

THE UNIVERSITY OF MANITOBA

A STUDY OF THE ADEQUACY OF THE PRESENT SYSTEM
OF CLASSIFICATION, PROMOTION, AND
ADJUSTMENT IN THE MACHRAY
JUNIOR HIGH SCHOOL,
WINNIPEG

BEING A THESIS SUBMITTED TO THE COMMITTEE
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CHAPTER I

STATEMENT OF PLANS AND METHODS OF TREATMENT

Emphasis has shifted from learning of the memoriter type to learning for understanding. Ability to apply techniques and skills have a place but not the first place in the learning of the three R's. These are no longer considered as ends in themselves but as means to the more important objective - understanding to the point where the individual consciously or unconsciously applies them to every day life situations. Furthermore, and but another aspect of the same development, subject matter has been altered and regrouped to render the organization of ideas and understanding possible to varying levels of learning. Naturally, conflicting points of view and considerable confusion have resulted as the process of change has altered aims and procedures.

The whole emphasis in education was formerly on mastery of the 'three R's'. These skills, taught as independent, unrelated drill units, consumed most of the school day. Drill, even in the first grade, was presented in mechanical fashion. The skills were taught with little reference to life interests or pupil needs. They were made difficult to learn by being divorced from children's purposes and maturation requirements. Children were forced to read or do arithmetic before the words or numbers meant anything to them.¹

New data on individual differences have an important effect on curricula, objectives, and methods. Teachers realize

¹Gertrude Howell Hildreth, Learning the Three R's; A Modern Interpretation, ed. by Paul L. Boynton; Minneapolis, Nashville (etc.): Educational Publishers, 1938, p. 1.

that the children in their classes have a range of several years in ability and achievement, and consequently attempt to vary the requirements instead of trying to make all alike. The school must meet the needs of a heterogeneous group of pupils, differing in mental ability, health, interests, background, vocational needs, experiences, and financial resources. The curricula, objectives, and methods have to be individualized to meet the needs and capacities of the learners. Special assistance should be given to the duller child and the course should be enriched for the superior. ¹Gertrude Hildreth lists four ways in which the learning of skills may be individualized:

1. Suitable grouping of children for instruction,
2. Providing a range of materials,
3. Using self-teaching devices with automatic check, exercises, and
4. Through making unit assignments.

Until recently, pupils have been graded largely as a result of written examinations and teachers' estimates. The school marks were entered upon monthly or quarterly report cards and the teachers, pupils, and parents took these marks very seriously. To-day the Elementary Schools of Winnipeg have realized the limitations of written examinations with consequent gradings and are attempting to work out a new scale of values. The Junior High Schools are being affected by this movement. Standardized tests and teachers' opinions are contributing more and more toward attaining a more adequate estimate of the use that a pupil is making of his capacities.

¹ibid, p. 13

The succeeding chapters of this thesis attempt a study of some of these modern trends in education. Learning differences among pupils are considered along with means of estimating them. A study is made of how best to classify for study purposes pupils of varying abilities. What should be done in this regard for the superior child, the non-academic, and the backward child? How should pupils be grouped to best meet these situations? The problem of evaluation is one of utmost importance.

The Machray School, Winnipeg, is making an honest attempt to find solutions to these problems. In June, 1947, the principal and teaching staff undertook an experiment in testing that is having an important effect on the objectives and methods of the school. The experiment is being carried on to discover more adequate means of classifying and grouping pupils so as to meet their needs and help them adjust to their learning environment. The experiment is still in its infancy but appears to be succeeding. The plan meets with the approval of most of the teachers; the pupils are happy in the groups to which they are assigned and are making progress that the teaching staff feels is equal to or better than that made under the former system. No serious complaints have come from the parents and, in fact, many parents have expressed their approval.

The Machray experiment in classification and grouping of pupils at Junior High School level is reported in detail and assessed in the light of present data in Chapters V, VI, VII, and VIII of this thesis. Intervening chapters direct attention to the importance of the problem, to the history of Machray

School, and to its present learning conditions, instructional and physical.

CHAPTER II

A BRIEF HISTORY OF THE MACHRAY JUNIOR HIGH SCHOOL DEPARTMENT

Machray School was named after Robert Machray, Archbishop of Rupert's Land and first Primate of Canada. Archbishop Machray was born at Aberdeen, Scotland, in 1831, consecrated at Lambeth in 1865, and came out from England as the second Bishop of Rupert's Land to the Red River Settlement from which in 1870 the Province of Manitoba was created.

There was little provision for education, no public schools, and only a few private schools when the Archbishop arrived at the Red River Settlement in 1865. He was very much interested in education and one of his first acts was to revive the St. John's College, which had been closed for some time. Then he set about to establish schools and soon had one in each parish. The Government took over the schools when the Province of Manitoba was created and placed them under the Board of Education of which the Archbishop was made chairman.

The history of Machray School goes back to 1884 when Mr. Alex Polson and Mr. McKay applied for a school to take care of the children living in the vicinity of Mountain Avenue. Provided there were enough children to make a school necessary, the School Board of Winnipeg District agreed to set up one and supply a teacher. There was an enrollment of thirty pupils when the school was opened in a frame house facing the present

St. John's Park on Main Street between Mountain and St. John's Avenues.¹ The teacher's living quarters were on the second floor above the classroom. The first teacher was Miss Morrison, who did not hesitate to keep a boy in after four to do the chores for her housekeeping. Unlike the modern classroom there were old-fashioned kitchen chairs, on which the pupils sat around tables, six or eight to a table, according to the size of each grade. There were recesses, lunch hour, and closing at four, but a two-months' vacation was unheard of in those days.

St. John's College was located three blocks away from the old site of Machray School. Because most of the pupils of St. John's came from the south-end, they were considered aliens by the boys of Machray School. There was rivalry and often open warfare between them.

Mr. E. L. Drewry made the 24th of May a memorable day for all the children of the north end. For miles around they gathered outside his home to witness a display of fireworks, after which the youngsters enjoyed refreshments.

In 1886, when the enrollment became too large for the small class-room, the School Board bought two lots on Charles Street near Mountain Avenue, on which a one-room frame building was erected. Miss A. Jaffray was the first teacher to take charge of this school.

Untill 1888 this one-room school house was large enough to fill the needs of the district. Then another room was added and a second teacher, Miss A. B. Nichol was engaged. She taught

¹Machray School 1884 - 1943. A Brochure Issued by Machray Re-Union Committee, May 28, 1943, p. 9.

at Machray for three years, during part of which time she was principal. The community and staff were fortunate in the Board's choice of a principal who did much to build up the reputation of Machray School. Miss Nicol, who later became Mrs. Dutton, died at Gilbert Plains, Manitoba, in 1927.

Once again the school became too small and in 1891 two more lots were purchased and another room was added. Miss Margaret Young, who followed Miss Nicol as principal of Machray, held that position for only a very short time when she transferred to the new Aberdeen School where she was principal until 1899. In that year she left the teaching profession and went to the United States where she studied and practiced law very successfully until the time of her death in 1935.

Miss Nettie Milligan, now Mrs. J. R. Crosthwaite of Seattle, Washington, was the next principal. From 1893 to 1899 the control of Machray was in her very capable hands and it became one of the finest schools in the city. She was an excellent teacher, always fair in her dealings with her pupils, and those whom she taught were greatly indebted to her for the very thorough training they received.

This frame, three-room school was adequate for the needs of the community until 1899 when it was sold, moved to Jarvis Avenue, and made into three dwellings. At this time the front portion of the present Machray School, Number I was built - a ten-room, three story building, with an Assembly Hall. Miss Alice Talbot, who later became the wife of Archbishop Matheson, was the first principal. Her picture may be seen hanging in the halls of the school to-day. In 1904 she left Machray to

become the principal of Carlton School.

Mr. J. B. Wallis, who succeeded Miss Talbot as principal, came to Machray School in 1904. The staff at that time consisted of ten teachers, Mr. Wallis teaching Grade VIII.

During the years 1904 - 1907 there occurred two or three important events. The school adopted its present colors - green and gold. The Machray shield with its motto, Duty, Responsibility, Self-Sacrifice, was also chosen. The first Machray School song, later replaced by the present "Courage", was also introduced.

By 1907 the enrollment of Machray had become too large for the ten rooms. There were 963 pupils - 266 in Grade I. Mr. Wallis had fifty-nine Grade VIII pupils in his room. Four teachers presided over the Assembly Hall which was filled with 156 desks. However, the burden was lessened in 1908 when many pupils were transferred to the new Luxton School. In 1913 it was necessary for Mr. Wallis to be absent for seven months owing to ill health, and during that period the addition of twelve rooms was built. Mr. Wallis then became the supervising principal.

After seventeen years of service at Machray, Mr. Wallis was appointed Assistant Superintendent of Schools in 1921. The teaching staff deeply regretted his departure from the school, for he had always been a considerate principal, a wise leader, and a true friend to all.

In 1921 Mr. C. W. Laidlaw came to Machray from the Norquay School where he had been principal for seven years. That year, also, the Machray Junior High School was organized -

the second Junior High School in the City of Winnipeg. A new two-storey, red brick building was erected in the north-west corner of the school grounds. The establishment of Junior High Schools was a new phase in education in Winnipeg. Mr. Laidlaw was enthusiastic in trying out this new experiment and under his capable leadership the Machray staff did much to make it a success.

Unfortunately the new school was not finished by the first of September. The Junior High School opened with classes held in the halls of the old building. It was quite a task for a new principal to carry on the normal routine of the school for two months under such crowded conditions. The enrollment at this time was 1,459, of which number 379 were in the Junior High Department. There were thirty-four teachers on the staff, nine teaching Junior high grades.

From 1921 to 1930 the enrollment increased steadily. At the beginning of the second year there were so many Junior High students that these grades had to be moved to the old building, Machray Number I becoming the home of most of the Elementary grades. Machray School had the largest enrollment of its history in 1929, there being 1,610 pupils and thirty-seven teachers.

In 1929 the name of Machray School was carried to all parts of Canada, for in that year Mr. Laidlaw was elected President of the Canadian Teachers' Federation and in his official capacity went to Quebec City, where the Dominion Convention was held. The Machray teachers felt that the Federation had made a wise choice, and were, as always, very

proud of their principal.

Mr. Laidlaw retired as Principal of Machray School in June, 1939. One afternoon in June the entire student body gathered on the playground to say farewell to their principal, whom they deeply respected. The staff, too, felt the loss of a man who had so capably guided the affairs of Machray School for eighteen years. Mr. Laidlaw was guest of honor at a dinner held in the Fort Garry hotel, after which a reception was held and to it were invited those who had at any time the privilege of calling Mr. Laidlaw "my principal". The reputation of Machray School - always an enviable one - was greatly enhanced by Mr. Laidlaw's years of stewardship.

Mr. A. V. Piggott, formerly principal of the Lord Nelson School, succeeded Mr. Laidlaw. He brought youth and enthusiasm to Machray and upheld the high standards of the school. But once again Machray lost its principal to the School Board Office when Mr. Piggott was appointed Assistant Superintendent in 1944.

The present principal, Mr. J. E. Ridd, had taught history in St. John's High School for sixteen years. In 1941 he was appointed principal of the Riverview School, a position he held for three years. In 1947 Mr. Ridd and his assistant, Miss K. Wilson, started an experiment in grading pupils of Machray according to results of standardized tests in reading. As a result of this experiment the pupils in all grades are now placed in more or less homogeneous ability groups. Thus in Machray School to-day, there is an attempt to provide a suitable study environment for each child that will best meet his individual abilities.

CHAPTER III

THE NATURE OF THE LEARNING PROBLEM IN THE LIGHT OF RECENT STUDIES

Learning Differences Among Pupils

Individuals differ widely in any conceivable trait. According to Jordan¹ there are five causes of these differences: (1) sex (2) race (3) maturity or growth (4) near ancestry or family (5) environment.

In general there are no mental qualities unique to male or female. There are, however, small but important differences in intellectual traits. These differences are probably due to differences in preferences and interests. For example, boys are usually more interested in electricity than are girls, and consequently may excel in a study of the electric motor or generator in a course of physics. While boys and girls, men and women, participate jointly in many types of plays and games, there are still clear-cut differences between the sexes in many play activities.

Race undoubtedly plays a small part, in some cases a considerable part, in producing differences among individuals. Negroes and Indians differ from the White Race in intelligence as measured by standard tests. There do not appear to be any marked differences in individual scores in the various subdivi-

¹A. M. Jordan, Educational Psychology; New York: Henry Holt & Co., 1933, p. 294.

sions of the white stock.¹ Foreign children sometimes experience difficulties when they first attend school. These difficulties, however, are not due to mental differences but rather to environment, for example, the parents may use their native tongue in the home almost exclusively.

Individuals differ among themselves in the rate of growth and in the times of maturity attained. However, there seem to be little connection between these varying rates of physiological changes and intelligence.

Near ancestry or family seem to produce a large share of the differences existing among individuals. This statement may be misleading. It does not mean that heredity is the major influence leading to individual differences. But near ancestry or family strongly influences environment and thus leads to individual differences. The question as to whether inherited endowment or environmental influence has the more potent effect in determining a child's development has been a much debated one.

Environment plays an important part in producing differences among individuals. The present day school has a student body coming from a great variety of cultural backgrounds with a wide range of past experiences. The very rich and the very poor are represented. Some of the pupils come from homes possessing every cultural stimulation. Some pupils have travelled extensively, read widely, and participated in all types of educative activities. Because of this variety, the school must begin with the pupil as he is, and if it is to supplement

¹ibid, p. 295

the cultural resources of the home and community, it is obvious that a difficult task is to be undertaken. To be fully effective, the school must have a tremendous range and flexibility of resources so that the educational programme can be more nearly individualized in terms of the experience and backgrounds of all the pupils.

Uncorrected defects of eyes and ears, are found to exist entirely too often. Adenoids and tonsils affect the general attitudes and outlook of children and may be influential in producing a dislike of school subjects. These physical defects prevent the child from forming a clear perception of the material to be learned and lead to individual differences. The school population has been changed by the addition of large numbers of atypical pupils. The dull, the physically defective, the blind, the deaf, the delinquent, and the seriously mal-adjusted, are now coming to school in large numbers for the first time, in an attempt to make the most of their abilities. An increase in society's willingness to provide for these pupils has encouraged them to attend school. Special buildings, curricular activities, and teaching staffs are required.

As a result of these changes in the nature of the school population, the modern school is confronted with the problem of providing for an ever-widening range of pupil interests, abilities, experiences, financial resources, cultural backgrounds, and vocational needs. During this period of rapid change in which adults as well as youth find great difficulty in making satisfactory adjustment, every possible assistance must be given to the youth. The great influx into the schools, the

greater heterogeneity of school population, the greater emphasis on the individual pupil and his particular needs and the resulting broadening and enrichment of the curriculum have all increased the need for pupil guidance.

Equality of opportunity does not mean imposition of the same conditions of development of all individuals. It means providing such developmental conditions that each pupil will have an equal opportunity with all others to make the most of his abilities.¹

The growth of an individual is far more important than any examination or subject matter. The teacher must constantly keep before him the fact that he is teaching children and not history or science. He must aim at developing a better adjusted individual. It is not as important to teach enough history for a child to pass his examinations as it is to build a sense of security within the child. The individual needs of the pupil must be met. There is not equality of educational opportunity when you give the same type of curriculum to all pupils. The school cannot shirk some measure of responsibility for the different natures and tendencies of the various pupils. Developments within the pupils that were vital have been ignored in the past. Today the problem case can no longer be thrown out of school. These cases are in the field of guidance and must be approached intelligently. Guidance may be defined as the discovery of the individual and adjusting the general programme, or the physical conditions or social conditions, to meet the needs of the individual. It is a methodology by means of which a student's interests and individualization may be

¹Frederick S. Breed, Ph. d., Classroom Organization and Management; Yonkers on Hudson, New York: World Book Co., 1933, p. 82.

realized; it offers methods for diagnosis of the interests, abilities and background of the student; and it offers methods of relating such findings to life and selecting a curriculum that is particularly suited to the individual.

The Superior Child

Before the advent of intelligence testing the child of superior intelligence was not recognized. According to Pintner¹ interest in the child of superior intelligence has been much slower in development than interest in the child of inferior intelligence due to two reasons:

1. The limitations of the earlier intelligence scales.
2. The practical problems arising in the school situation.

The original Binet scale was constructed solely as a means of studying the child of inferior mentality. Most of the children tested were ones suspected of being mentally deficient. Even today the phrase, "to subject a child to a mental test," which has come down to us from this period, carries with it a suspicion that the child is of low mentality.

Feeble-minded children are recognized quite early in a classroom because they cannot keep up with the rest of the class, however much attention and instruction they may get. The school desired a solution to the problem of what to do with these children. As a result the psychologist was faced with a very real problem which stimulated him in his attempts to find the solution. But the superior child was another matter, as he

¹Rudolf Pintner, Intelligence Testing; Methods and Results, New ed.; New York: Henry Holt & Co., 1939, p. 350.

had not been recognized or considered a problem in the classroom. He almost always could fulfil the requirements of the school, that is, do a satisfactory year's work. If he did not behave himself, the school could usually deal with him, although it might not recognize that his misbehaviour might possibly be a symptom of superior intelligence. Even today teachers and parents do not always recognize the difference between educational attainment and general intelligence. But because of the scientific study of children by means of improved intelligence tests, children of superior intelligence are gradually being recognized as a vital educational problem.

