.	Paras.	Sent's	Inter.			S2 Form B		Vocab.	Paras.	Sent's	Inter.	
	C.A.	S.A.	S.Q.	S.P.	S.P.	S.P.	M.A.	V.I.Q.	C.A.	S.A.	S.Q.	S.P.	S.P.	S.P.	M.A.	V.I.Q.
F1	11.10	13.2	111	14.3	14.0	13.8	16.2	137	12.5	12.7	101	13.11	14.9	14.2	17.10	145
F2	12.3	12.10	105	12.6	14.0	10.11	14.1	113	12.10	14.1	109	13.2	13.5	13.8	16.4	126
F3	12.6	12.1	97	13.5	15.6+	14.9	13.10	109	13.0	12.4	95	13.11	11.11	11.6	16.1	122
FF1	12.9	11.11	93	12.1	15.6+	14.9	15.7	121	13.3	12.11	97	13.11	15.6+	12.11	16.4	123
FF2	12.9	13.5	105	15.6+	15.6+	14.9	17.3	137	13.3	13.11	104	15.6+	13.5	14.9	16.7	125
F4	12.4	12.6	101	13.6	13.5	14.9	13.10	110	12.11	13.6	105	14.3	11.11	12.5	15.7	121
F5	11.11	11.2	94	13.11	13.5	11.5	14.10	122	12.6	12.0	96	12.11	15.6+	11.6	14.4	112
F6	12.5	11.7	93	11.10	13.5	14.2	14.4	115	12.11	11.8	90	14.1	15.6+	14.9	15.10	123
FF3	13.2	11.4	87	12.3	15.4	12.11	13.7	102	13.9	12.2	88	13.5	12.3	13.8	14.10	106
F7	12.2	12.2	100	11.8	11.7	14.2	13.7	111	12.9	13.8	107	13.2	11.11	13.8	14.4	110
F8	12.0	12.5	103	13.11	13.5	15.4	15.10	127	12.6	12.10	103	15.6	15.5	15.5	17.7	138
F9	12.4	12.0	97	11.8	13.5	11.5	15.10	126	12.10	13.11	108	12.6	11.7	10.1	16.10	130
F10	12.2	12.1	99	15.0	15.4	14.9	15.4	124	12.9	14.1	110	14.5	14.0	15.5	17.7	137
F11	12.6	13.2	105	14.9	15.6+	15.6+	16.9	131	13.1	14.7	111	15.3	15.6	15.5	16.7	126
F12	12.2	10.2	84	13.8	13.5	13.8	15.10	127	12.8	10.11	86	14.3	14.0	12.11	15.4	120
F13	12.0	12.0	100	14.1	15.6+	14.2	14.10	119	12.6	13.4	107	15.0	12.3	12.11	16.1	126
F14	12.7	11.5	91	12.7	11.7	10.11	12.7	100	13.1	11.2	85	12.9	11.3	11.6	13.10	103
F15	12.7	12.2	97	12.11	13.5	11.11	11.4	93	13.1	13.6	103	14.1	12.10	11.6	13.10	103
F16	12.1	12.10	106	13.5	14.0	11.5	13.7	111	12.8	14.2	112	13.2	13.5	12.5	15.1	118
Means	12.4	12.2	98	13.4	14.2	13.5	14.8	118	12.11	13.0	101	14.0	13.6	13.2	15.10	122

Standardised Test Results : Phase I of Experimental Leg I
Experimental Group F, Standard 5B

Boy	Pre-test, May, 1968								Post-test, November, 1968							
		Schonell		S.A.S.R.G.T. Junior A			N.S.A.G.T.			Schonell		S.A.S.R.G.T. Junior B			N.S.A.G.T.	
		S1 Form A		Vocab.	Paras.	Sent's	Inter.			S2 Form B		Vocab.	Paras.	Sent's	Inter.	
	C.A.	S.A.	S.Q.	S.P.	S.P.	S.P.	M.A.	V.I.Q.	C.A.	S.A.	S.Q.	S.P.	S.P.	S.P.	M.A.	V.I.Q.
F17B	11.8	11.4	97	12.1	11.7	11.5	11.0	101	12.2	12.0	99	13.5	14.0	12.11	15.4	124
F18B	11.11	14.0	117	15.6	14.9	14.2	12.10	107	12.5	14.4	115	14.6	14.0	15.6+	14.7	117
F19B	12.6	11.5	91	12.6	13.5	13.8	14.10	117	13.0	12.7	96	13.8	11.11	11.6	15.7	116
Ab9	12.11	a	a	a	a	a	a	a	13.5	10.6	78	11.9	10.1	10.1-	11.1	84
Ab10	12.6	a	a	a	a	a	a	a	13.0	11.8	90	12.9	10.10	12.11	13.1	100
F20B	12.6	11.4	91	12.6	14.0	12.4	10.7	88	13.0	11.6	89	12.9	12.10	12.11	13.10	103
F21B	12.6	11.6	92	13.8	12.10	10.5	14.1	110	13.0	11.5	88	12.9	10.10	10.6	14.4	106
F22B	12.7	10.7	84	12.1	14.9	10.11	13.7	108	13.2	10.7	80	12.6	12.3	11.0	14.1	105
FF4B	12.9	8.11	70	10.10	10.10	10.1	9.7	78	13.3	10.4	78	10.10	10.1-	10.1-	10.10	82
FF5B	12.9	9.11	78	11.5	11.2	11.5	11.10	93	13.3	10.7	80	11.6	10.1	10.6	12.10	94
FF6B	12.8	11.8	92	12.1	14.9	14.9	11.4	93	13.2	13.1	99	13.7	12.10	11.11	13.1	98
FF7B	13.5	9.11	74	10.11	10.1-	10.1	12.1	90	14.0	9.11	71	10.1-	10.1-	10.6	13.7	96
FF8B	12.8	9.10	78	12.3	12.10	12.11	11.10	95	13.2	11.4	86	12.0	11.7	11.6	13.7	102
F23B	12.4	10.4	84	13.6	15.4	13.8	15.1	120	12.11	11.1	86	15.3	14.0	12.11	16.10	130
F24B	11.10	9.8	82	10.1-	10.5	10.1	9.10	86	12.4	10.6	85	10.10	10.10	10.1	12.10	103
F25B	12.2	10.1	80	10.5	11.2	10.11	10.4	87	12.9	10.2	80	11.10	11.7	12.5	12.7	98
Means	12.6	10.9	87	12.2	12.9	11.11	12.1	98	13.0	11.4	87	12.7	11.8	11.9	13.8	104

Ab9 and Ab10 were both absent when this group was pre-tested in May, 1968.

Standardised Test Results : Phase I of Experimental Leg II
Control Group A

Boy	Pre-test, May, 1968												Post-test, November, 1968											
		Schonell				S.A.S.R.G.T. Junior A			N.S.A.G.T.		M.H.			Schonell				S.A.S.R.G.T. Junior B			N.S.A.G.T.		M.H.	
		S1 Form A		R4 Test B		Vocab.	Paras.	Sent's	Inter.		T.66	T.35		S2 Form B		R4 Test B		Vocab.	Paras.	Sent's	Inter.		T.66	T.34
	C.A.	S.A.	S.Q.	R.A.	R.Q.	S.P.	S.P.	S.P.	M.A.	V.I.Q.	V.R.Q.	E.Q.	C.A.	S.A.	S.Q.	R.A.	R.Q.	S.P.	S.P.	S.P.	M.A.	V.I.Q.	V.R.Q.	E.Q.
A1	12.7	9.11	79	11.9	93	10.5	11.11	10.11	12.10	101	76	96	13.1	10.8	81	11.0	84	10.10	10.10	10.1	13.10	103	±79	±85
A2	12.7	12.8	101	11.7	92	12.7	11.7	10.11	15.1	119	90	104	13.1	12.4	94	12.9	97	12.8	12.10	11.0	16.1	122	±96	±95
A3	12.5	12.6	101	13.3	107	11.10	14.9	11.11	14.1	110	94	101	12.11	12.10	99	13.9+	107+	12.8	12.3	13.8	14.10	114	105	101
AAA1	11.6	12.7	109	12.6	110	13.6	14.0	10.11	14.10	123	113	98	12.0	13.1	109	13.9+	115+	14.1	14.0	12.5	16.1	131	112	103
A4	12.3	9.10	80	10.1	82	11.1	10.1-	10.1-	11.4	93	76	91	12.9	9.10	77	12.6	98	11.6	12.10	13.8	11.1	89	72	72
AA1	12.9	9.4	74	10.4	87	11.5	10.11	10.5	12.7	98	74	89	13.3	10.7	80	13.0	98	11.1	11.3	10.1-	13.3	99	±84	±85
A5	11.11	11.1	93	10.6	88	11.7	11.7	11.5	a	a	86	a	12.5	12.5	100	11.9	95	12.0	13.5	12.5	13.4	108	93	90
AA2	12.10	10.6	82	11.2	87	10.10	11.7	10.5	12.10	99	85	86	13.4	11.0	83	11.0	83	12.0	12.10	11.6	13.10	102	±90	±82
A6	12.1	11.7	96	11.7	96	12.9	11.2	10.5	14.1	114	95	93	12.7	12.0	95	12.1	96	12.9	12.10	12.11	14.4	112	96	98
AA3	13.0	11.2	88	12.9	98	12.9	13.5	13.8	14.7	108	±78	±93	13.7	11.5	84	11.11	88	13.2	12.3	12.5	15.1	110	±87	±93
AA4	12.9	10.7	79	11.7	91	12.1	15.4	13.8	13.10	107	101	90	13.3	9.5	71	11.4	86	12.6	15.5	11.6	13.10	102	±101	±91
AAA2	11.6	10.2	88	13.0	113	11.8	11.7	11.11	14.7	122	104	101	12.1	10.5	86	13.3	110	12.2	15.6	11.11	15.10	129	110	99
AAA3	11.2	11.11	107	13.9+	123+	13.5	14.0	12.4	14.10	129	113	114	11.9	13.2	112	13.9+	117+	13.8	14.0	12.5	16.4	134	113	118
A7	12.1	12.1	100	11.9	96	12.6	11.7	11.11	13.7	110	89	95	12.8	12.5	98	13.9	109	12.2	12.3	11.0	14.7	115	93	100
A8	11.11	10.4	87	11.7	99	11.10	10.1-	11.11	12.4	103	91	93	12.5	11.1	89	11.11	96	11.7	14.9	11.11	13.10	111	96	99
AA5	12.9	10.10	87	13.3	104	13.5	14.9	11.5	16.4	128	89	97	a	a	a	a	a	a	a	a	a	a	a	a
A9	12.4	10.7	86	11.2	91	10.11	10.1-	10.1-	12.4	100	75	85	12.11	11.7	90	10.6	81	11.0	12.3	10.1	13.7	105	84	78
AA6	13.0	12.5	95	13.9+	106+	14.1	15.6+	15.6+	15.1	112	93	100	13.7	11.10	88	13.9+	101+	14.3	13.5	13.8	15.4	112	±85	±98
A10	12.2	13.1	106	11.11	98	12.9	11.11	11.11	13.10	112	98	95	12.8	13.8	108	13.9	109	13.11	13.5	12.5	16.7	128	97	95
AA7	14.4	11.7	81	11.11	83	12.0	15.6+	12.11	14.4	101	±68	±75	14.10	11.7	78	12.9	86	13.2	12.11	12.11	15.4	107	±85	±75
AA8	12.9	11.6	90	11.4	89	12.0	10.1-	10.1-	10.4	83	80	83	13.3	11.10	89	10.10	82	11.9	10.1-	10.1-	13.3	99	±81	±80
AA9	12.9	12.10	101	11.2	87	11.4	10.10	10.10	13.4	102	81	89	13.4	12.11	97	12.1	91	12.3	12.3	11.0	14.7	106	±77	±86
A11	12.3	9.11	81	11.0	90	12.11	12.10	12.4	13.4	108	88	96	12.10	9.10	77	11.9	92	12.6	13.5	11.6	14.7	111	84	95
A12	12.4	13.1	106	12.9	103	13.8	15.6+	15.4	14.4	114	118	105	12.11	a	a	a	a	a	a	a	a	a	117	109
A13	11.8	12.10	110	13.6	116	11.5	11.2	10.5	13.10	116	92	102	12.3	13.8	112	13.0	106	12.0	13.5	12.11	13.10	110	107	101
A14	12.2	10.1	82	8.11	73	12.1	10.1-	10.1-	a	a	74	a	12.9	10.7	83	9.10	77	11.1	11.1	10.10	11.4	91	75	84
A15	12.2	13.1	106	12.6	103	13.6	15.4	13.8	16.1	131	103	112	12.8	13.7	107	13.9+	109+	14.9	15.6+	14.9	15.10	124	117	111
AA10	13.2	12.1	92	11.11	91	12.7	11.7	10.11	10.10	91	±80	±85	13.8	12.11	95	12.1	88	11.7	14.9	13.8	13.8	100	±78	±89
A16	12.5	11.8	93	12.9	103	12.9	12.10	11.11	12.7	102	88	92	12.11	12.7	97	13.3	103	13.2	14.9	12.5	13.7	105	82	95
AA11	12.9	10.0	79	11.7	91	11.5	10.1	11.11	11.7	92	75	84	13.3	10.7	80	11.11	90	12.0	12.3	12.5	13.3	99	±80	±85
AA12	13.3	14.0	105	13.9+	104+	15.6+	15.6+	14.2	18.0	136	±108	±114	13.9	14.4	104	13.9+	100+	13.0	15.6+	15.6+	16.7	121	±108	±113
AA13	13.1	11.6	88	10.6	80	12.3	13.5	11.11	14.4	106	±95	±89	13.8	12.10	94	10.10	79	12.3	12.10	11.11	13.8	100	±94	±78
AA14	14.7	11.0	68	11.9	81	12.3	14.9	11.5	13.10	95	±85	±76	15.1	12.2	81	11.9	78	13.2	14.9	13.8	14.1	±94	±87	±78
AA15	13.1	12.1	92	11.7	89	12.0	11.7	11.11	12.10	97	±84	±87	13.8	12.5	91	13.3	97	11.9	11.7	10.6	13.1	94	±85	±87
A17	12.2	14.1	116	13.9+	113+	15.6+	15.6+	15.6+	15.10	127	130	119	12.8	14.6	115	13.9+	109+	15.6	15.6+	15.6+	15.7	122	129	129
A18	12.0	11.0	92	11.0	92	11.7	10.5	11.6	12.4	102	85	91	12.6	12.6	100	11.11	95	12.0	10.6	11.6	13.1	103	85	91
AA16	13.2	12.10	96	11.7	88	12.3	10.1	11.11	13.1	100	±81	±92	13.8	13.8	100	13.3	97	12.6	11.11	11.6	15.7	114	±81	±88
A19	12.1	12.0	99	13.9+	113+	12.9	14.0	14.2	15.1	122	94	109	12.8	12.8	100	13.9+	109+	12.6	12.3	13.8	15.4	120	109	106
A20	11.11	13.6	113	13.9+	115+	13.11	15.6+	14.2	15.4	126	118	113	12.6	13.7	109	13.9+	110+	15.0	15.6+	14.9	16.10	132	128	114
A21	12.5	9.10	79	10.8	85	11.4	13.5	10.5	13.4	108	95	90	12.11	10.10	84	12.3	95	12.0	12.3	10.6	14.7	111	90	91
AA17	12.9	11.11	93	11.2	88	12.3	11.7	11.11	12.10	100	84	92	13.4	12.5	93	12.3	92	12.8	10.6	11.11	13.10	102	±91	±96
A22	12.0	12.1	100	12.1	100	12.0	14.9	10.11	13.10	113	94	99	12.7	12.7	100	13.6	107	13.5	11.11	14.2	14.10	117	93	108
A23	12.2	12.6	102	12.9	105	12.0	12.10	12.11	14.10	120	86	104	12.9	12.10	101	12.9	100	12.11	14.0	11.11	15.7	120	91	98
Means	12.6	11.8	93	12.0	96	12.5	12.8	12.0	13.10	109	91	96	13.0	12.2	93	12.6	96	12.8	13.1	12.3	14.7	110	94	95

A ± sign in front of figures in M.H.T. columns signifies that these figures are approximate. These boys were too old for their V.R.Q.'s and E.Q.'s to be calculated from the published Table of Norms, so their standard scores were arrived at roughly by extrapolation.

A + sign after R.A.'s, R.Q.'s and S.P.'s indicates that the raw scores of these testees exceeded the upper limits of the Tables of Norms for the Schonell Reading and S.A.S.R.G.T. A - sign after S.P.'s indicates that the raw scores of these testees fell short of the lower limits of the Tables of Norms for the S.A.S.R.G.T.

Standardised Test Results : Phase I of Experimental Leg II
Experimental : Group B

Boy	Pre-test, May, 1968											Post-test, November, 1968										
	Schonell		Schonell		S.A.S.R.G.T. Junior A			N.S.A.G.T.		M.H.		Schonell		Schonell		S.A.S.R.G.T. Junior B			N.S.A.G.T.		M.H.	
	S1 Form A		R4 Test B		Vocab.	Paras.	Sent's	Inter.		T.66	T.35	S2 Form B		R4 Test B		Vocab.	Paras.	Sent's	Inter.		T.66	T.34
	C.A.	S.A.	S.Q.	R.A.	R.Q.	S.P.	S.P.	S.P.	M.A.	V.I.Q.	V.R.Q.	E.Q.	C.A.	S.A.	S.Q.	R.A.	R.Q.	S.P.	S.P.	S.P.	M.A.	V.I.Q.	V.R.Q.	E.Q.
B1	11.8	11.4	97	10.8	91	10.11	12.13	10.5	13.4	111	95	89	12.3	11.5	93	12.1	98	11.9	15.6+	12.5	14.7	117	96	98
B2	12.6	11.7	93	10.10	87	12.1	11.11	10.11	13.7	107	93	90	13.1	12.0	92	12.6	95	13.5	14.0	11.6	14.10	110	±87	±95
BB1	12.9	12.4	97	12.9	100	11.10	14.9	12.4	14.7	112	87	99	13.4	12.6	94	13.9+	103+	12.8	14.9	12.5	15.1	111	±100	±95
B3	11.9	11.5	97	12.3	104	12.3	12.3	11.11	14.7	120	95	101	12.4	12.1	98	12.3	99	13.2	15.5	13.8	14.7	117	103	105
BB2	12.8	12.10	101	9.1	72	10.11	11.2	10.11	10.10	90	71	80	13.3	13.4	100	10.1	76	11.1	10.1-	10.1-	12.4	92	±75	±84
BBB1	11.5	11.2	98	13.9	120	14.3	14.0	14.9	14.10	125	106	115	12.0	12.6	104	13.9+	115+	14.9	14.0	13.8	15.10	129	111	126
BB3	12.9	11.10	93	13.6	106	12.0	14.9	12.4	15.4	118	93	98	13.4	13.2	99	13.6	101	13.8	12.10	12.5	15.1	110	±90	±95
B4	12.1	11.5	94	11.11	99	11.1	12.3	11.11	12.4	101	86	95	12.8	11.6	91	12.9	101	12.0	11.11	11.6	12.10	102	72	89
BB4	13.7	11.8	86	11.11	88	13.5	13.5	12.11	11.7	100	±80	±92	14.2	12.1	85	13.6	95	12.9	13.5	12.11	14.7	103	a	a
B5	12.5	12.5	100	11.0	88	12.0	12.10	11.5	14.4	114	86	93	13.0	11.11	92	12.9	98	13.2	12.3	10.6	13.1	100	88	91
B6	12.4	12.10	104	11.9	95	13.11	11.7	12.4	15.1	121	94	110	12.10	12.8	99	12.6	97	12.9	14.9	12.11	15.4	119	101	97
BB5	12.8	13.8	108	13.3	105	13.5	15.4	12.11	15.10	124	91	108	13.2	12.11	98	13.9+	104+	12.9	15.6	15.5	15.10	118	±105	±109
B7	12.4	12.10	104	13.6	109	13.8	15.6+	12.11	14.10	119	92	109	12.11	12.10	99	13.9+	106+	13.11	12.10	14.9	15.4	118	92	107
B8	11.11	12.1	102	12.6	105	12.11	13.5	10.11	14.1	116	91	103	12.5	12.7	101	14.3	107	14.3	13.5	13.8	14.10	118	104	103
BB6	14.0	11.0	79	10.1	72	11.4	12.10	10.1-	11.4	83	±66	±66	14.7	11.2	77	11.11	82	11.6	10.1-	12.5	12.1	86	±79	±73
BB7	13.3	10.2	77	9.8	73	11.1	10.1-	11.5	12.1	91	±76	±76	13.10	10.1	74	10.4	75	11.1	10.6	11.11	13.4	96	±74	±74
BB8	12.11	11.1	86	12.3	95	10.1	14.0	12.4	12.10	100	81	85	13.5	11.7	86	12.3	91	11.4	12.3	11.0	14.1	103	±84	±78
B9	11.11	12.5	104	12.3	103	14.4	13.5	13.8	14.4	118	95	106	12.6	12.6	100	12.9	102	14.6	12.10	11.0	15.7	122	95	106
B10	11.10	12.2	102	12.6	106	13.6	13.5	12.11	15.4	126	97	106	12.5	12.1	97	13.3	107	13.5	13.5	11.6	14.7	117	103	108
BB9	14.9	10.7	72	12.3	83	12.7	12.10	14.2	13.10	95	±77	±80	a	a	a	a	a	a	a	a	a	a	a	a
B11	11.10	10.5	88	8.11	76	10.10	10.1	10.5	10.4	89	81	77	12.5	11.6	93	9.6	77	10.7	10.6	10.1-	10.10	91	83	86
BB10	14.0	11.4	82	13.9	98	12.6	12.3	11.11	13.10	98	±78	±92	14.6	12.2	84	13.3	91	13.11	15.5	11.11	13.4	92	±76	±82
B12	12.0	12.0	100	12.3	102	13.11	14.0	11.11	14.4	116	105	100	a	a	a	a	a	a	a	a	a	a	a	a
BB11	13.5	11.8	87	11.9	88	12.0	12.10	13.8	12.7	93	±79	±81	14.0	11.0	85	13.9	98	11.4	13.5	15.5	12.10	92	±71	±77
BB12	12.10	10.8	80	11.9	92	11.7	13.5	12.4	11.10	93	76	96	13.5	11.7	86	13.3	99	13.5	13.5	14.9	14.10	108	±89	±93
BB13	14.9	11.7	78	11.11	81	12.3	13.5	13.8	12.4	86	±71	±72	15.3	11.1	73	13.0	85	11.0	14.9	10.1	13.1	±88	±63	±73
B13	11.9	14.2	121	13.9+	117+	15.6+	15.4	15.6+	15.1	123	106	123	12.4	13.8	111	13.9+	111+	15.6	15.6	14.2	17.1	135	107	118
BB14	13.3	11.11	90	12.9	96	13.5	12.10	11.5	12.1	90	±71	±93	13.10	12.1	87	12.3	89	13.11	13.5	12.5	13.4	96	±79	±92
B14	12.2	10.10	90	12.1	101	11.7	11.7	12.11	14.4	117	92	98	12.9	11.4	84	13.9+	108+	12.3	12.3	10.1	14.10	114	92	90
B15	12.7	10.1	81	11.4	90	12.3	12.3	14.2	14.1	111	90	98	13.1	10.2	78	12.1	92	13.7	14.9	13.8	15.4	114	±96	±97
B16	11.10	12.2	103	11.11	100	12.7	12.3	10.5	14.1	116	109	106	12.5	12.8	102	12.1	97	12.2	10.10	11.11	16.1	129	120	100
B17	11.9	12.10	109	13.9	117	15.6	12.10	14.9	15.4	126	114	118	12.4	12.11	105	13.9+	111+	15.0	15.6	15.5	17.1	137	123	121
B18	12.0	13.0	108	11.9	98	12.3	14.9	12.4	15.10	127	115	104	12.6	13.2	105	13.3	106	13.2	15.6	14.9	15.10	124	120	103
BB15	12.8	10.10	86	11.7	91	10.10	13.5	11.11	13.1	103	76	82	13.3	11.4	86	12.1	91	11.10	11.11	12.5	13.3	99	±76	±93
B19	12.5	12.11	105	13.6	109	12.7	15.6+	13.8	13.4	108	104	105	13.0	12.6	96	13.9+	106+	14.3	15.6	15.5	15.7	116	102	107
B20	12.1	12.5	102	13.6	112	12.3	11.2	10.1	13.1	108	96	96	12.7	12.5	99	13.0	103	12.2	11.3	10.6	15.4	121	88	95
B21	12.5	11.4	92	9.6	76	11.7	10.1	10.1	10.7	88	77	87	12.11	11.5	88	11.4	88	12.2	10.1-	11.0	11.10	94	79	86
B22	12.4	12.7	102	12.3	99	12.0	14.0	11.11	12.4	100	81	94	12.10	12.7	98	13.6	105	13.2	12.3	11.0	12.4	96	89	92
B23	12.6	11.8	93	11.7	93	10.1-	10.10	11.11	11.10	95	85	93	13.0	12.1	93	13.9+	106+	11.9	11.11	11.0	14.10	111	91	92
BB16	12.10	13.4	104	13.9+	107+	13.8	13.5	14.2	17.7	137	101	111	13.5	13.6	101	13.9+	102+	13.5	13.5	15.5	17.1	129	±110	±102
BB17	12.9	12.8	99	12.1	95	12.0	11.11	10.5	13.10	107	90	93	13.4	12.11	97	12.6	94	12.11	11.11	10.1	15.1	110	±86	±93
B24	12.0	10.5	87	9.8	81	11.5	10.1	10.5	12.1	100	84	89	12.7	12.2	97	11.0	87	11.4	10.10	10.1	13.10	109	85	86
BB18	12.8	12.2	96	11.0	87	13.2	11.11	10.5	13.10	109	86	91	13.2	13.2	100	11.7	88	13.7	14.9	11.11	14.10	110	±95	±94
Means	12.7	11.10	94	11.11	95	12.5	12.10	12.2	13.6	108	89	95	13.1	12.2	93	12.8	98	12.10	13.2	12.4	14.5	108	92	95

Standardised Test Results : Phase I of Experimental Leg II
Experimental Group C, Standard 5A

Boy	Pre-test, May, 1968											Post-test, November, 1968										
		Schonell				S.A.S.R.G.T. Junior A			N.S.A.G.T.		M.H.			Schonell				S.A.S.R.G.T. Junior B			N.S.A.G.T.		M.H.	
		S1 Form A		R4 Test B		Vocab.	Paras.	Sent's	Inter		T.66	T.35		S2 Form B		R4 Test B		Vocab.	Paras.	Sent's	Inter.		T.66	T.34
	C.A.	S.A.	S.Q.	R.A.	R.Q.	S.P.	S.P.	S.P.	M.A.	V.I.Q.	V.R.Q.	E.Q.	C.A.	S.A.	S.Q.	R.A.	R.Q.	S.P.	S.P.	S.P.	MAA.	V.I.Q.	V.R.Q.	E.Q.
C1	11.11	13.0	109	13.9+	115+	15.6	15.4	14.9	15.11	132	109	119	12.5	13.6	109	13.9+	111+	15.3	15.6+	14.2	16.7	132	118	120
C2	12.7	12.4	98	11.7	93	14.5	14.9	14.2	14.4	113	98	90	13.1	12.11	99	13.6	103	13.11	15.5	11.6	14.10	110	±102	±98
C3	12.4	12.8	103	13.0	104	13.6	15.6+	13.8	14.10	118	114	92	12.10	13.2	103	13.9	107	12.9	13.5	13.8	15.7	121	107	113
CCC1	11.6	14.1	122	11.11	104	13.11	15.4	12.4	13.10	116	110	111	12.0	14.4	118	13.3	110	14.9	15.6+	12.5	15.7	126	114	123
C4	12.5	14.4	112	12.9	103	15.6+	15.6+	15.6	14.7	117	102	112	12.11	13.11	108	13.9+	106+	15.6	15.6+	14.9	15.4	119	106	121
Ab1	12.6	a	a	a	a	a	a	a	a	a	a	a	13.0	14.11	108	11.4	87	13.2	13.5	14.2	14.7	108	±111	±94
C5	12.7	11.5	91	10.10	87	13.5	14.0	14.9	11.4	93	101	88	13.2	12.10	97	12.6	95	12.11	14.0	11.6	14.7	108	±88	±95
C6	11.8	13.11	119	13.9+	118+	15.6+	15.6+	15.6+	15.1	125	131	131	12.2	13.8	112	13.9+	113+	15.6	15.6+	15.6+	17.7	144	127	106
C7	12.1	13.10	114	13.9+	113+	15.6+	15.6+	15.6+	15.10	129	131	122	12.8	13.10	109	13.9+	108+	15.6+	15.6+	15.6+	17.7	138	a	a
C8	11.11	12.10	108	12.6	105	14.3	15.6+	14.2	13.10	115	102	113	12.5	13.8	110	13.9+	111+	15.0	15.6+	15.5	16.1	129	104	115
C9	11.11	14.5	118	13.9	115	15.6+	15.6+	15.6+	15.7	128	113	128	12.5	14.5	116	13.9+	111+	15.6+	15.6+	15.5	17.10	145	129	128
C10	12.4	13.4	108	11.9	97	12.6	14.0	12.11	12.4	99	99	94	12.10	13.8	106	13.9	107	12.11	14.0	13.8	15.1	117	98	102
CC1	13.1	11.10	90	13.3	101	14.3	15.6+	12.11	14.10	110	±86	±98	13.7	13.1	96	13.3	98	14.5	15.6+	12.11	14.10	108	±110	±110
C11	12.5	12.2	98	13.9+	111+	13.8	11.7	11.11	15.4	122	107	107	12.11	12.10	99	13.9+	106+	14.3	12.10	14.2	16.4	126	108	116
C12	12.3	12.11	105	12.6	102	14.3	14.0	11.11	14.7	117	98	99	12.9	13.1	103	13.9+	108+	14.5	15.6+	12.5	16.4	126	100	112
C13	12.1	13.2	110	13.9+	113+	14.1	14.9	14.9	15.10	127	111	110	12.7	13.6	107	13.9	109	13.11	15.6+	13.8	17.4	136	125	132
C14	11.9	12.6	106	13.6	115	14.4	15.6+	14.9	14.4	118	108	119	12.3	13.2	107	13.9+	112+	14.9	15.5	15.5	16.7	132	121	127
Ab2	13.1	a	a	a	a	a	a	a	a	a	a	a	13.7	12.6	92	13.9+	101+	13.11	14.9	11.6	13.7	100	±87	±90
C15	11.10	13.1	111	12.9	108	14.9	15.6+	13.8	15.1	123	112	105	12.4	13.7	110	13.9+	111+	14.9	15.6+	13.8	17.4	139	127	108
C16	12.2	13.10	114	12.6	103	13.8	14.9	12.11	13.7	111	105	97	12.8	14.4	113	13.9+	109+	13.5	15.5	11.11	14.7	115	113	104
CC2	13.0	11.11	92	11.2	86	12.0	11.2	11.5	13.1	99	±94	±89	13.6	12.7	93	11.0	81	12.8	12.10	11.11	14.10	108	±96	±88
C17	12.1	12.6	103	11.4	94	15.3	14.9	14.9	12.10	106	97	98	12.7	13.2	105	13.0	103	15.3	15.6+	15.5	14.10	117	90	113
C18	12.7	11.4	89	12.9	101	15.6+	15.6+	15.6+	15.1	119	95	117	13.1	12.7	96	13.9+	105+	15.6+	15.5	15.6+	17.7	135	±113	±120
CC3	12.9	13.8	106	13.0	102	14.4	15.6+	12.4	14.4	110	95	102	13.4	13.7	102	13.3	99	13.11	14.9	12.5	12.1	90	±93	±101
Means	12.3	13.0	105	12.9	104	14.4	14.9	13.10	14.5	116	105	106	12.10	13.5	105	13.5	105	14.4	14.11	13.9	15.9	122	108	110

Ab1 and Ab2 were two boys who were absent from the pre-test programme and who were therefore not given code designations. Since they were not pre-tested these boys were naturally excluded from Phases II and III.

