

AN EXPERIMENTAL STUDY OF THE RELATIONSHIP BETWEEN
SELECTED STIMULI AND THE QUALITY OF
STUDENT EXPOSITORY WRITING

by

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ABSTRACT

This study was an investigation of the effects of five stimulus situations. The situations were designed to improve the quality of expository writing by increasing student interest in and knowledge about assigned composition topics. The experiment included six treatments, one being a control with no experimental stimulus. The effects were measured by comparing the quality of compositions produced after each of the experimental treatments. Also compared were the average time spent on the compositions produced after each experimental treatment, the average number of words contained in the compositions, and the students' opinion about the stimuli. The stimulus situations were: (1) viewing a short film, (2) reading an expository article, (3) having a class discussion, (4) viewing a film and discussing its subject, and (5) reading an article and discussing its subject. The hypothesis was stated as follows: Experiencing any one of the six experimental treatments will not have a significant effect on the relative quality of expository writing of Grade Eleven academic students.

Six classes were used in the experiment, although one was excluded from the statistical analysis because only two students from it had been present for all the experimental treatments and had handed in all the assignments. Each of the six classes was in a different Vancouver school, and each was made up of Grade Eleven academic students. A sample group totalling fifty-eight students was selected from the five classes included in the statistical analysis.

The experiment lasted approximately six weeks. Each week, the six classes were assigned an expository composition. The same six topics were used for all classes, although they were given to the classes in different sequences. The same topic was presented differently to each of the six classes by means of the six experimental treatments. The presentation of the topics and experimental treatments to the classes was scheduled so that no biases resulted from using different classes and topics. Classroom procedures were specified and assignment directions standardized. The students were given approximately one week to write the composition and within that interval could spend any length of time on it. For grading, two competent markers were hired. Marking criteria and a grading system were specified. Working independently after a period of training, each marker graded the compositions, which were grouped by the six topics. A correlation coefficient of $+0.67$ was calculated between the two markers' sets of scores. Each composition was assigned a final score, which was the mean of the two markers' grades. An analysis of variance was then applied to the data.

No stimulus situation significantly affected the students' writing. However, the results did suggest that films, articles, and discussions used alone may not be as effective as discussions preceded by either films or articles. Discussion used alone seemed to give the poorest results. The compositions written after a straight discussion were, on the average, slightly poorer in quality and somewhat shorter in length than the other compositions. Moreover, the sample students spent the least time on these compositions. However, the experiment

provided no proof that these variations were caused by the experimental treatments, and not by chance factors. On the other hand, statistically significant differences were found for the following opinions. The sample students thought that a straight discussion had been less interesting than a film alone or than a discussion preceded by either a film or an article. They also thought that the combination of either a film or an article with a discussion had been more helpful than a discussion alone.



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CHAPTER I

THE PROBLEM AND ASSUMPTIONS AND LIMITATIONS OF THE STUDY

One of the most important tasks for the teacher of English is the improvement of his students' written expression. English teachers have sought to reach this objective by imparting the principles and techniques of composition writing, by requiring their students to write often, and by correcting and grading their students' work. They have also employed another technique, that of using a multitude of ways to stimulate an interest in the topic assigned. However, despite its widespread use, this technique has received remarkably little systematic investigation.

I. THE PROBLEM AND HYPOTHESIS

Statement of the problem. The purpose of this study was to answer the following three questions:

1. What was the relative effect of each of six experimental treatments on the quality of expository writing of Grade Eleven academic students?
2. What was the relative effect of each of the six experimental treatments on the expository writing of

Grade Eleven academic students with respect to the amount of time expended on the compositions and the number of words written in them?

3. What was the students' opinion of the interest and helpfulness of each of five of the experimental treatments?
(A control treatment was not included in this aspect of the investigation.)

Discussion of the problem. This study was an attempt to evaluate the effects of six experimental treatments on the quality of students' expository writing. The six treatments included five stimulus situations and a control situation with no experimental stimulus.

Specifically, the experimental treatments were as follows:

1. viewing a short film or, for one of the six topics, two films (total time not exceeding thirty minutes).
2. reading an expository article or, for two of the topics, more than one article.
3. having a class discussion.
4. viewing a film or, for one of the topics, two films, and having a class discussion.
5. reading an article or, for two of the topics, more than one article, and having a class discussion.
6. having no experimental stimulus at all.

Other stimulus situations involving bulletin board displays, guest speakers, and field trips were considered but were rejected because of the difficulty of obtaining material or personnel for each of the six

topics and because of the difficulty of controlling these situations. The five stimulus situations that were chosen were relatively easy to provide and seemed more closely related to actual classroom practice.

It seemed possible that the five stimulus situations would improve the quality of student writing by (1) supplying the students with ideas or material to write about, and (2) getting the students personally involved in the subject and so stimulating them to express their ideas effectively. It also seemed likely that a combination of discussion with either a film or an article would be even more effective than using any of the three separately. The belief was that either a film or an article would add incentive and content to a discussion and that participation in a discussion would tend to increase a student's personal involvement, and clarify and expand the ideas of the film or article.

The purpose of the study was to determine the relative effectiveness of the various stimulus situations. It is important that teachers of English know which techniques are best for producing writing of high quality. Also, if the study indicated the superiority of one technique over others, educators and researchers would be provided with a more solid foundation on which to speculate as to what factors in the superior situation led to the better writing. Further research could then be carried out to discover general principles pertaining to the improvement of written composition.

The first aspect of the problem, then, was to determine if the six experimental treatments had significantly different effects on the

quality of student expository writing. It was expected that the control treatment with no experimental stimulus would have the least effect on the quality of the writing. However, it should be pointed out that all of the students, including those writing after the control treatment, had at least one stimulus in common, the powerful one of knowing that the grades for their compositions would partly determine their final English mark in June. This provision was necessary to ensure that the students would write the compositions and to make the experiment correspond to prevailing conditions in the schools. Most English teachers in the public schools rely on extrinsic as well as intrinsic motivation. It seemed possible that an effective stimulus situation would result in compositions of a significantly higher quality than would the control situation, in which the students received extrinsic motivation but not the intrinsic motivation of one of the stimulus situations.

The second aspect of the problem was to obtain additional data about the various stimulus situations. An Information Slip, to be found in Appendix C, was filled in by each student after he finished a composition. The Information Slip required data about the amount of time spent on the composition and the number of words in it. The quality of individual compositions could not be measured on the basis of either factor, but it was felt that both factors would be indicative of the effort the students put into writing their compositions after experiencing each experimental treatment. In addition, a Questionnaire, to be found in Appendix D, was given to the students at the end of the experiment.

It required the opinions of the students concerning how interesting and how helpful they found each stimulus situation. This information was used to report the students' preferences, factors which should be considered when evaluating motivational techniques.

The hypothesis. The hypothesis for this study was stated as follows: Experiencing any one of the six experimental treatments will not have a significant effect on the relative quality of expository writing of Grade Eleven academic students.

II. DEFINITIONS OF TERMS USED

Stimulus situation. The term "stimulus situation" refers to any one of the following five student activities:

1. Viewing a short film or, for one of the six topics, two very short films. The films are named and described in Section II of Chapter III under the subheading Films used.
2. Reading an expository article or, for two of the topics, more than one article. The articles used are listed in Part B of the Bibliography. The text of each article, in the form in which it was presented to the students, can be found in Appendix A.
3. Having a class discussion. The discussions are described in Section III of Chapter III under the subheading The assignment variable and dealt with in Section (c) on the first page of the Teacher's Guide in Appendix E.

4. Viewing one of the aforementioned films or, for one of the topics, two films, and having a class discussion.
5. Reading one of the aforementioned articles or, for two of the topics, more than one article, and having a class discussion.

Experimental treatment. The term "experimental treatment" refers to any one of the five stimulus situations or to a control situation in which no experimental stimulus was given to the students.

Quality. In referring to the quality of the writing, it is necessary to indicate the criteria used in judging the compositions. In brief, the markers were asked to judge on the basis of a composition's ideas, form, wording, flavour, and mechanics. These criteria are set forth and amplified in Section A of the Instructions for Markers in Appendix F. The criteria, chosen after an extensive search of the literature on marking compositions, were formulated in a study by Diederich, French, and Carlton, which was summarized by Meckel.¹ The investigators found that these five criteria were the ones most commonly emphasized by different markers of written compositions. All five factors were used in this study since the chief purpose of the study was to examine the effects of the treatments on the overall quality of the compositions. Not only was the content or ideas of the compositions considered, but also the presentation of those ideas since, from the viewpoint of the teacher of written composition,

¹Henry C. Meckel, "Research on Teaching Composition and Literature," Handbook of Research on Teaching (Chicago: Rand McNally & Company, 1963), pp. 988-989.

the expression of ideas is just as important as the ideas themselves.

Expository writing. As used in this study, the term "expository writing" refers to compositions that present ideas and opinions on a particular subject. The assigned composition topics used in the experiment are given in the Assignment Sheets in Appendix B.

Grade Eleven academic students. The students who participated in the experiment were Grade Eleven students in six classes. Each class was from a different public high school in the school district of Vancouver. The schools were in different socio-economic areas. It was decided to exclude one class from the statistical analysis of the study because only two students from it had been present for all the experimental treatments and had handed in all the assignments. Each of the five remaining classes was comprised of students on the Academic-Technical Program. Each teacher stated that the level and variation of scholastic ability in his class was typical of that of other classes made up of students on this program. The number of students in the classes was as follows: twenty-two, twenty-three, twenty-four, thirty, and thirty-eight. The periods in three of the schools were sixty minutes long; in the other two schools the periods lasted fifty-five minutes.

So that previous practices could be ascertained, the teachers were asked to report how often they used the techniques of this experiment to stimulate the students in regular composition periods. The following rating scale was used: 1 - never, 2 - seldom, 3 - sometimes, 4 - most times, 5 - every time. The five teachers' responses for each stimulus

situation are shown in Table I. The responses cannot be thought of as absolute indications of the teachers' practices since the teachers likely were influenced by a desire to place themselves in a favourable light. Other techniques were also reported, such as the use of pictures, music, debates, and student reports.

A method discussed by Winer was used to make an analysis of variance of the data in Table I,² Table II, a summary of the analysis of variance, shows that significant differences were found among the totals. The computed value of $F(4,16)$ was 5.02, the critical value at the .05 level of significance being 3.01 and at the .01 level, 4.77. The Newman-Keuls method was used to test the difference between each possible pair of totals.³ Significant differences, at the .05 level of significance, were found between the total for Discussion and each of the other four totals. The differences indicated that the group of five teachers used straight discussion significantly more than any of the other four stimulus situations.

III. ASSUMPTIONS AND LIMITATIONS OF THE STUDY

Assumptions of the study. The assumptions of the statistical test are discussed in Section II of Chapter IV under the subheading Assumptions of the test. Several other assumptions are implicit in this study. One of these assumptions concerns uncontrolled factors, factors

²B. J. Winer, Statistical Principles in Experimental Design (McGraw-Hill Series in Psychology. New York: McGraw-Hill Book Company, 1962), pp. 105-124.

³Winer, op. cit., pp. 80-85, 114-115.

TABLE I
TEACHERS' RESPONSES CONCERNING THE PREVIOUS USE
OF EACH STIMULUS

Teachers	Stimulus Situations				
	Film	Article	Discussion	Film & disc.	Art. & disc.
A	3	3	3	3	3
B	3	2	4	3	2
C	3	3	4	3	3
D	2	3	5	2	3
E	1	2	4	2	3
Totals	12	13	20	13	14
Means	2.4	2.6	4.0	2.6	2.8

NOTE: Each response in the table corresponds to the following scale: 1-never, 2-seldom, 3-sometimes, 4-most times, 5-every time.

TABLE II
ANALYSIS OF VARIANCE FOR THE PREVIOUS USE
OF EACH STIMULUS

Sources of Variation	SS	df	MS	F
Between teachers	1.84	4		
Within teachers	14.80	20		
Stimuli	8.24	4	2.06	5.02*
Residual	6.56	16	.41	
Totals	16.64	24		

* $F_{.95}(4,16) = 3.01$

that could have given one of the experimental treatments either an advantage or a disadvantage. It is assumed that the effects of these factors cancelled each other out in the experiment. As is shown in Section III of Chapter III, an attempt was made to control all important variables. For instance, the same teachers and students were used for each experimental treatment. However, extraneous factors with no relation to the experimental treatments could have affected each of a student's six marks differently. For example, various conditions in the students' homes might have changed during the experiment. Also, since the effects of the stimuli probably wore off through time, if a student worked on an assignment sooner after experiencing the stimulus for it than he did for another assignment, that student's marks would have been affected. However, these problems need not cast serious doubt on the findings. Since all fifty-eight students in the sample group wrote one composition after each experimental treatment, individual fluctuations due to extraneous factors would tend to balance or cancel out.

More serious are factors that could have affected the performance of a whole class on one of the assignments. A class could have been affected to some degree if conditions varied from week to week in the period preceding the experimental treatment, if the different treatments were presented at different times of the day or week, or if, for example, a class were given six days to complete one assignment and nine days to complete another. Although little or no control could be exercised over these factors, it is likely that conditions in one class advantageous to one of the experimental treatments were balanced by adverse conditions

in one of the other four classes. At any rate, because all such uncontrolled factors would have been operative at any time during the experiment and because the topics and experimental treatments were given to each class in random order, no systematic biasing in favour of, or adverse to, any particular treatment was possible. It should be emphasized that the basic concern of this study is not with individual students, classes, or topics but with differences in results due to the use of the different experimental treatments.

Two points should be mentioned in connection with the grading of the compositions. First, the judgment of the markers could have been affected to some extent by factors such as fatigue or personal values. Thus, if, for example, the markers had over-emphasized wording and one of the stimuli had contributed greatly to that factor but not to the other factors, that stimulus would have been overrated by the markers. Such difficulties were minimized by instructing and training the markers to give equal consideration to each of the five criteria.

Next, it was assumed that the sixty compositions written on one topic and marked as a group could be assigned scores conforming to a normal distribution. In an attempt to increase the correlation between the two markers' scores for the same compositions, the markers were instructed to assign grades according to a rigid system based on a normal distribution. This procedure was justifiable for two reasons. The compositions were written by students who, according to their teachers, were fairly heterogeneous with regard to their performance in composition.

Also, the concern was not to examine individual scores as such but to study the relative effects of the treatments.

Applicability of the findings. Strictly speaking, the conclusions of this study are valid only for the topics, the students, and the films, articles, and discussions used in the experiment. It is possible that the conclusions would have been different if different expository topics had been used. Again, other students might have reacted differently to the stimuli, perhaps because they might have found some of the stimuli more, or less, novel than the sample students did. Also, other films, articles, and discussions differing in emotional impact, informativeness, or general quality might have given different results. However, it is believed that the six expository topics assigned were representative of their type and that the students were representative of a cross section of Grade Eleven academic students. Although no assurance can be given that the films and articles were representative of all films and articles, it can be stated that they were chosen only after a painstaking search for the best ones available. Directions to the teachers concerning the discussions were given with the intent of changing the teachers' regular practices as little as possible. For these reasons, it is believed that although the results of the experiment should not be regarded as precise measurements of the effects of all films, articles, and discussions, the results can be regarded as useful indicators of those effects.

If generalizing on the basis of this study, one should keep another factor in mind. The sample group was made up only of students who had experienced all six experimental treatments and who had handed

in all six assignments. This condition was a necessary feature of the experiment's design and made the conclusions applicable only to students who have good attendance records and who usually hand in all their assignments.

IV. THE ORGANIZATION OF THE THESIS

The remainder of the thesis is organized into four chapters. The chapter following this one is a review of the literature related to the problem of this study. The procedures used in the experiment are described in the third chapter, and in the fourth chapter the findings are presented. The last chapter is a summary of the problem, the procedures, and the findings of the study.

CHAPTER II

REVIEW OF THE LITERATURE

It is somewhat surprising to find that there has been very little research done on problems fundamental to teaching written composition. In a book by Braddock, Lloyd-Jones, and Schoer twenty-four questions of basic importance are listed in a section entitled Unexplored Territory. The first question is, "What kinds of situations and assignments at various levels of schooling stimulate a desire to write well?"¹ Moreover, since the publication of this book, research on composition has been inadequate, as West points out.² More specifically, May states that "although ideas for stimuli are abundant, experimental research in this subject has been meagre."³

I. BASIC PRINCIPLES OF THE STUDY

Importance of motivation. Authorities agree that motivation is essential for effective learning. With regard to written composition,

¹Richard Braddock, Richard Lloyd-Jones, and Lowell Schoer, Research in Written Composition (Champaign, Illinois: National Council of Teachers of English, 1963), p. 52.

²William W. West, "Written Composition," Review of Educational Research, XXXVII (April, 1967), 159.

³Frank B. May, Teaching Language as Communication to Children (Columbis, Ohio: Charles E. Merrill Books, Inc., 1967), p. 211.

Meckel notes that "many assignments depend entirely on the success of the teacher in developing interest and motivation."⁴ In addition, Meckel asks, "How can the assignment stimulate the imagination of the pupil so that it becomes a creative force arousing him to discover the possibilities of an assignment and helping him develop ideas?"⁵ Ash, in his dissertation on a particular method of teaching composition, stated, "The motivation of writing through the means of interesting, challenging situations will solve a great many of the perplexing problems of teaching composition."⁶ He also felt that ". . . more satisfactory results are likely to be secured by a greater amount of writing of a highly motivated nature than by mere practice of a less stimulating sort."⁷ Lastly, a group of educators concluded that "the successful teaching of English involves the student; it engenders and encourages in him that interest which lasts beyond the classroom and the assignment."⁸

Importance of content. Many writers believe that in teaching composition there should be more emphasis on the content of writing, rather

⁴Henry C. Meckel, "Research on Teaching Composition and Literature," Handbook of Research on Teaching (Chicago: Rand McNally & Company, 1963), p. 983.

⁵Ibid., p. 985.

⁶I. O. Ash, "An Experimental Evaluation of the Stylistic Approach in Teaching Written Composition in the Junior High School," The Journal of Experimental Education, IV (September, 1935), 61.

⁷Ibid.

⁸The Basic Issues in the Teaching of English ([n.p.] : [n.n.] , [n.d.]), p. 14.

than upon the techniques of writing. This belief was expressed in 1917 by Husic in an important rethinking of the philosophy and methods of teaching secondary English.⁹ In 1932 Smith stated, "There is evident throughout the course in composition a preoccupation with matters of form and surprisingly little concern with having something to say."¹⁰ Ash, in his experimental study, concluded that ". . . emphasis on content brought improvement in form"¹¹ and also stated that "instead of emphasizing form as we have been doing, we need to give more attention to the content of writing."¹² In other words, "what teachers do in advance of writing to help students develop thought often proves as valuable to writing as instruction about the actual composing or perfecting of the manuscript."¹³

II. STUDIES RELATED TO THE PROBLEM

The effects of marking schemes on the quality of student compositions. At least three studies have been made of the effects of various marking schemes on the quality of student compositions. The first, by Wormsbecker, was an examination of the effects of the following

⁹James Fleming Husic (compiler), "Reorganization of English in Secondary Schools," Bulletin, United States Bureau of Education, 1917, No. II (Washington: Government Printing Office, 1917), pp. 26-27.

¹⁰Dora V. Smith, "Instruction in English," Bulletin, United States Bureau of Education, 1932, No. XVII, Monograph No. 20 (Washington: Government Printing Office, 1933), p. 85.

¹¹Ash, op. cit., 60.

¹²Ibid.

¹³Walter Loban, Margaret Ryan, and James R. Squire, Teaching Language and Literature (New York: Harcourt, Brace & World, Inc., 1961), p. 487.

three marking schemes: assigning one grade as an overall mark, assigning two grades, one for content and one for form, and assigning one grade for one of five criteria, the pupil not knowing beforehand which criterion was to be checked in a particular assignment. The pupils' composition skills were measured at the beginning and end of the experiment by the Los Angeles Diagnostic Test: Language Form 3, and by having the pupils complete a story and write a letter. The stories and letters were judged on their spelling and punctuation, thought content, sentence form, organization, and word usage and vocabulary. None of the three marking schemes proved superior in improving the pupils' performance on the test or in written composition, possibly because of inherent weaknesses in the study. First, the experiment ran for only ten weeks, a short time for an experiment of this type. Also, it was unrealistic to expect the form of the mark to affect the pupils' writing significantly because none of the three marking schemes were specific enough in pointing out strengths and weaknesses. No teacher comments were written on any of the compositions done during the experiment. Thus, the pupils were given little guidance to help them improve their writing.¹⁴

The second study, by McMechan, was an examination of the effects of two methods of marking written compositions. In one method letter grades but no comments were used, and in the other, comments but no letter grades. Two control groups were set up to correspond to the two experi-

¹⁴John Henry Wormsbecker, Jr., "A Comparative Study of Three Methods of Grading Compositions" (unpublished Master's thesis, The University of British Columbia, Vancouver, 1955), pp. 1-38.

mental groups. However, these were not true control groups since one-quarter of the compositions from these groups were marked also. The results of the experiment were based on initial and final test paragraphs, which were graded, in decreasing order of emphasis, according to their effectiveness of expression, unity, and mechanical correctness. No significant differences due to the marking systems were found between the two experimental groups or between each experimental group and the corresponding control group. McMechan had initially felt that the group receiving comments should show greater improvement than the other experimental group. It did not, perhaps because there was more extrinsic motivation for the group receiving grades. The students in it might have believed more strongly that their work in composition would affect their overall English grades. This problem apparently was not considered by the investigator.¹⁵ One other weakness in both the Wormsbecker and McMechan studies was the fact that the investigators did some of the marking, a procedure that could have biased the studies.

The effect of praise upon creative writing was investigated in another study. Stories written by one group of pupils were praised, while the stories of an equivalent group were criticized. The factors considered in grading the stories included originality, humor, depth of feeling, sensory content, divergent thinking, and fluency. Although no significant difference in quality was found between the two sets of

¹⁵Melville Young McMechan, "The Relative Effectiveness of Four Procedures for Evaluating Students' Written Themes" (unpublished Master's thesis, The University of British Columbia, Vancouver, 1961), pp. 1-61.

compositions, the pupils receiving praise wrote significantly more, and exhibited better attitudes toward creative writing.¹⁶

The three studies discussed above are related to the problem of this study since all three deal with stimulating students in their writing of compositions. However, the investigators were concerned with students in the sixth, eighth, and fourth grades respectively, they were occupied with information that the students received after writing, and none of them dealt with the effects of films, articles, and discussions.

The effects of specific stimuli on individual composition assignments. An attempt was made by Taylor to discover if it is beneficial for a teacher to discuss with his class subject matter and writing techniques that could be used in writing an assigned composition. The markers were instructed to ignore crude errors the students made when dealing with a complex idea, and to judge the compositions on originality, complexity of ideas, vitality and force, and structure. The mean of the marks for compositions written after discussion was significantly higher than the mean for compositions written without the aid of discussion. Poorer students seemed to benefit most from the discussions. The study, however, contains unwarranted assumptions and faulty conclusions. The way the experiment was designed made it necessary to assume that the two topics were exactly equivalent and that there were no practice effects in having all students write the undiscussed assignment first and the

¹⁶Winnifred F. Taylor and Kenneth C. Hoedt, "The Effect of Praise upon the Quality and Quantity of Creative Writing," The Journal of Educational Research, LX (October, 1966), 80-83.

discussed assignment second. Moreover, one of the conclusions reached was that since some students' marks varied from one assignment to the other, there was an interaction between the teaching method and the personalities of the students. This conclusion, however, is not sound because many other factors could have caused the variation.¹⁷

Many educators have suggested the use of films to motivate student writers. An article by Witty and Martin describes compositions written at each grade level up to Grade Six in response to a film with no narration or dialogue.¹⁸ Another article, by Flynn and Corey, describes a method of using sound films to stimulate various activities, including writing.¹⁹ A third article, a news report, gives an account of an experiment in which students wrote endings for unfinished stories portrayed by films. The investigators in this experiment concluded that the films, perhaps because of novelty, were successful in stimulating the students, especially the poorer ones, who used language and ideas more freely in their stories than in their previous compositions.²⁰

17

Philip H. Taylor, "The English Composition in the Junior School: Prepared or Unprepared?" Educational Research, V (November, 1962), 57-62.

18

Paul Witty and William Martin, "An Analysis of Children's Compositions Written in Response to a Film," Elementary English, XXXIV (March, 1957), 158-163.

19

Helen Flynn and Stephen M. Corey, "Teaching Communication Skills through the Use of Sound Films," The School Review, LIII (June, 1945), 348-352.

20

"Visual Stimulus to Composition," The [London] Times Educational Supplement, June 14, 1947, p. 291.

It is unfortunate that in none of the studies were the films compared to other stimuli.

Several researchers have made comparative studies of the effects of various stimuli on the writing of elementary school children. Carlson found that certain toys, pictures, unusual experiences, and daydreams elicited more original stories from 217 children in grades four through six than did allowing the children to pick topics from a list. However, as May points out, it is impossible to make the generalization that all toys, pictures, and so on produce this result.²¹

Ujlaki and Macdonald made a comparison of fourth grade students' compositions that were written after the students had experienced one of the following stimuli: an abstract painting, abstract music, a free choice of topics, and an interesting paragraph. Because the free choice of topics seemed to have the greatest positive effect on the interest value of the compositions, the investigators concluded that self-selection of topics may be the best way to encourage children to write creatively. However, as with Carlson's study, it is difficult to generalize about the stimuli.²²

In an attempt to provide generalized conclusions, Tabachnick and May studied the effects of three stimuli on the stories written by 600 third and sixth grade pupils. The three stimuli were an organized sketch, an unorganized, abstract sketch, and a choice between the two.

²¹May, loc. cit.; and West, op. cit., pp. 162-163.

²²May, op. cit., p. 212.

Although there were some differences between boys and girls in the findings, on a grade-wide basis each of the stimuli seemed to promote about the same amount of creative writing. The investigators concluded that both organized and unorganized stimuli should be used, an unwarranted conclusion since, without a control group, it cannot be determined if any of the stimuli were effective.²³

The studies discussed in this section on specific stimuli for individual composition assignments are all related to the general problem of stimulating student writers. However, the studies, with the possible exception of the one by Flynn and Corey, dealt with creative, not expository, writing. Also, most of them were conducted at the elementary school level, and none compared the effects of films, articles, and discussions on student writing.

The effects of general methods of stimulation on student compositions. Three studies of general methods of stimulation were made at the high school and university levels. Littwin investigated the effects of three methods formulated to improve the descriptive writing of Grade Seven and Eight students. Over a period of ten weeks, Littwin used what he called the methods of the literary model, of picture study, and of sense-training. The judging of the initial and final test paragraphs emphasized maintenance of point of view, vividness of picture, emotional reaction, and vigor and originality of diction. The sense-training proved

²³Ibid., pp. 213-217.

superior, and Littwin concluded that first-hand experiences are more effective than second-hand experiences in developing imaginative writing. The study has several flaws, however. For example, no provision was made for the fact that the topic used in the final test was different from the one used in the initial test. Also, Littwin cast doubt on the experiment by doing the marking himself.²⁴

Jenks studied the effects of her "Demopraxis Method" on the creative writing of Grade Ten students. The term "Demopraxis" was chosen by Jenks because the method required a democratic, non-authoritarian pedagogical atmosphere and considerable practice in writing. The method utilized techniques such as brainstorming for ideas, keeping a list of ideas, and preparing manuscripts for extra credit. Form A of the Imaginative Stories Task in the Minnesota Tests of Creative Thinking was administered as the initial test, and Form B was used as the final test. The Demopraxis Method was found superior to the normal method, used with control classes. However, since there were many factors involved in the method (including a provision for three times as many assigned compositions as were written in the control method), it is impossible to say which factors led to the success.²⁵

²⁴Maxwell F. Littwin, "Three Methods of Developing Imagination in Pupils' Writing," The English Journal, XXIV (October, 1935), 654-661.

