Health instruction in Nebraska high schools

Wilbur William Knight

The University of Montana
HEALTH INSTRUCTION
in
NEBRASKA HIGH SCHOOLS

by

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A. B., University of Nebraska, 1930

Presented in partial fulfillment of the requirement for the degree of Master of Arts.

Montana State University
1937

Approved:

[Signatures]

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ACKNOWLEDGMENTS:

The writer wishes to acknowledge his indebtedness to all who assisted in making this study possible. Thanks are due to Mr. J. C. Mitchell and Superintendent Charles Taylor of the Nebraska State Department of Education for information obtained from their files.

Especial appreciation is expressed to Dr. Lewis C. Tidball for expert guidance and to others of the Montana State University faculty for help in organizing the study.

W. W. E.
1. Statement of the Problem

The status of health instruction in Nebraska high schools is the main objective of this study. The term instruction is to be considered as pertaining to definite curricular subjects, with the non-curricular phases not scrutinized in this investigation. Health is of vast importance to the child, the teacher, and the general public; in fact, health is commonly referred to as the first of the Seven Cardinal Principles of Secondary Education, and its status should be of extreme importance to the educators of Nebraska.

A second objective of this study is the gathering of health materials, suitable for use in the secondary schools, and showing how they may be utilized by the high schools. This compilation of health materials, for the most part, will be gathered from professional sources with a few added by the author.

The third objective of this study is to recommend a course of study in health instruction for the Nebraska high schools. This course of study is to be based upon the curricular findings of the schools involved and should show a way toward better health teaching.

Minor objectives of this study include a scrutiny
of the several fields involved in health education, new terminology in health administration, and the trend in health education. The organization or health program set-up will be discussed because it is not feasible to evolve a health program without a definite organization as a starting point.

2. Plan of the Study

The plan to be followed in this study is first of all to decide upon the techniques to be used in the handling of materials which are to be utilized. In this connection the sources and reliability of data will be discussed along with a discussion of related studies and why the latter have been selected. The second part of the plan involves the consideration of what constitutes a health education program. Here the trend and objectives of health education in its various phases will be considered.

The third phase of the plan is to examine the curricular offerings of Nebraska high schools, the Nebraska Course of Study, and the non-curricular findings of prior studies. This is necessary in order to determine what is needed and what can be accomplished in the Nebraska situation. The fourth procedure is to gather the materials of health from professional sources and wherever
they may be found. The fifth and last procedure is to set up a definite course of study which is to be based upon the findings as shown in the curricular investigation. This study involves the placement of materials, as compiled from professional sources, in the suggested course of study. The whole plan is entered upon by the writer with the hope of benefitting the health education programs of Nebraska high schools.

3. Techniques Used in the Study - Sources and Reliability of Data

The technique used in this study differs somewhat from that of prior studies because the whole curriculum of all the high schools in Nebraska has been investigated. The usual procedure is to utilize a questionnaire and to base the findings of the questionnaire as a fair sampling of all schools. 588 high schools were investigated and the curricular offerings of these schools have been divided into four classifications for further study. The technique here is intended as a means of finding which division of subjects is best suited to carry the burden of the health instructional program. The four divisions of subjects are definite health subjects, science subjects, required subjects, and other curricular offerings.

The writer, at this time, wishes to make it clear
that he is not attempting to make a definite survey of non-curricular activities in Nebraska schools. This has been done in other states and whatever use is made of the non-curricular activities at this time will be by inference rather than from actual investigation. The studies utilized in this particular phase have been made in a neighboring western state where school conditions are very similar. In addition, professional literature will be utilized as a means of developing the non-curricular material.

The data pertaining to Nebraska high schools was obtained from the annual reports for the year 1933. These reports are now on file in the office of the State Superintendent of Public Instruction, State Capitol, Lincoln, Nebraska. The information pertaining to the high school course of study was found in the Nebraska High School Manual, published jointly by the University of Nebraska and the State Department of Public Instruction. Material from professional sources was found mainly in publications of The American Child Health Association, The Report of the Joint Committee on Health Problems in Secondary Education, The Sixth Yearbook of the Department of Superintendence, The National Tuberculosis Association, and The White House Conference Report of the Sub-committee on Health Education in the Elementary School. Many other
sources of valuable material were found and will be referred to specifically throughout this study.

The material from the high school reports are likely to be reliable because they were certified by the respective superintendents. This certification is further influenced by an inspectorial service which checks the schools from time to time. The information is inclusive because every high school in the state has been investigated, without a chance of missing some schools that might influence the findings in either direction.

The reliability of the material that has been obtained from professional sources is usually conceded because of the techniques involved in those studies. The one weakness as to reliability of materials used herein is in the non-curricular field. Here the Nebraska situation is compared to Montana where Ely1 and Hood2 conducted investigations.

This phase, as outlined previously, is merely a minor factor in this study and whether or not the material referred to in Montana is absolutely reliable, matters little in this study. This study is concerned with a


definite health instructional program, and to achieve such, it is necessary to examine the curriculum. This has been done and the writer feels confident that the results so obtained are reliable.

4. Studies Used

(a) "Health Education in Montana Catholic Schools", by Sister Aimée Ely in 1932. This thesis gave some material pertaining to the non-curricular health program and as such, is useful in this study. Further information of some value pertained to biology, general science, social science, and the physical plant.

(b) "State of Health Education in Montana High Schools", by Charles E. Hood in 1935. This thesis gave some material pertaining to the non-curricular health program and as such, was useful in this study. Further information of some value included: integration, personnel, specific subjects, and teacher health.

(c) The White House Conference, Report of the Sub-Committee on Health Education in the Elementary School, gave some valuable information about mass education in health. The report also listed some suggestions in regard to group health education.

(d) The American Child Health Association in "Health
Trends gave some information about basic subjects, specific subjects, and contributory subjects, as well as an outline of a complete health program.

(a) National Survey of Secondary Education, published by the Office of Education in 1932 as Monograph Number 28. This study deals with health work and physical education. The organization and administration of the program, hindrances and aids to health work and instruction in the schools were particularly valuable in this study.

(f) The Sixth Yearbook, Department of Superintendant, gives specific information about the organization of the health program and materials of health in Chapters IX and XXIV. This study is valuable to all teachers and administrators.

(g) The National Tuberculosis Association in two publications, "A Health Education Procedure", by Kathleen W. Rooten, where suggestions for the teacher and the teacher's problems are handled; "Health Training in the Schools", by Theresa Lansdill, where outlines for specific topics are discussed. Both of these publications have large quantities of health materials in all phases suitable for use by the class-room teacher.
(h) "Subject Matter in Health Education" by Ruth Strong, in 1926, published by Columbia University, as a Contribution to Education, is a specific study of subject matter suited for health instructors. This study was used primarily because of its connection with the curricular offerings in Nebraska.

(i) "Health Subject Matter in Science" by C. S. Chappelair, dealt with health topics in biology, general science, physics and chemistry, particularly. It was used primarily in this study because of the prominence of those science subjects in the curricular offerings of the Nebraska high schools.