Standardised Test Results : Phase I of Experimental Leg II
Experimental Group C, Standard 5B

Boy	Pre-test, May, 1968												Post-test, November, 1968											
		Schonell				S.A.S.R.G.T. Junior A			N.S.A.C.T.		M.H.			Schonell				S.A.S.R.G.T. Junior B			N.S.A.C.T.		M.H.	
		S1 Form A		R4 Test B		Vocab.	Paras.	Sent's	Inter.		T.66	T.35		S2 Form B		R4 Test B		Vocab.	Paras.	Sent's	Inter.		T.66	T.34
	C.A.	S.A.	S.Q.	R.A.	R.Q.	S.P.	S.P.	S.P.	M.A.	V.I.Q.	V.R.Q.	E.Q.	C.A.	S.A.	S.Q.	R.A.	R.Q.	S.P.	S.P.	S.P.	M.A.	V.I.Q.	V.R.Q.	E.Q.
C19B	12.77	10.103	86	10.1	80	15.0	11.2	10.11	12.4	98	81	78	13.1	10.1	77	9.1	70	11.7	10.1-	11.6	12.10	96	±82	±80
C20B	12.1	11.6	95	11.9	97	13.5	15.6	13.8	13.10	112	89	98	12.7	12.7	100	12.1	96	12.6	15.6+	12.5	15.10	124	104	104
CC4B	13.5	10.8	79	11.9	87	12.6	12.3	13.8	13.1	95	±88	±89	14.0	11.0	79	12.3	88	11.7	11.11	12.11	14.7	105	±83	±86
CCC2B	11.6	11.11	104	10.8	93	11.8	12.3	11.11	12.10	108	95	87	12.1	12.2	101	11.0	91	12.0	12.3	12.11	13.7	110	96	95
CC5B	12.9	10.1	79	10.4	81	10.7	10.5	10.11	9.4	75	78	73	13.3	11.4	86	12.9	96	10.4	10.6	11.6	11.7	87	±91	±98
CC6B	12.8	10.10	86	11.9	93	12.9	13.5	11.11	11.10	96	89	88	13.3	12.5	94	13.9	105	13.5	14.0	13.8	14.10	108	±102	±102
C21B	11.9	10.11	93	11.4	97	11.8	12.3	11.5	13.4	111	91	93	12.4	11.11	97	12.9	103	12.2	13.5	11.11	14.1	113	92	95
CC7B	12.8	11.1	88	11.2	88	13.2	12.3	12.11	11.4	92	84	87	13.2	12.8	96	12.6	95	13.2	12.10	12.11	15.1	112	±83	±77
C22B	12.3	11.2	91	13.3	108	15.3	14.9	14.2	13.7	109	101	104	12.9	11.5	90	13.9+	108+	15.0	15.6+	15.5	16.1	125	103	112
C23B	12.5	11.11	96	11.4	91	12.11	11.2	13.8	12.1	98	88	91	a	a	a	a	a	a	a	a	a	a	a	a
C24B	12.2	11.0	90	10.1	83	10.10	12.3	12.11	10.4	87	92	75	12.9	11.8	92	10.4	81	11.9	11.7	10.6	13.7	105	92	83
CC8B	12.9	11.1	87	10.10	85	11.7	11.11	10.1-	13.4	102	85	82	13.3	12.0	91	10.8	81	12.3	12.3	10.1	13.10	101	±90	±86
CC9B	12.11	10.10	84	10.10	84	11.10	11.7	10.5	11.7	92	87	82	13.5	10.11	81	11.0	82	12.11	11.3	11.11	12.10	94	±84	±78
C25B	12.6	11.10	95	10.6	84	12.6	11.2	11.5	12.4	99	92	81	13.0	12.0	92	10.6	81	12.2	11.3	10.1	12.4	93	89	92
C26B	12.1	10.8	89	11.7	96	14.6	12.10	12.11	12.10	105	82	88	12.8	11.8	92	11.11	94	13.11	10.10	10.11	12.10	101	91	93
CC10B	12.11	11.8	90	10.10	84	15.6	15.4	15.6	14.7	111	103	90	13.6	12.1	90	12.6	93	15.6+	15.5	15.5	15.4	112	±100	±108
CC11B	12.11	12.7	97	11.2	86	11.8	11.7	10.11	12.4	96	89	77	13.6	13.4	99	13.3	98	11.9	13.5	11.0	14.10	107	±90	±92
CC12B	13.4	11.4	85	9.8	73	11.10	12.3	13.8	10.4	80	±81	±75	13.10	12.4	89	10.6	76	11.7	11.11	11.0	11.1	82	±67	±69
ESN1	12.7	8.2	65	8.11	71	10.1-	10.1-	11.5	9.0	75	74	76	13.1	9.8	74	9.1	70	10.8	10.1-	10.1-	11.10	91	±74	±71
ESN2	13.10	9.2	66	9.4	67	10.1-	10.1	10.6	10.0	75	±60	±61	14.4	9.5	66	10.4	72	10.8	10.6	10.1-	10.10	79	±68	±69
CC13B	12.9	11.6	90	11.11	87	12.11	12.3	12.4	13.1	101	93	86	13.3	11.11	90	12.3	92	11.9	14.0	11.6	13.4	98	±91	±92
C27B	12.5	11.10	95	13.0	105	12.11	15.6	14.2	14.1	113	102	95	12.11	12.11	100	13.3	103	13.7	11.7	13.8	15.4	118	93	100
C28B	12.7	13.1	104	11.4	90	13.2	13.5	12.11	14.1	110	89	86	13.2	13.10	105	12.1	92	13.7	13.5	13.8	14.4	106	±94	±98
	12.7	11.1	89	11.0	87	12.8	12.6	12.5	12.3	97	88	84	13.2	11.9	90	11.9	89	12.5	12.5	12.0	13.8	103	±89	±90

ESN1 and ESN2 were excluded from Phases II and III because of the low level of their ability and their diminished attainment.

APPENDIX B

Phase II of Experimental Leg II : an abridged Summary Table of May and November N.S.A.C.T. and S.A.S.R.G.T. results, using May V.I.Q. Rank Orders as a Base

*	C.A.	C.A.	V.I.Q.		V.I.Q.		Vocabulary						Paragraphs						Sentences					
							May			Nov.			May			Nov.			May			Nov.		
Groups	May	Nov.	May	Rank	Nov.	Rank	R.S.	S.P.	Rank	R.S.	S.P.	Rank	R.S.	S.P.	Rank	R.S.	S.P.	Rank	R.S.	S.P.	Rank	R.S.	S.P.	Rank
A15	12.2	12.8	131	1	124	3	30	13.6	4	37	14.9	3	20	15.4	4	22	15.6+	2=	13	13.8	5	15	14.9	2=
A17	12.2	12.8	127	2	122	4=	43	15.6+	1	40	15.6	1	25	15.6+	1	24	15.6+	1	18	15.6+	1	18	15.6+	1
A20	11.11	12.6	126	3	132	1	32	13.11	2	38	15.0	2	23	15.6+	2	22	15.6+	2=	14	14.2	3=	15	14.9	2=
A4	12.3	12.9	93	21	89	21	15	11.1	19	15	11.1	18	5	10.1-	21	a	a	a	6	10.1	20=	a	a	a
N21	12.2	12.9	112.0		113.7		23.3	12.5		25.0	12.9		15.1	12.9		16.7	13.2		10.2	12.1		10.9	12.6	
AA12	13.3	13.9	136	1	121	1	42	15.6+	1	38	15.0	1	22	15.6+	1	24	15.6+	1	14	14.2	2	17	15.6+	1
AA6	13.0	13.7	112	2	112	3	33	14.1	2	34	14.3	2	21	15.6+	2	17	13.5	4	17	15.6+	1	13	13.8	2=
AA3	13.0	13.7	108	3	110	4	26	12.9	4	28	13.2	3	17	13.5	5=	15	12.3	8=	13	13.8	3=	11	12.5	4=
AA8	12.9	13.3	83	17	99	15=	21	12.0	13=	19	11.9	15=	8	10.1-	17	5	10.1-	17	4	10.1-	17	2	10.1-	17
N17	13.1	13.7	103.2		103.8		23.2	12.5		24.3	12.8		15.0	12.9		15.4	12.10		10.2	12.1		10.1	12.1	
AAA3	11.2	11.9	129	1	134	1	29	13.5	2	31	13.8	2	18	14.0	1=	18	14.0	2=	11	12.4	1	11	12.5	1=
AAA1	11.6	12.0	123	2	131	2	30	13.6	1	33	14.1	1	18	14.0	1=	18	14.0	2=	8	10.11	3	11	12.5	1=
AAA2	11.6	12.1	122	3	129	3	19	11.8	3	22	12.2	3	13	11.7	3	21	15.6+	1	10	11.11	2	10	11.11	3
N3	11.5	11.11	125		131		26	12.10		28.7	13.4		16.3	13.2		19	14.6		9.7	11.9		10.7	12.3	
B18	12.0	12.6	127	1	124	4	23	12.3	12=	28	13.2	11=	19	14.9	4	21	15.6+	4=	11	12.4	9=	15	14.9	3=
B10	11.0	12.5	126	2	117	9=	30	13.6	7	29	13.5	8=	17	13.5	8	17	13.5	10=	12	12.11	7	9	11.6	13=
B17	11.9	12.4	126	3	137	1	42	15.6+	1	38	15.0	2	16	12.10	10=	21	15.6+	4=	15	14.9	2	16	15.5	1=
B21	12.5	12.11	88	24	94	23	18	11.7	18=	22	12.2	18=	5	10.1-	24	8	10.1-	24	5	10.1-	23	8	11.0	16=
N24	12.2	12.8	111.5		114.4		24.1	12.7		26.8	13.0		15	12.8		16.4	13.2		10.1	12.1		10.3	12.3	
BB16	12.10	13.5	137	1	129	1	31	13.8	1	29	13.5	4=	17	13.5	6=	17	13.5	5=	14	14.2	1	16	15.5	1=
BB5	12.8	13.2	124	2	118	2	29	13.5	2=	26	12.9	7	20	15.4	1	21	15.6+	1	12	12.11	2	16	15.5	1=
BB3	12.9	13.4	118	3	110	4=	21	12.0	5=	31	13.8	2	19	14.9	2=	16	12.10	7	11	12.4	4=	11	12.5	5=
BB6	14.0	14.7	83	18	86	18	16	11.4	13	17	11.6	13	16	12.10	13=	7	10.1-	18	5	10.1-	18	11	12.5	11=
N18	13.3	13.9	102.6		102.4		21.4	12.1		23.5	12.6		16.0	13.0		15.7	13.0		10.4	12.2		13.3	13.9	
BBB1	11.5	12.0	125	1	129	1	34	14.3	1	35	14.5	1	18	14.0	1	18	14.0	1	15	14.9	1	13	13.8	1
N1	11.5	12.0	125		129		34	14.3		35	14.5		18	14.0		18	14.0		15	14.9		13	13.8	
C1	11.11	12.5	132	1	132	7	40	15.6	6	39	15.3	6=	20	15.4	12	23	15.6+	2	15	14.9	8=	14	14.2	10=
C7	12.1	12.8	129	2	138	4	45	15.6+	1=	44	15.6+	2=	23	15.6+	3	22	15.6+	4=	18	15.6+	1	17	15.6+	2=
C9	11.11	12.5	128	3	145+	1	43	15.6+	4	44	15.6+	2=	21	15.6+	10	21	15.6+	9=	17	15.6+	3=	16	15.5	6=
C24B	12.2	12.9	87	28	105	25	13	10.10	28	19	11.9	27	15	12.3	23=	13	11.7	24=	12	12.11	21=	7	10.6	27
N28	12.2	12.9	112.6		121.1		33.3	14.1		32.6	14.0		18.8	14.2		18.5	14.3		13.4	13.9		12.6	13.5	
CC10B	12.11	13.6	111	1	112	1=	42	15.6+	1	42	15.6+	1	20	15.4	3	20	15.5	2	17	15.6+	1	16	15.5	1
CC1	13.1	13.7	110	2=	108	3=	34	14.3	3	35	14.5	2	22	15.6+	1=	21	15.6+	1	12	12.11	3=	12	12.11	3=
CC3	12.9	13.4	110	2=	90	11	35	14.4	2	32	13.11	3	22	15.6+	1=	19	14.9	3	11	12.4	5=	11	12.5	5
CC5B	12.9	13.3	75	13	87	12	12	10.7	13	10	10.4	13	10	10.5	13	10	10.6	13	8	10.11	9=	9	11.6	9=
N13	12.11	13.5	96.8		100.9		25.1	12.8		25.0	12.9		15.5	12.9		16.2	13.2		10.5	12.3		10.5	12.3	
CCC1	11.6	12.0	116	1	126	1	32	13.11	1	37	14.9	1	20	15.4	1	22	15.6+	1	11	12.4	1	11	12.5	2
CCC2B	11.6	12.1	108	2	110	2	19	11.8	2	21	12.0	2	15	12.3	2	15	12.3	2	10	11.11	2	12	12.11	1
N2	11.6	12.1	112		118		25.5	12.10		29	13.5		17.5	13.10		18.5	13.11		10.5	12.2		11.5	12.8	

Legend

x A1-A23: "Correct" Age Control Group (11.11-12.10)

AA1-AA17: Overage Control Group, including "Std.6" (12.11-13.7), "Std.7" (13.8-14.6), and "Std.8" (14.7-15.6) boys in Std.5.

AAA1-AAA3: Underage Control Group (10.11-11.10)

B1-B24 : "Correct" Age Experimental Group (11.11-12.10)

BB1-BB18: Overage Experimental Group including "Std.6" (12.11-13.7), "Std.7" (13.8-14.6), and "Std.8" (14.7-15.6) boys in Std.5.

BBB1 : Underage Experimental boy (10.11-11.10)

C1-C28B: "Correct" Age Experimental Group (11.11-12.10)

CC1-CC13B: Overage Experimental Group including "Std.6" (12.11-13.7), and "Std.7" (13.8-14.6) boys in Std.5.

CCC1-CCC2B: Underage Experimental Group (10.11-11.10)

For purposes of the above classifications ages were taken in May, 1968.

Notes

1. In this Phase the large groups A, B and C were separated out into "Correct" Age, Overage and Underage Sub-groups (see Legend), and ranked within these Sub-groups on the Standard Scores achieved in May on the N.S.A.G.T. All other unranked attainment data was then added to each pupil's "profile" in extended horizontal columns as exemplified above, and on the following page.

2. Percentiles have been omitted from these Tables for the sake of brevity and conciseness.

3. All S.A.S.R.G.T. results have been corrected as stipulated on pp. 19-20 of the Manual.

4. When the results of the S.A.S.R.G.T. and the results of the British attainment tests are compared there are marked differences. In the former a small difference in Raw Score results in a disproportionately big difference in Standard Score: for example, AA3 scores 17/25 for Paragraphs in May and 15/25 on the parallel B Form of the same sub-test in November, and these Raw Scores convert to Standard Placements of 13.5 and 12.3 respectively, a difference of 1.2 years for a drop in 2 marks. In the latter, on the other hand, a large difference in Raw Score results in a small difference in Standard Score: for example, AAA3 scores 85/120 on the M.H.E.T. 35 in May and 101/120 on the M.H.E.T. 34 in November, yet his Standard Score, or E.Q., only increases from 114 to 118, partly because the conversion scale is so much longer, and partly because he is 7 months older. The extended scales of the British tests increase the reliability of the Standard Scores because the testee has to move appreciably, either up or down, before his Standard Score is significantly altered. A further effect of the short scales in the S.A.S.R.G.T., and in particular in the Paragraphs and Sentences sub-tests, is that a number of testees inevitably score the same mark - hence the number of equal rankings above. Thus the Paragraphs and Sentences sub-tests at least are not sensitively discriminative. But what is more important, and more damaging from the point of view of educational research, is that the same testee cannot show much improvement from the pre-test to the post-test when there are so few items and the normative scales are so short. The situation is aggravated when compensations have to be made for testing at any time in the academic year other than in the third term. A cursory comparison of S.A.S.R.G.T. rankings above and Schonell and Moray House Test rankings below will confirm that there are far fewer equal rankings in the latter tests, and that there is more movement in scores, and wider differences between individual pre- and post-test results. The only exception is with Sub-groups O and OO on the Schonell Silent Reading Test R4 and this is because a number of testees in these Sub-groups scored between 39/42 and 42/42 in the pre-test. There were therefore a number of equal rankings, and movements in scores between May and November were reduced.

5. As evidence of the way that pupils in the A and B streams mix up when they are ranked continuously on the basis of ability, and the way in which pupils in the B stream infiltrate the ranks of the A stream, CC10B, with a V.I.Q. of 111 in May and 112 in November, heads the Sub-group of 13 overage boys in which there are 3 pupils from the Std.5A.

6. Even though these tests all measure complementary aspects of linguistic achievement, there is considerable unevenness in pupil performance revealed in the differences between Standard Scores on different tests. There are also disparities between promise and performance as exemplified by differences between V.I.Q. and various attainment test results. Boy B18 is a conspicuous example.

Phase II of Experimental Leg II continued : an abridged Summary Table of May and November Schonell and M.H. Test results using May V.I.Q. Rank Orders as a Base

Groups	V.I.Q. May	Rank	Schonell Spelling S1 May R.S.	S.A.	Rank	S2 Nov. R.S.	S.A.	Rank	Schonell Reading R4 May R.S.	R.A.	Rank	R4 Nov. R.S.	R.A.	Rank	Moray House V.R. T.66 May R.S.	V.R.Q.	Rank	T.60 Nov. R.S.	V.R.Q.	Rank	Moray House Eng. T.35 R.S.	E.Q.	Rank	T.34 R.S.	E.Q.	Rank
A15	131	1	81	13.1	4=	86	13.7	4=	34	12.6	9	40	13.9+	4=	72	103	4	92	117	4	91	112	3	100	111	3
A17	127	2	91	14.1	1	95	14.6	1	40	13.9+	3	40	13.9+	4=	97	130	1	98	129	1	102	119	1	117	129	1
A20	126	3	85	13.6	2	86	13.7	4=	41	13.9+	1=	41	13.9+	3	89	118	2	97	128	2	91	113	2	103	114	2
A4	93	21	48	9.10	21	48	9.10	19=	21	10.1	21	a	a	a	21	76	20	21	72	21	49	91	18	17	72	21
N21	112.0		68.2	11.10		72.8	12.3		31.9	12.2		35.2	12.9		53.1	93.9		64.8	97.6		70.7	98.3		74.6	98.6	
AA12	136	1	90	14.0	1	93	14.4	1	40	13.9+	1=	42	13.9+	1	88	±108	1	91	±108	1	103	±114	1	111	±113	1
AA6	112	2	74	12.5	4	68	11.10	8=	40	13.9+	1=	40	13.9+	2	65	±93	4	57	±85	8	79	±100	2	88	±98	2
AA3	108	3	62	11.2	10	64	11.5	10	35	12.9	4	31	11.11	9=	36	±78	13	62	±87	6	63	±93	4	79	±93	4
AA8	83	17	65	11.6	9=	68	11.10	9=	28	11.4	12	25	10.10	16=	35	+80	14	44	+81	15	37	+83	17	40	+80	15
N17	103.2		65.3	11.6		70	12.0		30.2	11.10		32.5	12.3		48.9	84.7		60.8	88.4		57.3	89.5		65.0	87.8	
AAA3	129	1	69	11.11	2	82	13.2	1	40	13.9+	1	40	13.9+	2	77	113	2	82	113	1	85	114	1	101	118	1
AAA1	123	2	76	12.7	1	81	13.1	2	34	12.6	3	42	13.9+	1	80	113	1	83	112	2	55	98	3	75	103	2
AAA2	122	3	52	10.2	3	54	10.5	3	36	13.0	2	37	13.3	3	65	104	3	82	110	3	61	101	2	69	99	3
N3	125		65.7	11.7		72.3	12.3		36.7	13.1		39.7	13.7		74	110		82.3	111.7		67	107.7		81.7	106.7	
B18	127	1	80	13.0	2	82	13.2	2	30	11.9	15=	37	13.3	9=	87	115	1	93	120	2=	74	104	9	84	103	8
B10	126	2	72	12.2	11=	71	12.1	14	34	12.6	6=	37	13.3	9=	56	97	7	75	103	6	77	106	6	92	108	3
B17	126	3	78	12.10	5	79	12.11	3	39	13.9	2	40	13.9+	4=	84	114	2	94	123	1	97	118	2	109	121	1
B21	88	24	63	11.4	19=	64	11.5	20=	18	9.6	23	28	11.4	21	25	77	24	36	79	22	43	87	23	49	86	23
N24	111.5		69.6	12.0		71.9	12.2		30.5	11.10		34.9	12.9		54.1	94.5		63.8	96.3		65.5	99.7		73.5	98.8	
BB16	137	1	83	13.4	2	85	13.6	1	42	13.9+	1	42	13.9+	1=	76	±101	1	91	±110	1	96	±111	1	94	±102	2
BB5	124	2	87	13.8	1	79	12.11	5=	37	13.3	3	41	13.9+	3	56	±91	3	85	±105	2	90	±108	2	103	±109	1
BB3	118	3	68	11.10	8	82	13.2	3=	38	13.6	4	38	13.6	4	61	±93	2	63	±90	5	71	±98	4	80	±95	3=
BB6	83	18	60	11.0	14	62	11.2	15	21	10.1	16	31	11.11	15	25	+66	18	40	+79	13	20	+66	18	47	+73	15
N18	102.6		67.4	11.9		71.5	12.2		30.9	11.11		34.6	12.8		43.5	80.6		54.8	84.5		57.4	88.6		66.6	88.0	
BBB1	128	1	62	11.2	1	75	12.6	1	39	13.9	1	41	13.9+	1	68	106	1	82	111	1	89	115	1	111	126	1
N1	125		62	11.2	1	75	12.6	1	39	13.9	1	41	13.9+		68	106		82	111		89	115		111	126	
C1	132	1	80	13.0	10	85	13.6	10=	41	13.9+	3	42	13.9+	2=	79	109	7	93	118	6	100	119	4	106	120	6
C7	129	2	88	13.10	4=	88	13.10	4=	42	13.9+	1=	42	13.9+	2=	97	131	1	a	a	a	105	122	3	a	a	a
C9	128	3	94	14.5	1	94	14.5	1	39	13.9	6	41	13.9+	6=	84	113	4	98	129	1	109	128	2	113	128	2
C24B	87	28	60	11.0	25	67	11.8	25=	21	10.1	27=	22	10.4	27	51	92	22	59	92	20	19	75	28	40	83	26
N28	112.6		74.3	12.5		79.6	13.0		32.8	12.4		36.5	13.0		66.7	101.4		76.3	104.2		69.2	101.1		87.2	107.2	
CC10B	111	1	67	11.8	5	71	12.1	8	25	10.10	9	34	12.6	6=	80	±103	1	84	±100	3	57	±90	3	100	±108	2
CC1	110	2=	68	11.10	4	81	13.1	3	37	13.3	1	37	13.3	3=	52	±86	8	93	±110	1	79	±98	2	104	±110	1
CC3	110	2=	87	13.8	1	86	13.7	1	36	13.0	2	37	13.3	3=	65	±95	2	70	±93	5	82	±102	1	88	±101	4
CC5B	75	13	51	10.1	13	63	11.4	12	22	10.4	13	a	a	a	31	+78	13	a	a	a	23	+73	13	a	a	a
N13	96.8		64.7	11.6		72.5	12.3		27.8	11.4		32.2	12.3		54.7	88.6		63.7	90.8		49.4	85.8		67.2	91.3	
CCC1	116	1	91	14.1	1	93	14.4	1	31	11.11	1	37	13.3	1	76	110	1	88	114	1	82	114	1	105	123	1
CCC2B	108	2	69	11.11	2	72	12.2	2	24	10.8	2	26	11.0	2	52	95	2	57	96	2	32	87	2	58	95	2
N2	112		80	13.0		82.5	13.3		27.5	11.4		31.5	12.2		64	102.5		72.5	105		57	99		81.5	109	

APPENDIX C

Phase III of Experimental Leg I : an Abridged Summary Table with Interpolated Exemplars
N.S.A.G.T. (Inter.) : comparisons between Sub-groups within Groups D, E and F.

