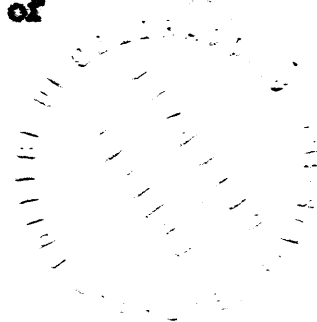


COLORADO STATE TEACHERS COLLEGE

**THE ARTICULATION OF THE ONE-ROOM SCHOOLS WITH
THE UNION HIGH SCHOOL**

**A Thesis Submitted in Partial Fulfillment of the
Requirements for the Degree of
Master of Arts**



**by
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July 12, 1933**

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ABSTRACT
OF
THESIS

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ABSTRACT

THE ARTICULATION OF THE ONE-ROOM SCHOOLS WITH THE UNION HIGH SCHOOL

R. H. Warren

Master of Arts Thesis, Colorado State Teachers
College, Greeley, Colorado
July 12, 1933

The Purpose of the Study

This study is an attempt to determine the comparative achievement of the eighth grade pupils in the one-room school of the Kremmling Union High School District and that of the eighth grade pupils of the Kremmling town school. There has been much objective evidence to prove that the one-room schools have not accomplished as much as the graded school. In this study the writer has attempted to determine the extent to which this is true in the case of the schools in question.

During the years past it has been apparent that the pupils from the one-room schools have not been able to carry on the work of the high school as successfully as have the pupils from the graded school. This lack of ability on the part of the first group has been attributed to their poorer foundation in the first eight grades. With this idea in mind the writer attempted

to test the achievement of the two groups during a given school term. He hoped to prove definitely whether the graded school did achieve more. If this were true it was also hoped that a method could be found whereby this deficiency on the part of the one-room schools could be remedied.

The ultimate purpose of the study was really an attempt to test the achievement of the two groups and to articulate the groups as far as possible. It seemed possible that the testing program and other details of the study might bring this about.

The Investigation

When this investigation was first conceived it was planned to take in only the schools included in the Kremmling Union High School. However, at the request of the County Superintendent of Grand County it was enlarged to include all of the schools in the county. Thus the scores of the tests are those of the Kremmling grade school and those of all other schools in the county. This has really made the study much more valuable as it does take in a larger group. Due to the fact that all material was sent out through the office of the County Superintendent these details were taken care of quite easily.

At a meeting of all of the teachers of Grand County in Hot Sulphur Springs, Colorado in September 1931, the investigation was discussed quite fully. All teachers seemed quite interested in the plan and pledged their support. The problem then became a matter of what to do and how to do it.

After some study it was decided that tests should be sent out each six-week period, and at the end of each semester. Added to this the Stanford Achievement Test was to be given at the end of the second semester. This would give the investigators something with which to check their year's achievement. In other words, they could not only check the various schools against each other but could also check the work of the whole group. The six-week tests were made up partly by the eighth grade teacher of Kremmling and partly by questions sent in by all of the teachers. The mid-term tests were compiled by the County Superintendent from questions sent in by the teachers and the final came from the office of the State Superintendent.

The question of course of study was settled by deciding to use that sent out by the State Superintendent. This settled all the preliminary details and the problem became that of carrying on the year's work. Everyone was urged to follow the State Course of Study closely and try to keep up to the time schedule.

Results

The results of the study are very interesting. They do not show any marked divergence in the achievement of the two groups. In fact, with the exception of the arithmetic computation test in the Stanford test, there was no real difference in achievement between the two groups of pupils. This difference was not great and both the Kremmling eighth grade and the eighth grades of the rural schools were above the norm established by the Stanford Achievement test. Both groups were low in achievement in spelling and literature but there was no difference in their achievement. These two subjects should receive extra attention in the future.

After noting the results mentioned above the writer is led to believe that difference in achievement is not the real cause of failure on the part of the pupils from the one-room school. Their great problem seems to be inability to adjust themselves to the new environment. The larger group calls for a greater degree of socialization. In the one-room school this is not so necessary and when they come to high school they find themselves in entirely different surroundings.

Recommendations

Further research is necessary to determine whether the results of this study are reliable. It is to be hoped that through further investigation of the subject that the groups studied will be larger. There is no doubt that the results attained in this study are greatly influenced by the very small groups.

Also an attempt should be made to socialize the one-room school. It is very apparent that the pupils from these schools find it very difficult to adapt themselves to their new surroundings. If it were possible to socialize the country school so that this gap would be smaller, it is likely that the pupils entering high school from it would have less trouble in adapting themselves.

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The author of this study is very deeply indebted to Mrs. Dorothy L. Traber, County Superintendent of Schools, Grand County, Colorado. It was her kindly aid and the use of the facilities of her office which made it possible to carry on the testing program.

The help of the eighth grade teachers in Grand County who administered the tests and sent in the results is also greatly appreciated.

To Dr. T. J. Mahan, my major professor, I extend my sincere thanks for his wise suggestions and continuous advice. His constant assistance was of inestimable value in completing the study.

Mr. O. E. Baird, Principal of the Grade School at Kremmling, Colorado, also rendered a very valuable service in the construction of tests and his aid is appreciated.

I am also deeply grateful to my Mother for her kindly encouragement.

R. H. Warren

CHAPTER I

THE FIELD OF STUDY

There seems to be much objective evidence to prove that the one-room schools of the United States, of which there are about three hundred thousand, are not comparable to the graded schools in their achievement. McIntosh and Schrammel¹ found in a comparative study of achievement of eighth grade pupils in graded and rural schools in Kansas that graded schools rank slightly higher than ungraded schools in measures of central tendency and that the most noticeable difference was in arithmetic, reading, and spelling. "This fact might indicate that the advantage of the pupils in the graded school is greatest in the first years of school when the fundamentals are being acquired--an advantage that is retained through the elementary grades."

If this is true the child in the ungraded school is not starting out on an equal basis with the child from the graded school and this unequal start will be a handicap throughout his whole scholastic career at

¹McIntosh, H. W. and Schrammel, H. E. "Comparison of Achievement of Eighth Grade Pupils in Rural Schools and in Graded Schools." Elementary School Journal, Vol. 31, pp. 301-6 (December, 1930).

least. When these pupils enter high school with those from the graded school the problem becomes a very real one, inasmuch as the better prepared pupils must be held back until the others are ready to go on or those who have the poorer preparation must be pushed on faster than they are really capable of going.

There was a time in the history of our country when the one-room school satisfied the educational needs. The pupils came from families of farmers and the vocational expectancy of the largest percentage of them was agriculture. The average educational advancement of pupils was less than the eighth grade level of to-day. Thus the need of training for high school and other advanced educational levels was slight. Since then the greater complexity of our civilization, the increasing percentage of urban population, the shorter working day and consequent increasing amount of leisure time have called for a new type of education. Fifty-two percent of the pupils who enter the first grade in the public schools continue through into senior high school.² This makes it necessary to bring the one-room school

²Boynton, Frank D. "Education: What Program? What Price?" School and Society, Vol. XXIX, pp. 269-275 (March 2, 1929).

up to a standard of achievement where the pupil may enter the high school with an educational background equal to that of the pupil from the graded school.

Cubberley³ says: "The rural and village schools of our states, cut off by law from securing such directive oversight from outside the county, and split up into thousands of little unrelated school districts, inspired by no unity of purpose and animated by no modern conception of educational work, have gone along without much change since the day of Sixties." When considered in the light of the above statement it seems impossible to imagine a child of our present day society getting a satisfactory education in a one-room school of this type. He is as likely to be able to hold his place in later life as an ox team would be of traveling with the automobile traffic on Fifth avenue. One would hardly expect to see the President of these United States drive up to the White House in a creaking ox cart or even in a horsedrawn stagecoach. Why then should we expect to have the educational vehicle of such a remote period a satisfactory one for carrying forward public education?