²⁵Eleanor Cesander Jenks, "An Experimental Method to Develop Creativity in the Writing of Tenth Grade Students," Dissertation Abstracts, XXVI (February, 1966), 4501.

A study of a university course in communication skills was made by Becker and Dallinger. It involved three methods of teaching - the normal, the bibliography, and the kinescope methods. No significant differences were found among the methods, which were evaluated by each of eight criteria, including an expository theme judged on purpose, content, organization, sentence structure, diction, and mechanics.²⁶ Like the two preceding studies, this experiment involved general methods designed to meet the problem of providing a stimulus for student writers. However, in none of the experiments were specific stimuli given for each assignment, as was done in the present study.

Other factors affecting the quality of student compositions.

Various techniques, other than the ones already mentioned, have been used to stimulate elementary school children in their writing of compositions. A technique employed with Grade Two pupils was the use of grooved boards on which word cards could be arranged in sentences. The children wrote longer stories, used more varied words, and showed greater imagination than the pupils in the control group.²⁷ Another device tested in the elementary school was the typewriter. In one experiment typewriting seemed to result in more and longer compositions, especially in the first and second grades, although a later investigation showed mixed results for fifth grade pupils.²⁸

²⁶Samuel L. Becker and Carl A. Dallinger, "The Effect of Instructional Methods upon Achievement and Attitudes in Communication Skills," Speech Monographs, XXVII (March, 1960), 70-76.

²⁷West, op. cit., 163.

²⁸Braddock, Lloyd-Jones, and Schoer, op. cit., p. 51.

In a study of fifth and sixth grade children by Nikoloff, pupils of teachers who emphasized mechanics such as spelling, neatness, and so on were compared with pupils of teachers who emphasized ideas and originality. Although the differences between the two groups of students were not significant, the pupils of the teachers who emphasized ideas and originality consistently showed to advantage. These pupils made slightly fewer errors in spelling, capitalization, and punctuation, and produced slightly more words and ideas, and a slightly higher overall quality of writing.²⁹

Many educators believe that students should write frequently. On the other hand, this belief was not supported by two studies, one by Wheeler at the senior high school level³⁰ and the other by Christiansen at the first year university level.³¹ In the first study the students were evaluated by the STEP Writing Test 2A and an essay, both of which were given scores for organization, use of conventions, critical thinking, effectiveness of expression, and appropriateness of expression. The factors considered in grading the compositions in the second study were

²⁹Sayra Elizabeth Benson Nikoloff, "The Relationship of Teacher Standards to the Written Expression of Fifth and Sixth Grade Children," Dissertation Abstracts, XXVI (May, 1966), 6560.

³⁰Fred Wheeler, "An Experimental Study of Means to Improve Writing," Journal of Secondary Education, XL (November, 1965), 331-335.

³¹Mark Alvan Christiansen, "The Relative Effectiveness of Two Methods of Teaching Composition in Freshman English at Metropolitan Junior College - Kansas City," Dissertation Abstracts, XXVI (August, 1965), 900.

as follows: central idea and analysis, supporting material, organization, expression (diction and sentence style), and literacy (grammar and mechanics). In each study no significant differences in composition were shown after one group of students had been given three times as much writing as another group. However, it should be noted that neither experiment was based solely on the frequency of writing since the students who wrote less spent considerable time discussing techniques of writing, or reading and analyzing other writers' work.

Several studies have been made of the effects of the topic on compositions. One, involving pupils of ages six and seven, indicated that the quality of compositions is a function of the topic although the success a pupil experiences on previous assignments can transfer to later assignments and affect quality.³² In another study, of children in grades four to six, compositions written on topics assigned by the teachers were compared to those on topics chosen by the students. The latter compositions were found to be superior in writing mechanics, organization, and literary quality. However, this experiment had several weaknesses. There is the possibility that the assigned topics were not interesting enough. Also, the experiment could have been biased in that the teachers told the pupils that choosing one's own topic is "more fun".³³

³²West, op. cit., 162.

³³May, loc. cit.

Three studies, two by Edmund of fifth³⁴ and of seventh³⁵ graders and the other by Anderson of college freshmen,³⁶ were investigations of differences between stories based on direct experiences and those based on derived experiences gained from sources such as reading and television. Edmund found that both fifth and seventh grade students wrote longer stories with more descriptive words if the stories were based on derived experience. These stories were also judged to be more creative after all the papers had been assessed for originality, the quantity and quality of ideas, and the facility of the writing. On the other hand, Anderson found that his college freshmen seemed to write better narration when they based it on direct experience.

All of the studies discussed in this chapter are related to the problem of the present dissertation, the problem of providing stimulation for student writers. The stimuli of some of the experiments were general and in operation throughout a school year. Examples of such stimuli are the teacher emphasis on mechanics or on ideas and originality, and the reading and analysis in the writing frequency experiments. These stimuli were influences lasting throughout the two

³⁴Neal R. Edmund, "The Relationship between Prior Experiences and the Creative Quality of Stories by Fifth Grade Children," Elementary English, XXXV (April, 1958), 248-249.

³⁵Neal R. Edmund, "A Study of the Relationship between Prior Experiences and the Quality of Creative Writing Done by Seventh-grade Pupils," Journal of Educational Research, LI (March, 1958), 481-492.

³⁶Braddock, Lloyd-Jones, and Schoer, op. cit., pp. 29-30.

experiments and were not directed toward a particular assignment. The stimuli of other experiments were specific and in operation for only one assignment, as in the experiments on the effects of the topic on compositions. Also, in some of the experiments the stimuli were administered before the students wrote the compositions. For example, in the experiment by Taylor the teachers discussed subject matter and writing techniques before the students wrote. Similarly, the experiments by Carlson, Ujlaki and Macdonald, and Tabachnick and May were designed to compare the effects of different stimuli that were presented before the writing was done. In other experiments the stimuli were administered after the students wrote compositions. Examples of such experiments are those by Wormsbecker and McMechan, in which various marking schemes were compared by evaluating their effects on subsequent writing.

However, none of the studies were concerned with determining the relative effects that films, articles, and discussions have on the quality of written compositions. Although these stimuli, commonly used by teachers of English, have been studied individually or in combination with other stimuli, no attempt has been made before to determine their comparative effects. The purpose of the study at hand was to do so, by evaluating their effects on the quality of expository writing of Grade Eleven academic students.

CHAPTER III

THE EXPERIMENTAL PROCEDURES

This chapter describes the procedures used in the experiment; it deals with the selection of the sample, the scheduling of the treatments, the controls used, the data gathered, and the method of statistical analysis.

I. THE SAMPLE

The experiment involved six classes of Grade Eleven academic students. Each class was from a different high school in Vancouver. Details about the classes and schools are given in Section II of Chapter I under the sub-heading Grade Eleven academic students.

Although each student in a class was expected to do the assignments of the experiment, not all students were included when the data were compiled for this study. A sample of students was chosen to represent the classes. Students who missed any of the experimental treatments or who did not hand in all six assignments were not included in the sample. The latter condition was necessary to keep student ability constant for the six experimental treatments. Only the six compositions written by each student in the sample group were used in the study.

The sample was made up in the following manner. It was found that one class had only two students who had not missed any of the experimental treatments and who had handed in all six assignments. Another class had only eight such students. All ten students were designated as part of the sample group. For each of the other four classes, the following procedure was used. Identical slips of paper, bearing the names of all the students in a class eligible for the sample group, were placed in a container. The first twelve students to have their names taken from the container became part of the sample group. Fifty-eight students from all six classes were now in the sample, forty-eight from the four classes, and ten from the two classes first mentioned. To raise the number to an arbitrary sixty, it was decided to place in the container the names of all eligible students who had not been chosen and pick two more. Both were names of students in Class A. There was now a total of sixty students in the sample. After the marking was completed, it was decided to exclude from the statistical analysis of the experiment the two students who were the only members of their class eligible for the sample group. It was considered unrealistic to think of two students as representing a class. To summarize, the final number of students in the sample was fifty-eight. There were fourteen from Class A, twelve from each of Classes B, D, and E, eight from Class C, and none from Class F.

II. TREATMENTS

Classroom procedures. The experiment was conducted just prior to the Easter vacation in 1968 and lasted approximately six weeks. Each

week, the six classes were given an assignment to write an expository composition. The same six topics were used for all classes, although they were given to the classes in different sequences. The same topic was presented differently to each class as follows: one class saw a short film or, for one of the six topics, two very short films; another read an expository article or, for two of the topics, more than one article; another engaged in a classroom discussion; another saw a film or, for one of the topics, two films, and then discussed its subject; another read an article or, for two of the topics, more than one article, and then discussed its subject; and another had a control treatment with no experimental stimulus at all. The students of all classes received a sheet of instructions outlining the composition assignment, which was to be completed outside of class and submitted in approximately one week's time.

Schedule for presenting the topics and experimental treatments.

The topics and experimental treatments were presented to the classes according to a carefully arranged schedule. It can be shown that a systematic ordering of topics and experimental treatments could have produced biases because of sequence effects. Therefore, the topics and treatments were presented to each class in random order, with the following provisions. Each topic and each experimental treatment were used only once in a particular class. Also, the same topic was never used with an experimental treatment more than once. The scheduling of the topics and treatments is shown on the next page. This arrangement was designed so that no biases would result from the use of non-equivalent classes and different topics. Because only two students from Class F were eligible for the sample group, that class was excluded from the statistical analysis of the study.

SCHEDULE

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Class A	V,6	IV,5	I,3	VI,1	II,4	III,2
Class B	IV,3	III,1	I,4	VI,6	II,2	V,5
Class C	V,2	II,6	IV,1	III,3	I,5	VI,4
Class D	III,6	I,2	VI,3	IV,4	II,5	V,1
Class E	II,3	I,1	VI,2	IV,6	V,4	III,5
Class F	V,3	VI,5	IV,2	III,4	II,1	I,6

KEY

Experimental Treatments

- I. Film(s)
- II. Article(s)
- III. Discussion
- IV. Film(s) and discussion
- V. Article(s) and discussion
- VI. Control - no stimulus

Topics

1. What's Wrong with the Canadian High School?
2. The Population Explosion - A Challenge to Mankind
3. Automotive Safety - How to Reduce the Slaughter on our Roads
4. Racial Prejudice in Canada
5. Canada's Indian Problem
6. Smoking

Films used. The films used are listed below in corresponding order to the topics given on the previous page. The list gives the name of the film, the film identification number, and the length of the film in minutes, and indicates whether it was produced in black and white or in colour. All of the films were produced by the National Film Board of Canada. For the last topic, two films were used since they were shorter than the rest.

FILMS USED

1.	No Reason to Stay	NFB 0166006	28	B & W
2.	Challenge to Mankind	NFB 0161066	28	B & W
3.	Every Second Car	NFB 0164149	27	B & W
4.	Long Ways to Go	NFB 0166041	28	colour
5.	Because They Are Different	NFB 0164089	28	B & W
6.	Let's Discuss Smoking	NFB 0164154	16	B & W
	The Drag	NFB 0165106	9	colour

III. CONTROLS

The writer variable. As can be seen in the arrangement shown in Section II of this chapter, each class acted as the control group for one week. This control factor was included in order to ascertain variations in composition quality attributable to the various stimulus situations. Also, consideration had to be given to variables other than the stimulus situations. These variables are outlined in Research in

Written Composition.¹ If a variable was not held constant throughout the experiment, some provision was necessary to neutralize or balance the effects of the variable on each experimental treatment. The first one, the writer variable, refers to the fact that a person's day-to-day writing performance varies. However, as the study did not involve the examination of individual scores and as the aggregate sample of scores was large enough (fifty-eight for each experimental treatment) to cancel out any individual variation, it was felt that this factor could safely be ignored.

The assignment variable. The second possible source of error was the assignment variable. This variable has the following four aspects: the topic, the mode of discourse, the time afforded for writing, and the examination situation. With regard to the first aspect, a topic was used with each experimental treatment only once. Moreover, since the marking system provided that each group of sixty compositions on one topic was allocated the same number of 10's, 9's, 8's, etc., the topics were made statistically equivalent. (The procedure for assigning marks is described in Section 3 on the second page of the Instructions for Markers in Appendix F.) Both provisions ensured that differences among the topics would not affect conclusions about the influences of the experimental treatments on the students' compositions. As for the second aspect, the mode of discourse was constant throughout the experiment since all assignments required expository writing.

¹Richard Braddock, Richard Lloyd-Jones, and Lowell Schoer, Research in Written Composition (Champaign, Illinois: National Council of Teachers of English, 1963), pp. 6-15.

The time afforded for writing the compositions outside of class, on the other hand, was not constant. The teachers could not be expected to keep the interval between each assignment exactly one week long. Three teachers reported that the interval varied from seven to eight days, another reported a variation of from six to eight days, and the fifth teacher reported a variation of from six to nine days. For all classes, each interval included a weekend. Within the interval given to write the compositions, the students could spend as much time as they wished on the assignment. This factor was deliberately not controlled as it was believed that different experimental treatments would result in different amounts of time and effort being spent on the assignments.

The examination situation was the fourth aspect of the assignment variable. The directions for the assignments were completely standardized by providing all the classes with identical instructions on mimeographed sheets that differed only in the six topics prescribed. These sheets can be seen in Appendix B. It was not possible to have each experimental treatment for a class on the same day of the week and in the same period of the day. Also, the conditions under which the compositions were written out of class could not be controlled. On the other hand, classroom procedures were carefully specified, as can be seen by examining the Teacher's Guide in Appendix E.

Classroom discussions constituted a problem because, although guidelines were given to the teachers, it was neither possible nor desirable to control them too closely. However, information about the

discussions was gathered after they had been held. The teachers reported the length of each discussion; this information is presented in Table III. As can be seen, the shortest discussion reported by the five teachers lasted twenty minutes, and the longest, forty minutes. The mean length of all fifteen discussions was twenty-seven minutes.

An analysis of variance, summarized in Table IV, was made of the data in Table III. A method discussed by Winer was used.² Table IV shows that the computed value of $F(2,8)$ was 5.52. The critical value at the .05 level of significance was 4.46 and at the .01 level, 8.65. Because the computed value of $F(2,8)$ did not exceed the critical value at the .01 level of significance, a more conservative test was then used, for reasons given in Section II of Chapter IV of this study under the subheading Assumptions of the test. According to this test, the critical value of $F(1,4)$ was 7.71 at the .05 level of significance. Since the computed F value was below this critical value, there was some doubt whether any of the totals in Table III could be considered to differ significantly with one another at the .05 level.

The teachers also reported, according to their own opinions, the response of the students in each of the fifteen discussions. The teachers rated the students' enthusiasm in each discussion by means of the following scale: 1 - completely unenthusiastic, 2 - not very

²B. J. Winer, Statistical Principles in Experimental Design (McGraw-Hill Series in Psychology. New York: McGraw-Hill Book Company, 1962), pp. 105-124.

TABLE III

TEACHERS' RESPONSES CONCERNING THE LENGTH IN MINUTES
OF EACH DISCUSSION

Teachers	Stimulus Situations		
	Discussion	Disc. after film	Disc. after art.
A	35	20	20
B	40	20	35
C	30	20	20
D	30	30	30
E	30	25	20
Totals	165	115	125
Means	33	23	25

TABLE IV

ANALYSIS OF VARIANCE FOR THE LENGTH OF EACH DISCUSSION

Sources of Variation	SS	df	MS	F
Between teachers	1.57	4		
Within teachers	4.83	10		
Stimuli	2.80	2	1.40	5.52*
Residual	2.03	8	.25375	
Totals	6.40	14		

$$*F_{.95}(2,8) = 4.46$$

enthusiastic, 3 - fairly enthusiastic, 4 - quite enthusiastic, 5 - very enthusiastic. The corresponding responses of the five teachers are shown in Table V. The mean of the teachers' responses for the fifteen discussions was 3.6 or between fairly enthusiastic and quite enthusiastic. An analysis of variance, summarized in Table VI, was made of the data in Table V by the same method as was used for the lengths of the discussions. The computed value of $F(2,8)$ was 2.49, the critical value at the .05 level of significance being 4.46. Thus, the totals of Table V were not shown to differ significantly.

The rater variable. The last two variables to be considered have to do with grading the compositions. The first, the rater variable, concerns the raters' personal feelings and rater fatigue. The raters employed in this study were two qualified and experienced former English teachers, Mrs. Helen Johnson and Mr. George Wade. They were hired to avoid any biases that could have resulted if either the experimenter or the teachers of the students had marked the compositions. It was essential that the markers not know that the writer of a particular composition had been given a particular experimental treatment. Therefore, the markers were not told the nature of the experiment until they had completed all the marking; also, in the Assignment Sheets the students were instructed not to refer to films, articles, or discussions in their compositions.

Concerning rater fatigue, it should be noted that all the compositions written by all the students in each of the six classes were

TABLE V
TEACHERS' RESPONSES CONCERNING THE ENTHUSIASM
OF THE CLASS DURING EACH DISCUSSION

Teachers	Stimulus Situations		
	Discussion	Disc. after film	Disc. after art.
A	4	4	4
B	4	4	4
C	2	4	3
D	3	4	3
E	4	5	2
Totals	17	21	16
Means	3.4	4.2	3.2

NOTE: Each response in the table corresponds to the following scale: 1-completely unenthusiastic, 2-not very enthusiastic, 3-fairly enthusiastic, 4-quite enthusiastic, 5-very enthusiastic.

TABLE VI
ANALYSIS OF VARIANCE FOR THE ENTHUSIASM
OF THE CLASS DURING EACH DISCUSSION

Sources of Variation	SS	df	MS	F
Between teachers	2.3	4		
Within teachers	7.3	10		
Stimuli	2.8	2	1.4	2.49*
Residual	4.5	8	.5625	
Totals	9.6	14		

$$*F_{.95}(2,8) = 4.46$$

graded and corrected. However, while the data for this study were obtained, rater fatigue was reduced since, at first, only the sixty compositions written on each topic by the sample group (including the two students from Class F) were graded by each marker. Each set of sixty compositions on one topic was marked as a group, thus facilitating impartial comparison of the effects of the different experimental treatments. Papers from all six classes were mixed throughout each group of sixty compositions. No marks of any kind were placed on the papers by the raters, so subsequent ratings were not influenced by previous ones.

The colleague variable. The last variable, the colleague variable, has to do with the reliability of rating. It is a well-known fact that, because of rater subjectivity, composition grading tends to be quite unreliable. However, there are ways to improve the grading consistency of an individual marker and to promote agreement among various markers. One procedure used in this study was the setting up and discussing of criteria for marking. Before marking the selected compositions, the raters also did some practice grading of other compositions. In doing so, they marked the same compositions independently and then discussed marks which deviated widely from rater to rater for the same composition. A definite system for grading was also specified. The sixty compositions were ranked by comparing each one to the others, and then grades were assigned in a normal distribution. The directions concerning the marking can be seen in the Instructions for Markers in Appendix F. To determine how well the two raters agreed with one

another in their grading, a correlation coefficient was calculated as described in Section I of Chapter IV.

IV. THE DATA GATHERED

Obviously, since the chief object of this study was to determine whether the experimental treatments had significantly different effects on the quality of student writing, the most important data gathered were the marks of the student compositions written after each treatment. The main considerations in arriving at these marks have already been outlined in Section III of this chapter.

When the students submitted each composition, they also handed in an Information Slip, previously supplied by the teacher and completed later by the students. It asked for the following information: the amount of time spent on the assignment, the number of words in the composition, whether or not the student was present during the period the assignment was given, and the topic of the composition that corresponded with the Information Slip. The first two items were needed to determine, for each experimental treatment, the average amount of time spent on the compositions and the average number of words written in them. The third item was needed to identify students ineligible for the sample group, and the fourth item was necessary simply to determine which experimental treatment the first two responses pertained to. An Information Slip can be seen in Appendix C. A questionnaire was also given to the students at the end of the experiment. The responses to it revealed how interesting

and how helpful the students found each stimulus. A questionnaire is contained in Appendix D.

V. THE METHOD OF STATISTICAL ANALYSIS

For the analysis of the data, the schedule given in Section II of this chapter was revised as shown on the next page. The pattern was rearranged in order to bring the scores for each treatment together in a column for the analysis of variance. After all of the compositions were marked, each was assigned a final score, which was the mean of the two markers' grades. The final scores were then arranged in thirty groups corresponding to the thirty categories shown for Classes A to E on the next page. (Class F was excluded from the statistical analysis because only two students from it were eligible for the sample group.) The means of each of the thirty groups of scores were calculated and entered in a table conforming to the arrangement on the next page. An analysis of variance was then applied to the data.

ARRANGEMENT OF THE GROUPS OF SCORES FOR THESTATISTICAL ANALYSIS

	I	II	III	IV	V	VI
Class A	I,3	II,4	III,2	IV,5	V,6	VI,1
Class B	I,4	II,2	III,1	IV,3	V,5	VI,6
Class C	I,5	II,6	III,3	IV,1	V,2	VI,4
Class D	I,2	II,5	III,6	IV,4	V,1	VI,3
Class E	I,1	II,3	III,5	IV,6	V,4	VI,2
Class F	I,6	II,1	III,4	IV,2	V,3	VI,5

KEY

Experimental Treatments

- I. Film(s)
- II. Article(s)
- III. Discussion
- IV. Film(s) and discussion
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Topics

1. What's Wrong with the Canadian High School?
2. The Population Explosion - A Challenge to Mankind
3. Automotive Safety - How to Reduce the Slaughter on our Roads
4. Racial Prejudice in Canada
5. Canada's Indian Problem
6. Smoking

CHAPTER IV

STATISTICAL ANALYSIS OF THE DATA

This chapter deals with the correlation between the two markers' sets of scores, with the method used to determine whether any of the stimulus situations had a significant effect on the quality of the students' compositions, and with data gained from the Information Slips and Questionnaires.

I. THE CORRELATION COEFFICIENT

Every composition written by the students in the sample group was graded by both markers, working independently of each other. The resulting two sets of marks are given in Appendix G as Tables XIX and XX. Each table is arranged according to the topics of the compositions and the sixty students, who were listed alphabetically on the mark sheets given to the raters but who are identified by numbers in the tables. Each of the two tables contains 360 marks since the sixty students (including the two from Class F) wrote six compositions each. The correlation coefficient was determined by comparing each of the 360 marks with its counterpart in the other table. The following formula, given by Ferguson, was used to calculate the Pearson product-moment correlation coefficient:

$$r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2][N \sum Y^2 - (\sum Y)^2]}}^1$$

It may seem that this formula is inappropriate since it requires scores on either interval or ratio scales. The quality of the compositions, however, was measured by a ranking technique which resulted in scores on an ordinal scale. Nevertheless, a rank-order correlation method was not used, for the following reasons. The two most common rank correlation methods, one devised by Spearman and the other by Kendall, are less powerful than the method used. Also, both would have been more difficult to use since the data contained a great number of tied scores.² Most important, the correlation coefficient was to indicate the amount of agreement between the two markers' scores, not the agreement between the compositions themselves. Thus, although the quality of the compositions was measured on an ordinal scale, the actual scores of the markers were given on an interval scale.

Expressed as a coefficient, the overall agreement between each marker's set of scores was +.67. Correlation coefficients were also calculated for the two markers' sets of scores for each of the six topics. These coefficients were as follows:

¹George A. Ferguson, Statistical Analysis in Psychology and Education (second edition; McGraw-Hill Series in Psychology. New York: McGraw-Hill Book Company, 1966), pp. 111-112.

²Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences (McGraw-Hill Series in Psychology. New York: McGraw-Hill Book Company, 1956), pp. 202-223.

<u>Topics</u>	<u>Coefficients</u>
What's Wrong with the Canadian High School?	.67
The Population Explosion - A Challenge to Mankind	.66
Automotive Safety - How to Reduce the Slaughter on our Roads	.76
Racial Prejudice in Canada	.70
Canada's Indian Problem	.59
Smoking	.66

These coefficients and the overall correlation seem satisfactory, in view of the fact that coefficients as low as .31 have been reported for marker agreement. However, coefficients up to .961 have also been recorded.³ The correlation obtained in the present study was lower than expected, even though considerable effort had been made to promote agreement.

It would be virtually impossible to list all the reasons for Marker A deviating from Marker B in assigning a score to a composition. However, different attitudes and values resulting from differences in each marker's age, sex, and background would be important. Marker A was a woman, considerably younger than Marker B, a man. Conversations with both, after the marking was completed, revealed quite divergent attitudes about some of the topics, notably the two on racial issues. Also, although both markers were instructed to give equal weight to the five criteria given in Section A of the Instructions for Markers in Appendix F, likely

³Richard Braddock, Richard Lloyd-Jones, and Lowell Schoer, Research in Written Composition (Champaign, Illinois: National Council of Teachers of English, 1963), pp. 41-42.

the emphasis placed on each criterion differed. In addition, the markers were likely influenced differently by factors not delineated fully in the criteria. For example, if the two markers were considering a composition's style, one might have been positively influenced by a florid, wordy style, and the other, by a sparse, concise style. To conclude, the correlation coefficient would have possibly been higher if the compositions had been scored by two markers with more similar characteristics. It should be noted, however, that a high correlation does not necessarily mean that the scoring is valid. For example, two markers who graded exclusively on the basis of mechanics could possibly achieve a high correlation between their scores, and yet the markers would be ignoring factors which many teachers of English consider important.

II. THE ANALYSIS OF COMPOSITION QUALITY

The choice of the statistical test. All the analyses of variance of this study were made by a parametric test discussed by Winer.⁴ The test is appropriate for single-factor experiments with repeated measures on the same subjects. The method of analysis described by Winer was modified for the analyses of variance discussed in this chapter. Class means, calculated for each treatment from the scores of the sample students, were used in place of the scores of individual subjects. The scores would not have been as reliable as the means, and

⁴B. J. Winer, Statistical Principles in Experimental Design (McGraw-Hill Series in Psychology. New York: McGraw-Hill Book Company, 1962), pp. 105-124.

if they had been used, it would have been necessary to assume that the subjects had been randomly selected from the population of all Grade Eleven academic students, not from just five classes. This assumption would be justifiable only if the classes were completely representative of all Grade Eleven academic students. Although all the classes were thought to be grouped heterogeneously, there was a possibility that the classes' formation could have been affected by timetable requirements. If one or more of the classes happened to be made up of students in one ability stream or in a certain program such as science or perhaps fine arts, the results of the experiment could not be generalized to all Grade Eleven academic students. However, this difficulty could be circumvented by using randomly selected classes, not individual students, as the basic experimental unit.