Control Sub-groups	V.I.Q. May	V.I.Q. Nov.	Inc./Dec.	Sub-test 1 May	Sub-test 1 Nov.	Inc./Dec.	Sub-test 2 May	Sub-test 2 Nov.	Inc./Dec.	Sub-test 3 May	Sub-test 3 Nov.	Inc./Dec.
1D3	144	132	-12	23	21	-2	25	25	0	22	21	-1
1D8	133	134	+ 1	22	21	-1	20	23	+3	21	22	+1
1D19	132	132	0	20	16	-4	20	24	+4	22	24	+2
1D5	127	132	+5	21	21	0	17	23	+6	23	22	-1
1D22	126	130	+4	21	21	0	19	23	+4	20	21	+1
1D18	121	134	+13	23	22	-1	14	22	+8	18	22	+4
1D20	121	119	-2	21	21	0	16	17	+1	18	18	0
1D4	118	122	+4	16	22	+6	16	17	+1	23	23	0
1D47C	118	126	+8	14	19	+5	17	20	+3	21	22	+1
1D16	115	118	+3	16	18	+2	16	15	-1	20	24	+4
1D40B	115	112	-3	17	16	-1	14	19	+5	21	20	-1
1D27B	113	114	+1	16	22	6	17	19	+2	18	16	-2
1D30B	113	117	+4	17	18	1	13	15	+2	18	21	+3
N13	122.8	124.8	+2.0	19.0	19.8	+0.8	17.2	20.2	+3.0	20.4	21.2	+0.8
1D17	111	117	+6	13	19	+6	19	17	-2	13	17	+4
1D50C	97	98	+1	11	14	+3	10	12	+2	15	16	+1
N12	105.1	108.0	+2.9	13.5	16.2	+2.7	12.5	13.7	+1.2	15.6	17.8	+2.2
1DD2	132	141	+9	22	22	0	21	24	+3	23	24	+1
1DD23C	105	112	+7	14	21	+7	13	16	+3	21	20	-1
N12	113.3	116.8	+3.5	17.4	19.4	+2.0	16.3	19.1	+2.8	19.3	20.3	+1.0
1DD12B	98	102	+4	13	18	+5	12	12	0	14	18	+4
1DD37C	92	89	+3	12	8	-4	9	13	+4	12	14	+2
N6	95.5	94.7	-0.8	12.7	13.7	+1.0	10.7	12.2	+1.5	14.5	15.2	+0.7
DDD1	131	126	-5	17	16	-1	21	21	0	19	20	+1
DDD4B	119	128	+9	14	21	+7	15	16	+1	20	21	+1
N4	122.8	125.3	+2.5	16.3	18.8	+2.5	17.8	18.8	+1.0	18.3	19.5	+1.2

Control Sub-groups	V.I.Q. May	V.I.Q. Nov.	Inc./Dec.
2D2	141	137	-4
2D34B	112	109	-3
N14	122.2	125.5	+3.3
2D39B	111	117	+6
2D24B	110	113	+3
2D41B	108	106	-2
2D46C	108	117	+9
2D44C	107	99	-8
2D14	106	113	+7
2D26B	105	107	+2
2D35B	105	113	+8
2D12	100	109	+9
2D28B	99	105	+6
2D37B	94	108	+14
2D25B	89	98	+ 9
N12	103.6	108.8	+5.2
2DD4	133	126	-7
2DD10B	106	109	+3
N11	113.7	112.5	-1.2
2DD38C	99	99	0
2DD16B	89	88	-1
N5	94.4	94.2	-0.2
2DD26C	96	97	+1
2DD29C	83	87	+4
N4	86.7	92.0	+5.3

E'mental Sub-groups	V.I.Q. May	V.I.Q. Nov.	Inc./Dec.
E8	140	145+	+5
E16B	112	109	-3
N10	121.2	120.8	-0.4
E10	107	114	+7
E17B	95	102	+7
N9	99.9	104.4	+4.5
EE7	121	125	+4
EE1	117	114	-3
EE16B	117	114	-3
EE9	111	112	+1
EE2CB	108	95	-13
EE5	107	100	-7
EE14B	106	107	+1
N7	112.4	109.6	-2.8
EE10B	96	102	+6
EE12B	91	91	0
N4	92.8	95.3	+2.5
EE2	95	93	-2
EE18B	82	95	+13
N7	90.4	94.3	+3.9
EEE2	129	128	-1
EEE3	119	136	+17
EEE1	118	133	+15
N3	122.0	132.3	+10.3

E'mental Sub-groups	V.I.Q. May	V.I.Q. Nov.	Inc./Dec.
F1	137	145+	+8
F2	113	126	+13
N12	123.2	127.4	+4.2
F7	111	110	-1
F24B	86	103	+17
N13	101.6	110.2	+8.6
FF2	137	125	-12
FF1	121	123	+2
FF3	102	106	+4
N3	120.0	118.0	-2.0
FF8B	95	102	+7
FF5B	93	94	+1
FF6B	93	98	+5
FF4B	78	82	+4
N4	89.8	94.0	+4.2
FF7B	90	96	+6
N1	90	96	+6

Notes:

1. The way in which these Sub-groups were divided, and the reasons for dividing them in this way, together with a description of designations and further modifications at Phase III Level, are all set down under 3.4.

2. The V.I.Q.'s listed here are Standard Scores while the constituent sub-tests are categorised in Raw Scores.

3. It is instructive to see how the composition of the 4 exemplar Sub-groups 1D(1), 2D(2), EE(1) and FF(2) alters in the following tables. Individual pupils vary widely in potential and performance, and in performance on different tests and sub-tests.

4. Analyses of variance revealed that there were no significant differences among the mean increments/decrements achieved by any of the matched Sub-groups on the 3 N.S.A.G.T. sub-tests, namely (1) classification of Pairs of Words, (2) Verbal Reasoning, and (3) Analogies of Words. Nor were there significant differences among the mean increments/decrements of the 3 constituent sub-tests in any one Sub-group. Thus it does not appear that any of these courses in developmental reading enhances any one of these 3 components of verbal ability more than the others. The same holds true for Experimental Leg II, with the exception of the first "correct" age Sub-group in Group C, the significance of which is dealt with in 7. In any case the significance of the difference between the mean gains of Experimental Group C(1) on the one hand and both Control Group A(1) and Experimental Group B(1) on the other arises not out of a difference between the mean gains on any one of the 3 sub-tests, but out of the difference in aggregate mean gains on the 3 sub-tests.

Phase III of Experimental Leg I : a Summary Table with Interpolated Exemplars
S.A.S.R.C.T. (Junior) Forms A and B, Vocabulary : comparisons between Sub-groups within Groups D, E and F

Control Sub-groups	May Vocab. R.S.	S.P.	Nov. Vocab. R.S.	S.P.	Incr/Decr R.S.	S.P.
1D3	46	15.6+	43	15.6+	- 3	0
1D27B	37	14.9	32	13.11	- 5	-.10
1D15	35	14.4	29	13.5	- 6	-.11
1D40B	33	14.1	24	12.6	- 9	-1.7
1D8	32	13.11	32	13.11	0	0
1D4	32	13.11	27	12.11	- 5	-1.0
1D22	31	13.8	26	12.9	- 5	-.11
1D17	31	13.8	30	13.7	- 1	-.1
1D18	30	13.6	30	13.6	0	0
1D16	30	13.6	31	13.8	+ 1	+.2
1D31B	29	13.5	25	12.8	- 4	-.9
1D42B	26	12.9	25	12.8	- 1	-.1
N12	32.7	13.11	29.5	13.5	-3.2	-.6
1D49C	25	12.7	24	12.6	- 1	-.1
1D48C	11	10.5	13	10.10	+ 2	+.5
N8	18.8	11.8	22.4	12.3	+3.6	+.7
1DD14B	43	15.6+	36	14.6	- 7	-1.0
1DD27C	22	12.1	21	12.0	- 1	-.1
N8	28.9	13.4	27.5	13.1	-1.4	-.3
DDD2	40	15.6	40	15.6	0	0
DDD3	35	14.4	35	14.4		
DDD1	29	13.5	28	13.2	- 1	-.3
DDD4B	28	13.2	36	14.6	+ 8	+1.4
N4	33	14.1	34.7	14.4	+1.7	+.3

Control Sub-groups	May Vocab. R.S.	S.P.	Nov. Vocab. R.S.	S.P.	Incr/Decr R.S.	S.P.
2D2	47	15.6+	46	15.6+	- 1	0
2D45C	24	12.6	22	12.2	- 2	-.4
N12	31.3	13.8	29.7	13.5	-1.6	-.3
2D34B	23	12.3	25	12.8	+ 2	+.5
2D35B	23	12.3	22	12.2	- 1	-.1
2D51C	22	12.1	25	12.8	+ 3	+.7
2D10	22	12.1	26	12.9	+ 4	+.8
2D41B	22	12.1	23	12.3	+ 1	+.2
2D37B	21	12.0	17	11.6	- 4	-.6
2D12	20	11.10	22	12.2	+ 2	+.4
2D44C	19	11.8	10	10.4	- 9	-1.4
N8	21.5	12.1	21.3	12.1	- .2	0
2DD4	44	15.6+	40	15.6	- 4	0
2DD24C	21	12.0	22	12.2	+ 1	+.2
N8	27.8	13.1	26.5	13.0	-1.3	-.1
1DD33C	22	12.1	25	12.8	+ 3	+.7
1DD31C	19	11.8	24	12.6	+ 5	+.10
2DD15B	17	11.5	24	12.6	+ 7	+1.1
2DD38C	9	10.1	16	11.4	+ 7	+1.3
N4	16.8	11.4	22.2	12.3	+5.4	+.11
2DD29C	27	12.11	22	12.2	- 5	-.9
2DD26C	21	12.0	27	12.11	+ 6	+.11
2DD22C	17	11.5	15	11.1	- 2	-.4
2DD34C	10	10.4	20	11.10	+ 10	+1.6
N4	18.8	11.8	21.0	12.0	+2.2	+.4

E'mental Sub-groups	May Vocab. R.S.	S.P.	Nov. Vocab. R.S.	S.P.	Incr/Decr R.S.	S.P.
E8	49	15.6+	46	15.6+	- 3	0
E9	21	12.0	22	12.2	+ 1	+.2
N10	30.2	13.5	29.3	13.4	- .9	-.1
E5	21	12.0	28	13.2	+ 7	+1.2
E18B	12	10.7	11	10.6	- 1	-.1
N9	17.7	11.6	21.9	12.2	+4.2	+.8
EE7	43	15.6+	35	14.5	- 8	-1.1
EE14B	30	13.6	32	13.11	+ 2	+.5
EE5	28	13.2	28	13.2	0	0
EE16B	27	12.11	32	13.11	+ 5	+1.0
EE20B	21	12.0	15	11.1	- 6	+.11
EE6	18	11.7	23	12.3	+ 5	+.8
EE10B	17	11.5	26	12.9	+ 9	+1.4
N7	26.3	12.10	27.3	13.1	+1.0	+.3
EE9	15	11.1	16	11.4	+ 1	+.3
EE17B	14	10.11	14	10.11	0	0
EE1	12	10.7	25	12.8	+ 13	+2.1
EE12B	11	10.5	17	11.6	+ 6	+1.1
N4	13.0	10.9	18.0	11.7	+5.0	+.10
EE4	23	12.3	21	12.0	- 2	-.3
EE18B	11	10.5	16	11.4	+ 5	+.11
N8	19.5	11.9	19.9	11.11	+.4	+.2
EEE1	35	14.4	35	14.4	0	0
EEE2	29	13.5	22	12.2	- 7	-1.3
EEE3	24	12.6	27	12.11	+ 3	+.5
N3	29.3	13.5	28.0	13.2	-1.3	-.3

E'mental Sub-groups	May Vocab. R.S.	S.P.	Nov. Vocab. R.S.	S.P.	Inc./Dec R.S.	S.P.
F18B	40	15.6	36	14.6	- 4	-1.0
F16	29	13.5	28	13.2	- 1	-.3
N12	33.2	14.1	34.0	14.3	+.8	+.2
F3	29	13.5	32	13.11	+ 3	+.6
F24B	8	10.1	13	10.10	+ 5	+.9
N14	21.1	12.0	26.7	13.0	+5.6	+1.0
FF2	43	15.6+	42	15.6+	- 1	0
FF6B	25	12.7	30	13.7	+ 5	+1.0
FF3	23	12.3	29	13.5	+ 6	+1.2
N3	30.3	13.5	33.7	14.2	+3.4	+.9
FF8B	23	12.3	21	12.0	- 2	-.3
FF1	22	12.1	32	13.11	+ 10	+1.10
FF5B	17	11.5	17	11.5	0	0
FF4B	13	10.10	13	10.10	0	0
N4	18.8	11.8	20.8	12.1	+2.0	+.5
FF7B	14	10.11	10.1-	0	- 7	-.10
N1	14	10.11	10.1-	0	- 7	-.10

Notes:

1. All scores in this and the following two Tables have been corrected as laid down on pp. 19-20 of the Manual.

2. Percentiles have been omitted from this and the following two Tables for the sake of brevity.

3. Noticeably, the top "Correct" age Sub-group declines in 3 out of 4 instances, whereas the bottom "Correct" age Sub-group advances in 2 out of 4 cases. Much the same thing applies in the following Tables. (See p.82 for the likely explanation.)

4. It is illuminating to see how in this and the three following Tables the D and C stream boys infiltrate the ranks of A stream boys when they are ranked on standardised test data (see 3.4, p. 110). It suggests that this system of ability grouping is not without its flaws.

Phase III of Experimental Leg I : a Summary Table with Interpolated Exemplars
S.A.S.R.G.T. (Junior) Forms A and B, Paragraphs : comparisons between Sub-groups within Groups D, E and F.

Control Sub-groups	May Paras. R.S.	May Paras. S.P.	Nov. Paras. R.S.	Nov. Paras. S.P.	Inc./Dec. R.S.	Inc./Dec. S.P.
1D3	22	15.6+	21	15.6+	-1	0
1D18	21	15.6+	16	12.10	-5	-2.8
1D31B	21	15.6+	18	14.0	-3	-1.6
1D20	20	15.4	18	14.0	-2	-1.4
1D27B	20	15.4	21	15.6+	+1	+.2
1D19	19	14.9	19	14.9	0	0
1D17	19	14.9	12	11.3	-7	-3.6
1D8	18	14.0	15	12.3	-3	-1.9
1D5	18	14.0	19	14.9	+1	+.9
1D22	18	14.0	15	12.3	-3	-1.9
1D47C	18	14.0	20	15.5	+2	+1.5
1D4	17	13.5	12	11.3	-5	-2.2
1D40B	17	13.5	16	12.10	-1	-.7
N13	19.1	14.7	17.1	13.7	-2.0	-1.0
1D15	17	13.5	8	10.1-	-9	-3.4
1D50C	9	10.1	5	10.1-	-4	0
N12	13.8	11.11	12.7	11.11	-1.1	0
1DD3	22	15.6+	20	15.5	-2	-.1
1DD28C	15	12.3	19	14.9	+4	+2.6
N12	16.8	14.4	17.7	13.9	-1.1	-.7
1DD33C	15	12.3	16	12.10	+1	+.7
1DD40C	12	11.2	12	11.2	0	0
N6	13.2	11.7	13.5	12.1	+.3	+.6
DDD4B	21	15.6+	19	14.9	-2	-.9
DDD3	20	15.4	18	14.0	-2	-1.4
DDD2	19	14.9	19	14.9	0	0
DDD1	17	13.5	17	13.5	0	0
N4	19.3	14.9	18.3	14.3	-1.0	-.6

Control Sub-groups	May Paras. R.S.	May Paras. S.P.	Nov. Paras. R.S.	Nov. Paras. S.P.	Inc./Dec. R.S.	Inc./Dec. S.P.
2D9	23	15.6+	22	15.6+	-1	0
2D28B	17	13.5	17	13.5	0	0
N14	19.6	14.10	18.1	13.10	-1.5	-1.0
2D41B	16	12.10	14	11.11	-2	-.11
2D25B	16	12.10	16	12.10	0	0
2D33B	15	12.3	2	10.1-	-13	-2.2
2D46C	15	12.3	13	11.7	-2	-.8
2D26B	15	12.3	13	11.7	-2	-.8
2D10	13	11.7	14	11.11	+1	+.4
2D14	13	11.7	14	11.11	+1	+.4
2D35B	13	11.7	7	10.1-	-6	-1.6
2D37B	13	11.7	9	10.1	-4	-1.6
2D34B	11	10.10	11	10.10	0	0
2D12	11	10.10	19	14.9	+8	+3.11
2DD44C	7	10.1-	5	10.1-	-2	0
N12	13.2	11.9	11.4	11.6	-1.8	-.3
2DD4	22	15.6+	22	15.6+	0	0
2DD10B	15	12.3	13	11.7	-2	-.8
N11	17.8	13.11	15.0	12.8	-2.8	-1.3
2DD16B	15	12.3	13	11.7	-2	-.8
2DD24C	12	11.2	5	10.1-	-7	-1.1
N5	13.0	11.6	11.8	11.5	-1.2	-.1
2DD26C	15	12.3	13	11.7	-2	-.8
2DD29C	10	10.5	8	10.1-	-2	-.4
1DD22C	9	10.1	7	10.1-	-2	0
1DD34C	8	10.1-	11	10.10	+3	+.9
N4	10.5	10.9	9.8	10.8	-.7	-.1

E'mental Sub-groups	May Paras. R.S.	May Paras. S.P.	Nov. Paras. R.S.	Nov. Paras. S.P.	Inc./Dec. R.S.	Inc./Dec. S.P.
E8	25	15.6+	23	15.6+	-2	0
E14B	16	12.10	15	12.3	-1	-.7
N10	18.8	14.2	18.5	14.1	-.3	-.1
E5	15	12.3	19	14.9	+4	+2.6
E12B	8	10.1-	14	11.11	+6	+1.10
N9	13.4	11.9	14.0	12.1	-.6	-.4
EE7	20	15.4	18	14.0	-2	-1.4
EE16B	17	13.5	16	12.10	-1	-.7
EE6	17	13.5	13	11.7	-4	-1.10
EE1	15	12.3	17	13.5	+2	+1.2
N4	17.3	13.7	16.0	12.11	-1.3	-.8
EE9	15	12.3	21	15.6+	+6	+3.3
EE17B	11	10.10	14	11.11	+3	+1.1
N6	13.5	11.9	14.7	12.7	+1.2	+.10
EE8	17	13.5	16	12.10	-1	-.7
EE18B	7	10.1-	9	10.1	+2	0
N8	12.5	11.7	13.5	11.11	+1.0	+.4
EEE1	18	14.0	19	14.9	+1	+.9
EEE2	17	13.5	18	14.0	+1	+.7
EEE3	16	12.10	13	11.7	-3	-1.3
N3	17.0	13.5	16.7	13.5	-3	0

E'mental Sub-groups	May Paras. R.S.	May Paras. S.P.	Nov. Paras. R.S.	Nov. Paras. S.P.	Inc./Dec. R.S.	Inc./Dec. S.P.
F11	23	15.6+	21	15.6+	-2	0
F8	17	13.5	20	15.5	+3	+2.0
N12	19.3	14.8	17.3	13.8	-2.0	-1.0
F12	17	13.5	18	14.0	+1	+.7
F24B	10	10.5	11	10.10	+1	+.5
N13	15.1	12.7	15.2	12.7	+.1	0
FF2	22	15.6+	17	13.5	-5	-2.1
FF1	21	15.6+	22	15.6+	+1	0
FF3	20	15.4	15	12.3	-5	-3.1
FF6B	19	14.9	16	12.10	-3	-1.11
N4	20.5	15.3	17.5	13.6	-3.0	-1.9
FF8B	16	12.10	13	11.7	-3	-1.3
FF5B	12	11.2	9	10.1	-3	-1.1
FF4B	11	10.10	8	10.1-	-3	-.9
N3	13.0	11.7	10.0	10.7	-3.0	-1.0
FF7B	6	10.1-	8	10.1-	2	0
N1	6	10.1-	8	10.1-	+2.0	0

Notes:

(1) The unevenness and inconsistency of the Table of Norms in respect of S.P.'s is evident from a comparison of the first and second "Correct" age (1D) Sub-group mean differences. In the first Sub-group a mean decrement of 2 marks (out of 25) in R.S. yields a decrement of 1.0 year in S.P. In the second Sub-group, however, a mean decrement of 1.1 marks (out of 25) yields no decrement whatever because individual increments and decrements in S.P. cancel one another out. See also the discrepancy between two individual scores: DDD4B drops two marks, from 21 to 19, which converts to a drop in S.P. of .9 of a year. DDD3 also drops 2 marks, from 20 to 18, which converts to a drop in S.P. of 1.4 years. Clearly the Norms are too coarse, and inaccurate to a degree. Furthermore one of the reasons that the Sub-groups were not more difficult to match was because the scales were so short. This had the effect of reducing differences between individuals on both the Paragraphs and Sentences sub-tests. Unfortunately it also reduced to insignificance the differences between pre- and post-test mean gains. It is difficult for testees to show improvement on such short, steeply graded scales unless they scored low initially.

Phase III of Experimental Leg I : a Summary Table with Interpolated Exemplars
S.A.S.N.C.T. (Junior) Forms A and B, Sentences : comparisons between Sub-groups within Groups D, E and F

Control Sub-groups	May S'ces. R.S.	S.P.	Nov. S'ces R.S.	S.P.	Inc./Dec. R.S.	S.P.
1D19	18	15.6+	16	15.5	-2	-1
1D3	17	15.6+	17	15.6+	0	0
1D8	16	15.4	11	12.5	-5	-2.11
1D47C	16	15.4	11	12.5	-5	-2.11
1D20	15	14.9	15	14.9	0	0
1D31B	14	14.2	11	12.5	-3	-1.9
1D5	13	13.8	11	12.5	-2	-1.3
1D18	13	13.8	10	11.11	-3	-1.9
1D17	12	12.11	11	12.5	-1	-.6
1D22	11	12.4	13	13.8	+2	-1.4
1D4	11	12.4	12	12.11	+1	+.7
1D16	11	12.4	11	12.5	0	0
1D40B	11	12.4	12	12.11	+1	+.7
N13	13.8	13.10	12.4	13.2	-1.4	-.8
1D27B	11	12.4	12	12.11	+1	+.7
1D36B	4	10.1-	6	10.1-	+2	0
N12	9.2	11.7	8.6	11.6	-.6	-.1
1DD5	16	15.4	12	12.11	-4	-2.5
1DD33C	10	11.11	10	11.11	0	0
N12	13.3	13.9	10.1	12.2	-3.2	-1.7
1DD9B	9	11.5	11	12.5	+2	+1.0
1DD37C	7	10.5	9	11.6	+2	+1.1
N6	8.3	11.1	8.3	11.4	0	+.3
DDD2	15	14.9	13	13.8	-2	-1.1
DDD3	14	11.2	14	14.2	0	0
DDD4B	14	14.2	15	14.9	+1	+.7
DDD1	11	12.4	12	12.11	+1	+.7
N4	13.5	13.10	13.5	13.10	0	0

Control Sub-groups	May S'ces R.S.	S.P.	Nov. S'ces. R.S.	S.P.	Inc./Dec. R.S.	S.P.
2D9	19	15.6+	18	15.6+	-1	0
2D10	10	11.11	7	10.6	-3	-1.5
N14	14.1	14.0	12.1	13.0	-2.0	-1.0
2D41B	10	11.11	9	11.6	-1	-.5
2D7	9	11.5	8	11.0	-1	-.5
2D13	9	11.5	10	11.11	+1	+.6
2D33B	9	11.5	3	10.1-	-6	-1.4
2D51C	8	10.11	11	12.5	+3	+1.6
2D46C	8	10.11	12	12.11	+4	+2.0
2D26B	8	10.11	8	10.11	0	0
2D44C	7	10.5	6	10.1	-1	-.4
2D12	7	10.5	9	11.6	+2	+1.1
2D34B	6	10.1	8	11.0	+2	+.11
2D37B	6	10.1	5	10.1-	-1	0
2D35B	5	10.1-	9	11.6	4	+1.5
N12	7.7	10.10	8.2	11.3	+.5	+.5
2DD17B	15	14.9	14	14.2	-1	-.7
2DD39C	9	11.5	5	10.1-	-4	-1.4
N11	11.5	12.9	10.4	12.4	-1.1	-.5
2DD38C	8	10.11	4	10.1	-4	-.10
2DD16B	7	10.5	7	10.5	+.6	+.6
N5	7.6	10.9	8.2	11.3	+.6	+.6
2DD26C	9	11.5	12	12.11	+3	+1.6
1DD34C	5	10.1-	5	10.1-	0	0
1DD22C	4	10.1-	9	11.6	+5	+1.5
2DD29C	2	10.1-	8	11.0	+6	+.11
N4	5.0	10.5	8.5	11.4	+3.5	+.11

E'mental Sub-groups	May S'ces R.S.	S.P.	Nov. S'ces R.S.	S.P.	Inc./Dec. R.S.	S.P.
E8	19	15.6+	19	15.6+		
E4	11	12.4	14	14.2		
N5	13.8	13.8	12.4	13.1	-1.4	-.7
E10	11	12.4	11	12.4	0	0
F16B	7	10.5	8	11.0	+1	+.7
N14	9.1	11.5	8.2	11.2	-.9	-.3
EE7	15	14.9	11	12.5	-4	-2.4
EE16B	15	14.9	10	11.11	-5	2.10
EE14B	13	13.8	13	13.8	0	0
EE9	11	12.4	8	11.0	-3	-1.4
EE10B	10	11.11	7	10.6	-3	-1.5
N5	12.8	13.6	9.8	11.11	-3.0	-1.7
EE5	9	11.5	8	11.0	-1	-.5
EE17B	6	10.1	10	11.11	+4	+1.10
N5	7.0	10.6	9.4	11.9	+2.4	+1.3
EE19B	11	12.4	6	10.1	-5	-2.3
EE18B	6	10.1	6	10.1	0	0
N8	8.0	11.0	7.4	10.11	-.6	-.1
EEE1	15	14.9	15	14.9	0	0
EEE3	13	13.8	8	11.0	-5	-2.8
EEE2	11	12.4	8	11.0	-3	-1.4
N3	13.0	13.7	10.3	12.3	-2.7	-1.4

E'mental Sub-groups	May S'ces R.S.	S.P.	Nov. S'ces R.S.	S.P.	Inc./Dec. R.S.	S.P.
F11	17	15.6+	16	15.4	-1	-.2
F23B	13	13.8	12	12.11	-1	-.9
N12	14.4	14.5	13.6	13.11	-.8	-.6
F19B	13	13.8	9	11.6	-4	-2.2
F24B	6	10.1	6	10.1	0	0
N13	8.9	11.4	9.4	11.8	+.5	+.4
FF2	15	14.9	15	14.9	0	0
FF8B	12	12.11	9	11.6	-3	-1.5
N5	13.8	14.0	11.8	12.11	-2.0	-1.1
FF5B	9	11.5	7	10.6	-2	-.11
FF4B	6	10.1	3	10.1-	-3	-0
N2	7.5	10.9	5.0	10.4	-2.5	-.5
FF7B	6	10.1	7	10.6	+1	+.5
N1	6	10.1	7	10.6	+1	+.5

Notes:

(1) Here, too, the unevenness and inconsistency of the S.P. Scale is apparent. For example, Boy F11 drops 1 mark in R.S., from 17 to 16, between May and November, and this converts to a S.P. difference of 2 months. Boy F23B also drops 1 mark in R.S., from 13 to 12, in the same period, but this converts to a S.P. difference of 9 months. Irregularities like these can completely distort results, and nullify the statistical significance of gains.

(2) For the most part only those boys who scored low in the pre-test in May - 1DD22C and 2DD29C, for example - made appreciable gains in the post-test in November.