³Cubberley, Ellwood P. Education in the United States, p. 466. Houghton Mifflin Company, Boston, 1918.

With the above facts in view it seems that there is a very real need for this study. The one-room country schools of the Kremmling Union High School district and the high school must be articulated. If this is not done the latter will not be a highly efficient link in the chain of public education.

That there is a difference in the achievement records of the high school students from the rural schools and those from the Kremmling school is quite apparent. The writer, in studying this, compared the four year grade averages of the graduating classes for 1931, 1932, and 1933. These are all given in Tables I, II, and III. After studying these tables the difference in achievement between the two groups in high school seems quite obvious. Also, student number four in the Class of 1933 aids in showing the difference between the achievement in high school of a pupil from a graded school and an ungraded school. This girl transferred to Kremmling from Denver at the beginning of her sophomore year. It is very apparent that there would be a great difference in the social set-up of a Denver public school and one in Kremmling. Having had the benefit of Denver schools, however, she had no real trouble establishing herself in Kremmling. She carried five subjects

during two of the following years and had plenty of time for club work and basketball. This seems a case in point for the graded elementary school.

Looking at Table I in detail one finds that the Class of 1931 had five members and that four of them came from the Kremmling grade school. The difference in grade averages over a period of four years is 7 per cent. That is the difference between the highest average 83 per cent and the average made by the student from a rural school 78 per cent. This is a gap of sufficient width to indicate an apparent difference in achievement. The difference of 4 per cent between the lowest of the Kremmling students and the one from a rural school is in itself an apparent difference. This difference as in fact many of the differences between rural and Kremmling school children might be explained by different mental abilities. At present, however, it is practically impossible to acquire the information necessary to determine actual mental ability. Almost none of the teachers in the rural schools have had any experience in administering this type of test and for that reason their results would lack validity. There is no doubt that this information would be of great value in this study.

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TABLE I

AVERAGE GRADES OVER THE FOUR YEAR HIGH SCHOOL PERIOD OF PUPILS GRADUATING FROM THE KREMMLING UNION HIGH SCHOOL IN 1931

Pupil Rank	School	Average Grades
1	Kremmling	83%
2	Kremmling	83%
3	Kremmling	82%
4	Kremmling	80%
5	Rural	76%

In the class of 1932 with an enrollment at the time of graduation of eight pupils, a similar difference is apparent. The first four places are held by pupils from the Kremmling school. The difference between the highest from Kremmling and the highest from the rural schools in this case was 10 per cent. It is true also that there is again an apparent difference between the lowest average made by the Kremmling school pupils and those from the rural school with one exception. This student, a boy, held sixth place in the class but there is at least a partial explanation of this. During his whole four year high school course this boy was absent much of the time. For example, in the fall of 1931 he entered school at the beginning of the fourth week. During the rest of the term he was absent on an average of one day per week. While in school he did very creditable work but his absences handicapped him. Judging by his achievement during the time that he was in school it seems highly possible that he would have ranked higher had he been able to attend school regularly.

The Class of 1933 had nine students and the first three in rank were products of the Kremmling school. The fourth one, a girl, transferred from Denver as has

TABLE II

AVERAGE GRADES OVER THE FOUR YEAR HIGH SCHOOL PERIOD OF PUPILS GRADUATING FROM THE KREMMLING UNION HIGH SCHOOL IN 1932

Pupil Rank	School	Average Grades
1	Kremmling	86%
2	Kremmling	85%
3	Kremmling	84%
4	Kremmling	84%
5	Rural	80%
6	Kremmling	79%
7	Rural	79%
8	Rural	75%

TABLE III

AVERAGE GRADES OVER THE FOUR YEAR HIGH-SCHOOL PERIOD OF PUPILS GRADUATING FROM THE KREMMLING UNION HIGH SCHOOL IN 1933

Pupil Rank	School	Average Grades
1	Kremmling	88%
2	Kremmling	84%
3	Kremmling	83%
4	Denver	83%
5	Rural	78%
6	Rural	77%
7	Rural	76%
8	Kremmling	73%
9	Rural	70%

been pointed out previously. Here again we find a difference of 10 per cent between the highest Kremmling student and the highest rural student. Also, in this class a Kremmling pupil is found well down the scale. This pupil, a girl, comes from a family of nine children. Three of the older and one younger member of this family left school before completing the eighth grade. The remaining members are all in the Kremmling grade school. It is interesting to note that every child in the family but one has failed to be promoted in at least one grade. This girl, however, by dint of great effort has completed the high school. She was forced to be absent much of the time to help in the home as the mother worked at jobs wherever they were available to help eke out the family income. During one school term she was absent 18 per cent of the time. Added to this she held a regular job the last year of school working three or four hours each evening after school. In spite of this she did manage to carry her school work and probably absence and lack of parental support are factors in her low grade.

During the past three school years fifteen pupils have withdrawn from high school and have not entered other schools. Of this group nine were from one-room

schools. The reasons for withdrawal were as follows: five finances, parents unable to support child completely; one ill health; one married; eight no reason given. Of this latter group, all from one-room schools, the author has talked with six. In each case the answer was almost the same, "I wasn't getting along very well." In other words they had not been able to adjust themselves to the social group. The other two of this group may have dropped out for the same reason as they were not doing satisfactory work. In the group of five who dropped out for financial reasons, three hope to return to school this fall. The other two are above the age of the average high school student and probably will not return. In fact, the writer was informed by one of them that he is through with high school.

The Kremmling Union High School District located in Grand County, Colorado is made up of twelve districts, each maintaining a one-room elementary school, and the one graded school located in Kremmling. This condition could be remedied if it were possible to consolidate these districts and operate one central school. However due to the fact that this area is mountainous and sparsely settled with a large amount

of snow in the winter, transportation is impossible and the one-room school must continue to be the chief vehicle for the dispensing of knowledge on the elementary level. Some of these schools are maintained during the summer and fall months running from the first of May until the first of November or approximately six months and thus have the short term to contend with also.

At this time it is well to point out a change explained in a later chapter, the enlargement of the study to include all of the schools in Grand County, and to tell something of the schools in the county.

Grand County is located in the mountains and includes most of the territory known as Middle Park. Its area is large as compared to many counties but, due to its mountainous character, the population is small and widely scattered. The towns are very small, Kremmling being the largest with a permanent population of approximately 250 people. They are in the main trading centers for the stock growers and farmers in the territory surrounding them. Fraser is an exception to this as it has two sawmills but during the past few years they have operated only intermittently.

In consequence of this small population the schools in all of the towns are small. Hot Sulphur Springs, the county seat with a population of about one hundred people, has two teachers in the grades. Granby and Grand Lake have one-room schools. Tabernash, Fraser, and West Portal have two teachers in the grades. Kremmling has three teachers in the grade school and has the only accredited high school in the county. All of the other districts have one or more one-room schools. Thus, it is apparent that all of the schools in the county with the exception of Kremmling have a rural set-up. Several of the one-room schools have only four or five pupils. Also, as has been indicated previously, due to the physical characteristics of the country and the long continued winter weather it is impossible to consolidate these schools. Transportation during several months of the year is possible only by sled or horseback.

The number of eighth grade pupils in the various schools included in the study are as follows: Colorow, one; Fraser, four; Hot Sulphur Springs, two; Kremmling, five; Radium, one; Troublesome (Two schools), three;

West Portal, four; and Williams Fork (Three schools), five.

Another factor which tends to retard the achievement of these ungraded rural schools is the training and experience of its teachers. A high percentage of them have but a minimum of training and little or no experience. In Grand County the teachers who taught in the eighth grade during the period of this study the average of college training was seven quarters. In this group four teachers had two or more years of college work including one with an A. B. degree. The teacher of the eighth grade in Kremmling has a two-year diploma with life certificate. It is interesting to note that the teachers with the lowest amount of college work taught in the one-room schools. Experienced and well-trained teachers are not attracted to this type of school as salaries are low and also because they "do not have to" teach in this type of school. They are qualified to hold positions in larger school systems where living and working conditions are much more pleasant.