Other designs for the analysis of variance are described by Winer. One is for a two-factor experiment with repeated measures on one factor.⁵ In the present experiment the two factors would have been the classes and the experimental treatments, with all the classes being measured for each experimental treatment. However, this method requires equal numbers of subjects in each level of the first factor or, in this case, equal numbers of subjects from each class. One way of adapting the data to this requirement would be to drop the eight subjects of Class C from the analysis, and randomly remove two of the fourteen subjects of Class A. Thus, forty-eight subjects, twelve from each of

⁵Ibid., pp. 298-318.

the remaining four classes, would be left. This adaptation of the data would result in a larger N than using another possible method, that of retaining eight students in five classes. Although neither method was chosen for the analysis of variance, the first one was used as a matter of interest. The $F(5,220)$ ratio for the treatments was 2.38. This value was significant, the critical value being between 2.26 and 2.21. The $F(3,44)$ ratio of 3.26 indicated that there were significant differences among the overall scores of the four classes. The critical value here lay between 2.84 and 2.76. The test indicated negligible interaction between the treatments and the classes. The $F(15,220)$ ratio for this was .86, the critical value lying between 1.72 and 1.67. All these critical values were for the .05 level of significance.⁶ The test, however, requires the assumption, discussed in the preceding paragraph, that the subjects were chosen from the whole population of Grade Eleven academic students. Also, it was not considered justifiable to discard data in order to obtain a significant result. Therefore, this method was not chosen for the analysis of variance.

Winer also discusses an unweighted means solution that is suitable when the groups are of unequal size.⁷ This method, however, requires the sampling assumption mentioned previously and is less powerful than the test for groups of equal size. Also, the question of whether to retain or omit Class F in the calculations could not be

⁶Ibid., pp. 642-647.

⁷Ibid., pp. 374-378.

resolved. One point of view was that two students are not representative of a class, and the other was that some data are better than none at all.

A nonparametric method which requires only ordinal measurement was also considered. This was the Friedman two-way analysis of variance by ranks as described by Siegel.⁸ The method was not used, however, because there does not seem to be any way of statistically comparing the effects of the various treatments if a significant difference is indicated. Also, it appears that the critical values of chi square, which are employed in the method, are slightly inaccurate measures of the true critical values.⁹

The method of statistical analysis finally chosen for the experiment was the one which was originally proposed and which was discussed first in this section. It should be pointed out that the power of this method is relatively low. As stated previously, a significant value for $F_{.95}(5,220)$ was calculated using the two-factor method with four equal groups. In comparison, the method finally chosen for this experiment gave a nonsignificant value of 2.58 for $F_{.95}(5,15)$ when the same subjects from the four classes were used. (The critical value here was 2.90.) However, after all the factors mentioned were taken into consideration, it seemed that this method, used with the five classes, was the most appropriate.

⁸Siegel, op. cit., pp. 166-172.

⁹Milton Friedman, "A Comparison of Alternative Tests of Significance for the Problem of m Rankings," The Annals of Mathematical Statistics, XI (March, 1940), 86-92.

Assumptions of the test. Since the method of statistical analysis was a parametric one, certain conditions had to be met if the results of the test were to be valid.¹⁰ First, the observations must be independent. Including a subject in the sample cannot bias the chances of including any other member of the population. Also, a particular score must not influence any other score. In the experiment at hand, no restrictions were placed on the sampling from each class, other than specifying the number of subjects to be chosen, and the previously mentioned excluding of students who missed any of the experimental treatments or who did not hand in all the assignments. However, the markers could have been influenced by the score of a composition in assigning a grade to a different composition. The sheets on which the scores were recorded were used for all six topics. These sheets were similar to Tables XIX and XX in Appendix G. The first marks assigned were for a particular topic used with all the experimental treatments, the marks being given on the basis of a normal distribution. As the grading proceeded, the markers could see the scores that a particular student received on the first compositions graded. One of the markers mentioned a tendency to assign similar scores to a student's compositions. This influence possibly reduced the differences among the overall scores for the different experimental treatments. However, there was no systematic biasing in favour of or against any experimental treatment.

The second condition required for an F test is that the

¹⁰Siegel, op. cit., pp. 18-20.

observations must be drawn from normally distributed populations. It cannot be argued that the subjects' performance in composition conformed exactly to a normal curve. It can be said, too, that sixty is a relatively small number from which to expect a normal distribution. However, the classes were regarded by their teachers and by administrators as heterogeneous groups of Grade Eleven academic students. Also, even in generally homogeneous classes of such students, performance in the specific area of composition varies noticeably. In addition, Box states that there is abundant evidence that the F test is remarkably insensitive to non-normality when different treatments are applied to the same group as in this experiment.¹¹ However, non-normality generally makes the results appear slightly more significant than they really are.¹² Therefore, as explained in the next paragraph, a higher critical value was to be used if a significant value was found to be close to the critical value at the .05 level of significance.

The third requirement for an F test is that the treatment populations must have the same variance. However, Box states that when the group sizes are equal, as in the present case, "... the analysis of variance test is affected surprisingly little by variance inequalities."¹³ On the other hand, Box has shown that if the score obtained by each

¹¹G.E.P. Box, "Non-normality and Tests on Variances," Biometrika, XL (December, 1953), 318.

¹²Ferguson, op. cit., p. 294.

¹³Box, op. cit., 333.

subject under one treatment is similar or correlated to the scores he obtained under the other treatments, and if both the variances and covariances are heterogeneous, the critical value shown in an F table tends to be too low. To guard against this possibility, it was decided that the conservative or negatively biased test given by Winer would be used if a computed F value was found to lie between the critical values at the .05 and .01 levels of significance. This conservative test assumes that the F ratio has one degree of freedom for the numerator, and $n-1$ degrees of freedom for the denominator.¹⁴

The fourth condition necessary for an F test is that the variables must be measured on an interval or a ratio scale. In the present experiment, the distances between any two consecutive marks were not absolutely equal. However, it is likely that these distances were nearly equal because the number of compositions given a particular mark was decided on the basis of a normal distribution. If the quality of the compositions actually conformed to the distribution of marks, equal interval measurement would have been achieved.

The last requirement for an F test is that the effects of different factors on the total variation must be additive. It is assumed that a given observation can be partitioned into independent and additive bits. Ferguson states, "in most situations there are no grounds to suspect the validity of this model."¹⁵ To conclude, it seemed

¹⁴Winer, op. cit., p. 123.

¹⁵Ferguson, op. cit., p. 295.

justifiable to use the F test, bearing in mind that should the computed F ratio fall between the critical values at the .05 and the .01 levels of significance, the more conservative test mentioned previously would be used.

Computational procedures. The analysis of variance was based on Table XXI, given in Appendix H. This table was constructed by combining and reorganizing the marks given in Tables XIX and XX in Appendix G. Each mark in Table XXI is a mean of the two grades assigned to a composition by the markers. The students are arranged according to the five classes. (The two students of Class F are not included.) The marks are arranged according to the experimental treatments, not by topics as in Tables XIX and XX in Appendix G. Also, the table shows the mean mark obtained by each class under each experimental treatment. These mean marks were transferred to Table VII. Here it can be seen that each total is the sum of the mean marks for a particular experimental treatment. Represented in each total are all five classes, each one having been given a different topic but the same experimental treatment.

The effects of excluding Class F from the statistical analysis were carefully considered. In particular, thought was given to the effect of the revision on the totals. It was necessary that these be equivalent so that they could be compared with each other; seemingly, each total had to represent the same classes and the same topics. It can be seen in Table VII that the same classes were used for each total. However, since a different topic was used with each experimental treatment in

TABLE VII
 MEAN MARKS OF EACH CLASS FOR EACH EXPERIMENTAL TREATMENT

Classes	Experimental Treatments					
	I	II	III	IV	V	VI
A	5.50	6.07	5.75	6.39	6.04	5.82
B	5.08	5.42	5.54	6.08	5.46	5.29
C	5.31	5.50	4.56	4.63	5.00	4.38
D	7.04	6.17	6.46	7.08	7.29	7.13
E	6.42	6.79	6.58	6.79	7.00	6.79
Totals	29.35	29.95	28.89	30.97	30.79	29.41
Overall						
Means	5.87	5.99	5.78	6.19	6.16	5.88

Class F, excluding Class F from the statistical analysis meant excluding a different topic from each total. Thus, after Class F was excluded, the totals would not seem to be equivalent since, as can be seen by checking the chart in Section V of Chapter III, the first total represents all the topics but topic six, the second total represents all the topics but topic one, and so on. If, for example, the topic not represented in the first total was intrinsically easier or more interesting to write on than the others, it would seem that the first experimental treatment would be underestimated in relation to the other treatments, simply because the sample students had not had the opportunity to write on the more advantageous topic.

However, in reality the problem did not exist because of a feature of the marking system. Since each group of sixty compositions on one topic was allocated the same number of 10's, 9's, 8's, etc., the topics became, in a statistical sense, equal to each other. Thus, the totals could still be justifiably compared even though they represented different topics. Another problem, arising from the unequal number of sample students from each class, should be mentioned. A treatment total could have been distorted if the students' individual scores had been used instead of class means and if the topics had not been made statistically equivalent. For example, if the largest group of students wrote on an easy, interesting topic, the treatment total affected would have been inflated. However, this possibility was eliminated by the topics being made statistically equivalent.

The analysis of variance is summarized in Table VIII. The two sums of squares for the variation within classes were divided by their respective degrees of freedom to obtain the two mean squares. The F ratio, $F = \frac{MS \text{ treatment}}{MS \text{ residual}} = \frac{.14008}{.12549} = 1.12$, was used to test the null hypothesis. For a .05 - level test, the critical value for the F ratio is $F_{.95}(5,20) = 2.71$. Thus, the experimental data did not contradict the null hypothesis, which was stated as follows: Experiencing any one of the six experimental treatments will not have a significant effect on the relative quality of expository writing of Grade Eleven academic students.

Discussion of the findings. Although none of the experimental treatments had a significant effect on the quality of student compositions, it is worthwhile to consider the differences among the totals in Table VII, page 55. Although the differences possibly resulted from chance factors, it is also possible that these differences were caused by the experimental treatments. In the latter case, had the sample been considerably larger, the differences would have been statistically significant. However, it must be emphasized that the experiment provided no proof that the differences among the totals were actually due to the effects of the experimental treatments and not to chance factors. The totals should be compared with this point in mind. First, treatment VI, in which no experimental stimulus was given, seemed to result in compositions of slightly higher quality, on the average, than treatments I and III did. (These differences, of course, were not statistically significant.) Perhaps some aspect of treatment VI did stimulate the

TABLE VIII
ANALYSIS OF VARIANCE FOR THE MEAN MARKS

Sources of Variation	SS	df	MS	F
Between classes	16.59168	4		
Within classes	3.21027	25		
Treatments	.70039	5	.14008	1.12*
Residual	2.50988	20	.12549	
Totals	19.80195	29		

$$*F_{.95}(5,20) = 2.71$$

students. Possibly the students felt challenged by having to write without the assistance of a classroom activity, a feeling that the teachers, in commenting on the assignments, might have unintentionally fostered.

Second, treatment III, which was a discussion with no film or article, seemed the least effective of all the treatments. The total for treatment III was slightly lower than any of the other five totals. The difference, although not statistically significant, is interesting in view of the fact that to stimulate their students in regular composition periods the teachers relied on straight discussion more than any other technique. (Information about the teachers' regular methods is given in Section II of Chapter I under the subheading Grade Eleven academic students.) However, there was a possibility that the discussions had suffered because the teachers were dealing with topics that perhaps did not particularly interest them. Too, the teachers might have been less enthusiastic about a method which did not utilize one of the modern media. Therefore, they were asked how they felt about the discussions not preceded by a film or an article. All five teachers expressed satisfaction with the discussions used alone. Nevertheless, the quality of the compositions written after these discussions was slightly lower, on the average, than that of the compositions written after any of the other treatments. Perhaps the other methods were more novel to the students, but whatever the reason was, the results still suggest that teachers may be placing too much faith in discussion alone.

Third, the totals for treatments I and II suggest that in

attempting to improve composition quality there may be little point in just showing a film or in just having the students read an article. As expected, the combined stimuli in treatment IV (seeing a film and then discussing its subject) and in treatment V (reading an article and then discussing its subject) seemed slightly more effective than any of the other experimental treatments. It is interesting that films, articles, and discussions used alone seemed less effective than either films or articles combined with discussion. Perhaps some students need to converse in a social group in order to expand and make meaningful the ideas presented in a film or an article. Perhaps, too, discussion is not beneficial unless something precedes it to arouse students and give them some material to discuss. At any rate, although there is no conclusive proof that any of the stimulus situations were effective and although the results of the experiment must be considered with this fact in mind, it does seem that in Grade Eleven academic classes, films, articles, or discussions, used alone, may not be as effective in improving the quality of expository writing as discussions preceded by either films or articles.

III. ANCILLARY DATA

The amount of time students spent on the assignments. The amount of time in minutes that the sample students spent on each assignment after each of the experimental treatments is shown in Table XXII in Appendix I. The data were compiled from the Information Slips made out by the students in the sample group and cannot be thought of as absolutely accurate. The table also gives, for each class, the mean time spent on the assignments

by the sample students after each of the experimental treatments. These means form the basis of Table IX, in which each total is the sum of the five class means for a particular experimental treatment. The grand mean of all the thirty means was ninety-one minutes. An analysis of variance, summarized in Table X, was made of the data in Table IX by the same method as was used to analyze the effects of the treatments on composition quality. Table X shows that no significant differences were found among the amounts of time spent on the compositions after each of the experimental treatments. The computed value of $F(5,20)$ was 1.29, the critical value at the .05 level of significance being 2.71. As can be seen by the totals in Table IX, less time, on the average, was spent on the compositions written after the straight discussions than on the compositions written after any of the other experimental treatments. This difference, however, could have been due to chance factors.

The number of words in the compositions. The number of words that the sample students wrote in each composition after each of the experimental treatments is shown in Table XXIII in Appendix I. The data were compiled from the Information Slips and so may be slightly erroneous. The table also gives, for each class, the mean number of words written in the compositions by the sample students after each of the experimental treatments. These means form the basis of Table XI. The grand mean of all the thirty means was 304 words. An analysis of variance, summarized in Table XII, was made by the method used previously. Table XII shows that no significant differences were found among the totals of Table XI. The computed value of $F(5,20)$ was .64, the critical value at the .05 level

TABLE IX

MEAN TIME IN MINUTES SPENT ON THE ASSIGNMENTS BY EACH CLASS AFTER EACH EXPERIMENTAL TREATMENT

Classes	Experimental Treatments					
	I	II	III	IV	V	VI
A	66.15	64.23	63.46	88.46	93.08	77.31
B	70.25	74.17	67.50	89.08	72.33	62.08
C	92.14	92.86	74.71	71.43	102.14	63.57
D	146.67	112.08	115.83	125.42	126.67	125.83
E	119.09	121.82	85.91	88.18	85.91	96.36
Totals	494.30	465.16	407.41	462.57	480.13	425.15
Overall Means	98.86	93.03	81.48	92.51	96.03	85.03

TABLE X

ANALYSIS OF VARIANCE FOR THE MEAN TIME SPENT ON THE ASSIGNMENTS

Sources of Variation	SS	df	MS	F
Between classes	11,436.5057	4		
Within classes	4,495.5257	25		
Treatments	1,097.7310	5	219.5462	1.29*
Residual	3,397.7947	20	169.8897	
Totals	15,932.0314	29		

$$*F_{.95}(5,20) = 2.71$$

TABLE XI

MEAN NUMBER OF WORDS WRITTEN IN THE COMPOSITIONS BY
EACH CLASS AFTER EACH EXPERIMENTAL TREATMENT

Classes	Experimental Treatments					
	I	II	III	IV	V	VI
A	263.77	252.31	251.15	319.23	307.15	332.46
B	243.36	278.55	285.09	255.64	271.64	241.82
C	233.86	247.29	244.57	241.00	231.14	188.57
D	380.75	358.33	270.17	346.92	472.67	367.75
E	410.18	353.36	365.09	349.18	348.09	395.55
Totals	1531.92	1489.84	1416.07	1511.97	1630.69	1526.15
Overall Means	306.38	297.97	283.21	302.39	326.14	305.23

TABLE XII

ANALYSIS OF VARIANCE FOR THE MEAN NUMBER
OF WORDS WRITTEN IN THE COMPOSITIONS

Sources of Variation	SS	df	MS	F
Between classes	93,211.0520	4		
Within classes	35,273.9129	25		
Treatments	4,835.5976	5	967.1195	.64*
Residual	30,438.3153	20	1521.9158	
Totals	128,484.9649	29		

$$*F_{.95}(5,20) = 2.71$$

of significance being 2.71. Differences among the amounts written in the compositions after each of the experimental treatments could thus very well be due to chance factors. However, it should be noted that the totals in Table XI show that, on the average, the fewest number of words were written after the students experienced treatment III, the discussion with no film or article preceding it.

The students' opinion of the various stimulus situations. The sample students' responses concerning how interesting and how helpful each stimulus situation was are given in Appendix I in Tables XXIV and XXV respectively. The data were compiled from the Questionnaires made out by the students in the sample group. Each response was a number from one to five as is shown in the Questionnaire in Appendix D. It should be noted that the two scales used in the Questionnaire were not interval scales. That is, considered as individuals or as a group, the sample students likely did not, for example, perceive the quantitative difference between Boring and Not very interesting as being the same as the difference between Quite interesting and Very interesting. Nevertheless, a parametric analysis of variance was made of the sample students' opinions by the method used previously. The nonparametric method was not employed, for reasons stated in Section II of this chapter under the subheading The choice of the statistical test. Also, the responses were worded with the intention of providing approximately equal differences between any two consecutive categories. Finally, the computed F ratios for interest and for helpfulness were well beyond the critical value at the .05 level of significance, both being significant at the .01 level.

For the statistical analysis the class means for the sample students' responses, given in Tables XXIV and XXV in Appendix I, were used to form Tables XIII and XV respectively. The analyses of variance for the data in Table XIII, concerning the interest of each stimulus situation, and for the data in Table XV, concerning the helpfulness of each stimulus situation, are summarized in Tables XIV and XVI respectively. The latter tables show that significant differences were found both among the totals of Table XIII and among the totals of Table XV. The computed values of $F(4,16)$ for the students' opinions of each stimulus situation were 11.92 for interest and 4.93 for helpfulness. The critical value for both of these F ratios was 3.01 at the .05 level of significance and 4.77 at the .01 level.

Tables XVII and XVIII indicate the differences among the totals of Tables XIII and XV respectively; each total in a table is compared with each of the other four totals. The totals are placed in order of magnitude both horizontally and vertically. The entry in a cell of the table is the difference between the total at the head of the column and the total to the left of the row. An underlined entry indicates a significant difference, found by using the Newman-Keuls method of testing the difference between each possible pair of totals.¹⁶ As can be seen in Table XVII, significant differences at the .05 level of significance were found among the following responses of the sample students. Treatment IV (film and discussion) was thought to have been more interesting than treatment V (article and

¹⁶Winer, op. cit., pp. 80-85, 114-115.

TABLE XIII

CLASS MEANS FOR THE SAMPLE STUDENTS' RESPONSES CONCERNING
THE INTEREST OF EACH STIMULUS SITUATION

Classes	Stimulus Situations				
	I	II	III	IV	V
A	3.86	3.21	2.57	4.36	3.86
B	3.82	3.27	2.55	4.00	3.91
C	4.37	2.62	2.00	3.87	2.37
D	3.25	2.83	3.17	4.33	3.33
E	3.83	2.58	2.58	3.83	3.00
Totals	19.13	14.51	12.87	20.39	16.47
Overall Means	3.83	2.90	2.57	4.08	3.29

TABLE XIV

ANALYSIS OF VARIANCE FOR THE INTEREST
OF EACH STIMULUS SITUATION

Sources of Variation	SS	df	MS	F
Between classes	1.0088	4		
Within classes	10.4264	20		
Stimuli	7.8071	4	1.9518	11.92*
Residual	2.6193	16	.1637	
Totals	11.4352	24		

$$*F_{.95}(4,16) = 3.01$$

TABLE XV

CLASS MEANS FOR THE SAMPLE STUDENTS' RESPONSES
CONCERNING THE HELPFULNESS OF EACH STIMULUS SITUATION

Classes	Stimulus Situations				
	I	II	III	IV	V
A	3.36	3.79	2.64	4.14	3.86
B	3.18	3.45	2.82	3.91	3.73
C	4.00	3.25	2.00	3.25	2.87
D	3.08	2.92	3.25	4.00	3.83
E	3.08	2.75	2.83	3.58	3.08
Totals	16.70	16.16	13.54	18.88	17.37
Overall Means	3.34	3.23	2.71	3.78	3.47

TABLE XVI

ANALYSIS OF VARIANCE FOR THE HELPFULNESS
OF EACH STIMULUS SITUATION

Sources of Variation	SS	df	MS	F
Between classes	1.0027	4		
Within classes	5.5539	20		
Stimuli	3.0668	4	.7667	4.93*
Residual	2.4871	16	.1554	
Totals	6.5566	24		

$$*F_{.95}(4,16) = 3.01$$

TABLE XVII

DIFFERENCES BETWEEN EACH POSSIBLE PAIR
OF TOTALS IN TABLE XIII

Stimulus Situations	III	II	V	I	IV
Totals	12.87	14.51	16.47	19.13	20.39
III	12.87	1.64	<u>3.60</u>	<u>6.26</u>	<u>7.52</u>
II	14.51		1.96	<u>4.62</u>	<u>5.88</u>
V	16.47			2.66	<u>3.92</u>
I	19.13				1.26
IV	20.39				

NOTE: The six underlined differences are significant since they exceed the critical values at the .05 level of significance.

TABLE XVIII

DIFFERENCES BETWEEN EACH POSSIBLE PAIR
OF TOTALS IN TABLE XV

Stimulus Situations	III	II	I	V	IV
Totals	13.54	16.16	16.70	17.37	18.88
III	13.54	2.62	3.16	<u>3.83</u>	<u>5.34</u>
II	16.16		.54	1.21	2.72
I	16.70			.67	2.18
V	17.37				1.51
IV	18.88				

NOTE: The two underlined differences are significant since they exceed the critical values at the .05 level of significance.

discussion). The students indicated, too, that treatment IV (film and discussion) and treatment I (film) had been more interesting than treatment II (article). Also, in the students' opinion, treatment IV (film and discussion), treatment I (film), and treatment V (article and discussion) had been more interesting than treatment III (discussion). Finally, as can be seen in Table XVIII, significant differences at the .05 level of significance indicate that most of the sample students felt that both treatment IV (film and discussion) and treatment V (article and discussion) had been more helpful than treatment III (discussion).

CHAPTER V

SUMMARY AND CONCLUSIONS

The problem, the procedures, and the findings of the study are summarized in this chapter.

I. THE PROBLEM AND HYPOTHESIS

The study was an investigation of the effects of five stimulus situations. The situations were designed to improve the quality of expository writing by increasing student interest in and knowledge about assigned composition topics. The experiment included six treatments, one being a control with no experimental stimulus. The effects were measured by comparing the quality of compositions produced after each experimental treatment with the quality of compositions produced after each of the other experimental treatments. Additional data were also gathered to determine, for each stimulus situation, the amount of time spent on the compositions, the number of words contained in them, and the opinion of the students about the stimuli. The six experimental treatments were as follows:

1. viewing a short film or, for one of the six topics, two very short films.
2. reading an expository article or, for two of the topics, more than one article.

3. having a class discussion.
4. viewing a film or, for one of the topics, two films, and then discussing its subject.
5. reading an article or, for two of the topics, more than one article, and then discussing its subject.
6. having no experimental stimulus at all.

The null hypothesis of the study was stated as follows: Experiencing any one of the six experimental treatments will not have a significant effect on the relative quality of expository writing of Grade Eleven academic students.

II. THE EXPERIMENTAL PROCEDURES

Six classes were used in the experiment, although one was excluded from the statistical analysis because only two students from it had been present for all the experimental treatments and had handed in all the assignments. Each of the six classes was in a different Vancouver school, and each was made up of Grade Eleven academic students. A sample group totalling fifty-eight students was selected from the five classes included in the statistical analysis.

The experiment lasted approximately six weeks. Each week, the six classes were assigned an expository composition. The same six topics were used for all classes, although they were given to the classes in different sequences. The same topic was presented differently to each of the six classes by means of the six experimental treatments. The

presentation of the topics and experimental treatments to the classes was scheduled so that no biases resulted from using different classes and topics. Classroom procedures were specified and assignment directions standardized. The students were given approximately one week to write the composition and within that interval could spend any length of time on it. For grading, two competent markers were hired. Marking criteria and a grading system were specified. Working independently after a period of training, each marker graded the compositions, which were grouped by the six topics. A correlation coefficient of +.67 was calculated between the two markers' sets of scores.

III. FINDINGS AND CONCLUSIONS

The analysis of composition quality. An analysis of variance was applied to the data. First, the score for each composition was determined by calculating the mean of the two markers' scores. Means were then found for the marks obtained by the sample students of each of the classes under each of the six experimental conditions. One of the six classes was excluded from the statistical analysis because only two students from it were eligible for the sample group. Therefore, the analysis of variance was based on the thirty means for the five remaining classes. The F ratio, $F = \frac{MS \text{ treatment}}{MS \text{ residual}} = \frac{.14008}{.12549} = 1.12$, was used to test the null hypothesis. For a .05 - level test, the critical value for the F ratio is $F_{.95}(5,20) = 2.71$. Thus, the null hypothesis, given in Section I of this chapter, was not contradicted by the experimental data.

Each of the six groups of compositions written after the different

experimental treatments varied to some degree in quality. It must be emphasized, however, that the experiment provided no proof that the variation was caused by the experimental treatments, and not by chance factors. The fact that the variation was not statistically significant should be kept in mind when considering the following points. First, the treatment in which no experimental stimulus was given seemed to result in compositions of slightly higher quality, on the average, than two of the other treatments did. Perhaps, in reality, there was a stimulus operating in the control treatment. Second, the discussion not preceded by a film or an article seemed the least effective of all the treatments. Yet the teachers reported that they relied on straight discussion more than any other technique in order to stimulate their students in regular composition periods. The findings suggest that teachers may be placing too much faith in discussion alone. Third, the results also suggest that in attempting to improve composition quality there may be little point in just showing a film or in just having the students read an article. As expected, the combined stimuli of seeing a film and then discussing its subject, and of reading an article and then discussing its subject seemed slightly more effective than any of the other experimental treatments.

Other data. No significant differences were found among the amounts of time spent on the assignments or among the number of words written in them after each of the experimental treatments. Less time, on the average, was spent on the compositions written after the straight discussions than on the compositions written after any of the other experimental treatments. Also, on the average, the fewest number of words

were written after the discussion with no film or article preceding it. These differences, however, could have been due to chance factors.

Significant differences were found for the sample students' opinions concerning how interesting and how helpful each stimulus situation was. The students thought that a film combined with a discussion had been more interesting than an article combined with a discussion. They also felt that a film, either with or without a discussion after it, had been more interesting than an article alone. The straight discussion was given the poorest rating by the sample students. Since they were used to having a discussion alone, perhaps there was no novelty effect in operation; their opinion, however, is still important since it pertains to current pedagogical practice. The discussion alone was considered to have been less interesting than a film alone or than a film or an article followed by a discussion. Having only a discussion was also thought to have been less helpful than a discussion preceded by either a film or an article.