This list of nine references was used in this study because of their close connection to the topic being investigated. Other studies might have been utilized similarly, but it was unnecessary, since the nine covered the field. The five, (c), (d), (e), (f), and (g) are considered as outstanding in the field of health today. Many other studies in the health education field will be referred to by footnote and in the bibliography.

5. Statement of Organization

Chapter I has shown what the problem is. Three
main objectives have been set up, with several minor objectives listed as allied subjects. The main objec-
tive of this study is to examine the curriculum of all Nebraska high schools in order to determine the status of health instruction. The plan to be followed in this study, the techniques used, the sources and reliability of data, the studies used and the reasons therefor have been discussed in this, the first chapter.

Chapter II will show what a health program is. The historical background; the trend in health; the objec-
tives of a health program; the three main divisions of health education; and the particular phases of teacher health, physical education and mental health will be taken up in that order. This organization is necessary if the full understanding of what constitutes a health program is understood.

Chapter III will contain the curricular investigation of Nebraska high schools. Here the offerings will be considered in five topics: definite health subjects, science subjects, other subjects excluded from the previous two divisions, the high school course of study, and non-curricular offerings. This chapter is very im-
portant to the study and should be the basis for some recommendations in regard to future health programs in Nebraska high schools.
Chapter IV will contain a plan of health instruction in which an organization will be set up and discussed and the curriculum arranged. Such material for specific subjects will be accumulated here, and the aids and hindrances to a health education program will be discussed.

Chapter V will contain a recommended plan for Nebraska high schools. This plan will be based primarily on the findings in Chapter III and will include many materials from Chapter IV. It is hoped that the study will be a direct contribution to the schools of Nebraska.

Chapter VI will contain a summary and conclusions regarding the whole study.

Chapter VII will contain the bibliography and the appendix. The materials included in the appendix will furnish more detailed information about science and health; a detailed book recommendation by the Nebraska State Superintendent of Public Instruction; and the names of the high schools investigated in Chapter III.
Ch. II. What is a Health Program?

1. Historical Background

Physical Education was introduced into the United States about sixty years ago, and at the same time, the teaching of hygiene came with it. In hygiene, the "temperance physiology" became a part of the curriculum and has continued down to the present. Medical inspection came in during the last decade of the 19th century. Much was accomplished in the building of sound bodies through regulated exercise and in the detection and correction of physical defects, but both suffered because of the failure to develop the fundamental principles of health in the minds of the children. The chief fault was that the teaching was too formal and detached. During the past thirty years, a new stimulus has been given health education. Class-room instruction, physical education, and medical supervision have all been correlated for a better and more efficient organization. The Pennsylvania Department of Public Instruction, in a Health Course of Study, states that the only rational place for lasting results in health is in the schools. The reason given, of course, was that a large percentage of the

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population can be reached only through the schools. This instruction should be given at an age when it is more likely to have a definite bearing on the future of the individual. An outline of health periods in this country shows four definite periods, a brief outline of which follows:

1. The restrictive period: Here the simple exercise of police powers by the board of health through quarantine and crude sanitation was about all that was done.

2. The repressive period: Bacterial knowledge now caused attention to be drawn to the individual, with quarantining more common.

3. The corrective period: Here the idea was still based upon the prevention of contagion being spread.

4. The preventive period: A new idea since 1900. The elimination of infections and lowering of the death rate became objectives.

The average person now associated with health programs, utilizes a much increased knowledge of health. The programs of the past were brief and simple as compared with our present day programs. This does not mean that

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our present programs are adequate, but that by comparing our present situation with that of the past, we are a great deal better off.

2. The Trend in Health

The trend in health is toward a more compact alliance between the health and educational aims and objectives in fact, as well as in policy. If a satisfactory health program cannot be had by teaching health subjects, the tendency now is to incorporate materials of health into other courses, so that the child will receive the health information in one way or another. A changed attitude is exemplified by Wood, when he states, "We are now concerned with making people more well, in addition to less sick." Evidences of some success along this line are shown by the elimination of cholera, typhus, yellow fever; reduction of the death rate; a decline in the infant mortality rate; decline of typhoid and diphtheria; and the fine progress against tuberculosis.

Present day studies have shown that we must exhaust all avenues of teaching health if we are to "put it across" in a manner that will impress the child sufficiently to

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make him adopt health habits permanently. Wood, in one of his studies, found that heart trouble, pneumonia, cancer, nephritis, cerebral hemorrhage, accidents, tuberculosis, infant diseases, diarrhea, and diseases of the arteries comprise the chief causes of death at the present time. He stated further that if we can instruct the children in health knowledge, along these lines, the death rate will decline still further. 7

3. Definitions

As mentioned previously, the terminology in the field of health has been greatly confused. Terms have been used without a precise statement as to their scope or meaning. Health education has often been used as a term to describe health instruction, when, in fact, instruction is merely a phase of education. To make the terminology of this study consistent, the following definitions will be adhered to throughout this study:

Health education— the sum of all experiences which favorably influence habits, attitudes and knowledge relating to individual, community or racial health.

School Health Education—— that part of health education that takes place in school or through

efforts organized and conducted by school personnel.

Public Health
Education------that part of health education that takes place in home or community.

Health Service------all those procedures designed to determine the health status of the child, to enlist his cooperation in health protection and maintenance, to inform parents of the defects that may be present, to prevent disease, and to correct remedial defects.

Healthful
School Living-----a term that designates the provision of a wholesome environment, the organization of a healthful school day, and the establishment of such teacher-pupil relationships that give a safe and sanitary school favorable to the best development and living of the teachers and pupils.

Health
Instruction-----that organization of learning experiences directed toward the development of favorable health knowledge attitudes, and practices.8

The preceding definitions show that all health education may be divided into three main fields: health service, healthful school living, and health instruction.

The same report gives other definitions pertaining to terms commonly found in health materials:

Hygiene--------the applied science of health; it provides the basic scientific

knowledge upon which desirable health practices are found.

Sanitation—the application of scientific measures for improving or controlling the healthfulness of the environment.

Health—that condition in the human organism that permits optimal functioning of the individual enabling him to live most and serve best in personal and social relationships.

Health Supervision—to be replaced by healthful school living.

Health Supervision of School Processes—to be replaced by healthful school living.

School Hygiene—three divisions: health service, healthful school living and health instruction.

Medical Inspection—to be replaced by health service.

Hygiene of Instruction—to be replaced by healthful school living.

School Health Program—to be replaced by school health education. (Here the word education indicates the integration of school health activities with the total curriculum.)