The average salary for the group of teachers mentioned here was \$966.16. This ranged from \$1300

for the eighth grade teacher in Kremmling to \$450 for the teacher in the school with a term of six months. It is quite obvious that a salary of \$75 per month for six months would not be highly attractive to a well-trained teacher with several years of experience.

The average number of years of experience was five. The teacher in Kremmling had been teaching for ten years and the teacher in one of the one-room schools was teaching her first term. This lack of experience on the part of the teachers of the one-room schools would not be so great if adequate supervision were possible. All of the schools with the exception of Fraser and Kremmling are supervised only by the County Superintendent. Due to the great distance between schools and the impossibility of winter travel she can not make over two or three visits each term. During the rest of the time they are left to struggle along alone. Fraser has a supervisory official who devotes one hour per day to supervision and the Superintendent at Kremmling devotes three hours per day to it. It seems highly probable that if adequate supervision were possible the gap between the graded and ungraded school might be lessened.

It is true that classes will always tend to be small in the one-room school and the elements of growth by competition and association will always be lacking. This, however, is something which cannot be avoided.

The school terms of the schools in this study range from six months to nine months. One school has a term of six months, three of eight months and the rest including Kremmling have nine months. All schools open at nine and close at four with an hour for noon. There are a few exceptions to this in mid-winter when some of the country schools close early to allow the children to return home in daylight. They generally compensate for this by shortening the noon recess.

With all these factors in mind the purpose of the study was as follows: To compare the achievement of the eighth grade pupils of the one-room schools of Grand County, Colorado and the eighth grade pupils of the Kremmling grade school with an attempt to discover the differences and to account for any differences which might exist.

CHAPTER II

METHODS AND PROCEDURES

With the ideas of the preceding chapter in mind it appeared that there was a very real need for this study. The question then became one of method of carrying it out. A thorough study of the schools in the Kresmling Union High School District and the possibility of carrying on the work of articulation was made. When this was completed it appeared that the best way to do it was through the office of the County Superintendent. She very kindly set all the facilities of her office at our command. This simplified very materially the problem of getting the tests and other materials to the various schools. It was decided also at this time that all of the schools in the county should be included in the study.

At a county teachers meeting held in Hot Sulphur Springs, the testing program was discussed very thoroughly. All of the teachers present expressed a very real interest in it and pledged their help to make it as accurate as possible. The problem then became a matter of deciding on what steps to take in carrying out the work.

After much careful study it was decided to send out tests each six-week period. Added to this the results of the mid-term tests and the eighth grade finals sent out by the State Superintendent were to be used. The six-week tests were in the main made out by the eighth grade teacher in Kremmling. In two instances, however, all the teachers in the County sent in questions and from these, tests were prepared. These tests were all as objective as possible and true-false and matching questions were used to avoid differences in scoring due to differing opinions. Realizing the burden put upon the teacher in Kremmling of preparing these six-week tests and getting them ready for sending out, only two tests were used each time.

The mid-term and final tests were more complete. The first were composed of questions sent in by all of the teachers in the county and compiled in the County Superintendent's office. This group contained tests for all of the subjects taught in the eighth grade. Likewise, the final tests were for all subjects and were prepared in the office of the State Superintendent.

There is no doubt that the tests used at the end of the six-week periods were fairer for the Kremmling pupils than for the others. However, it was decided that as all teachers were using the same course of study and to a great extent the same textbooks, this would not make a great deal of difference. The general scope of the mid-term and final tests was also believed to overcome this difficulty.

When this part of the testing program had been decided upon another question arose. Should we not have a set of tests for which norms had been established that we might judge the achievement of all of our schools? For some years previous to this time the County Superintendent has been administering the Stanford Achievement tests to all of the eighth grades in the county. These tests are credited with being quite reliable in their results and it was decided that they should be used again. Thus it seemed that a very satisfactory testing program had been worked out.

The testing program being disposed of, the next question to be taken up was the course of study. This was a very difficult problem but it was settled

by a decision that all should use the course of study as outlined by the State Superintendent. Also some differences in textbooks had to be studied but it was found that by careful work and some supplementary work on the part of the teacher that this course could be covered.

Added to this was the time element. If the tests used were to be of any value, it would be necessary for all of the pupils in the group to be studying the same thing at the same time. This was a very difficult but very important part of the work. The outline as presented by the State Superintendent was carefully studied. Added to this was the monthly outline prepared by the County Superintendent. After these were looked over and some changes were made it seemed that we had a very workable schedule. By following this schedule all of the schools should arrive at the same destination at the end of each period. Also the material covered should be very much the same. With these two items controlled it appeared that the tests should be fair to all.

All of these things being considered and worked out it appeared that the two chief variables remained, the teacher and the varying length of school term.

There is no doubt that in the course of teaching each teacher is likely to stress some points more than others. Also the points stressed will vary with the different teachers. In testing her pupils a teacher is likely to test particularly those points which she has stressed. Thus the test for one group would be different from the test for another. It was decided that all tests should be as general as possible and that this would tend to overcome this difference.

These steps having all been discussed and worked out it appeared that we were ready to start the year's work. It would be well to add at this time that all of the teachers in the group cooperated heartily throughout the whole period of the study. If any worthwhile results were derived, and it seems that they were, it was due to this hearty cooperation on the part of all this group.

CHAPTER III

RESULTS OF THE TESTING PROGRAM

The preceding chapters have set forth the field of the study and the methods by which the study was to be carried out. It is the purpose of this chapter to indicate the results of the testing program as it was enacted.

As indicated in Chapter II the testing program was to consist of eight six-week tests, a mid-term, a final, and the Stanford Achievement tests. The six-week tests were given at the end of the first, second, fourth, and fifth six-week periods. The mid-term tests were given at the end of the first semester. The final test and the Stanford Achievement Test were given at the end of the school year. There were several reasons for giving the last mentioned test at this time, the chief of which was the fact that it had been administered to this group at the close of the previous school year and it was desired to test the advancement made during the given school term.

There is one limitation of the study, the fact that the eighth grade in Kremmling contained but five

pupils. With a number as small as this any great deviation in the scores of one person would greatly influence the average. This will be pointed out in specific instances in the discussion of the tables contained in this chapter.

In determining the representation of the facts found as a result of the testing program many things were considered. The type of representation employed was selected here because the comparisons could be definitely and clearly shown through its use. That is, all of the work done was a definite comparison between the achievement of the eighth grade pupils of Kremmling and those of the other schools of Grand County. There seemed no better way to show this than by the simple graph.

All of the scores given in the figures are simple averages. The number of pupils in the group, especially in the Kremmling eighth grade, was so small that this seemed to be the means most suited to the study.

Figure I sets forth the average scores of the two groups made in the six-week tests. As previously stated the questions for these tests were in the main made out by the eighth grade teacher in Kremmling.

There were, however, two notable exceptions to this. The spelling test was selected from a list submitted by the County Superintendent and for that reason should have been fair to the whole group. Also, the test in geography was selected or compiled from a list of questions submitted by each teacher in the county.

There was a possible score of fifty points in each of the eight tests given.