The quality of the discussions. The quality of the discussions is important since this factor would have had a definite influence on the writing performance of the students and on their attitudes toward the various stimulus situations. To a degree, the quality of each discussion is unknown. However, the teachers reported the length of each discussion and gave their assessment of how enthusiastically their classes had participated in the discussions. This information is given in Section III of Chapter III under the subheading The assignment variable. It could be

said that the poorer results of the discussions not preceded by a film or an article were due to these discussions happening to be of poorer quality than the rest. However, as is shown in Table VI, page 39, no significant differences were found among the teachers' assessments of the discussions. Also, when asked specifically about the discussions not preceded by a film or an article, all five teachers said that these had gone well.

Thus, there seemed to be a difference of opinion between the teachers and the students about the straight discussions. Perhaps the teachers did not evaluate the response of their classes accurately. Perhaps the straight discussions were of poorer quality because they had not been preceded by a film or an article or because the students were so accustomed to them. At any rate, there was no indication that the students' poor opinion of these discussions was caused by the discussions happening by chance to be of poorer quality than the rest. The intrinsic characteristics of the treatment itself or its relative lack of novelty seemed to be more likely reasons for the students' opinion.

Conclusions. Since the null hypothesis of this study was not rejected, none of the five stimulus situations were shown to have had a significant effect on the relative quality of the compositions. The findings of the experiment must be considered with this fact in mind. However, the results do suggest that, in attempting to improve the quality of expository writing of Grade Eleven academic students, films, articles, and discussions used alone may not be as effective as discussions preceded by either films or articles.

In all measures, discussion used alone seemed to give the poorest results. The compositions written after the straight discussions were, on the average, slightly poorer in quality and somewhat shorter in length than the compositions written after the other experimental treatments. Moreover, the sample students spent the least time on their assignments after experiencing this treatment. However, the experiment provided no proof that these variations were caused by the experimental treatments, and not by chance factors. On the other hand, statistically significant differences were found for the sample students' opinions concerning how interesting and how helpful each stimulus situation was. The students thought that a straight discussion had been less interesting than a film alone or than a discussion preceded by either a film or an article. They also thought that the combination of either a film or an article with a discussion had been more helpful than a discussion alone. If discussion is to be used as a means of improving the quality of students' writing, it would seem that the discussion should be preceded by some activity such as viewing a film or reading an article. Such activities likely improve the discussion by motivating the students and by supplying them with subject matter to discuss. This conclusion, however, must be regarded as only tentative. In order to prove that significant differences in the quality of compositions can occur as a result of the six experimental treatments, another experiment, possibly with more students in the sample, would be necessary.

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APPENDIX A.

Articles

HIGH SCHOOLS:

HOLDOUTS IN THE CLASSROOM- REVOLUTION

Our elementary schools are responding to dramatic changes sweeping education, but most high schools still cling to wasteful, 19th-century ways. Here's what they could be, and inevitably will be—some day
BY JUNE CALLWOOD

ABOUT 70 YEARS AGO, Canadian high schools were ugly buildings in which teachers lectured nonstop, loaded obedient, docile students with homework to reinforce memorizing, preceded tests with drills and reviews, and then climaxed the school year with paralyzingly tough examinations designed to identify those students who had succeeded in memorizing at least 50 percent of the subject from those students who had not.

There has been a remarkable improvement in the country's high schools since those grim early days near the turn of the century. There's been little change in what goes on inside, of course — but the buildings now are quite beautiful.

The education revolution, curiously, has had little impact on secondary schools. Elementary schools across the country, and particularly the primary grades, are reacting to the new insights into the nature of learning: they accept that the lecture technique is less effective for stimulating interest and retentiveness than independent research, that a system based on promotion by grades is inappropriate for human beings, and that final examinations are an iron corset inhibiting any real improvement in education, no matter how lithe the previous 10 months may have been.

But high schools, with few exceptions, have been unable to apply much of the wit, technology and democratic ideals of the 20th century to the teaching of adolescents, most of whom will be living a good portion of their lives in the 21st century. Like tacky royalty, high schools cling to the simple comforts of autocracy, resisting change, ruling imperiously, despising all lowborn.

An Ontario deputy minister, J. R. McCarthy, last summer addressed Ontario high-school principals meeting in Port Arthur and strongly recommended nongrading high schools, permitting free-wheeling discussions between teachers and students, encouraging independent student study and an increased emphasis on the humanities — all of which have been accepted, at least in principle, by elementary schools. The reaction to his suggestions was revealing: a *Toronto Globe and Mail* education writer, Barrie Zwicker, reported consternation and shock among the principals.

The working prototypes of what a modern North American high school can achieve are to be found in Florida, both of them. One is in Melbourne, where families of the laborers and technicians who work at Cape Kennedy are living. The high-school principal there, B. Frank Brown, took the first step away from tradition in 1957 by allowing students to take any subject they felt capable of passing, without regard to what grade they were in.

"Increasing numbers of students eloquently met the challenge," Brown later wrote, "and their parents were enormously pleased." In a short time the process of grouping students by grades had ceased to exist; teachers had substituted the word "phase" and taken the school apart.

Melbourne is now a showpiece, visited by educators from all over the world and the subject of two books by the principal. Brown explains in them that students are tested upon arrival at Melbourne, to determine individual capability. Phase One children are those with the greatest needs; they are given small classes and special / continued on page 62

"The best high school in the world" — at no extra cost

assistance to grasp fundamentals. Phase Two youngsters are slightly below average. Phase Three children are of average ability. Phase Four get an education in depth. Phase Five are taking college courses and are responsible for their own learning. There is also a Phase Q, for independent study in any area that intrigues the student.

Brown emphasizes that this doesn't mean streaming, in the Canadian sense of bright children being kept together for all classes and duller ones perpetually assigned to one another's company. At Melbourne, a student can be in Phase One for social studies, Phase Two for language arts, Phase Three for science and Phase Four for maths.

When a student feels ready, he can be removed into another phase. Says Brown, "His willingness is a major criterion."

Further, Melbourne recognizes the sad truth that many high-school students are reading at a grade-three or grade-four level. It provides reading labs for two hours or more a day for

such students, and small remedial maths classes for other youngsters who arrive at high school deficient in that area. The instruction at Melbourne is "shirtsleeve," involving the student in inquiry and discovery and consultation, rather than having him spend his day as part of a passive audience in a classroom. Teacher presentation of a topic is limited to 20 percent of the school time, 40 percent is reserved for discussion and 40 percent for individual research and reading.

"The most reassuring result has been the complete disappearance of discipline problems," notes Brown. The reading lab, he thinks, made the greatest difference in the behavior of children of the poor. Also, there has been spectacular achievement from able children, requiring the fattening of the curriculum with such subjects as Greek and differential equations. The number of students going on to college from Melbourne jumped from 40 percent to 70 percent of the graduates; the level of dropouts fell from 30 percent to four.

The other famous experimental high school in Florida is Nova, at Fort Lauderdale, a sprawl of low, linked buildings that are the result of the toughness and outrageous optimism of one man, a retired executive named Stuart Synnstedt, who arrived in Florida seven years ago with instructions from his heart surgeon to take it easy for the rest of his life. He noticed a newspaper story about Broward County preparing to build a new high school and he said to the authorities, in effect, "Why not make it the best high school in the world?" and they replied, in effect, "Sure, so long as it doesn't cost the taxpayers any more than every other high school in the country." Said Synnstedt, "It's a deal."

Nova High School was built on an abandoned airstrip for the regulation \$14.70 a square foot. To afford a campuslike arrangement of buildings, one for maths, one for languages, one for science, and so on, together with three specialized libraries rather than a single general-purpose one, and such delights as glass walls, rugs and private suites of offices for teachers, Synnstedt eliminated the auditorium and cafeteria. Because of Florida's balmy climate, students lunch from snack bars on an outdoor covered patio; closed-circuit television in every classroom replaces student assemblies.

Synnstedt has had three heart attacks in recent years and his face has the exhausted pallor of a sick man, but he has achieved what he set out to do, and more. Paul Brandwein of the Ford Foundation, which supplies Nova with what Synnstedt calls "icing," recently spoke of it as immortal. "Every now and then, possibly in each generation, one school arises, or two or three, that is named in history books as having changed the course of education." Last spring Synnstedt attended Nova's first graduation exercises: 92 percent of the class went on to colleges. On national tests, Nova students match or better the rest of the country in every area. In addition, there are now two Nova elementary schools, a junior college and a graduate school, which Synnstedt intends as the equal of the Massachusetts Institute of

Technology. The plan is to make it possible to have a Nova education from kindergarten to PhD.

A Nova education is still too fluid to be described, since it is Synnstedt's avowed purpose, and the intention of Ford Foundation which backs him, to test every educational device that serious scholars are developing. The school's philosophy is based on the concept that every child will enjoy learning, providing no one gets in his way.

The curriculum, therefore, is assigned in individual packages — a package being a stack of varicolored pages stapled together. The top page tells the student what area of knowledge he is expected to master to complete the package. The next sheets contain some information, together with lists of sources for further study — books, periodicals, video and audio tapes, films; at intervals there are quizzes, to be self-administered and designed to help the student assess his progress. When he thinks he is ready, he presents himself to the teacher for testing and gets his next package.

Some students rapidly consume the high-school level packages. Special arrangements have been made with colleges to provide first- and second-year maths, English and science programs.

Freedom — to learn

Only half the school day is assigned to classrooms; the rest belongs to the resource centre or seminar rooms or quiet room where homework can be done. Senior students have even more freedom: one senior in English, for instance, reports to his teacher once every two weeks. As a result, Nova gives the appearance all day of a school to which students and staff unaccountably have returned on a Saturday. The corridors are meeting places for girls exchanging secrets; the boys stalk past, watching them. Through a glass-walled classroom, 30 students can be seen silently bent over books, without supervision. Two young boys have carried a tape recorder to an outside bench and are taking notes from it. Alone in a huge lab, a serious-faced girl and a teacher in shirtsleeves are bent over something bubbling over blue flame. The library-resource centre is a hubbub of adolescents carceening noisily off one another, apologizing and laughing. A lanky youth calls out a cheerful insult, stretches himself on a chair with the tip of his spine and nape of his neck touching it, dials a number and gets Gielgud's *Hamlet* on his earphones.

Nova has no academic stream, commercial stream, technical stream — divisions which, in Canadian high schools, more accurately reflect the income level of the students rather than ability. At Nova, all students learn to type, all students learn graphics, geometric drafting, electricity. Eventually, business law will also be available. Each student must complete a project in a technical science, such as electronics, engineering drafting, mechanical technology — the project to be selected by the student. The school has shortwave sets (a boon to its six blind students), a wind tunnel, welding booths, accessible to all. Next in the works is marine biology and oceanography, to be studied from kindergarten onward. That's Synnestvedt's personal touch again: he thinks the future of the world will

depend on man's ability to get fresh water and food from the ocean.

Nova is gathering imitators; more than 9,000 of the curious — most of them teachers, administrators and trustees — have visited the school. Rhode Island, for example, has a something-like: the Middletown Project. It's a six-year secondary school,

designed in consultation with Rhode Island College after a town meeting open to all citizens. Subjects there are divided into levels of skill and students progress at whatever speed they can master. For example, the first skill in the English course is "taking part in conversation," while Skill 111 is writing a full-length research paper with footnotes, preface and bibliography.

In Canada, Regina has a something-

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like: the Separate School Board's Miller Composite High School. L. A. Riederer, director of education for the city's separate schools, obtained a Ford Foundation grant and took 10 people to Florida to study Nova. For \$13 a square foot, he built a cold-climate Nova. Then he installed a resource centre with TV- and audio-tape-equipped study carrels, closed-circuit TV all over the school, and an emerging computer centre.

Miller is still thwarted by a traditional curriculum, based on assigned textbooks, final examinations and September-to-June unit thinking. Riederer isn't discouraged. He hopes first to use the computers to fragment the courses, "unlock June whatever as promotion day, loosen up the curriculum." Next, the whole hog: ungrading.

A great many Canadian high-school teachers and even a few principals and superintendents take no pains to conceal their agreement with the flat declaration of Melbourne's pioneering principal, Frank Brown, who wrote in *The Nongraded High School*, "Nothing in the conventional high school is worth saving." But signs of improvement are few. Toronto is planning a six-million-dollar experimental high school with a "flexible" program, for 1969. In Rosemere, a Montreal suburb, high-school principal James Angrave began experimenting with non-grading in 1963. Red Deer, Alta., is famed for its well-established semester system, with individualized timetables.

Montreal high schools are emphasizing an overdue reform: promotion by subject rather than by grade. Most Canadian high schools in the east require students who fail in some subjects to repeat their entire year, including those subjects in which they received passing grades. It's a desolating practice, but a great convenience for administrators.

The most impressive high school in the country, however, is in Campbell River, British Columbia, a fishing village only 20 years ago and now a bustling little town inhabited by loggers, fishermen and Indians. Two years ago, Campbell River built a new senior high school and imported John Young to be its principal. Young likes the word "freedom"; he uses it constantly and he has the unusual notion it has a place in high-school education.

Accordingly, 75 percent of the students at the Campbell River Secondary School attend classes on a voluntary basis; for the rest of the students, some classes are compulsory because the student is having difficulty with the subject. Students are responsible for their own education, and can decide for themselves whether to attend class, study in the well-equipped library, or chat with friends. Without supervision, they can study in any unoccupied room in the school, visit the

library anytime throughout the day. There is a five- to 10-minute break between periods, during which students relax and talk in the corridors. Senior students have a common room, in which they are permitted to smoke, listen to the radio, play cards. Beards and long hair are allowed; the school's only proviso is that the rights of

other students must not be infringed.

Teachers have equal freedom: their lunch hour is never assigned; they are never required to be supervisors; they can absent themselves from the school whenever they have no class; they have access to all the materials in the school; they can set their own examinations when they choose, or set none at all; they aren't required to teach a subject for which they have no training; they decide on student promotions; they take part in establishing school policy.

Young, in reporting on these matters in the January issue of *the BC teacher*, dryly labeled his article *This Story Is Non-Fiction*. From his account, freedom with responsibility is a workable tenet, just as Thomas Jefferson always said. There's no chaos in the Campbell River high school,

almost no discipline problems, no signs of low academic standards. Although students are allowed to miss classes, few of them do. It bears out, Young says, "what most of us have intuitively felt right along: namely, that most students, given an opportunity, will rise to the expectations we hold for them, and that most students can be trusted to show good judgment and responsibility in the exercise of freedom."

He adds, "No one connected with the school has any nostalgia for the traditional, authoritarian school. We believe that a student-centred school provides the best environment for the development of students who are intellectually and emotionally equipped to become self-regulated, responsible members of a democratic society."

Which brings up the permeating horror, the maiming aspect of high schools: their lack of respect for young people. Edgar Z. Friedenberg, whose book, *Coming Of Age In America*, is a documented and scathing denunciation of high schools, comments, "Adolescents are among the last social groups in the world to be given the full 19th-century colonial treatment."

The failure of high schools to provide a democratic environment for students is regarded by many critics as both disgraceful and dangerous for society: the cost of the triumphant efficiency of a dictatorship is bitter rebellion or an ocean of apathy. "What the school values, students will tend to believe is important," observes the director of teacher training at Yale, Edward J. Gordon. "The school as an institution cannot contradict what it is trying to teach in the classroom. It cannot teach the value of freedom of inquiry and at the same time censor books and ideas. It cannot teach the value of the individual dignity and disregard student opinion. It cannot call for responsible behavior without allowing students — and teachers — to have responsibility."

One of the most conclusive experiments with democracy in a high school was conducted during the Depression years in Milwaukee Vocational School, where 13,500 rough-edged students attended classes, attacked teachers, vandalized the school and neighborhood, fought in the corridors. Earl C. Kelley, later at Wayne State University, was hired as a disciplinarian.

After consideration, he went about his task by establishing a genuine student government, whose executive met in a handsome paneled board room and debated recommendations that had been filtered through many executive levels. The school principal was under no obligation to carry out the recommendations, but he was required either to do so or else explain in detail why he could not, to both the executive and the student who suggested the original motion. Most of the suggestions were practical and feasible, and were carried out.

Fights in the halls and attacks on teachers ceased, neatness prevailed on school property and in the neighborhood, washroom profanity vanished, the school even held a dance that wasn't interrupted by the police, a first. "I learned then and have had it confirmed," writes Kelley in *In Defense Of Youth*, "that when we depend upon people to control themselves, either youth or adults, they will do more and better than any authoritarian can make them do."

Such convictions about the worth of young people will be a long time spreading from such areas of light as Campbell River to the hostile, anti-youth high schools across the country. Nongrading may be a generation away, despite Frank Brown's pronouncement, "The forward projection of education can only be in the direction of a nongraded model. There is simply no other place to go."

Curriculum reform is closer to hand (see page 67) but most of it is geared to bright children and it can have few radiant benefits so long as it is dominated by outside examinations.

Few are even talking about the cruelest trick that high schools play on children: sorting them ruthlessly into the snobbish elite of the academic stream, composed almost entirely of the well-to-do, and the ghetto streams euphemistically known as technical, or vocational, or commercial, or opportunity.

"Essentially," writes Lewis Anthony Dexter in *The Tyranny Of Schooling*, "instead of being places where people learn trades, these tend to become institutions to which the dull rejects are sent." Many educators, such as those at Nova, are convinced that the modern world requires all high-school students to have technical training, typing and business-economics training, a smattering of home repairs. The de-

velopment of reading labs makes it possible for culturally disadvantaged children to catch up in reading skills to succeed at academic subjects. Trades training, they believe, properly belongs in post-secondary schools or in factories and offices.

In a strong plea for broader-based technology courses and the introduction of courses such as philosophy aimed at extending the innate capacities and "humanness" of students, Tom Taylor, assistant professor of education at the University of Saskatchewan's College of Education, once wrote: "To narrow the student's perspective too soon into a specific occupation may be a disservice to both the student and society."

The streaming of outcasts into socially inferior streams, with inferior teachers and texts, is often cited as a prime contributor to juvenile delinquency. Dexter comments, "The presence of a large number of resentful and hostile people is responsible for a good deal of juvenile delinquency. It is not an exaggeration to say that the school in United States society actually encourages the development of juvenile delinquents."

Integration of students across social-class lines would be a boon to all, Friedenberg maintains. Middle-class young people could learn from the other's sexual confidence, practicality and honest reactions; the poor could learn to calm down, scrub up, be on time.

Yale's Edward J. Gordon asks, "Why do schools exist? I suggest that the answer ought to be what it has always been: to produce a free, reasoning person who can make up his own mind, who will understand his cultural tradition, and who can live compassionately with his fellow man. "In judging a school, I would want to know first what its graduates care most about."

In Canada now, as at the turn of the century, what high-school students care most about is simply passing the examinations, and getting out. It's bound to improve; give it another 30 years. ★

DL - 1

During the past decade, the world population has grown at an unprecedented rate. The increasing rate of population growth has been so acute that many responsible people now acknowledge the "population explosion" as the greatest threat to world peace and prosperity. In the words of Harry Emerson Fosdick: "The population question is the basic problem of the world today, and unless we can solve it . . . , no other major problem of our world society can be solved at all."

In 1950 the world population was estimated at little more than 2.4 billion; it was growing at a rate of little more than 1 per cent annually. By 1960 the world population exceeded 2.8 billion and was growing at an annual rate of nearly 2 per cent. Predictions were made, early in this past decade, that the world population might reach 4 billion by the year 2000. In 1958 the United Nations Department of Economic and Social Affairs predicted an increase 50 per cent higher — a world population of more than 6 billion by the end of this century. And the present world rate of growth is far from the maximum. In many countries, populations are growing at the annual rate of

3 per cent or more — a rate that would double the population in less than 25 years. For all of Latin America, the rate is 2.5 per cent.

The most tragic aspect of the population explosion is that the greatest rate of growth is in Asia, Africa, and Latin America, where most of the people are already living at or near bare subsistence levels, with inadequate food, housing, education, and medical care. Even in the underdeveloped countries which have adequate potential resources, excessive population growth is swamping agricultural and economic development. Many Latin American countries have adequate land and other resources to support larger populations; but Harrison Brown predicts that nearly all of Latin America is likely to be, for the next 100 years, one vast urban and rural slum. Asia, with far less adequate per capita resources, faces an even more dismal future in supporting its 4 billion inhabitants expected by the end of this century.

In the race between the population explosion and the development of the world's resources, encouraging advances have been made. Sources of energy have been developed which can probably meet all needs in the foreseeable future. Although the problem of harnessing nuclear fusion is not yet solved, progress has been made in developing breeder reactors that should provide ample atomic energy. Alvin Weinberg has predicted (in *Scientific American*, January 1960) that even at 20 times the present energy consumption, the reservoir of energy available in either the rocks or the sea would last for 10 billion years. But, as the Political and Economic Planning commission of England warned in 1955, "the importance to

mankind of nuclear power lies not in the present nor in the near future, but in the distant future." At the present rate of growth, the world population will soon reach 10 billion. If, at that time, the per capita use of energy is to equal that of the United States today, the production of energy would have to be increased 40-fold during the next 70 years. The need is urgent, and the time is short.

The need for more food is the most urgent problem facing the world today. More than half of the world's people do not get enough to eat. Hunger is an old story in human history. It is reflected in the Lord's Prayer, where the appeal for food takes priority over the appeal for forgiveness of sins. The same philosophy is expressed in the ancient Chinese proverb, "It is difficult to tell the difference between right and wrong when the stomach is empty." The wisdom of the Chinese is also reflected in their word for peace, *ho-ping*, which means literally "food for all." In more recent times, Gandhi observed that "to the millions who have to go without two meals a day, the only acceptable form in which God dare appear is food."

In most of the underdeveloped countries, food production is barely keeping pace with population growth. It should be possible to double food production by orthodox agricultural techniques; but it will take time, and time is limited. At present rates of growth the population of Latin America, Africa, and Asia will be doubled in 30 to 35 years. Eventually agriculture should be able to provide ample food of good quality for 5 billion people and a subsistence diet for 10 billion. But if the rate of food production does not exceed the rate of population growth, the only result will be more people living in poverty.

At the Rothamstead Station in England, techniques and machines have been devised to extract proteins from grass and other foliage. This is far more efficient than feeding grass and grain to animals so as to have protein in the form of milk, meat, and eggs, though it is not very exciting from a gastronomic point of view. Some progress has also been made in culturing algae for food; but in no country has this promising but expensive technique been put into commercial operation.

With the unlimited energy resources now in prospect, it is theoretically possible to de-salt enough sea water to irrigate the deserts of the world; to build plastic domes over farmland and provide artificial heat and light, so that crops could be grown in the arctic; to construct underground caverns where light and temperature control would permit hydroponic agriculture anywhere in the world; to grow algae on spaceships; and eventually, perhaps, to dispense with plants and produce food by artificial photosynthesis. These techniques might permit a world population of hundreds of billions. The cost would, of course, be staggering, but time is a still more critical factor. At the present rate of growth, the world population would reach 100 billion in less than 200 years — and more than 3000 billion in less than 500 years.

In short, while great advances are possible in food production and industry, even the most fantastic increases cannot possibly keep pace with the present rate of population growth for any significant period of time. In 600 years the entire earth would provide only one square yard of land per person; long before that time, we would have to grow algae in spaceships to provide our food. In about

1700 years, unless there were migration to other planets the weight of humanity would exceed the weight of the earth.

Migration to other planets, as an alternative to birth control, has recently been suggested by the Director of the Family Life Bureau of the National Catholic Welfare Conference. The feasibility of such migration has been considered by Garrett Hardin, who points out (in *Journal of Heredity*, March–April 1959) that the nearest star is Alpha Centauri, 4.3 light years away. Even at an average speed of 7 million miles per hour, a rocket ship would take 350 years to reach the nearest planet outside our own solar system.

Assuming that the world could support a population of 10 billion and that population growth continues at the present rate, in 70 years it would be necessary to move 170 million people each year. Assuming 100 passengers per spaceship, the migration would require 1.7 million spaceships each year — at a cost, Hardin estimates, of \$300 million per ship. But if birth control is not to be practiced on earth, it would surely not be practiced on the spaceships. If only one couple started the trip, the number of progeny (even allowing for the deleterious effects of inbreeding) would be about 2000 at the end of the trip. Thus it would be necessary to provide 85 million spaceships every year, each with a capacity of 2000 and at a cost of several billion dollars or more per ship.

But even such mass migration would afford only temporary relief, for if the migrants to other planets continued to increase at present rates, the mass of humanity would exceed the weight of the entire universe in about 6000

years, and the area they occupy would be expanding with the speed of light.

It is obvious that the present rate of world population growth cannot be maintained for any significant period of time. Either death rates must increase, or birth rates must be decreased. During recent years, great progress has been made in developing birth control techniques. The oral contraceptive has been perfected by Gregory Pincus of the Worcester Foundation in Massachusetts and John Rock, professor emeritus of the Harvard Medical School. Their steroid pill acts like the hormone of pregnancy, preventing ovulation. Taken once a day for 20 days after menstruation, it is nearly 100 per cent effective. But the cost is prohibitive, and further tests are needed to check for undesired side effects. Warren Nelson of the Rockefeller Institute is confident, however, that adequate research could produce an effective, fool-proof, safe, and inexpensive contraceptive in from 5 to 10 years.

If the time of ovulation could be determined precisely, the Rhythm method of birth control, permitted by the Catholic Church, would be much more reliable. The tests now available have proved to be unsatisfactory, but perhaps a hormone pill could be used to induce ovulation at a precise period during the menstrual cycle. Yet neither this method nor the contraceptives commonly used would be of much value among the illiterate masses of the underdeveloped countries.

Perhaps the greatest obstacle to a rational approach to the population problem has been the conspiracy of silence. During the past year, however, the conspiracy has been

broken: the press, radio, and television have featured statements by leaders in religion, public health, and government.

A study group of the World Council of Churches at Oxford University in April 1959, considering "Responsible Parenthood and the Population Problem," concluded that "where there is grinding poverty, a high birth rate, high death rate and high infant mortality, a fatalistic attitude to death is almost inevitable, and a high valuation of human personality is difficult to attain." It recommended that the wealthier nations with low birth rates help the people of underdeveloped lands to exercise responsible parenthood.

In July 1959, the President's Committee to Study the U.S. Military Assistance Program transmitted its report to the President, who transmitted it to Congress. The committee, headed by William H. Draper, observed that "the increase in food production in most of the underdeveloped countries has been falling behind the increase in population. . . . Unless the relationship between the present trends of population growth and food production is reversed, the already difficult task of economic development will become a practical impossibility." The Draper Report recommended that the United States assist these countries, when asked to do so, with plans to deal with the problem of rapid population growth and that it support research for ways to meet the serious problems resulting from the population explosion.

In September 1959, the U.S. Senate Foreign Affairs Committee, headed by Senator J. William Fulbright, asked the Stanford Research Institute to study certain aspects

of U.S. foreign aid policies. The Stanford group observed that "in a finite world some means of controlling population growth are inescapable. The traditional means have been disease, famine and war. If other means are to be substituted, conscious national and international policies will be required." They suggested more research to provide a safe, effective, and inexpensive oral contraceptive.

In October 1959, the Governing Council of the American Public Health Association concluded that "no problem — whether it be housing, education, food supply, recreation, communication, medical care — can be effectively solved today if tomorrow's population increases out of proportion to those resources available to meet those problems. . . . The public health profession has long taken leadership in defeating disease, disability and death. It must now assume equal leadership in understanding public health implications of population imbalance and in taking appropriate action."