Phase III of Experimental Leg I : a Summary Table with Interpolated Exemplars
Schonell Spelling Tests, S1 and S2 : comparisons between Sub-groups within Groups D, E and F

Control Sub-groups	May Spelling		Nov. Spelling		Inc./Dec.	
	R.S.	S.A.	R.S.	S.A.	R.S.	S.A.
1D31B	91	14.1	95	14.6	+4	+.5
1D15	77	12.8	86	13.7	+9	+.11
1D5	76	12.7	81	13.1	+5	
1D20	74	12.5	85	13.6	+11	+1.1
1D17	74	12.5	84	13.5	+10	+1.0
1D36B	74	12.5	82	13.2	+8	
1D16	73	12.4	84	13.5	+11	+1.1
1D38B	73	12.4	78	12.9	+5	+.5
1D23	73	12.4	78	12.10	+5	+.6
1D47C	71	12.1	80	13.0	+9	+.11
N10	75.6	12.7	83.3	13.4	+7.7	+.9
1D30B	66	11.7	80	13.0	+14	+1.5
1D48C	52	10.2	56	10.7	+4	+.5
N8	61	11.1	72.6	12.3	+11.6	+1.2
1DD3	35	13.6	93	14.4	+8	+.10
1DD30C	63	11.4	72	12.2	+9	+.10
N7	72.4	12.3	81.7	13.2	+9.3	+.11
2DD10B	55	10.6	75	12.6	+20	+2.0
2DD16B	55	10.6	73	12.4	+18	+1.10
1DD37C	52	10.2	69	11.11	17	+1.9
2DD38C	48	9.10	57	10.8	+9	+.10
N4	52.5	10.3	68.5	11.10	16.0	+1.7
DDD2	91	14.1	91	14.1	0	0
DDD3	87	13.8	89	13.11	+2	+.3
DDD1	85	13.6	88	13.10	+3	+.4
DDD4B	74	12.5	83	13.4	+9	+.1
N4	84.3	13.5	87.8	13.10	+3.5	+.5

Control Sub-groups	May Spelling		Nov. Spelling		Inc./Dec.	
	R.S.	S.A.	R.S.	S.A.	R.S.	S.A.
2D2	88	13.10	88	13.10	0	0
2D28B	69	11.11	82	13.2	+13	+1.3
N11	76.4	12.8	82.2	13.3	+5.8	+.7
2D12	68	11.10	72	12.2	+4	+.4
2D33B	64	11.5	65	11.6	+1	+.1
2D41B	64	11.5	77	12.8	+13	+1.3
2D26B	63	11.4	78	12.9	+15	+1.5
2D35B	62	11.2	72	12.2	+10	+1.0
2D44C	56	10.7	66	11.7	+10	+1.0
2D45C	52	10.2	46	9.7	-6	-.7
N7	61.3	11.1	68.0	11.9	+6.7	+.8
2DD13B	85	13.6	78	12.10	-7	-.8
2DD32C	60	11.0	71	12.1	+11	+1.1
N7	71.4	12.1	79.3	12.11	+7.9	+.10
2DD29C	72	12.2	76	12.7	+4	+.5
1DD25C	65	11.6	75	12.6	+10	+1.0
1DD22C	61	11.1	84	13.5	+23	+2.4
1DD34C	45	9.6	50	10.0	+5	+.6
N4	60.8	11.1	71.3	12.2	+10.5	+1.1

E'mental Sub-groups	May Spelling		Nov. Spelling		Inc./Dec.	
	R.S.	S.A.	R.S.	S.A.	R.S.	S.A.
E8	93	14.4	96	14.7	93	+.3
E14B	67	11.8	72	12.2	+5	+.6
N10	74.3	12.5	80.1	13.0	+5.8	+.7
E7	66	11.7	73	12.4	+7	+.9
E18B	51	10.1	55	10.6	+4	+.5
N9	61.4	11.2	67.9	11.10	+6.5	+.8
EE14B	83	13.4	87	13.8	+4	+.4
EE5	81	13.1	87	13.8	+6	+.7
EE7	78	12.10	92	14.2	+14	+1.4
EE16B	65	11.6	78	12.10	+13	+1.4
EE9	65	11.6	83	13.4	+18	1.10
EE1	64	11.5	70	12.0	+6	+.7
EE20B	62	11.2	62	11.2	0	0
N7	71.1	12.2	79.8	13.0	+8.7	+.10
EE10B	53	10.4	65	11.6	+12	+1.2
EE12B	53	10.4	57	10.8	+4	+.4
EE6	45	9.6	61	11.1	+16	+1.7
EE17B	45	9.6	48	9.10	+3	+.4
N4	49.0	9.11	57.8	10.9	+8.8	+.10
EE15B	75	12.6	78	12.10	+3	+.4
EE4	47	9.8	62	11.2	+15	+1.6
N8	60.5	11.1	65.1	11.6	+4.6	+.5
EEE2	72	12.2	83	13.4	+11	+1.2
EEE1	63	11.4	73	12.4	+10	+1.0
EEE3	58	10.10	66	11.7	+8	+.9
N3	64.3	11.5	74.0	12.5	+9.7	+1.0

E'mental Sub-groups	May Spelling		Nov. Spelling		Inc./Dec.	
	R.S.	S.A.	R.S.	S.A.	R.S.	S.A.
F18B	90	14.0	93	14.4	+3	+.4
F9	70	12.0	89	13.11	+19	+1.11
N12	76.3	12.7	86.3	13.7	+10.0	+1.0
F13	70	12.0	83	13.4	+13	+1.4
F24B	47	9.8	55	10.6	+8	+.10
N13	59.7	11.0	64.6	11.6	+4.9	+.6
FF2	84	13.5	89	13.11	+5	+.6
FF1	69	11.11	79	12.11	+10	+1.0
FF6B	67	11.8	81	13.1	+14	+1.5
N3	73.3	12.4	83.0	13.4	+9.7	+1.0
FF3	63	11.4	72	12.2	+9	+.10
FF5B	49	9.11	56	10.7	+7	+.8
FF8B	48	9.10	63	11.4	+15	+1.6
FF4B	39	8.11	53	10.4	+14	+1.5
N4	49.8	10.0	61.0	11.1	+11.2	+1.1
FF7B	49	9.11	49	9.11	0	0
N1	49	9.11	49	9.11	0	0

Notes:

(1) S.Q.'s have been omitted from this Table for the sake of brevity.

(2) There is a marked difference between trends expressed here and trends expressed in the preceding three Tables. Most testees show a healthy increase in R.S.'s on this 100-item test, and a corresponding improvement in S.A.'s, or Standard Scores, between May and November, 1968. On the other hand on the three S.A.S.R.G.T. sub-tests the majority of pupils either register no improvement on 50-, 25- and 20-item tests, or actually decline over the same period. The corrections which are necessary to both R.S.'s and S.P.'s, or Standard Scores, on the S.A.S.R.G.T., as a result of testing in terms other than the third term of the academic year, have a further depressant effect on the Vocabulary, Paragraphs and Sentences scores, which is all the more apparent when the S.A.S.R.G.T. results are compared with the Schonell Spelling results.

(3) There are no anomalies in converting R.S.'s to S.A.'s or Standard Scores and the mean increments in R.S. tally with the mean increments in S.A. This is not always the case in the preceding three Tables.

APPENDIX D

N.S.A.G.T. Nov. V.I.Q.'s

	145–141	140–136	135–131	130–126	125–121	120–116	115–111	110–106	105–101	100–96	95–91	90–86	85–81	f	y	fy	fy^2	xy
135–131			' 24											1	+6	6	36	24
130–126	' 30	" 50												3	+5	15	75	80
125–121	' 24	' 20		' 12										3	+4	12	48	56
120–116			" 24	" 18	' 6	' 3								6	+3	18	54	51
115–111				' 6	' 4	' 2	'"	' -2						7	+2	14	28	10
110–106					' 2	' 1		'" -3				' -5		6	+1	6	6	-5
105–101									"	'				3	0	0	0	0
100–96						' -1		'" 3		' 3	' 4			6	-1	-6	6	9
95–91							'	' 2	' 4		' 8			4	-2	-8	16	14
90–86									' 6					1	-3	-3	9	6
85–81														0	-4	0	0	0
80–76													' 30	1	-5	-5	25	30
75–71												' 30		1	-6	-6	36	30
f	2	3	3	4	3	4	4	8	4	2	2	2	1	42				
x	+6	+5	+4	+3	+2	+1	0	-1	-2	-3	-4	-5	-6					
fx	12	15	12	12	6	4	0	-8	-8	-6	-8	-10	-6					
fy^2	72	75	48	36	12	4	0	8	16	18	32	50	36					

Throughout the survey linear relationships were evident from the scattergrams. Therefore the Product-Moment method of correlation was indicated and was used with a bivariate distribution.

Calculation

1. $\Sigma fx = 15$ $\quad\quad$ $\Sigma fy = 43$

   $\Sigma fx^2 = 407$ $\quad\quad$ $\Sigma fy^2 = 339$

2. $\Sigma \frac{fx}{N} = \frac{15}{42} = .357$ $\quad\quad$ $\Sigma \frac{fy}{N} = \frac{43}{42} = 1.024$

3. $\left(\Sigma \frac{fx}{N}\right)^2 = (.357)^2 = .127$ $\quad\quad$ $\left(\Sigma \frac{fy}{N}\right)^2 = (1.024)^2 = 1.049$

4. $\left(\Sigma \frac{fx}{N}\right)\left(\Sigma \frac{fy}{N}\right) = (.357)\ (1.024) = .366$

5. $\Sigma xy = 305$

6. $\sigma x = \sqrt{\Sigma \frac{fx^2}{N} - \left(\Sigma \frac{fx}{N}\right)^2}$ $\quad\quad$ $\sigma y = \sqrt{\Sigma \frac{fy^2}{N} - \left(\Sigma \frac{fy}{N}\right)^2}$

   $= \sqrt{\frac{407}{42} - .127}$ $\quad\quad$ $= \sqrt{\frac{339}{42} - 1.024}$

   $= 3.092$ $\quad\quad$ $= 2.841$

7. $r = \dfrac{\Sigma \frac{xy}{N} - \left(\Sigma \frac{fx}{N}\right)\left(\Sigma \frac{fy}{N}\right)}{(\sigma x)\ \ (\sigma y)} = \dfrac{\frac{305}{42} - .366}{(3.092)(2.841)} = .785$

APPENDIX E

Correspondence arising out of the Pre-test Results

I quote in part from a letter that I wrote to the Head of School D on Tuesday 21st May[1]:

"On reviewing the results the following points occur to me:

(i) If you believe in streaming you've streamed nearly perfectly!

(ii) I've not encountered a brighter group of 12.0's, and seemingly your entire Standard 5 intake has been very well taught: the children's attainment in reading does not lag (far) behind their verbal ability in any of the three classes - the mean V.I.Q. of all 99 youngsters tested is 110+, and the rough average reading quotient derived from their performance in Vocabulary and Comprehension (Paragraphs and Sentences Sub-tests) is of the order of 105....

(iii) Seemingly the following are underachieving: 2D10(5A), DDD1(5A), and 1D22(5A); 2D44C(5C) and 2D51C(5C)[2], the latter quite conspicuously (what's he doing in 5C with a V.I.Q. of 131 anyway? I'd be interested to know whether he's considered a slacker, or whether he's perhaps emotionally disturbed/poorly motivated). These boys seem to be underachieving because their Vocabulary and Comprehension scores (see Standard Placement and Percentile columns under Vocabulary, Paragraphs and Sentences) do not measure up to their M.A.'s.

[1] A team of four marked solidly for two weeks in order that the results should be available for review, and diagnostic purposes, as soon as possible; all results were tabulated and the first coarse phase, Phase I, was virtually complete by mid-June, while the Heads of the above schools had their copies of the results considerably earlier.

[2] I referred to the boys by name in my letter.

(iv) Seemingly the following are working well up to their potentialities and deserve a pat on the back: 1DD5(5A); 2D25B(5B) (is he particularly industrious/consoientious?); and 1DD23C(5C) and 2DD38C(5C) (who is probably not as bright as his V.I.Q. suggests).

(v) The spelling appears to be sound throughout.

(vi) Tests are unreliable at their upper limits and I've had to arrive at quite a few M.A.'s (see ± entries) by extrapolation (vide G4![1]). I shall have to bring ± 24 Senior Intelligence and Silent Reading Tests with me in November in order to test those boys who've already reached the ceiling of the Junior and Intermediate Tests[2]. It must be a real privilege to teach boys as bright as 1D3, G3 and G4. Incidentally, I trust that those 3 are placed in the first 6 in exams, and that at least one of them comes in the first 3, if not first!"

I quote in part from the Head's prompt reply:

"The respective teachers were very pleased to learn that you thought so highly of their boys. As far as 2D10 (German mother), DDD1 (too much sport, perhaps - he scored two centuries and seven half centuries last cricket season, captains both cricket and rugby teams[3]), and 1D22, all in 5A, are concerned, the teachers agree with your findings. The two boys in 5C are boarders and came to us late (Std.4), thus they have a lot of leeway to make up. We place all boarders in one class if at all possible, to avoid any homework difficulties, the class being determined by their mean achievement. There are exceptions to the rule of course!

[1]This boy had a V.I.Q. of 144, a M.A. of ± 18.0 and a Percentile of 99.8: his Standard Placements on the 3 Sub-tests of S.A.S.R.G.T. came out at 15.6+, 15.6+, 15.6+ and his Percentiles at 99.5, 95 and 97. He was one of four boys whom I had to drop because I could not match him.

[2]In fact I did not do so for reasons that I discuss under 3.3, pp. 83-5.

[3]Despite his age, 11.0 on 8/5/68.

As regards the following, the brief notes might explain:

1DD5(5A) - father is Senior Lecturer in Violin at U.P.E. and came to us from Scotland last year.

2D25B(5B) - extremely industrious.

1DD23C(5C) - second year in 5[1].

2DD38C(5C) - boarder and spent 2 years in Std.4[2].

1D3 and G3 are invariably in the top 6. The same cannot be said for G4 who is quite the laziest in his class! Top in 5A is ALWAYS 2D9[3], usually followed by 1D3, but there is terrific competition since we introduced streaming. All in all, I'd say that your observations were excellent, particularly since you spent such a short time with them."

The apparent high correlation between the standardised tests of ability and attainment on the one hand and scholastic performance on the other is significant, while the diagnostic value of the tests in regard to underachievers like G4 is even more important. The class teacher's prognosis in regard to G4 might well have been, "Right my boy, now we know you've been slacking, we'll keep you busy!" Additional assignments and projects of a heuristic nature, related to the boy's talents and interest, might well be the answer to a gifted boy like this. Indeed the enriched curriculum within the normal class is one of the solutions for the development of gifted children suggested by educationists:

> "Their preferred solution to the problem of the gifted is <u>enrichment</u>, a solution that enables the gifted student to remain with students his own age and at the same time to partake of educational experiences that are more in keeping with his abilities and interests."
>
> Lindgren, 1967, p.517.

[1,2] Seemingly promotion by ability rather than age can have beneficial results, at least on the narrow scholastic front, and provided that the child is not more than a year older than the class average, his social and emotional development will probably not suffer.

[3] V.I.Q.122 (May), 134 (Dec); Standard Placements and Percentiles in S.A.S.R.G.T. Vocabulary, Paragraphs and Sentences Sub-tests 15.6/93, 15.6+/98, 15.6+/98 (May), 15.6+/96, 15.6+/98, 15.6+/98 (Nov.); S.Q.117 (May), 115 (Nov.). In V.I.Q. he ranked 6/41 (May) and 5/40 (Nov.) and in attainment on the above tests he ranked 9, 1, 1, 4/40 (May), and 7, 4, 1, 3/40 (Nov.). He had already quite decided that he was going to be an author!

APPENDIX F

Test I (Parcel I): 5 passages and 40 questions in 15 minutes

(Test II (Parcel II) and Test III (Parcel III) (see pp.104-6) were parallel in construction. Test I was used as an interim test in August/September, 1968, with all Experimental and Control Groups; Test II was used as a post-test in November, 1968, again with all Experimental and Control Groups; Test III was used as a long-range post-test in November, 1969, with 17 members of Experimental Group C who were still at School C.)

Jones

He could not read or write, and boasted that he had never had a bath in his life, and never taken a razor to his beard. He cleaned his greying hair with vaseline and smoked an old briar pipe. He was just a small, slight man with an old cap on his head and great hob-nailed boots on his feet. But he loved the farm animals and they loved him. He tended them all devotedly, horses, cows and poultry. Yes, he was wonderful with animals, and that was his job sixty years ago in England. He looked after all the creatures of the farm and for this he was paid fourteen shillings a week. He was also the gardener and I loved to watch his gnarled old hands gently planting out the wall-flowers in spring.

He had a rather simple wife, and two sons and two daughters, and his wife was expecting another child. One Thursday my father arrived home from market. Jones was there as usual to take the horse, rub her down and feed her. "Well, Jones," asked father, "is it a boy or a girl?" "Lord love us, master," the old fellow replied, "it be two of 'em!"

A few years after this it became unsafe to drive a horse and cart on the tarred roads. Father said to Jones, "Well, Jones, you and I are too old to learn to drive a car, but I must have one to do my business, so I must hire another man. But I will get you another job." And he was as good as his word. Jones started work on the next-door farm within a week. But somehow his heart wasn't in it, and less than a year after leaving us, he died quietly in his sleep one night.

Time:
Reading rate:

Questions

1. Of what did Jones boast,

(i) his large family
(ii) his way with animals
(iii) his inability to read and write
(iv) never having taken a bath in his life.

2. Which one of these "creatures of the farm" is not mentioned here,

(i) horses
(ii) pigs
(iii) cows
(iv) poultry

3. How many children did Jones father,

(i) two
(ii) four
(iii) six
(iv) eight.

4. What was the writer's father,

(i) a farmer
(ii) a horseman
(iii) a cab driver
(iv) a farm labourer.

5. Which one of these words does <u>not</u> describe Jones,

(i) small
(ii) slight
(iii) clean-shaven
(iv) poor.

6. Jones's wife is described as simple. This means that she was

(i) unspoiled
(ii) stupid
(iii) untidy
(iv) mean.

7. In this story the phrase which means honest and reliable is

(i) as good as his word
(ii) true to his promise
(iii) as sound as a bell
(iv) safe as houses.

8. "His heart wasn't in it" means that

(i) he missed his old job and his old master
(ii) he was lazy at heart
(iii) he had a bad heart
(iv) he wanted to learn a new job.

Thanks

We were spending Christmas at our cottage on the Pondoland coast. There were five children, my sister, a friend of hers, my brother, my baby sister and I. John, my brother, was eight and was trying to learn to swim. One hot afternoon we had been swimming in the sea and after my mother and father had gone home to change we children went off to swim in the lagoon. John was kicking in the shallow parts at first, and then he decided to be brave and to try swimming in water a little bit deeper. I was sun-bathing on a rock. The baby was digging sand and the other two girls were swimming about. John was managing quite well when my sister started splashing him. He hated this as it took his mind off his swimming. Finally he stopped kicking, sank, and swallowed water. He could still touch bottom with his feet so he wasn't in any danger, but he was very cross. She left him alone for a while so he started off again from the shallow end, but as soon as he was near her she splashed him again. I told her to stop it, but she did it once more, and I began to get angry. John was crying now, but wasn't going to let her stop him from swimming so when she wasn't looking he tried again. As soon as she heard him kicking she splashed him, and he yelled. At this I jumped off my rock and pulled her into the water and pushed her head down until it touched the sand below. I kept her there for a short while and then let her go. When she recovered she and her friend marched off, and I got back onto my rock. John had vanished, but very soon he returned with our worried parents. He had run up to the cottage shouting, "Judy is killing Sue", and they had come running onto the beach to see what was happening. All the thanks I got for helping John was a good hiding from my father!

Questions

1. Of the five children Judy was

(i) the oldest
(ii) the second eldest
(iii) the second youngest
(iv) the youngest.

2. What was the baby doing,

(i) sunbathing
(ii) sleeping
(iii) digging sand
(iv) bawling.

3. How many times did Sue sphsh John,

(i) once
(ii) twice
(iii) three times
(iv) four times.

4. Why were Judy's parents worried,

(i) they thought Judy was in difficulty
(ii) they heard the baby crying
(iii) John had vanished
(iv) they thought Sue was being drowned.

5. Hot is to cold as deep is to

(i) shallow
(ii) sea
(iii) lagoon
(iv) brave.

6. "Recovered" here means

(i) covered up again
(ii) felt fit again
(iii) got back again
(iv) went over the same ground again.

7. John could best be described as

(i) stubborn
(ii) timid
(iii) sickly
(iv) tearful.

8. Judging from the last sentence the writer can best be described as

(i) indignant and hurt
(ii) anxious and worried
(iii) quite satisfied
(iv) tired and despairing.

Faith is magic

Mpande had been hurt when he was a little picannin. Nobody knew how badly he had been hurt until he was about ten years old. Only then did people realise that he wasn't growing and that his back was becoming hunched.

One day his father went on a trip to the nearest store. There he heard about the Magic Waters in the distant Mawe mountains. These waters were said to have magic powers which could cure any ache or pain. Mpande's father thought of his hunchback son and decided to take him to the magic stream.

Two days later Mpande and his father set out on two strong mountain ponies. They took blankets and food as they were uncertain how long they would be away from home. They travelled for three days and on the evening of the third day they stopped next to the running water and settled down excitedly to wait for morning.

As the first sunlight touched the mountain the next day they quickly walked to a shallow pool below a little waterfall. Mpande carefully stepped in while his father watched hopefully. Alas, after he had been in the water for quite some while he was very cold, but his back was no straighter. Sadly he and his father mounted their ponies and made for home.

It started to rain and the ponies slipped and slithered until Mpande's father knew it was too dangerous to ride any further. They dismounted and huddled together to get warm. He wore a black robe and carried a long stick. He told them that his home was nearby, and they followed him until they arrived at a church. He took them into his house which stood nearby and gave them food. Mpande's father told the stranger of their adventure, and he told them about his church and how he needed a young man to help him. Mpande listened to the minister and suddenly he decided that he would like to stay and help the old man. His father agreed so he stayed.

The years passed and Mpande learned to read and write. Then when the minister died Mpande took his place. He became famous because people said he could cure them of any illness or trouble, but he always smiled and said that his only magic was their faith.

Questions

1. Mpande's father heard about the Magic Waters at a nearby store and father and son set out

   (i) immediately
   (ii) the next day
   (iii) two days later
   (iv) it doesn't say.

2. They took blankets because

   (i) it was cold and wet
   (ii) they didn't know how long they'd be away
   (iii) Mpande was very ill
   (iv) they wanted to wash them in the Magic Waters.

3. The stranger they met was

   (i) a minister
   (ii) a witch-doctor
   (iii) dressed in rags
   (iv) very tall.

4. What cured the people who came to Mpande,

   (i) their faith in him
   (ii) the Magic Waters
   (iii) medicine
   (iv) a touch of the stranger's stick.

5. Which one of these is the odd word out in this story,

   (i) quickly
   (ii) carefully
   (iii) hopefully
   (iv) suddenly.

6. The pool below the waterfall is described as

   (i) clear
   (ii) deep
   (iii) shallow
   (iv) muddy.

7. The stranger

   (i) sauntered
   (ii) slithered
   (iii) trudged
   (iv) blundered

   along the narrow path.

8. Near is to distant as unknown is to

   (i) uncertain
   (ii) old
   (iii) famous
   (iv) magic.

Beans

Beans was a wizened old African, not more than five feet tall. He was so small and thin that he could wear my eight-year old son's old jersey. He had worked for many years on one of the biggest gold mines in Rhodesia and suffered badly from silicosis. Silicosis is caused by inhaling the dust that is made when the jackhammers drill holes into the hard rock. He was too old and sick to go on working underground, but mining was in his blood so he went around to all the white men he knew asking for a surface job. At last he got a job prospecting for thirty shillings a month. For many weeks the uncomplaining Beans walked miles and miles through the thick bush, carrying his prospecting pick and sample bags. When he had filled his bags he returned to the mine to have the samples crushed and panned for gold.

One day he met an African who had worked for the same Boss. To his joy he learned that his old master had returned to Rhodesia. He gave up his job at once and started to look for his Nkosi. Two weeks later he turned up at our back door, coughing badly but grinning from ear to ear. He squatted on his haunches wolfing the food that we gave him, and drinking hot, sweet tea from a tin mug. The rasping fits of coughing which shook his wasted body brought tears to my eyes. Though we couldn't really afford it my husband offered him £3 a month and his mealie meal and meat if Beans would prospect for him. Of course Beans jumped at the offer.

For two months he worked for us. Then one evening instead of bringing in samples he came up the dusty path with a huge python draped over his skinny shoulders. He told us proudly that he had killed the great snake with a stick, and showed us the stick to prove it. We told him to skin it, peg the skin out to dry and rub it with salt. When it was ready we sent it to England, to make shoes and a bag for my sister. Beans was as pleased as punch. But unfortunately the skin arrived in England very smelly and it was burnt at once. Needless to say we didn't tell Beans that his skin had gone up in smoke.

It wasn't long after this when Beans didn't turn up at the end of a week's prospecting. So we went to look for him. We found his pole and dagga hut and there, curled up in a few blankets on a grass mat, was a shrunken body. Beans had gone to join his ancestors.

Questions

1. Who wrote this story,

(i) a miner
(ii) a miner's wife
(iii) a prospector's daughter
(iv) a miner's son.

2. How much did Beans's first prospecting job pay him,

(i) twenty shillings a week
(ii) thirty shillings a month
(iii) £3 a month
(iv) it doesn't say.

3. What happened to the python skin in the end,

(i) it was cured
(ii) it was lost in the post
(iii) it was made into a bag
(iv) it was burnt.

4. Beans lived

(i) alone
(ii) with a friend
(iii) at his Nkosi's house
(iv) underground.

5. Which one of these words does not describe Beans,

(i) wizened
(ii) wasted
(iii) complaining
(iv) proud.

6. Silicosis is caused by

(i) inhaling dust
(ii) swallowing rocks
(iii) breathing fumes
(iv) a weak chest.

7. "Turned up" means

(i) arrived
(ii) prospected
(iii) returned
(iv) jumped at.

8. Walk is to run and speak is to shout as eat is to

(i) drink
(ii) cough
(iii) wolf
(iv) squat.

The thief

Pierre was a good little boy. He cleaned his teeth and washed his face every morning without being reminded. His nails were clean and he always made sure that he had his pencil, rubber and ruler in his schoolbag when he left home to ride to school. His bicycle was spotless and every time the Road Safety Inspector came to examine the children's bicycles, he would take Pierre's bicycle onto the stage in the school-hall, and tell all the children that this was how they should keep their bicycles.

He was in standard 3 and loved his teacher. She was always kind to Pierre because he never talked or laughed when he should have been getting on with his work. He always kept his books neat and clean.

The one thing that worried Pierre was that he didn't have a friend. When the other boys were laughing and kicking a ball at playtime he sat quietly eating his sandwiches and reading a book or learning his spellings for the next day. He felt that kicking a ball would get his shoes all dusty and dirty.

One morning as Pierre was riding to school he took a short cut past Mr Dick's vegetable garden. Growing right next to the fence were some orange trees and big yellow oranges hung from the branches. Before he knew what he was doing he was off his bicycle and crawling under the fence. He had picked six oranges and stuffed them into his pockets when he heard a loud shout. He jumped up and saw a very angry Mr Dick bearing down on him. Pierre dived under the fence, and pedalled away as fast as he could. His shoes were muddy, his blazer was torn and his socks were full of thorns but he didn't care. On and on he rode, still sure that Mr Dick was close behind him. At last he stopped in a big field of waving grass. Mr Dick wouldn't find him there, he decided. He made a hole in the grass and hid away.

All day he sat there wondering what his teacher would say, and thinking how angry his father would be when he heard that his son was a thief. He ate the oranges because he was hungry and thirsty. When the sun began to set he became very frightened but he was afraid to go home. At last, cold and tired, he fell asleep beside his bicycle.

He woke up to find torches around him and his father, Mr Dick and the Headmaster bending down over him. Before he could cry out his father picked him up and hugged him. Oddly enough, no one was angry; they were just pleased to have found him.

The next day when he went to school he was surprised and glad when the other boys asked him to play with them. His bicycle was muddy and his blazer was torn so he decided that he didn't mind if his shoes got dusty too.

Questions

1. Pierre didn't have any friends because

(i) he was a thief
(ii) he told tales
(iii) he was ugly
(iv) he was too good.

2. What disturbed him when he was picking oranges,

(i) his conscience
(ii) an angry cry
(iii) a dog barking
(iv) a shrill whistle.

3. How long did he hide in the field,

(i) until break
(ii) until sunset
(iii) for almost five hours
(iv) for about twelve hours.

4. Which one of these men is not mentioned as being present when Pierre was found,

(i) a policeman
(ii) the Headmaster
(iii) Mr Dick
(iv) Pierre's father.

5. Before his orange-picking escapade Pierre could best be described as

(i) fussy
(ii) timid
(iii) disobedient
(iv) scruffy.

6. It says that Pierre

(i) liked
(ii) loved
(iii) admired
(iv) adored

his teacher.

7. "Bearing down on him" means

(i) charging at him
(ii) bullying him
(iii) drawing a bead on him
(iv) shouting at him.

8. When they found Pierre everyone was

(i) exhausted
(ii) irritable
(iii) relieved
(iv) dismayed.

APPENDIX G

Standard 5 (Group F) English Language July, 1968

1. The lean (adj.) wolf (noun) howled (verb) mournfully (adv.) at the full (adj.) moon.

Write me a short "story" like this. Then show me three of the nouns, two of the verbs, three of the adjectives, and two of the adverbs that you have used, just as I have done in brackets above.

(10)

2. Rewrite these ten sentences correctly:-

(i) The St. Andrew's player booted the ball on with a prominent nose.
(ii) I would of played on Saturday if I had been fit.
(iii) "A gold lady's wrist-watch has been handed in to me," bawled the announcer.
(iv) If MacDuff is absent to-morrow he may be sick of chicken-pox.
(v) The First Team are playing Dale on the 24th July.
(vi) People which live in glass houses shouldn't throw stones.
(vii) The ship sunk like a stone.
(viii) Us three are going to the sea.
(ix) In olden times criminals were hung, drawn and quartered.
(x) One day when I was out fishing in my dinghy when suddenly I saw a huge fin slicing through the water.

(10)

3. Put fifteen of the following twenty words into clear and vivid settings (free verse, "stories", or sentences) to bring out their full meaning. You may, of course, change the form of a word, putting a verb into its past tense, for example. But do not forget to underline the words as you use them.

relieve, shriek, ominous, massacre, procrastinate, scallywag, gaunt, infallible, lowering, dismal, dank, dilapidated, scrupulous, rampant, owlish, awry, cease, relish, devastate, original.

(15)

4. Rewrite this story, filling in the fifteen spaces from the selection of words at the end. Or, if you can think of words of your own which will "colour in" <u>better than</u> mine, use these. Then if you have time, finish the story for me.

Parched with _____ and staggering with _____ the sole _____ of the _____ air crash staggered on across the burning sands of the Sahara. The _____ sun shone _____, sucking the last drop of moisture from his aching body.

Then _____ he stumbled across the only water within miles, a brackish, _____ pool surrounded by a few _____ palms. He broke into a clumsy run and flung himself down on the burning rock in which the pool was cupped. He was just about to plunge his _____, sun-scorched face into the inviting water when some sixth sense warned him to look up. There on the other side of the pool, not four feet away from his sunken, red-rimmed eyes, was a banded cobra _____ to strike. Its _____ forked tongue flickered briefly while it regarded the _____ with fixed, beady gaze. Obviously this was the cobra's pool and it wasn't going to _____ any visitors, however thirsty. Man and reptile stared at one another _____, each waiting for the other to move.

mercilessly, gusto, exhaustion, miraculously, disastrous, corpulent, drooping, taut, precariously, brazen, thirst, poised, gruff, venomous, rebellious, unwinkingly, tolerate, survivor, intruder, stagnant.