In considering the differences between the two groups as shown in Figure I, the range is from 23 in the rural schools for American history to 32 in Kremmling, a difference of 18 per cent, to 2 per cent in language and agriculture. Generally speaking, however, the difference between the two groups in each subject is great enough to be apparent. In American history, Colorado history, and arithmetic the differences of 18, 10, and 14 per cent respectively are great enough to be particularly apparent. There is little doubt though that there is a difference in the achievement in American history. Throughout the county there is a great variation in textbooks in this subject. The teachers tried to supplement the texts which did not follow the course of

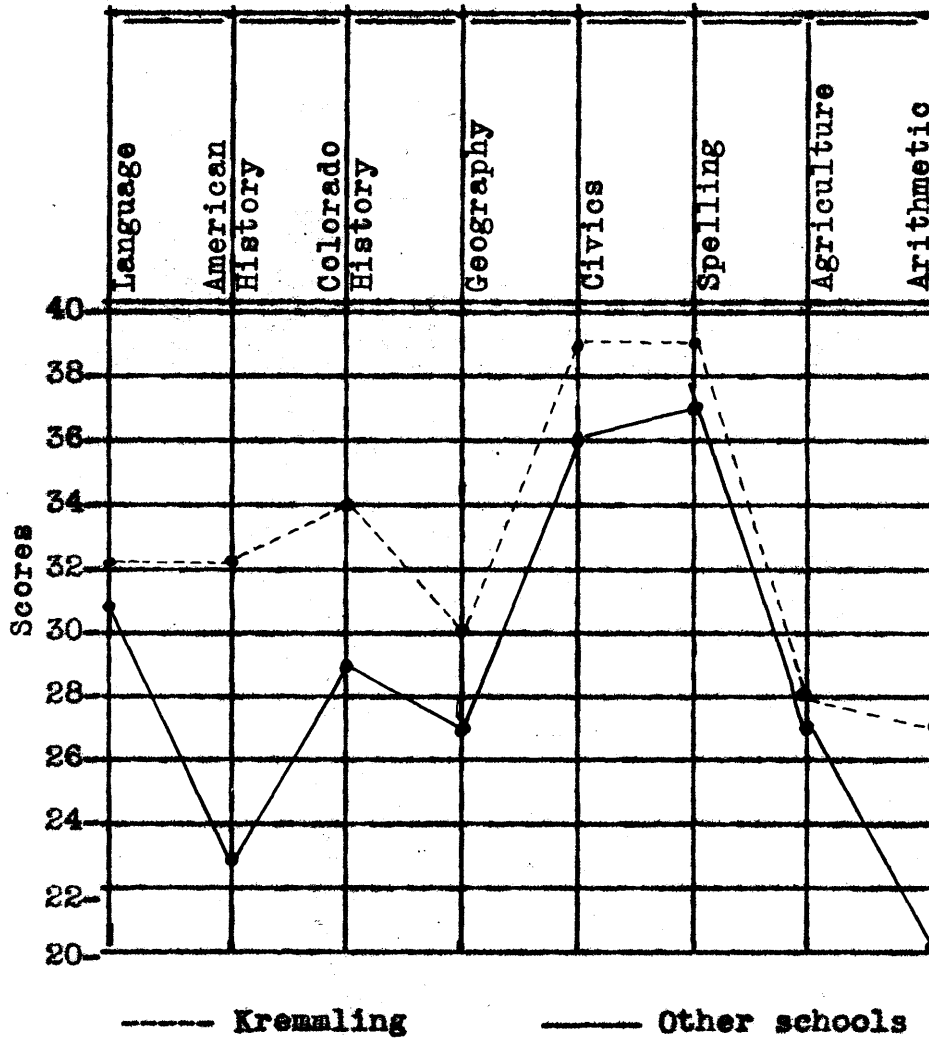


FIGURE 1
AVERAGE SCORES OF FIVE KREMMLING PUPILS AND
TWENTY PUPILS IN THE OTHER GRAND COUNTY SCHOOLS,
IN EIGHT CURRICULUM SUBJECTS, ON THE SIX-WEEK
TESTS, 1931-1932

study but the average teacher in a one-room school is very greatly pressed for time. It is difficult for her to keep up with her work under any circumstances. Added to this is the fact that the number of supplementary texts she has at her command is generally small.

Another factor which has been previously mentioned but which must be born in mind is the fact that most of these tests including those which show the greatest differences between the two groups were made out in the Kremmling school. There is no doubt in the writer's mind that this explains at least a part of the difference. Generally speaking, however, it is very clear that there is a marked difference in the achievement of the two groups.

Figure II gives the average scores made on the mid-term or first semester final.

These tests were composed chiefly of questions sent in by all of the eighth grade teachers of the county. The tests were compiled in the office of the County Superintendent of Schools who attempted to make them as fair to all of the schools as possible. Every teacher reporting seemed very well satisfied with them.

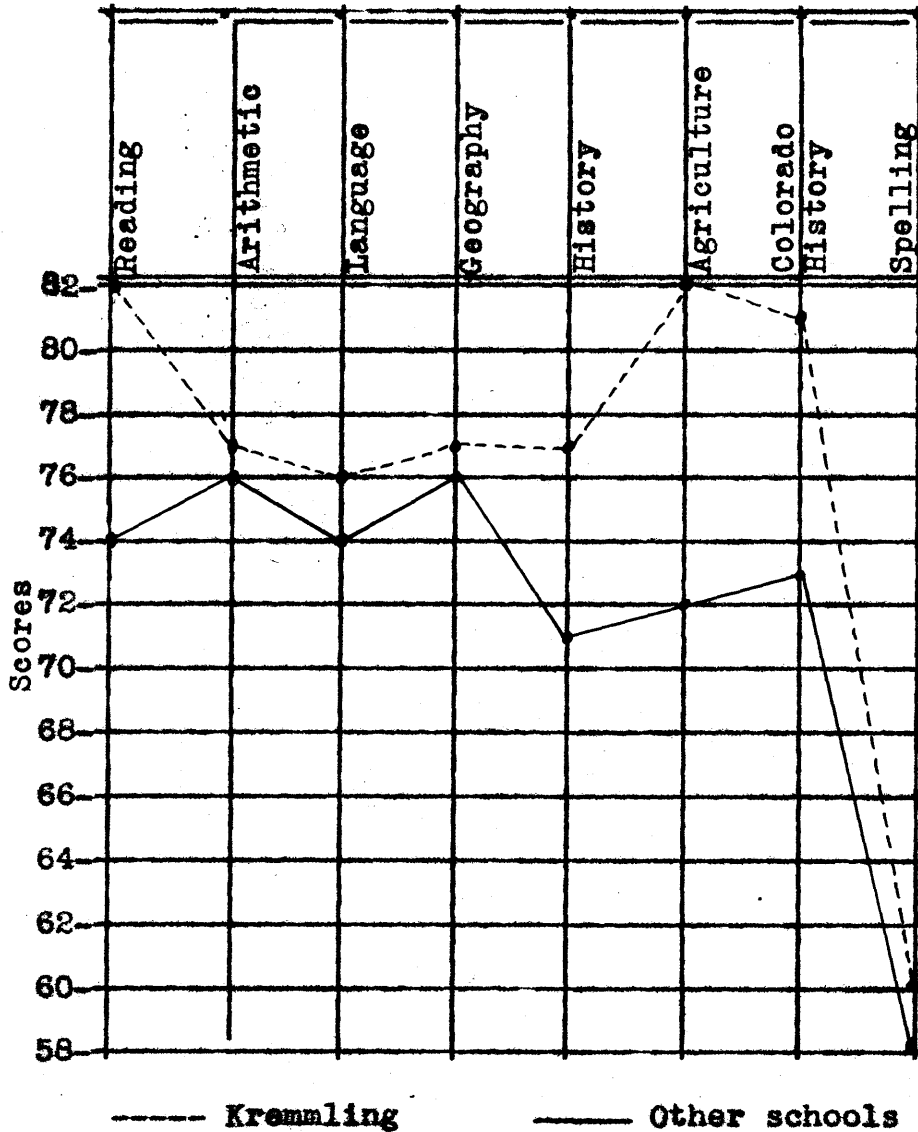


FIGURE 2

AVERAGE GRADES OF FIVE KREMMLING PUPILS AND TWENTY PUPILS IN THE OTHER GRAND COUNTY SCHOOLS, IN EIGHT CURRICULUM SUBJECTS, ON THE MID-TERM TEST, 1931-1932

The results of this series of tests show the greatest difference between the two groups to be in agriculture. The difference here was ten points or approximately 12 per cent. From this difference of ten points the differences ranged down to one point or $1\frac{1}{2}$ per cent for arithmetic and geography. Reading and Colorado history showed a difference very nearly approximating that of agriculture. In general the difference between the two groups was not as great as in the tests presented in Figure I. The average difference in the six-weeks' tests was 8 per cent and in the mid-term tests 6 per cent. It is interesting to note in this series of tests the very low scores made on the spelling tests by both groups.