<table>
<thead>
<tr>
<th>Healthful School Living</th>
<th>Public Health Education</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health Education</strong></td>
<td><strong>Health Instruction</strong></td>
</tr>
<tr>
<td><strong>Health Service</strong></td>
<td><strong>Teaching of principles and facts of healthful living. Presenting facts of science and art of living.</strong></td>
</tr>
<tr>
<td><strong>1. Conditions</strong></td>
<td><strong>1. Appraisal:</strong></td>
</tr>
<tr>
<td>of school environment:</td>
<td>health examinations, morning inspections, tests and measures of health and development.</td>
</tr>
<tr>
<td>air, lighting, ventilation, cleaning, fire protection, safety, order, environment, seating and water.</td>
<td><strong>2. Correction:</strong></td>
</tr>
<tr>
<td><strong>2. Conditions</strong></td>
<td>correction of remedial defects and follow-up service.</td>
</tr>
<tr>
<td>of the classroom experience: discipline, fatigue, noise and hygiene of learning.</td>
<td><strong>2. Integration of health knowledge with actual living and personal achievement.</strong></td>
</tr>
<tr>
<td>school day, home study, overcrowding, rest and relaxation.</td>
<td></td>
</tr>
</tbody>
</table>
4. **Objectives in Health Education**

There seem to be about as many objectives for health education as there have been writers of materials of health. Many are good, while others are only fair. The writer believes that the following two sets are about as good and as inclusive as one can find:

1. ** Provision of proper sanitation.**
2. ** Maintenance of high standards of school hygiene in the construction and care of class rooms.**
3. ** Adjustment of the routine of school life so that the child’s life may be safe-guarded and disease prevented.**
4. **Prevention of contagious disease.**
5. **Prevention or early detection of physical or mental defects.**
6. **Adjustment of the hygiene of the home to suit the needs of the child.**
7. **Provision, when necessary, of adequate facilities for the treatment of physical abnormalities.**
8. **Education of children in habits pertaining to health.**

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1. To instruct children and youth so that they may conserve and improve their own health.

2. To establish in them the habits and principles of living which throughout their school life, and in later years, will assume that abundant vigor and vitality which provides the basis for the greatest possible happiness and service in personal, family and community life.

3. To influence parents and other adults, through health education programs for children, to better habits and attitudes, so that the school may become an effective agency for the promotion of the social aspects of health education in the family and community, as well as in the school itself.

4. To improve the individual and community life of the future; to insure a better second generation, and a still better third generation; a healthier and fitter nation and race.¹²

These two sets of objectives include about everything that any other set includes, as well as some ideas that are to be found in no other place.

5. Three Phases of Health Education

As mentioned previously, this study will discuss health education in three main phases:

A. Health Service.

This has been defined as the organized procedures for examining and inspecting children to determine their condition, and to provide such corrective and remedial measures as may be required. Very little of value can be achieved here unless the defects that are found receive the medical or dental care necessary for their correction. Since one aim of health service is the correction of remediable defects, all teachers and as many professional men as will give their services, are needed in the school program. The teacher, since she is in almost constant contact with the child during the school day, is most likely to discover deviations from normal. This statement is contingent upon whether or not the teacher is alert to the possibilities and requirements of the health program.13

Williams and Brownell recommend a record for each child, which includes data from six fields, as an aid to the teacher in discovering abnormalities.

Their list follows:

(a) Environmental record (early and present).
(b) Disease and health disturbance record.
(c) Scholastic record.
(d) Adjustment record.
(e) Social record.
(f) Health practice record.\textsuperscript{14}

With information from so many viewpoints available, the teacher should be greatly aided in determining whether distinct abnormalities are present. The school is the official organization necessary to handle health problems but it should be supplemented by outside agencies whenever possible. The Extension Division of the Department of Agriculture, The United States Public Health Service, The Children's Bureau of the Department of Labor, Local and State Health Associations, State Superintendents of Public Instruction, County Superintendents of Schools, and many other persons and organizations are available and should be contacted and invited to cooperate in the school health service.


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B. Healthful School Living

The environment, the class-room experiences, and the school organization comprise the more important parts of this division of health education. The environment refers to the school plant, its sanitary features and its equipment. A number of studies have been made concerning the healthful school environment and there is a great deal of material available which shows the proper standards. Anglehardt and Strayer emphasize the need of adequate grounds to care for the play and recreation of the child. This particular problem is hard to handle in the more congested cities because of the excessive value of land and because of the presence of buildings adjacent to the schools.

Theisen recommends a continuous educational policy, the right kind of publicity, sound finances, and keeping to the original building plan. He mentions fire hazards, air space, lighting, ventilation, furniture, blackboards, cleanliness, water supply, and lavatories as contributory items that need careful consideration for an optimal situation.

This topic is not particularly a part of a health administrator's responsibility because every school man should be aware of the problems in this field. The superintendent should be trained so that he will see that the healthful living conditions of his school are properly taken care of before instruction is started. It is almost futile to hope to teach health to children if the school environment is not healthful.

C. Health Instruction.

This topic is closely related to the main objective of this study and will not be considered at great length at this time. The White House Conference Report shows that health instruction in the elementary schools is handled in the following manner:

(a) Taught entirely as a separate subject.
(b) Taught chiefly as a separate subject with an occasional correlation.
(c) Taught chiefly or entirely by correlation.\(^{17}\)

It is much easier to establish a definite health program for the elementary school than it is for the high school. The time factor is one of the limitations and a shortage of material for secondary instruc-

\(^{17}\) The *White House Conference on Child Health and Protection, "The School Health Program", (Sec. III, 1932), p. 151.
tion is an important factor. There has been a
feeling, by some school administrators, that since
health has been taught in the grades, it need not be
repeated in the high school. The latter opinion is
not very popular, fortunately, and the writer is
confident that most cases of lack of health instruc-
tion are due to more concrete limitations.

Health instruction will be taken up in detail
in Chapter IV of this study, with no further treat-
ment at this time.

6. Teacher Health, Mental Health and Physical Education

These three phases of health education are not usually
considered separately, but their importance is such that
they will be discussed at this time.

The usual procedure is to connect the three phases
with the instructional division. The reason this was not
done here is because the importance of the group is great
enough to warrant separate consideration. It is difficult
to draw lines in dividing up a program so that certain
phases do not fall into two divisions. Teacher health and
mental health might well be included in Healthful School
Living, because the proper administration of these topics
certainly contributes to the healthful situation.
A. Teacher Health

It is probably true that health is the most important item in the success and personal achievement of the teacher. Andress believes that, no matter what the general physical environment of a school may be, the healthy teacher is a necessity. The teacher who does not have good health is handicapped in her work, and despondency, irritability, chronic fatigue, and lack of interest are shown. Enthusiasm and optimism are almost impossible without good health. In the teaching of health, the teacher, by all means, must be an example of good health, because verbal instructions and direct training are not apt to bear fruit without a good example for the child.

Nilegas states, "Health implies a soundness, a worthiness, and an abundance of life itself, and other things being equal, the teacher whose life is marked by those qualities, will be happier as well as more successful in every experience undertaken." He states further that the teacher should give all necessary attention to health, but not think of it too much. He continues that health, like happiness,
comes to the person who lives in obedience to the laws of life. 19

Several studies have been made on the health of the teacher, and since this is such an important part of the health program, two outstanding ones will be cited. Wilkes found that the differences in ability and accomplishment of teachers was largely due to differences of health status. 20

Wager made an interesting comparison of the health differences of male and female teachers, with a finding that the male teacher is somewhat more healthy than is the female teacher. 21 With this result in mind, it might be suggested that more male teachers could be used beneficially by the various schools. The writer is of the opinion that not enough men are teaching in the schools today. The child needs contact with men too and this is a future possibility in connection with utilizing healthier teachers.