(15)

Standard 5 (Group B) English Language September, 1968

1. Write down these ten words and their opposites:

(a) blustery, ...
(b) elaborate, ...
(c) legal, ...
(d) similar, ...
(e) recede, ...
(f) fictitious, ...
(g) potent, ...
(h) hostile, ...
(i) permanent, ...
(j) hideous, ...

(10)

2. Write down these ten words and ten words that mean the same:

(a) gaunt, ...
(b) crude, ...
(c) elegant, ...
(d) hubbub, ...
(e) dreary, ...
(f) protest, ...
(g) obscure, ...
(h) venom, ...
(i) scamper, ...
(j) persevere, ...

(10)

3. Complete these ten words by adding either cr, br, pr, tr, fr, dr, gr, wr, kr, or rh:

(a) .... yme
(b) .... iend
(c) .... umb
(d) .... ecious
(e) .... ooch
(f) .... ound
(g) .... antz
(h) .... ive
(i) .... easure
(j) .... iggle

(10)

4. Pair these ten adjectives and nouns off:

	Adjectives	Nouns
(a)	ingenious	éclair
(b)	dingy	rope
(c)	wan	prairie
(d)	scrumptious	perfume
(e)	hospitable	lion
(f)	taut	invention
(g)	vast	hovel
(h)	fragrant	patient
(i)	tawny	cuffs
(j)	detachable	host

(10)

5. Pair these creatures off with the way they move:

(a)	elephants	(f)	peacocks
(b)	storks	(g)	idle boys
(c)	ducks	(h)	worms
(d)	lions	(i)	cripples
(e)	busy housewives	(j)	ladies in tight skirts

Saunter, strut, bustle, wriggle, limp, lumber, mince, waddle, stalk, lope.

(10)

6. Rewrite these ten sentences correctly:

(a) The Grey player booted the ball on with a prominent nose.
(b) I would of played on Saturday if I had been fit.
(c) "A gold lady's wrist-watch has been handed to me," bawled the announcer.
(d) If Hardy is absent tomorrow he may be sick of chickenpox.
(e) The First XI are playing Kingswood on Saturday.
(f) The ship sunk like a stone.
(g) Us three are pals.
(h) The murderer was hung in Pretoria prison.
(i) He is the oldest of the two.
(j) She lives by Francis Street.

(10)

7. Put nineteen of these twenty-five words into good sentences to bring out their full meaning:

Ravenous, hue, grisly, scud, rebuke, berserk, bleak, brawl, devour, chump, boisterous, propel, aroma, graphic, typhoon, dreary, maim, doomed, foretell, elegant, indifferent, enthusiastically, flimsy, legible, wary.

(19)

Standard 5 (Groups E and F) English Language November, 1968

1. Write down these ten words and their opposites:

(a) ruddy
(b) rare
(c) humorous
(d) potent
(e) recede
(f) gusty
(g) wary
(h) delicious
(i) despondent
(j) inflate

(10)

2. Write down these ten words and ten words that mean the same:

(a) arid
(b) bold
(c) scold
(d) ingenious
(e) intact
(f) maim
(g) affectionate
(h) awkward
(i) wilt
(j) haughty

(10)

3. Complete these ten words by adding bl, fl, gl, pl, cl, sl, kl, al, el, and il:

(a) .... impse
(b) .... asp
(c) .... eeve
(d) .... ind
(e) .... ive
(f) .... ude
(g) .... ounder
(h) .... legal
(i) .... oof
(j) .... ummet

(10)

4. Pair these ten adjectives and nouns off:

	Adjectives	Nouns
(a)	deep	lion
(b)	fictitious	disease
(c)	observant	slope
(d)	obnoxious	day
(e)	ferocious	chasm
(f)	legible	stream
(g)	contagious	story
(h)	dreary	odour
(i)	sluggish	handwriting
(j)	steep	policeman

(10)

5. Pair these ten verbs and adverbs off:

	Verbs	Adverbs
(a)	sneer	enthusiastically
(b)	dress	lazily
(c)	protest	ravenously
(d)	sob	thirstily
(e)	snuggle	strongly
(f)	work	elegantly
(g)	devour	contemptuously
(h)	saunter	bitterly
(i)	applaud	industriously
(j)	drink	snugly

(10)

6. Rewrite these ten sentences correctly:

(a) The lady waved to her son in a pink frock.
(b) The Second Team are playing Grey on Saturday.
(c) He is the elder of the three brothers.
(d) I, Mike and Jimmy are going fishing this weekend.
(e) I write to my penfriend last night.
(f) The boy played truant silly.
(g) "Please may I lend a pencil?" requested Bebb.
(h) The Egyptian swum the Channel in record time.
(i) You should of done your homework last night.
(j) He ate his fish and chips with gusto and vinegar.

(10)

7. Put nineteen of these twenty-five words into good sentences to bring out their full meaning:

eavesdrop, oaf, submerge, rebuke, hideous, sprig, linger, hamper, distract, coddle, obscure, futile, original, awe, impair, distress, pithy, annihilate, expostulate, authentic, erase, detect, brash, gangling, primitive.

(19)

Standard 5 (Group E) English Comprehension September, 1968.

A plucky pal

Neil was ten when he came to live in our small town. His father was the Police Sergeant so they lived in the white house next to the Police Station. Neil had only one leg, the other having been amputated just below the knee some years before. But this didn't stop him getting around. In fact, he hopped along as quickly as his friends could walk. He had a bicycle and joined the children's Bicycle Club. They went for long rides into the country and Neil went too, pedalling hard with one foot. He swam like a fish and wouldn't let his handicap get him down in any way. He was certainly the naughtiest boy in the School. His freckled face, untidy hair and loud laugh will be remembered by everyone who knew him.

He had been in our town for about a year when he became very ill. His father bought him budgies and canaries to cheer him up and their cages were all around his room. Below the cages were tanks full of all sorts of fish. His bicycle stood against the bottom of his bed next to the one shoe that he would never wear again. His friends from the school took it in turns to visit him in the afternoons and play Monopoly with him. They had been told that Neil had an incurable disease of the blood, and that he would never get better. Yet nobody was afraid to visit him; he was everyone's friend and wanted to see all his pals. He got worse and worse. The birds and the fish were moved out of his room because he said they kept him awake at night. He imagined that he could hear them talking to each other. Eventually he was in pain all the time and grew so tired of being in bed.

Six months after he first became ill he died peacefully in his sleep. We were relieved for his sake because he hated not being out in the fresh air and able to ride his faithful old bicycle. Sometimes death can be a happy release, and so it was for our friend Neil.

Questions:

1. Neil lived

   (i) next to the school
   (ii) across the road from the Police Station
   (iii) opposite the author
   (iv) in a white house.

2. Which one of these pets did Neil's father not buy him to cheer him up

   (i) budgies
   (ii) canaries
   (iii) parrots
   (iv) fish.

3. When Neil grew worse he

   (i) refused to see his friends
   (ii) wouldn't eat
   (iii) imagined things
   (iv) grew irritable.

4. How old was Neil when he died

   (i) nine
   (ii) ten
   (iii) eleven
   (iv) twelve.

5. Neil had had his leg

   (i) put in plaster
   (ii) cut off
   (iii) strapped up
   (iv) massaged.

6. In this story "to get down" is

   (i) to be discouraged
   (ii) to climb down
   (iii) to dismount
   (iv) to become delirious.

7. Neil's disease was

   (i) incurable
   (ii) unknown
   (iii) peaceful
   (iv) imaginary.

8. When Neil died his friends

   (i) felt relieved
   (ii) cried bitterly
   (iii) stayed away from school
   (iv) worried.

Man's best friend

I wonder how much you really know about dogs? I'm sure everyone knows what an Alsatian looks like! They are very popular dogs which were first used in Germany as sheepdogs. Nowadays people keep them as pets and watchdogs, and the police and army use them to hunt criminals and terrorists. They can be very fierce, and intelligent.

If you go to a Dog Show you will see many different kinds of dogs. There will be big woolly Chow-Chows from Tibet and Bulldogs that were first used to fight bulls. They have terifically strong jaws and these used to lock onto the bull's nose. Fox-terriers were put down fox-holes to winkle the fox out once the bigger hounds had chased it into its earth. The big St. Bernard comes from Switzerland, and I'm sure everyone has heard the stories of how these dogs were sent out into the snow to find lost travellers. They had kegs of brandy tied around their necks, so that when they found someone in the snow he could drink the brandy and keep warm until someone found him. A spotty dog, the Dalmatian, used to run next to the carriages of smart people in the olden days. Certainly one of the smallest dogs is the Chihuahua, from Mexico, where he was first bred to be eaten!

But the most popular dog in the world, the mongrel, you are not likely to see at a dog show. He is a bit of everything, and usually faithful and loving.

Every sort of dog was first bred to do something useful and help his master in his work. There were the sheepdogs like the Alsatians and the Collies; the hunting dogs like the Setters, Spaniels, Beagles and Terriers; the barge dogs like the Keeshond and the Schipperke. And these days the dog is still our best friend. He guards our homes, helps blind people get out and about, and keeps watch with our policemen and soldiers. All he asks from us is lots of love, a good plate of food every day, and a quiet place to sleep.

Questions:

1. The writer says that Alsatians are used by the police

   (i) criminals
   (ii) terrorists
   (iii) the army
   (iv) fox hunters.

2. Which one of these dogs comes from Tibet

   (i) the St. Bernard
   (ii) the Dalmatian
   (iii) the Chow-Chow
   (iv) the Beagle.

3. Which is the smallest of these dogs

   (i) the Fox-Terrier
   (ii) the Bulldog
   (iii) the Chihuahua
   (iv) the Spaniel.

4. Why were dogs first bred

   (i) to do something useful
   (ii) to eat
   (iii) to fight bulls
   (iv) to chase game.

5. Which is the odd word out

   (i) popular
   (ii) fierce
   (iii) intelligent
   (iv) woolly.

6. "To winkle" means

   (i) to flush
   (ii) to chase
   (iii) to catch
   (iv) to find.

7. "Smart" here means

   (i) clever
   (ii) sly
   (iii) well-dressed
   (iv) painful.

8. Write down the two words which mean the same thing

   (i) guard
   (ii) help
   (iii) aid
   (iv) breed.

Standard 5 (Groups E and F) English Comprehension November, 1968

Carelessness can be costly

Old Charley was a man of sixty-five but he kept himself so fit that he could have been taken for fifty. He still made light of a five mile walk over rough country. He lived in a three-roomed thatched shack without any ceilings. Snakeskins hung from the rafters and he told his few visitors that there was a live snake up there in the thatch that only came out at night. He said that it kept him company! He slept on a big double bed under a couple of blankets. There were no sheets.

Charley owned a one thousand acre farm and many cattle, but unfortunately his wife had died ten years earlier and he had no children. His main pleasure in life was his shooting. He employed twenty natives and fed them largely on the game that he shot at night. Most evenings he would go out with his shooting-lamp and shotgun, and it was seldom that he returned without a bag.

One evening he went out at about nine o'clock, after finishing a chapter in the book he was reading. It was a lovely moonlit night and he drove slowly down the rutted road in his old Model T Ford until he picked out a pair of shining green eyes in the headlights. He stopped and climbed out, leaving the engine running. He switched on his shooting lamp and approached the hypnotised buck carefully until he was within thirty feet of it. The noise of the shot echoed amongst the surrounding hills and the duiker dropped dead. Humming softly he loaded the limp carcase into the car and started for home.

Within ten minutes he was back at his humble home. He pulled up in front of it and switched off the engine. Then he stretched back for the shotgun which he had placed on the back seat behind him. He grabbed it by the barrel because the butt was furthest away from him. As he pulled it out the trigger caught in a spring peeping through the broken upholstery and there was a second loud explosion. Charley choked and collapsed on to the front seat.

When Witness, his house-boy, came running out at the sound of the shot, he found his master slumped on the front seat with his hand on the steering wheel of the old Model T. Charley had shot his last buck.

Questions:

1. Charley looked

(i) sixty-five
(ii) fifty
(iii) pale
(iv) peculiar.

2. What did he say kept him company

(i) his wife
(ii) ghosts
(iii) a snake
(iv) Witness.

3. What did he do before going out shooting this night

(i) finish his chapter
(ii) light his pipe
(iii) wind the clock
(iv) clean his gun.

4. What caused the shotgun to go off the second time

(i) a dud cartridge
(ii) an explosion
(iii) a jolt
(iv) a spring.

5. Pages are to a book as grass is to

(i) thatch
(ii) sheets
(iii) cattle
(iv) home.

6. "A bag" here means

(i) a sack
(ii) a handbag
(iii) an old pair of trousers
(iv) something for the pot.

7. "Limp" refers to

(i) a snakeskin
(ii) the carcase of the duiker
(iii) the broken upholstery
(iv) Charley's leg.

8. The opposite of proud is

(i) fit
(ii) rutted
(iii) humble
(iv) loud.

Mrs. Bam and her family

Old Mrs. Bam looked like a pouter pigeon. She was short and plump, and as cocky as a bantam cock. She lived all alone in a funny little house set well back from the road in a wilderness of weeds. The house was in a quiet suburb well out of town. Mrs. Bam didn't like crowds.

I said that she lived all alone, but this is not strictly true. She had her pets to keep her company: a three-legged fox-terrier who'd lost his fourth leg when he'd run out into the road in front of a car, a canary, a bald parrot who was forever pulling out his feathers because he itched so, and Monty, a small, white fluffy dog with a curly tail and a big bark. Monty was her favourite, probably because he was small, cocky and big-hearted like Mrs. Bam. She trained the fox-terrier to bite any Bantu who came into her yard. He was to bite first and bark afterwards, she said.

The natives feared her because she had such a sharp tongue and because she herself was quite fearless. But they also respected her because she understood them, and treated them fairly, in her rough way. She kept her servants for years, and even when she refused to lend them money, and gave them a piece of her mind into the bargain, they would simply smile and shake their heads ruefully. She was as hard and shrewd as they were, and they liked her for it.

Though she was nearly seventy she still drove herself everywhere in an old Morris Minor. And everywhere that Mrs. Bam went Monty went too. On one occasion she and Monty went from Salisbury in Rhodesia to Lusaka in Zambia, a distance of three hundred miles through wild country, all by themselves. At one place she stopped for petrol and a cup of tea. She locked the car but left her smart handbag on the front seat. When she and Monty returned the handbag had disappeared but the thief had left her dirty old macintosh on the back seat. As she said afterwards, "That black thief was too smart to want my scruffy old mac. But I was smarter than him after all because I'd left all my money, £100 in notes, in one of the pockets!"

As I said, there were no flies on old Mrs. Bam!

Questions:

1. Mrs. Bam's house was surrounded by

   (i) a fence
   (ii) weeds
   (iii) shrubs
   (iv) flats.

2. The parrot was bald because

   (i) he was old
   (ii) he was always pulling his feathers out
   (iii) he came from a bald family
   (iv) it doesn't say.

3. The natives

   (i) feared
   (ii) respected
   (iii) liked
   (iv) avoided Mrs. Bam.

4. Monty and Mrs. Bam were travelling

   (i) from Zambia to Rhodesia
   (ii) from Salisbury to Lusaka
   (iii) at night
   (iv) too fast.

5. Monty resembled Mrs. Bam in all but one of these things. They were both

   (i) brave
   (ii) small
   (iii) plump
   (iv) cheeky.

6. Mrs. Bam "gave them a piece of her mind" means that

   (i) she lent them money
   (ii) she choked them off
   (iii) she told them stories
   (iv) she washed her hands of them.

7. In this story dirty is toscruffy as smart is to

   (i) shrewd
   (ii) cocky
   (iii) sharp
   (iv) funny.

8. "There were no flies on old Mrs. Bam" tells us that

   (i) she kept a swatter
   (ii) she was smartly dressed
   (iii) she was not easily taken in
   (iv) she was a good driver.

Standard 5 (Group E) English Spelling September, 1968

1. apple
2. elephant
3. heard
4. another
5. startled
6. realise
7. guessed
8. careful
9. immediately
10. vicious
11. disappointed
12. appalling
13. collar
14. suspicious
15. erupt
16. clerk
17. restaurant
18. concentration
19. cautiously
20. fascinate

Standard 5 (Group E) English Spelling November, 1968

1. tired
2. across
3. buried
4. careful
5. commit
6. flying
7. excited
8. beginning
9. tongue
10. opposite
11. different
12. poisonous
13. disappear
14. recognise
15. persevere
16. disappointed
17. fascinate
18. immediately
19. obedient
20. collapse

Standard 5 (Groups A and B) English Composition and Comprehension
November, 1968

A. Write one of the following compositions. Contents must comprise about 150 words (± 25 lines) and must be arranged in three or four paragraphs. Marks will be deducted for slovenly work.

(a) Dipping day at the farm.

(b) You are out camping with friends. Shortly after turning in for the night, a strong wind starts to blow followed by torrents of rain. Describe what happened.

(c) Write an amusing account of some of your experiences backstage, while taking part in the school pantomime.

(40)

B. Write one of the following letters. Contents of the letter should be approximately 15-18 lines in length.

(a) A family friend has offered to give you a lift from school to your parents' farm/home at the end of term. Write a suitable reply, expressing your gratitude and telling him when and where to pick you up, and how much luggage you will have.

(b) One of the school friends has left to live in another town. Write him a letter telling him about activities at school and in town since he has been away.

(20)

6. Read the passage below and answer the questions which follow in full sentences and in your own words as far as possible.

The second winter now came on. Jacob and Edward went out hunting usually about twice a week; for the old forester complained of stiffness and rheumatism, and not feeling so active as he used to be. Humphrey now accompanied Edward perhaps one day in a week, but not more, and they seldom returned without having procured venison, for Edward knew his business well, and no longer needed the advice of Jacob.

As winter advanced, Jacob gave up going out altogether. He went to Lymington to sell the venison, and procure what was necessary for the household such as oatmeal and flour, which were the principal wants; but even these journeys fatigued him and it was evident that the old man's constitution was breaking fast. Humphrey was always busy. One evening he was making something which puzzled them all. They asked him what it was for, but he would not tell them.

Children of the New Forest by Captain Marryat.

1. What was the season of the year? (1)

2. Who hunted regularly twice a week? (1)

3. Who went with Edward on one day of the week? (1)

4. What was the name of the old forester? (1)

5. Why did he not always go with Edward? (2)

6. What had he taught Edward? (1)

7. What did they bring home from the hunt? (1)

8. When did Jacob give up hunting? (1)

9. Where did he take the venison? (1)

10. Give in your own words the meaning of "procure". (1)

11. What was Jacob's other errand in Lymington? (1)

12. What do you know about Humphrey? (1)

13. What did he do one night? (1)

14. Give one word in place of "fatigued". (1)

(15)

Standard 5 (Groups A and B) English Grammar November, 1968

A. Replace the words underlined in the sentences by one of the following words:
glimmer, indignant, rotates, dilapidated, absorbed.

1. Judy was upset and annoyed at his rude remarks.
2. The house was in a very bad state of repair.
3. The blotter soaked up the grease spots.
4. The candle cast a dim, unsteady light in the room.
5. The earth goes round and round on its axis.

(5)

B. Add either -ible or -able to complete the words.

a prob.... failure
a favour.... reply
a revers.... carpet
a detest.... nature
a respons.... task

(5)

C. Say which of these is a phrase or a sentence.

Where is it?
Under my chair
Jill prefers tea
Along the road
Towards sunset

(5)

D. Write these sentences in indirect speech.

1. Barbara said, "Meet me for tea tomorrow, Jack".
2. "I have a new dog called Bingo", said Sam.
3. "What is the price of these bananas?" asked Mrs. Brown.
4. "We enjoyed the picnic yesterday", said Barry.
5. Eric said, "I think I can mend this puncture".

(10)

E. Give the opposite of the word underlined.

a guilty man
a side entrance
a strange voice
a great victory
to dawdle home

(5)

F. Choose the correct pronouns.

1. Eric and (I, me) had letters from (them, they).
2. Let (he, him) and (they, them) choose the teams.
3. Pam is older than (I, me), but younger than (she, her).
4. The call is for (I, me) and not for (he, him).
5. The money was shared between (she, her) and (I, me)

(10)

G. Give the opposite gender of the following.

1. Hero
2. vixen
3. hart
4. Boar
5. duke

(5)

H. Choose the correct word.

1. She could not do (anything, nothing) to him.
2. Neither the boy (nor, or) his cousin is here.
3. The watch, as well as the rings (was, were) found.
4. To (who, whom) did you give the letter.
5. Many of the pens (was, were) broken.

(5)

I. Use a better word in place of 'got'.

1. The weather got hotter and hotter.
2. We have always got our milk from Brighton Dairy.
3. We got home late.
4. She has got very old since her husband's death.
5. Baby soon got tired of the toy.

(5)

J. Combine each pair of sentences with a relative pronoun.

1. The girl cut her finger. She cannot write.
2. I visited my uncle. He lives on the farm.
3. He opened the box. He saw many jewels in it.
4. Father caught a big fish. He took it home.
5. Here is the girl. Her lunch was stolen.

(5)

K. Fill in the apostrophes.

1. My brothers wife goes to All Saints Church.
2. The neighbours dog tore the childrens clothes.
3. The childs toys were left in mothers wardrobe.
4. Some people prefer ducks eggs to hens eggs.
5. The girls books were on the teachers desk.

(10)

L. Write down the phrase or clause in each sentence and say what its function is.

1. He gave the book to the girl with the long blonde hair.
2. You must do the work as the teacher showed you.
3. The papers must be completed in two weeks time.
4. After the show, they called at our house.
5. In the cupboard was found the missing books.

(10)

APPENDIX H

Experimental Leg I : Extension Activities : Word Cricket and Logo Lotto

I devised these two games to consolidate new words learnt from S.R.A. and E.D.L. material, to afford opportunity for purposeful oral work which is comparatively neglected in both S.R.A. and E.D.L. programmes, and to add variety and zest to the S.R.A. and E.D.L. courses. I played either Word Cricket or Logo Lotto for 30-45 minutes every week with both classes in Experimental Group F. I played Word Cricket with both classes in Experimental Group E as often as I played it with Group F, but with Group E Reading-Writing-Vocabulary-Composition-Spelling cards took the place of Logo Lotto yet served materially the same function. All in all both groups spent an equal amount of time on these supplementary activities which included the writing of free verse and prose compositions as described in 4.6 and 5.5 and exemplified in Appendices J-O . The time spent on these aspects of the courses amounted to about 25% of the total time spent on S.R.A. and E.D.L. instruction. I would not have chosen to reduce it because it accords with the integrated, imaginative, comprehensive and fluid approach to language study which I favour: these activities gave the boys in both groups an opportunity to express themselves freely and originally in speech as well as in writing. But in any case I had to devote at least an hour a week to extra-Reading Room activities at School F because the E.D.L. devices and programmes were centred in the Reading Room and I was restricted to 3 periods per week therein (see 1.5,p.9). I then had to spend an equal amount of time every week on complementary work with Group E. In the event all four classes enjoyed the activities equally, as their questionnaire responses indicate (see 4.8 and 5.7). They appeared to benefit from them equally too.

I must stress that these activities were always related to work that the boys did with the S.R.A. and E.D.L. materials.

Word Cricket

Classes were divided into two teams, and two captains were appointed. The "captains" tossed up and the winning captain usually elected to bat first. The two "opening bats" came up to the front of the class, wrote their names on the scoreboard and then went to opposite corners. The "opening bowler" stood up, having primed himself with words from his file, and elected to "open" to one of the two "batsmen", inevitably the lad whom he considered to be the weaker of the two. He asked the "batsman" either to spell a word or to put it into a sentence to bring out its full meaning, or both. The "bowler" had to have the word in his file, and be able to spell it and/or give its meaning without reference to his file. This proved to be an additional inducement to enter new words in files and so enlarge vocabulary. I acted as umpire and "no-balled" outlandish words which the "bowler" was unlikely to have gleaned from his reading. I also determined how many "runs" correct responses deserved, and was guided in this by the abilities of both "batsman" and "bowler". If the "batsman" was beaten by a word it was offered to a "fielder" as a "catch", or a "run-out", or to the "wicket-keeper", who was changed regularly, as a "stumping-chance". This kept the game alive for everyone. To mollify the exasperated "bowler" when a chance went to an inept "fielder" - "Ah, Sir, Ramsay's a butter-fingers!" - each "bowler" was allowed one "caught and bowled" chance per over of three "balls". If neither "bowler" nor "fielder", as the case might be, could "take the chance" the "batsman" survived to face the next "ball". Each "batsman" kept his own score and "batsmen" crossed after scoring one, three or five "runs". Consequently, what with "batsmen" crossing, and "fielders" jumping up to take catches, the game was by no means static. Furthermore, "batsmen" were permitted to attempt words on the board, and if they failed the "fielder" or the "bowler" might be asked to come up and correct, which all added to the pupil-centred activity and pupil-involvement. No "bowler" was allowed to "bowl" a second "over" until everyone in his side had "bowled" at least one "over". Once an "over" was started the "bowler" was not allowed to refer to his file again. The first "innings" continued until everyone was out, or until

a predetermined time elapsed, at which time the Captain of the "batting" side had to declare to give his opponents at least an equal time "at the crease". In practice a side seldom scored more than a run a minute and usually at least half the side - five or six boys - were out after twenty minutes. Then the other side went in and the climax to a game, particularly when the lads became familiar with the rules and got through their "overs" quickly, was often exciting with the side "batting" second trying to knock off the necessary "runs" against the clock. The winning side was the one to score the most "runs" for the loss of the fewest "wickets" by the end of a period.

While the game was on, "fielders" and "batsmen" waiting in the "pavilion", were encouraged to keep their own "scoreboard" of new words learnt. At the end of every game the books were collected and the pupils' "new-words-into-used-words" sentences marked. Thus the game had many facets and many uses. So keen did the players become that they often could not refrain from questioning the umpire's decision, despite the first principle that the umpire was always right, whether they liked it or not. Needless to say the umpire was strictly non-partisan and if he allowed a "batsman" on one side to get away with a "scratchy stroke" he generally remembered to give a "batsman" on the other side a let-off too.

Logo Lotto

Each player was given a board made of manila card, with sixteen slots, arranged in four lines of 4 each, cut in it. He was also given sixteen blank cards to fit into the slots, and on these he had to write any sixteen of the twenty-four words that I put on the board or on the overhead projector, in various colours, green for nouns, red for verbs, yellow for adjectives and blue for adverbs. These twenty-four words I had previously gathered at random from their files from the words that they had noted since we had last played the game. (Over the twenty week tutorial period we played fourteen games of Logo Lotto, sessions 1-4, followed by a review game in the fifth or sixth week in which no new words were introduced and in which the boys had a free choice of the 64 words that they had used in the preceding weeks, sessions 6-9, followed by a review of the 64 new words covered in these

four periods, and sessions 10-13, followed by another review period; and finally the grande finale, and fitting climax to the series, a review of all 192 new words which they had encountered in previous games.) I made flash cards of these words and then, when everyone was ready, and we had discussed any words which anyone was unsure of, or had forgotten how to use, I nominated a particular line, say one down, or three across, or one of the two diagonals, or perhaps the first to get six words - or eight, or ten words, depending on the time available - and the game began. I flashed my cards at them until six boys met the required target. As each of the finalists went "Lotto!" he had to read out the words that he had scored so that we could all check that he had not made any mistakes. When the sixth lad went "Lotto!" we stopped and all those who had been eliminated had to put a number of the words that they had scored into vivid little "stories" to bring out their full meaning. The number of words they had to use, and their disposition on the boards, varied from week to week according to the residual time available and my original nomination. For example, if I had nominated line four down in 5A I might require all the "also-rans" to use all the words that they had covered in a "story", while if I had nominated line four across in 5B, I might require the "also-rans" to use only one of the two or three words that they had scored in that line. At the same time, the finalists in 5A might be required to use all four words that they had ticked off in the prescribed line in "a story", or five of the six words scored, if "the first to score any six words" had been the nomination; while the finalists in 5B might be required to use three of the four words in the winning line, or three or four of the first six words ticked off, if that was the way that the game had been played with them. I gave the whole class sufficient time to finish their "stories" before collecting the books, and then if there was time enough the six finalists read out their stories and we criticised and corrected orally, deciding at the same time who had the three best "stories". The three winners were then given little prizes of sweets, rubbers, felt-pens, or some such tasty morsel or useful item. More often than not we ran out of time and I had to take both finalists' and also-rans' books away with me, mark them all, decide who the winners were, return the books the next day, and have the winners read out their "stories" before presenting the prizes.

APPENDIX I

Boys in Group F corrected these stories as an extension exercise (see 5.7, p.302).

Alarm!