Figure III indicates the average grades made on the final test.

As mentioned in a previous chapter, the questions for this series of tests were sent out from the office of the State Superintendent of Public Instruction. For many years it has been customary to send out these final examinations to all schools in the state.

These tests were given to all of the eighth grade pupils in the county. In some of these tests

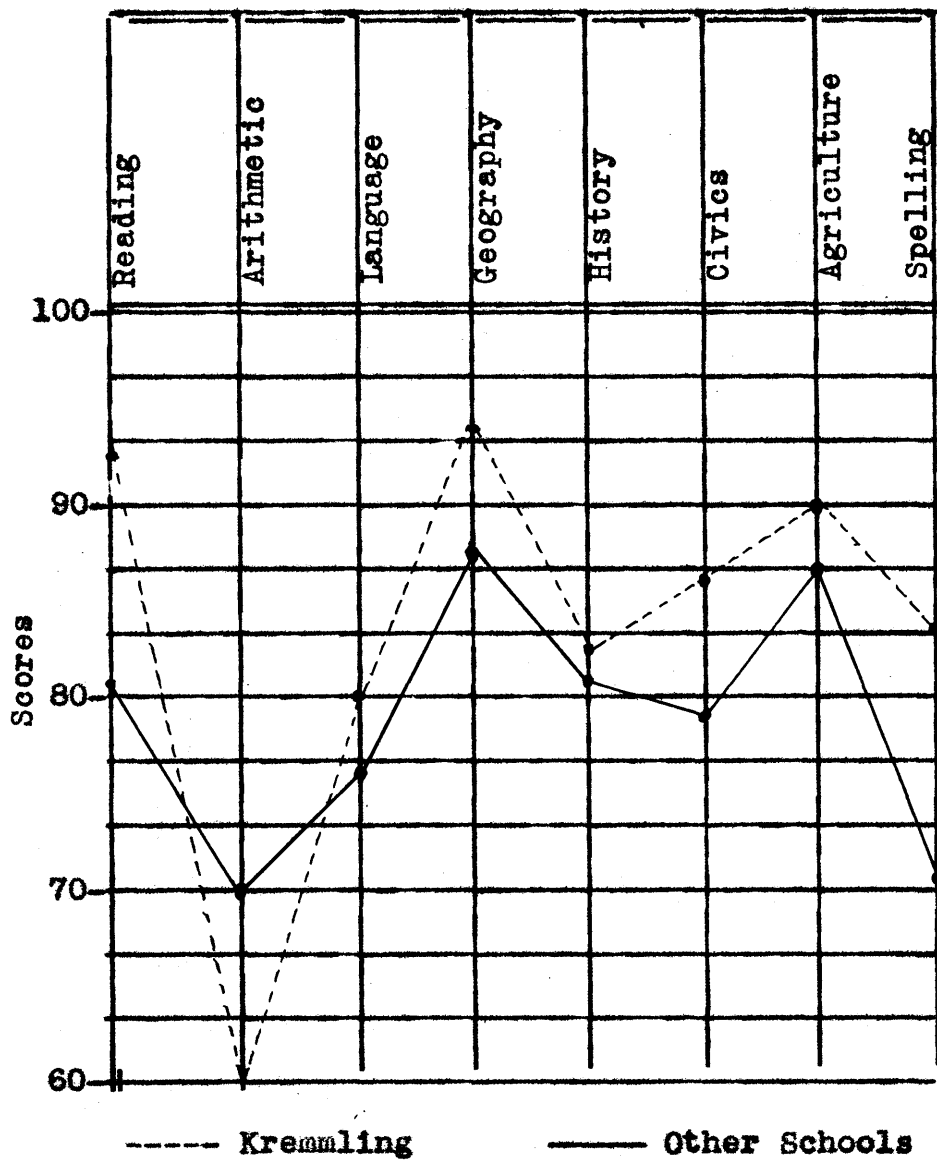


FIGURE 3

AVERAGE GRADES OF FIVE KREMMLING PUPILS AND TWENTY PUPILS IN THE OTHER GRAND COUNTY SCHOOLS, IN EIGHT CURRICULUM SUBJECTS, ON THE FINAL TEST, 1931-1932

the difference between the two groups is very great as in reading, and spelling where the difference was 12, and 11 per cent respectively. It is noticeable that the Kremmling pupils made a score 10 per cent below that of the rural pupils. This was due to the fact that the class was small as has previously been pointed out and the very low score of one boy materially lowered the average for the group. In history, however, there was a difference of approximately 1 per cent. It is interesting to note here the comparative differences in history as shown in the six-weeks' test and the state finals. In all of the other tests with the exception of spelling the differences between the two groups were to a great extent similar. Spelling showed a difference of 10 per cent in the final as compared to 4 per cent in the first group. The average difference between the two groups in this set of test is 5 per cent. In fact, the average differences between the two groups of 8 per cent, 6 per cent, and 5 per cent seem to bear out the evidence presented by the high school. That is, the average achievement of the eighth grade pupils in the Kremmling grade school

is well above that of the eighth grade pupils in the other schools of the country.

Figure IV presents the average scores made on the Stanford Achievement Test.

This set of tests was chosen for several reasons, including: (1) the ease of administration by the average teacher, (2) the ease with which the results may be interpreted, and (3) the fact that the tests are quite reliable.

The score of 95 was used as a norm as it is the score set up by the authors of the test for grade 8.9. This was used as the tests were given at the completion of the eighth grade. Many of the differences between the two groups are very different in this series of tests from the differences shown in the others.

The differences are as follows: Reading, four points; spelling, no points; language, four points; literature, three points; history and civics, three points; geography, one point; physiology, three points; arithmetic reasoning, two points; arithmetic computation, five points; and total arithmetic, four points.

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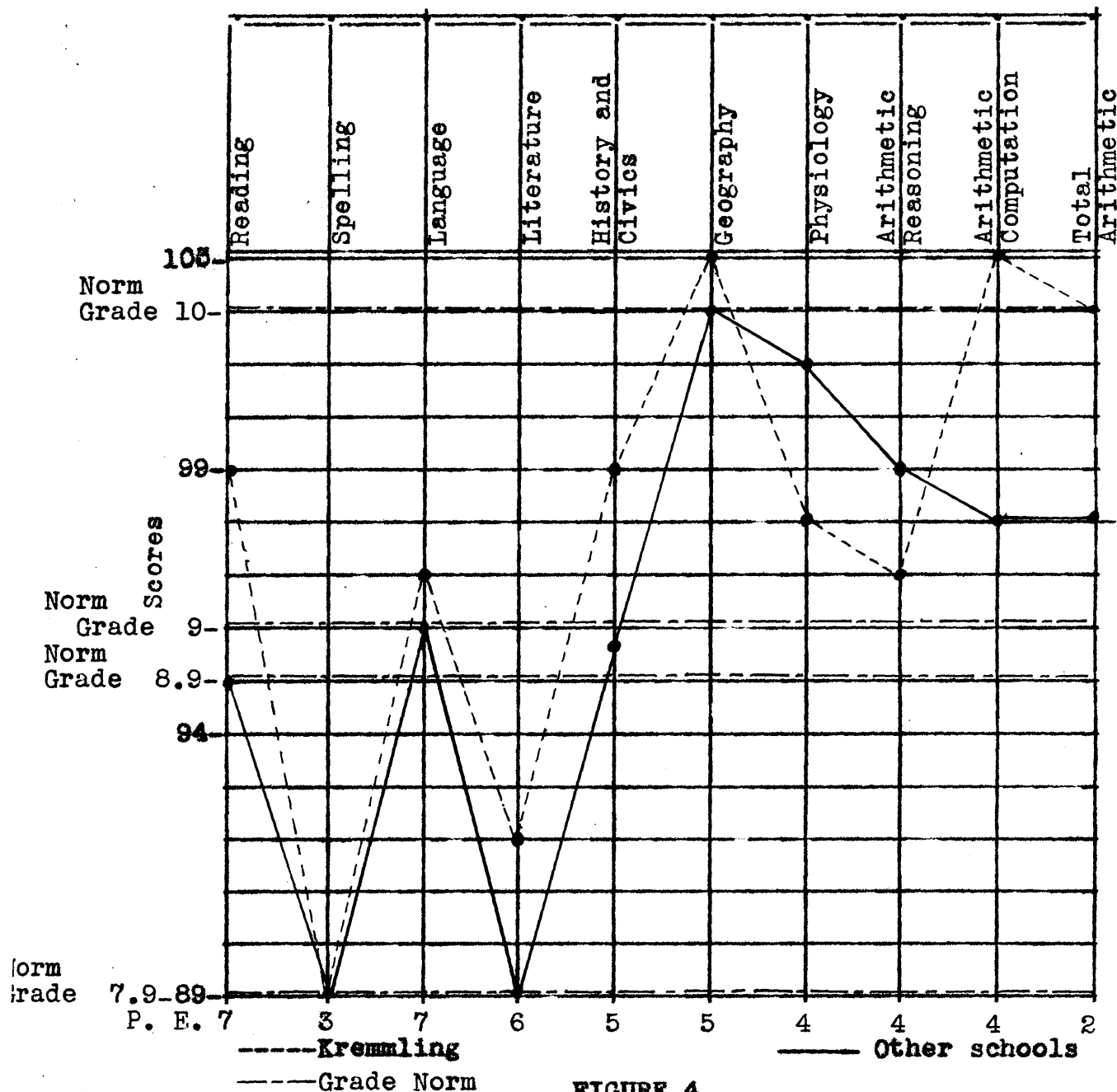