B. Mental Health

This topic, usually considered as a separate division of health education, is more and more being thought of as a sub-division of health instruction. The Rochester, New York, Course of Study in Hygiene, phrases this topic so well, it will now be quoted at length. "More harm than good can be done in this field, unless the teacher realizes that the qualities—companionsableness, satisfaction in success, cheerfulness, courage and the like, are the result of an environment which the school itself helps to establish. Wholesome personalities are developed when children work, eat, and play with one another. Opportunities should be given to children to lead as well as to follow, to serve and to cooperate. The teacher's part in this work is one of establishment of right conditions, or observations, and of occasional talks to the pupils about desirable types of behavior in the field indicated. A school room where the atmosphere is happy, joyous and optimistic, in itself promotes good mental hygiene. Every child should sometime experience success in some endeavor and should receive praise from his teacher, in order that he may become friendly, responsive, and anxious to do his best. Children who never experience success,
develop feelings of inferiority, despair, and discouragement, which may well end in jealousy and envy.\textsuperscript{23}

The foregoing reference should be read in its entirety by every teacher who plans on staying in the teaching profession. It points out many worthwhile thoughts in the field of mental hygiene, and the importance of mental hygiene in the field of education is certainly very great. Atkinson says that unfortunately the schools have been trying to educate minds instead of boys and girls. He thinks the teacher has been putting too much emphasis upon the teaching process and too little on the learning process.\textsuperscript{23}

Mental hygiene is commonly thought of as a phase of health instruction, but the writer is convinced, after studying the Rochester Course of Study,\textsuperscript{24} that it might well be classified as a division of healthful school living too. The probabilities are that there is an intermingling, with mental

\begin{flushleft}
\textsuperscript{22} "Course of Study in Hygiene for Kindergarten to Grade Six", Rochester New York Courses of Study, (Board of Education, (1931), p. 46-47.  \\
\textsuperscript{24} Rochester, New York, Course of Study, op. cit. p. 46-50.  \\
\end{flushleft}
hygiene a part of both divisions. At any rate, mental health is one of the most important parts of a health program, and it should receive more attention than it has in the past.

C. Physical Education

Physical education is the sum of one's physical activities, selected according to kind and conducted according to outcomes. The aim here is to provide skilled leadership and adequate facilities that will afford an opportunity for the individual or group to act in situations that are physically wholesome, mentally stimulating and satisfying, and socially sound. "Briefly, the aims of physical education are to develop the organic system of the individual, develop the neuro-muscular system in general, develop sound attitudes toward physical activity and play, and develop high standards of conduct."

Physical education is so closely related to health that it is difficult to carry on a satisfactory health program without utilizing the physical edu-


27. Williams and Brownell, op. cit., p. 73.
nation teachers. Whenever teachers are properly trained in this field, they can be and should be of great service in carrying out the health program of a school. Athletics are merely a phase of physical education, in theory at least. It is true that some situations represent a relationship of the opposite extreme, with athletics as the whole program. This is unfortunate and should be remedied, since the aim of physical education is the good of the whole school and not the good of a fortunate few. It is a method of offering an opportunity for psychomotor, or big muscle activity, during school life. A physical education program should be based upon the individual differences of children as revealed by the various examinations and tests recorded in the school.

Preventives and correctives are the most important parts of a good physical education program. The proper administration of such departments will add materially to the value of a health program. If

29. Ibid., p. 109.
we can prevent sickness and accidents, we will be performing a task of untold value to the child. Stress on preventive and corrective phases of physical education is to be hoped for in the future.

7. Conclusion

In this chapter an attempt has been made to show just what comprises a health program. The historical background and the trend in health education have been examined with the conclusion that the general status is now on an improved basis with progress being made each year.

The new definitions of a health education program, as recommended by the American Physical Education Association, have been examined and approved for this study. The objectives in health education have been pointed out, and the separate parts of a health program have been discussed.

The next step is to consider the curricular situation in Nebraska high schools so that ways and means of teaching health in those high schools can be pointed out. Chapter III deals with the Nebraska situation in general.
Ch. III. Curricular Offerings of Nebraska High Schools

1. Definite Health Subjects

Six definite instructional health subjects were offered by the Nebraska high schools. This group is composed of home nursing, hygiene, military science, physical education, physiology, and social health. The distribution and percentages are given in Table Number I.

**TABLE NUMBER I**

*Frequency of Health Subjects*

<table>
<thead>
<tr>
<th>Subject</th>
<th>times offered</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home nursing</td>
<td>3</td>
<td>.53</td>
</tr>
<tr>
<td>Hygiene</td>
<td>8</td>
<td>1.41</td>
</tr>
<tr>
<td>Military science</td>
<td>2</td>
<td>.35</td>
</tr>
<tr>
<td>Physical Education</td>
<td>42</td>
<td>7.42</td>
</tr>
<tr>
<td>Physiology</td>
<td>125</td>
<td>22.08</td>
</tr>
<tr>
<td>Social health</td>
<td>1</td>
<td>.17</td>
</tr>
</tbody>
</table>

Average health subject per school in Nebraska: .32

This summarization as shown in Table I, indicates that the offering in definite health subjects is rather small. Physiology makes a fair showing, but the others are offered in too few cases to warrant much consideration.
The fact that physiology is offered in 22.03 percent of the schools does not indicate that a corresponding percentage of students are being taught the subject. Physiology is not a required subject and, therefore, the number of students who actually take the course is undoubtedly smaller than the percentage of schools involved would indicate. Physical education is required in all schools that offer such a program, and although the total number of schools including the subject is only 7.42 percent, the actual number of students is probably higher than the percentage would indicate. The reason for such an assertion is based upon the fact that only the larger schools have physical education with a much greater percentage of students involved than the school percentage indicates.

Military science is offered in two schools, and in each instance it is as a substitute for physical education. The girls in these two schools take physical education, while the boys are given the substitute. This arrangement creates a duplication in the preceding table, because the two subjects are treated as one in the schools involved.

Hygiene is offered only eight times for a percentage of 1.41. This indicates that the subject is not very popular in Nebraska and will not be of much help in the
general health situation until a great many more schools include it in their curriculum. Home nursing and social health are offered too few times to indicate anything except a lack of such in the school program.

Referring to the .32 percent average of all schools in definite health subjects, the author believes that this indicates a lack of program rather than a progressive showing. Table II shows the enrollment in health subjects.

**TABLE NUMBER II**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Times offered</th>
<th>Enrollment reported</th>
<th>Ratio to total enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Nursing</td>
<td>3</td>
<td>50</td>
<td>.000038</td>
</tr>
<tr>
<td>Hygiene</td>
<td>8</td>
<td>100</td>
<td>.002291</td>
</tr>
<tr>
<td>Military Science</td>
<td>2</td>
<td>756</td>
<td>.009337</td>
</tr>
<tr>
<td>Physical Education</td>
<td>42</td>
<td>12024</td>
<td>.153070</td>
</tr>
<tr>
<td>Physiology</td>
<td>125</td>
<td>2402</td>
<td>.030578</td>
</tr>
<tr>
<td>Social Health</td>
<td>1</td>
<td>14</td>
<td>.000178</td>
</tr>
</tbody>
</table>

Physical education is the only subject in this field with a good number of students, and whether or not the subject was utilized as a health vehicle would depend upon the individual instructors. No special reports are available for this information, so all that can be done here is to recommend that the various instructors keep health in view while teaching. Physiology with approximately
three percent of all students enrolled is really being taught to a larger number than the table indicates, since a number of reports list the subject but do not list the enrollment. The other subjects given in this table are so low in the percentage of enrollment that it is safe to say they are not important at the present time.