For generations, educators and parents have struggled with the question: "Should the gifted child be allowed to proceed through school as rapidly as he can master his work or should he be held to the pace of the just-average children who surround him?" Those who do not approve accelerations in school argue that grade-skipping is dangerous to both physical and mental health. Since 1921, at the Stanford University in California, a group of distinguished experts, under the direction of Prof. Louis M. Terman, has been following the unfolding life histories of more than a thousand extremely gifted people.

Terman carefully grouped a large number of his subjects according to their age at high school graduation. Those who were permitted to pass through school as fast as they were able to cover the work were compared in terms of adult achievement, with those who had been graduated from high school at the usual age of sixteen and a half or above. The pupils who had been permitted to accelerate in their youth proved definitely

superior in college achievement. Among both men and women, a high proportion obtained grades of B or better and achieved graduation honors. More of them went on to post-graduate work.

In special classes for superior children an enriched curriculum is provided. The pupils in these special classes not only enjoy an enriched curriculum but they move rapidly through the grade. Enrichment and acceleration inevitably go together. At what stage in their school career is it most desirable to segregate such children? Might it not be most profitable to begin as early as possible before the child has the opportunity of forming bad habits of learning?

The Backward Child

Education is the provision of a suitable environment for the child, in which he may be able to develop whatever capacities he is given in such a way as to become a happy and useful citizen of his adult environment, by 'pulling his own weight' in whatever task he may undertake.¹

A maladjusted child is one who does not fit into his environment for one reason or another, probably because of the unsatisfactory nature of his emotional reactions in relation to his playmates, teachers or parents. Whenever a teacher notices a child who is obviously not fitting into his environment and is unhappy in his school work, steps should be taken to find the underlying cause. Intelligence testing and the methods of child guidance are of inestimable value here.

How can backwardness be diagnosed? When a pupil falls behind in his school work or fails to adapt himself to the environment of the classroom, his case can no longer be "solved"

¹David Kennedy-Fraser, Education of the Backward Child; New York: D. Appleton & Co., 1932, p. 1.

by accusing him of laziness and by trying to raise him to the standard by moral or physical suasion. Why is he falling behind? Is his case one of permanent or temporary backwardness? Answers to these questions can and must be found. Although the teacher is in a good position to notice and assess the nature of the child's backwardness in his school work, he must try to avoid some of the common mistakes made by many conscientious teachers. The teacher's yardstick in measuring the standard of the class is undoubtedly the "average" pupil. The child who is two years older than the average member of the class will often be overlooked unintentionally providing he is doing moderately good work for that class. Yet the child is at least two years retarded and his case should be further investigated. Good or bad conduct enters into the picture too. The case of the mischievous bright child will probably be brought forward for investigation as he, by his conduct, will bring himself to the attention of the teacher. But not so is the case of the "docile dullard" who will not be considered a problem because he behaves himself. The teacher must be cautious also in his use of class marks in the various subjects as an estimate of backwardness. All subjects are not equally good measures of intelligence. A low mark does not necessarily mean backwardness. It may be due to a slip or to carelessness. Similarly a good mark does not necessarily signify brightness. It may be due to a great deal of hard study or may signify that the student is using memory to replace intelligence.

The pupil's medical card should be consulted if he cannot keep up with his class in his work. His scholastic

development may be hindered by some physical defect or disease. The teacher must always be on the lookout for eye or ear trouble, and be ever ready to take advantage of the services of the school nurse or doctor. The teacher can gain much information about a child from his progress record. How old was the child when he started school? Has he attended many different schools? Has he repeated a grade? How often and how long has he been absent? Then, too, the observant teacher can learn much about a child on the playground. Does he take part in the activities of the other children? Is he a good sport? Is he a bully? A knowledge of the child's home environment is of inestimable value and may be obtained, in part at least, by utilizing the services of the visiting teacher and by parent-teacher consultations.

But after all these preliminary measures have been taken, the case can only really be solved by the use of intelligence tests in order to find out whether the trouble is due to some inborn cause or to some unfortunate hindrance, such as truancy, bad teaching, teacher-pupil relationship, or a physical disability. Group tests are valuable and are used of necessity because of the large number of pupils, but before a child is classified as permanently backward, an individual mental test should be given.

Having recognized the presence of the backward pupils, the school must now plan how to meet their needs without jeopardizing the needs of all the other pupils. Should special provision be made for them? Many educators are firm in their belief that the backward pupils can be most satisfactorily

dealt with by leaving them in the same classes as the normal and bright ones. They argue that by keeping all the pupils, regardless of intelligence, in the same class, the dullards derive stimulation from the bright and more gifted children, whereas if the retarded children are placed in special classes, they sink down to a very low common level. But how can a backward child be stimulated to a greater effort by seeing the other pupils so easily surpassing him by much less effort than he puts into his work? Nor is it fair to the normal average students, who after all form the bulk of the school population, to be placed in a class with the very bright or the very dull students. The teacher may devote most of his time and attention to the most promising pupils in his class if he is aiming at high marks, or he may devote his attention to the weaker pupils if he is aiming at passing a large number of pupils. Therefore it may be argued that ability grouping is important not only for the sake of the exceptional cases but also for the sake of the normal child. If the backward children are separated, there will still be enough variety in capacities and ages to avoid a dead monotony of level and to stimulate the pupils to make an effort. Relieved from the strain of the full curriculum, the pupil may undertake some form of co-operative work in dramatics or construction for which their brighter but harder-pressed fellow pupils do not have the time.

At what age should the backward students be segregated? Now that mental tests are considered a relatively accurate means of assessing backwardness, it is very unwise to postpone special treatment of such cases until the pupils are further

handicapped by the inevitable feeling of inferiority and discouragement which must have developed by years of hopeless struggle to try to hold their own with brighter pupils. But, if the child is segregated at an early age, it is vitally important to retest him from time to time to make sure that he is permanently backward, and not merely hindered in the first place by some strong form of inhibition.

Planning and Administering the Evaluation Programme

It is an undoubted fact that our schools know very little of the results of their work. Today more than ever it is very important that a serious attempt be made to find out what changes schooling brings about in pupils. There are doubtlessly many reasons for this lack of knowledge. The school system has not yet adjusted itself to the change from the days of a few selected pupils to the present period where almost the total population attends Junior High and even Senior High School. The old standards are no longer applicable and to date no satisfactory new ones have been found. There is still too much emphasis upon the accumulation of credits for promotion, graduation, and admission to college, even though only a small percentage of the pupils go on to university. To secure a credit the pupil must "pass" a course. To pass a course he must memorize certain facts and develop certain skills. Naturally it follows that memorizing enough facts and developing sufficient skills to do well in the examinations become the aims of pupils and teachers alike. Both the teacher and the pupil are judged by these results. Doing well in the final examinations

is a worthy aim but by concentrating on this alone, both teacher and pupils forget the larger, longer range purpose of education.

Before any methods of evaluation can be worked out it is necessary to consider the objectives of the school programme. ¹Smith and Tyler list the following major types of objectives:

1. The development of effective methods of thinking.
2. The cultivation of useful work habits and study skills.
3. The inculcation of social attitudes.
4. The acquisition of a wide range of significant interests.
5. The development of increased appreciation of music, art, literature, and other aesthetic experiences.
6. The development of social sensitivity.
7. The development of better personal-social adjustment.
8. The acquisition of important information.
9. The development of physical health.
10. The development of a consistent philosophy of life.

One of the major reasons for over-emphasis upon one or two of these objectives is that results in these fields are more easily measured than in other less tangible areas. The conventional subjects of the curriculum are readily measured by teacher tests or objective tests. Because these tests are available or easily constructed, teachers use them. But because it is much more difficult to measure some of the other objectives, teachers tend to neglect them and strive only for results that can be more easily ascertained.

No tests are readily available to measure certain important aspects of the objectives of any school system. In such cases, it is necessary for the teachers and educationalists

¹Eugene R. Smith, Ralph W. Tyler and the Evaluation Staff, Appraising and Recording Student Progress; New York and London; Harper and Brothers, 1942, p. 18.

to construct new instruments in order to make a really comprehensive appraisal of the educational programme of the schools. The process of evaluation should be an integral part of the educational process. It is not to be thought of as simply the giving of a few ready-made tests and the tabulation of resulting scores. It must be considered as a recurring process involving the working out of objectives and plans to study pupils' reactions in the light of these objectives. The usefulness of the evaluation programme depends very largely upon the degree to which the results are intelligently interpreted and applied by the teachers. An evaluation programme is also a potent method of continued teacher education.

¹Smith and Tyler list eight basic assumptions that it is necessary to make before planning and administering any evaluation programme.

1. Education is a process which seeks to change the behaviour pattern of human beings - which teaches them, for example, to recall, to use new ideas, to develop new skills as in reading and writing, to improve their ways of thinking.

2. The kinds of changes in behaviour pattern in human beings which the school seeks to bring about are its educational objectives.

3. An educational programme is appraised by finding out how far the objectives of the programme are actually being realized. Since the programme seeks to bring about certain changes in the behaviour of students, and since these are fundamental educational objectives, then it follows that an evaluation of the educational programme is a process for finding out to what degree these changes in the students are actually taking place.

4. Human behaviour is ordinarily so complex that it cannot be adequately described or measured by a single term or single dimension.

5. The way in which a student organizes his behaviour patterns is an important aspect to be appraised. The way the student grows in his ability to relate his various reactions is an important aspect of his development and an important part of any evaluation of his educational achievement.

6. The methods of evaluation are not limited to the giving of paper and pencil tests; any device which provides valid evidence regarding the progress of students toward educational objectives is appropriate. The only device used by so many teachers is the use of written examinations.

7. The nature of the appraisal influences teaching and learning. If students are periodically examined on certain content, the tendency for them will be to concentrate their study on this material. Teachers, too, are frequently influenced by their conception of the achievement tests used.

8. The responsibility for evaluating the school programme belongs to the staff of the school.

A comprehensive evaluation programme requires careful, co-operative planning by the entire teaching staff. If the task is left to individuals the data necessary for a well-rounded picture of pupil development, of the progress of the various classes, and the effectiveness of the curriculum will not be secured. The staff as a whole must decide what to evaluate, what kind of evidence to secure, and how to go about securing the evidence and using it. The appraisal must be continuous. Therefore, before any decisions are made regarding what range of objectives will be appraised, or how detailed the check is to be, the school must consider the time and effort needed for a continuous check. It would be useless to plan an evaluation beyond the limits of the time and abilities of the staff.

It should be clearly noted that it is the programme of the school and its effect on pupil growth and not the

individual teachers or pupils that are being appraised. The evaluation programme will fail if the teachers think of it either as a measure of judging their competence or as an extension of the usual examinations and marks. In the first case, teachers may try to find the strengths and weaknesses of their pupils with an idea of rewarding the former and penalizing the latter.

The evaluation programme of the various schools will differ as each programme must serve the local needs and purposes of each school. While most schools will make an effort to plan the scope and nature of their evaluation programme according to what they think the important objectives or crucial needs of their programme rather than in terms of economy, immediate availability of instruments and technique, or the ease of their administration, still these matters will enter into the picture to a large degree.

The first step, then, is to decide at a staff meeting, or series of meetings, on the general scope of the programme. The next step will be to consider the methods for securing the needed evidence. This step will require a preliminary survey of the data already available in the school. After making a thorough study of existing data in relationship to the school objectives, the teachers are in a position to decide what further data are necessary. In this research the teachers will find that they are already collecting much data on certain aspects of the pupils' development. Most schools have a testing programme and have results on aptitude tests, reading tests, intelligence tests, and information tests. Further, many

schools also have an abundance of less formal types of data collected in the normal process of teaching and administering the school.

Having examined the existing data, the teachers will find many gaps, many objectives on which little or no evidence is being obtained. Naturally, the next step is to consider ways and means of securing the additional data necessary. Although best results are obtained when each teacher is directly responsible for collecting data, in the interest of economy of time it is necessary to allocate certain tasks to certain teachers or departments. Some teachers are better equipped or are in a better position than others to gather certain data. Paper and pencil tests, anecdotal records, classroom observations can all be used to advantage.

In setting a calendar for the testing programme, it is necessary to consider several factors. ¹Smith and Tyler list the following three:

1. In the first place, the total time devoted to testing can not be so great that pupils and faculty think themselves overburdened with tests.

2. The schedule has to be drawn so that there is no undue concentration of formal tests towards the end of the year, since such a congestion of schedule subjects students to unnecessary tension and does not provide evidence at times when results can most effectively be used.

3. The schedule must also provide for a fair distribution of time among several subject fields so that testing does not take an undue amount of time from any one class.

The problem of organizing and summarizing the varied types of information about the pupils is an important one. Part

¹ibid, p. 447

of the task of organization can be accomplished by using a folder for each pupil and placing all records related to this pupil in the folder. In this way, the folder becomes a file of information to which additions can be made as the evidence is accumulated. A certain time each week could be allotted to pupils to write down the books they have read during the preceding week. Copies of the written work could then be kept in the folder.

All this work of evaluation and keeping records requires much time. Time is needed for staff conferences - conferences to reach a set of objects, to discuss available data, to decide what further data is necessary, to decide how best to secure the data. Time is also needed for teachers to report in writing the significant observations they make. And time is also needed to use effectively all this data once it is collected.

Thus, probably the chief administrative arrangement is to provide time for the staff to do the work of evaluation. One method that will save teachers time in recording their observations is to combine checking and anecdotal descriptions, particularly when frequency of a given type of behaviour constitutes an important phase of evidence. Another method of economizing time is to identify the points at which the observational records are of particular significance and then limit the writing to descriptions of these types of behaviour only. Furthermore, in schools where extended use is made of observational records, time can be allotted in the teaching schedule for making anecdotal records. Time can also be

secured by a careful rearrangement of schedule and teacher responsibilities. The total teaching period of the day can be reduced by having the pupils come half an hour later. Or teaching time can be saved by teaching pupils to work independently and thus dispensing with teacher supervision at some points of their work.

The next problem is that of summarizing the data gathered. Probably the classroom teacher would be the right person to make the summary. This person is responsible for making an over-all interpretation of the data, indicating the outstanding strengths and weaknesses, pointing out some factors contributing to these, and making some tentative suggestions regarding what needs to be done. Then the people requiring these data for different purposes are able to locate what they need without the difficulty of searching through bulky records. These summaries of specific data are usually made at the time when the evidence is secured, but the study and application of them are only made at certain regular intervals or at times when the information is most needed - when reports to parents are being made, when particular curriculum plans are being made, or when it becomes necessary to develop plans for circulating the information as well as summarizing it. Each teacher collects what data he can. These facts are then summarized and placed in the individual folders. These folders must be kept in a place accessible to all teachers. Several copies can be made of data which are needed in different places or by different persons.

¹Smith and Tyler point out three provisions that should be followed in the application of the results of evaluation.

1. It is necessary to make special provisions for teachers to develop insight and technique needed to translate into practice what is learned about the students.

2. A second provision is to see that the staff explore the evidence and its implications at those points where decisions are to be made and actions to be taken. It will be found to make an enormous difference in the attitude of the faculty toward evaluation of data whether the data on a given pupil are just "studied" or whether they are introduced at a time when the staff is concerned with such questions as: (a) what to do about certain pupils' lack of success in academic work or in apparent failure to adjust to the life of the school, (b) making out programmes for the pupils for the year, (c) reports to parents, or (d) changes in curriculum.

3. A third provision is to involve the entire staff in the study of the results of evaluation.

Such a programme which involves wide participation naturally raises the question of the competence of the rank and file of teachers in such matters. Most authorities agree that teachers make better interpreters than persons who are statistically qualified but whose personal contact with pupils is limited. But some training and guidance of teachers are needed. It is not necessary that all teachers go to Summer School and receive this training, although today more and more teachers are making such studies. Participating in planning and administering the evaluation programme and in the study and application of its results in itself provides an opportunity for training hardly exceeded by any other device, provided there are opportunities in the school for the staff

¹ibid, p. 454

to think together on these matters and to make decisions co-operatively.

Classification of Pupils for Purposes of Instruction

Today intelligence tests are being used more and more as a basis for classifying children for purposes of instruction. The psychologist was handicapped in this work at first by the time taken in giving individual tests and examinations were restricted to small groups of children for special purposes. With the advent of group intelligence tests, it became possible to test large numbers of school children. This brought in the period of school surveys on a large scale with their direct and important influence on the classification of children according to intelligence for instructional purposes.

The question then arises as to whether pupils should be put into homogeneous groups. There are many educators who argue against homogeneous grouping. They say that it controls a pupil's educational destiny - it closes the door to educational progress. Can teachers decide at the end of Grade VII that a pupil is not suited to a university career and place him in a non-language class? It is also argued that such grouping destroys ideas of democracy and makes for rigid class or caste system. It induces an attitude of undue complacency in the bright children and discouragement in the dull children. It marks a pupil and acts as an obstacle rather than an aid. Too often a pupil in an industrial class gets so used to being regarded by other pupils and the teaching staff as being "dumb" that he fails to put forth his best effort. But there is much

to be said for homogeneous grouping - more in favour of than against such grouping. There is an economy of time and effort for all. The retarded pupils hold back the accelerated ones. Too often the bright are sacrificed for the mediocre. There is a need for training for leadership and this training can best be done by segregation. Then, too, homogeneous grouping recognizes that there is a limited endowed individual capacity. Many pupils reach their mental capacity early in their school life. Is it fair to hold back the bright pupils because the duller ones are entitled just as much to an education?