This rational conclusion met with vigorous opposition from the Catholic Bishops of the United States. At their annual meeting in November 1959, they declared: "United States Catholics believe that the promotion of artificial birth prevention is a morally, humanly, psychologically and politically disastrous approach to the population problem." (Yet, as is shown in subsequent chapters, all available evidence indicates that the majority of Catholics in Europe and the United States practice contraception.) The Bishops recognized the existence of population problems, but asserted that Catholics "will not . . . support any public assistance, either at home or abroad, to promote artificial birth prevention, abortion or steriliza-

tion whether through direct aid or by means of international organizations."

The statement by the Catholic Bishops inevitably made birth control a political as well as a religious issue. It is not surprising that politicians took cover or resorted to political expediency. Alonzo Smith, press officer of the U.S. Department of State, announced that "not one penny of foreign aid funds has ever been used for dissemination of birth control information, and there are no plans to do so." President Eisenhower assured the press that "this Government has not and will not . . . , as long as I am here, have a positive political doctrine in its program that has to do with this problem of birth control. That's not our business."

The irrational attitude of the Catholic Church regarding birth control has not changed. (It is dealt with in this book — and more fully in Alvah Sulloway's *Birth Control and Catholic Doctrine*.) Surely no intelligent Catholic approves of the Very Rev. Francis J. Connell's thesis (see page 180) that an overpopulated country may properly wage an aggressive war to solve its population problem. In the atomic age, such a suggestion borders on insanity.

The Communists have also maintained their opposition to birth control — even in China, where population pressure is severe. For several years the Chinese supported a birth control program, but they have now accepted the Communist party line. The editor of the *Peiping Review Journal* assured his readers on August 3, 1958, that "the larger the population, even greater will be the amount of grain produced. So long as we have the need, we can

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PREFACE

produce as much grain as we want." He then attacked the Malthusian doctrine as "a reactionary, inhuman theory."

The solution of the world's population problems is made much more difficult by this Catholic and Communist opposition to any effective method of birth control. It would be tragic if primitive religious taboos, irrational political dogma, biological illiteracy, and political expediency should conspire to prevent or delay a rational solution of the problem. The Malthusian laws of population growth are as valid today as when they were formulated 162 years ago. Population growth must be controlled, either by high death rates or by low birth rates. The world must soon choose whether future population growth is to be controlled by enlightened and artificial birth control or by the ancient destroyers — pestilence, famine, and war.

Karl Sax

NEW HAVEN, CONNECTICUT

JANUARY 1960

THE DEATHS OF 4,800 OTHERS

Would new safety laws cut the toll? Ottawa is asking—and so is Detroit
BY GRATTAN GRAY

WHICH IS MORE DANGEROUS, the car or the driver? It's rather like asking which came first, the chicken or the egg, but since Henry Ford and the Model T it's been good politics to reply firmly, "The driver, so let's change him." At least, it was until last year. Now, largely because of a Senate investigating committee in Washington and a determined Ottawa MP named Heward Grafftey, this shibboleth is being challenged. The North American auto, that demonstrable status symbol of a continent, is being presented as the villain in the continent's inexorably mounting highway carnage.

Influential senators in Washington, and Grafftey in Ottawa, are saying — and being heard, what's more — that the cars we drive are unsafe. Worse, they're actually dangerous and kill and maim more often than they protect. In fact, says Grafftey, "death and injury on the highway could be cut more than fifty percent if safety features already tested and known were incorporated into the design of automobiles." If he's right — and some scientific studies suggest he is — then some three thousand of the 4,800 Canadians killed in road accidents last year were victims of killer cars.

Launching that kind of attack on the all-powerful auto industry requires a great deal of political courage. Grafftey, thirty-seven-year-old Conservative MP for Brome-Missisquoi in Quebec's Eastern Townships, first displayed it last summer by sending Prime Minister Lester Pearson a brief outlining his "killer-cars" theories and demanding that a more rigorous safety code be imposed on auto makers. It must, however, be admitted that his efforts would have made little impact but for the coincidental involvement of influential American politicians — such men as Senators Robert Kennedy, Abraham Ribicoff, Gaylord Nelson and New York State Senator Edward Speno — in the same fight.

In a sense, these men are attacking the Great North American Way Of Life. The economic

health of Canada and the U. S. depends to an awesome degree on the auto industry. And to make us *consume* cars, Detroit must, and does, live by the almost sacred dictum that consumption can only be stimulated by perpetual newness and not by a promise of safer riding. And what *is* safety anyway?

The traditional answer is that safety means safe drivers and better highways. Many dedicated people have devoted lifetimes to vain efforts to make drivers change their lethal ways. Their failure is demonstrable in statistics suggesting that fluctuations in the death toll are due to factors other than improved driving. As New York Senator Speno says, "We haven't yet found a way to improve the driver; and perhaps we never shall. Highways take years and cost millions to improve. But the car can be readily and easily changed, and it can be done without too much extra cost." It sounds sensible, but by expounding the same arguments in Ottawa, Grafftey has earned the enmity of the Canadian Highway Safety Council, a body dedicated to the principle that the drivers are at fault, not the cars.

PROponents of the killer-car theory argue that the lethal thing about present car designs are such things as rigid steering wheels that may spear drivers, dashboard knobs and exposed door handles and window controls, engines that are forced back into passenger cabs on impact, roofs that crumple in crashes, and other factors that come in the "mechanical" category. Also in this class are the killers outside the car — the projecting hoods on recessed headlights, spiky chrome trim and hood ornaments that impale pedestrians who might otherwise survive accidents with bruises, or nonfatal fractures.

Grafftey and his allies point proudly to so-called safety cars already designed in the U. S. and Europe which actually *protect* the occupants, yet still look stylish. The two most respected of these designs are the vehicle built by Battista Pininfarina, the famed Italian designer who recently died (of natural causes), and the Safetycar project financed by the New York State government. Both feature collapsible steering columns with cushioned steering wheels; heavily padded interiors with recessed door handles and dashboard / *continued on page 31*

instrument knobs; fully rounded exteriors that nudge (violently, perhaps) but do not impale pedestrians; reinforced roofs and bodies; inclined firewalls to force the engine under the car in head-on crashes; anchored bucket seats and headrests to prevent "whiplash" spinal and neck injuries; and seat belts that cross the body from shoulder to waist, providing greater "anchorage" than the lap belts already familiar to most motorists. The Pininfarina car also has sliding doors that won't fly open in a crash, while the New York car has conventional doors fixed with heavy-duty locks and hinges. Designers of the New York car credit it with one hundred and twenty-six safety features. These include a periscopic mirror to provide simultaneous views of what's happening at the front and rear of the car; a rubber-faced, shock-absorbing bumper; a rigid barrier to separate front and rear-seat passengers and a passenger compartment sealed to keep out noxious fumes.

The fight to get such a car into production has preoccupied Grafftey and the U. S. senators for a year. Beginning with his brief to Prime Minister Pearson last year, Grafftey has been campaigning widely for public support and has spent several thousands of his own dollars to spread the word that "people shouldn't have to die, even if they are to blame for an accident. Surely innocent victims of auto crashes should be protected. Why should anyone pay with his life for making a simple error in judgment, or for being in the way when someone else makes one?"

Washington took notice

His presentation to Pearson argued that the government should impose safety standards on auto manufacturers every bit as rigid as those imposed on the aircraft and shipbuilding industries. "Cars kill forty times as many people as ships and planes combined," Grafftey claims. Thus far the government has taken no action, but Grafftey's campaigning has impressed Senator Robert Kennedy, who heads the U. S. Senate committee currently investigating auto safety — so much that he invited Grafftey to present his arguments in public before the senate committee last April 6.

This committee's year-long probe of the automobile industry is symbolic of a greater concern in the U. S. over highway safety than has yet been displayed by any level of government in Canada. (However when the U. S. government last year stipulated that seventeen safety features be incorporated in all the vehicles it purchased, Ottawa was prompted to start work on a similar list. It has not yet been made public.)

Last year the U. S. Senate set up its committee to investigate auto safety, and in January this year publication of the book *Unsafe At Any Speed*, a carefully documented yet quite savage attack on Detroit's allegedly killer-cars, gave the new safety campaign added impetus. The book was written by Ralph Nader, a Washington lawyer. In it he bitterly criti-

cizes what he calls the auto industry's adamant refusal to design and produce safer cars. Soon after the publication of Nader's book, the American Trial Lawyer's Association also published a book attacking the auto industry, using in the attack basically the same arguments.

Public reaction to these books —

Nader's made the greater impact — has been remarkable, the more so in view of the industry's constant wail that "safety won't sell." The magazine *Car And Driver* said recently that the industry was in a state of "shell shock" and feared that the safer-cars campaign would spawn "a case of national hysteria which might destroy the pros-

pect for record-breaking sales within the next few years."

As a result, the industry hasn't been fighting with its critics so bitterly in recent months (though private detectives employed by General Motors admittedly probed author Ralph Nader's personal life pretty closely, and may even have attempted to manoeuvre him into a compromising situation with strange women who, he says, tried to "befriend" him). Publicly, however, the auto-industry's leaders

Would "safety cars" bring new dangers to the highways?

say they welcome this critical public attention. Ron Todgham, President of Chrysler of Canada and spokesman for the Canadian auto industry, says, "It has focused attention on a problem that has long been treated with too much complacency." Arjay Miller, president of the Ford parent company in the U. S., says the brouhaha

stirred up by the senate investigation will actually help the industry sell safety.

And that'll be a change: the auto industry once had a maxim that went, "Ten dollars of chrome will sell more cars than one hundred dollars of safety," and safety has been a bad word in the business since 1956, when it

was Ford's main marketing motif and seat belts were first offered as an option. Since then, auto makers have remembered 1956 as "the year Ford sold safety and Chevrolet sold cars." And this year's models are being sold with advertising that emphasizes power, speed and the excitement of motoring. Even sedate family sedans

are currently being marketed to the public with such suffixes as "GT" (*gran turismo*) and "GP" (*grand prix*), redolent of Sebring, Le Mans and dangerous speed.

However, the auto industry is already safety conscious. Canadian manufacturers announced at the start of the 1966 model year that they would make some safety features — padded dashboards, seat belts and windshield washers among them — standard on all their products. Since the U. S. Senate investigation began, General Motors, Chrysler and American Motors announced they plan to install collapsible, shock-absorbing steering columns and dual "fail-safe" braking systems. And all companies have stepped up safety-research spending. (Last year, GM Chairman Frederic Donner admitted that in 1964 GM turned a \$1.7 billion profit, and spent little more than one million dollars on safety research.)

The industry also helps finance the conventional safety organizations, which are dedicated to the principle that it's the driver who is dangerous, not the car. Canada's big safety group, the Canadian Highway Safety Council, gets ten percent of its financing from auto makers, and most of the balance of its budget from business with a direct interest in car sales: insurance, finance, oil, tire and autoparts organizations. Council president K. H. MacDonald, himself vice-president of the Industrial Acceptance Corporation, condemns Grafftey for "clouding the whole issue of highway safety." He says the safety-car theory is "just a shot in the dark," and adds, "Who knows whether we wouldn't have an even worse situation if we put safety cars in everyone's hands and removed the fear of getting killed or hurt from their minds? And who knows if anyone would ever buy such a car?"

MacDonald, who denies he is tout-

ing the auto-maker's case for them, believes driver education is still the best way to reduce the highway toll. It's this traditional view that Grafftey condemns. And he has powerful support even outside the investigating senators and Ralph Nader and his supporters: U. S. Federal Highway Administrator Rex Whitton says bluntly, "We have exhausted the value of this continuing assault on human nature." Scientific studies tend to bear out New York Senator Speno's statement: "It's the ordinary driver who gets into trouble, not the irresponsible nuts who do need constant educating."

Which brings us right back to the need to produce less lethal cars. Toronto's chief coroner, Dr. Morton Shulman, last year reported that almost all car-crash victims in the city were killed by the steering wheel or other interior projections; by being thrown out of the vehicle on impact; or by being "ground up" inside the car when it crumpled up on impact. Harvard and Cornell universities conducted studies and came to conclusions similar to Dr. Shulman's. And another study, in New York, showed that a quarter of the pedestrians killed by cars were hit by vehicles traveling at less than fourteen miles an hour: they were, in fact, fatally gored by radiator grilles, hooded headlights and hood ornaments.

Makers need protection, too

Grafftey and the others who attack killer cars say this kind of carnage would be at least minimized by safety cars. They may be right, but despite their heightened awareness of the need for safety vehicles, the auto makers may actually need legislation to enable them to introduce safer cars as standard products. While they resist, almost as a reflex action, any suggestion that legislators interfere with their business, no auto maker could afford to introduce a safety car without a guarantee that his competitors would have to do so, too. Safety increases car costs, and in a business as fiercely competitive as the auto industry it would be tantamount to committing corporate suicide for one maker to increase his costs unilaterally.

In the U. S., some legislation already exists. New York State is the pacesetter: apart from financing its Safetycar project with four million dollars in tax money, it was instrumental in getting national legislation in 1964 to make seat-belt installations mandatory in all cars, and is now insisting that all vehicles sold in the state have flashing parking lights on all four corners. Safety legislation is now pending in more than thirty other states. And since the senate investigation began, President Johnson has asked congress to approve a bill that would enable the government to impose safety standards on auto makers if they don't adopt them voluntarily.

Even so, major innovations in auto design are unlikely before 1970, if only because manufacturers are already working on their 1969 models. And by then, another couple of hundred thousand North Americans will have been killed on the roads. ★

A BLACK MAN TALKS ABOUT RACE PREJUDICE IN WHITE CANADA

Civil servants give him the brush-off. Bosses give him the dirty jobs if they hire him at all. Landlords slam the door in his face. This is how Canada looks from across the color-line we like to say doesn't exist

BY AUSTIN CLARKE

THIS YEAR I became eligible for Canadian citizenship, but I do not intend to apply for it. Not because I undervalue this status which is so highly prized by so many immigrants from all over the world; rather, because I *do* value its privileges highly, but realize that I would be accepting in theory a status that Canada does not intend to give me in practice — because I am a black man.

In my eight years in Canada I have been treated with prejudice and discrimination by most white people, in large and small ways. In Canada the restaurants, buses,

washrooms and other public facilities do not carry "white only" and "colored only" signs; but every black man can read these signs in the attitude of white Canadians, and nothing will change if I become a citizen, except my own attitude — I will feel like a man who has just closed my last escape hatch.

There is actually a psychological advantage in remaining a black foreigner instead of becoming a black Canadian. I can find some comfort in rationalizing the prejudice amid which I live: "Canadians are intolerant of *all* foreigners because they look different, talk strangely, have unfamiliar customs

and habits — in short, because they *are* foreigners. If I can no longer endure this atmosphere I can go back home to the West Indies, where at least I enjoyed the security of being a member of the majority race, and where poverty is the only penalty for being black."

But if I had taken Canadian citizenship I would have lost those defenses. I would not have had another country to return to, or think of returning to. I would have had to accept the fact that I am treated differently from other Canadians only because I am black. I would have had to tolerate being a highly visible citizen who can suddenly become invisible when he

applies for a job, looks for living quarters or goes shopping.

White Canadians with whom I have discussed examples of discrimination have suggested that I and other black people living in Canada are hypersensitive, and too prone to see prejudice where it really doesn't exist. "How do you know," they have asked, "that you wouldn't have failed to get that job if you had been white? How do you know that the white woman who stood in the streetcar, when the only vacant seat was beside you, didn't simply *prefer* to stand?"

My answer is that as a black man I am *ipso facto* an expert on discrimination. I do not want to experience prejudice and I do not need to look for it — it is the very atmosphere in which a black man exists.

A black man knows there is discrimination even in overpoliteness and exaggerated solicitude from whites. I have gone into a restaurant and said to a waiter, "I'd like to use the washroom." He answered, "Certainly, sir, by all means sir, right this way sir." All I had wanted to know was the location of the washroom. His answer implied that I was asking *permission* to use the washroom and he was going to show me in no uncertain terms that *this* restaurant, believe it or not, did not discriminate against black customers.

No, I cannot agree that black West Indians in Canada are "prejudice prone." In any case many of the examples of discrimination are too obvious to be imaginary.

Discrimination against black West Indian immigrants starts before they ever get to Canada, with the practices (although not, in theory, the policies) of the federal department of immigration. Officials of the department have more than once publicly stated that there is no bar against black West Indians, that each case is considered on its merits.

If that is so, the immigration officials certainly do not consider there is much merit in black West Indians. The only black people freely admitted to Canada as landed immigrants are a limited number of women, who must accept the undignified classification of domestic servants, plus a few persons hand-picked by Canadian authorities because they have professions or special skills needed by Canada.

All foreign students, including white and black West Indians, are admitted to Canada on non-immigrant visas, generally called student visas. Those who want to remain must apply for "landed immigrant" status, which makes it legal for them to take a job and is the first step toward citizenship. White students, including white West Indians, seem to have no difficulty in acquiring landed-immigrant papers. I know several who did so.

But black West Indians who try to change student status for that of landed

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immigrant run into a labyrinth of delay, dissuasion and double-talk, even though their birthplace, background, culture and outlook are the same as that of their white compatriots, and their education and intelligence are often higher. When I decided I would like to live and work in Toronto after I left the University of Toronto I applied for a landed-immigrant application form at the Bedford Road branch in Toronto. What happened there convinced me that the top immigration officials have not informed their clerks that there is no bar against black West Indian immigrants.

One clerk warned me that black people "found the going tough in Canada because of the bitterness of the winter." I know now that the bitter climate he was talking about was the bitterness of prejudice. Another clerk advised me not to apply for landed-immigrant status — that would cancel my status as a student, he said and since there was no guarantee that I would be accepted, I might be deported as a person with no status whatever. I decided not to run that risk, and did not apply.

British subjects? Yes, but white

But not long after that incident another member of the West Indian group at the university proudly showed us his passport, stamped "landed immigrant." We were surprised, because the successful applicant was, like us, Negro. The answer was that he was not as black as we were; he was what we call in Barbados "clear skinned" or "whitey white." In the southern U. S. he would be classified as a Negro at sight. The rest of us were glad for him, but sad at this evidence of the grim naïveté of Canadian discrimination based on a man's *degree* of blackness.

Of about twenty black West Indians who were friends of mine at the University of Toronto, only five attained landed-immigrant status — and none did so on individual merit. Four married Canadian girls, black or white. The fifth, married to a West Indian girl, had a child born in Canada who was therefore a Canadian citizen. Because of their child's nationality, the authorities let the parents remain in Canada. My own present status as a landed immigrant, eligible for citizenship this year, resulted from my marriage.

I first encountered discrimination in Canada soon after I arrived. I put my name down to join the Canadian army through its university officers' training plan. The question of color did not arise during the preliminary tests and medical examination, but when I was interviewed by officers in charge of the plan, they told me that candidates must be British subjects. I pointed out that I was born in Barbados, British West Indies, my family had been born there for sev-

eral generations, and I was consequently nothing if not a British subject. Without putting it into so many words, they left no doubt in my mind that to them "British subject" meant "white British subject."

In any case, my application was turned down. The interviewing officers did not have to write on my application "refused because of color," of course. Instead, they decided I was "rude and hard to get along with." Certainly I argued my case

emphatically, and that may have made me seem "hard to get along with." Who wouldn't be, faced by presumably intelligent men who were denying the obvious truth that I was a British subject? I might well have been rude, though, if I had known at that time what I discovered soon afterward — that another West Indian student had been accepted for the officers' training course. His birthplace was the same as mine. But he was white.

The most serious effect of discrimination against the black man in Canada is his inability to get a job commensurate with his abilities. We soon learn that to get jobs at all we must aim far lower than white men of the same education and ability. And even then employers seem to imply that they are doing us a favor, that we're lucky to be taken on — and that we must therefore work twice as hard as white workers to show our gratitude.

For example, a post-office foreman assigned me to drag heavy loads of Christmas cards across miles of floor in the sorting room during the Christmas rush, while white workers were "busy" lifting envelopes from one cage and putting them into another. Someone has to get the tough jobs, you say, and it just happened to be me? It's no use suggesting the law of chance to black workers — they know the chances are stacked against them.

A friend of mine — he happened to have a BA from the University of Toronto — failed to find a job that white university grads consider to be of "BA level" and applied for a job as teletype operator at the Canadian Press. He was told that he must have a minimum speed of sixty words a minute. After he had attained that speed he was taken on. Two weeks later he was assigned to teach the teletype routine to a white applicant — who had been taken on when he

reached a speed of *fifty-five* words a minute. In neither of these cases would the employers have admitted that they were practising discrimination. Possibly they did not even realize it, so deeply was it lodged in their subconscious. Nor would we have openly accused them of it. To do so would not be behaving like a "nice black man."

I can, though, openly accuse the National Employment Service of discrimination when a clerk scribbles

"colored" on my card even before he gives an employer a chance to make up his mind on the basis of my other qualifications. I was not supposed to see this notation, of course, but I did, and it appalled me. I could have understood a description which said "cripple" or "one arm" or even "unmannerly" — those would have been pertinent comments on physical or temperamental defects — and would not necessarily have barred the applicant from employment.

It might be suggested that "colored" is a useful description for an NES clerk to have on a job-seeker's card. Perhaps — if its use is to make sure he doesn't get a job. Could it have had that effect in my case? For all I know that card is still filed in a cabinet at the Richmond Street branch of NES in Toronto. The clerk who wrote "colored" on my card told me in 1957, "I'll call you the *moment* anything suitable turns up." That moment has not yet come.

This despite the fact that the type of job I was applying for was far below my capability. Black men trying to live in a white man's world tend to do this because experience teaches them it's the only way to survive. So I was looking for a clerical or bookkeeping job, on the basis of these qualifications:

I had successfully completed part one of the London School of Economics BSc examination; I had attended University of Toronto for two years; I had been a high-school teacher in the West Indies; I was qualified to be an engineer's assistant or a member of a survey team. But in six years no Canadian employer has needed a colored clerk or bookkeeper with those qualifications.

The feeling of frustration, of utter uselessness that the lack of suitable employment brings, is deadening. I cannot understand why there are not more suicides among black immigrants to Canada. I have seen the anxiety of friends setting out to look for a job. The white shirt must be as fresh as new snow; the shoes shined; the blue university blazer sparkling, with its coat of arms ringing a bell proclaiming to the world that the man who knocks on the door

is not an ordinary man, but one who knows he is more than qualified for the job he seeks. Because if he is not overqualified, he knows his chances are not nearly equal to those of a white applicant.

The blazer and the college tie are for black immigrants symbols that the wearers of these trappings are not like the uneducated black men from the slums where most Canadian Negroes live. But despite all this imagemaking, all this scholastic regalia, the result is the same: a job far below the wearer's qualifications. This is enough to make any man feel inferior.

During 1962, two black men worked in the Coxwell branch of NES. Both were graduates of the University of Toronto, one a BA, the other an MA in economics. Almost certainly they were the only university graduates working as ordinary interviewers, a job for which the educational requirement is no more than Grade 13. Both these men had tried a method of finding jobs which hundreds of university graduates use successfully — the hiring sessions which business representatives hold regularly on the campuses of Canada. They had failed, as most black West Indian students fail.

The University of Toronto is proud of the record of its placement service. This year, according to an official of the service, there are four jobs available to every U of T graduate, on the average. And this is a semi-recession year. When I was at the university the demand for graduates was even greater. But I can count on the fingers of one hand the number of black graduates who obtained jobs as a result of campus interviews — and all these had outstanding scholastic records. Campus enlistment is of no help to the black student and so far, to the best of my knowledge, none of the university authorities have done anything about stopping the discrimination the business organizations practise.

A Trinidadian friend of mine, a PhD in history, approached a University of Toronto placement officer — and was given an application form for a railway porter's job. This brilliant young black man had in his pocket at that time job offers from University College of the West Indies and from Howard University, the great U. S. Negro institution. As a British subject he would have preferred to work in Canada, but he is now a professor of history at Howard.

Case after case of job discrimination comes up when black immigrants compare notes: A Toronto paper that editorialized indignantly against discrimination in Little Rock and at the University of Mississippi turned down the application of a black man who graduated at the top of his University of Western Ontario class, and hired a classmate who didn't even graduate. I knew both men, and I can testify that the only differences I could detect between them was that one was brilliant — and black, and the other was mediocre — and white.

Black actors say that the CBC never casts black men except in "black-type" roles — porters or red-caps; no typical person in the Canadian scene ever seems to be black. Radio stations do not hire black announcers, although it might be thought that the invisibility of radio would increase a black man's chances of employment.

Even if he survives the Canadian government's unwillingness to let him live in Canada, and Canadian employers' reluctance to give him a job (ably abetted by the government's own employment service) a black immigrant's problems are by no means solved. He must learn to live in a world which endlessly reminds him, in major and minor ways, that he is not only "different" but *undesirably* different. I have heard white Canadians call black men "lazy" and even "unclean" on the sole basis that their skin is black. It's not easy to be patient when a waitress or sales clerk bypasses you to serve white customers who arrived after you did.

It's not easy to shrug off the discrimination that makes it difficult to choose your living accommodation. The law requires that a landlord with more than six rental units in his building cannot discriminate against tenants because of race, color or creed. But when I knock at the door of a house which has a "rooms for rent" sign in the window, and the door is slammed in my face, how can I find out if it is because I am black, or because the landlord has fewer than seven units to rent? To this my reaction is "To hell with the landlord, and to hell with the Ontario regulation which does not

have the guts to state that a landlord in the business of renting rooms must rent me one because I am in the business of renting a room." However, I'm not so lacking in personal pride as to want to live in a house where the landlord accepts me as a tenant only because the law says he must.

How do black immigrants react to the discrimination and prejudice that is part of their daily lives? Some live in terror of its icy fingers and avoid anything that might "give the white man a wrong impression of black people."

Others become hostile and take out their hostility in aggressive social and sexual behavior. Some marry white women and seek to drown their fears and complexes in their wives' environment. In my opinion they only create another problem — the problem of producing mulatto children who belong neither to the white world nor the black.

Many pretend that discrimination has never happened to them, like the BA employed by NES, who has apparently forgotten that since he graduated in 1958 "nondiscrimination" has gained him the following jobs: night watchman; night-shift postal worker; short-order cook in a hospital, and assorted clerical jobs obtained through a part-time employment agency.

What can be done to improve the basic living conditions of the black immigrant in Canada? What, in short, would I want if I were to become a Canadian citizen?

In the first place, I do not expect that any law could be passed that would educate white Canadians in tolerance overnight — but I would expect to be protected against prejudiced landlords of any building that advertises vacancies for rent, not just those who have more than six rental units.

I do not expect to be given an executive job the day I become a citizen, but I would want and expect to find a job for which I am qualified — not a joe-job that no white Canadian with my qualifications would accept.

I would not want to be pampered, or be invited to apply for membership in the Granite Club. But I would expect to be allowed to live in the degree of dignity which I earn and deserve: no more, no less. ★

**Charlie was 12. He was an Indian.
He died as the white
world's rules had forced him to live—
cut off from his people**

THE LONELY DEATH OF CHARLIE WENJACK

STORY AND PHOTOS BY IAN ADAMS

CHARLIE WENJACK would have been 13 years old on January 19, and it's possible that during his short and disturbed life someone may have taken a snapshot of him — one of those laughing, open-faced, blurred little pictures one so often sees of children. But if a snap was taken, nobody knows where it is now. There are five police pictures of Charlie, though. They are large 8-by-10 prints, grey and underexposed, showing the thin, crumpled little body of a 12-year-old boy with a sharp-featured face. He is lying on his back and his thin cotton clothing is obviously soaked. His feet, encased in ankle-high leather boots, are oddly turned inward. In one of the photographs an Ontario Provincial Police sergeant is pointing down at Charlie's body, where it lies beside the CNR track. It is the exact spot where on the night of October 22 Charlie collapsed and died from exposure and hunger . . . just four-and-a-half feet from the trains that carry the

white world by in warm and well-fed comfort. When they found Charlie he didn't have any identification. All they got out of his pockets was a little glass jar with a screw top. Inside were half a dozen wooden matches. They were all dry. And that's all he had.