Tables III and IV deal with physiology and hygiene, and here the texts, number of schools, and enrollment by school texts are listed. The matter of health material will not be listed for these subjects, as they are generally considered primary health subjects. For all other subjects, the health content of the texts will be listed.

TABLE NUMBER III
Physiology Enrollment and Texts

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of schools</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Williams</td>
<td>22</td>
<td>1633</td>
</tr>
<tr>
<td>Maiter</td>
<td>10</td>
<td>121</td>
</tr>
<tr>
<td>Hough-Sedgwick</td>
<td>7</td>
<td>336</td>
</tr>
<tr>
<td>Blount</td>
<td>9</td>
<td>113</td>
</tr>
<tr>
<td>Andress-Aldinger</td>
<td>3</td>
<td>35</td>
</tr>
<tr>
<td>Conn-Buddington</td>
<td>2</td>
<td>27</td>
</tr>
<tr>
<td>Andress-Evans</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Ritchie-Slaibell-Blount</td>
<td>2</td>
<td>38</td>
</tr>
<tr>
<td>Rugg</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Gregg-Powell</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>Winslow</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Wheat-Fitzpatrick</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Overton</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Asher-Kellogg</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Totals</td>
<td>125</td>
<td>2402</td>
</tr>
</tbody>
</table>

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TABLE NUMBER IV

Hygiene Enrollment and Texts

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of Schools</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delano</td>
<td>7</td>
<td>148</td>
</tr>
<tr>
<td>Broadhurst</td>
<td>1</td>
<td>32</td>
</tr>
<tr>
<td>Totals</td>
<td>8</td>
<td>180</td>
</tr>
</tbody>
</table>

An examination of Tables III and IV show that the text distribution is excellent in physiology, while hygiene is not offered in enough cases to show much of anything. These tables probably do not signify any particular point in regard to health teaching, but are interesting as a side light on the choice of texts by the high schools.

TABLE NUMBER V

Health Curricular Offerings

<table>
<thead>
<tr>
<th>Total schools</th>
<th>one subject offered</th>
<th>two subjects offered</th>
<th>three subjects offered</th>
<th>four subjects offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>566</td>
<td>141</td>
<td>16</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

This table shows that only 159 schools offer definite health subjects, which is not indicative of great popularity in this field. The number of schools that give two subjects is really fourteen instead of sixteen, because of the military science - physical education arrangement, which
was explained previously. It is evident that the definite health subject offerings are inadequate to serve as the only field of health instruction. It is hoped that Nebraska schools will make a better showing in this field in the near future. Until that time, something must be accomplished in other subjects, if the children are to receive health instruction as they should.

2. Science Subjects

A great deal of research has been done in the field of science, in which ways and means of teaching health have been dealt with. Since an examination of the science offerings is our next problem, this study is now concerned with a field in which some schools have had success in integrating health materials with science courses. Nine different sciences are offered in the Nebraska high schools with physiology included. This subject, although examined previously, is included in Table VI, because it is definitely a basic science, as well as a specialized health instructional course. Table VI gives the science distribution for the Nebraska high schools.
TABLE VI

Science Offerings in Nebraska High Schools

<table>
<thead>
<tr>
<th>Subject</th>
<th>times offered</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>126</td>
<td>22.28</td>
</tr>
<tr>
<td>Biology</td>
<td>420</td>
<td>74.20</td>
</tr>
<tr>
<td>Botany</td>
<td>33</td>
<td>5.83</td>
</tr>
<tr>
<td>Chemistry</td>
<td>132</td>
<td>23.32</td>
</tr>
<tr>
<td>General science</td>
<td>459</td>
<td>81.09</td>
</tr>
<tr>
<td>Geography (Physical)</td>
<td>198</td>
<td>34.98</td>
</tr>
<tr>
<td>Physics</td>
<td>473</td>
<td>83.56</td>
</tr>
<tr>
<td>Physiology</td>
<td>125</td>
<td>22.08</td>
</tr>
<tr>
<td>Zoology</td>
<td>2</td>
<td>.35</td>
</tr>
<tr>
<td>Average number of subjects per school</td>
<td>3.47</td>
<td></td>
</tr>
</tbody>
</table>

Since science is a required field, we now have an opportunity to study a group of subjects that are found in all Nebraska high schools. Table VI shows that physics is the most popular with general science and biology close behind. The percentages of these three are 83.56, 81.09, and 74.20. Physical geography is a poor fourth, with 34.98 percent, and chemistry ranks next with 23.32 percent. Agriculture with 22.28 percent and physiology with 22.08 percent are next in line, while botany and zoology are offered very few times.

Physics, general science, biology, and chemistry
comprise the sciences which have received the most attention in investigations pertaining to health materials taught in science courses. Our Nebraska situation works into such a comparison very readily because the four sciences just mentioned rank as the top four in Table VI. Before studying these subjects in detail, it might be of interest to cite other investigations and their results, as they pertained to this group of most popular sciences.

Meier found that fifty percent of biology, thirty-two percent of general science, eleven percent of chemistry, and two percent of physics materials have a definite instructional value in health. Strang in a study of the materials of health found that food, cleanliness, disease, posture, air, sunlight, teeth, clothing, sleep, and rest were suited in that order for use as integrated subject matter in the teaching of health. Chapplear's figures in the same materials as Meier's differ somewhat but not enough to be significant.

A comparison of Meier's figures and of Chapplear's figures is given in Table VII.

33. Meier, op. cit., p. 87-89
34. Chapplear, op. cit., p. 103-104.
### TABLE VII

**Comparison of Meier and Chappellear Investigations**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Meier percentage</th>
<th>Chappellear percentage</th>
<th>difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>50.00</td>
<td>35.44</td>
<td>14.56</td>
</tr>
<tr>
<td>General Science</td>
<td>32.00</td>
<td>33.36</td>
<td>1.36</td>
</tr>
<tr>
<td>Chemistry</td>
<td>11.00</td>
<td>10.76</td>
<td>0.24</td>
</tr>
<tr>
<td>Physics</td>
<td>2.00</td>
<td>3.16</td>
<td>1.16</td>
</tr>
<tr>
<td><strong>Average difference</strong></td>
<td><strong>2.82</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

While Table VII shows a slight difference in the percentages of health materials in the sciences indicated, the difference is too small to be considered significant. The fact that both studies found that the science materials were related to health is indicative of a condition which can be utilized in the Nebraska high schools. The small difference could be attributed to a slight difference in the text material rather than in the relationship of health content. Biology led in the percentage in both studies with the greatest margin of difference in this subject. General science ranked second in both studies with the percentage in favor of Chappellear instead of Meier as it was in biology. Chemistry ranked third in each instance, and the figures in both studies were almost together.
Physics ranked fourth or last in both studies, and the percentage of health materials here is quite low, being given under three percent in both cases.