¹Freeman says that there are two methods of dealing with gifted children: (1) to accelerate them, and (2) to keep them at the same rate as the average but enrich their programme. Freeman believes that when you accelerate you actually enrich. Educators have in the past emphasized this difference and have made a false distinction. Enrichment should mean more than simply more of the same kind of thing. The acceleration of the of the gifted child so that he enters High School and College early is so often objected to on the ground of possible harm to the youth from associating at that level with those who are more mature.

The bright younger children are capable of doing the work of the first grade even better than the average six-year old child. The dull older children are incapable of doing successfully the work of the first grade or two. Children of

¹Frank Nugent Freeman, Mental Tests; Their History, Principles, and Applications Revised edition; Boston, New York (etc.): Houghton Mifflin Co., 1939, p 378.

school age vary greatly in their ability to do the work of the first grade. Tests (for example, Metropolitan Readiness Test), given upon entrance to school, enable teachers with fair accuracy to predict which children will do the work of the first grade according to the ordinary expectancy, and which will not. What adjustments should be made to the differences which are found: (a) to allow brighter children to enter the work of the first grade at an earlier age than usual and hold back the duller children until a later age, (b) to allow all children to begin at the same age but to vary the requirements for those of different abilities? Under the present school system only the latter course is possible. Then, too, deferring the entrance of the duller children into school gives them less time to learn, whereas they need more time.

If pupils should be classified into ability groups, how can this classification be made? Pupils could be classified according to mental age. But children do not enter school at the same mental age but at the chronological age of six. Even if pupils who had the same mental age were started together in the first grade, they would not remain equal in mental age. Children of high I. Q. gain more rapidly in mental age than average children and children of low I. Q. gain less rapidly. Classifying pupils according to their mental age places together in the same group children of widely divergent chronological ages, and stages of physiological and social development. It is generally agreed that a wide divergence in age of children in the same grade is disadvantageous. Perhaps it would be better to classify pupils according to their I. Q.'s.

Homogeneous grouping may then be used to provide opportunity for proceeding at different rates of progress or to provide enrichment for brighter pupils and a simplified curriculum for the slower ones. But there are objections to such grouping. There are those who argue that no basis of classification is sufficiently accurate. Classification in one subject or field of work is not the same as in other subjects.

As no satisfactory single method of ability grouping has been devised, a combination of methods may be used with fair success. Probably the most successful factor for predicting a pupil's success in a given course is the combined judgement of as many of his previous teachers as possible; the second best is his I. Q.; and the third best, the teachers' marks.

The score on a mental test is rarely if ever taken as the sole basis for a decision regarding the pupil. ¹Dickson gives the following list of items as necessary in order to deal with a pupil intelligently: (1) chronological age, (2) mental age, (3) I. Q., (4) grade, (5) accomplishment in school work, (6) application or industry, (7) health, (8) home environment, (9) nationality and language difficulty, (10) special or unusual conditions bearing upon school success. The treatment of the individual pupil is always a complex problem. Mental tests furnish valuable aid to the solution of this problem, but

¹Virgil E. Dickson, Ph. D., Mental Tests and the Classroom Teacher; Yonkers-on-Hudson, New York: World Book Co., 1927, p. 99.

they must always be interpreted in the light of all the facts which can be gathered about the pupil.

CHAPTER IV

THE PHYSICAL SET-UP OF MACHRAY SCHOOL

In order to present a clear picture of the Machray learning situation, it will be necessary to describe briefly the physical lay-out of the school. There are two buildings with a common playground, much too small to accommodate the 900 - 1,000 pupils enrolled. The timetable has to be carefully planned so that P. T. periods and recesses do not clash. In Number II school there are ten classrooms, an Assembly Hall, an office, a very small teachers' room, but not sufficient space for a centralized library. During the present term, 1949 - 1950, the classes there range from kindergarten to low Grade IV. The teaching staff is composed of nine classroom teachers, an adjustment teacher who does not register a class, and the Vice-Principal of the school, who supervises Number II school and the reading in grades four to seven. In Number I school there are a Grade IV, two Grade V's, two Grade VI's, one Grade VII, and a Library on the first floor. The three remaining Grade VII's, four Grade VIII's, and four Grade IX's are lodged on the second and third floors. The principal's office is located between the first and second floors. The principal of the school does not teach any classes but spends full time on administration and supervision. A full-time secretary is employed.

At present there are fifteen teachers in the Junior

High School Department at Machray, three of whom do not register classes. Also, an Elementary teacher takes music with the boys of Grades VII and VIII. The qualifications of these teachers are shown in Table 1, Page 37.

Teacher A has a Bachelor of Arts and a Bachelor of Education degree and is working on his Master's degree in Education. He registers the top Grade IX class of seventeen girls and fourteen boys, taking both Latin and French. His home room is one of the science rooms - a fairly well-equipped laboratory, but lacking individual worktables for the pupils. He teaches science to all four Grade IX classes and to two Grade VIII classes. In addition, Teacher A takes mathematics and literature with his own class and health with all the Grade IX boys.

Teacher B is an exchange teacher from Sacramento, California, where she specialized in guidance. She has a Bachelor of Arts degree. Her class is also a two-language class of sixteen girls and thirteen boys. She teaches all the Grade IX English language classes, reading to the four Grade VIII classes, guidance to all the Grade IX girls, and literature to her own class.

Teacher C has a Bachelor of Arts and a Bachelor of Education degree and is working on his Master's degree in Education. He registers the third Grade IX class of seventeen girls and twenty-one boys, taking French but not Latin. He teaches mathematics to three of the four Grade IX classes and to all four Grade VIII classes. He also teaches literature to his own class and takes P. T. with the boys of two Grade IX

TABLE 1
QUALIFICATIONS OF MACHRAY TEACHING STAFF

Teacher	Standing	Certificate	Courses	Years of Experience
A	B.A., B.Ed.	Collegiate Principal's	Working on M.Ed.	18
B	B.A.		Exchange	
C	B.A., B.Ed.	Collegiate	Working on M.Ed.	18
D	L.L.B.	1st A		39
E	3rd year Arts	1st A	Working on B.Paed.	27
F	Grade XII	1st B		27
G	B.A.	Collegiate Principal's	Working on B.Ed.	15
H	B.A.	Collegiate	Substitute	
I	Gr. XII	2nd		30
J	B.A., B.Ed.	Collegiate	Working on M.Ed.	9
K	B.A.	Collegiate		11
L	B.A.	Collegiate		19
M	Gr. XII	1st B		25
N	B.Ed., M.Ed.	Perm. Industrial Arts		21
O	B.A.	Int. Industrial Arts	Working on B.Ed.	15
P	B.A.	Interim Collegiate	Working on B.Ed.	3

classes.

Teacher D registers the fourth Grade IX class of twenty-one girls and fourteen boys. He has his L. L. B. degree. A few of the class take French but the rest are a non-language group, taking extra English classes when the few are taking French. Teacher D teaches the two Grade IX Latin classes, history to the four Grade VII classes, and literature to his own class.

Teacher E is taking courses in Education at present. She is in charge of the second science class room. Her own class of nineteen girls and eleven boys is the top Grade VIII class. She teaches all the Grade VII science and half the Grade VIII science, as well as literature to her own class.

Teacher F has the second Grade VII class - a class of twenty-three girls and thirteen boys. She teaches all the Grade VII mathematics, English language to three of the four Grade VIII's and literature to two Grade VIII classes.

Teacher G has a Bachelor of Arts degree and is working on his Bachelor of Education degree. He registers the third class of Grade VIII pupils, seventeen girls and twenty boys. He teaches all the Grade VIII and Grade IX French.

Teacher H, a substitute teacher, retired from the Winnipeg teaching staff, has a Bachelor of Arts degree. She registers the weakest Grade VIII class of six girls and twenty-one boys. This is the only Grade VIII class not taking French. Teacher H takes art with all the Grade VII and Grade VIII pupils and with the Grade IX boys. (The Grade IX girls take music.) She also teaches English language to a Grade VII class

and to her own Grade VIII class.

Teacher I, the librarian, has the only Junior High School room on the main floor so that her classroom can be near the library. Her class of ten girls and twenty-two boys is the top Grade VII class. Teacher I has all the Junior High School grades for library and also takes literature, English language, reading and guidance with her own room.

Teacher J has a Bachelor of Arts and a Bachelor of Education degree. He registers the second Grade VII class, of eleven girls and twenty-one boys, and he teaches all the Grade IX history, is in charge of the boys' P. T. for the Junior High Department and takes P. T. with the boys of two Grade IX classes, with all the Grade VIII boys, and with the boys of two Grade VII classes. He also takes reading, literature and guidance with his own class.

Teacher K has a Bachelor of Arts degree. She registers the third Grade VII class of eleven girls and twenty-one boys. She is in charge of the girls' P. T. and teaches health to all the Grade IX girls, history to the four Grade VIII classes and guidance to her own class.

Teacher L has a Bachelor of Arts degree and also a L. M. M. diploma in music. She teaches music to all the Junior High School girls as well as to the pupils in Grades V and VI, and takes literature and reading with two Grade VII classes and English language and guidance with her own class - the weakest Grade VII class, of twelve girls and fourteen boys.

Teacher M, the sewing teacher, does not register a class. She teaches sewing to all the Machray Grade VII girls,

to one Grade VI class, and to three classes from Luxton School. In addition, she takes literature with one Grade VIII class, spelling with two Grade VII classes, and teaches a Grade VI class while the class teacher is taking music with the Junior High School boys.

Teacher N holds a Bachelor of Education degree and hopes to get a Master's degree in the very near future.¹ He is in charge of the metal shops and does not register a class. The boys in Machray Junior High School take metal shops with teacher N for five months and wood shops with teacher O for the other five months of the school year. During the first five months, teacher N is teaching two Grade VII classes, two Grade VIII classes, and one Grade IX class, as well as two Grade VI classes. He also teaches a class of boys from Ralph Brown School. In addition, he is in charge of guidance with all the Grade IX boys.

Teacher O has a Bachelor of Arts degree and is working on a Bachelor of Education degree. He is in charge of the wood shops and does not register a class. During the first five months he teaches wood-work to three Grade IX classes, two Grade VIII classes, and one Grade VII class from Machray. In addition, he teaches some academic subjects in Grade VI and takes P. T. with two Grade VII classes.

Teacher P has a Bachelor of Arts degree. He registers a Grade VI class, but he is in charge of the boys' music in Grades VII and VIII.

¹He received his degree in August, 1950.

During the year 1949 - 1950 there are one hundred and eighty girls and two hundred and five boys in the Machray Junior High. Of these forty-four girls and seventy-eight boys are in Grade VII, sixty-five girls and sixty-five boys in Grade VIII, and seventy-one girls and sixty-two boys in Grade IX. There are four classes in every one of the three grades. The pupils are carefully classified as to ability before being placed in these grades. The distribution of pupils in the various classes in Junior High School is shown in Table 2, page 42. Although the classes are not unduly large in comparison with other classes in the City of Winnipeg, the teachers' load is heavy as they only average three spare periods a week.

The morning session, from 9:00 to 11:50 A.M., is composed of four periods. The afternoon session from 1:20 to 4:00 P.M., consists of three periods and a half hour study period from 3:30 to 4:00 P.M. During this last period pupils may participate in extra-curricular activities, may remain in their own class-rooms for supervised study, or may go to the library for reference work.

Teacher I is the librarian. As her classroom is across the hall, she supervises both her classroom and the library during the study period. There should be an extra teacher on the Machray staff so that the librarian could be freed from registering a class. The library, started in 1938, has gradually become a very important aspect in the life of Machray School. It is one of the best libraries in the Winnipeg schools. Every Junior High School student is given two periods

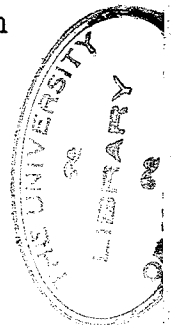


TABLE 2

DISTRIBUTION OF PUPILS IN MACHRAY JUNIOR HIGH SCHOOL

Teacher	Class	Number of Girls	Number of Boys	Total
A	9-9	17	14	31
B	9-12	16	13	29
C	9-17	17	21	38
D	9-18	21	14	35
Total Enrollment, Gr. IX		71	62	133
E	8-20	19	11	30
F	8-19	23	13	36
G	8-20	17	20	37
H	8-16	6	21	27
Total Enrollment, Gr.VIII		65	65	130
I	7-2	10	22	32
J	7-11	11	21	32
K	7-14	11	21	32
L	7-21	12	14	26
Total Enrollment, Gr. VII		44	78	122
Grand Total Junior High		180	205	385

a week in the library, where he is taught to use a library and not just left to read or not read as he sees fit. Also, some of the Elementary classes are brought into the library by their class-room teacher. The library is always open to Junior High and Elementary students alike from 1:00 to 1:30 P.M. and for a short while after 4:00 P.M.

Machray School is very fortunate in its guidance work this year. Every Grade VII class has a period of guidance a week with the classroom teacher, while each Grade VIII teacher takes one study period a week for guidance with his class. Also, all classroom teachers are free to use any study period for incidental guidance as they see fit. In Grade IX teacher B has guidance with all the girls. She is an exchange teacher from Sacramento where she has done extensive work in that field. Teacher N spends a half day at guidance with the Grade IX boys. The second period he is free for any individual guidance that he, the principal, any teacher, or the pupils themselves may wish. During the third and fourth period he deals similarly with the other half of the Grade IX boys.

Sports play a very important part in the school life. Teacher K has complete charge of the girls. In addition to the regular P. T. classes, she prepares volley ball teams in the fall and soft ball teams in the spring. She also coaches the girls for a Field Day in the spring. It is perhaps a weakness of the school system that all this work should fall on one person, who in addition registers a class and teaches academic subjects. Either her class or the girls' sport must suffer. The boys' sports fare better, as many willing hands

make the work lighter. Teacher J is head of the boys' sports. He teaches P. T. to most of the Junior High school boys, and, with the help of the other men teachers, supervises the football and softball teams, both inter-class and inter-school. He coaches a boys' basketball team as well.

Until the present year, 1949 - 1950, hockey played an important part in the boys' sports activities. Machray had its own rink on a lot next to St. John's park. This lot was loaned to the school by Drewry's for that purpose. Teacher A and Teacher G supervised inter-room hockey at that rink every noon hour during the season. Also, there was a school team which challenged many other Junior High teams - Luxton, Faraday, Aberdeen, and Earl Gray. They played challenge games too against the boys of St. John's College. One week-end they went to Holland, Manitoba, where they played the boys of that town. But, unfortunately, this worth-while enterprise had to come to an end. The lot was sold and there was no rink. Nor did the Parks Board plan a rink for the Machray district. After the principal and teacher A interviewed Mr. Barbour of the Parks Board, and after a petition signed by many parents was sent in, a rink was located on Main Street near Machray School. Arrangements were then made for hockey as usual, only to find that the rink was not available at noon hours.

Each year the Machray Junior High School awards about twelve letter "M"'s to the outstanding athletes - six to the boys and six to the girls. The letters are won over a course of three years. Points, awarded for the various sport activities, are recorded. Each year after these records are

consulted and the qualities of sportsmanship of the various students are reviewed, the awards are made to the outstanding athletes of the school.

The pupils of Machray have always taken a keen interest in music. Much credit is due to the skilled members of the staff, who have given so freely of their time and talents. Each spring class room choirs, large choruses, and vocal ensembles appear at the Musical Festival and bring honour to Machray. The Machray School Orchestra, organized in 1923 under Mr. J. S. Rogers, is still a very important activity.

Owing to the small size of the School Assembly Hall the school concerts have given place to a silver tea held in the fall of each year. These teas permit larger numbers of the community to come to see the work of the school, and afford an opportunity for parents and staff to become better acquainted. A large number of pupils take an active part as ushers and servers, and, of course, the orchestra and school music department contribute to the entertainment. The teas are held both in the afternoon and evening. In the evening the masculine sex preside over the tea-cups and the boys are responsible for the serving. Former pupils and teachers come back each year as well as parents and friends of the pupils who are attending the school. Not only have affairs of this type aided in financing various school projects but they have also served to make the work of the school better known in the community.

The teachers and parents have another opportunity to meet in the spring at Open Day. Each classroom puts on a dis-

play of work that does credit to both the pupils and teachers.

The pupils, with the exception of a few who act as ushers, are dismissed after the 1:20 P.M. roll call. The parents then visit the school in the afternoon and evening, see the display of work and discuss their children with the teacher. Open Day is a very important event in the activities of Machray, as it enables the parents and teachers to get together and discuss the welfare of the students.

The social side of a student's education is not neglected at Machray. Each class in Junior High school has a party at Christmas. Teachers and pupils bowl together at the nearby Cooper Bowling Alleys. The Grade IX classes are allowed two evening parties a year, the first of which, usually held either in November or January, very often takes the form of a hike and dance or a hard-time dance. Valuable training is given to the class officers as they plan these affairs. The big social event of the year is, of course, Graduation. There is a service in the afternoon to which the parents and friends are invited. The outstanding student of the year is chosen valedictorian. Certificates of merit are given to the twelve students, who, in the opinion of the staff, have made the greatest contribution to the school life. Also the letter "M" are given at this service. But the big event of the day, for the students, is the evening dance. Usually each graduating class puts on a skit, after which a light lunch is served. Such social events as these are invaluable in the education of boys and girls.