Charlie Wenjack was an Ojibway Indian attending Cecilia Jeffrey Indian Residential School in Kenora, Ont. He became lonely and ran away. He died trying to walk 400 miles home to his father, who lives and works on an isolated reservation in northern Ontario. It is unlikely that Charlie ever understood why he had to go to school and why it had to be such a long way from home. It is even doubtful if his father really understood either.

It's not so unusual that Indian children run away from the residential schools they are sent to. They do it all the time, and they lose their toes and their fingers to frostbite. Sometimes they

lose a leg or an arm trying to climb aboard freight trains. Occasionally, one of them dies. And perhaps because they are Indians, no one seems to care very much. So this, then, is the story of how a little boy met a terrible and lonely death, of the handful of people who became involved, and of a town that hardly noticed.

Even before Charlie ran away he was already running hard just to keep pace with the bewildering white world he had suddenly been thrust into. He didn't start school until he was nine. The village he came from, Ogoki Post on the Martin Falls reservation, didn't have a day school. Charlie arrived at the Cecilia Jeffrey School, which is run by the Presbyterian Church and paid for by the federal government, in the fall of 1963. Some 150 Indian children live at the school but are integrated into the local school system. Consequently, Cecilia Jeffrey is, for 10 months in the year, really nothing more than / *continued on page 38*

His father was out there somewhere: Charlie had to find him

an enormous dormitory. And Charlie, who understood hardly any English, spent the first two years in grade one. He spent last year in what is called a junior opportunity class. That means he was a slow learner and had to be given special instruction in English and arithmetic. This fall he wasn't quite good enough to go back into the

grade system, so he was placed in what is called a senior opportunity class. But there was nothing stupid about Charlie. His principal of last year, Veida MacMillan, believed she got to know him well. "The thing we remember most about him was his sense of humor. If the teacher in the class made a joke, a play on words,

he was always the first to catch on."

Charlie wasn't a strong boy. In fact, he was thin and sickly. He carried an enormous, livid scar that ran in a loop from high on his right chest, down and up over his back. It meant that in early childhood his chest had been opened. Nobody knows exactly when. "Indian children's early medical

records are practically impossible to track down," explains Kenora's public-health doctor, P. F. Playfair. The postmortem that was later performed on Charlie by Dr. Peter Pan, of Kenora, showed that his lungs were infected at the time of his death.

On the afternoon of Sunday, October 16, when Charlie had only another week to live, he was playing on the Cecilia Jeffrey grounds with his two friends, Ralph and Jackie MacDonald. Ralph, 13, was always running away — three times since school had started last fall. Jackie, only 11, often played hooky. In the three years he had been at the school Charlie had never run away. He had played hooky for one afternoon a week earlier, and for that he had been spanked by the principal, Colin Wasacase.

Right there on the playground the three boys decided to run away. It was a sunny afternoon and they were wearing only light clothing. If they had planned it a little better they could have taken along their parkas and overshoes. That might have saved Charlie's life.

Slipping away was simple. The school, a bleak institutional building, stands on a few acres on the northeast outskirts of Kenora. For the 75 girls and 75 boys there are only six supervisors. At that time the staff were all new and still trying to match names to faces. (That same day nine other children ran away. All were caught within 24 hours.)

Escape by "secret trail"

As soon as they were clear of the school, the three boys hit that strange running walk with which young Indian boys can cover 10 miles in an hour. They circled the Kenora airfield and struck out north through the bush over a "secret trail" children at the school like to use. The boys were heading for Redditt, a desolate railroad stop on the CNR line, 20 miles north of Kenora and 30 miles east of the Manitoba border. Because Charlie wasn't as strong as the others, they had to wait often while he rested and regained his strength. It was on the last part of this walk, probably by the tracks, that Charlie picked up a CNR schedule with a route map in it. In the following days of loneliness that map was to become the focus of his longings to get back to his father. But in reality the map would be never more than a symbol, because Charlie didn't know enough English to read it.

It was late at night when the three boys got to Redditt; it had taken them more than eight hours. They went to the house of a white man the MacDonald brothers knew as "Mister Benson." Benson took the exhausted boys in, gave them something to eat, and let them sleep that night on the floor.

Early the next morning the boys walked another half mile to the cabin of Charles Kelly. The MacDonald boys are orphans — their parents were killed in a train accident two years ago. Kelly is their uncle and favorite relative. Kelly is a small man in his 50s. When he talks he has a nervous habit of raking his fingers through his grey, shoulder-length hair. Like most of the Indians in the area, he leads a hard life and is often des-

perately hungry. It's obvious he cares about his nephews. "I told the boys they would have to go back to school. They said if I sent them back they would run away again. I didn't know what to do. They won't stay at the school. I couldn't let them run around in the bush. So I let them stay. It was a terrible mistake."

That same morning Charlie's best friend, Eddie Cameron, showed up at the Kelly cabin. He, too, had run away from the school. Eddie is also a nephew of Kelly's. This gathering of relations subtly put Charlie Wenjack out in the cold. The Kellys also had two teenage daughters to feed and Kelly, who survives on a marginal income from welfare and trapping, probably began to wonder exactly what his responsibility to Charlie was. Later he and his wife Clara would refer to Charlie as "the stranger." The Kellys had no idea where Charlie's reserve was or how to get there.

"He was always looking at this map," said Mrs. Kelly, "and you couldn't get nothing out of him. I never seen a kid before who was so quiet like that."

Nobody told Charlie to go. Nobody told him to stay either. But as the days passed Charlie got the message. So it must have been with a defiant attempt to assert his own frail existence that he would take out his map and show it to his friend Eddie Cameron, and together they would try to make sense out of it. And Charlie would tell Eddie that he was going to leave soon to go home to his father. But as Eddie remembers, Charlie only knew "his dad lived a long way away. And it was beside a lot of water."

room in the canoe. Charlie replied that he was leaving to go home to his father. "I never said nothing to that," says Kelly. "I showed him a good trail down to the railroad tracks. I told him to ask the sectionmen along the way for some food."

But Charlie didn't ask anyone for anything. And though he stayed alive

for the next 36 hours, nobody saw him alive again.

When he left Kelly and his nephews and set out to walk home to his father, Charlie had more than half of northern Ontario to cross. There are few areas in the country that are more forbidding. The bush undulates back from the railroad tracks like a bleak

On Thursday morning Kelly decided he would take his three nephews by canoe up to his trapline at Mud Lake, three miles north of Redditt. "It was too dangerous for five in the canoe," said Kelly, "so I told the stranger he would have to stay behind."

Charlie played outside for a while, then he came in and told Mrs. Kelly he was leaving and he asked for some matches. Nobody goes into the bush without matches. If the worst comes to the worst you can always light a fire to keep warm. Mrs. Kelly gave him some wooden matches and put them in a little glass jar with a screw cap so they would keep dry. She also gave him a plateful of fried potatoes mixed with strips of bacon. Then he left. "I never seed him again," said Clara Kelly.

Nobody will know whether Charlie changed his mind about leaving or whether he wanted to see his friends one last time, but instead of striking out east along the railroad tracks, he walked north to Mud Lake, arriving at the cabin by the trapline before Kelly and his nephews got there in the canoe. That night all there was to eat were two potatoes. Kelly cooked and divided them among the four boys. He didn't eat anything himself but he drank some tea with the others. In the morning there was only more tea. Kelly told Charlie he would have to walk back because there was no

and desolate carpet. The wind whines through the jackpines and spruce, breaking off rotten branches, which fall with sudden crashes. The earth and rocks are a cold brown and black. The crushed-rock ballast, so hard to walk on, is a pale-yellow supporting ribbon for the dark steel tracks. Close to the tracks, tall firs feather against a grey sky. And when a snow squall comes funneling through a rock cut it blots out everything in a

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"You, me—we made them that way"

blur of whiteness. The sudden drop in temperature can leave a man dressed in a warm parka shaking with cold.

All Charlie had was a cotton wind-breaker. And during those 36 hours that Charlie walked, there were snow squalls and freezing rain. The temperature was between 20 and 30 degrees. It is not hard to imagine the hopelessness of his thoughts. He must have stumbled along the tracks at a painfully slow pace — in the end he had covered only a little more than 12 miles. He probably spent hours, huddled behind rocks to escape the wind, gazing at the railroad tracks. Somewhere along the track he lost his map or threw it away. Charlie must have fallen several times because bruises were found later on his shins, forehead and over his left eye. And then at some point on Saturday night, Charlie fell backward in a faint and never got up again. That's the position they found him in.

At 11.20 a.m. on Sunday, October 23, engineer Elwood McIvor was bringing a freight train west through the rock cut near Farlane, 12½ miles east of Redditt. He saw Charlie's body lying beside the track. An hour later a section crew and two police officers went out to bring Charlie's body back.

"It's a story that should be told," said the section foreman, Ed Beaudry. "We tell this man he has to send his son to one of our schools, then we bring his boy back on a luggage car."

THE SUNDAY THEY went to pick up Charlie's body, intermittent snow and sleet blew through Kenora's streets. The church services were over, and the congregations from Knox United Church and the First Presbyterian Church, which face each other at Second Street and Fifth Avenue, were spilling out onto the sidewalks. Just

two blocks west at Second and Matheson I walked into a hamburger joint called the Salisbury House. An Indian woman in an alcoholic stupor was on her hands and knees on the floor, trying to get out the door. None of the half-dozen whites sitting at the counter even looked at her. A young well-dressed Indian girl came in and, with a masklike face, walked around the woman on the floor. The girl bought a pack of cigarettes, and then on the way out held the door open for the woman, who crawled out on her hands and knees and collapsed on the sidewalk.

One man at the counter turned and looked at the woman. "That's what they do to themselves," he said in a tone of amused contempt.

The kid behind the counter suddenly turned whitefaced and angry, "No, we did," he said.

"We? No, it was the higher-ups, the government," replied the man.

"No," insisted the kid, "it was you, me, and everybody else. We made them that way."

The men at the counter looked at him with closed, sullen faces. The kid wouldn't give me his name. "I just work here part-time," he said. "I work for the highways department . . . I guess I'll have to learn to keep my mouth shut. Because nothing ever really changes around here."

CHARLIE WENJACK finally did go home — the Indian Affairs Department saw to that. They put him in a coffin and took him back to Redditt and put him on the train with his three little sisters, who were also at the Cecilia Jeffrey School. Colin Wasacase, the principal, went along with them, too. Wasacase, in his early 30s, is a Cree from Broadview, Sask. He knows what Indian residential

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A boy was dead. What remained was bewilderment, anger

schools are all about. He has lived in them since he was a child, and taught in them. He was at one such school at the age of six when he broke his left arm. The arm turned gangrenous and was amputated.

At Sioux Lookout the little party picked up Charlie's mother. She was taking tests for a suspected case of

TB. From Nakina they all flew 110 miles north to Ogoki. It's the only way you can get to Charlie's home.

Charlie's father, grief-stricken, was bewildered and angry as well. In his 50s, he is known as a good man who doesn't drink and provides well for his family. He buried Charlie, his only son, in the tiny cemetery on the north

shore of the Albany River. He has decided not to send his daughters to school but to keep them at home. Wasacase understands that, too. His own parents kept him out of school for two years because another boy in the family died much the same way Charlie did.

There's not much else to say about

Charlie Wenjack, except that on November 17 an inquest was held in the Kenora Magistrate's Court. Most of the people who have been mentioned in this story were there. The coroner, Dr. R. G. Davidson, a thin-lipped and testy man, mumbled his own evidence when he read the pathologist's report, then kept telling the boys who ran away with Charlie to speak up when answering the crown attorney's questions. When Eddie Cameron, Charlie's best friend, entered the witness box, Davidson unnerved Eddie with warnings about telling the truth and swearing on the Bible. "If you swear on that book to tell the truth, and you tell lies, you will be punished." Which seemed unnecessary because, as Crown Attorney E. C. Burton pointed out, a juvenile doesn't have to be sworn in at an inquest. Eddie later broke down on the stand and had to be excused. Davidson let Burton deal with the boys after that. Burton was gentle enough, but the boys were withdrawn and for the most part monosyllabic in their answers.

"Why did Charlie run away?"

Silence.

"Do you think it was because he wanted to see his parents?"

"Yeah."

"Do you like the school?"

"No."

"Would you rather be in the bush?"

"Yeah."

"Do you like trapping?"

"Yeah."

Before the boys were questioned, the constable in charge of the investigation, Gerald Lucas, had given the jury a matter-of-fact account of finding Charlie's body. In telling it simply, he had underlined the stark grimness of Charlie's death. But it was now, through the stumbling testimony of the boys, and in the bewildered silences behind those soft one-word answers, the full horror began to come out. No, they didn't understand why they had to be at the school. No, they didn't understand why they couldn't be with their relatives. Yes, they were lonesome. Would they run away again? Silence. And the jury was obviously moved. When Eddie Cameron began to cry on the stand, the jury foreman, J. R. Robinson, said later, "I wanted to go and put my arms around that little boy and hold him, and tell him not to cry."

There were no Indians on the jury. There were two housewives, a railroad worker, a service-station operator, and Robinson, who is a teacher at the Beaverbrae School in Kenora. In their own way they tried to do their duty. After spending more than two hours deliberating, they produced a written verdict and recommendations that covered one, long, closely written page of the official form. The jury found that "the Indian education system causes tremendous emotional and adjustment problems." They suggested that the school be staffed adequately so that the children could develop personal relationships with the staff, and that more effort be given to boarding children in private homes.

But the most poignant suggestion was the one that reflected their own bewilderment: "A study be made of the present Indian education and philosophy. Is it right?" ★

GEORGINA ARCHIE, VANCOUVER

"They asked me why I wanted to kill myself and I said to the judge, 'Listen, I don't want your sympathy' "

At 21, Georgina Archie can summarize her life with a small but appalling collection of statistics. She's borne and lost three sons. She's been arrested 25 times "by rough guess," jailed about a dozen. She's cut her wrists three times, once collapsed from an overdose of drugs. Angry, turbulent, compassionate, Georgina stands as a living indictment of the double blight of urban poverty and racism in Canada.

She happens to live on Vancouver's skid row, but her story is just as familiar in Edmonton, Winnipeg, Toronto or Montreal. So far her fiery spirit has been turned against herself, and all she's learned well from our society is the ways of self-destruction.

The skid row she calls home is peopled with "drug addicts and drunkards and junkie hookers, thieves. They're mostly pretty young; you don't live long down here." Would they help her out in a clutch? "I doubt it. But I'd rather be around them than rich ones, the prejudiced ones. There's hardly any prejudice down here at all."

Georgina is the third of seven children. The rest are "ordinary. Me, I'm the only bad one in the family." From her mother's legal Indian husband, and her own Métis father — both of whom drank — she inherited a deep distrust of all men, "Sooner or later they walk out on you. I just don't believe in marriage."

In grade five she got herself kicked out of St. Joseph's Indian residential school by saying she was pregnant. Back home at age 12, she "went and got drunk one day, and landed in court. The first time they let me go free." But eight arrests later she was shipped off to reform school, for "incurability." She was then 13. She broke out "about twelve times." Finally they sent her to Oakhalla Prison Farm.

Released on probation, a few months later, 15 years old, she was

out for three days when she got drunk and slashed her wrists. "They asked me why I wanted to kill myself and I said to the judge, 'Listen, I don't want your sympathy.'" Back in jail for six months, she "flipped out — went crazy" and was sent to the prison psychiatrist.

Georgina's past would make ripe material for any psychiatrist. At three she got into some home brew, "went blue and terrified for eight hours." At eight she saw her sister's "boyfriend get chopped in the head with a hatchet." At 12 she was "raped by six or eight guys."

Recovered and out of jail at 16, Georgina had her first baby, born in a Seattle skid-row hotel, delivered by the manager "because I was stupid and didn't know what was going on." She signed the baby over to the Catholic Children's Aid. Her second child was born dead. She was out one afternoon when the police took her third baby, a two-month-old boy, from her room. She made a third suicide attempt, soon landed back in jail for "going haywire. I stabbed somebody — wish I'd killed them."

Last April she got out of jail, feeling low enough to head right back. Instead she met Bob, a 27-year-old salesman just arrived from Winnipeg. They've been together ever since. Bob was once "sort of a teen-age hoodlum" himself: "But you reach a certain age and you want to settle down." He understands and pacifies Georgina's occasional attacks of rage. He's taken her to hear a Johnny Cash concert, see Brenda Lee at the elegant Cave nightclub. Now he's thinking of moving her to Victoria or Winnipeg. First Georgina wants to get her son back: "I can after I've been out of jail six months. Then we're gonna move on. We want a fresh start."

What does she hope for eventually? Her face lights up. "A log cabin out in the woods away from everybody, where I'd smell pine, fresh air, and see squirrels running in the trees. I can just see it — all them trees and my little cabin and me."

This shocking fact

THE most shocking thing we have read in Canadian newspapers in recent years was under this headline:

Average Indian dies at 33, wife at 34.

That's Canadian Indians, not India's Indians. The facts were outlined in a brief presented last year by the federal Indian Affairs branch to a conference on poverty in Ottawa. The findings were based on 1963 statistics that showed the life expectancy for Canadian males is 60.6, for Canadian Indian males, 33.1. For Canadian women it is 64.1, and for Canadian Indian women, 34.7.

Most of us have been moved by the stories of the staggering suffering and malnutrition of Indians in

India. We have contributed funds, encouraged our most idealistic young people to go as missionaries, urged India to practise birth control (and condemned our own government for its archaic birth control laws). Yet we have continued to deal inadequately with the conditions of our native Indians for which Canada is held responsible before the world.

Let us be moved by these facts! The life expectancy of Canadian Indians is shockingly short because they live under poor social and economic conditions, the worst of which is housing.

We can't really hold up our heads as proud Canadians until we eradicate these pockets of bitter poverty, and make it possible for Canadian Indians to hope to live as long as other Canadians.

Condensed from HONOLULU STAR-BULLETIN MARK WATERS



The Man Who Wrote His Own Obituary

Mark Waters, long a reporter for the Honolulu Star-Bulletin, started his last story January 27. "Run it as my obituary," he said on that day. "Maybe it will help someone." Four days later he made the final corrections in his copy. On the next day, February 1, in Queens Hospital, Honolulu, he died of lung cancer. Here is that last story.

CIGARETTES were the death of me. I became acquainted with my killer when I was about 14 and began stealing several a day from my father's pack.

Inhaling caused some nausea at first, but persistence conquered.

I was born in a miniature Hell's Kitchen in Davenport, Iowa, on June 2, 1909.

At 16, I moved with my family to Baltimore, a city that I loved and adopted as my hometown.

It was still no problem getting cigarettes.

I got odd jobs after school to buy them, and tried all sorts of queer brands, such as Melachrinos, Omars and English Ovals. I felt quite sophisticated, but I can't recall now that I enjoyed smoking them.

In 1928, the coming depression cast its shadow. With money scarce, my father began counting his Camels, so a chum and I took

to picking butts off the street. We toasted the soggy tobacco in an oven, and rolled it into rice-paper cigarettes. They were horrible.

Jobs for youth were nil, so I decided to join the navy—a mouth removed from the table, and I could send money home.

Now cigarettes were no problem. If you were at sea, they were 40 cents a carton. I smoked two packs a day, inhaling most of the smoke.

When my 20-year navy career ended, I went to the University of North Carolina. After I graduated I got a job with the San Diego *Union*.

One night, while walking to my car, I had a slight stroke and staggered to the left. I had been smoking one cigarette after another that night, and I felt that that was what caused it.

My wife, Muriel, and I tried to quit. We lasted eight days.

It wasn't that I got any real pleasure out of smoking. Except for the first cigarette in the morning with my coffee, I never enjoyed it.

My mouth always tasted like a birdcage. Smoking took away my appetite. It brought on emphysema that made it hard to breathe. My chest colds were real dillies.

In 1956, smoking more than ever, I came to Honolulu to work for the *Star-Bulletin*.

In June 1965 my stomach began hurting, and I would get up

every hour or half hour during the night to drink milk and smoke a cigarette.

In September 1965 I came down with a horrible cough. I was hoarse, and there was a nasty soreness in my left lung.

I went to my doctor. He listened to my chest and ordered an X ray. "You have a lung tumor," he said.

Four days later, the lung surgeon took out a left lobe.

A month later, I was back at work. I hadn't smoked since the day before my operation. It wasn't hard to quit—for one simple reason. Motivation.

I came along fine, gained ten pounds and really felt good. Then, on January 3, I thought I had caught a cold.

I went to my surgeon, who tapped a quart of burgundy fluid from my left chest cavity.

I went back several times, and my surgeon said, "The time is drawing closer."

Later, my wife told me he had told her after the operation that I had less than a year to live. But she wouldn't believe it, and she didn't tell me. I find no fault with that.

There are four cell types of lung cancer. The type seems to have a lot to do with its rate of growth. My doctor told me this; he also said that out of every 20 lung-cancer cases only one survives. The other 19 die.

That's the survival rate for lung cancer, taking into consideration all available forms of treatment. There is no 50-50 chance—the figure for other cancers—for this type of cancer.

My doctor has understandable missionary zeal about getting people to quit cigarettes. He says that there's no question of the relationship between cigarette smoking and lung cancer. The statistics are overwhelming. It is estimated that one in every eight males who have been smoking heavily (20 cigarettes or more a day) for 20 years gets lung cancer.

The bad effect of cigarettes doesn't end with lung cancer. Smoking doubles the chances of death from coronary-artery disease, and the chances of dying from emphysema are 12 times greater. Then there's cancer of the mouth, larynx, esophagus and all the rest, too.

I think doctors get to feeling pretty helpless at times. They keep warning people like me, but their warnings go unheeded.

And there's all that cigarette advertising. As my doctor says, "Millions of dollars are spent in all forms of advertising to give the public the impression that ciga-

rettes can make up for a number of shortcomings."

In Italy and Great Britain, they have passed a ban against all cigarette advertisements on TV. I think that's a step in the right direction because, as the doctor says, the big effort should be to stop kids from getting started.

Whether this story will stop anyone from smoking, I don't know. I doubt it. Not a soul I've preached to has quit smoking—not a single, solitary soul.

You always think: "It will happen to the other guy; never to me."

But when you get your lung cancer—God help you.

All you need to see is that shadow on your chest X ray. It's a real shocker. There's nothing you can do.

At this point, I'm comfortable. The nurses give me something whenever there's pain.

I'm very short of breath. I can't take five steps without having to sit. The cancer has gone into my liver and I don't know where else.

I don't have a ghost of a chance.

It's too late for me.

It may not be for you.

For information on reprints of this article, see page 22.



TEENAGERS AND SMOKING

questions and answers

WHY IS THERE SO MUCH CONCERN ABOUT TEENAGE SMOKING?

The younger a person is when he starts smoking, the greater the risk that he may become ill at an earlier age.

Statistics show that the smoker who takes up the cigarette habit before he is 20 is the one who goes on to:

... smoke more cigarettes
for more years,
and who inhales more deeply.

And the smoker most likely to be disabled or killed by cigarettes is the one who:

... smokes more cigarettes
for more years,
and who inhales more deeply.

So the teenage smoker is the one most likely to become the steady, fairly heavy smoker during his twenties, thirties, and forties. And this steady, heavy smoker is the one who faces the greatest health risks.

WHY DO SMOKING STATISTICS ALWAYS TALK ABOUT MEN? DON'T CIGARETTES AFFECT WOMEN'S HEALTH?

Yes, cigarettes do endanger women's health also.

But very few studies have examined the smoking habits of women. In general, large numbers of women have been smoking for only the past 20 years or so, since World War II. Even today, fewer women smoke than do men. And there are still not many women who are extremely heavy smokers and who

inhale deeply. So it is difficult for researchers to find enough different kinds of women, with different smoking habits, to make large-scale scientific surveys.

Therefore, we have very few statistics on women smokers. We have many, many statistics on men smokers, because most of the research has been done among men. This is the meaning of the report's statement that "the data for women" are "less extensive." But these statistics on women smokers do seem to show that they face the same health risks as men smokers.

WHY IS THERE SUCH CONCERN ABOUT DISEASES THAT ARE CAUSED BY CIGARETTES? WE ALL HAVE TO DIE SOME TIME.

First: Cigarettes shorten a smoker's life expectancy. Smokers face serious risks that they will die younger than nonsmokers, that they will die prematurely—before they would have died if they hadn't smoked.

Second: Cigarettes are linked with disabling illnesses. Lung diseases and heart diseases make smokers invalids—unable to work, unable to lead normal lives. More and more, these illnesses are striking people who are quite young, parents of small children.

Young people who begin to smoke in their middle teens may show irritating symptoms in their twenties, and may develop disabling diseases in their thirties.

DO CIGARETTES REALLY HAVE ANY IMMEDIATE EFFECTS ON YOUR HEALTH?

Yes. Cigarettes can make you short of breath, can irritate your throat, can cause chronic cough, can interfere with your appetite, can undercut your stamina for swimming, tennis, football—all athletics.

WHAT REASONS DO TEENAGERS GIVE FOR SMOKING CIGARETTES?

There are many reasons, researchers have found. Here are some typical answers.

"Because the rest of my crowd smokes."

"It makes me look big."

"To be a big shot."

"To feel sophisticated."

"I was curious about it."

"Because I was tense and nervous."

"Because I enjoy smoking."

"Because I wasn't supposed to."

The answers at the top of that list were given more often than the ones at the bottom. As you can see, "being one of the crowd" is a far more common reason for smoking than "enjoyment" is.

So it's fairly clear that young people don't put smoking in the same class with ice cream sodas. Instead, cigarettes seem to be a symbol that proves something—that you're one of the crowd . . . a big shot . . . more sophisticated.

WHAT ABOUT THE NONSMOKERS? DON'T THEY WANT TO BELONG AND TO FEEL BIG?

Of course they do; these are completely normal desires. The researchers' guess is that probably the nonsmoking teens have found other ways of feeling that they belong, of feeling grown up.

This point fascinates and puzzles the researchers. They admit that they simply don't know why some young people pick up the cigarette habit and why others don't. But they are trying to learn the answers; and they have turned up some helpful clues, such as these:

1. Young people seem much less likely to smoke if they know the facts about how smoking will undermine their health . . . if they come from homes where the

parents and older brothers and sisters don't smoke . . . if they're busy with extracurricular activities . . . if they are students who make good grades.

2. Most teens who don't smoke, or who have stopped smoking, say they've avoided or dropped the cigarette habit because it's bad for their health . . . it interferes with athletic activities . . . they just don't enjoy smoking . . . it costs too much money.

DOES ANYONE KNOW HOW MANY TEENAGERS SMOKE CIGARETTES?

A rough estimate would be that about 30 percent—slightly less than one out of three—of American teenagers smoke. Recent surveys point to that figure. It's difficult to give a precise figure because smoking habits vary so much from town to town, even from school to school.