It was about 12 o'clock when it happened. My mom was expecting my second eldest brother I was not born my brother had a friend sleeping with him in the room right opposite my mom room. My dad was night shift. An hour after he left my mom room's light went on then off she just saw a black shadow jump on the bed. My mom held the blankets over her mouth he tired to get my mom's neck. At last my brother's friend woke up and threw the touch at him the African threw it back and him out. At last he went after my my mom face was full of outs. She went next door and phoned the police and went to the docotor. The next night he went and killed the garden boy and was put in jall for all his life.

A Narrow Escape

One day when I was out fishing in my dingy when suddenly I saw a huge fin sticking out of the water so I leaned over to get a better look when suddenly the boat topeld over and I got throw into the water. The first thing I thought of was to pull my knife out of its sheath. Then I saw that terrible fin coming strait for me. So I got out the way as fast as I could. suddenly those terrible row of jaged teeth and strong jaws clashed next to my leg's and his rough sandpaper like body scraped by led. On his second turn I plunged my knif deep into his soft belly and he rolled over on his back and floated to the sea bed.

The game I like best

I like Socer the best because it is not a rough Game some people like to watch it, Because they like it. In the rules of football you are not allowed to let the ball hit your hand other wize it will be a free kick to the other side. Also you are not allowed to pick up your feet of the ground, or it will be a fowl. The refaree has got a wistle and if it is a fowl he will blow it. The goale is allowed to hand's the ball but only, in his box. Foortball is a nice game to play because most people like it.

APPENDIX J

These are four examples of the Reading-Writing-Vocabulary-Composition-Spelling cards which are mentioned in 4.6, p.186. The first two are archetypes written in 1962 by two Standard 4 pupils. The second two are models written in 1968 by two boys in Experimental Group E, one in Std.5A and the other in Std.5B. The reader will find it interesting to compare the matter and style of these last two pieces, and then to relate them to the abilities and attainments of the two authors (see Appendix A, pp.464-5).

Card No.1 **Love between Boy and Dog**

Once there was a dog called Rags and a boy called Trevor. Trevor was eleven and he loved Rags. All the other boys _____ and teased Rags but there was something in Rags that made Trevor love him. No one knew who Rags _____ to.

One day Trevor was doing his homework when he heard a _____. It was the cry of Rags! a shout of pain that made Trevor's heart jump into his mouth. Trevor threw down his pen and ran down the street. There was Rags, the bad bullies throwing stones at him. Poor Rags was crying in his doggy way. Trevor _____ up to what seemed the leader and said, "You should be ashamed of yourself." Then he picked up Rags and walked off.

At home Trevor _____ Rags's cuts and Trevor's mother said he could keep Rags.

Bullied Belonged

Yelp

Strode Bathed

Card No.4. At Night

When all is pitch dark in the jungle, bats flit swiftly and noiselessly. A hyena howls mournfully.

A leopard stealthily stalks his prey. Then he pounces. There is a brief fight; the prey is killed; the killer feasts. Satisfied, the killer silently returns to his _____.

Then a snowy, woolly owl with "too-whit, too-woo" makes himself heard. It _____ here and there, then it flies to an old _____ barn to rest till near morn.

When the sun rises, flowers droop and the soft dew falls in _____ drops of fairy tears. Gay birds awaken to a new day. Night is over.

Shaggy

Glistening

Lair

Flutters

Card 57 The Shot that was Heard Around the World

It is the 28th of June, 1914. The Archduke Francis Ferdinand, heir to the Austro-Hungarian throne, is about to arrive in the town of Sarajevo, in Serbia. He plans to conduct military manoeuvres in the mountains beyond the town. Crowds line the street, not cheering for this _____. Among the crowd are teenage members of the Black Hand Gang, fighters for the freedom of Serbia. The Archduke wishes to visit a wounded officer, but the _____ takes the wrong road, and is _____ to stop in front of a small shop. Gavrilo Princip, a member of the Black Hand, steps off the pavement and fires two shots at the _____ party.

"11.30, 28th of June. The Archduke Ferdinand and his wife, Sophie, were _____" and from this cryptic message ensued the first World War.

ES

assassinated

Royal

chauffeur

tyrant

forced

Card 58 The Death Valley

One day I decided to go _____ in a beautiful valley on our farm. I was carrying a .303 and a kit-bag, packed with a _____ lunch. It was half past two when I arrived there. I looked around the whole valley with a pair of Sweiss _____. I finally came across a river with a _____ cliff, and a cave set back into the cliff. I decided to explore it. I was at the foot of the cliff in half an hour. I started to climb up, finding it was a steep climb. Suddenly I slipped. I found myself _____ in mid air, grasping a short, thick branch _____ from the cliff-face. My hands were getting tired. I looked down below me into the river.

I woke up finding myself in bed. I asked where I was? The doctor told me of my experience at Death Valley and my lucky escape from death.

EE16B

exploring	delicious
binoculars	gigantic
dangling	projecting

APPENDIX K

Early on in our association I gave all the boys in all four experimental classes which I taught this spirit-duplicated hand-out written in Italigraph script. They included it in their files and used it as a model for their own hand-writing, which in many cases showed considerable improvement by the end of the course.

Reading and Writing

Reading and writing are two sides of the same coin: if I improve one I will improve the other; and in order to improve one I must improve the other. If I take a real pride in the appearance of my written work then people will want to read what I write, and what I write will improve because people are now interested in it. So one of my first aims must be to improve my handwriting. I will start now, and persevere until I really improve.

a b c d e f g h i j k l m n o p q r s t u v w x y z

abcdefghijklmnopqrstuvwxyz

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Winter

The days are short and bitter;
The nights are long and dreary;
The wind is swift and strong,
And the white clouds scud before it;
The sun is pale and dull,
And my face is sour with cold.

E.14B

APPENDIX L*

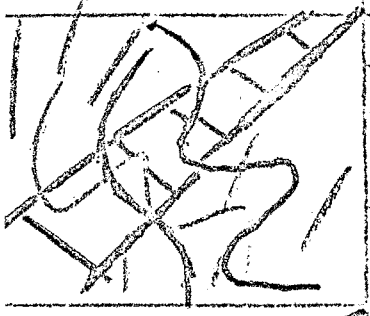
Name: William Harding. Date: 8th July 19[illegible]



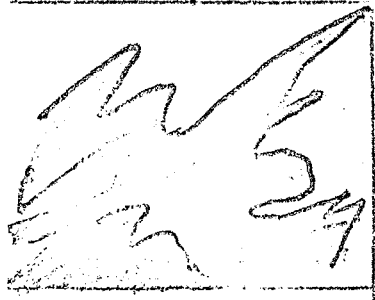
Here's a face that's slipped
And fallen askew
The mouth is [illegible]
And one eye [illegible]
For the sibilant sound
Of a slipper slipping.



I see forked lightning splitting around
thunder-clap with a resounding thwack
The black clouds crack open. //
As each burst of light/ning
Leaps Crashes through the sky. ///



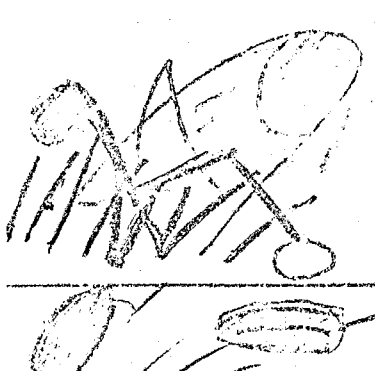
Here, without doubt, are three
extraordinarily long cock-waxes, "cock-in-com
pressing a [illegible] line
But / a train comes,
They had better watch it. /



A flame leaps from a fire, and is
momentarily impaled on a rake's tines
falling back, only to rise again
Rays break and sparks fly up-
wards, to zoom away. //
I see two rather thick birds
flying across the sky.
Below the gray cloud
Towers on the horizon below
But they heed the cloud not
And go on their way. /////



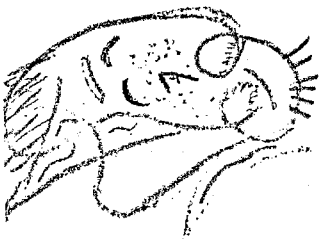
(Turn, rest around, and around, and around
I must make something rather, some way)
The moon is reposing on the grass
In the field near his home
The bright, [illegible] but sun shines
///



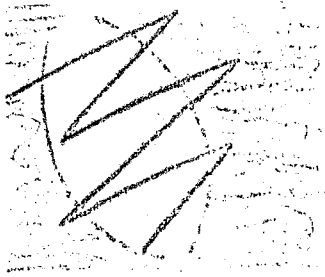
Here is a school boy
Caught in a gale
The wind's stolen his cap
But not his [illegible]
He's [illegible]

*See 5.5, p. 274.

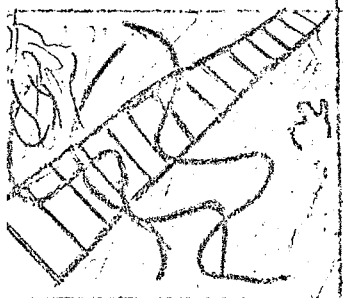
Name: Brian William Miles Date: 8th July, 1968



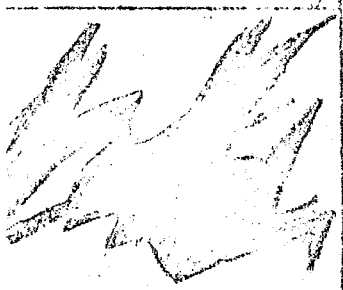
Here's a face that's slipped
And fallen ashore:
The mouth is agape
And one eye is fixed
For the nibbling record
Of a slipping shore.



I see forked lightning splitting a round
thunder-clap while a rattling bor-ass-cock!
Lightning is a dangerous thing,
It can kill people, destroy houses and
set forests alight ✓



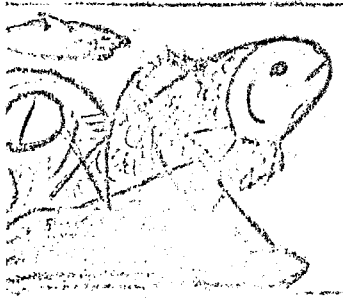
Here, we [illegible] two large
extraordinarily long earth-worms, "arm-in-arm",
crossing a railway line.
These worms are looking for soft ground
In which they can dig a hole. ✓✓✓
(A simple, precise statement)



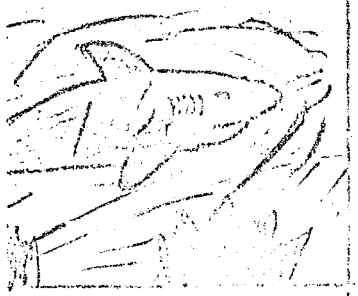
A flame keeps from a fire, and is
momentarily impaled on a pole.
What is a flame?
A flame is part of fire
Fire can be usefuk as dangerous



Here we see the stone
That sees, every day
The dreaded tiger shark,
When he leaves his lair
To seek another unfortunate victim
Along the coast of America



(Turn me around, and around, and around,
I must make something somehow, some way)
Here is a beautiful fish
Called the kobaljow,
Appearing from behind a slime covered
rock ✓✓✓



The shark is a wonderfuk thing.
It has teeth like a razor blade
A fin that cuts the water
And a tail that can hit with the
force to slaughter an ox.
It is a shape that sharks [illegible] manoeuvre ✓✓

* Delightfully surrealist.

APPENDIX N

This exercise is described under 5.5, p.273. It took very little time, being used at the tail-end of a Controlled Reading session with the boys in Std.5A in Group F who finished their exercises and records quickly. It gave me a further insight into their thoughts and interests.

Word Associations

Volcano - earthquake tea-kettle - coffee-pot gold - silver

The volcanic explosion absolutely obliterated the island and annihilated all the islanders.

F14

---

volcano - lava tea-kettle - lava gold - silver

The sky looked silvery and slippery when the clouds scudded across it.

F11

---

clouds - sky ships - sea beetles - ground

A beautiful blue sky. The white clouds riding the air. An aeroplane is flying across the sky.

F13

---

clouds - rain ships - sea beetles - music

The sea was very rough today. The ship was caught by the sea and eventually swallowed up.

F2

---

tyrant - cruel whistle - blow mother - father

The man with a hooked nose was a cruel criminal.

F4

---

tyrant - mad whistle - train mother - father

A black, puffing servant of man
The train came racing towards a man
  tied by bandits to the rails.
The man gets crushed beneath
  the heavy giant's wheels.
He screams, but too late, and dies.
The train-driver stops the train
  and sees before him a grisly, bloody picture.

F10

APPENDIX N

These 38 expressions, written by boys in Group E, are set down in the order in which they were received and spirit-duplicated in various colours. Boys in Std. 5A wrote 34 of them while boys in Std. 5B wrote only 4 pieces. Nevertheless no distinction was made between classes and all these poems were included in every boy's anthology. When they had finished their reading assignments the majority of boys in both classes elected to do Reading-Writing-Vocabulary-Composition-Spelling cards rather than attempt original, creative expressions: only 12 out of 43 pupils contributed to this anthology and 19 of the 38 "published" poems were submitted by 2 boys in Std. 5A.
Rather than their initials, which were used originally to indicate authorship, boys' coded designations have been used here so that the reader may ascertain the abilities and attainments of individual contributors by referring to Appendix A, pp. 461-71.

The Landing

The sea was rough
and the day was cold;
the men were tough,
both brave and bold.
When the guns opened up,
and the hatches clamped down,
some got drowned
while others had no luck,
for within a minute
they were dead as ducks.
But once on the sand
with their guns in their hands
they had nothing to choose
so all hell was let loose.
They dived for cover,
then looked at each other.
Some broke down crying
as they saw their mates dying.
The beaches were red
with the blood of the dead,
but lives had to be sold
to gain a foothold
on the beaches of Normandy.

E7

A fisherman's dream

Last night I dreamt
I sailed away
In a fishing boat
Across the bay.

A storm blew up
The waves were high
And the lightning flashed
Across the sky.

We tried to find
A sheltered creek
But the fishing boat
Had sprung a leak.

"Abandon ship"
The captain said.
I dived overboard -
And fell out of bed.

E16B

The penalties of cricket

On my first day of cricket
Archer gave me a ticket.
I got such a shock
I forgot to block,
So the ball hit my stump
And I had to jump.
So I had hard luck -
Out for a duck!

E16B

Alley Cat

Down the alley strides the Alley Cat.
He never eats the food from his dish,
Nor sits on his master's mat,
But steals the fishmonger's fish.

He always bullies the neighbouring cat
And plays with bats
And chews up rats.
But now he's getting far too fat.

E16B

The Cruel Storm

On Settlers' Day, 1 September 1968, a storm arose. The sky was black with thick, dense clouds. Then the water came dashing down from the dark, cloudy sky. The streets of Port Elizabeth were like rivers. The sea walls were battered down by the dashing waves.

A house fell on three motor cars, and many other houses came down. The windows of the O.K. Bazaar were bust and jam was floating in the streets.

The Baakens River was in flood and one European and two Coloureds died in the river. Motor cars also rode into holes. A dead body hit the side of a bus.

Other people were killed in the cruel storm. There was a man trying to fix up a leak. He was shocked to death.

It was the worst flood disaster in Port Elizabeth since 1902.

By the way this is a true story.

EE10B

Jack Frost

Jack Frost is a man who loves the cold,
He's thin and tall, and very old.
He's made of ice
But is bold and nice.
He's long and strong,
And never wrong.
His work is hard,
So the story's told,
And he's always shivering
From the cold.

EE4

T.C. Students

T.C. Students are a pleasure to have,
Though we're often told to behave.
They tell us about weights in netto,
And when they go our teacher starts his falsetto.

EE8

The Scarecrow

All winter through I bow my head
Beneath the falling rain.
The west wind whitens me with snow,
Then it blows me black again.

In spring the flowers pop out again.
I watch them joyfully.
I stand up straight and watch and wait
For the new world before me.

EEE2

The Flood

The rain came down in floods
to turn P.E. into mud;
to break up the tar,
and flood many a car.
The drain pipes burst
when at its worst,
shooting water six feet high
(that's no lie).
The rain pelted down,
flooding the town.
Five people drowned.
The damage was great.
People will remember this date:
Sunday 1st September, 1968.

E7

The last battle

The last battle was fought
by men of all sorts.
Those last days in Berlin
must have been hell
for both young and old,
for the cowards and the bold,
for both soldiers and civilians,
for enemies and friends.

E7

Long ago

Long ago when there were Bushmen
they lived a hard life.
They made tools out of stones (or bones),
and lived in caves like slaves.
They ambushed buck with cunning and luck.

E64

War

Imagine the feeling of leaving your wife,
of leaving your little girl alone.
Signing up at the Post Office as a private
in the British infantry.
The farewells of the old-ladies-next-door.
The tears.
That is war.
Imagine the feeling of being drilled in the sun.
The sergeant with his fat double chin,
lef', ri', lef', ri'ing the day away.
Slope arms! 'Ten shun! You become
a mechanical being, a lead soldier,
just a toy of the Higher Command.
That is war.
Then, across the sea in a ferry boat.
A nauseating smell of vomit on the boat.
Submarines? 'Planes? Mines? an ocean of doubt.
Land! You feel rather silly when you
stagger off the boat, and trip up on the pier.
That is war.
Footslogging it up to the lines.
Through devastated villages,
seeing endless streams of homeless wretches
clutching chickens, and driving pigs.
Poor things, you think. Can nothing
be done for them? Officially, nothing.
That is war.
Up at the front line.
There is a stench of lime everywhere.
It is mud. And rain. And death.
Day after day, it is sleep in mud,
eat mud and fight in mud.
They say of two evils, always
choose the lesser. In the trenches
choose shellfire rather than rain.
War? Mud.
"Hostilities will cease at 11.00 today. Return to Chipilly,
and await
further orders. Gen. Hickie, Commander of the Thiepral Sector"
"P.S. Don't forget to bring the cookers with you. Sgt.Knowlden."
No more war.
Home.

EB

The Game Cricket

I like to play cricket:
It's a very good sport.
If you have never played cricket,
Just try it, its great fun.
When you bat you hit sixes and fours,
And the crowd all applaud you,
So you want to hit more.
Sometimes you make a century,
Other times you're out for duck.
When you field they hit catches.
Sometimes you have to dive for them;
Other times they come straight and hard.
Just think of the fun it is!

EM1

Spooks

Spooks I dread
for they are the living dead.
In the dark of night
they'll give you a fright.

Spooks appear
in many forms,
Some just as bones
letting out dreadful groans;

some just in white -
what a sight
to see in the dead of night!
You'll get one hell of a fright!!

Maybe through them you'll die
for they can fly,
walk through things,
and disappear at will.

I don't believe in them,
but I'm not sure.
I hope spooks
are just in books.

E7

Homework

I do my homework every night
under the little lamp that shines so bright.
I sit and stare at my little lamp,
then suddenly I feel hungry.
I think of the pork in the frig,
so I get up and eat and eat,
then I go to bed feeling full,
my homework still undone.

E9

The flu

The flu is a sniffy business,
sniff! sniff!
When you go to bed at night
you blow and blow.
When the flu is over
you smile with delight.

E9

At the bottom of the pot
there is some mutton fat.
Fat there is of mutton
at the bottom of the pot.
Mutton fat there is
at the pot's bottom,
and I've got to clean it out
with a little bit of soap.

E8

Davy

There was a boy named Davy
who joined the Royal Navy.
He got on his ship,
then went for a dip.
There is now no more Davy
for he lies under the wavy.

E7

Nutty ad.

Buy some Royco soup today
Your kids'll smile wide
If you mix some Checkers soap in too
To make their tummies warm inside.

E8

Tosspots' lament

Bottle o' beer
Yer not very dear;
So I loikes yer and drinks yer a lot.
But wen I gets 'ome
Me wife she duz comb
Me 'air with a flippin' stew pot! (Hic!)

E8

The stupid mouse

There was a stupid mouse
Who lived in my house.
He used to raid the pantry every night,
Until one day I caught him with delight.
I put him in a cage,
And he squeaked at me with rage.
He seemed to say, "Watch out,
Or else you'll get a clout."
I named my little mouse Wong,
Then I went shopping with Mom.
I came back and saw that in the house
The cat had killed my stupid mouse,
So I took the poor, dead mouse
And buried him at the back of the house.

EEE2

With my eyes half-closed I lay in the sun,
    On the bank of the sluggish river,
And watched the clouds go floating by
    And the wind their reflections shiver.

Blobs of green scum floated past;
    I lay still in the liquid sun.
A fisherman came to try a cast;
    I saw many silver fish - but he caught none.

The sun went down o'er the edge of the world,
    Outlining the railway bridge in red;
I heard my mother calling for me,
    And trudged wearily home to bed.

E8

Booze

Have some brandy,
You'll feel dandy;
Or buy some whisky,
And you'll feel frisky.

EE4

Teds

Teds have long hair.
They do not care
When people stare,
For they think
It looks quite rare.

EE4

The Cats' Choir

It's the cats' choir's
night out,
wailing away
on the fence till day,
an untuneful tune
in the light of the moon.

The flat tenants
are kept awake;
it's more than they can take,
so armed with clocks,
shoes, anything,
a salvo is fired.

They all miss,
and the cats shout "siss!"
Then shots from a gun
leave the cats dead,
all but one.

This last cat
smells a rat,
and decides to scat.

E7

Hooked

He's a drug addict.
He's been licked.
He will do anything
for drugs.
He's 14.
To the toilets
for a fix:
his arms full of marks
from the needle.
He's 14.
He takes pills,
injections too;
dagga smoker
he has no will.
He's 14.

E7

Soccer

Soccer is my favourite game.
If you lose a match
You've always got the ref. to blame,
And the crowd shout, "Throw him off!"

EE7

Sleepy Hollow

I came upon it
following a dusty, hot road,
Sleepy Hollow.

It drooped.
The bell in the street had dropped
off its hook, and lay in the dust.
A dog lay in the gutter,
snoring.

I pushed open the wing doors of the hotel.
A faded sign read:
Press button for service.
I pressed.
Nothing happened; nobody appeared.
I pressed my cheek against the cool wall
for a moment,
and then walked out into the dusty road.
I yawned, and drove on.

E8

"... and you will be hanged by the neck ..."

He lay on the bunk.
He was sunk:
he was to be hanged
for murder.

In the death cell
he was in hell;
he was in fear
for death was near.
He'd wasted his life
for he'd murdered his wife.
He was in agony for in one hour's time
he'd be at the end of the line.

At the gallows
his head hung low,
the noose around his neck,
and the cover over his head.
The prayers were said.
Then he was dead.

E7

Holidays

Holidays are lots of fun,
We have all day to play and run.
No sums to do, no sentences to write,
I'm happy from morning to night.
We go out hunting every night,
And it is lots of fun.
We each have two shots,
And my two usually go on a hare.

Early in the morning I go to the milkshed.
I always like to have a turn milking the cows,
And I am sad when the cows
Have all been milked.

When my parents come to fetch me
I always hide away
Because I don't want to go home.
I don't like seeing the farm in the distance
Because I always want to go back.

E15B

Remember?

Down in the valley
Where the green grass grows
and the cool wind blows
all is peace.

But there was a time
when there was a crime,
and it was war,
the shells flying
and men dying.

Now the war is over
and peacefully grows the clover.
But there remains
the waste of man,
and the memory.

E7

Hank

Out on the sand
in No Man's Land
there he lay
at the end of the day.
His name was Hank,
and he served in a tank.

E7

Hunting

I go hunting during the day
For something to slay
To make biltong to eat
Just for a treat.

E10

Prize Giving

I hate prize giving.
It is horrible.
We sit at the back.
We can't hear the speeches.
We get restless and bored,
and it takes about an hour.

EE4

The Sea

I love to see
the sea,
the cool water
and the lashing waves
dashing into seaside caves.

In the sea
are fish
that might land
on a dish
for you or me.

A stormy sea at night
unleashes all its might.
All poor ships get tossed,
and some even get lost.

The calm sea at night
is a beautiful sight
with the whites of waves showing
and a cool breeze blowing.

E7

An old Voortrekker

The Voortrekkers were jolly old men,
Especially an old chap called Ben.
He used to carry a "voorlaier",
And when he was dead and gone
His son had to find a buyer
For his beloved gun.

EGS

I had an attack of hiccups,
And I couldn't stop the hics.
They just kept on coming up
And they wouldn't go away -
I thought they were there to stay!
Then a big sneeze came up
And I sneezed the hics away.

EGS

Armistice Day 1968

The Last Post was sounded;
The flag was lowered to half mast;
And again the bugle resounded,
While the soldiers came marching past.

The skirl of the pipes arose;
The biting wind was cold.
Whether the dead soldiers were there
Or not, no one on this earth knows.

The old servicemen came to lay their wreaths,
Old men who were soon to lie
In <u>their</u> graves, but rise again,
For old soldiers never die.

EGS

APPENDIX O

These 64 expressions, written by boys in Group F, are also set down in the order in which they were received and spirit-duplicated in various colours. Boys in Std. 5A wrote 35 of them while boys in Std. 5B wrote 26 of them. There are 3 composite pieces made up of lines written by boys in both classes. As with Group E no distinction was drawn between A and B streams and all these expressions appear in every boy's anthology. By the end of the year all but two boys, one in Std. 5A and one in Std. 5B, had had something "published", and the "most published" lad in both classes was ABJ (see p. 298) in Std. 5B. Once again boys' coded designations, rather than their initials have been used here to indicate authorship so that the reader may check on the abilities and attainments of individual pupils by referring to Appendix .

The knifing gale
Broke the boat
Into two pieces.
The captain
And all his crew
Flung themselves
Into the icy water.
The frost-biting wind
Blew over their heads.
It was a bitter night
For them all.
After twenty four hours
A whaling boat
Rescued them
And took them
To safety.

F25B

I was alone in that treacherous sea
With waves twenty foot high.
I was lifted up and then dropped
Into the chasms of water below.
I prayed that God would help me
By saving my soul.
I saw a boat out at sea
And I was happy because I thought
"Now I am saved."
I saw the boat plough through
That ferocious sea.
I was picked up and saved
From the bitterly cold sea.

F12

A near disaster

The wind howled,
The waves roared,
The water was cold.
The waves were tremendous.
Men feared that the waves
Would break on them.
They shot up the sides
And slid down
Into the gaping troughs.
Men were oil-coated.
They cried out with fear.
The ship was broken in two.
The rain bit into us,
Then we saw a ship.
We were picked up
And taken to land
And to hospital.
I never never
Want to go
On a ship again.

F23B

An experience worth remembering

In the midst of the raging gale
The sleet came viciously down
And hammered upon the wind-torn mariners.
Rising now and again from the rampant waves
The tanker strained to keep afloat,
But when rising upon a wave,
A freak wave came bounding
And broke its back.
Oil seeped out of the tanker
And formed a thick, greasy blanket,
But even this was comforting
In the grip of that plundering sea,
For when I saw a shark
My heart missed a beat,
But the oil kept him back.
Eleven hours later we were rescued.
By that time the sea had quietened.

F19B

The road

Rain falling, rain falling
Bitterly wet and cold;
Wind screaming, wind calling
Along the cold and muddy road.

FF2

Terror!

The ferocious waves,
With tumultuous force,
Grasped their victim viciously
And tossed him up,
Then down again.
The tanker cracked like thunder
And split in two.

I went headlong down, down,
Into the icy water.
My lungs seemed about to burst
When suddenly I shot up to the surface.
Then I saw the fin
Of a killer shark.
I screamed!
Then suddenly no sooner was it there
Than the fin was gone.

Dawn came.
I was alone
And in the middle of an oil slick.

FF6B

Midnight disaster

The ship groaned,
As if in protest,
Before the ferocious wind.
That wind never will be forgotten
For as long as I live.
As the ship reached the brink
Of that treacherous trough,
She cracked,
And split in two.
The crew and myself
Were thrown overboard.
Down, down, down I went,
Into the cold sea.
When my lungs were on the verge
Of bursting
I surfaced.
When I looked around
All I saw was foaming water,
And struggling people.
When dawn broke over the scene of disaster
A lifeboat arrived to pick up the drowning crew.

F10

O where is the sun?

The vicious, rampant wind
Blew through the wind-torn trees.
The trees bowed, as if to an audience.
The wind scythed into the bitter, gaunt people.
Icicles glistened, when the sun came through
the clouds.
Everyone prayed that the sun would wake up
And shine through the black, thundrous clouds.
But the sun never came out
And all day it rained.

F23B

Wind

Tempestuously, ferociously, gustily
The wind blew, and tore the trees to shreds,
While the rain became colder
And the wind more bitter.

FF1

A cold day

The wind blew,
The rain fell
Upon wind torn trees
And people out of doors.
People in streets
Hurried home,
And after a bath
Got into bed.

F7

The wind brings biting rain.
The trees swing wildly.
The people scurry across the streets
To get some shelter at the shops.

F15

I love icecream
on a hot day.
I also love roast mutton and potatoes
on a cold Sunday.
I relish going out on the beach for a day
with a picnic basket with us;
sitting on the sand
and basking in the sun
with a fishing rod in my hand.
I love sitting in front of a fire at night
with an interesting detective book in my hand,
and watching the flames leap to and fro.

FF3

The wind

The wind blows with rage.
The trees shiver with fright.
The moon cries with fear,
And the rain pours like tears.