Nor is the social life of the teaching staff neglected.

Staff gatherings are frequent. Work is reviewed, planned, and directed in general meetings. Social gatherings are held in the form of teas in the school, or dinners and picnics outside. In this way the large staff is able to meet and get better acquainted.

CHAPTER V

AN EXPERIMENT ON THE USE OF A BATTERY OF TESTS FOR CLASSIFICATION PURPOSES IN MACHRAY SCHOOL

Because of the effects it is now having on the Junior High School grades, it is important to describe an experiment carried on in Machray School in Grades II to VII during 1947 - 1948.

All the pupils in each grade from II to VII were given a mental ability test and a standardized reading test. The pupils were then arranged into three groups according to the results obtained. The correlation between these two tests were sufficiently high to warrant forming three groups in each grade on the basis of reading ability, "A" being superior readers, "B", average readers, and "C", below average.

The general plan of this experiment was discussed with the teachers individually and at staff meetings held during the winter and spring terms of 1947. As the staff was unanimous in its approval of the idea, they then agreed upon details. It was decided that the regular Programme of Studies was to be followed in all subjects except reading, which was to be adjusted to the particular classes in each grade. Naturally, the role of the adjustment teacher was to be an important one. It was to be expected that there would be students in all three groups who would need extra work in mathematics in order to help them keep up with the others in their group. Group "C" would need

considerable remedial work in reading. It was decided that the adjustment teacher should not have more than ten pupils in her class at one time. Because of the large number of pupils involved in a school the size of Machray, it was necessary to limit the remedial work to reading and arithmetic in Grades IV, V, and VI, and not to send to the adjustment classes any pupils whose I. Q. (as determined by the individual Stanford-Binet test) was below 85. The pupils whose I. Q.'s were below 85 were placed in group "C" where they were considered as a special group within the class and were given as much individual help as time and the needs of the other pupils allowed. Careful time-tabling was necessary to arrange it so that the pupils in the various classes could go to the adjustment teacher. For example, all the Grade V classes would take arithmetic during the same period so that pupils from different classes could go to the adjustment teacher at the same time. If the experiment proved a success, the progress made in reading would be a major factor in promotion and classification at the end of the school year.

For this purpose it was decided to use mainly the California Mental Maturity Group Tests and the Iowa Silent Reading Tests. Although the mental maturity tests were administered by several experienced teachers, all the reading ability tests were administered and marked by one person. The first tests were administered in May and June, 1947, the mental maturity tests and the reading tests being given to all the pupils in the grades concerned.

Grade VI may be taken as an example. It was determined

in June, 1947, that there were approximately one hundred pupils passing into Grade VI. There was a range of four years eleven months in the chronological ages of these pupils from a high of fourteen years eleven months to a low of ten years and an over all mean age of eleven years and five months. The I. Q.'s as determined by the California tests, ranged from a high I. Q. of 146 to a low of 63, with a mean I. Q. of 105 and a standard deviation of 16.5. The grade equivalents in reading from the Iowa Tests were as shown in Table 3. The mean grade

TABLE 3
GRADE EQUIVALENTS IN READING, GRADE V, JUNE, 1947

G. E.	3 - 3.5	-4.5	-5.5	-6.5	-7.5	-8.5	-9.5	-11.5	-11.5	Total
Pupils	4	7	23	36	14	6	4	1	2	97

equivalent (G. E.) was 6.2 and the standard deviation 1.45. There was a correlation of .64 between the mental ability and reading ability as measured by the tests used.

These pupils were then listed in three groups according to their grade equivalent. The Grade VI "A" class of 1947 - 1948 consisted of thirty-two pupils whose grades were 6.6 or better. Due to administrative demands of the school the "B" group had to be split up. Thirty-four pupils with reading grade equivalents ranging from 5.5 to 6.5 were kept as a unit along with one pupil with a grade equivalent of 4.7 included for special reasons. Fifteen pupils with a range from 5.1 to 5.6 were placed as a group with a Grade V class of seventeen

whose reading range was from 5.9 to 8.7, with a mean of 6.4 under the Durrell-Sullivan tests. The Grade VI "C" class was purposely limited to a class of twenty-three pupils with ratings from 5.5 down.

Approximately the same method of grouping was used in each of the other grades, III to V inclusive. As pupils were transferred into Machray from other schools during the year they were assigned to tentative grades and groups - usually to a group which was thought to be below their standard on the theory that it is better to move a pupil up than down the scale. As soon as possible these new pupils were tested and properly placed. With the exception of these pupils from other schools there were fewer than half a dozen pupils who had to be moved to different rooms for special reasons throughout the entire year.

In order to overcome the difficulties that usually arise when a student thinks he has been placed in a specially "bright" or specially "dull" class, a careful explanation had to be given to the parents and pupils. When these "ability" groups were formed in each grade, it was pointed out very carefully to the pupils and parents that the classification was on the basis of present reading ability as shown by standard tests. It was also pointed out that the classification did not take into account the pupils' ability in other subjects, and that, as a pupil's reading improved beyond that of his group, he would be placed in an appropriate class. The pupils and parents were also told that any child who needed special help in reading or mathematics would be given an opportunity to improve

by attending the adjustment classes. The explanation was accepted and no complaint regarding a pupil's placement was ever recorded with the office.

The experiment was continued in the fall term of 1947. Early in October the pupils in Grades IV, V, and VI were given the Stanford Achievement tests in arithmetic and the results were tabulated. As was expected, there were some in each class in each grade who needed extra help in arithmetic. These pupils were sent to adjustment classes and each one remained in such a class until he was able to keep up with the others of his regular class when returned to it for the regular arithmetic periods. Some spent only a short time in the adjustment class; others were there for most of the year. Pupils who were weak in reading were given very careful instruction in their classrooms. Those who were seriously behind were sent to the adjustment classes where the techniques for teaching reading were based largely on those described by Dr. Fernald.¹

During the year the regular Programme of Studies was followed in all subjects in all grades, but special attention was given to the teaching and supervision of reading and language arts subjects. School funds were used to buy books to increase the number of supplemental readers in each class. These books were chosen very carefully. Although there was a central library in each school, the one in Number II school had to be improved considerably, as it was only in the process of formation. The library in Number I school served the

¹Grace Maxwell Fernald, Remedial Techniques in Basic School Subjects, 1st ed.; New York: McGraw-Hill Book Co., 1943, Chpts. IV to IX.

Junior High grades chiefly, but had quite a selection of material interesting and useful for Grades V and VI. Although Grades VII, VIII, and IX were regularly time-tabled to use the library thirty periods per week, it was arranged so that the Elementary teachers in Number I school could have regular periods with their classes in this library. All pupils of the school were given equal rights and privileges to use the library for reference work or to take books home, the library being kept open both at noon and after school hours for that purpose.

Grouping on this basis of reading ability, it was found, made it possible to serve more fully the needs of each pupil. Although every class followed the Programme of Studies, the "A" classes were able to take a greatly enriched course, while the "B" classes were not expected to go far beyond the prescribed course, and the "C" classes had to be limited to and led to understand the fundamental concepts of their respective studies.

In June, 1948, all Elementary grades were again tested and the results were tabulated. At this time the Stanford Achievement Test in Arithmetic was used. The Stanford Achievement Test in reading was used in Grades II and III, and the Iowa Silent Reading Test in Grades IV to VII.

¹In the Junior High Department of Machray School it was felt that many pupils were not doing as well as they should because they were not reading well enough. Their reading skills were most ineffective. They were asked to perform reading activities for which they had not been adequately prepared in the lower grades.

¹Miss K. Wilson, formerly Vice-Principal of Machray School.

The responsibility for instruction in reading does not rest with the primary teachers alone. If the reading needs of children are to be met, the teachers at all levels - primary, middle grades, junior high, and senior high - must recognize their responsibility.

The experiment described in the following thesis was an attempt to make some provision for individual differences and to provide a reading programme throughout the school that would give remedial training to below-average readers, and developmental training to average and above-average readers.

CHAPTER VI

THE MACHRAY PLAN APPLIED TO THE JUNIOR HIGH SCHOOL

As a result of the experiment of 1947 - 1948, the Elementary grades in Machray school are grouped according to their rating on the standard reading tests. This year, 1949 - 1950, the Junior High school is affected by the results of the grading and treatment given pupils in the Elementary grades.

The reading and testing programme mentioned in this thesis was primarily designed for use in Grades I - VI at Machray school, but it was also expected that the results could be advantageously used in the Junior High School. This expectation has been fulfilled in that the Grade Equivalents determined in the standardized reading tests form the basis for promotions from grade to grade and for the division of each grade into classes arranged in order of reading ability.

In May each year all Grade VI, VII, and VIII pupils are tested for reading, using a form of the Iowa Silent Reading Group Test. The results are recorded in Grade Equivalents and are entered in each student's personal record card. If during the year said pupil has advanced one complete G. E. it is presumed that he (or she) is ready for promotion to the next school grade. From this assumption other factors are examined, such as the marks obtained on all achievement tests in subject matter during the year, the teachers' estimates of effort, ability to do the next grade satisfactorily, etc., and when, as in the great majority of cases these factors confirm the advance in G. E. the promotion is made.

When all promotions have been made for a particular grade, the students for that grade are listed and ranked according to their reading G. E.'s. Our numbers are such that there are four classes in each grade and these classes are then composed of superior readers, those of average and slightly below average G. E.'s and finally those of inferior reading ability. In this grouping some adjustments are made due to other factors, one of which is the desire of a student to study or not to study a foreign

1Mr. J. E. Ridd, Principal of Machray School.

language in Grade VIII and in Grade IX. It is also sometimes found that for some reason or other a pupil's reading G. E. is quite out of line with his or her achievement in other subjects and that the pupil may do better work in a group other than his G. E. group. These, however, are exceptional cases and we have found that the general plan of grouping classes by reading ability as determined by standardized tests works very satisfactorily.

Previously, the classes were arranged roughly into ability groups which were not as homogeneous as could be wished due, in part, to the segregation of sexes. But in June, 1949, it was decided for the first time not to separate the boys and girls in Grades VIII and IX - they had not been separated in Grade VII.

As a preliminary measure, in June 1949, the pupils to be passed into Grades VII, VIII, and IX were listed according to their rating on the standard reading tests. By this time all of them had taken one or more of these tests. The grouping in the Elementary grades could not be strictly applied in the Junior High grades, due to choice of options, but there was an attempt to form the classes as ability groups. First, the pupils to be passed into each grade were grouped as "A", "B", "C" and "D", classed according to their results on the standard reading tests. Secondly, their results in school examinations and the opinions of the entire Junior High teaching staff were taken into consideration and many changes were made.

All pupils had been given intelligence tests and the results of these tests were studied in making changes in the tentative groups. There were not many changes to be made as the correlation between the reading and intelligence tests

was fairly high. Chronological age, although considered in promotion, was not a factor in grouping within the grade. The pupils' achievements through the previous grade and their final examination marks were factors accounting for most of the changes. Very few changes were made because of the personal relationship between teacher and pupil.

There is a special problem in Grade VII, as many pupils enter the Junior High from other Elementary schools. Early in September they have to be tested before the classes can be definitely arranged. In timetabling, the Grade VII classes, it is the policy in Machray to have the pupils remain with their own classroom teacher for as many periods as possible to help bridge the gap between Elementary and Junior High grades. Although Grade VII pupils go to teacher F for mathematics, teacher E for science, and teacher D for history, most Grade VII classes have language, literature, reading, and guidance with their classroom teacher.

Grade VIII pupils undertake the study of French for the first time. The school has for years followed the policy of encouraging pupils to take French, this being a required subject for University entrance. In 1949 three French classes were organized but a few of the brighter pupils did not select this subject. Grade IX pupils begin the study of Latin, which, in Machray, is considered the second foreign language and only pupils successfully taking French are allowed to take Latin. This practice becomes a factor of dis-arrangement of classification on the basis of reading ability.

The Programme of Studies is followed in each class,

but there is a definite attempt at enrichment with the language classes. Grade IX may be taken as an example. It must be pointed out that, although the classes are in reality ability groups, they are not referred to as "A", "B", "C" or "D" classes. The top Grade IX class in the present term, referred to as the 9-9 class, that is Grade IX, room nine, consists of seventeen girls and fourteen boys. Although they take both Latin and French with the same teachers as the other pupils, more can be accomplished with this class than with the others. All the Grade IX classes take science with teacher A, but the 9 - 9 lessons are greatly enriched through use of reference work, experiments, and discussion. Teacher J, who teaches all the Grade IX history, also makes a practice of enriching the course for the 9 - 9 class in history. Three of the Grade IX classes take mathematics with teacher C, but the 9 - 9 class takes mathematics with their classroom teacher, teacher A. Early in September this class was tested very carefully in arithmetic and it was found that most of the pupils had reached a degree of proficiency required for Grade IX. The time allotted to mathematics is now spent very largely on work in introductory algebra and geometry - a course quite different from that followed by the other Grade IX classes. Sufficient time is spent on the regular course to ensure the class passing the regular School Board examinations. Extra work is given the weaker pupils of the 9 - 9 class in mathematics during some of the study periods.

It was felt, in planning the year's work, that this brighter class would be able to spend more time on extra-

curricular activities than the other classes. Usually Machray School publishes a year book, the work of which largely falls on the top Grade IX class. But during the present year the idea of school year book was dropped. Instead, the 9 - 9 class publishes a small class paper that is very well done. On Thursday of each week during the winter months the class and their teacher go to the bowling alleys where they hold a very successful bowling tournament. On Fridays at 3:30 P.M. teacher N holds a square dancing class for the 9 - 9 pupils. Thus there is a definite attempt to enrich not only the academic but also the social side of the education of the brighter class. The pupils are expected to assume leadership of and set standards for the rest of the school. Much is expected of them and they live up to the expectations.

Similarly, the second class, known as the 9 - 12 class, also has a slightly enriched course. They, too, take Latin and French, and higher standards are expected from them in science and history than from the third and fourth classes. They also have a bowling tournament and a few of the pupils participate in the square dancing classes.

Class (3), or the 9 - 17 class, take French but not Latin. They follow rather closely the course as laid down by the Programme of Studies. There is probably a wider range of ability in this class than in the others. Some of the pupils need extra help to make their grade, while a few could hold their own with the 9 - 9 class. The brighter pupils of the class were placed in 9 - 17 because they did not want to take Latin.

Class (4), or Class 9 - 18, is definitely a weak class. Many of the pupils do not belong academically in Grade IX but were passed on due to their age and the fact that they had been too many years in Junior High so far. It is necessary to spoonfeed and coach this class to a very great degree. Only the bare essentials of the course can be covered. The teachers have to be alert to arouse and hold the interest of the class.

Thus by ability grouping Machray school has attempted to meet the needs of the individual pupils. They are handicapped by administration. The Department of Education says one course has to be followed by all pupils. Whether a pupil is ready for it or not, it is necessary to expose him to a certain course in mathematics, for example. Then, too, although the classes are not unreasonably large, an extra teacher would greatly simplify the classification. Today almost all pupils go to Grade IX at least. Some of them struggle on through the years, failing quite frequently, but still being passed on because of their age. By the time Grade IX is reached, the difference in ability is very great. But, in spite of these and other difficulties, ability grouping does attempt to solve a very real problem in the present day school life.

CHAPTER VII

ADJUSTMENTS MADE IN THE MACHRAY PLAN

A study of the test and school examination results is one means of assessing the adequacy of the Machray Plan. These data were assembled for students for whom they were available in each of the four Grade IX classes, 1949 - 1950. The plan having been introduced with the Grade VI class of 1946 - 1947, it follows that over a three year period a significant shift in enrollment would occur. Hence the test and school examination results are omitted for all not attending during the complete period of the study. The results on standard intelligence, reading, and arithmetic tests, and School Board examinations for each pupil in attendance throughout the period are compiled in Tables 1 to 13 inclusive and reported in the Appendices.

The evaluation of understanding does not, in general require new devices and procedures. The teacher should depend upon normal classroom opportunities, the examination of pupils' work products, written tests of different kinds, pupil interviews, and the systematic observation of pupil behaviour.¹

A comprehensive evaluation programme requires careful, co-operative planning by the entire teaching staff. If the task is left to individuals the data necessary for a well-rounded picture of student development, of the progress of the

¹Warren G. Findley and Douglas E. Scates, Obtaining Evidence of Understanding, National Society for the Study of Education, Forty-Fifth Yearbook Part I Chicago: University of Chicago Press, 1946, p. 45.

various classes, and the effectiveness of the curriculum will not be secured. The staff as a whole must decide what to evaluate, what kind of evidence to secure, and how to go about securing the evidence and using it.

In June 1949 the principal of Machray school divided potential Grade IX pupils for the next school year into four groups on the basis of the pupils' grade equivalents (G. E.) on the Iowa Silent Reading Test given them at the close of the Grade VII year, June, 1948, and at a staff meeting undertook to examine the problem of promotion, failure, and classification of these pupils for the next term. Modifications were made in the principal's preliminary promotion lists on the basis of findings on the following: intelligence quotient, chronological age, results on Stanford Arithmetic Tests as well as on term and final teachers' examinations in Grade VIII, pupil's choice of subjects indicating study interests, attendance, application, and teachers' general estimates.