FIGURE 4

AVERAGE SCORES OF FIVE KREMMLING PUPILS AND TWENTY PUPILS IN THE OTHER GRAND COUNTY SCHOOLS, ON THE STANFORD ACHIEVEMENT TEST, 1931-1932

Considering the foregoing differences separately it is apparent that there is very little difference in achievement between the two groups. In reading, the difference of four points is of little significance because the probable error as determined by the authors is seven points. Similarly in language the P. E. is seven; in literature seven, etc. In other words, there is no significant difference except in the case of arithmetic computation and total arithmetic. Both arithmetic computation and the total arithmetic score show a difference of nine tenths of a grade. That is, the rural groups shows an achievement three tenths of a year above the ninth grade and the Kremmling group two tenths of a year above the tenth grade according to the norms of the Stanford test. Each group, however, is well above the norm for the eighth grade. Spelling shows no difference between the two groups but does show that they are a year retarded in achievement. The improvement of spelling is one of the aims of Grand County in the future. With the exception of spelling, language, and literature the schools of Grand County appeared to be equaling the achievement of schools in general as set forth by the norms of the Stanford Achievement

tests. There are two cases, physiology and arithmetic reasoning, in this set of tests in which the achievement of the rural children exceeds that of the Kremmling pupils. This is due as in a previous test to the extremely low grades of one boy in the Kremmling class.

After studying the results of the tests as pointed out above, the writer was at a loss to determine the actual difference in achievement between the two groups if indeed there was any. It appears to him that the Stanford Achievement test gives the most reliable measure of the achievement. If this is true, and there appears to be no grounds for doubting the reliability of the Stanford tests, there is very little real difference in achievement between the eighth grade pupils in the rural schools and those of the Kremmling school.

CHAPTER IV

CONCLUSIONS

The aim of this chapter is to present the general results of the testing program previously reported. There is also a need for further work in this direction which will be pointed out in this division.

One of the interesting things which this study has revealed is the point mentioned in the preceding chapter, namely, that only a slight difference in achievement exists between the two groups. If the testing program as it was carried on, had any true reliability there is with one exception no great difference in achievement. The exception noted above is arithmetic. In both arithmetic computation and total arithmetic the scores on the Stanford Achievement test show a difference between the two groups in favor of the Kremmling pupils. It is true that the difference in arithmetic computation is not as real as there is a P. E. of slightly over four points in the test. Thus the difference of five points is not so apparent as the difference in the total arithmetic score where the P. E. is less than two points.

It is very apparent, however, that there is a difference in arithmetic achievement between the two groups.

In all subjects tested both groups showed achievement equal to or above the norms set up by the test with the exception of spelling and literature. The former shows an achievement below the eighth grade norm and there is no doubt that spelling should be given extra attention in the future. Literature also shows a retardation in each case. It is true that there is a difference in achievement between the two groups but the P. E. of six points makes this of little significance. Thus, literature must be given extra attention along with spelling. Geography shows a grade achievement equal or above the tenth grade for each group. With the exception of arithmetic computation previously mentioned geography shows the highest score. All other subjects show satisfactory achievement in both groups and for a time at least the teachers should concentrate a good deal of effort on spelling and literature.

It is interesting to note that there are several differences in achievement as pointed out in Chapter III in the scores on the tests other than the Stanford

test. These tests, however, have never been tested for reliability and the writer feels that results obtained by them would be far less reliable than those obtained from the Stanford Achievement test. Thus, it seems to be apparent that there is little difference in achievement between the eighth grade pupils in the Kremmling school and those in the rural school except in arithmetic.

An interesting addition to this study is the fact that another school term has elapsed since the one during which the testing program was carried out. During this term it has been the author's privilege to observe many of the pupils who were in the group studied pursuing their courses in high school. This group in high school was composed of pupils from both the country schools and the Kremmling school. One of the most apparent differences noted was not the difference in achievement made in preparation for high school. Rather, the difficulty of adapting themselves to the new and larger group in high school was more apparent on the part of the pupils from the one-room school. This maladjustment on the part of the rural pupils is apparent by the cause of the

difference in achievement in high school between the two groups as shown in Chapter I. This struggle for adaptation was very apparent in two cases. In one the pupil was victorious and in the other he failed and dropped out.

This problem of adaptation mentioned above involves many factors. One of the greatest is the fact that most of the pupils from the country schools must take up residence in town. There is no doubt that this giving up of home and the ensuing nostalgia are factors in the failure of some country pupils to adapt themselves.

However, giving this factor of living in a new environment its due value, it seems quite apparent that the pupils from the country school are not as truly socialized. They have not had experience in larger groups and in many cases have been alone in their grade. The factor of competition becomes a hindrance rather than an aid to them. They are often afraid to set forth their wares, in terms of accomplishment, before the others in the group.

There is little doubt concerning the disadvantages of the country school set forth in Chapter I. One of the greatest factors mentioned there was the short

recitation period and the consequent lack of opportunity for social reaction in the class. In an experimental rural school carried on under the auspices of Teachers College, Columbia, it was found that much improvement could be made in the achievement of the pupils if the program were socialized.⁴ A large amount of the detail work of the school was turned over to the older pupils. This gives the teacher more time for the actual work of teaching. At the end of a four-year period the pupils of this school were compared with those from graded schools and their achievement appeared to be about equal. There is a need for much more experimentation of this type.

It is obvious that the results of this study will be of value chiefly to the schools within the county. Therefore, in the light of its findings and the evidence presented in similar studies investigated by the author; it is felt that better articulation of the Kremmling school and the rural schools of Grand County may best be accomplished through efforts along the following lines:

⁴Dunn, Fannie W. and Everett, Marcia A. Four years in a country school. Bureau of Publications, Teachers College, Columbia University, New York, 1928

1. Closer cooperation of teachers in the various schools. This will be carried out through county meetings, group study courses and etc. in which he will have the heartiest support of the County Superintendent.

2. As was shown by the results of the examinations, it is important that effort be put forth to improve the level of achievement in spelling and literature in all of the schools studied.