Researchers do know that very few boys and girls smoke in their early teens, but that more and more take up the habit as they go on to the upper grades of high school. According to the Surgeon General's report, surveys among high school seniors showed that between 40 and 55 percent of these 12th graders were smokers.

But these percentages are much lower in some places, even higher in others. There are schools where it's a sign of being "in" if you don't smoke; or smoking may be just not the thing for teenagers to do. Elsewhere, some boys may smoke, but it's considered unladylike for girls to do so. In still other towns and cities, smoking has been quite acceptable for young people—at least until recently.

DOES SMOKING A CIGARETTE REALLY HELP A PERSON TO RELAX?

The nicotine in a cigarette may temporarily calm you down. But it may also temporarily pep you up, so there is no as-

IV-6
 assurance that the cigarette itself has a relaxing effect. Psychologists tell us that it is, rather, the "habit" aspect of smoking that may give a feeling of relaxation—the familiar routine of lighting the cigarette, holding it, puffing on it.

DO CIGARETTES HELP TO KEEP SMOKERS FROM GAINING TOO MUCH WEIGHT?

Yes, cigarettes often seem to curb a steady smoker's appetite. When smokers quit cigarettes, they sometimes begin to overeat. Some say this is because they substitute the snack habit for the cigarette habit. Others say it is because their food tastes so much better.

SO MANY PEOPLE SAY THEY REALLY ENJOY CIGARETTES. WHAT ARE THE ARGUMENTS IN FAVOR OF SMOKING?

Some smokers find pleasure in the taste of the cigarettes, or in the smell of the tobacco, or in both.

Smokers usually list these advantages: that cigarettes help them to concentrate . . . to work better when they're under tension . . . to bolster their self-confidence in uncomfortable situations . . . to relax and feel sociable when they're keyed up. In short, smokers seem to depend on the cigarette habit to ease them over the rough spots of everyday living.

WHY CALL IT "THE CIGARETTE HABIT"? DOES SMOKING ALWAYS BECOME A HABIT?

It usually does; and this is how it happens:

A boy (or girl) takes up cigarettes to satisfy his desire to belong, to feel big. He will usually continue to tie in those good feelings with the act of smoking.

Later, whenever he is anxious or nervous about anything, he is likely to recall those

good feelings that he ties in with cigarettes; and he finds himself reaching for that pack in his pocket. He probably won't be aware of this tieup, any more than most of us are aware of developing the daily habits that become part of our personalities. But this is how a habit takes hold of us.

BUT SUPPOSE YOU DON'T SMOKE STEADILY? LOTS OF KIDS JUST PUFF A FEW CIGARETTES AT A PARTY OR ON A WEEKEND DATE.

That's an attractive picture: The host passing the pack around at a party . . . the boy and girl lighting up as they hike through the woods. Those situations have lots of appeal for all of us, as the people who advertise cigarettes discovered long ago.

But very few people restrict themselves to this kind of social smoking. As researchers have learned, the smoker who begins in his teens is likely to become a habitual smoker. And it is this combination of taking up the habit early, and staying with it for many years, that creates dangerous health risks.

HOW CAN YOU REFUSE A CIGARETTE IF IT'S OFFERED TO YOU?

A smiling, "No thanks" is probably the simplest solution. Try not to look on the offer as a dare, even if you suspect that it may be.

Another approach would be: "No thanks, I just don't like smoking." This may help to bolster your self-assurance if you think someone is trying to put you on the spot.

If you're asked for your reasons, you may want to explain briefly why cigarette smoking is harmful. But no teenager need feel that he must convert friends who are smoking, or that he must give elaborate excuses for his own refusal to smoke.

CAN IT HARM YOU TO BREATHE THE SMOKE FROM OTHER PEOPLE'S CIGARETTES?

No. It may make your eyes tear or make you cough a bit; but it cannot harm you. The harm in smoking lies in inhaling the hot smoke from the cigarette directly into your own mouth, throat, and lungs. Ninety percent of the harmful particles stay in the smoker's lungs.

SUPPOSE A TEENAGER HAS EXPERIMENTED BY TRYING ONE OR TWO CIGARETTES? WILL THIS MAKE HIM ILL?

It won't make him ill in the sense of causing a disease. It may give him a feeling of nausea—of being sick to his stomach—because his system is not used to the nicotine in the tobacco smoke. But this will be purely a temporary reaction. It will have no lasting effect if he does not continue to smoke.

WHAT ABOUT OLDER TEENS WHO HAVE BEEN SMOKING FOR A FEW YEARS? ARE THEY STUCK WITH THE HABIT, OR CAN THEY STOP?

They can surely stop more easily now than later. Stopping is certainly possible for any teenager who:

1. tries honestly to understand his own reasons for having started smoking;
2. is strongly convinced of the medical reasons for not smoking;
3. sincerely wants to stop, and has the self-control to follow through on his decision.

This does not mean that it is always easy for a teenager to stop. Many young smokers tell themselves they can stop whenever they want to; but quitting often requires great discipline and will power.

HOW CAN A SMOKER QUIT?

Doctors and psychologists have suggested various ways; different methods work with different kinds of people.

Some smokers simply stub out a cigarette, throw away the pack, and never smoke again. Other smokers find that it's easier to stop gradually; they smoke fewer cigarettes every day, over a period of weeks, until they've finally quit completely.

Many smokers trying to stop find it helpful to substitute another habit for cigarette smoking; some become gum chewers, others munch candy. Often two would-be quitters will pair off in a "buddy system" to give each other moral support.

Doctors usually recommend a healthful routine of exercise, fresh air, lots of fruit juices and water, sensible meals that are not too filling.

WHAT ABOUT ALL THE ADULTS WHO LECTURE US ABOUT NOT SMOKING—WHILE THEY'RE LIGHTING THEIR OWN CIGARETTES?

These people probably began smoking many years ago, before we had today's evidence on the tieup between cigarettes and disease. Many adult smokers are working hard to become ex-smokers—either on their doctors' orders or after reading the facts themselves. But it is far from easy for anyone to give up a habit on which he has depended for 20 or 30 years.

CAN AN ADULT SMOKER REDUCE HIS RISKS IF HE DOES STOP SMOKING?

Yes, very definitely. If a smoker stops completely before he shows any symptoms of illness, he certainly has a reasonable chance of maintaining good health.

ARE MEN BETTER OFF IF THEY SWITCH TO PIPES OR CIGARS?

Yes. But, if the pipe or cigar smoker continues to inhale, he may be no better off. Pipe smoking does cause lip cancer; but, in general, pipe and cigar smokers showed much lower death rates than cigarette smokers. Researchers think this may be because pipe and cigar smokers are not likely to inhale.

EXACTLY WHAT IS IT IN CIGARETTES THAT IS HARMFUL?

The tobacco smoke itself is harmful. This smoke is a very complicated mixture of gases and particles. The smoke contains tars that irritate the tissues in nose, throat, lungs. The smoke particles contain certain chemical compounds that are capable of producing cancer. The smoke contains nicotine which affects the nervous system—the heart and the blood vessels. Smoke also contains carbon monoxide which blocks the flow of oxygen in the bloodstream.

WHAT ABOUT FILTERS? CAN'T THEY MAKE CIGARETTES SAFE?

No, filters do not make cigarettes safe. The Surgeon General has emphasized that there is no evidence to prove that filter cigarettes reduce the health hazards of smoking.

One problem is that filters cut down the flavor of cigarettes. To make up for this, filter cigarettes are often manufactured with stronger tobacco. Also, many people seem to smoke more and inhale more deeply with filter cigarettes.

Another problem is that researchers have not yet found and tested all the ingredients in cigarette smoke. So there is no way of knowing exactly how many harmful substances must be filtered out.

IS THERE ANY SAFE WAY TO SMOKE CIGARETTES?

No, there isn't. All smokers face greater risks than nonsmokers, even if they smoke only a few cigarettes daily.

It's true that the smoker who doesn't inhale faces lower risks than the smoker who does inhale. However, very few steady smokers do not inhale. A smoker may begin inhaling without being aware of it; but once he begins, he cannot stop. Even the noninhaler retains some cigarette tars in his mouth as he puffs the smoke in and out; this is why he is less safe than the nonsmoker.

IF CIGARETTES ARE SO HARMFUL, WHY DON'T MORE PARENTS ABSOLUTELY FORBID THEIR OWN KIDS TO SMOKE?

Here again, we must remember that the thought of cigarettes as a health hazard is a fairly new idea for many Americans.

As more organizations and schools spread the word about **SMOKING AND HEALTH**, quite possibly many families will put cigarettes on the "forbidden" list.

There will be parents, though, who will probably shy away from a firm "No!" Some may feel that this might make smoking more attractive to their children. Others may feel that they prefer to set a good example by not smoking themselves—and hoping that their example will be followed. Still others may think that it is wiser for a teenager to make his own decision after he has examined the medical facts.

All parents, of course, handle family problems differently.

THE MEDICAL EVIDENCE

You know that the Surgeon General's report links cigarette smoking mainly with *lung cancer**—with *chronic bronchitis** and *emphysema**, which are other lung diseases—and with *coronary artery disease*.*

What were the scientific facts that convinced the Advisory Committee? The 10 men on the Committee studied evidence that had been gathered in three different kinds of research work: laboratory experiments, autopsies, and population studies.

As you read the brief summary of this research, you will see that the three different kinds of evidence constantly overlap and crisscross with each other. The same facts linking cigarettes and disease kept cropping up in the laboratory experiments, in the autopsies, in the population studies. It was this interlocking evidence that convinced the Advisory Committee.

These facts are presented on the pages that follow the diagram of the human respiratory system.

This is your respiratory system—trachea (windpipe), bronchial tubes, lungs. Through these breathing organs, your body gets its life-giving oxygen.

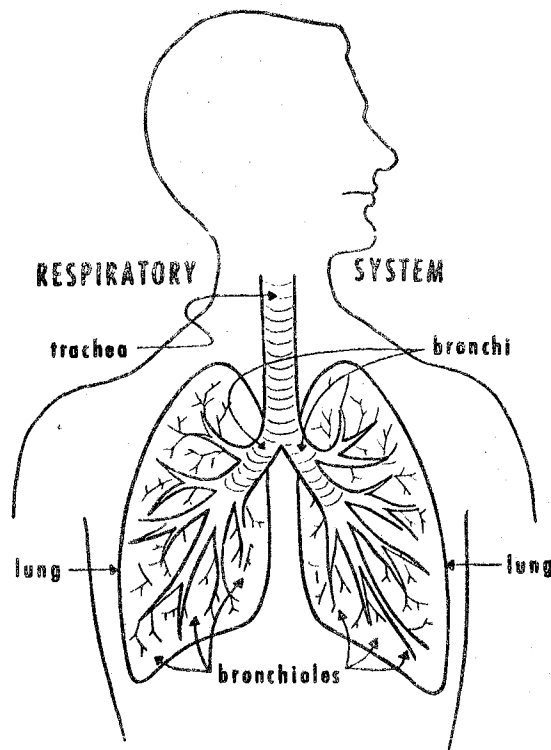
Your trachea and bronchial tubes are airways, carrying oxygen to your lungs. From the lungs, oxygen is absorbed into the blood. With your heart acting as a pump, the oxygen circulates through the blood vessels to all parts of the body.

But the air you breathe contains more than oxygen. It also carries dust, soot, bacteria, smog. Your respiratory system has a

*Definition on page 22.

remarkable built-in cleaning system, designed to filter out these harmful substances.

Your trachea and bronchial tubes are lined with *cilia*, tiny hairlike bits of protoplasm that beat constantly. Cilia act as cleaning brushes. Their job is to trap dust, bacteria, smog—to protect your lungs from these harmful particles—to assure that a sufficient supply of oxygen can reach your blood and circulate through your body.



Laboratory experiments

Scientists have analyzed the chemical compounds found in tobacco smoke. They have exposed rats, mice, dogs to the smoke itself and to these different compounds. They have tested human beings' physical reactions to the act of smoking. Through these various experiments, they learned that:

- Cigarette smoke paralyzes the protective cilia in animals' respiratory systems.

- Tobacco smoke is an extremely complicated mixture; its gases and particles contain hundreds of different compounds.
- Several of these compounds have produced cancers when applied to animals' bronchial tubes and lungs.
- Other compounds irritate the throat and lungs, and damage cells and tissues.
- One component of smoke—nicotine—affects the circulatory system. Nicotine increases the smoker's heart rate, increases his blood pressure, and makes his heart work harder.

Autopsies

These are examinations made after patients have died. Doctors compared autopsies made on the lung tissue of smokers and nonsmokers. They found that:

- Frequently many cilia in cigarette smokers' respiratory tracts were completely destroyed.
- Among cigarette smokers, there was far more damage to cells and tissues in the throat and lungs. Evidently the loss of the protective cilia allowed harmful smoke particles, dust, and bacteria to invade the lungs—thus weakening resistance to lung diseases.
- Among cigarette smokers, actual cell changes occurred in bronchial tissue. One change was the growth of abnormal cells, cells that could become cancerous.
- Among patients who had been heavier smokers, there were more of these abnormal cell changes.
- There was far more thickening in the blood vessels of smokers. This might be an indication that cigarette smoking puts an added strain on the smoker's heart.

Population studies

There were two types of these research studies, which examined the health and medical records of large numbers of people.

One group of studies looked back over the records of people with lung diseases. These studies showed that:

- Among lung cancer patients, there was an unusually high percentage of cigarette smokers.
- A large proportion of smokers suffered from these symptoms of lung diseases: constant throat irritation, chronic coughing, respiratory infections, inflamed bronchi, breathlessness.
- These symptoms were much more common among smokers than among nonsmokers.
- Heavier smokers showed more of these symptoms; and the symptoms decreased among people who had given up cigarettes.

The death rates and the risks

The second set of population studies were the ones that yielded the "death rate" statistics that have been quoted so often from the report.

These studies compared equal groups of smokers and nonsmokers. In each study, the men were watched for a certain number of months or years. Records were kept of the health, illnesses, and deaths among 1,123,000 men.

The final figures showed that:

- Proportionally, for every 100 nonsmokers who died, 170 cigarette smokers died.

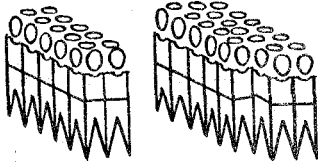
(These proportions are the basis for the statement in the report that "the death rate for smokers of cigarettes . . . is about 70 percent higher than that for nonsmokers.")

These "death rate" statistics also showed that:

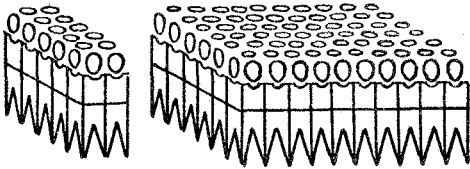
- There were more deaths among men who were heavy smokers, fewer deaths among the group of light smokers.
- There were more deaths among men who had started smoking in their teen years,

fewer deaths among those who started after 25.

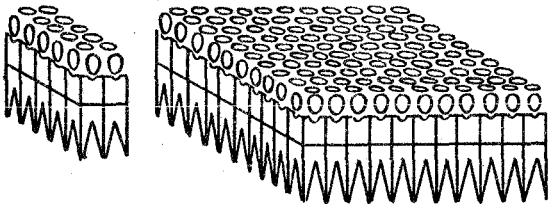
- The smokers showed particularly high death rates for these diseases: coronary artery disease, serious breathing diseases, lung cancer.



For every 10 nonsmokers who died of coronary artery disease, 17 smokers died of this disease.



For every 10 nonsmokers who died of chronic bronchitis and emphysema, 60 smokers died of these serious breathing diseases.



For every 10 nonsmokers who died of lung cancer, 110 smokers died of lung cancer.

Those death rate statistics are the basis for that familiar statement: Smokers face greater health risks than nonsmokers.

Making a decision

The Advisory Committee made its decision after studying all the research mate-

rial—experiments, autopsies, population figures. That medical evidence convinced the experts that cigarettes endanger a smoker's health.

How to make your own decision? You've read a very brief outline of the medical evidence. You might put those facts on one side of the scales as you weigh the question in your mind. On the other side you might put smokers' arguments in favor of cigarettes, as well as reasons that teenagers give for smoking.

For many young people, this is not an easy decision to make. But it is a decision that you must make for yourself. You cannot pass along the responsibility to parents, friends, teachers, doctors, or cigarette advertisements.

No one can keep you from smoking. But neither can anyone force you to smoke. It is a decision that is yours alone, and it may well affect your entire life.

V-12

SOME DEFINITIONS

Cancer is the uncontrolled growth of unhealthy cells within the body. As these abnormal, cancerous cells multiply, they invade healthy tissue and spread through the body to other organs. When cancerous cells invade an organ, they interfere with its normal function and destroy it.

When a patient develops lung cancer, the diseased lung must be removed through surgery. But the cancer cells may have already spread from the lung and invaded other organs in the body.

Chronic bronchitis is a constant inflammation of the bronchial tubes in the lungs. The patient coughs continuously and is short of breath. When the condition flares up, an acute attack of bronchitis may cause the patient to run a fever and to suffer pains in his lower chest.

Coronary artery disease. The heart is the hardest working muscle in the body. In order to continue working effectively, the heart must have an uninterrupted blood supply. In one type of heart disease, coronary artery disease, the heart is damaged by interference with this constant flow of blood. The normally smooth coronary arteries which serve the heart become narrow and roughened because of patchy deposits in their linings. When this narrowing is especially severe or when a coronary artery is blocked, a heart attack results.

Emphysema (em-fuh-SEE-muh) is usually a very serious lung condition. It consists of a breakdown of the normal lung structures. This breakdown interferes with the proper flow of air and with the absorption of oxygen by the blood. The patient with emphysema suffers from cough and constant shortness of breath that can make him a helpless cripple.

APPENDIX B.

Assignment Sheets

Assignment Sheet

You are participating in an experiment conducted by a graduate student from Simon Fraser University. The experiment has to do with various ways of improving student composition. You will write six compositions in a six week period. All the compositions will be marked, and returned to you after the Easter holidays. The grades for these compositions will be used to help determine your final English mark in June.

Your assignment is to write an expository composition of one or more paragraphs. An expository composition gives ideas and opinions on a particular subject. Your composition can be of any length and is to be written double-spaced (on every second line) on foolscap provided by your teacher. You have approximately one week to complete the assignment. It is to be handed in, together with an Information Slip that your teacher will supply and that you will complete, on the date set by your teacher. Be sure to put your name on both the composition and the Information Slip.

The topic of your composition for this week is...

What's Wrong with the Canadian High School?

If you wish, you may deal with only one aspect of this topic; it is probably wise not to try to cover all aspects of the topic. For the title of your composition you may use the topic as given or, if you have limited yourself to only one aspect of the given topic, you may use your own title.

Specially hired markers will be used to grade your compositions. To ensure that the grading is unbiased, the markers will not be told about any methods used to help you with your assignment. If, therefore, you see a film, read an article or have a discussion on the topic, please do not indicate to the markers that you have participated in any of these activities. You may use any ideas or information that you gain from the activities, but do not refer to a film, an article or a discussion in your composition. Your cooperation will be appreciated.

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The topic of your composition for this week is...

The Population Explosion - A Challenge to Mankind

If you wish, you may deal with only one aspect of this topic; it is probably wise not to try to cover all aspects of the topic. For the title of your composition you may use the topic as given or, if you have limited yourself to only one aspect of the given topic, you may use your own title.

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The topic of your composition for this week is...

Automotive Safety - How to Reduce the Slaughter on our Roads

If you wish, you may deal with only one aspect of this topic; it is probably wise not to try to cover all aspects of the topic. For the title of your composition you may use the topic as given or, if you have limited yourself to only one aspect of the given topic, you may use your own title.

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Racial Prejudice in Canada

If you wish, you may deal with only one aspect of this topic; it is probably wise not to try to cover all aspects of the topic. For the title of your composition you may use the topic as given or, if you have limited yourself to only one aspect of the given topic, you may use your own title.

Specially hired markers will be used to grade your compositions. To ensure that the grading is unbiased, the markers will not be told about any methods used to help you with your assignment. If, therefore, you see a film, read an article or have a discussion on the topic, please do not indicate to the markers that you have participated in any of these activities. You may use any ideas or information that you gain from the activities, but do not refer to a film, an article or a discussion in your composition. Your cooperation will be appreciated.

Assignment Sheet

You are participating in an experiment conducted by a graduate student from Simon Fraser University. The experiment has to do with various ways of improving student composition. You will write six compositions in a six week period. All the compositions will be marked, and returned to you after the Easter holidays. The grades for these compositions will be used to help determine your final English mark in June.

Your assignment is to write an expository composition of one or more paragraphs. An expository composition gives ideas and opinions on a particular subject. Your composition can be of any length and is to be written double-spaced (on every second line) on foolscap provided by your teacher. You have approximately one week to complete the assignment. It is to be handed in, together with an Information Slip that your teacher will supply and that you will complete, on the date set by your teacher. Be sure to put your name on both the composition and the Information Slip.

The topic of your composition for this week is...

Canada's Indian Problem

If you wish, you may deal with only one aspect of this topic; it is probably wise not to try to cover all aspects of the topic. For the title of your composition you may use the topic as given or, if you have limited yourself to only one aspect of the given topic, you may use your own title.

Specially hired markers will be used to grade your compositions. To ensure that the grading is unbiased, the markers will not be told about any methods used to help you with your assignment. If, therefore, you see a film, read an article or have a discussion on the topic, please do not indicate to the markers that you have participated in any of these activities. You may use any ideas or information that you gain from the activities, but do not refer to a film, an article or a discussion in your composition. Your cooperation will be appreciated.

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The topic of your composition for this week is...

Smoking

If you wish, you may deal with only one aspect of this topic; it is probably wise not to try to cover all aspects of the topic. For the title of your composition you may use the topic as given or, if you have limited yourself to only one aspect of the given topic, you may use your own title.

Specially hired markers will be used to grade your compositions. To ensure that the grading is unbiased, the markers will not be told about any methods used to help you with your assignment. If, therefore, you see a film, read an article or have a discussion on the topic, please do not indicate to the markers that you have participated in any of these activities. You may use any ideas or information that you gain from the activities, but do not refer to a film, an article or a discussion in your composition. Your cooperation will be appreciated.

APPENDIX C.

Information Slip

Information Slip

Name _____

The information you give below will have absolutely no bearing on the mark you receive for your composition.

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In fact, the markers will not see the slip; its only purpose is to provide data for the person conducting the experiment.

As accurately as possible, answer the following questions.

- (a) What was the total amount of time you spent on the assignment? _____ hr.(s) _____ mins.
- (b) How many words are there in your composition? _____
- (c) Were you present during the period the assignment was given to the class? _____
- (d) What is the topic of this composition, as given on the Assignment Sheet? _____

APPENDIX D.

Questionnaire

Questionnaire

Name _____

You have now finished writing a series of six compositions. Each topic was introduced to you in a different way. One week you saw a film, another week you read an article, another week you had a discussion, another week you saw a film and had a discussion, another week you read an article and had a discussion, and another week you were merely given the Assignment Sheet. Please give your opinion on the following two points. Do so by writing in each blank the number of one of the responses. None of the information you give will affect your marks in any way.

- (a) Indicate how interesting you found each of the following kinds of introductions.

- _____ seeing a film
 _____ reading an article
 _____ having a discussion
 _____ seeing a film and having a discussion
 _____ reading an article and having a discussion

Responses

1. Boring
2. Not very interesting
3. Fairly interesting
4. Quite interesting
5. Very interesting

- (b) Indicate how much help in writing the composition each of the following introductions gave you.

- _____ seeing a film
 _____ reading an article
 _____ having a discussion
 _____ seeing a film and having a discussion
 _____ reading an article and having a discussion

Responses

1. No help at all
2. Not very helpful
3. Fairly helpful
4. Quite helpful
5. Very helpful

APPENDIX E.

Teacher's Guide

Teacher's Guide

The basic purpose of the experiment you are participating in is to evaluate the effects of various kinds of stimuli on student writing. The kinds of stimuli to be used are films, articles and discussions. Much of the basic information about the experiment is given in the students' Assignment Sheet which should be read before proceeding any further with this guide.

The last page of this guide gives the schedule of topics and activities for your class. This schedule must be followed exactly. Also, it is essential that classroom procedures be standardized so that all teachers in the experiment follow the same routine. The procedures detailed below should be adhered to as closely as possible.

1. Allow enough time in the period so that there is no rush to complete all the necessary details. If the schedule calls for a discussion after a film or an article, the whole period should be given over to these activities. The other forms of stimuli do not require as much time, but composition activities should commence at the beginning of the period to prevent rushing.
2. At the beginning of the period, collect the compositions and Information Slips for the previous assignment.
3. You should then hand out the Assignment Sheet for that week's topic and give the students enough time to read it. After the students have read the instructions, a date can be set for handing in the composition (the date of the next composition period). Also, the students should be asked if they have any questions about the instructions.
4. Next, give out the blank Information Slips and enough foolscap for the assignment.
5. The particular stimulus being used that week can then be presented.
 - (a) If a film is used, make sure that conditions are at an optimum for viewing; e.g., the room should be dark enough. If the topic is Smoking, show Let's Discuss Smoking first and The Drag second.
 - (b) If an article is being read, allow all students to finish the material by giving fast readers something else to do while they are waiting for the others to finish. Make sure that all the articles are collected before the end of the period. Devise a system such as counting the articles or collecting them personally to ensure that students do not take them home and copy from them when working on the assignment.
 - (c) If a discussion is being held, it should not stray from the topic. If no film was viewed nor an article read beforehand, employ your usual verbal techniques to begin the discussion and to keep it going. Also,

keep in mind that it is a discussion, not a lecture; be careful not to dominate it with your own ideas. Your chief function will be to pose questions and to elicit ideas from as many students as possible.

- (d) If your schedule calls for no stimulus at all, carry out the normal pattern of activities, such as handing out the Assignment Sheet, etc., but omit any stimulus and go on to other work in the rest of the period. Be sure not to give assistance to the students by suggesting content material for their composition. For this assignment, the students are on their own.

6. The writing of the composition should not be done in class. All work on the assignment should be done at home.

Some miscellaneous points should also be kept in mind.

1. The students can be told, when you introduce the experiment to them, that films, articles and discussions will be used for some of the topics. However, do not reveal the exact nature or titles of the films, articles or topics. In general, little verbal explanation will be necessary as the Assignment Sheet contains most of the information that the students will need.
2. In choosing the periods to use for this experiment, try to keep the interval between successive periods as close to seven days as possible. In every interval there must be one weekend, but only one.
3. If your schedule calls for a discussion after viewing a film or reading an article, you should preview the film or article before the English period in order to familiarize yourself with its contents. You will then be prepared to capitalize on the content of the film or article in the discussion of the topic for that week.
4. If a student should ask about how to count the number of words in his composition, explain that the question of whether a hyphenated word or an abbreviation like B.C. counts as one or two words is unimportant. The important thing is consistency; a student should use the same system of counting from week to week.
5. If a composition is not handed in on the prescribed day, write the following at the top of the paper: "1,2,3,etc. day(s) late". Marks will not be deducted for lateness; a penalty can be determined by the teacher concerned if he wishes.
6. Keep all the compositions, Information Slips, films, articles, Questionnaires and your Teacher's Guide in a safe place until the end of the experiment when I will pick them up.
7. On the day the last composition is handed in, the Questionnaires should be given out, completed by the students, and collected.
8. If you have any questions or problems, telephone me,

George Arnell, at 522-6569.