The four Grade IX classes are designated as follows: (1) the top Grade IX two-language class as Class 9 - 9, that is, Grade IX, room 9; (2) the second two-language class as Class 9 - 12, a group of lower ability; (3) the third class of pupils taking French only as a foreign language as Class 9 - 17, and (4) the weakest class consisting of a few pupils taking French but the majority taking no foreign language, as Class 9 - 18. It is felt by the principal and staff that such a system of naming classes is preferable to the usual A, B, C, and D, as it partially eliminates the stigma attached to a D class. For the purpose of simplification these classes will

be referred to in this study as follows: Class 9 - 9 as Class (1), Class 9 - 12 as Class (2), Class 9 - 17 as Class (3), and Class 9 - 18 as Class (4).

Illustrations of Methods of Adjustments
from the Reading Standard

The results on the California Mental Maturity, Dominion Learning Capacity, and Iowa Silent Reading Tests for each of the four classes are listed in Tables 1 to 4 inclusive as reported in the Appendices. The pupils of Class (1), the top language class, are listed in Table 1 in order of their grade equivalents (G. E.) on the Iowa Silent Reading Test given them at the close of Grade VII, June, 1948. The grade equivalents at that time range from a high of 13.6 to a low of 8.3 with a mean of 10.1. The intelligent quotients range from a high of 146 to a low of 103 with a mean of 123 on the California Mental Maturity Test and a mean of 115 on the Dominion Learning Test. Pupils 16, 17, and 18 of Class (1) do not have as high G. E.'s as the top pupils of Class (2), but are placed in the top group because of application to work. This overlapping of a few individuals is illustrated in Table 4, the data for which

TABLE 4

A STUDY OF SPECIAL CASES
IOWA SILENT READING, GRADE VII, JUNE, 1948

Class (1) 9 - 9				Class (2) 9 - 12			
Pupil	16	17	18	1	2	3	4
G. E.	8.5	8.5	8.3	10.8	9.0	9.0	8.8

is given in greater detail in Tables 1 and 2 of the Appendices. For instance Pupil 16 of Class (1) had a G. E. of 8.5 on the Iowa Silent Reading Test at the end of Grade VII, while Pupil 1 of Class (2) had a G. E. of 10.8 at the end of the Grade VII year.

Table 2 of the Appendices contains the standing of Class (2), the second language group. The first three pupils have grade equivalents on the reading test that would place them in the top group (see Table 4) but their grades on school examinations are below those of Class (1). Pupil 1 is an avid reader, more interested in reading than in applying himself to his school work. Pupil 4 is placed in this group in spite of her high grade equivalent because of her low I. Q. - 94 - and a weakness in mathematics. The pupils of Class (2) range in grade equivalent from 10.8 to 5.8 with a mean of 7.9. During Grade VII the mean grade equivalent was increased by 1.6 compared with an increase of 2.3 in the top class.

Pupils 17, 18, 19, and 20 of Class (2) are in this group because they are eager to take Latin as well as French, but their marks do not really warrant placing them in this class. Pupil 19 is too weak for this group but is placed in it because he works up to his capacity. The same principle of overlapping operates between Classes (2) and (3) and is illustrated in Table 5.

The first four pupils of Class (3), a one-language class, are placed in this group (see Table 5) because they do not want to take Latin. Pupil (1) of Class (3) ranks higher in his grade equivalent than the last nine pupils of Class (2). As

TABLE 5

A STUDY OF SPECIAL CASES
IOWA SILENT READING, GRADE VII, JUNE, 1948

Class (2) 9 - 12					Class (3) 9 - 17			
Pupil	17	18	19	20	1	2	3	4
G. E.	6.9	6.8	6.3	5.8	7.6	7.3	7.2	7.2

shown in Table 3 in the Appendices, the grade equivalents of Class (3) on the Iowa Silent Reading Test given them at the end of the Grade VII year, 1948, range from 6.7 to 4.4 with a mean of 6.2, but the rise in grade equivalent during Grade VII was only .8.

Pupil 15 of Class (3) has a low G. E. (5.1) but his I. Q. (111) and school grades warrant placing him in this group. Pupil 17 is too weak for her group but is placed in it because she wants to continue taking French.

TABLE 6

A STUDY OF SPECIAL CASES
IOWA SILENT READING, GRADE VII, JUNE, 1948

Class (3) 9 - 17				Class (4) 9 - 18		
Pupil	15	16	17	1	2	3
G. E.	5.1	5.0	4.4	8.0	7.9	7.1

There is even more overlapping of grade equivalents between the pupils of Class (3) and those of Class (4) than between any other two classes. Pupil 1 of Class (4) has a

grade equivalent (8.0) 3.6 points higher than that of Pupil 17 of Class (3) (see Table 6).

A few pupils in Class (4) take French but the majority are non-language pupils. As shown in Table 4 in the Appendices, their grade equivalents on the reading test range from 8.0 to 5.2 with a mean of 6.3. The first three pupils chose a non-language course, and their grade equivalents and I. Q.'s are responsible for the means on Standard Tests of their class being higher than those of Class (3).

TABLE 7
A STUDY OF SPECIAL CASES
IOWA SILENT READING, GRADE VII, JUNE, 1948.

Class (4) 9 - 18			
Pupil	1	2	3
G. E.	8.0	7.9	7.1

Stanford Arithmetic Tests - A Factor in Adjustments

The pupils of Grade III to VII inclusive at Machray School are given standard arithmetic tests periodically. Their results on these tests are considered along with the other factors in arranging the various classes within the Junior High School grades. Tables 6 to 9 in the Appendices contain the results of the same sample of pupils listed in Tables 1 to 4 (also in the Appendices) on Stanford Arithmetic Tests given them at the beginning and end of Grade VII.

Table 6 (Appendices) shows that the pupils of the top group, Class (1), rank high in arithmetic as they do also in

the reading and intelligence tests. This is illustrated with reference to the pupils selected at random from Table 6 in the

TABLE 8
A STUDY OF SPECIAL CASES
COMPARISON OF READING, INTELLIGENCE,
AND ARITHMETIC RESULTS

Class (1)	Iowa Silent Reading	Calif. Mental Maturity	Stanford Arithmetic (Reasoning)
Pupil	G. E.	I. E.	G. E.
1	13.6	139	11.0
6	10.8	118	11.0
11	9.8	112	11.0
16	8.5	118	8.6
18	8.3	103	9.9

Appendices and reported in Table 8. The California Mental Maturity and the Iowa Reading Tests were written by these pupils at the end of their Grade VII year, 1948.

Although pupil 18 of Class (1) had grade equivalents of 9.9 in reasoning and 7.7 in computation on the Stanford Arith-

TABLE 9
A STUDY OF SPECIAL CASES
GRADE EQUIVALENTS ON STANFORD ARITHMETIC, GRADE VII

September, 1947		June, 1948	
Reasoning	Computation	Reasoning	Computation
Pupil 18 6.3	6.3	9.9	7.7

metic Test in June 1948, both below the average of her class, she is well above the requirements for her grade according to

the scale of the Stanford Arithmetic Test. At the end of Grade VII her computation ability (7.7) was that required for a pupil who had been in Grade VIII seven months.

The results of Class (2) on the Stanford Arithmetic Test are shown in Table 7 (Appendices). As would be expected, these results are lower than those of Class (1), but on the whole they are satisfactory for the grade. The data of Table 10 illustrate two individual cases where the foregoing is not

TABLE 10

A STUDY OF SPECIAL CASES
GRADE EQUIVALENTS ON STANFORD ARITHMETIC, GRADE VII

September, 1947			June, 1948	
Pupil	Reasoning	Computation	Reasoning	Computation
4	6.1	6.8	6.0	6.5
8	7.4	6.8	10.4	10.4

true. Pupil 8 of Class (2) is above the average of Class (1) in arithmetic, while pupil 4 ranks low even for her own class and has failed to make much progress.

Table 2 (Appendices) shows that, though pupil 4 does well in reading, her I. Q. is below the mean of the class. These factors were considered in placing her in the second and not the top group. Her results on the three standard tests are compared with that of pupil 5 and with the mean of the class in Table 11.

TABLE 11

A STUDY OF SPECIAL CASES
COMPARISON OF READING, INTELLIGENCE, AND ARITHMETIC RESULTS

Class 2	Iowa Silent Reading	Calif. Mental Maturity	Stanford Arithmetic
Pupil	G. E.	I. Q.	G. E.
4	8.8	94	6.0
5	8.7	117	9.0
Class Mean	6.3	108	8.3

The first three pupils of Class (3), whose results are recorded in Table 12 rank high in arithmetic as they do in reading and their grade equivalents would warrant placing them in

TABLE 12

A STUDY OF SPECIAL CASES
COMPARISON OF READING, INTELLIGENCE, AND ARITHMETIC RESULTS

Class (3) 9 - 17	Iowa Silent Reading	Calif. Mental Maturity	Stanford Arithmetic
Pupil	G. E.	I. Q.	G. E.
1	7.6	111	8.3
2	7.3	91	7.2
3	7.2	124	8.6
14	5.4	92	8.3
15	5.1	103	8.0
16	5.0	101	8.0

a two-language class if they wanted to take Latin. The fact that pupils 14, 15, and 16 of the same class rank high in arithmetic is a factor for placing them in the one-language class, Class (3) rather than in the bottom group, Class (4),

as their grade equivalents on the reading test would seem to indicate.

There is a greater range in mathematical ability as shown by the Stanford Arithmetic Test in Class (4) than in Class (3) because included in Class (4) along with the weakest

TABLE 13

A STUDY OF SPECIAL CASES
STANFORD ARITHMETIC, GRADE VII, JUNE, 1948

Pupil	G. E. (Reasoning)	G. E. (Computation)
2	9.5	8.1
4	6.6	6.0
6	9.6	9.3
17	6.0	6.0

Grade IX pupils are a few brighter ones who chose a non-language course. Table 13, compiled from data in Table 9 (Appendices) shows the results of two of the brighter and two of the weaker pupils at the close of the Grade VII year, June, 1948.

As shown in Table 14, pupil 14 of Class (4) ranks high in mathematical reasoning on the Stanford Arithmetic Test,

TABLE 14

A STUDY OF SPECIAL CASES
COMPARISON OF READING, INTELLIGENCE, AND ARITHMETIC RESULTS

Class (4)	Iowa Silent Reading	Calif. Mental Maturity	Stanford Arithmetic
Pupil	G. E.	I. Q.	G. E.
14	5.4	112	10.3

June, 1948. Her I. Q. is high (112) but her grade equivalent in reading (5.4) and her frequent absences from school account for her being placed in the weakest group, Class (4).

School Board Examination Results

Marks obtained on written examinations should be considered in the classification of pupils as they provide an additional independent measure of achievement. Tables 10 to 13 (Appendices) contain the marks of this sample of pupils on School Board examinations written in the spring term of 1948 - 1949. Illustrations are taken from these tables and reported in Table 15.

TABLE 15

A STUDY OF SPECIAL CASES RESULTS ON SCHOOL BOARD EXAMINATIONS, GRADE VIII

Pupil	Class	Spell.	Lang.	Maths.	Science	History	French
19	(2)	60	55	50	56	63	48
6	(4)	74	56	81	57	45	34
16	(4)	60	36	52	58	39	
17	(4)	58	33	47	60	71	

Pupil 19, Class (2), in Table 15 should not have been allowed to take Latin in Grade IX, but being an industrious pupil, he was permitted to attempt a two-language course. Pupil 6, Class (4), was passed on condition that she drop French. Pupils 16 and 17, Class (4), should have failed but their age was a deciding factor in promotion.

CHAPTER VIII

AN EXAMINATION OF PROGRESS MADE BY SEVENTY-TWO PUPILS ACROSS GRADES VII, VIII, AND IX

This thesis has undertaken an examination of the adequacy of reading as a basis for promotion and classification after taking into consideration certain other more intangible factors which give promise of either success or failure in school. It is well at this point to recall that only seventy-two pupils tested in Grade VI continued to the end of Grade IX in the Machray School. All seventy-two are included in this study.

Promotion in the first instance was planned on the basis of ability in reading comprehension of different types of reading as measured by the Iowa Silent Reading Test, the results of which are placed in the Appendices of this study. After first classifying pupils on the basis of reading ability, the teaching staff in conference with the Principal, adjusted twenty-four of the seventy-two pupils either to a lower or higher section of the Grade IX class according to estimated promise of success in (1) upper two-language, (2) lower two-language, (3) one-language, or (4) no language groups. The factors taken into account in so doing included attitude toward work, application, sense of responsibility, interest and other non-measurable elements in character which give promise for success or failure in study.

Two assumptions are evident in this plan of classification. Firstly, it is commonly known that ability in reading is an important factor in success as a pupil moves up through the grades, more especially in the content subjects and possibly in the more exact subjects to a lesser degree. Secondly, many studies have shown that there exists a high correlation between the intelligence quotient and reading ability but there is sufficient variation to warrant the school in seeing to it that reading is mastered regardless of the prognostic significance of the I. Q. Consequently, the staff of the Machray School assumed that selecting reading ability instead of the I. Q. would not only ensure a more adequate promise of success in study but would lead to the improvement of reading if given prominence across a nine-grade area, Grade I to Grade IX inclusive.

The assumption that further adjustment on the bases of subjective judgements derived from teacher knowledge of pupil character, interest, and application, although not common practice, nevertheless, is recognition of a well-known condition existing across the entire school. The practice adopted by the Machray Junior High School staff in this regard is in keeping with modern ideas on evaluation.

The results of achievement tests are often used as a simple basis for the placement of pupils in grades and for their classification into ability groups or homogeneous groups within grades. Such comparatively barren procedure is not to be recommended. The placement of a pupil in a school organization is such an important problem that more time than is usually given should be devoted to it. . . . Placement and classification should be made in terms not only of the pupil's achievement but also of his brightness

as indicated by educational quotients and intelligence quotients and of his age, social adjustment, and health.¹

In dealing with the problem of classification within the grade, Machray school is in line with many of the leading educationalists of the day. A preliminary classification list is made on the basis of reading ability as shown by the Iowa Silent Reading Test, and then adjustments are made in the light of various other factors. "It is better to make the original classification in terms of one measure and examine the individual cases in the light of other measures and of the factors available."²

The data of Tables 16 and 17 with regard to intelligence and reading tests show the means for the I. Q. and

TABLE 16
CLASS MEANS, INTELLIGENCE QUOTIENTS

Class	Number of Pupils	California Mental Maturity, June, 1947 Grade VI	Dominion Learning Capacity, October, Grade VIII
(1) 9-9	18	123	115
(2) 9-12	20	108	103
(3) 9-17	17	92	101
(4) 9-18	17	98	97

reading grade equivalent of all seventy-two pupils after the said adjustments on other factors have been made.

¹Paul R. Mort and Arthur I. Gates, The Acceptable Uses of Achievement Tests for Test Users; New York: Bureau of Publication Teachers' College, Columbia University, 1932, p. 18.

²ibid, p. 19

TABLE 17
GRADE MEANS, IOWA SILENT READING

Class	Number of Pupils	June, 1947 Grade VI	June, 1948 Grade VII	October, 1948 Grade VIII
(1) 9-9	18	7.8	10.1	12.0
(2) 9-12	20	6.3	7.9	9.1
(3) 9-17	17	5.4	6.2	7.1
(4) 9-18	17	5.2	6.3	7.1

The data of Tables 18 and 19 show the range of the I. Q. and grade equivalent for reading in all four classes that enrolled in Grades VII, VIII and IX. The overlapping of classes due to adjustments is readily observed but there still remains

TABLE 18
RANGE OF INTELLIGENCE QUOTIENTS

Class	Number of Pupils	Calif. Mental Maturity, June, 1947	Dominion Learning Capacity, October, 1948, Grade VIII
(1) 9-9	18	103 - 146	109 - 128
(2) 9-12	20	94 - 124	86 - 122
(3) 9-17	17	71 - 124	91 - 113
(4) 9-18	17	81 - 117	81 - 112

TABLE 19
RANGE OF GRADE EQUIVALENTS, IOWA SILENT READING TEST

Class	Number of Pupils	June, 1947 Grade VI	June, 1948 Grade VII	October, 1948 Grade VIII
(1) 9-9	18	6.3 - 11.0	8.3 - 13.6	9.2 - 16.3
(2) 9-12	20	4.7 - 7.5	6.3 - 10.8	7.3 - 12.7
(3) 9-17	17	3.7 - 6.8	4.4 - 7.6	5.3 - 8.2
(4) 9-18	17	3.1 - 5.8	5.2 - 8.0	5.6 - 9.0

a significant difference from group to group. Any disparity which appears on the basis of intelligence quotient may be accounted for by the difference in I. Q. which results from administering the California Mental Maturity Test and the Dominion Learning Capacity Test. However, the relative position and range of all four groups is maintained throughout over the test years, 1947 and 1948.

The results on the reading test show significant improvement in the means for all grades. There is steady improvement in all groups whether measured by means or by the lower or higher range or spread within any one of the four groups. For example, take Class (4) on the lower range level, the score for each of the three years is 3.1, 5.3, and 5.6 while the score on the upper range limit for the same group is 5.8, 8.0, and 9.0. The means for this group in the three successive years is 5.2, 6.3, and 7.1 respectively.