The next step is to determine how the science courses are distributed among the high schools. Tables VIII, IX, X, and XI deal with distributions and explanations will follow each table.

**TABLE VIII**

**Science Offerings by Schools**

<table>
<thead>
<tr>
<th>Number of subjects</th>
<th>number of schools</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8</td>
<td>1.41</td>
</tr>
<tr>
<td>2</td>
<td>78</td>
<td>13.78</td>
</tr>
<tr>
<td>3</td>
<td>184</td>
<td>32.50</td>
</tr>
<tr>
<td>4</td>
<td>163</td>
<td>23.79</td>
</tr>
<tr>
<td>5</td>
<td>94</td>
<td>16.50</td>
</tr>
<tr>
<td>6</td>
<td>33</td>
<td>5.83</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>.33</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
<td>.00</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>.17</td>
</tr>
</tbody>
</table>

Average 3.65 subjects 566 schools

Table VIII shows that all schools offer at least one course in science, with only eight schools limited to one course. 32.50 percent offering three subjects, and
28.73 percent offering four subjects, comprise the largest group of schools. The average offering of all schools is 3.65 subjects, which is an excellent showing in the science field. One school offers all of the nine science courses, while three schools offer seven courses. The next logical study will be about the most popular science subjects, where their distribution will be examined. Tables IX and X deal with biology, general science, physics, physiology and chemistry. Table X deals with the first four, while Table XI pertains to chemistry.

**TABLE IX**

**Biology, General Science, Physics, and Physiology Combinations**

<table>
<thead>
<tr>
<th>Subjects</th>
<th>number of schools</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology or general science</td>
<td>539</td>
<td>95.23</td>
</tr>
<tr>
<td>Biology and general science</td>
<td>352</td>
<td>62.19</td>
</tr>
<tr>
<td>Biology, general science and physiology</td>
<td>67</td>
<td>11.83</td>
</tr>
<tr>
<td>Physics without the other three</td>
<td>21</td>
<td>3.71</td>
</tr>
<tr>
<td>Physics and physiology</td>
<td>13</td>
<td>2.29</td>
</tr>
<tr>
<td>None of these four subjects</td>
<td>1</td>
<td>.17</td>
</tr>
</tbody>
</table>

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95.23 percent of the schools offer either biology or general science, while 62.19 percent offer both. This is an excellent showing, and is indicative of a good situation as regards the teaching of health through biology and general science. Only one school fails to offer any of the four subjects just outlined, and in this particular case, the school offered physical geography as a lone science. Whether or not the school is accredited matters little in this investigation, as this study is concerned with curricular offerings and not course of study requirements.

Table I pertains to chemistry and combinations in which chemistry is present. Chemistry was left out of Table IX because it is not offered as a lone science subject in any school.
### TABLE X

**Chemistry Distributions**

<table>
<thead>
<tr>
<th>Subjects</th>
<th>number of schools</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry only</td>
<td>0</td>
<td>.00</td>
</tr>
<tr>
<td>Chemistry-biology</td>
<td>5</td>
<td>.88</td>
</tr>
<tr>
<td>Chemistry-general science</td>
<td>4</td>
<td>.70</td>
</tr>
<tr>
<td>Chemistry-physics</td>
<td>3</td>
<td>.53</td>
</tr>
<tr>
<td>Chemistry-biology-general science</td>
<td>15</td>
<td>2.64</td>
</tr>
<tr>
<td>Chemistry-biology-physics</td>
<td>11</td>
<td>1.94</td>
</tr>
<tr>
<td>Chemistry-general science-physics</td>
<td>8</td>
<td>1.41</td>
</tr>
<tr>
<td>Chemistry-physiology-physics</td>
<td>2</td>
<td>.35</td>
</tr>
<tr>
<td>Chemistry-biology-general science-physics</td>
<td>49</td>
<td>8.55</td>
</tr>
<tr>
<td>Chemistry-physiology-physics</td>
<td>3</td>
<td>.58</td>
</tr>
<tr>
<td>Chemistry-general science-physiology-physics</td>
<td>10</td>
<td>1.76</td>
</tr>
<tr>
<td>Chemistry-general biology-physiology-physics</td>
<td>1</td>
<td>.17</td>
</tr>
<tr>
<td>Chemistry-general science-physiology-biology</td>
<td>21</td>
<td>3.71</td>
</tr>
</tbody>
</table>
Table X shows the strength of the science offerings in schools where chemistry is offered more than any other subject. The fact that no school offers chemistry as a lone subject indicates that while chemistry is an excellent means of teaching health materials, it should not be the main course, because the school curriculum where chemistry is taught is composed of other sciences too. Forty-nine schools offered the chemistry-biology-general science-physics combination, while fifteen offered the same combination, except for physics. The total offering in chemistry is slightly greater than it is in physiology, but physiology probably is more important in the Nebraska situation, because it is offered in a number of schools as a second subject. The next table outlines the balance of the science situations which have not been discussed up to this time.
### Table XI

**Additional Science Combinations**

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Number of Schools</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics only</td>
<td>6</td>
<td>1.06%</td>
</tr>
<tr>
<td>Physiology-geography</td>
<td>2</td>
<td>0.70%</td>
</tr>
<tr>
<td>Agriculture-geography-physiology</td>
<td>1</td>
<td>0.17%</td>
</tr>
<tr>
<td>Physiology only</td>
<td>1</td>
<td>0.17%</td>
</tr>
<tr>
<td>Geography only</td>
<td>1</td>
<td>0.17%</td>
</tr>
<tr>
<td>Agriculture-physiology</td>
<td>1</td>
<td>0.17%</td>
</tr>
<tr>
<td>Geography-physiology</td>
<td>1</td>
<td>0.17%</td>
</tr>
<tr>
<td>Geography-physiology-botany</td>
<td>1</td>
<td>0.17%</td>
</tr>
</tbody>
</table>

Table XI shows the offerings of all schools not included in Tables IX and X. Agriculture, botany, physical geography, and zoology have not been examined separately, except as they have been referred to in the last three tables. The reason is that they have not been offered as a lone science subject, or even as one of two subjects in most cases. Table VIII outlines the offerings by schools, and it showed only eight that offered but one course in science. These eight schools are classified in Table XI along with six other schools that had been missed in considering the science subjects as has been done.
After examining the science offerings of all schools in Nebraska, it seems logical to conclude that biology and general science are best suited from the stand-point of coverage at least, to become the main health material courses. Physics, physiology and chemistry are important and should be utilized as far as possible. If this group of five science subjects are utilized as the health vehicles, only one school will be eliminated from the program. This seems to be an excellent showing, without adding another course or trying to make a particular course a requirement for the high schools. Undoubtedly a specific subject would work out better from a uniformity view-point, but this is unlikely because of restricted curricula and the present lack of funds for additional subjects in the schools.

In a survey conducted and reported in Monograph Number 26, the subjects most widely selected for the inclusion of health materials was found to correspond somewhat to the Nebraska situation. A summary of this information will be shown in Table XII.