The night is very black.
The moon hides her face.
The night is very silent.
Its time we went to sleep.

Now the wind is calling loudly,
Telling me to come.
The wind is very cross with me
Because I cannot sleep.

Ab9

Exams

Exams are nearly over,
And maybe I have passed.
How horrible it is when you haven't passed.
My father gets very cross with me.
O, please let me pass.

My exams are very hard.
Please help me, please.
My exams are nearly up,
And I think I've nearly passed.

Ab9

I love sitting by the river-side
Holding a fishing-rod in one hand
And a sandwich in the other
Catching fish
To eat for supper.

F2

Words I made from each letter in Logo Lotto:

Lively	light
Ominous	Orgy
Gorgeous	Thrilling
Overcoming	Tough
	Original

Ab9

Stars

High in the sky,
So tiny, so bright,
I often wonder why
You only appear in the dark night.

F22B

Hunting and fishing,
That's what I like:
Fishing on a glorious
Summer day
When the sun
Is warm on my covered back;
To hook the big one,
Fight him,
Land him,
And say,
"What did I tell you?";

Getting up early one morning,
Getting dressed,
Taking my trusty gun
With me to the hunt;
I sit from the grey of dawn,
Waiting for the dogs
To give tongue,
And to bring the easily frightened game
My way;
And when the hunt is over
To see who has been
The lucky one.

F10

I like to stay in bed when it rains,
To be in bed, warm and cosy,
Under the blankets,
Listening to the spitter, spatter on the
frosty window pane,
And the howling wind,
Shaking the trees.

F17B

I love to dirty my hands with oil when
working with machinery.
I like to go for a swim on a summer
morning.
I like hunting and shooting my own
buck and eating the biltong.
I like to sit in front of a fire on a
cold winter evening.

FF4B

Evening

Light is the breeze
And cool is the air.
The tree-tops bow,
Goodnight to everybody

F22B

I love the feeling of going up, up, up
in an aeroplane, and suddenly dropping
in an air-current, causing a nice, itchy
feeling in my stomach.
I love to look out on the beautiful
landscape and see cars crawling along
under me and occasionally another
aeroplane flying high up in the sky.
But what I like most of all is steering
the plane high up in the blue.

F18B

The smell of chicken,
On a Sunday lunch-time -
Lovely!
Tender, juicy meat -
Scrumptious!!
Riding on a horse in the fields,
As the sun is setting -
Romantic!
Shooting buck
On a Saturday -
Great!!

FF6B

Roast pork,
and hot potatoes,
with trifle following,
are my real favourites.
Lying in bed on a cold day
with a blazing fire
in the room ...
After rugby a piping hot bath,
then sitting in an arm chair
reading the latest news
about Bruce Dalling in
the yacht race ...

F5

I love hot beef on the Sunday cold,
And to play games beside a roaring fire;
Then in a hot bath to lie and read;
Then in a warm bed to lie and sleep,
And to wake up with Monday's sun
Coming in the window bright;
To get dressed with a smile,
And ride the horse all over the farm.
I enjoy watching the cattle being milked,
Morning and evening.

F8

I like doors
That close with a delicious click;
Sleek modern cars
That slide along the road;
Snuggling into bed
On a cold night.
I like teasing my dog
And her little pup;
To take my kitten for a swim
(He'll be an aqua cat).
I adore ice cream
That slithers down my throat.
And lastly I like
To sit in a tree and read.

F1

Exams

Exams, how dreadful!
They have come
Like lightning.
You have to
Learn and learn.
When it is
exam time
you can never
do anything.
You learn
until you
sweat blood.
O! how horrible!

F23B

The Wind

The wind blows
all through the winter.
It blows some small trees
into splinters.
The small leaves
flutter
to the ground,
and blow
into the gutter.

FF8B

The term is galloping at full speed towards the goal-posts. And when the holidays come I will reach home at 11 o'clock and will say hullo to the dogs, cats, guinea-pigs and everything. Then I'll remove my school uniform and take the dogs for a brisk walk into the sweet-smelling veld where the hum of cars is now far distant, and will be for four whole, sweet weeks while I'm on the peaceful farm.

F14

As time goes by

As time goes by
I wonder why
Or how the world has come to be
Like an everlasting tree.
How it absorbs things
That are now of old
Just as the waves
The beach enfold.
Nothing's ever new at last;
It just gets swallowed by the past
And is replaced by a new idea
Which makes more history every year.
With arrows the wars once were fought
Now they're replaced by scientific thought,
In nuclear bombs and other ways
Which end the wars in a matter of days.
The caveman's adventure
Was his neighbour's face,
And now his descendant's
High up in space.
When comes the end of gangsters and crooks
Whose names fill the pages of History Books?
When comes the end of all creation,
The termination of every nation?
How much more must History teach?
What climax will the world ever reach?
Will all inhabitants ever die?
Is the blessed end now nigh?
What was Earth's beginning?
I'll wonder how and why
For as long as I live
As time goes by.

F1

My holidays

To me holidays are the best part of the year.
For the first week I just lookt about the farm.
Then is when my holiday really starts.
Canoeing comes first:
Rowing, rowing, rowing -
That is all I think of
When I first get into
The canoe.
Then when we are tired
We jump into the river
For a swim.
Last holidays,
While rowing up the river,
We discovered a Bushman's cave.
So, after swimming for a solid hour,
We go and look
At all their wonderful pictures
On the old broken walls.

F2

Holidays

The holiday comes slowly,
But it goes quickly.
It is always a relief from horrible school-work.
At home, you have spiced food plentifully:
At school you take what you get.

When I am at home there is always
Something to do
Like making a plane
(At school they have been banned).
At home you go with parents on a drive
With the beautiful countryside flicking by:
At school when you go out, which is very seldom,
You don't see a thing at all
(The lorry is windy, too).

F13

There goes the sea

There goes the sea
Far, far away.
Now it is dark.
The moon is coming out.
There is a still silence.
As it gets brighter the sea
Comes back to me.
The birds cry
And the sea shivers.

Ab 9

The holidays are just around the bend now,
And will they please come fast
So that I can once again
Go shooting birds in the bush.
I'll go out early in the morning
And breathe the cool fresh air.
I'll hear the roosters singing
To the early morning sun.

FF3

I long for the holidays
when there's no more sitting on
a hard school bench.
(When you stand up
your desk squeaks and
makes weird sounds).

No more cabbage that gets
pushed down your throat.
No more peas that are cold
when they're put on the table.
No more people to interfere
with your own business.

You spend your time
being shouted at by
teachers or prefects.

FF8B

There's no place like home

I've been to Italy,
Portugal and France.
I've toured Russia,
And learnt to do their dance.
India and Japan
Have been noted by my eye.
I've travelled from South Africa
To the States, stopping at Hawaii.
I've traversed the world
From the Poles to China.
I've seen many a fine sight,
But there's one sight that's finer:
I love to sit in my chair,
And gaze into the fire.

F1

The road is passing by
and quiet is my voice
as we head back
to school again.
An enjoyable day,
but that's all gone,
till Thursday the 7th
when I shall rejoice
for a day again.

F2

The Party

The smell of braaied chops;
The clicks as many lips are licked;
The excited chatter, and much hustling
and bustling;
The merry fire flickering in the night;
The child who goes round the corner
for a smoke;
And far off the distant rumble of the sea;
The tear as chunks of meat are ripped
off the bone;
And at last the dance.
The music blaring into the night,
And the happy screams of girls,
While far out in the night
a jackal howls.

F12

Life is nice

I'd love to live a life of luxury
With food and wine to drink.
I wouldn't like to live a sad life,
I'd only like to live a life of happiness.

Ab?

At night

At night when the moon is bright
And the ghost-like clouds go by,
An owl hooting and hooting
Foretells how someone might die.

F20B

The Weekend

When Sports Day comes everybody exerts
all the energy out of every muscle, and then
home we race as a happy family to enjoy a
half holiday at home.

F14

The Floods

Last Monday
My parents went to the celebrations.
When they tried to come home
They were stopped.
The water had come over the bridge.
My uncle got the Landrover and fetched them.
What a relief!

F7

The holidays

It is hard to believe
That this term
Will end in a few days time.
The schoolboys
Need a holiday
After such a long, hard-working term.
In seven long, dragged-out days
I will be on the farm
Enjoying myself,
Shooting birds,
Or maybe playing around
With a ball on the grass.
But at the end of the holiday
I will be sad,
And in a way
Quite happy
To meet my friends,
And to meet my greatest friend,
The cricket field.

F9

Snow

I woke up one morning
To see the world white with snow.
Out we went to play in the crisp morning air.
Up from the earth as if by magic
Appeared a snow man.
Oh, how lovely to play in the snow.

To the town we went
Where the houses were as if
They were made of candy,
White and gleaming in the sun.

The next day I awoke.
To find the snow half gone.
But there was some on the mountain still,
So up the mountain we climbed,
Up to the peak where the air is fresh
On your cheek.
But feet begin to get cold,
So its down we go
Before the trouble starts.

The next day the snow is gone.

F12

Near disaster

Help! Help!
I cried for aid,
But all I heard was the lashing waves.
I floundered around in an oily mess.
After a while I felt a shiver go up my spine.
Sharks! Sharks! I cried
with my mouth wide open.
Then to my relief I heard the roar
of a strong motor-boat.
I was pulled from the sea.

FF5B

The seaside

One fine day a friend said to me,
"Why don't you go down to the sea?
There's a lovely bay
Down that a-way."
So I went to the bay
And stayed for a day,
And all I could see
Was the greenish-blue sea.
When I stepped into the sea
It played tricks on me.
The breakers of course
With terrific force
Just bowled me right over
Till eventually I landed
Back on the sand.

FF6B

"Hooray"

Hooray, Hooray,
Today's a holiday.
How the sea shivers and gleams in the sun,
And plays with the children.
Then as it gets darker it goes
Away, Away.
Oh, how I wish to see the sea again,
The bright and silver sea.

Ab9

Haircuts

When I have a haircut all my hair gets cut.
The barber is a nice man,
and always has a smile.
He works and works and works.
People come in and out shouting,
"Square cuts, crew cuts, short cuts."
Money's going in and out, busy every day.
Then when the barber gets his pay
he goes to the bar and says,
"A double vodka, please,
for today I've got my pay."

Ab8

My birthday

I cannot wait
for my birthday:
to feast on delicious dainties,
and then sit back and
watch bioscope,
eating food left over
(my birthday is on Sunday,
but the party is on Saturday);
to receive my presents
from relations,
and money maybe.

F11

Holidays' end

As fun fades
Into the fresh, blue air,
And the holidays end,
All the life in me
Seems to vanish.
But holidays will come again
I hope
To freshen my life
And bring it back to normal.

F2

Brothers

Brothers are mean, dirty and wild;
Brothers are so untidy and scrubby.
When they eat they mix cement;
When they drink they gulp it down.
They always have sweets
And never give me any.
But sometimes they are good,
And then they are okay.

FF7B

The wind

The wind blows with rage,
The trees shiver with fright.
The birds are hiding in their homes,
For today's a windy day.
The air brooms the sand,
And makes it run away.
A whirlwind takes up houses, trees and
little baby birds.
It cries and shrieks as it sweeps
High in the air, spinning as fast
as the globe.
The wind is frightful, fast and cruel.
Oh, how I wish it would stop.

Ab$

Sunday

It was Sunday the 31st of May.
The day was so gay.
While I sat in the sun
I ate a currant bun.
Then I had a Coke,
But unfortunately the bottle broke.
I finished all the mopping and
the wiping,
Then I smoked my pipe.

FF7B

The Sea

Oh, how did it come about? Those turbulent waves, how were they formed? And what do they conceal? The gigantic monsters that dwell in the depths. The treasures that lie forgotten on the sea-bed. Then there are the wonders of the sea, the seaweed, pearls, and different shells. Will man ever know what lies in the deep, deep sea?

F4

The lone wolf stands on a rock
On a still and starry night,
And gazes at the full moon
Shedding her silvery light.

She stares into the starry void.
All perplexed and still.
Then she howls at the inky blackness.
Tonight she will make her kill.

F1

Sunset

The sun is half way o'er the mountain
With colours silver and gold,
The colours of ancient soldiers
Marching to war in armour bold.

The sun bears yet a quarter
Of radiant orange and red,
Colour of modern conflict,
And blood pouring from the dead.

The sun sends forth its last rays,
A magnificent pink and blue blend,
Just to show the world
How a little bomb could mean its end.

The mountain obstructs my view,
And the sun is out of sight.
Later my thoughts are daunted
By the still, calm night.

F1

Spring

Spring is the only season
Which lives right up to its name
Because
The plants spring out of the ground,
The leaves spring out of the branches,
The chicks spring out of the eggs,
And all animals spring joyously,
While in the woods the cuckoo sings
Of everything that's new and springy.

Abll

My holidays

During the school term
I hated it every little bit,
But
During the school sports
It was exactly the opposite.
But now it's holidays
And although I said
I couldn't wait
The time goes drearily by.

Abll

A seaside holiday

The shouts and the gaiety
proved it was a happy day,
for we were off on holiday,
and "that" is a rarity.

Shouts of "Where's this?"
and "Where's that?"
echoed through the house.
But at last a cry of joy, a rattle of chains, and off!

When on the skyline
the sea was sighted
there was a ferocious argument
of "who" saw it first.

We swam and ate and dug and played
all through the sizzling day.
'Twas what I thought a lovely day,
apart from all inconveniences.

But at five o'clock we were fetched in,
although my smallest sister
did not want to come
until she heard, "We are off to the Fair."

We drew near the Fair
and my heart throbbed
to drive those horses on.
When we arrived we shouted for joy.

That evening we rode on Ghost Train.
The Dodgems gave me belly ache.
On the Chairplanes some candy floss
caught me in the face.

But in the end the time came,
as everybody knows,
and we jogged slowly, slowly back,
a very happy family.

Abll

Christmas feeling

Christmas is coming.
The beetles are humming
their humble Christmas song.
When the crackling
sound of Christmas paper
being torn to pieces in a frantic hurry
comes to my ears again
a leaping feeling comes into my heart.

F2

Christmas Time

The week before Christmas,
Excitement -
Buying of presents
And wrapping them.

The day before Christmas,
Making mince pies,
And cakes,
And tasting them...

On Christmas Eve I just couldn't sleep,
Waiting...
I heard the Christmas beetles singing
their monotonous Christmas melodies...
I swore to stay awake
But I was too tired,
And fell into an unsatisfied sleep...

I awoke
To find it a normal day,
But just as I was going back to sleep
I remembered,
"It's Christmas!"...
I quickly jumped out of bed and began
my scrummaging for a battery operated telephone...
Everybody was bustling about
with the joy of Christmas in them...
The Christmas Tree stood,
With its outstretched arms,
Covered with lights and decorations...
The Christmas Dinner:
Hot, steaming turkey with roast potatoes.
The meat is out and there's a resounding bang
As the cork comes out of the bottle of champagne...
After that in comes a flaming pudding
With money in...
We wallow in the sea, and then lie on the
sunbaked sand watching the energetic
children build miniature skyscrapers...
And in the evening, after a long day, the gift of sleep.

(FF2, F7, F15, F10, F23B, F11, FF3, F13, F22B, F19B, F12)

Fun at the Fair

The Fair means fun,
The Dodgems, the Whip,
The Helter Skelter,
And the side shows.

The Fair means lights,
The Big Wheel,
The Figure of Eight,
And the Octopus.

The Fair means thrills,
The Wall-of-Death,
The Merry-go-Round,
And the Dive Bombers.

The Fair means skill,
The Coconut Shy,
The Darts,
And the shooting.

FF2

All the fun of the Fair

We tumbled out of bed that morning,
Our tousled hair awry,
And faces gleaming with smiles
At the thought of sunburnt girls
Splashing in goblin waves...
The Fair invites everyone to enjoy themselves on The Whip, The Dive-Bomber and The Octopus... We went on the Bumpsy Daisy Figure Eight. Those ups and downs certainly made my stomach turn round and round!... We went on The Ghost Train and suddenly the screaming began. My cousin then noticed an old lady who was not so old who had fainted. She was behind us, but we could do nothing until we stopped. When we stopped they revived her and she was all right. I could have fainted myself...

The bang
Of a gun,
The scream
Of girls
As their boyfriends
Shoot
The targets down -
"You are
My hero!" -
The Fair's
A happy place...

Through the din comes the shouting of happy souls. Nothing seems to be still. The Dodgem Cars, The Big Wheel... A ride on the Ghost Train ended with nightmares...
When I went to the Fair the people were riding horses like a man pumping a wheel... At another stall there was a gypsy Fortune Teller. She was busy reading a stumpy-nosed man's palm...
Old people were stuffing their faces with "Keeksusters", which are relished by millions. But not by me! I relish a cool shandy that has got about five tots of lemonade and the rest beer... My brother gestured to me and then shouted, "Use the stick".
I pushed the stick right down and the plane swooped down...

The whirring of machinery
As the generator pumps volts
Into the engine
And cogs and wheels
Clatter!
As they begin.
Then feminine screams
As the Octopus's "tentacle"
Slings a reeling chair
Down!
Only to ascend
Again.
Machinery gathers momentum
And screaming crescendos.
The engine coughs and then splutters,
And stops,
And you find yourself on firm ground again...

Its really fun to go to a Fun Fair
To go on the Chairoplanes
And to dive down in the Dive Bombers;
To feel your stomach going up, up,
Then to come out of the dive
With a graceful swoop upwards....
I pay the attendant for a ticket
to get on the Big Wheel.
It stops with a shudder
for me to get on.
I have a thrilling feeling
in my tummy
as we jerk
to the top...
We meet crowds of people,
All dressed in their gayest clothes
And shining with pleasure...
First of all we see a coconut shy
And have a try.
Then we take a ride in the bombers
And with much dizziness
Hear the screams of ash-pale girls
As they are hurtled forward
In their safety belts.
From there we settle
For a ride in the Ghost Train.
From behind and before us
We hear the screeches of bare-boned
skeletons.
Next minute we go hurtling straight for
a wall,
But a split-second before we hit it
It vanishes.
We shoot,
We drive bumper cars,
We ride and take part in all sorts of things,
And when we are all very tired
We go home.
Soon we are away from the fun and the music,
but in my bed I dream it all over again.

(F18B, Ab9, F24B, F20B, F23B, F19B, F21B, R25B, F13, FF8B, F15,
F1, F8, F11, F10, F6)

Sounds in the African night

The sun drops
And seems to die...
The leopard appears in the dusk
Like a wraith from behind a boulder...
I lie in the hide
Listening!...
The goo-goo-goo-goo of the bottle bird
Sounds suddenly in the tree next door...
The trumpeting call of the crowned crane,
The barking call of the jackal
In the teeming darkness,
The raucous call of wild dogs
Who attack their living prey...
The roar of the hungry lion as he roams the veld,
and the sudden bark of a frightened antelope
as he gets the scent of the hungry king...
The insects all singing together
with the frog as the base
and the cricket singing the high notes...
The hoarse howling of the hyena,
The elephants' peculiar "snoring",
The consistent calling of the rhino to its mate,
The high-pitched hissing of the zebra's punctured tum...
Egyptian geese seem to scream
"Help, help, help!"
Thud, thud, thud, goes my heart...
The distant beating of bongo drums...
The lion cubs forcing a throaty roar,
The uncouth laugh of the hyena...
The ground hornbill waking up
And uttering his penetrating hoots...
The frogs croaking a guttural chorus...
Finally the birds chacooing
and welcoming the sun
as it peeps over the horizon...
When the sun comes up
The world of the forest is full of traffic.

(FF2, F19B, FF3, FF1, F22B, F1, F11, F3, F20B,
F2, AbE, F4, F15)

APPENDIX P

SPACHE READABILITY FORMULA[1]

(Adapted from Elementary School Journal, LIII, No.7, March, 1953)

1. Take at least 5 representative samples of 100 words. (Do not stop at 100 words but go to the end of the sentence nearest to 100 words.)

2. Obtain average sentence length. (Work to the nearest whole number.)

3. Obtain percentage of "hard" words using Dale's 769 words and following these rules:

   (a) Count all letters (A,B,C) as familiar.
   (b) Count regular verb forms (-ing, -ed, -es) as familiar. Count irregular verbs forms (ate, bought, taught) as unfamiliar.
   (c) Count plurals and possessive endings of nouns as familiar.
   (d) Count adjectival or adverbial endings (-ly, -er, -est) as unfamiliar. (This differs from the Dale-Chall procedure but is supported by the fact that such endings do not appear except at higher levels in primary-grade materials.)
   (e) Count first names as familiar.
   (f) Count an unfamiliar word only once, even though it appears again or with variable endings later in the sample. (This rule was adopted to prevent a single hard word from distorting the estimation of grade level in primary-grade materials, which tend to be highly repetitive.)
   (g) Count a group of words, consisting of repetition of a single word (oh, oh, oh; look, look, look) as a single sentence regardless of punctuation.

[1] "The principal components of readability with which the readability formulas are concerned...are vocabulary, sentence structure, idea density, and human interest - i.e., aspects of readability which can be quantified and have been validated against independently established levels of reading ability among the population.... However, as many investigators have noted, other, more intangible factors which have tended to resist objective quantification affect readability: the conceptual difficulty of the materials (what I call the "ideational level" of passages), their organizational structure, the style and interest value of the content, and the format of the material....

"A somewhat new and more direct approach to the measurement of the reading difficulty of materials is the use of the cloze technique, in which words are excised from the text and success in the restoration of the meaning of the passage is examined."

Harris, 1969, p.1073

4. Calculate grade level thus:

Average sentence length per 100 words x .141
Add percentage of words outside Dale's 769 words x .086
Add Constant .839

5. Add grade level to 5 years to get Readability Age Level.

	x .141		x .086
1.	.141	1.	.086
2.	.282	2.	.172
3.	.423	3.	.258
4.	.564	4.	.344
5.	.705	5.	.430
6.	.846	6.	.516
7.	.987	7.	.602
8.	1.128	8.	.688
9.	1.269	9.	.774
10.	1.41	10.	.860
11.	1.551	11.	.946
12.	1.692	12.	1.032
13.	1.833	13.	1.118
14.	1.974	14.	1.204
15.	2.115	15.	1.290
16.	2.256	16.	1.376
17.	2.397	17.	1.462
18.	2.538	18.	1.548
19.	2.679	19.	1.634
20.	2.82	20.	1.720
21.	2.961	21.	1.806
22.	3.102	22.	1.892
23.	3.243	23.	1.978
24.	3.384	24.	2.064
25.	3.525	25.	2.15

THE DALE LIST OF 769 EASY WORDS

A

a
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afraid
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afternoon
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air
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am
American
an
and
animal
another
answer
any
anything
apple
are
arm
around
as
ask
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B

baby
back
bad
bag
ball
band
bank
basket
be
bear
beautiful
because
bed
bee
been
before
began
begin
behind
being
believe
bell
belong
beside
best
better
between
big
bill
bird
bit
black
bless
blind
blood
blow
blue
board
boat
body
bone
book
born
both
bottom
bow
box
boy
branch
brave
bread
break
breakfast
bridge
bright
bring
broken
brother
brought
brown
build
building
built
burn
busy
but
butter
buy
by

C

cake
call
came
can
cap
captain
car
care
careful
carry
case
catch
cause
centre
chair
chance
change
chief
child
children
choose
christmas
church
circle
city
class
clean
clear
clock
close
cloth
clothes
cloud
coal
coat
cold
colour
come
coming
company
cook
cool
corn
corner
cost
could
count
country
course
cover
cow
cried
cross
crowd
crown
cry
cup
cut

D

dance
dark
day
dead
dear
deep
did
die
different
dinner
do
doctor
does
dog
done
don't
door
double
down
draw
dream
dress
drink
drive
drop
dry
dust

E

each
ear
early
earth
east
easy
eat
edge
egg
eight
either
else
end
England
English
enough
even
evening
ever
every
everything
except
expect
eye

G

game
garden
gate
gave
get
gift
girl
give
glad
glass
go
God
going
gold
golden
gone
good
got
grain
grass
great
green
grew
grey
ground
grow

I

ice
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Indian
instead
into
iron
is
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J

jump
just

K

keep
kept
kill
kind
king
kiss
knee
knew
know

F

face
fair
fall
family
fancy
far
farm
farmer
fast
fat
father
feed
feel
feet
fellow
felt
fence
few
field
flight
fill
find
fine
finger
finish
fire
first
fish
fit
five
fix
floor
flower
fly
follow
food
foot
for
forget
fourth
found
four
fresh
friend
from
front
fruit
full

H

had
hair
half
hall
hand
hang
happy
hard
has
hat
have
he
head
hear
heard
heart
heavy
help
her
here
herself
hide
high
hill
him
himself
his
hold
hole
home
hope
horse
hot
house
how
hundred
hunt
hurry
hurt

L

Lady
laid
lake
land
large
last
late
laugh
lay
lead
learn
leave
left
leg
lesson
let
letter
lie
lift
light
like
line
lion
lips
listen
little
live
load
long
look
lost
lot
loud
love
low

M

made
mail
make
man
many
march
mark
market
matter
may
me
mean
measure
meat
meet
men
met
middle
might
mile
milk
mill
mind
mine
minute
miss
money
mouth
moon
more
morning
most
mother
mountain
mouth
move
Mr.
Mrs.
much
music
must
myself

N

name
near
neck
need
neighbour
neither
nest
never
new
next
nice
night
nine
no
noise
none
noon
nor
north
nose
not
nothing
now
number

O

oak
ocean
of
off
office
often
old
on
once
one
only
open
or
other
out
our
outside
over
own

P

page
paint
pair
paper
part
party
pass
path
pay
pen
people
pick
picture
piece
place
plain
plant
play
please
point
poor
post
pound
present
press
pretty
pull
put

Q

quarter
queen
quick
quiet
quite

R

race
rain
ran
rather
reach
read
ready
real
reason
red
remember
rest
rich
ride
right
ring
river
road
rock
roll
roof
room
rose
round
row
run

T

table
tale
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talk
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teach
teacher
tear
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than
thank
that
the
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those
though
thought
thousand
three
through
throw
tie
till
time
tire (d)
to
today
together
told
tomorrow
tongue
too
took
top
touch
town
trade
train
tree
true
try
turn
twelve
twenty
two

S

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sail
salt
same
sand
sat
save
saw
say
school
sea
season
seat
second
see
seed
seem
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self
sell
send
sent
serve
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seven
several
shake
shall
shape
she
sheep
shine
ship
shoe
shop
short
should
shoulder
show
shut
sick
side
sign
silk
silver
sing
sir
sister
sit
six
size
skin
sky
sleep
slow
small
smile
smoke
snow
so
soft
sold
soldier
some
something
sometime
song
soon
sound
south
space
speak
spot
spread
spring
square
stand
star
start
station
stay
step
stick
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stone
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stop
store
storm
story
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such
sugar
suit
summer
sun
suppose
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surprise
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U

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V

valley
very
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W

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walk
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want
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wet
wear
weather
week
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went
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whole
whom
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wild
will
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wind
window
wing
winter
wish
with
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woman
wonder
wood
word
work
world
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write
wrong

Y

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year
yellow
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yet
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APPENDIX Q

These are excerpts from the forerunners of Double-Up (see 1.1)

Off to school

Tom stands up on the coach and looks back at his father's figure as long as he can see it, and then the guard, having put away his luggage, comes to the anchor, and finishes his buttonings and other preparations for facing the three hours before dawn.

It was no joke indeed, a dark ride on the top of the Tally-ho, I can tell you, with your feet dangling six inches from the floor. Then you knew what cold was, and what it was to be without legs, for not a bit of feeling had you in them after the first half-hour. But it had its pleasures, the cold dark ride. There was the music of the rattling harness, and the ring of the horses' feet on the hard ground, and the glare of the two bright lamps through the steaming hoar frost, over the leaders' ears, into the darkness; and the cheery toot of the guard's horn, to warn some drowsy pikeman or the ostler at the next change; and the looking forward to daylight - and last, but not least, the delight of returning feeling to your toes.

Then the break of dawn and the sunrise, where can they be as glorious as from a coach roof?

Tom is enjoying the ride, though half-frozen. The guard, who is alone with him on the back of the coach, is silent, but has muffled Tom's feet up in straw and put the end of an oat-sack over his knees. The darkness has made him go over his little past life and think of all his doings and promises, and of his mother and sister and his father's last words: he means to bear himself like a brave Brown as he is, though a young one. Then he looks forward into the mysterious boy-future, thinking about what sort of place Rugby is, and what they do there, and calling up all the stories of public schools which he has heard from the big boys in the holidays. He is full of hope and life, notwithstanding the cold, and kicks his heels against the back-board, and would like to sing, only he doesn't know how his friend the silent guard might take it.

And now the dawn breaks at the end of the fourth stage, and the coach pulls up at the little roadside inn with huge stables behind. There is a bright fire gleaming through the red curtains of the bar window, and the door is open. The coachman catches his whip into a double thong and throws it to the ostler; the steam of the horses rises straight up into the air. He has quickened the pace over the last two miles, and is two minutes before his time; he jumps down from the box and into the inn. The guard gets off behind. "Now, sir," says he to Tom, "you just jump down, and I'll give you a drop of something to keep the cold out."