The means available for establishing a relationship between reading and success in school are not as adequate as the writer would desire. The Grade IX class of 1950 was the first to graduate to High School under the Machray Plan of promotion and classification. This problem was aggravated still further by the total dislocation of the Winnipeg schools by the flood of that year. However, there are available the results on the school Superintendent's examinations for this Class while in Grade VIII in 1949, and the results on teachers' final examinations for Grades VII, VIII and IX. Results on Superintendent's and teachers' examinations are available in English Language, History, and Mathematics. Progress in reading in the adjusted

groups is compared with each of these subjects separately on the assumption that the said examinations may be taken as a fair measure of success in the Machray School. In any case they provide the only basis for comparison available.

The data of Table 20 with regard to teachers' and Superintendent's examinations in Language show the means of the seventy-two pupils in Grades VII, VIII and IX respectively. There is definite improvement over the three grades in the lower two groups. The lack of improvement in the top two classes as shown by this table is in no small measure due to the fact that the two language groups are allotted only two

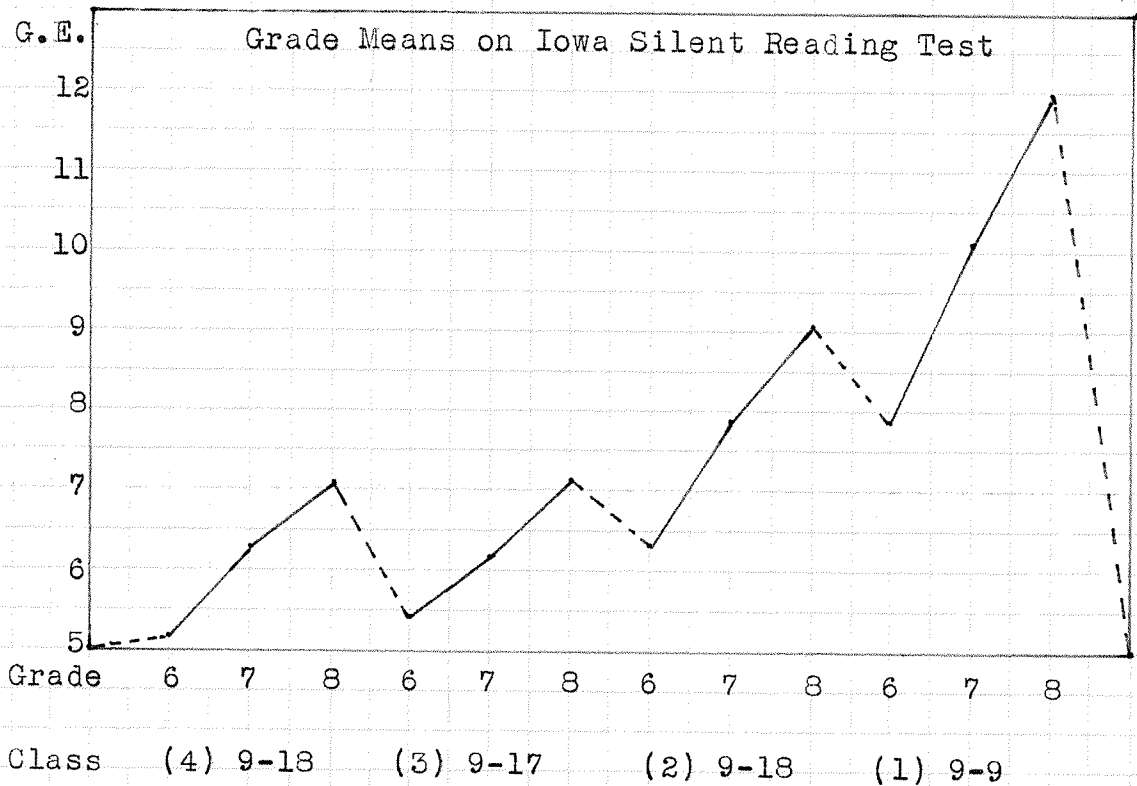
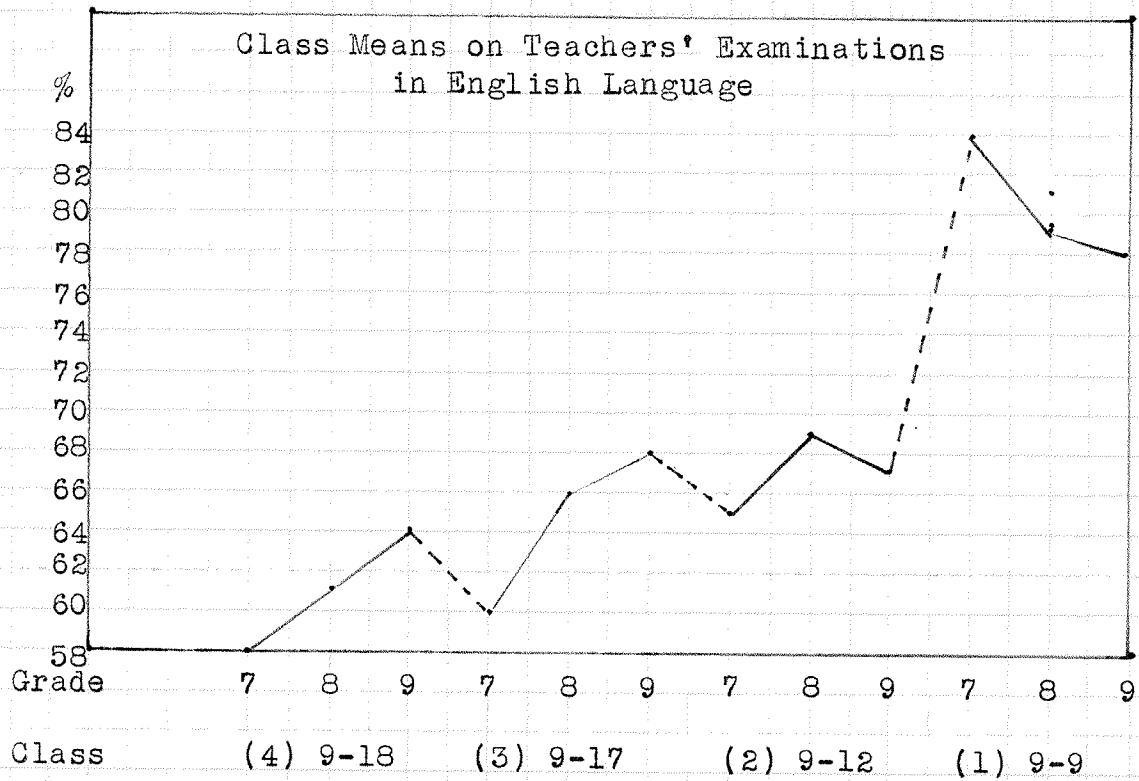
TABLE 20
CLASS MEANS ON TEACHERS' AND SUPERINTENDENT'S
EXAMINATION IN ENGLISH LANGUAGE

Class	Number of Pupils	Teachers' Grade VII	Supt.'s Gr. VIII	Teachers' Gr. VIII	Teachers' Grade IX
(1) 9-9	18	84	70	79	78
(2) 9-12	20	65	61	69	67
(3) 9-17	17	60	56	66	68
(4) 9-18	17	58	54	61	64

periods a week in language as compared with the four and eight allotted to Class (3) and Class (4) respectively.¹ The low mean for Class (2) in Grade IX would seem to indicate that this group would be better taking one language only. The fact that there are two different teachers teaching language and marking the

¹Class (1) - two periods of English
Class (2) - two periods of English
Class (3) - six periods of English (four language and two spelling)
Class (4) - ten periods of English (eight language and two spelling).

COMPARISON OF ABILITIES IN READING AND LANGUAGE



examinations in Grade IX would be a factor in the seeming discrepancy of marks. If the same teacher were teaching and marking the examination papers of Class (2) and Class (3), the mean of Class (2) would probably be higher than that of Class (3).

Table 20 would seem to indicate that the marks in language of the four classes is in keeping with the grade equivalents in reading used in forming these four groups. For example, in Grade VII the means of the four classes in language are 84, 65, 60, and 58 respectively and in Grade VIII, 79, 69, 66, and 61 respectively. The fact that Class (2) is out of line in Grade IX is probably due to the two factors mentioned above, that is, two different teachers are teaching language in Grade IX, and the top two classes have two periods in English as compared with four and eight for the lower two groups respectively.

While the results of School Board tests and Departmental examinations indicate that the standards of written English in Machray School are equal to those of other Winnipeg or Manitoba schools, the standards of written English in Machray Junior High could certainly be raised. At present pupils taking foreign languages have fewer periods in English than the other pupils. Perhaps they need fewer, but they certainly need more than the two periods per week allotted the Grade IX pupils taking both Latin and French. There are only a certain number of periods in a week, but if these pupils must drop some periods to enable them to take the foreign language, it would be better to drop their library period and take classes

in formal English at least until they acquire a higher standard of written English.

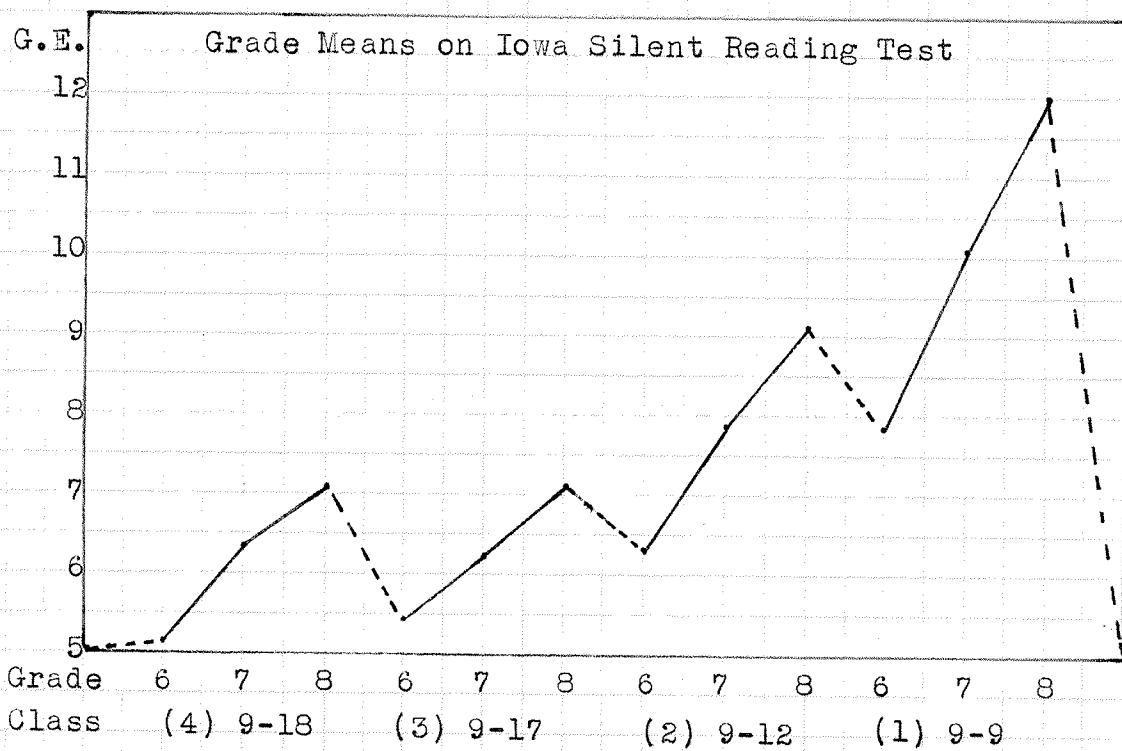
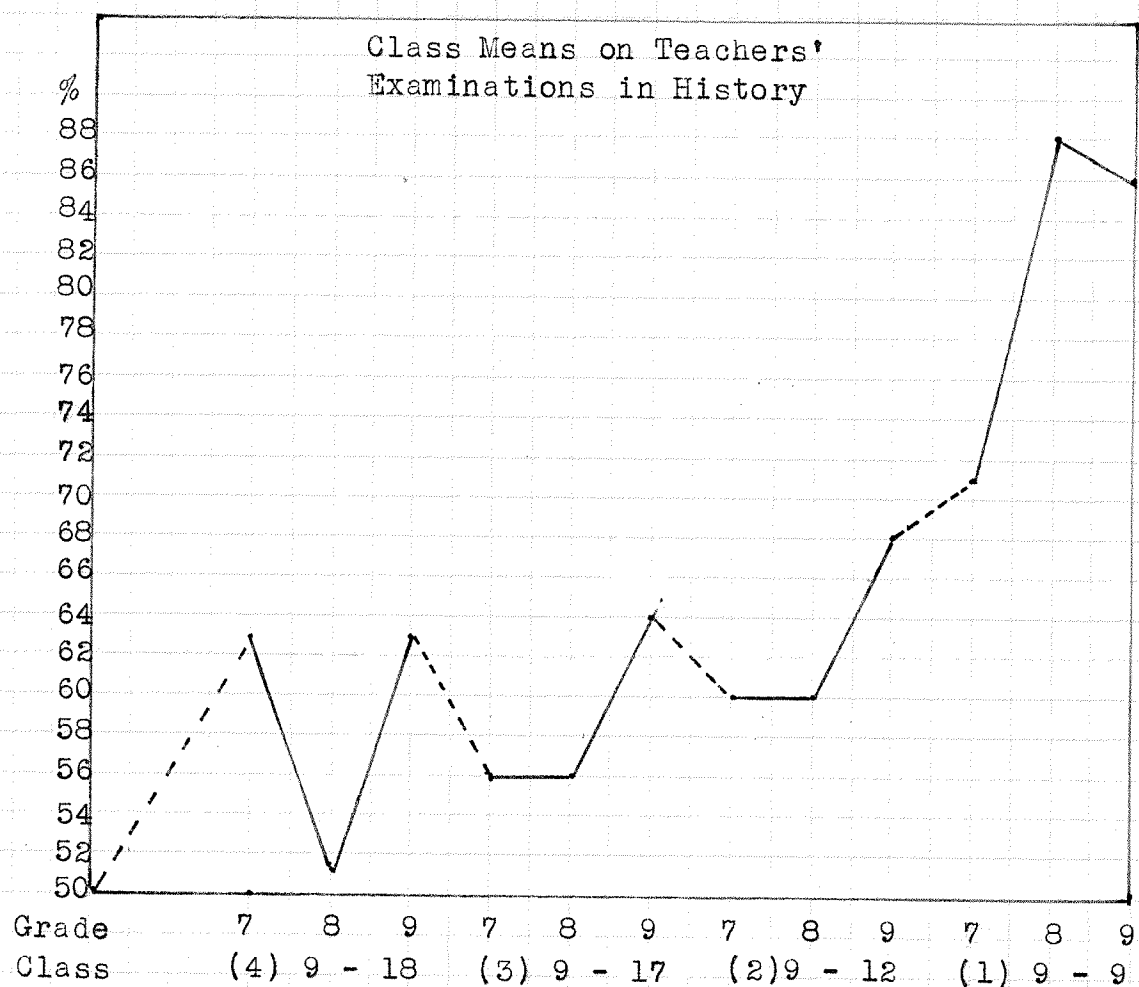
One can observe a close relationship between success in history and ability to read. It follows that the teaching of history should greatly benefit from a system of classification of pupils on the basis of reading. The data in Table 21 show the means of each of the four classes under considera-

TABLE 21
CLASS MEANS ON TEACHERS' AND SUPERINTENDENT'S
EXAMINATIONS IN HISTORY

Class	Number of Pupils	Teachers' Grade VII	Supt.'s Gr. VIII	Teachers' Gr. VIII	Teachers' Gr. IX
(1) 9-9	18	71	83	88	86
(2) 9-12	20	60	72	60	68
(3) 9-17	17	56	67	56	64
(4) 9-18	17	63	59	51	63

tion on teachers' examinations in history given in Grades VII, VIII, and IX, as well as on Superintendent's examination in history given in the spring term of Grade VIII. On the basis of these marks there is an improvement in history in three of the four groups - the mean of Class (4) being 63 in both Grade VII and IX. With the exception of the Grade VII marks the four classes stand in the same relative positions in history as they do in reading. For example, in Grade IX the mean of Class (1) is 86, of Class (2), 68, of Class (3), 64, and of Class (4), 63. This symmetry in the relative positions of the respective classes in history marks is due to the fact that the same teacher teaches history to all the Grade IX

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classes, another teacher, history to all the Grade VIII classes, and a third to all the Grade VII classes. The variations in the marks of each class separately across the four sets of examinations is due in no small part to the fact that each class has had three teachers in history during the Junior High School year. There is need for further study of the improvement of reading in history as a result of improvement in reading in Machray School. More conclusive results could be reached if only one teacher taught and examined a single class through the three grades in history, that is, follow the same class through Grades VII, VIII, and IX. Otherwise the difference in teacher approach to the study of history may prove a significant factor in variation of class interest and understanding.

It is not to be expected that there would be as close a relationship between improvement in reading and improvement in arithmetic as there would be between improvement in reading and the content subjects. However, an increase in reading ability would definitely lead to an increase in ability to solve problems in arithmetic. This fact would be more readily observed if the marks on teachers' examinations were separated for computation and problem solving. Such is not the case. The results compiled in Table 22 indicate that little or no relationship exists between the reading tests and arithmetic examination. The marks are much lower in Grade IX than in Grade VII. It will be noted, however, that the four classes stand in the same relative positions in mathematics as they do in reading. For example, the means of Class (1) in Grade

TABLE 22

CLASS MEANS ON TEACHERS' AND SUPERINTENDENT'S
EXAMINATIONS IN MATHEMATICS

Class	Number of Pupils	Teachers' Gr. VII	Supt.'s Gr. VIII	Teachers' Gr. VIII	Teachers' Gr. IX
(1) 9-9	20	82	76	83	88
(2) 9-12	18	70	69	80	60
(3) 9-17	17	67	66	67	56
(4) 9-18	17	61	65	60	51

VII is 82, of Class (2), 70, of Class (3), 67, and of Class (4), 61. The results on the Stanford Arithmetic Tests given at the beginning and end of Grade VII list the results of reasoning and computation separately.