TABLE NUMBER XII

Number of Schools Indicating That Health Instruction is Introduced Into Certain Courses. The Twelve Most Popular Courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>number of schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical education</td>
<td>322</td>
</tr>
<tr>
<td>General science</td>
<td>300</td>
</tr>
<tr>
<td>Home economics</td>
<td>284</td>
</tr>
<tr>
<td>Biology</td>
<td>237</td>
</tr>
<tr>
<td>Civics</td>
<td>160</td>
</tr>
<tr>
<td>Physiology</td>
<td>122</td>
</tr>
<tr>
<td>Chemistry</td>
<td>90</td>
</tr>
<tr>
<td>Physics</td>
<td>64</td>
</tr>
<tr>
<td>History</td>
<td>60</td>
</tr>
<tr>
<td>Sociology</td>
<td>58</td>
</tr>
<tr>
<td>English</td>
<td>51</td>
</tr>
<tr>
<td>Agriculture</td>
<td>27</td>
</tr>
</tbody>
</table>


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training, (11) Botany, (12) Zoology, (13) Psychology, (14) Art, (15) Vocations, and (16) All courses. Smaller schools list general science and biology ahead of physical education, and in all four year schools physical education is surpassed by home economics, biology, and general science.

Since this study has pointed toward biology, general science, chemistry, and physics as four of the sciences that are best suited for health material integration, it should be of some interest to examine a study which diagnosed those four subjects. Table XIII lists the health materials as found in biology, general science, chemistry, and physics. This material was reported in one of Chappellear's studies.
### Table XIII

**Health Content in Biology, General Science, Physics, and Chemistry**

<table>
<thead>
<tr>
<th>Biology</th>
<th>General Science</th>
<th>Chemistry</th>
<th>Physics</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Disease-cause and prevention</td>
<td>2. Disease-cause and prevention</td>
<td>2. Cleanliness and personal hygiene and care</td>
<td>2. Eyes-structure and defects and care</td>
</tr>
<tr>
<td>5. Posture and exercise</td>
<td>5. Eyes-structure and defects and care</td>
<td>5. Disease-cause and prevention</td>
<td></td>
</tr>
</tbody>
</table>

Table XIII, in outlining a group of materials, makes it possible for this study to make a definite suggestion for the four science subjects that have been considered. If no other avenue for teaching health is found, the Nebraska high schools could adopt the findings as shown in this table, and this would make a definite contribution to their health programs.

37. Chappelar, op. cit., p. 103-104.
Before leaving the science group, a comparison of enrollment statistics will be shown in Table XIV. Other information pertaining to texts, enrollment, and health material will be given in Tables XV to XXII inclusive.

**TABLE NUMBER XIV**

**Science Subjects and Enrollment**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Times offered</th>
<th>Enrollment reported</th>
<th>Ratio to total enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>122</td>
<td>2028</td>
<td>0.25817</td>
</tr>
<tr>
<td>Biology</td>
<td>420</td>
<td>10049</td>
<td>1.27914</td>
</tr>
<tr>
<td>Botany</td>
<td>35</td>
<td>521</td>
<td>0.06322</td>
</tr>
<tr>
<td>Chemistry</td>
<td>132</td>
<td>2569</td>
<td>0.32704</td>
</tr>
<tr>
<td>General science</td>
<td>459</td>
<td>9246</td>
<td>1.17705</td>
</tr>
<tr>
<td>Geography(phys.)</td>
<td>192</td>
<td>5340</td>
<td>0.06798</td>
</tr>
<tr>
<td>Physics</td>
<td>473</td>
<td>5601</td>
<td>0.071305</td>
</tr>
<tr>
<td>Physiology</td>
<td>125</td>
<td>2402</td>
<td>0.030545</td>
</tr>
<tr>
<td>Zoology</td>
<td>2</td>
<td>66</td>
<td>0.000340</td>
</tr>
</tbody>
</table>

Biology with almost thirteen percent is about one percent ahead of general science. Physics offered in the largest number of schools is third with seven percent. All other subjects are well down the list, so from this showing, it appears as though biology, general science and physics are best suited, in the Nebraska situation, to become vehicles of health instruction. It should be noted at this point that the enrollment by subject is really greater than is indicated in this table, because of the alternating of subjects in many high schools. The
subject is reported each year as a part of the curriculum, but actual figures cannot be given except on years when the subject is actually taught.

**TABLE NUMBER XV**

**Agriculture Enrollment and Health**

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of schools</th>
<th>Enrollment</th>
<th>Total Health Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waters</td>
<td>52</td>
<td>1114</td>
<td>435</td>
</tr>
<tr>
<td>Crimes</td>
<td>5</td>
<td>89</td>
<td>418</td>
</tr>
<tr>
<td>Melton</td>
<td>4</td>
<td>104</td>
<td>472</td>
</tr>
<tr>
<td>Davis</td>
<td>1</td>
<td>9</td>
<td>468</td>
</tr>
<tr>
<td>Not given</td>
<td>64</td>
<td>712</td>
<td></td>
</tr>
</tbody>
</table>

**Totals** 126 3023 Average percentage of health pages .0016

**TABLE NUMBER XVI**

**Biology Enrollment and Health**

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of schools</th>
<th>Enrollment</th>
<th>Total Pages of Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smallwood</td>
<td>213</td>
<td>5928</td>
<td>685 225 .333</td>
</tr>
<tr>
<td>Hunter</td>
<td>35</td>
<td>922</td>
<td>436 231 .529</td>
</tr>
<tr>
<td>Thomas</td>
<td>32</td>
<td>1694</td>
<td>217 84 .532</td>
</tr>
<tr>
<td>Crueenberg</td>
<td>5</td>
<td>499</td>
<td>514 313 .608</td>
</tr>
<tr>
<td>Peabody-Hunt</td>
<td>5</td>
<td>114</td>
<td>584 180 .333</td>
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<tr>
<td>Keier-Keier</td>
<td>4</td>
<td>67</td>
<td>100 100 1.000</td>
</tr>
<tr>
<td>Not given</td>
<td>125</td>
<td>827</td>
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</tbody>
</table>

**Totals** 420 10049 Average percentage of health pages.... .4501
### TABLE NUMBER XVII

**Botany Enrollment and Health**

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of schools</th>
<th>Enrollment</th>
<th>Total pages</th>
<th>Health pages</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poole</td>
<td>6</td>
<td>120</td>
<td>313</td>
<td>21</td>
<td>.037</td>
</tr>
<tr>
<td>Bergen-</td>
<td>4</td>
<td>67</td>
<td>477</td>
<td>18</td>
<td>.037</td>
</tr>
<tr>
<td>Caldwell.</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jordan-</td>
<td>2</td>
<td>14</td>
<td>115</td>
<td>0</td>
<td>.000</td>
</tr>
<tr>
<td>Kellogg.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blaisdell</td>
<td>1</td>
<td>199</td>
<td>346</td>
<td>15</td>
<td>.043</td>
</tr>
<tr>
<td>Not given</td>
<td>20</td>
<td>121</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>33</strong></td>
<td><strong>521</strong></td>
<td></td>
<td></td>
<td><strong>.0432</strong></td>
</tr>
</tbody>
</table>