Preamble

"Ton-Up" is aimed at the child with a reading age in excess of 12.0 years in either the primary or secondary school and is designed to accelerate speed of reading and to improve comprehension. This series of 100 graded speed reading exercises is planned to consist of 5 equal sets of extracts each of 400, 500, 600, 700 and 800 words. You have in your hands a truncated reconaissance programme of 25 extracts. The extracts in this shortened series build up quickly from plus or minus 400 words to plus or minus 800 words; there are 5 of approximately 400 words, 5 of approximately 500 words and so on. If exploratory results prove encouraging it is planned to expand the programme to full "Ton-Up" proportions, in other words 100 extracts ranging progressively in length from 400 to 800 words.

As this is a speed reading programme it is suggested that the same time be allowed to read each extract. Children with a R.A. of 12.0-13.0 should be able to read silently at 200 words per minute and should in the course of a year be able to build up to a speed of 400 words per minute. Thus it is suggested that 2 minutes reading time be allowed for each extract. If this is deemed to be insufficient more time may be allowed. As long as the same time is allotted to each extract the child's reading speed should double by the time he has completed all the extracts. If the child does not achieve a mark of 7 out of 10 in comprehension then reading time can be presumed to be too short or acceleration too fast and time should be extended. Children should be discouraged from referring back to a passage when answering questions and this can be achieved either by covering the passage up or by allowing insufficient time to refer back if all questions are to be answered - say five minutes.

It is further suggested that extracts be read aloud immediately after questions have been answered and that children provisionally mark each other's answers. It is hoped that this technique will (i) provide immediate feed-back and capitalise on interest already engendered (ii) improve reading aloud. It is also hoped that the individual extracts when read silently, and when subsequently read aloud by the better readers in the class, will so appeal to children that they will be moved to read the whole of which these tit-bits are but a part. Of course the books should be readily available in the class or school libraries.

It might be a good idea for the teacher to keep these booklets in order to prevent children from priming themselves beforehand.

P.T. Pienaar, August, 1965

A Game of Croquet

"Get to your places!" shouted the Queen in a voice of thunder, and people began running in all directions, tumbling up against each other; however, they got settled down in a minute or two, and the game began. Alice thought she had never seen such a curious croquet-ground in all her life; it was all ridges and furrows; the balls were live hedgehogs, the mallets live flamingoes, and the soldiers had to double themselves up and to stand upon their heads and feet, to make arches.

The chief difficulty Alice found at first was in managing her flamingo: she succeeded in getting its body tucked away, comfortably enough, under her arm, with its legs hanging down, but generally, just as she had its neck nicely straightened out, and was going to give the hedgehog a blow with its head, it would twist itself round and look up in her face, with such a puzzled expression that she could not help bursting out laughing: and when she had got its head down, and was going to begin again, it was very provoking to find that the hedgehog had unrolled itself, and was in the act of crawling away: besides all this, there was generally a ridge or furrow in the way wherever she wanted to send the hedgehog to, and, as the doubled-up soldiers were always getting up and walking off to other parts of the ground, Alice soon came to the conclusion that it was a very difficult game indeed.

The players all played at once without waiting for turns, quarrelling all the while, and fighting for the hedgehogs; and in a very short time the Queen was in a very furious passion, shouting and stamping about and screaming, "Off with their heads," about once a minute.

Alice began to feel very uneasy: to be sure she had not as yet had any dispute with the Queen, but she knew that it might happen any minute, "and then" thought she, "what would become of me? They're dreadfully fond of beheading people here; the great wonder is that there is any one left alive!"

She was looking about for some way of escape, and wondering whether she could get away without being seen, when she noticed a curious appearance in the air: it puzzled her very much at first, but after watching it for a minute or two, she made it out to be a grin and she said to herself, "It's the Cheshire Cat: now I shall have somebody to talk to."

"How are you getting on?" said the cat, as soon as there was mouth enough for it to speak with.

From Alice in Wonderland by Lewis Carroll (440 words)

The Hunting Trip

Larry tucked the gun under his arm and stamped angrily on to the bridge. It was then that the accident happened. He was in the middle of the groaning, shaking plank when two snipe which had been lying concealed in the long grass at the other end of the bridge rocketed out of the grass and shot skywards. Larry, forgetting in his excitement where he was standing, swung the gun to his shoulder and, balancing awkwardly on the swaying bridge, fired both barrels. The gun roared and kicked, the snipe flew away undamaged, and Larry with a yell of fright fell backwards into the irrigation ditch.

"Hold the gun above your head! Hold it above your head!" roared Leslie.

"Don't stand up or you'll sink," screeched Margo. "Sit still."

But Larry lying flat on his back in the mud, had only one idea, and that was to get out as quickly as possible. He sat up and then tried to get to his feet, using, to the horror of Leslie the keen hunter, the gun barrels as a support. He raised himself up, the liquid mud shuddered and boiled, the gun sank out of sight, and Larry disappeared up to his waist.

"Look what you've done to the gun," yelled Leslie furiously, "you've choked the barrels."

"What do you expect me to do?" snarled Larry. "Lie here and be sucked under? Give me a hand for heaven's sake."

"Get the gun out," said Leslie angrily.

"I refuse to save the gun unless you save me," Larry yelled. "I'm not a hippopotamus.....get me out!"

"If you give me the end of the gun I can pull you out you idiot," shouted Leslie. "I can't reach you otherwise."

Larry groped wildly under the surface for the gun and sank several inches more before he retrieved it, clotted with black and evil-smelling mud.

"Good Lord, just look at it," moaned Leslie, wiping the mud off it with his handkerchief, "just look at it."

"Will you stop carrying on over that beastly weapon and get me out of here?" asked Larry impatiently.

Leslie handed him the ends of the barrels, and we all heaved mightily. It seemed to make no difference whatsoever, except that when we stopped, exhausted, Larry sank a little deeper. At last, after much effort, there came a long belch from the mud and Larry shot to the surface and we hauled him up the bank. He stood there covered with the black and stinking mud, looking like a chocolate statue that is held in front of a fire; he appeared to be melting as we watched.

"Are you all right?" asked Margo.

"I'm fine," he said sarcastically, "simply fine. Never enjoyed myself more. Apart from a slight touch of pneumonia, an injured back and the fact that one of my shoes lies a hundred feet deep in mud I'm having a wonderful time."

As he limped homewards he let his anger burst forth upon our heads, and by the time we reached home, he was quite convinced that the whole thing had been a plot.

From My Family and Other Animals, by Gerald Durrell
(517 words)

Icy Ordeal

We repitched our tent on firm ice and cooked a meal. And whilst we ate I racked my brains for a means of getting across the water to the sea-leopard meat. We needed that meat desperately.

But it was impossible. The wind had swung south and the gap between us and our old camp was widening all the time. I didn't know whether to push on or wait in the hopes that the gap would freeze over or the wind change. The break up of the ice might mean we were nearing the edge of the pack. However Vaksdal gloomily pointed to the west. "The ice-blink," he said, "I think there are many miles of pack yet." This was true as there was no longer a water-sky to the west of us, but ice and cloud were merged together in a void of blinding white. Anyway, Kalstad was delirious and seemed too weak to move, and I decided to remain in hopes of being able to reach the carcase of the sea-leopard the following morning. Our very survival seemed to depend upon it.

At some point during the timeless day, Kalstad woke me. His eyes were very big and his face quite white. He wasn't delirious anymore, but he was shaking slightly and seemed possessed of a fever. "You must go on, Mr. Kaptein," he said. His voice was very faint. "The others," he whispered. "I shall die here. You must leave me and go on." He turned his face away from me.

"You're not going to die," I told him. But I didn't believe it. I knew we were all going to die. No man could survive in such conditions.

As night came we made a blubber fire and managed to cook the rest of the meat. Kalstad refused to have any. Shortly after that, I went to sleep. But it was more coma than sleep, for I was numb all over and with no feeling whatever in my feet. I was fast losing the feeling in my legs, too.

When I woke it was clear and sunny. A channel two miles wide separated us from the ice-berg where the sea-leopard lay. To the north and west of the pack seemed to have closed again in a solid mass. When I crawled back into the tent I saw that Kalstad was dead. The skin of his forehead was waxen under the dirt. His mouth was slightly open in the stiff mat of his beard and his eyes stared at me sightlessly. I felt his hands. They were rigid with cold.

I roused the others, and we buried him there in the snow. For him the struggle was over. "Now we go on, ja?" Valstad had seen the wide channel of water. He accepted the loss of the sea-leopard and the inevitability of going forward until we dropped. Both he and Keller were willing to go on. They were tougher than I was. I just wanted to crawl into my tent and die as Kalstad had done. There didn't seem to be any point in trying to stay alive.

But somewhere there is always a last flicker of energy. We took one tent, our sleeping-bags and rifle. Everything had to be carried. We were all very weak. We had to discard the skis as they encumbered us too much. The food we'd had caused us much pain. So did our feet. We were all suffering from frost-bite. Keller weakened rapidly and only the fact that I refused to give in until the two Norwegians were beaten kept me going.

From The White South by Hammond Innes (597 words)

APPENDIX R+

Lost

At three o'clock I stood panting atop the insignificant summit of "The Pretty Little One", the highest point in the long Drakensberg range. The air was crystal clear and for the first time I could overlook the tumbled terrain to the east and look right down to the blue foothills of the 'Berg'. But I had no time to stay and admire the magnificent view; it had taken me nearly six hours to achieve my objective and now only three hours of daylight remained for the return journey. I grabbed a handful of snow and sucked it to relieve my thirst, and then started back down the long snow-clad ridge.

On the way down I plunged recklessly into snow drifts and took no heed of the patches of marshy ground. I reached the stream at four o'clock and immediately started up the long incline ahead. When I got into the lee of the ridge and lost the sun it seemed markedly cooler; the breeze was freshening and developing a mild bite.

It was five o'clock when I reached the cairn on the saddle. Two hours had elapsed and I was less than half way back, my only consolation being that I must be on the right track. I started to jogtrot and "Pretty Little One, Pretty Little One" echoed dully in my mind like the monotonous clickety-clack, clickety-clack of a train. Twilight was fast falling over the land like a thick blanket and instinctively I quickened my pace. My breath came in rasping gasps and my heart throbbed painfully. "Slow down boy; a twisted ankle now and you'll really be in the soup." It jolted me to find that I had spoken aloud. Yet I slackened my pace only momentarily; the gathering darkness and the vast stillness, broken only by my own laboured breathing, stumbling footsteps and the querulous voice of the raising wind, increased my mounting anxiety to the point where exhaustion and fear quarrelled for possession of my aching, sweating body.

Crossing another col at a clumsy trot I stumbled and fell and wrenched my foot slightly. "Easy, chap," I muttered as I stood up shakily and strained my eyes to discern a cairn on the hump ahead of me, for I was sure that I could not now be far from my starting point. But night had fallen and I could barely distinguish between earth and sky. I stumbled on, tentatively feeling out each step before I put my weight on a foot, but even so I tripped over stones more than once. Finally I resolved to climb on to the top of this last ridge and then, if I could see no light or hear no voice, to shelter in the lee of it till morning, or until the moon rose. I stopped and peered at my wristwatch for about the twentieth time in as many minutes. Being a non-smoker, I had no matches and the tired luminous paint on the hands and figures of the watch made telling the time difficult. I decided, however, that it was some twenty minutes past six. I had had nothing to eat or drink the whole day because I had expected to be on my way back to Mokhotlong in the Landrover by this time. This, combined with weariness, cold and above all fear, left me feeling weak. I took a few more blundering steps and then leant panting against a massive boulder that stood directly in my path. When I recovered my breath somewhat I called for the first time, "Halloooo!" The velvety night swallowed up my quavering cry without returning so much as the faintest echo.

+See 1.1, p.3.

APPENDIX S

A longitudinal study of Brenda who completed Double-Up in the period May, 1968, to September, 1969.

I include this brief longitudinal study for two reasons:

(i) The girl concerned actually completed the programme, and worked at it over a period of 16 months, so that it can truly be called a long-term study.

(ii) She worked at it at home, with her parents, who have nothing whatever to do with education, and who therefore worked strictly according to the instructions (I did not help or intervene in any way), with what success the reader may judge for himself.

Brenda was old for her class - in fact she was repeating Standard 3 in 1968 - and she was no better than average in all subjects. Her average marks in Double-Up were below the averages attained by the 1967 pilot class (see Table 38 , p. 380) and were sufficiently depressed to discourage her sometimes. Her erratic scores and only slight vertical progress on the "steps" are typical of the child of average or below average ability and limited reading experience. Significantly she only scored 10% on Test 4, a hockey story, because she knew nothing whatever about the game and could not visualise what was happening.

Notwithstanding, Brenda made considerable progress in word reading, achieving a mean increment of 15 months in 8 months, virtually a double up, and 21 months in 16 months (compare the results achieved by the pilot Standard 5B in 1967). This progress was supported by an impression of increased fluency and confidence in her reading aloud and of an enlargement in her vocabulary. By December, 1968, Brenda was reading well up to her mental age in all respects, except Accuracy. She maintained and consolidated rather than increased these gains over the following 9 months during which time she worked spasmodically on the programme, sometimes

doing 3 exercises a week, and at other times none at all for up to 6 weeks at a time. In other words, her progression through the programme was by no means ideal. Practice should be regular and fairly frequent if it is to be most effective.

She showed no improvement in comprehension as measured by the Schonell Silent Reading Test R4 in May and December, 1968, but then she had virtually reached the ceiling of the Test in May (the highest Standard Score that it is possible for a girl to attain is 13.7 - Schonell, 1954, p.63). So there would have been no point in giving her the same test again in September, 1969.

The Neale Analysis used as an interim confirmatory measure of all-round reading ability in December, 1968, and as a re-test in September, 1969, suggests that Brenda made appreciable gains in Speed (30 months in 9 months) and less dramatic gains in Accuracy and Comprehension (12 months and 8 months in 9 months) between December, 1968, and September, 1969.

All in all she appears to have improved steadily and sustainedly in all aspects of reading over a discontinuous period of 16 months, and because of the protracted yet irregular nature of the course and the number and variety of the pre- and post-tests used I believe that I am justified in thinking that the gains are real and that they are likely to prove permanent. If they were more spectacular I would have doubts, but the pattern of progress over the 16 month period - a noticeable and characteristic initial improvement, followed by a slowing down for consolidation to take place - is reassuring.

Brenda's position in family: 1/2

Standard 3 (in 1968) Av. age of class in May, 1968, 10.8

Brenda's age 11.7 Aggregate attainment in examinations in 1968 (class averages in parentheses):

May, 72.7%(67.2%); September, 69.3%(66.5%); December, 67.0%(67.1%)

Positions in class in 1968 : May, 12/34; Sept., 14/34; Dec., 20/34

English attainment in 1968 (in oral work, recitation, reading, spelling, composition and language study):

May, 68.3%(67.5%); Sept., 61.7%(66.0%); Dec., 63.8%(67.8%)

Positions in English in 1968 : May, 15/34; Sept., 19/34; Dec., 19/34.

Average marks on successive "steps" of Double-Up

4x350 words : 63%
Test 1 : 30% in 3m 30s
9x400 words : 41%
Test 2 : 20% in 3m 30s
9x450 words : 67%
Test 3 : 40% in 3m 0s
9x500 words : 50%
Test 4 : 10% in 3m 0s
9x550 words : 53%
Test 5 : 60% in 2m 50s
9x600 words : 49%
Test 6 : 50% in 2m 55s
9x650 words : 44%
Test 7 : 60% in 2m 45s
9x700 words : 53%
Test 8 : 70% in 2m 35s
9x750 words : 67%
Test 9 : 40% in 2m 30s
9x800 words : 63%
Test 10: 30% in 2m 45s
4x850 words : 53%

Av. mark on passages: 42%
Av. mark on tests: 41%

Standardised test results

	May, 1968	Dec. 1968	Sept. 1969
Word Reading Tests:			
Burt	10.8	12.4	12.5
Vernon	11.3	12.2	13.0
Schonell	11.9	-	12.2
Sentence Reading Tests:			
Holborn	9.3	10.5	-
Silent Reading Comprehension Test:			
Schonell	13.4	13.4	-
Neale Analysis:			
Speed	-	11.6	+14.0
Accuracy	-	10.3	11.3
Comprehension	-	11.8	12.4

TABLE 48

APPENDIX T

Buck-Up, the primer programme for Double-Up: what it aims to achieve, and how it is designed to operate: excerpts from the Introduction and programme itself: a preliminary survey of its effects in four Std. 3 classes.

Introduction

"Ideally Buck-Up should be used as a primer for the developmental reading programme Double-Up. Nevertheless it can be used on its own with considerable benefit to children throughout the ability spectrum, excluding only educationally sub-normal children and very severely retarded readers. The passages have a readability level of 9.0-10.0,[1] probably the lowest level at which it is possible to write stories which will support the sort of searching comprehension and vocabulary extension questions which are a feature of any sound developmental reading programme. The stories have an interest level of 9.0-13.0....

"If three 40-minute periods are devoted to Buck-Up every week, and a new story is tackled in each period, it is possible to finish the programme in one term of a three-term year. However, it is likely that greater long-term benefit will accrue if only two stories a week are completed by the children and a third period every week is devoted to extension work - vocabulary extension (flash cards of new words encountered in the stories displayed at strategic points in the classroom have a useful reinforcing effect), free writing and drama, and other activities suggested by the Points for Discussion.

"The periods devoted to working through the stories should follow this pattern:

(i) Hand out booklets and tell children to open them at the page on which the questions for a particular story are printed. Allow 1-2 minutes for the pupils to scan the questions.

(ii) 'Is everyone ready? Right. Now remember that you must read the story as quickly and as accurately as possible. When you've finished put your hand up, and then look over the story again until I tell you to stop. Go!' The teacher should then allow the majority of hands to go up before stopping the children and noting the time. Two things must be borne in mind in this regard, (a) a sense of urgency should prevail throughout and every child should be as fully extended as possible, and (b) no child should be repeatedly frustrated by not being able to finish the stories. In a large class where there

[1] As determined by the Spache Readability Formula, see Appendix P, p. 564.

is considerable variation in ability the teacher may think it advisable either to group children according to reading times, or to allow individuals to read in their own time, though if the latter course is adopted, she must be careful to maintain the all-important sense of urgency.

(iii) It is suggested that children keep graphs of their scores so that progress can be seen at a glance....

"Buck-Up has been thoroughly tested with a pilot group of above average Std.3 children, whose average age was 10.4 when they started on the programme (in September 1968). They completed Buck-Up in three months and their average Reading Age increased from 11.11 to 12.5;[1] thus they made up 6 months in 3 months.

"Their teacher had this to say at the end of the trial period, 'The children have thoroughly enjoyed this course and they feel that they have benefited both in the field of Comprehension and in the understanding of words and phrases. Flash cards have helped, and these they have frequently asked for. As a teacher I would add that I have found a definite improvement in Composition and oral work, and a better use of words. I think that when used not quite as often as we've been doing, the book would be invaluable. The improvement in the weakest boy in the class has been most noticeable; he has taken it seriously and has definitely benefited. I would like to do this again with the 3's next year.'"

[1] Schonell's Word Reading Test was used on both occasions.

Questions

1. Which one of these was Tabatha not normally fed, (i) milk (ii) steak (iii) mince (iv) fish?

2. This Cat Show was held (i) in a ring (ii) in a large garden (iii) in a hall (iv) on a Saturday?

3. It says that Tabatha did all but one of these things when confronted by the puppy, (i) arched her back (ii) leapt down (iii) growled (iv) twitched her tail.

4. After chasing the puppy off Tabatha (i) stalked back to her cage (ii) miaowed (iii) purred (iv) went back to the Judge.

5. What is described as "aglow" in this story, (i) Tabatha's eyes (ii) Tabatha's temper (iii) the puppy's nose (iv) the Judge's face?

6. "Her mettle" refers to Tabatha's (i) spirit (ii) whiskers (iii) coat (iv) playfulness.

7. "To preen" is to (i) to swank (ii) to arrange (iii) to ruffle (iv) to pluck.

8. Tabatha was all but one of these things, (i) a Siamese (ii) spoilt (iii) a Tom (iv) fearless.

For discussion

9. See if you can untangle these types of cats, and then see if you can add any others to the list: IPARPEH, MEHSUBE, NXAM, BABTY, HADALMARE.

10. You might say that Tabatha was quite a madam! The word "madam" is a palindrome. Find out what a palindrome is and then make a list of as many palindromes as you can think of.

(How they enjoy the word 'Palindrome'! Good)[1]

[1]The teacher at School C who used Buck-Up in sheet form in 1968, while it was still being tried out prior to finalisation and publication as a programme, made terse comments at the foot of the question page for every sample passage.

'See him off'

Tabatha was a well bred Siamese lady who lived with a family in a shiny white house on a hill overlooking the rest of the town. There were three children in the family, and they all loved Tabatha as much as she loved them. Each night she curled up contentedly on the eldest girl's eiderdown and stayed there until morning. She had the best food a cat could possibly have: fish, red raw mince, and steak. Then when she was thirsty, and because she was a proper Siamese and didn't like milk, she lapped water from a blue china saucer.

Sometimes her mistress put her on a Cat Show and there she would sit in her cage on her black paded paws like a queen, her face and tail neat and smooth, her black ears pointed forward and her blue eyes aglow. It was on one of these Cat Shows that she showed her mettle. The Judge had taken her out of her cage to judge her when a large black puppy ran into the hall. All the cats were furious and snarled and spat from their cages. But Tabatha leapt out of the Judge's arms and, with arched back and fur erect, ran towards the enemy. The puppy wagged his tail and prepared to play. Tabatha growled, and with blue eyes flashing sprang onto the puppy's nose. Her claws were razor-sharp, and the puppy yelped, shook her off and dashed for the door. Tabatha then stalked back down the row of cages to where she had left the Judge. She sat down in front of him and started to preen her whiskers as if to say. 'Wait a minute while I fix myself up again before you judge me.' She was quite a cat, was our Tabatha!

(300 words)

In June and November, 1969, I was able to pre- and post-test four Standard 3 classes in which Buck-Up was used for a period of 4 months. The results are set out in Table 49 below.

	N	Periods per week	Passages completed	Mean Standard Scores: Pre-test June Test One	Post-test Nov. Test One	Gains	Significance of Gain (z & t .05)
School D							
Std.3A	38	1 or 2	20/40	108	112	+4	Nil(z 1.76<1.96)*
Std.3B	35	1 or 2	17/40	104	104	0	Nil
Std.3C	32	1 or 2	19/40	97	97	0	Nil
School C							
Std.3	17	2	30/40	100	101	+1	Nil(t 0.26<1.96)+
Totals	122	-	-	-	-	-	
Means	-	-	-	102.9	104.2	+1.3	Nil
				Test Two	Test Two		
School D							
Std.3A	38	1 or 2	20/40	113	115	+2	Nil
Std.3B	35	1 or 2	17/40	107	107	0	Nil
Std.3C	32	1 or 2	19/40	99	99	0	Nil
School C							
Std.3	17	2	30/40	103	108	+5	Nil(t 1.09<1.96)x
Totals	122	-	-	-	-	-	
Means	-	-	-	106.2	107.5	+1.3	Nil

TABLE 49

Test One is the N.F.E.R. Sentence Reading Test 1 (35 items).
Test Two is the Schonell Graded Reading Vocabulary Test R1 (100 items).

* Comparison of Two Large Sample Means, Bernstein, 1965, pp.30-1.
+,x Comparison of Two Small Sample Means, Bernstein, 1965, pp.32-3.

One of the points which I have made in this thesis is that it is desirable to work with large numbers in an experiment of this sort. The larger the numbers the more reliable the mean gains are likely to be and the more likely they are to achieve significance. The smaller

the sample the greater the mean gains need to be to reach significance. Unfortunately there was no control group against which to test the significance of the mean gains, so I only tested the significance of the difference between pre- and post-test means. On neither Test One nor Test Two for any of the four groups was there a significant difference between the June and November means. Before they started on Buck-Up I warned the four teachers concerned that they must not expect dramatic gains in the short term, and when I reviewed the children's progress in November I was not surprised that they had not made significant gains. For one thing the three Standard 3's in School D had worked irregularly on the programme, one period one week, two another, and not infrequently none at all in a third week. For another, they sometimes did two exercises in the same period, omitting to follow up new words and passing over the Points for Discussion. None of these three classes spent more than 20 hours spread over 4 months on Buck-Up and the Standards 3B and 3C probably spent a good deal less time on the programme. Not one of these classes in School D got more than half way through the programme. While I do not advocate an intensive course, I do suggest that exposure should be more frequent and regular than this.

Significantly the greatest gains were made in the Standard 3 at School C. Here the children completed a third of the programme and worked at it regularly for 2 periods every week. Two other reasons why the children in School C made greater gains might be that they were a smaller group, and that their teacher followed up and extended her lessons imaginatively and conscientiously. She made flash cards of new words and these she revised regularly with the class. She often set them the activities suggested by Points for Discussion for homework, and played word games with them in class when time permitted.

Her counterpart in Std.3A at School D was also an extremely capable teacher with many years of experience behind her. Her energy and enthusiasm won an immediate and sustained response from her charges. English was her forte and children her love and the

success that Buck-Up enjoyed in her class was due in no small measure to her excellent teaching.

By contrast the two gentlemen in charge of Standards 3B and 3C were young teachers recently out of college, competent but by no means as effective as their vastly more experienced colleague in Std. 3A. Also one must not overlook the fact that their charges were neither as able nor as eager as the pupils in Std.3A, or the boys in Std.3 at School D. And it was generally the brightest children who made the greatest gains on both tests.

Lest it be supposed that the boys in Standards 3B and 3C marked time between June and November I must point out that they improved sufficiently in mean Raw Scores to secure the same mean Standard Scores in the post-test as they had in the pre-test. On both the N.F.E.R. and the Schonell test the child's chronological age is taken into account in determining his Standard Score. To take an example: in June 1968, W.S., aged 10.2, scored 28/35 on the N.F.E.R. Test, which converted to a Standard Score of 103; at the same time J.S., aged 10.7, scored 29/35 on the same test, which also converted to a Standard Score of 103. In November 1968, W.S., now aged 10.7, achieved a Raw Score of 30/35 on the re-test of the N.F.E.R. Test, which converted to a Standard Score of 107; on the other hand, J.S., now aged 11.0, also mustered 30/35, but because he was 5 months older than W.S. he only earned a Standard Score of 104. So although Standards 3B and 3C do not appear to have improved in mean Standard Score, at least they gained in Raw Score and so held their own, which they might not have done in other circumstances. Indeed if I had tested the means of the Raw Scores instead of the means of the Standard Scores, I might have come up with some significant differences.

In any case, however the results are interpreted it must be emphasised that neither Buck-Up nor Double-Up is designed to operate effectively without a thoughtful and sustained contribution on the part of the teacher.

Two additional inferences may be drawn from further statistical treatment of these results.

In June, 1969, a test of the difference between two large sample means, namely a mean of 103.53 for the N.F.E.R. Test, and a mean of 107.55 for the Schonell Test, N.98 (see Bernstein, 1965, pp.30-1), yielded a z value of 2.68. Since 2.68 > 2.57 (z .01=2.57), I concluded that there was a significant difference between the means of the two tests, the Schonell Graded Reading Vocabulary Test R1 mean being significantly higher than the N.F.E.R. Sentence Reading Test 1 mean. The differences between the means of the two tests were actually identical in May and November, and differed in the same direction, so on both occasions the word reading test yielded a significantly higher mean than the comprehension test. However, there was no significant difference between the two over-all mean gains of 1.4 (N.F.E.R. Test, N.108, Standard Deviation 8.6) and 1.2 (Schonell Test, N.117, Standard Deviation 5.0): 0.21 < 1.96 (z .05=1.96) (see Bernstein, 1965, pp.30-1). So at this level, and with these numbers, and after a rather desultory course of this duration, an individual word reading test did not yield a significantly higher mean gain than did a group silent reading comprehension test. Nevertheless the significant difference between the Test One and Test Two results in the June pre-test, and again in the November post-test, underlines the importance of the choice of test instrument in research of this kind. It suggests that extravagant claims should not be made for the success of a particular teaching method or programme on the basis of a test/re-test on one test.

I also calculated the Product-Moment correlation coefficient between the N.F.E.R. and Schonell Tests in June and again in November, 1969. In June it was a moderate .652 and in November .686. Correlations of this order with these numbers suggest that individual pupils may vary considerably in performance on different tests of reading achievement, even when these are administered as close together in time as it is possible to contrive. (See also Appendix S,

Table 48 on p. 581 . The variations in Brenda's Word Reading Standard Scores on different individual word reading tests administered at the same time are appreciable.)

What with differences between tests, and variations in pupil performance on different tests, it is apparent that however thorough and rigorous the researcher is in the prosecution of his research, he must be cautious and tentative in his conclusions. The human intellect does not give up its manifold secrets easily.

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