TABLE 23

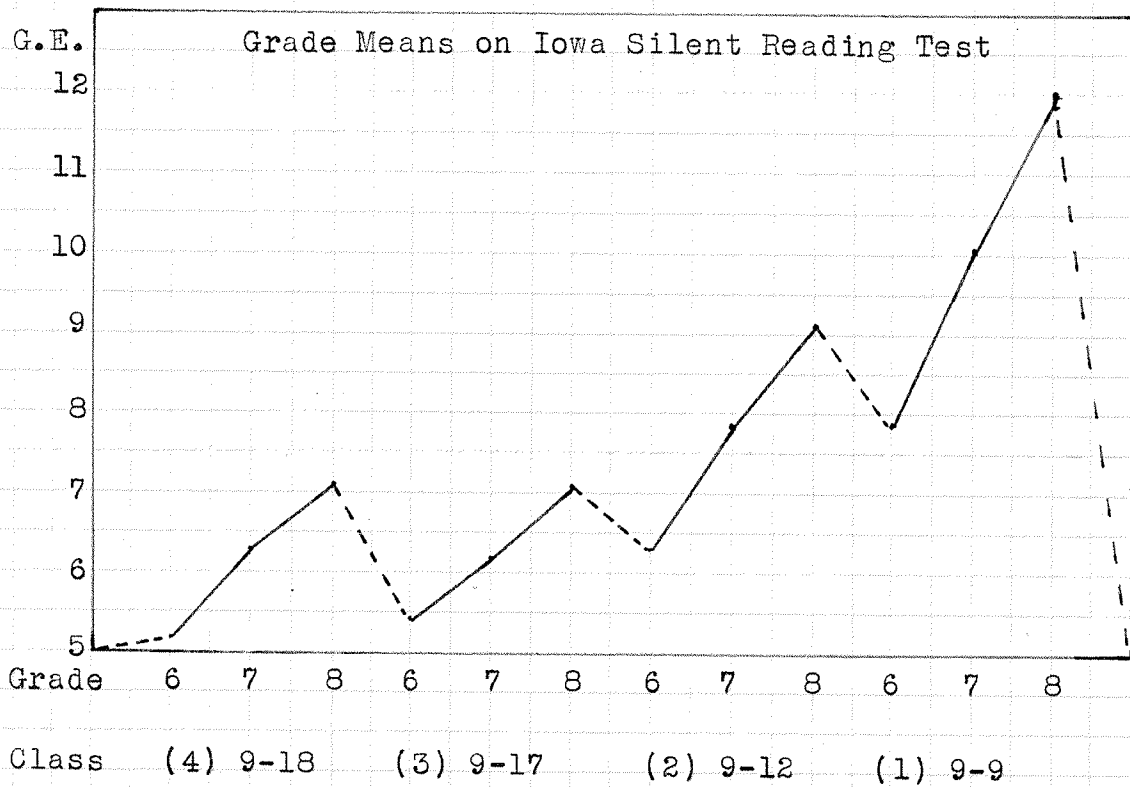
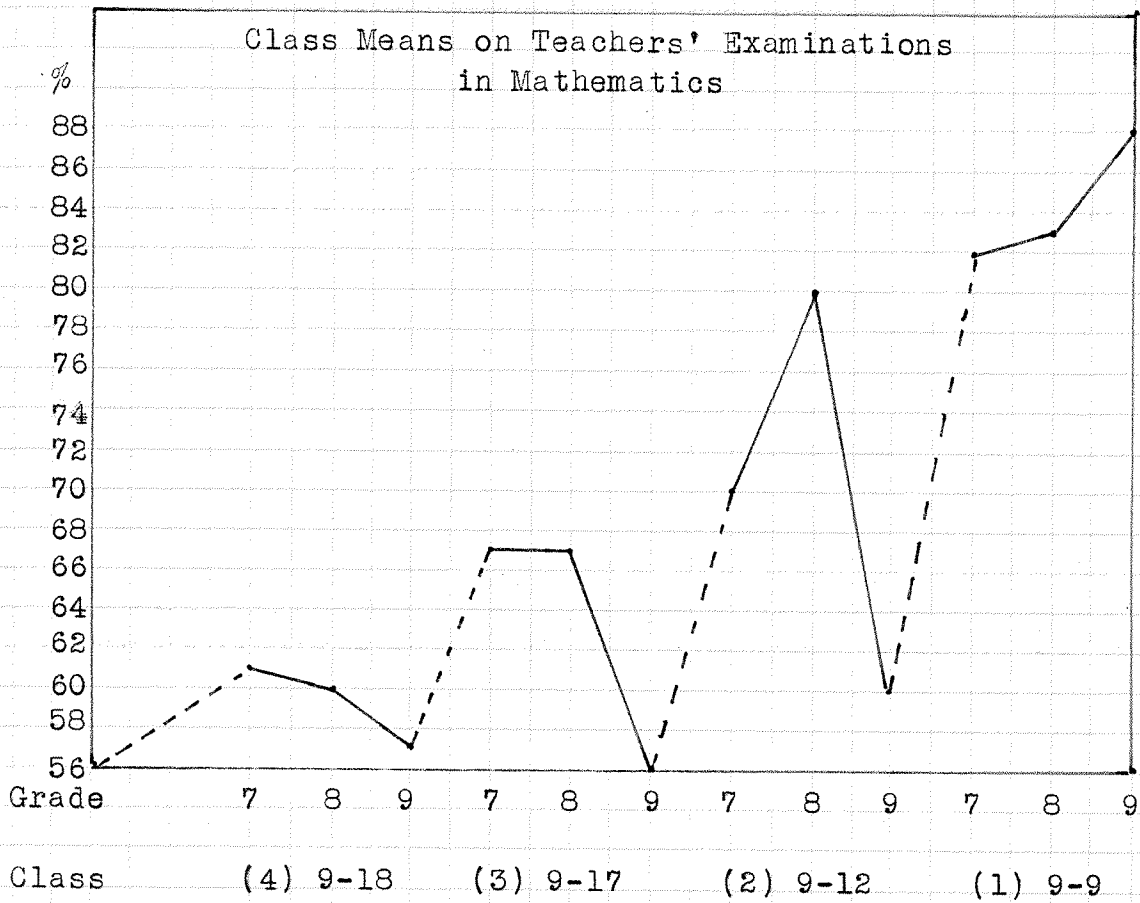
GRADE MEANS, STANFORD ARITHMETIC TESTS

Class	Number of Pupils	Sept., 1947, Gr. VII		June, 1948, Gr. VII	
		Reasoning	Computation	Reasoning	Computation
(1) 9-9	20	8.4	6.2	10.0	9.2
(2) 9-12	18	7.1	6.2	8.3	8.1
(3) 9-17	17	6.7	5.7	7.5	7.4
(4) 9-18	17	6.3	5.6	7.8	7.2

There is a marked improvement during the year both in reasoning and computation in the four classes with the exception of Class (3) in reasoning. This class failed to make a year's improvement in reasoning ability in arithmetic, the grade mean only rising from 6.7 to 7.5 from September to June.

It is worthy of note that the four classes stand in the same relative positions in all three subjects, Language, Mathe-

COMPARISON OF ABILITIES IN READING AND MATHEMATICS



matics, and History, on the Superintendent's examinations in Grade VIII as they do in reading. The class means on these subjects and the grade equivalents on the Iowa Silent Reading Test are listed in Table 24.

TABLE 24

COMPARISON OF CLASS MEANS ON SUPERINTENDENT'S EXAMINATIONS
AND GRADE EQUIVALENT ON IOWA SILENT READING TEST,
GRADE VIII

Class	Iowa Silent Reading	Language	Mathematics	History
(1) 9-9	12.0	70	76	83
(2) 9-12	9.1	61	69	72
(3) 9-17	7.1	56	66	67
(4) 9-18	7.1	54	65	59

The Adjusted Pupils

After the preliminary lists of pupils for promotion to and classification in Grade IX were drawn up, it was found that twenty-four of the seventy-two pupils under consideration in this study might well be placed in groups other than those indicated by their grade equivalents on the Iowa Silent Reading Test. The mean results of these twenty-four pupils on standard tests and written examinations along with the means of the whole group of seventy-two pupils are compiled in Tables 25 and 26. It would be expected that the results of the twenty-four pupils would be lower than those of the whole group as there was more adjustment needed at the lower than at the higher levels. It should be noted also that the class means are derived from the marks of the seventy-two pupils only and not

from the marks of the whole grade.

The data compiled in Table 25 show the grade means of the twenty-four adjusted pupils in comparison with those of the entire group of seventy-two pupils.

TABLE 25

GRADE MEANS ON THE IOWA SILENT READING TEST COMPARISON
OF TWENTY-FOUR ADJUSTED PUPILS AND
ALL SEVENTY-TWO PUPILS

	Grade VI	Grade VII	Grade VIII
24 (Adjusted)	5.7	7.2	8.4
72 (Total)	6.2	7.6	8.8

It will be noted that the improvement in the reading of the adjusted group is slightly higher than that of the whole group. From Grade VI to Grade VII the grade mean of the adjusted group increased by 1.5 points (from 5.7 to 7.2) while the grade means of the whole group increased from 6.2 to 7.6 - an increase of 1.4 points. However, the increase for both groups from Grade VII to Grade VIII was the same - an increase of 1.2 points. It is important to note that the pupils of Grade VI who were below the standard of this class went to the adjustment teacher for remedial reading. This practice was not continued in Grade VII, but due to the emphasis placed on reading the adjusted group continued to improve in reading on a par with the entire group.

The Stanford Arithmetic Test was given to all pupils under consideration at the beginning and end of Grade VII. The results on reasoning are recorded in Table 26, as they are more

readily affected by ability to read than are the results on computation. Both the adjusted group and the total group im-

TABLE 26

GRADE MEANS ON STANFORD ARITHMETIC TEST (REASONING)
COMPARISON OF TWENTY-FOUR ADJUSTED PUPILS
AND ALL SEVENTY-TWO PUPILS

	September, 1947	June, 1948	Improvement
24 (Adjusted)	6.6	7.8	1.2
72 (Total)	7.0	8.3	1.3

proved their grade means on arithmetic reasoning by more than a year. The adjusted group did a year and two months work in arithmetic while the whole group increased their grade mean by a year and three months. Thus by using reading ability as a basis for promotion and providing a means for its improvement the staff of Machray school recognized that reading ability would prove fundamental to the success of the pupils even in reasoning in arithmetic.

Improvement in Reading

Since the beginning of the experiment in 1947, the pupils of Machray School have made above normal progress in reading. This improvement is evident from a study of the results on the Iowa Silent Reading Test on the four Grade IX classes listed in Tables 1 to 4 in the Appendices. These contain reading grade equivalents obtained by the pupils at the close of Grade VI and the Grade VII years. A study of the improvement made by the pupils during Grade VII shows that on the

average the pupils made a year and a half's progress in reading in one year's time.

TABLE 27
IOWA SILENT READING TEST MEAN GRADE EQUIVALENTS

Class	June, 1947	June, 1948	Improvement
1	7.8	10.1	2.3
2	6.3	7.9	1.6
3	5.4	6.2	.8
4	5.2	6.3	1.1

The data of Table 27 show the mean grade equivalents of each of the four classes on the Iowa Silent Reading Tests given in June, 1947 and again in June, 1948 as well as the improvement made by each class during the year. As would be expected, the top group, Class (1), made the greatest improvement and did two years and three months work in reading during one year. Both Class (2) and Class (4) made over a year's progress in reading while in Grade VII. That Class (3) made less than a year's progress is due in part to the fact that the group contained some weaker pupils who wanted to take French. The mean progress for the whole grade was 1.5.

Ten of the seventy-two pupils considered in this study made more than two years and three months progress in reading - the average of the top group, Class (1), during their Grade VII year. Data for six of these pupils from Class (1), Class (2), and Class (4) are reported in Table 28. No pupil in Class (3) made more than a year and eight months progress in

reading during his seventh year.

TABLE 28

A STUDY OF SPECIAL CASES
GRADE EQUIVALENTS ON IOWA SILENT
READING TEST

Class	Pupil	June, 1947	June, 1948	Improvement
1	1	11.0	13.6	2.6
1	7	7.7	10.5	2.8
2	1	7.1	10.8	3.7
2	7	5.8	8.5	2.7
4	1	5.1	8.0	2.9
4	2	4.8	7.9	3.1

Twenty-three of the seventy-two pupils failed to make a year's progress in reading. Four of these pupils failed to make any progress in reading and two of them reported negative progress.

TABLE 29

A STUDY OF SPECIAL CASES
GRADE EQUIVALENTS ON IOWA SILENT
READING TEST

Class	Pupil	June, 1947	June, 1948	Improvement
3	12	5.6	5.6	.0
3	16	5.0	5.0	.0
4	7	6.3	6.3	.0
4	8	6.2	6.2	.0
3	14	5.6	5.4	-.2
4	16	5.6	5.3	-.3

In spite of the facts contained in Table 29 it can be concluded that the pupils of Machray School have made above normal progress in reading during the period of the experiment. This progress is probably due to several reasons:

1. The libraries have been greatly extended since the beginning of the experiment. School funds in addition to library grants are now used to build up the libraries in both schools. Books and periodicals are very carefully chosen to meet the needs and interests of all grades.
2. Two library periods a week are scheduled for each class from Grade VII to IX with the librarian in charge. Pupils in Grades IV to VI are taken into the library by their class teacher for one period a week.
3. The teachers of various subjects in Junior High School have ordered books as references to be placed in the library. Reading references are assigned in class, more especially in history, science, and literature, for these grades. Pupils are also encouraged to use the library for reference work in music, art, occupational guidance, and manual arts.
4. While in the library, pupils are encouraged to use the period for free reading as well as subject matter study. They are encouraged to make suggestions for books to be added to the library.
5. In the elementary classes and to a lesser extent in Junior High School small class libraries are available for free reading after completion of assignments.
6. The library in Number I school is made available to any pupil in Grades VII to IX during the period 3:30 to 4:00 P.M.

It is also open to all pupils from Grades IV to IX every noon at 1:00 P.M. and after 4:00 P.M.

7. Without being definitely advised, the pupils are generally aware of the importance allotted to reading for purposes of promotion.

8. Each Grade VII and VIII class is given a reading period under direction. There is a limitation to the promise of improvement, namely - that the teachers in charge have not been trained especially in the correct reading procedures. But progress is being made as the rank and file of teachers undertake to encourage, to give time, and to advise as best they can under these circumstances.

The Teacher Situation at Machray School

The success of any experiment in a school depends very largely on the qualifications of the teachers performing the experiment. As can be seen from Table 1, page 37, Machray School is fortunate in having a well qualified and experienced staff. Many of the teachers are furthering their education by taking professional courses. The principal and three of the teachers hold the degree of Bachelor of Education from the University of Manitoba; one teacher holds a Master of Education degree in Industrial Arts from the University of Colorado; two teachers have almost completed the work necessary to obtain a Master of Education degree from the University of Manitoba; and three other teachers are taking courses in Education at the present time. Eight teachers out of a Junior High staff of fifteen comprise the group engaged in professional improvement.

This fact is significant for the Machray experiment.

Most authorities agree that teachers are better able to evaluate a pupil's chance of success and failure than persons who are statistically qualified but whose personal contact with pupils is limited. Although it is desirable that all teachers go to Summer School occasionally to keep abreast of modern thought, participating in planning and administering an evaluation programme such as has been undertaken in Machray School and in the study and application of its results in itself provides an opportunity for training hardly exceeded by any other device.

Perhaps the abilities of the various teachers of Machray School could be used to better advantage by a more careful assignment of subjects to be taught by each teacher. Certainly the results of the Machray Plan could be more readily appraised if such were the case. More uniformity of marks would be obtained by having one teacher, in English, for example, teach as many classes as possible in all three grades of the Junior High School.

The Machray Plan is based largely upon reading ability. When pupils who test low on the Iowa Silent Reading Test enter Junior High School they are given extra reading classes to enable them to pull up to the standard of their grade. If this plan is to accomplish what it should, there must be at least one faculty member qualified to give remedial reading instruction.

Methods of Assessing the Adequacy of the Machray Plan

The principal and staff of Machray School, dissatisfied with the usual method of promotion based solely on achievement examination results, have undertaken an experiment in which many factors are considered in the promotion and classification of pupils. The principal and the majority of the teaching staff are convinced that the needs of the pupils are best met through homogeneous grouping of the pupils.

The writer of this thesis has undertaken a study of the experiment in the light of modern trends of thought in education. It is a little early as yet to fully assess the adequacy of the Machray Plan. The classes that have been studied in this thesis were the first to graduate into High School under the present system of promotion and classification. Their Grade IX year was cut short at the beginning of May by the flood and they were promoted into Grade X without having to write final examinations.

The method of assessment used in this chapter is one of employing simple mathematical comparisons. A more refined statistical approach is not practical in view of the small number of pupils studied and the limitation of data. The study should be carried further as the experiment grows by a continuous examination of the High School results of classes that graduate each year and by comparison of present classes with those of other schools.