3. Probably the most important need, that of greater socialization, can be accomplished in part through an effort on the part of the teachers and through the cooperation of the homes and other schools in the county to improve the social background which is now being provided.

4. The Kremmling school must also assume responsibility for continuing the socializing process and helping the rural child to become socially adjusted in the new environment. The teaching staff has already united in an effort toward this end.

This study is merely a beginning in its field, There is much need for a continuation of the comparison of graded and one-room schools. In carrying on further studies it is to be hoped that larger

groups can be included. This at least will give more reliable evidence concerning the achievement of the two groups.

Also, there is need of experimental work in socializing the one-room school. If this can be carried on perhaps much of the elimination in the early years of high school can be overcome. As is indicated by the title of this study, it is important that we put forth an effort to bring the pupil from the country school into the high school ready to go ahead, as a successful individual, in the larger group. It is obvious that this can be achieved only within limits. However, with proper regard for the socialized form of school experience and an effort on the part of the rural teacher to overcome the above mentioned disadvantages of the rural environment; the boy or girl may be much better fitted for his place in the new group than has been achieved for the average rural boy or girl graduate in the past.

APPENDIX

Civics

True--False

1. _____ Government begins in the home.
2. _____ The word government means to guide or regulate.
3. _____ Executive officers are those who make laws.
4. _____ The mayor of the city or town is an example of a legislative official.
5. _____ Self-control plays an important part in all forms of government.
6. _____ Early kings considered their rights to rule to be derived from their subjects.
7. _____ Much of the world's history is made up of a struggle on the part of the people to gain control of government.
8. _____ Early New England town governments were examples of pure democracies.
9. _____ The Articles of Confederation proved very weak and unsatisfactory.
10. _____ State government comes nearer to the citizen than any other.
11. _____ Men and women have always had the same privileges of citizenship.
12. _____ Every child born in the United States is a citizen of our country.
13. _____ A citizen cannot be forced to take up arms in defense of his country.
14. _____ Only people who own property pay taxes.
15. _____ Criminals are allowed to vote.
16. _____ All able-bodied men in the state between the ages of eighteen and forty-five belong to the militia.

17. _____ The sheriff is an example of a local executive officer.
18. _____ We should obey only those laws which we think are good laws.
19. _____ To vote at every opportunity is one of the most important duties of citizenship.
20. _____ We should vote Democratic or Republican as our families have voted before us.
21. _____ Our presidents are elected directly by the people.
22. _____ Party organizations have had a tendency to dominate rather than serve their party.
23. _____ When the people make laws themselves instead of through their representatives we have an example of direct legislation.
24. _____ The Australian ballot is the only one in use in the United States.
25. _____ Voters are required to register their names several weeks before the election.
26. _____ Colorado was the first state to grant the ballot to women.

Completion

1. Our government is known as a _____ government.
2. We have three sets of governments _____,
_____, and _____.
3. The three departments of government are _____,
_____, and _____.
4. The foundation of our national government is the
_____.

5. The state legislature consists of two parts _____, and _____.
 6. A foreigner who is recognized as a citizen of our country is said to have become _____.
 7. The first essential function of the government is the protection of _____ and _____.
 8. Mail money, patents, and conservation of our forests are some of the services controlled by the _____ government.
 9. All branches of our government are supported by _____.
 10. Popular government depends upon _____.
-
1. What are the qualifications for a voter in your state?
 2. (a) Enumerate five duties which you owe to your country as a citizen.

 - (b) Enumerate five duties which your government owes to you.

Geography

True--False

1. _____ Most of Florida is still a great forest.
2. _____ The tourist industry is most important in Florida during our summer months in the North.
3. _____ The Corn Belt is a land of warm summers and mild winters.
4. _____ The Ohio Valley has great resources for manufacturing.
5. _____ The flooding of the land along the Ohio and its branches lowers the price of land in that vicinity.
6. _____ Climate causes a change in crops, from one region to another, more than any other one factor.
7. _____ The Red River Valley of the North lies within the spring wheat region.
8. _____ The Arkansas Valley in eastern Colorado is a famous trucking district.
9. _____ The Laramie Plains are slightly lower than the highest mountains of New England.
10. _____ The U. S. Government owns many thousands of square miles of forest in the Rocky Mountain region.
11. _____ Lumbering in the mountains is accomplished with comparative ease.
12. _____ Lava soils are poor in amount of plant food which they contain.
13. _____ The chief crop of the Fraser Basin is wheat.
14. _____ The great drawback to agriculture in the Columbia Basin is the light rainfall.

15. _____ The climate of the Imperial Valley is too hot for the production of dates.
16. _____ The average snowfall of Donner, California is sixty-eight feet a year.
17. _____ Much coal is mined on the Pacific Coast.
18. _____ A place having fromst drainage is sometimes called a thermal belt.
19. _____ Southern California contains important oil fields.
20. _____ The Ozark mountains can never become a region of production farms and thriving towns.
21. _____ California produces more dried fruits than all the rest of the U. S. combined.
22. _____ Many people in Quebec refuse to speak or hear the French language.
23. _____ Porto Rico is a sparsely populated island.
24. _____ Cuba is a colony belonging to Spain.
25. _____ Sugar and pineapples are the most important exports of the Hawaiian Island.

Matching

- | | |
|---------------------------|---------------------------------------|
| 1. _____ Chicago | 1. Famous health resort. |
| 2. _____ Lexington | 2. Potato center. |
| 3. _____ Minneapolis | 3. Gold mining. |
| 4. _____ Colorado Springs | 4. Horse market. |
| 5. _____ Pueblo | 5. Railroad center and cattle market. |
| 6. _____ Greeley | 6. Copper mining. |
| 7. _____ Butte | 7. Tobacco manufacturing city |

- | | |
|-----------------------------|--|
| 8. _____ Tonopah | 8. Flour-milling center. |
| 9. _____ Pribilof Islands | 9. The Pittsburgh of Colorado. |
| 10. _____ Salt River Valley | 10. The crossroads of the Pacific. |
| 11. _____ Los Angeles | 11. Largest steel plant in the world. |
| 12. _____ Puget Sound | 12. Copra is chief export of |
| 13. _____ Atlantic City | 13. Seaside resort. |
| 14. _____ Richmond | 14. One of the Virgin Islands. |
| 15. _____ Joplin | 15. Fur seal industry. |
| 16. _____ Gary | 16. Land is below sea level. |
| 17. _____ Trinidad | 17. Oyster fisheries. |
| 18. _____ St. Thomas | 18. Center of melon raising district. |
| 19. _____ Sisal | 19. French island with large deposits of nickle. |
| 20. _____ Hawaii | 20. Oranges, olives, grapefruit. |
| 21. _____ Samoa | 21. Greatest cotton shipping port in the world. |
| 22. _____ New Caledonia | 22. Zinc mining. |
| 23. _____ Death Valley | 23. Chief export of the Bahamas. |
| 24. _____ Galveston | 24. An island which ships U. S. asphalt. |
| 25. _____ Rocky Ford | 25. Moving picture industry. |

Colorado History

Directions: Write the word true before those statements that are true and false before those that are false.

1. _____ The expedition of Coronado came close to the southeastern part of Colorado.
2. _____ The name Colorado is derived from the French language.
3. _____ Pike and his party climbed to the top of the peak which now bears his name in 1806.
4. _____ The Moffat Tunnel penetrated Long's Peak.
5. _____ Pike and his party were arrested by the Spaniards for trespassing on Spanish claims.
6. _____ Major Long was sent by John C. Calhoun to explore the Colorado country.
7. _____ Escalante named many of the streams and localities in southern Colorado.
8. _____ Fur trading was the earliest industry established in Colorado.
9. _____ Major Long was known as the Pathfinder.
10. _____ Bent's Fort was located near the present site of Fort Collins.
11. _____ The trading posts were the forerunners of civilization.
12. _____ William Bent married the daughter of an Indian chief.
13. _____ Kit Carson was a prospector.
14. _____ Colorado, at present has fewer Indians than any other state in the Rocky Mountain region.