9. If you will be away from school on a day when one of the composition periods should be held, please telephone me. We will have to decide whether to make arrangements to brief your substitute and make sure he gets the necessary materials to carry on the scheduled activities for that period, or to postpone the activities until you return to school.

I would appreciate it if, during the experiment and at its conclusion, you filled in the information asked for below. No judgment of you as a teacher will be made on the basis of your responses. They are needed merely to answer some questions that might be raised about the experiment. The information will not be used on an individual basis but as part of the six teachers' total response.

- (a) Indicate in the first space provided how long each of the three discussions lasted. Write the number of the appropriate response in the second space to indicate how enthusiastically the class participated in each discussion.

First discussion _____ mins. _____

Second discussion _____ mins. _____

Third discussion _____ mins. _____

Responses

1. Completely unenthusiastic
2. Not very enthusiastic
3. Fairly enthusiastic
4. Quite enthusiastic
5. Very enthusiastic

- (b) By writing the numbers of the appropriate responses given on the next page, indicate how often you use each of the following techniques to stimulate the students in composition periods.

Film _____

Article _____

Discussion _____

Film and discussion _____

Article and discussion _____

Others (Specify) _____

Responses

- 1. Never
- 2. Seldom
- 3. Sometimes
- 4. Most times
- 5. Every time

(c) Indicate how long the periods are at your school. _____

(d) Indicate the length of the shortest interval between two successive composition periods of this experiment.

_____ days.

Indicate the length of the longest interval between two successive composition periods of this experiment.

_____ days.

Class A

The following schedule indicates the order in which the topics and stimuli will be presented to your class.

Week 1 - Smoking

Article (The Man Who Wrote. . .) and discussion

Week 2 - Canada's Indian Problem

Film (Because They Are Different) and discussion

Week 3 - Automotive Safety

Film (Every Second Car) - no discussion

Week 4 - What's Wrong with the Canadian High School?

No stimulus at all

Week 5 - Racial Prejudice in Canada

Article (A Black Man Talks. . .) - no discussion

Week 6 - The Population Explosion

Discussion

APPENDIX F.

Instructions for Markers

Instructions for Markers

It is important that the marking be as valid and reliable as possible. After all the compositions have been graded by each marker, the grades of the first marker will be compared statistically with those of the second marker to discover how closely the markers agree with one another. To ensure a high degree of correlation between the two sets of marks, the following information and procedures should be used for each set of sixty compositions.

A. Criteria to be used in judging the compositions.

1. The following criteria are to be used in judging the worth of the compositions.

Ideas: relevance, clarity, quantity, development, persuasiveness

Form: organization and analysis

Wording: choice and arrangement of words

Flavor: style, interest, sincerity

Mechanics: specific errors in grammar, punctuation, etc.

2. Try to give equal weight to each factor when judging the compositions.

B. Procedures to be used in grading the compositions.

1. It is difficult to achieve high correlation between the grades of markers working independently on the same compositions. Even if the quality of the compositions conforms to a normal curve, markers find it difficult to spread their marks appropriately. Some emphasize the middle marks too much, some emphasize the extreme marks, and some tend to emphasize "favorite" marks in various positions on the scale. Also, some markers find it difficult to maintain the same standards throughout a marking session. They find that their grading becomes erratic or that they tend to give more middle grades toward the end of the session. Lastly, some markers grade "harder" than others. Some tend to assign low marks to most compositions, whereas others tend to assign high marks. The grading system detailed below overcomes all of these tendencies. Although it may seem rather arbitrary, this system will bring much closer to agreement the grades of the markers.

2. There will be four readings of each set of compositions.
 - a. The first reading is for the purpose of dividing the compositions into five piles according to merit. After reading each composition, decide whether it is poor, fair, average, good or excellent, and place it in the appropriate pile.
 - b. The second reading is to rank the compositions in

each pile. Read the compositions in one pile, rearranging them so that the best one is on the top, the next best below it, and so on down to the poorest on the bottom. Do the same with the four other piles.

- c. The third reading is to combine the four piles into one so that the compositions are ranked from the best one on top down to the worst one on the bottom. The problem in this step is to place borderline compositions in their correct positions. For example, it may be found that the best composition in the "Good" pile is better than the worst one in the "Excellent" pile. If this is so, compositions in the "Excellent" pile will have to be reread to determine between which two compositions the one from the "Good" pile should be placed. The same procedure will have to be followed for several of the top compositions in each pile.
- d. The last reading will be a final check on the overall ranking of the compositions. The compositions should be read again to satisfy yourself that no composition is, in your judgment, out of order.

3. Once the compositions have been ranked, assigning marks is a simple procedure. The marks will be given on the basis of a normal distribution. No deviation from the following distribution of marks is allowable. The number on the left indicates the mark to be assigned. The number on the right indicates how many compositions are to be given that mark. For example, the top three compositions receive a grade of ten, the next four a grade of nine, the next seven a grade of eight, etc.

<u>Mark</u>	-	<u>No. of Compositions</u>
10	-	3
9	-	4
8	-	7
7	-	10
6	-	12
5	-	10
4	-	7
3	-	4
2	-	3

4. When you are reading the compositions and when you assign grades, do not write anything on the papers. You are not to write comments or corrections nor to place the grade on the paper. To do so would result in bias when the next marker reads the composition. Record the grades once only - in the proper column on the sheets entitled Composition Marks.

C. Other considerations in grading the compositions.

1. Each of the four readings should be done in one uninterrupted session. Compositions read first in a set of sixty will then be relatively fresh in your mind when comparing other compositions in the set with them. Also, give your self a rest period between each of the four readings. The interval between the third and fourth reading will be especially helpful, and it may be advisable to take a considerable amount of time for some other activity then so that you will have a fresh outlook for the final check of the ranking of the compositions.
2. When considering the ideas of the compositions, try not to be subjective. The topics are to some extent controversial, and you might hold some definite opinions on them yourself. However, try to give fair credit to a student's ideas, no matter which side of a question he advocates. Do not mark according to your own personal prejudices.
3. Also, try not to develop an opinion about a student's ability after reading a few compositions by him. The nature of the experiment might cause the quality of a student's compositions to vary. Try to mark each composition according to its own merit.
4. If you have any questions or problems, telephone me, George Arnell, at 522-6569.

APPENDIX G.

Tables Showing Raw Scores

TABLE XIX

SCORES ASSIGNED BY MARKER A TO THE
SAMPLE STUDENTS' COMPOSITIONS

Students' Numbers	Topics					
	1	2	3	4	5	6
1	6	7	7	7	8	10
2	7	8	7	10	8	6
3	2	4	5	4	5	2
4	7	7	6	5	7	8
5	5	5	6	6	5	3
6	5	4	6	4	3	4
7	5	3	4	9	6	4
8	7	7	7	6	8	8
9	10	9	9	9	8	6
10	10	9	10	8	7	8
11	7	3	4	6	7	6
12	6	7	7	8	7	7
13	7	7	8	8	7	7
14	8	8	8	8	7	6
15	4	5	3	3	4	2
16	7	5	4	6	7	8
17	9	8	6	7	8	8
18	5	4	4	4	5	4

TABLE XIX (continued)

Students' Numbers	Topics					
	1	2	3	4	5	6
19	5	4	2	5	5	3
20	6	8	3	6	5	6
21	7	6	8	6	9	8
22	3	5	4	3	4	5
23	7	8	5	7	6	6
24	6	7	6	7	6	6
25	6	6	5	6	6	5
26	9	7	10	8	9	10
27	4	6	5	7	7	9
28	5	4	3	2	5	3
29	6	9	6	7	6	6
30	4	5	4	5	5	5
31	3	5	5	5	5	5
32	7	6	4	5	7	5
33	4	8	6	5	9	9
34	4	3	6	2	4	5
35	5	4	8	3	3	6
36	9	10	9	8	10	10
37	5	4	5	4	4	3
38	6	5	3	6	4	5

TABLE XIX (continued)

Students' Numbers	Topics					
	1	2	3	4	5	6
39	8	5	7	9	3	6
40	2	2	2	4	2	2
41	2	2	2	2	2	5
42	6	6	6	3	6	7
43	6	3	6	5	6	5
44	6	5	7	7	6	7
45	3	5	8	7	8	7
46	8	8	7	6	6	7
47	3	7	8	10	8	7
48	8	7	7	6	6	7
49	5	6	5	4	2	5
50	8	2	5	4	6	7
51	10	10	9	8	10	8
52	8	7	6	7	4	6
53	7	6	6	6	5	4
54	4	6	7	5	4	4
55	8	10	9	10	9	9
56	5	6	7	5	3	4
57	9	9	10	9	10	9
58	6	6	8	6	7	4

TABLE XIX (continued)

Students' Numbers	Topics					
	1	2	3	4	5	6
59	4	6	5	5	5	7
60	6	6	5	7	6	6

NOTE: This table includes the fifty-eight students in the sample group and the two students from Class F who were excluded from the statistical analysis after the marking was completed.

TABLE XX

SCORES ASSIGNED BY MARKER B TO THE
SAMPLE STUDENTS' COMPOSITIONS

Students' Numbers	Topics					
	1	2	3	4	5	6
1	6	6	5	7	7	8
2	8	8	6	9	7	7
3	3	5	2	5	3	2
4	4	5	7	7	8	8
5	4	5	6	5	5	2
6	2	5	6	5	4	5
7	4	2	2	5	4	6
8	6	6	7	6	7	8
9	10	10	9	10	9	8
10	10	10	10	9	9	6
11	4	6	4	5	8	6
12	6	7	7	6	7	5
13	8	8	9	7	4	9
14	6	7	6	7	6	7
15	5	6	4	2	5	3
16	6	8	5	6	5	6
17	5	9	5	8	8	10
18	6	6	4	8	6	5

TABLE XX (continued)

Students' Numbers	Topics					
	1	2	3	4	5	6
19	4	4	3	5	3	5
20	3	5	6	5	5	6
21	6	7	8	6	2	8
22	4	4	4	4	3	2
23	7	7	6	8	8	6
24	7	6	7	8	4	8
25	6	3	3	4	5	5
26	7	8	9	8	8	7
27	4	3	3	4	7	7
28	5	4	5	5	6	4
29	5	6	5	5	6	6
30	3	5	4	4	4	4
31	5	5	8	3	6	6
32	7	6	4	7	7	6
33	2	2	8	2	5	8
34	3	3	5	3	2	4
35	5	4	6	4	4	4
36	9	9	8	9	10	9
37	5	5	7	4	6	7
38	7	3	5	7	5	3

TABLE XX (continued)

Students' Numbers	Topics					
	1	2	3	4	5	6
39	8	8	8	6	3	7
40	7	4	2	5	2	4
41	2	2	3	2	4	5
42	5	6	8	3	7	3
43	7	5	7	7	6	6
44	6	6	6	6	6	7
45	6	4	6	7	6	5
46	7	8	5	6	5	5
47	6	7	9	8	8	6
48	7	6	6	9	7	7
49	5	7	5	6	5	3
50	8	5	7	3	10	6
51	9	9	10	10	9	10
52	8	7	6	7	6	9
53	8	7	7	6	6	5
54	5	4	5	4	6	4
55	9	9	7	8	9	9
56	9	8	6	6	7	7
57	10	10	10	10	10	10
58	8	7	8	6	7	5

TABLE XX (continued)

Students' Numbers	Topics					
	1	2	3	4	5	6
59	6	6	7	6	8	7
60	7	7	4	7	5	4

NOTE: This table includes the fifty-eight students in the sample group and the two students from Class F who were excluded from the statistical analysis after the marking was completed.

APPENDIX H.

Table Showing Mean Scores

TABLE XXI

MEANS OF THE TWO SCORES ASSIGNED TO EACH
COMPOSITION OF THE SAMPLE STUDENTS

Students' Numbers	Experimental Treatments					
	I	II	III	IV	V	VI
Class A						
1	6	7	6.5	7.5	9	6
2	6.5	9.5	8	7.5	6.5	7.5
3	3.5	4.5	4.5	4	2	2.5
7	3	7	2.5	5	5	4.5
11	4	5.5	4.5	7.5	6	5.5
17	5.5	7.5	8.5	8	9	7
29	5.5	6	7.5	6	6	5.5
32	4	6	6	7	5.5	7
34	5.5	2.5	3	3	4.5	3.5
45	7	7	4.5	7	6	4.5
50	6	3.5	3.5	8	6.5	8
54	6	4.5	5	5	4	4.5
55	8	9	9.5	9	9	8.5
56	6.5	5.5	7	5	5.5	7
Mean	5.50	6.07	5.75	6.39	6.04	5.82
Class B						
5	5.5	5	4.5	6	5	2.5
8	6	6.5	6.5	7	7.5	8
14	7.5	7.5	7	7	6.5	6.5

TABLE XXI (continued)

Students' Numbers	Experimental Treatments					
	I	II	III	IV	V	VI
22	3.5	4.5	3.5	4	3.5	3.5
31	4	5	4	6.5	5.5	5.5
35	3.5	4	5	7	3.5	5
37	4	4.5	5	6	5	5
38	6.5	4	6.5	4	4.5	4
42	3	6	5.5	7	6.5	5
43	6	4	6.5	6.5	6	5.5
46	6	8	7.5	6	5.5	6
59	5.5	6	5	6	6.5	7
Mean	5.08	5.42	5.54	6.08	5.46	5.29
Class C						
15	4.5	2.5	3.5	4.5	5.5	2.5
27	7	8	4	4	4.5	5.5
28	5.5	3.5	4	5	4	3.5
33	7	8.5	7	3	5	3.5
36	10	9.5	8.5	9	9.5	8.5
40	2	3	2	4.5	3	4.5
41	3	5	2.5	2	2	2
49	3.5	4	5	5	6.5	5
Mean	5.31	5.50	4.56	4.63	5.00	4.38

TABLE XXI (continued)

Students' Numbers	Experimental Treatments					
	I	II	III	IV	V	VI
Class D						
6	4.5	3.5	4.5	4.5	3.5	6
9	9.5	8.5	7	9.5	10	9
10	9.5	8	7	8.5	10	10
12	7	7	6	7	6	7
18	5	5.5	4.5	6	5.5	4
21	6.5	5.5	8	6	6.5	8
23	7.5	7	6	7.5	7	5.5
39	6.5	3	6.5	7.5	8	7.5
44	5.5	6	7	6.5	6	6.5
51	9.5	9.5	9	9	9.5	9.5
52	7	5	7.5	7	8	6
53	6.5	5.5	4.5	6	7.5	6.5
Mean	7.04	6.17	6.46	7.08	7.29	7.13
Class E						
4	5.5	6.5	7.5	8	6	6
13	7.5	8.5	5.5	8	7.5	7.5
16	6.5	4.5	6	7	6	6.5
20	4.5	4.5	5	6	5.5	6.5
24	6.5	6.5	5	7	7.5	6.5

TABLE XXI (continued)

Students' Numbers	Experimental Treatments					
	I	II	III	IV	V	VI
26	8	9.5	8.5	8.5	8	7.5
30	3.5	4	4.5	4.5	4.5	5
47	4.5	8.5	8	6.5	9	7
48	7.5	6.5	6.5	7	7.5	6.5
57	9.5	10	10	9.5	9.5	9.5
58	7	8	7	4.5	6	6.5
60	6.5	4.5	5.5	5	7	6.5
Mean	6.42	6.79	6.58	6.79	7.00	6.79

NOTE: This table shows the students arranged according to classes. Each mark of each student is a mean of the two grades assigned to a composition by the two markers. Shown below each class is the mean of all the scores of the class obtained under each experimental treatment.

APPENDIX I. Tables Showing Raw Ancillary Data

TABLE XXII

TIME IN MINUTES SPENT ON THE ASSIGNMENTS
BY THE SAMPLE STUDENTS AFTER EACH EXPERIMENTAL TREATMENT

Students' Numbers	Experimental Treatments					
	I	II	III	IV	V	VI
Class A.						
1	60	45	70	55	145	50
2	75	120	105	150	75	180
3						
7	60	75	45	60	90	45
11	45	50	40	55	35	45
17	90	90	150	150	210	120
29	120	120	100	90	120	100
32	25	30	20	45	45	30
34	20	20	25	25	30	30
45	95	90	45	115	110	80
50	105	45	45	195	160	120
54	45	40	45	60	70	60
55	60	65	60	90	60	60
56	60	45	75	60	60	85
Mean	66.15	64.23	63.46	88.46	93.08	77.31
Class B						
5	60	90	60	60	60	30
8	55	50	65	60	60	65
14	130	70	90	110	45	50

TABLE XXII (continued)

Students' Numbers	Experimental Treatments					
	I	II	III	IV	V	VI
22	30	30	20	30	30	30
31	30	50	45	95	48	35
35	30	30	30	30	30	30
37	60	150	60	136	120	120
38	90	90	120	120	90	90
42	120	120	90	210	150	120
43	90	75	120	90	135	90
46	28	45	20	48	20	25
59	120	90	90	80	80	60
Mean	70.25	74.17	67.50	89.08	72.33	62.08
Class C						
15	150	150	38	135	120	80
27	30	60	30	20	45	20
28	120	120	95	60	90	60
33	120	80	150	60	100	90
36	90	90	90	75	210	105
40	90	120	90	120	60	60
41	45	30	30	30	90	30
49						
Mean	92.14	92.86	74.71	71.43	102.14	63.57

TABLE XXII (continued)

Students' Numbers	Experimental Treatments					
	I	II	III	IV	V	VI
Class D						
6	60	30	60	60	30	60
9	135	120	120	120	180	150
10	150	120	90	90	180	120
12	135	105	150	90	90	165
18	90	120	90	120	60	75
21	120	120	90	120	105	135
23	270	120	130	260	135	190
39	45	25	80	135	200	105
44	180	120	150	150	120	150
51	290	330	180	150	210	150
52	180	90	160	120	150	150
53	105	45	90	90	60	60
Mean	146.67	112.08	115.83	125.42	126.67	125.83
Class E						
4	70	60	30	75	45	45
13	90	60	40	60	35	60
16	50	45	60	60	60	45
20	75	90	45	60	45	60
24						
26	120	130	150	135	100	105

TABLE XXII (continued)

Students' Numbers	Experimental Treatments					
	I	II	III	IV	V	VI
30	50	45	30	40	15	40
47	80	135	135	90	135	150
48	135	205	130	105	150	90
57	330	260	135	105	90	270
58	160	220	70	75	100	75
60	150	90	120	165	170	120
Mean	119.09	121.82	85.91	88.18	85.91	96.36

NOTE: The data in the table were compiled from the Information Slips and therefore may be slightly erroneous. Also, the data for Students 3, 49, and 24 were incomplete and so were not used in the calculations.

TABLE XXIII

NUMBER OF WORDS WRITTEN IN THE COMPOSITIONS BY THE
SAMPLE STUDENTS AFTER EACH EXPERIMENTAL TREATMENT

Students' Numbers	Experimental Treatments					
	I	II	III	IV	V	VI
Class A						
1	280	170	280	300	560	200
2	250	200	375	370	230	650
3						
7	140	190	135	240	230	190
11	160	175	210	250	250	236
17	175	500	500	350	550	560
29	295	335	220	230	230	190
32	260	350	300	550	350	400
34	252	150	180	200	216	192
45	400	320	175	350	300	250
50	369	213	140	404	357	325
54	225	150	150	250	150	230
55	413	403	410	486	310	476
56	210	124	190	170	260	423
Mean	263.77	252.31	251.15	319.23	307.15	332.46
Class B						
5	150	210	230	250	130	100
8	225	220	200	260	255	240
14	566	534	683	306	276	322

TABLE XXIII (continued)

Students' Numbers	Experimental Treatments					
	I	II	III	IV	V	VI
22	200	250	170	100	300	260
31	174	260	185	395	278	289
35	112	155	100	150	140	125
37	225	250	225	222	240	225
38	330	290	320	350	250	300
42						
43	275	200	375	300	475	230
46	200	335	338	204	275	200
59	220	360	310	275	369	369
Mean	243.36	278.55	285.09	255.64	271.64	241.82
Class C						
15	492	469	289	759	270	396
27	106	120	120	148	131	146
28	120	160	103	94	113	75
33	221	184	600	102	154	135
36	288	308	280	264	650	241
40	200	300	150	150	120	180
41	210	190	170	170	180	147
49						
Mean	233.86	247.29	244.57	241.00	231.14	188.57

TABLE XXIII (continued)

Students' Numbers	Experimental Treatments					
	I	II	III	IV	V	VI
Class D						
6	252	200	250	200	134	300
9	450	400	343	400	760	400
10	700	500	292	350	1050	400
12	400	261	200	350	375	400
18	190	169	175	222	235	160
21	430	381	281	312	406	451
23	350	280	220	300	336	250
39	225	95	186	335	575	400
44	250	275	250	300	225	300
51	672	1219	432	684	826	682
52	350	270	453	450	450	450
53	300	250	160	260	300	220
Mean	380.75	358.33	270.17	346.92	472.67	367.75
Class E						
4	205	245	214	259	243	245
13	380	224	230	329	193	327
16	390	167	320	324	330	378
20	288	255	260	274	308	323
24						

TABLE XXIII (continued)

Students' Numbers	Experimental Treatments					
	I	II	III	IV	V	VI
26	478	400	606	530	432	355
30	201	230	220	190	220	195
47	182	350	522	296	612	448
48	510	560	400	435	450	360
57	1000	830	580	550	350	1100
58	553	466	286	234	276	377
60	325	160	378	420	415	243
Mean	410.18	353.36	365.09	349.18	348.09	395.55

NOTE: The data in the table were compiled from the Information Slips and therefore may be slightly erroneous. Also, the data for Students 3, 42, 49, and 24 were incomplete and so were not used in the calculations.

TABLE XXIV

SAMPLE STUDENTS' RESPONSES CONCERNING
THE INTEREST OF EACH STIMULUS SITUATION

Students' Numbers	Stimulus Situations				
	I	II	III	IV	V
Class A					
1	5	3	4	4	3
2	2	1	5	3	4
3	4	4	5	4	5
7	4	3	2	5	3
11	5	2	3	5	4
17	4	5	1	4	5
29	3	2	1	4	2
32	4	3	4	5	3
34	4	3	2	4	3
45	4	5	2	4	5
50	4	3	1	5	4
54	3	4	2	5	5
55	5	4	3	5	4
56	3	3	1	4	4
Mean	3.86	3.21	2.57	4.36	3.86
Class B					
5	2	4	3	3	4
8	5	3	1	4	3
14					

TABLE XXIV (continued)

Students' Numbers	Stimulus Situations				
	I	II	III	IV	V
22	3	2	4	4	5
31	3	4	3	4	4
35	3	3	2	3	4
37	5	3	3	5	5
38	4	3	2	5	4
42	4	3	3	4	3
43	4	2	3	5	5
46	4	5	1	2	3
59	5	4	3	5	3
Mean	3.82	3.27	2.55	4.00	3.91
Class C					
15	5	2	3	4	3
27	4	3	1	4	3
28	4	2	3	4	1
33	4	2	3	4	2
36	5	3	1	2	1
40	4	3	1	3	2
41	5	4	1	5	3
49	4	2	3	5	4
Mean	4.37	2.62	2.00	3.87	2.37

TABLE XXIV (continued)

Students' Numbers	Stimulus Situations				
	I	II	III	IV	V
Class D					
6	5	3	3	4	2
9	3	2	3	4	4
10	3	4	4	4	5
12	1	3	4	5	4
18	5	3	3	4	2
21	4	1	3	5	2
23	3	4	4	5	5
39	3	2	3	4	3
44	2	4	4	3	5
51	2	3	2	4	2
52	4	3	3	5	3
53	4	2	2	5	3
Mean	3.25	2.83	3.17	4.33	3.33
Class E					
4	3	2	4	5	4
13	5	1	3	5	2
16	3	1	3	4	2
20	5	3	3	4	2
24	4	3	2	4	3

TABLE XXIV (continued)

Students' Numbers	Stimulus Situations				
	I	II	III	IV	V
26	4	3	3	4	4
30	5	3	2	4	3
47	4	3	4	1	3
48	5	3	1	4	2
57	4	3	2	4	3
58	3	4	2	4	4
60	1	2	2	3	4
Mean	3.83	2.58	2.58	3.83	3.00

NOTE: Each response in the table corresponds to the following scale: 1-boring, 2-not very interesting, 3-fairly interesting, 4-quite interesting, 5-very interesting. Student 14 of Class B did not hand in the Questionnaire, which was used to collect the data.

TABLE XXV

SAMPLE STUDENTS' RESPONSES CONCERNING
THE HELPFULNESS OF EACH STIMULUS SITUATION

Students' Numbers	Stimulus Situations				
	I	II	III	IV	V
Class A					
1	4	4	2	3	4
2	4	4	5	4	4
3	4	4	5	5	5
7	3	4	2	5	4
11	4	3	3	5	3
17	3	4	2	3	4
29	3	4	2	3	2
32	3	3	3	5	4
34	3	4	2	3	4
45	3	5	2	4	5
50	3	3	1	5	4
54	4	4	2	5	4
55	4	5	3	4	5
56	2	2	3	4	2
Mean	3.36	3.79	2.64	4.14	3.86
Class B					
5	2	4	3	3	3
8	4	4	2	5	4

TABLE XXV (continued)

Students' Numbers	Stimulus Situations				
	I	II	III	IV	V
22	3	4	3	4	5
31	3	3	2	3	3
35	3	3	3	4	4
37	3	4	2	4	5
38	3	3	3	4	5
42	3	2	3	4	3
43	3	2	3	5	5
46	3	5	4	2	1
59	5	4	3	5	3
Mean	3.18	3.45	2.82	3.91	3.73
Class C					
15	4	2	3	4	3
27	4	5	1	4	3
28	4	3	2	2	2
33	3	3	4	4	3
36	5	3	1	3	1
40	3	4	1	2	3
41	5	3	1	2	4
49	4	3	3	5	4
Mean	4.00	3.25	2.00	3.25	2.87

TABLE XXV (continued)

Students' Numbers	Stimulus Situations				
	I	II	III	IV	V
Class D					
6	5	3	3	5	4
9	3	2	4	4	5
10	2	5	4	4	5
12	3	2	4	4	4
18	5	3	2	4	2
21	4	1	3	5	2
23	3	4	3	5	5
39	3	3	2	2	3
44	1	4	4	3	5
51	2	3	3	4	3
52	3	3	4	3	3
53	3	2	3	5	5
Mean	3.08	2.92	3.25	4.00	3.83
Class E					
4	3	1	4	5	3
13	5	2	2	5	3
16	4	3	2	4	2
20	3	3	3	1	3
24	4	3	3	4	3

TABLE XXV (continued)

Students' Numbers	Stimulus Situations				
	I	II	III	IV	V
26	3	4	2	4	4
30	2	4	1	3	3
47	1	2	3	2	3
48	5	2	2	4	3
57	2	3	3	3	4
58	3	3	4	4	3
60	2	3	5	4	3
Mean	3.08	2.75	2.83	3.58	3.08

NOTE: Each response in the table corresponds to the following scale: 1-no help at all, 2-not very helpful, 3-fairly helpful, 4-quite helpful, 5-very helpful. Student 14 of Class B did not hand in the Questionnaire, which was used to collect the data.