Evaluation of any system of promotion and classification is a continuous process. All that this study has attempted

to do is to describe the Plan as it is in operation at present and assess its adequacy as well as it can be done up to this point. It has paved the way for further study as the experiment progresses. The process of the evaluation of this experiment should become an integral part of the educational process of Machray School. It must be considered a recurring process involving the improvement of objectives and plans for the study of pupils' reactions in the light of these objectives, and the methodology employed. It may well be that the plan will have to be changed or modified as time goes on. Machray School, however, has taken a great step forward in studying the individual pupils in the light of all available facts and helping them make as much progress as is in keeping with their ability.

It would be fair to conclude in so far as this study has proceeded and in the light of evidence of pupil progress and known co-ordination of staff effort on their behalf that the Machray Plan subscribes to the principle of adequacy involving pupil classification within the Machray Junior High School.

APPENDIX

TABLE 1

RESULTS ON STANDARD INTELLIGENCE AND
READING TESTS FOR CLASS (1) 9-9

Class (1) 9-9	Calif. Mental Maturity	Dominion Learning Capacity	Iowa Silent Reading		
	June, 1947	Oct., 1948	June, 1947	June, 1948	Oct. 1948
	Grade VI	Grade VIII	Grade VI	Grade VII	Gr. VIII
Pupil	I. Q.	I. Q.	G. E.	G. E.	G. E.
1	139	120	11.0	13.6	16.3
2	146	125	9.6	11.9	13.1
3	135	122	9.2	11.6	16.3
4	120	113	6.5	11.6	11.3
5	112	111	9.0	11.0	11.0
6	118	128	6.5	10.8	13.1
7	130	120	7.7	10.5	11.6
8	119	112	8.7	10.5	11.6
9	145	118	7.8	10.0	13.1
10	113	108	7.5	9.8	11.0
11	112	110	7.5	9.8	10.8
12	125	120	7.1	9.4	12.3
13	125	109	6.8	9.0	10.3
14	109	110	7.6	8.8	10.0
15	114	112	6.5	8.8	10.0
16	118	113	6.3	8.5	9.8
17	125	109	8.3	8.5	9.2
18	103	114	7.6	8.3	14.6

TABLE 2

RESULTS ON STANDARD INTELLIGENCE AND
READING TESTS FOR CLASS (2) 9-12

Class (2) 9-12	Calif. Mental Maturity	Dominion Learning Capacity	Iowa Silent Reading		
	June, 1947	Oct. 1948	June, 1947	June, 1948	Oct. 1948
	Grade VI	Grade VIII	Grade VI	Grade VII	Gr. VIII
Pupil	I. Q.	I. Q.	G. E.	G. E.	G. E.
1	127	122	7.1	10.8	9.6
2	111	112	6.7	9.0	12.7
3	117	110	7.3	9.0	11.3
4	94	86	6.4	8.8	8.2
5	117	101	7.3	8.7	8.7
6	97	98	7.3	8.5	9.6
7	117	103	5.8	8.5	9.0
8	117	109	6.2	8.3	8.5
9	123	114	7.2	8.3	9.4
10	110	103	7.5	8.2	8.3
11	114	107	7.2	7.6	9.6
12	100	104	6.4	7.3	8.5
13	100	95	5.8	7.3	9.4
14	103	102	5.0	7.2	8.2
15	93	97	5.8	7.2	7.9
16	96	96	5.4	7.2	9.4
17	108	104	5.7	6.9	8.7
18	115	109	5.5	6.8	8.2
19	95	89	5.4	6.3	8.5
20	97	97	4.7	5.8	7.3

TABLE 3

RESULTS ON STANDARD INTELLIGENCE AND
READING TESTS FOR CLASS (3) 9-17

Class (3) 9-17	Calif. Mental Maturity	Dominion Learning Capacity	Iowa Silent Reading		
	June, 1947	Oct., 1948	June, 1947	June, 1948	Oct. 1948
	Grade VI	Grade VIII	Grade VI	Grade VII	Gr. VIII
Pupil	I. Q.	I. Q.	G. E.	G. E.	G. E.
1	111	113	5.8	7.6	8.2
2	91	91	5.5	7.3	6.4
3	124	112	6.3	7.2	8.0
4	93	97	5.8	7.2	7.9
5	84	96	6.8	6.9	7.3
6	99	100	5.7	6.7	7.7
7	106	104	5.3	6.7	7.3
8	98	92	5.4	6.7	6.8
9	96	94	5.8	6.7	6.4
10	104	107	6.1	6.4	7.2
11	71	94	4.8	6.1	6.7
12	99	107	5.6	5.6	7.9
13	98	102	5.1	5.5	7.7
14	92	101	5.6	5.4	7.2
15	103	111	4.2	5.1	7.3
16	101	98	5.0	5.0	5.3
17	93	95	3.7	4.4	5.4

TABLE 4
RESULTS ON STANDARD INTELLIGENCE AND
READING TESTS FOR CLASS (4) 9-18

Class (4) 9-18	Calif. Mental Maturity	Dominion Learning Capacity	Iowa Silent Reading		
	June, 1947	Oct., 1948	June, 1947	June, 1948	Oct. 1948
	Grade VI	Grade VIII	Grade VI	Grade VII	Gr. VIII
Pupil	I. Q.	I. Q.	G. E.	G. E.	G. E.
1	105	104	5.1	8.0	8.2
2	114	112	4.8	7.9	8.0
3	117	100	5.8	7.1	9.0
4	95	91	5.0	6.8	6.8
5	93	101	5.5	6.7	7.3
6	91	96	6.3	6.5	7.3
7	100	91	6.3	6.3	7.7
8	95	90	6.2	6.2	6.1
9	81	94	5.7	6.1	8.0
10	104	107	6.1	7.9	7.1
11	98	92	5.1	5.8	7.3
12	93	88	4.7	5.7	5.7
13	85	81	3.7	5.5	5.6
14	112	108	4.6	5.4	6.8
15	96	94	5.0	5.4	6.5
16	90	87	5.6	5.3	6.0
17	99	107	3.1	5.2	5.7

TABLE 5

CLASS MEANS ON STANDARD INTELLIGENCE
AND READING TESTS

	Calif. Mental Maturity	Dominion Learning Capacity	Iowa Silent Reading		
	June, 1947	Oct., 1948	June, 1947	June, 1948	Oct., 1948
	Grade VI	Grade VIII	Gr. VI	Gr. VII	Gr. VIII
Class	I.Q.	I.Q.	G.E.	G.E.	G.E.
(1) 9-9	123	115	7.8	10.1	12.0
(2) 9-12	108	103	6.3	7.9	9.1
(3) 9-17	92	101	5.4	6.2	7.1
(4) 9-18	98	97	5.2	6.3	7.1

TABLE 6
RESULTS ON STANFORD ARITHMETIC
TESTS FOR CLASS (1) 9-9

Class (1) 9-9	September, 1947				June, 1948			
	Grade VII				Grade VII			
	Reasoning		Computation		Reasoning		Computation	
Pupil	G.E.	A. E.	G.E.	A.E.	G.E.	A.E.	G.E.	A.E.
1	8.6	13-6	6.0	11-0	11.0	15-11	9.6	14-7
2	11.0	15-11	5.5	10-6	9.6	14-7	9.9	14-11
3	8.6	13-6	6.5	11-6	11.0	15-11	10.7	15-8
4	7.4	12-5	6.3	11-3	11.0	15-11	8.1	13-1
5	8.6	13-6	6.3	11-3	9.9	14-11	11.0	15-11
6	10.3	15-4	6.6	11-8	11.0	15-11	9.9	14-11
7	7.9	12-10	6.8	11-10	9.5	14-6	8.0	13-1
8	10.7	15-8	7.2	12-2	11.0	15-11	10.4	15-4
9	7.4	12-5	5.5	10-6	11.0	15-11	8.4	13-5
10	7.2	12-2	6.6	11-8	10.7	15-8	8.1	13-1
11	8.3	13-4	6.3	11-3	11.0	15-11	9.3	14-4
12	7.4	12-5	6.1	11-1	11.0	15-11	8.6	13-7
13	7.2	12-5	5.4	10-5	10.7	15-8	8.6	13-7
14	9.6	14-7	6.1	11-1	11.0	15-11	9.9	14-11
15	9.8	14-10	6.6	11-8	10.4	15-4	8.1	13-1
16	7.9	12-10	6.3	11-3	8.6	13-7	10.7	15-8
17	7.4	12-5	5.5	10-6	10.4	15-4	8.1	13-1
18	6.3	11-3	6.3	11-3	9.9	14-11	7.7	12-8

TABLE 7

RESULTS ON STANFORD ARITHMETIC
TESTS FOR CLASS (2) 9-12

Class (2) 9-12	September, 1947				June, 1948			
	Grade VII				Grade VII			
	Reasoning		Computation		Reasoning		Computation	
Pupil	G.E.	A.E.	G.E.	A.E.	G.E.	A.E.	G.E.	A.E.
1	6.1	11-1	5.0	11-0	8.6	13-7	5.7	10-8
2	7.9	12-10	6.0	11-0	7.9	12-5	9.0	14-0
3	8.3	13-4	6.3	11-3	8.6	13-7	9.0	14-0
4	6.1	11-1	6.8	11-10	6.0	11-0	6.5	11-6
5	8.3	13-4	6.3	11-3	9.0	14-0	9.0	14-0
6	6.6	11-8	5.3	10-4	7.9	12-11	6.5	11-6
7	8.3	13-4	5.5	10-5	8.3	13-4	7.2	12-3
8	7.4	12-5	6.8	11-8	10.4	15-4	10.0	15-4
9	7.2	12-2	5.8	10-10	9.6	14-7	8.1	13-1
10	6.8	11-10	6.3	11-3	10.4	15-4	8.1	13-1
11	6.8	11-10	6.0	11-0	9.0	14-0	10.7	15-8
12	7.2	12-2	6.8	11-10	10.3	15-4	7.0	12-0
13	8.3	13-4	7.2	12-2	7.4	12-6	9.8	14-10
14	8.3	13-4	6.6	11-8	7.9	12-11	6.6	11-7
15	7.4	12-6	6.8	11-3	8.3	13-4	10.6	15-7
16	5.8	10-11	6.3	11-3	6.1	11-2	7.7	12-8
17	5.3	10-3	4.2	9-2	6.9	11-10	6.5	11-6
18	7.2	12-2	6.8	11-10	9.0	14-0	9.5	14-6
19	6.3	11-3	6.3	11-3	6.8	11-10	6.8	11-10

TABLE 8

RESULTS ON STANFORD ARITHMETIC
TESTS FOR CLASS (3) 9-17

Class (3) 9-17	September, 1947				June, 1948			
	Grade VII				Grade VII			
	Reasoning		Computation		Reasoning		Computation	
Pupil	G.E.	A.E.	G.E.	A.E.	G.E.	A.E.	G.E.	A.E.
1	6.8	11-10	6.3	11-3	8.3	13-4	7.2	13-3
2	7.4	12-6	6.6	11-8	7.2	12-3	8.1	13-2
3	6.6	11-8	5.5	10-6	8.6	13-7	8.1	13-1
4	5.8	10-11	6.3	11-3	6.1	11-2	7.7	12-8
5	6.1	11-1	5.3	10-4	6.0	11-0	7.5	12-6
6	6.3	11-3	5.4	10-5	8.3	13-4	7.7	12-8
7	8.6	13-6	5.5	10-5	8.5	13-6	6.6	11-8
8	4.8	9-9	5.1	10-2	5.7	10-8	5.5	11-6
9	7.2	12-2	6.0	11-0	7.4	12-6	6.8	11-10
10	7.4	12-6	6.0	11-0	7.9	12-11	9.0	14-0
11	6.6	11-8	5.4	10-5	8.0	13-0	6.8	11-10
12	6.3	11-3	5.5	10-5	8.3	13-4	6.6	11-8
13	6.3	11-3	5.5	10-5	7.5	12-6	6.8	11-10
14	7.4	12-5	6.0	11-0	8.3	13-4	8.6	13-8
15	6.1	11-1	5.1	10-2	8.0	13-0	6.8	11-10
16	7.9	12-10	5.7	10-9	8.0	13-0	8.1	13-1
17	6.6	11-8	5.5	10-5	6.0	11-0	6.8	11-10

TABLE 9
RESULTS ON STANFORD ARITHMETIC
TESTS FOR CLASS (4) 9-18

Class (4) 9-18	September, 1947				June, 1948			
	Grade VII				Grade VII			
	Reasoning		Computation		Reasoning		Computation	
Pupil	G.E.	A.E.	G.E.	A.E.	G.E.	A.E.	G.E.	A.E.
1	6.8	11-10	4.8	9-10	7.9	12-11	5.5	10-6
2	6.3	11-3	6.6	11-8	9.5	14-6	8.1	13-1
3	7.2	12-2	6.3	11-3	7.4	12-6	9.3	14-4
4	5.2	10-3	4.7	9-8	6.6	11-8	6.0	11-0
5	5.1	10-2	4.4	9-5	6.9	11-10	6.6	11-8
6	7.4	12-6	6.6	11-8	9.6	14-7	9.3	14-4
7	7.4	12-6	5.8	10-10	7.4	12-6	9.3	14-4
8	7.2	12-2	4.9	9-11	8.3	13-4	5.8	10-10
9	7.2	12-2	5.5	10-5	7.9	12-11	7.0	12-0
10	5.5	10-6	6.8	11-10	7.2	12-3	7.5	12-6
11	7.4	12-6	6.0	11-0	7.9	12-11	9.0	14-0
12	5.1	10-2	5.1	10-2	6.8	11-10	6.5	11-6
13	6.1	11-1	5.4	10-5	8.0	13-0	5.8	10-10
14	6.6	11-8	6.1	11-1	10.3	15-4	6.8	11-10
15	9.0	14-0	6.5	11-6	8.3	13-4	6.5	11-6
16	4.4	9-5	4.9	9-11	6.6	11-8	6.8	11-10
17	5.0	10-1	4.4	9-5	6.0	11-0	6.0	11-0

TABLE 10

RESULTS ON SCHOOL BOARD EXAMINATIONS FOR
CLASS (1) 9-9 WHILE IN GRADE VIII

Pupil	Spelling	Language	Maths.	Science	History	French
1	96	70	97	95	96	74
2	92	70	74	95	95	89
3	94	78	86	98	93	85
4	80	63	81	83	82	78
5	84	66	66	88	80	72
6	90	77	94	89	88	86
7	86	74	59	75	83	76
8	76	70	66	89	91	77
9	94	77	81	90	89	74
10	76	61	64	71	68	64
11	78	70	74	76	84	66
12	78	66	77	77	92	68
13	82	68	84	89	86	74
14	82	60	61	88	87	67
15	86	70	80	96	82	72
16	80	70	81	92	84	81
17	78	67	70	76	86	61
18	84	71	76	81	84	61

TABLE 11

RESULTS ON SCHOOL BOARD EXAMINATIONS FOR
CLASS (2) 9-12 WHILE IN GRADE VIII

Pupil	Spelling	Language	Maths.	Science	History	French
1	76	65	68	64	64	58
2	94	64	69	65	76	52
3	96	77	72	82	69	72
4	76	60	49	69	74	65
5	82	63	66	73	84	60
6	76	53	63	69	70	54
7	84	55	63	58	70	55
8	80	50	78	53	57	55
9	82	76	92	93	87	78
10	76	63	79	87	73	62
11	84	60	72	67	71	66
12	78	58	75	80	75	60
13	94	58	58	80	50	54
14	76	53	63	78	85	60
15	80	55	64	52	65	50
16	68	63	61	83	89	86
17	92	62	88	84	78	55
18	86	70	62	79	74	75
19	60	55	50	56	63	48
20	80	50	86	79	68	59

TABLE 12

RESULTS ON SCHOOL BOARD EXAMINATIONS FOR
CLASS (3) 9-17 WHILE IN GRADE VIII

Pupil	Spelling	Language	Maths.	Science	History	French
1	78	75	87	61	82	59
2	88	67	73	70	70	62
3	78	64	68	73	77	64
4	76	60	89	76	72	77
5	76	54	62	73	74	80
6	78	65	69	57	62	64
7	60	51	60	56	70	66
8	60	51	53	62	60	61
9	78	50	62	67	68	50
10	76	50	67	52	57	54
11	80	70	61	74	62	54
12	80	50	53	60	80	57
13	90	53	62	45	52	54
14	84	45	70	63	50	55
15	82	62	64	64	67	58
16	66	54	69	64	81	57
17	52	36	59	60	52	48

TABLE 13

RESULTS ON SCHOOL BOARD EXAMINATIONS FOR
CLASS (4) 9-18 WHILE IN GRADE VIII

Pupil	Spelling	Language	Maths.	Science	History	French
1	88	86	75	98	87	
2	84	70	80	85	64	
3	78	64	64	77	72	
4	76	62	54	77	72	
5	78	67	55	50	52	64
6	74	56	81	57	45	34
7	72	53	53	38	50	
8	64	46	68	60	58	
9	68	50	65	58	38	
10	56	33	60	60	52	
11	84	57	76	74	57	
12	72	59	54	52	50	61
13	80	64	68	62	68	58
14	76	50	85	69	58	
15	50	34	50	56	62	
16	60	36	52	58	39	
17	58	33	47	60	71	

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