15. _____ Pueblo is the Spanish name for Indian.
16. _____ Mesa Verde National Park is located in northern Colorado.
17. _____ Mesa Verde cliff dwellings were discovered by cattlemen.
18. _____ Pony express service was established in Colorado by the U. S. government.
19. _____ The Cliff Dwellers were a very timid people.
20. _____ The Cliff Dwellers have left written records.
21. _____ The basket makers were the first Indians to live in the Mesa Verde region.
22. _____ A Kiva was an Indian club.
23. _____ The Cliff Dwellers were mainly hunters.
24. _____ The Cliff Dwellers domesticated and raised turkeys.
25. _____ All of the Cliff Dwellings have been explored by white men.
26. _____ Forsyth was leader of the American forces at the battle of Beecher Island.
27. _____ Chief Curay was a friend of the Whites.
28. _____ Later Indians in Colorado were descendants of the Cliff Dwellers.

Completion

1. The first real discovery of gold in Colorado was made by _____ near the present site of _____.
2. Colorado's first newspaper was edited by _____ and was called _____.

3. Golden was named for _____ who was a partner of _____.

Matching

- | | |
|--------------------------|--------------------------------------|
| _____ Ouray | 1. Early Denver newspaperman. |
| _____ Nathan Meeker | 2. Explored Louisiana territory. |
| _____ Chipeta | 3. Wolverine or lynx. |
| _____ Eugene Field | 4. Editor of New York Times. |
| _____ Kit Carson | 5. 1803 |
| _____ Carcajou | 6. Wife of Chief Ouray. |
| _____ Horace Greeley | 7. Iron and steel center. |
| _____ Lewis and Clark | 8. Chief of the Utes. |
| _____ Louisiana Purchase | 9. 1860. |
| _____ Pueblo | 10. Trapper, guide, and hunter. |
| | 11. Spanish adventurer and explorer. |
| | 12. Indian Agent at Meeker. |

Place A before French and B before Spanish names.

1. _____ Cache la Poudre
2. _____ La Junta
3. _____ St. Vrain
4. _____ Pueblo
5. _____ Buena Vista
6. _____ La Salle

Agriculture**True--False**

1. _____ A gravelly soil is well adapted to dry farming.
2. _____ Dry farming requires less cultivation of the land than other types.
3. _____ Dry farm land should be plowed early in the fall.
4. _____ Summer fallowing is storing up two seasons moisture in order to produce one crop.
5. _____ The most important dry farm crop is wheat.
6. _____ Alfalfa has very shallow roots.
7. _____ Legumes aid in maintaining the supply of nitrogen in the soil.
8. _____ In the southern part of the United States there has been a tendency to a one crop system.
9. _____ It is less profitable to raise cattle in the south than in the northern part of the country.
10. _____ Cover crops are sown to protect the soil from freezing.
11. _____ The average yield of wheat for the country is 30 bushels per acre.
12. _____ Most irrigation in our locality is done by the flooding method.
13. _____ Too much irrigation is as harmful as too little.
14. _____ The U. S. raises more wheat than any other nation.
15. _____ Tobacco is known as the robber crop.
16. _____ Minnesota produces much winter wheat.

17. _____ Sugar beets are well adapted to irrigated regions of the west.
18. _____ Wheat is treated in a mixture of formalin and water to aid it in sprouting.
19. _____ Alfalfa should not be cut until after the bloom has disappeared.
20. _____ Alfalfa is the best crop of the legumes as a soil renewer.
21. _____ It is not necessary to destroy weeds growing on land used for pasture.
22. _____ Cattle rank next to horses in value in the United States.
23. _____ Larger profits can be secured from dairy than from beef cattle.
24. _____ Diversified farming has not proven as profitable as one-crop farming.
25. _____ Cattle are dipped for the prevention of tuberculosis.
26. _____ The Bordeaux mixture is used in spraying fruit trees.
27. _____ Florida and California are our leading citrus fruit producing states.
28. _____ The corn belt is a good example of diversified farming region.
29. _____ Crops should be fed on the farm where they are raised to prevent the loss of fertility.
30. _____ The proper selecting and careful testing of all seed is closely allied with successful farming.

Completion

1. Planting a different crop on a piece of land year after year is known as _____ of crops.
2. Irrigation was first successfully practised in the U. S. by the _____.
3. Crops of which the leaves and stems are fed to animals are known as _____ crops.
4. Farm animals are raised for one or more of these three purposes _____, _____, _____.
5. Cattle which utilize their food to produce flesh are called _____ cattle.
6. Cattle which utilize their food to produce milk are called _____ cattle.
7. Jersey, Holstein, Guernsey, and Ayreshire are _____ types.
8. _____ are an all purpose breed which may be raised both for beef and milk production.
9. Galloways are _____ cattle.
10. The most important beef type found in this locality is the _____.

Arithmetic

1. Cora borrowed \$480., paying $4\frac{1}{2}\%$ on the loan. Ten months later she repaid it with the interest it had earned. How much money did she pay back in all? _____
2. What percent of 3.8 is 19? _____
3. What is 100% of a number if .6 is 6% of it? _____
4. What decimal fraction of an acre is a baseball diamond? A regulation baseball diamond is a 90' square. _____
5. Rate = 18%; percentage = \$1084.40; Base = ? _____
6. Base = \$786; percentage = \$117.90; Rate = ? _____
7. How many cords of wood are there in a pile which measures 12'x16'x48'? _____
8. Find the amount of fresh air needed for 35 pupils and one teacher if 30 cu. ft. of fresh air per minute is allowed per person. Write your answer in cubic feet per minute. _____
9. An article lists for \$80, but discounts of 15%, 5%, and $2\frac{1}{2}\%$ are allowed. What is the actual selling price? _____
10. Suppose you are thinking of buying a house. You figure you can rent it for \$55. a month. The taxes, insurance, and upkeep will cost you \$184. a year. If you want to make 7% net on your money what is the highest price you could pay for the house? _____
11. The two shorter sides of a right triangle are 3" and 4". What is the length of the longer side or hypotenuse? _____

12. Solve for A in the formula, $A = \frac{1}{2} b \times a$, if
 $a = 18'$ and $b = 10'$. _____
13. How many tons of coal are in a conical shaped
 pile of the following dimensions? Diameter
 of base = $80'$; altitude = $35'$. (allow $35\frac{1}{2}$
 cu. ft. to a ton.) _____
14. How many gallons of water can be stored in a
 cylindrical tank whose height is 65 feet and
 radius of base is 28 feet. (figure 1 cu. ft.
 = 7.5 gal. of water) _____
15. What is the tax rate on each of the following
 if the tax rate is \$18 on the thousand?
- (a) Assessed valuation, \$2500 _____
- (b) Assessed valuation, \$600 _____
- (c) Assessed valuation, \$10,000 _____
- (d) Assessed valuation, \$7,700 _____

1. Underline every word of the following which re-
 fers in any way to the area of a triangle.

Percent; base; addend; partial product; altitude;
 one-half; one-fourth; similar side; oblong;
 discount; radius.

2. Write the word or number which should be on each
 line.

- (a) We change feet to inches by _____ by _____
- (b) We change ounces to pounds by _____
 by _____
- (c) We change cubic yard to cubic feet by _____
 by _____
- (d) We change sq. ft. to sq. in. by _____ by _____

3. If the answer to this example is correct draw a circle around it. If wrong, write the correct answer $5,646,030 \div 808 = 7005$.
4. Write the reciprocals of:
 - (a) $\frac{1}{2}$ _____
 - (b) $2\frac{1}{3}$ _____
 - (c) $9\frac{2}{5}$ _____
5. $(4 \div 7) \times 9 = ?$ _____
6. M D C C X L I X = _____
7. In a certain place 20% of July days are rainy. What are the chances that it will rain there on July 11 this year?

8. Area of a sector of a circle = _____

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