### TABLE NUMBER XVIII

**Chemistry Enrollment and Health**

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of schools</th>
<th>Enrollment</th>
<th>Total pages</th>
<th>Health pages</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brownlee</td>
<td>39</td>
<td>933</td>
<td>616</td>
<td>60</td>
<td>.129</td>
</tr>
<tr>
<td>Bruce</td>
<td>25</td>
<td>528</td>
<td>529</td>
<td>75</td>
<td>.141</td>
</tr>
<tr>
<td>Creeer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bennett</td>
<td>10</td>
<td>521</td>
<td>776</td>
<td>51</td>
<td>.109</td>
</tr>
<tr>
<td>Hesslar</td>
<td>5</td>
<td>279</td>
<td>560</td>
<td>33</td>
<td>.057</td>
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<tr>
<td>Black</td>
<td>3</td>
<td>65</td>
<td>349</td>
<td>13</td>
<td>.072</td>
</tr>
<tr>
<td>Holmes</td>
<td>1</td>
<td>13</td>
<td>654</td>
<td>40</td>
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<tr>
<td>Not given</td>
<td>49</td>
<td>120</td>
<td></td>
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<td></td>
</tr>
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<td><strong>Totals</strong></td>
<td><strong>152</strong></td>
<td><strong>2569</strong></td>
<td></td>
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<td><strong>.0874</strong></td>
</tr>
</tbody>
</table>

Average percentage of health pages: .0432 for Botany, .0874 for Chemistry.
### TABLE NUMBER XI

**General Science Enrollment and Health**

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of schools</th>
<th>Enrollment</th>
<th>Total pages</th>
<th>Pages of health</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood-C.</td>
<td>140</td>
<td>3870</td>
<td>792</td>
<td>213</td>
<td>.263</td>
</tr>
<tr>
<td>Curtis-C.</td>
<td>59</td>
<td>1623</td>
<td>658</td>
<td>201</td>
<td>.305</td>
</tr>
<tr>
<td>Pieper-B.</td>
<td>53</td>
<td>1479</td>
<td>712</td>
<td>169</td>
<td>.265</td>
</tr>
<tr>
<td>Hunter-N.</td>
<td>33</td>
<td>854</td>
<td>439</td>
<td>127</td>
<td>.287</td>
</tr>
<tr>
<td>Clement-C.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T.</td>
<td>23</td>
<td>676</td>
<td>611</td>
<td>201</td>
<td>.328</td>
</tr>
<tr>
<td>Sashburne</td>
<td>13</td>
<td>424</td>
<td>377</td>
<td>108</td>
<td>.286</td>
</tr>
<tr>
<td>Webb-D.</td>
<td>9</td>
<td>249</td>
<td>658</td>
<td>137</td>
<td>.208</td>
</tr>
<tr>
<td>Not given</td>
<td>116</td>
<td>271</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>459</td>
<td>9246</td>
<td>Average ratio of health pages:</td>
<td>.2761</td>
<td></td>
</tr>
</tbody>
</table>

### TABLE NUMBER XX

**Geography Enrollment and Health**

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of schools</th>
<th>Enrollment</th>
<th>Total pages</th>
<th>Pages of health</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dryer</td>
<td>96</td>
<td>3100</td>
<td>462</td>
<td>7</td>
<td>.015</td>
</tr>
<tr>
<td>Davis</td>
<td>73</td>
<td>2240</td>
<td>401</td>
<td>5</td>
<td>.012</td>
</tr>
<tr>
<td>Not given</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>196</td>
<td>5340</td>
<td>Average ratio of health pages:</td>
<td>.0139</td>
<td></td>
</tr>
</tbody>
</table>
### TABLE NUMBER XXI

**Physics Enrollment and Health**

<table>
<thead>
<tr>
<th>Author schools</th>
<th>Enrollment</th>
<th>Total Pages of health</th>
<th>Pages</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuller</td>
<td>B. -B.</td>
<td>195</td>
<td>3852</td>
<td>659</td>
</tr>
<tr>
<td>Milliken</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-G.</td>
<td>34</td>
<td>835</td>
<td>462</td>
<td>12</td>
</tr>
<tr>
<td>Brownell</td>
<td>22</td>
<td>460</td>
<td>629</td>
<td>12</td>
</tr>
<tr>
<td>Carhart</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-C.</td>
<td>14</td>
<td>488</td>
<td>398</td>
<td>9</td>
</tr>
<tr>
<td>Black-D.</td>
<td>13</td>
<td>244</td>
<td>555</td>
<td>14</td>
</tr>
<tr>
<td>Holly -L.</td>
<td>13</td>
<td>255</td>
<td>649</td>
<td>8</td>
</tr>
<tr>
<td>Dell.</td>
<td>11</td>
<td>210</td>
<td>750</td>
<td>21</td>
</tr>
<tr>
<td>Lynde</td>
<td>8</td>
<td>277</td>
<td>583</td>
<td>17</td>
</tr>
<tr>
<td><strong>Not given</strong></td>
<td><strong>13</strong></td>
<td><strong>13</strong></td>
<td><strong>13</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Totals** 473 5801 Average ratio of health pages .0219

### TABLE NUMBER XXII

**Zoology Enrollment and Health**

<table>
<thead>
<tr>
<th>Author schools</th>
<th>Enrollment</th>
<th>Total Pages of health</th>
<th>Pages</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kellogg</td>
<td>1</td>
<td>66</td>
<td>365</td>
<td>12</td>
</tr>
<tr>
<td><strong>Not given</strong></td>
<td><strong>1</strong></td>
<td><strong>1</strong></td>
<td><strong>1</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Totals** 2 66 Average ratio of health pages .0355

Physiology, the only other subject in this field has been given under the heading of definite health subjects and is listed as Table Number III. A summary
which included the findings from all subjects will be given in Table Number XXXIV and from these results definite recommendations will be made.

6. Other Subjects.

English, mathematics, American history, languages, science, and social science are required in all accredited high schools in Nebraska. Civics is also required, but it can be classified as a social science. Eliminating this group and the other subjects that have been investigated, the curricular subjects remaining are: higher arithmetic, character education, commercial geography, dramatics, economics, guidance, home economics, manual training, orientation, political science, psychology, public speaking, rural sociology, and economics, social science, sociology, and vocational agriculture. This group of sixteen subjects will be investigated now, and their distribution is shown in Table XXXII. The required list will be investigated in the next division, the Course of Study. Some of these subjects can be classified as social science, but since they are not required as such, they must be investigated in this group. It should be pointed out here that higher arithmetic is not one of the required subjects in mathematics, and consequently, it is not offered in all schools.
This study is not suggesting that all of the subjects in the high school curriculum are suitable for the teaching of health material, but since the curriculum is to be examined, all subjects should be scrutinized. A few investigations have shown that some of these subjects are adaptable to health material, and it is hoped that such subjects will be found in enough schools to warrant their inclusion as a part of the health curricular program.
### TABLE XXIII

**DISTRIBUTION OF SIXTEEN SUBJECTS NOT PREVIOUSLY DISCUSSED**

<table>
<thead>
<tr>
<th>Subject</th>
<th>times offered</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher arithmetic</td>
<td>353</td>
<td>62.38</td>
</tr>
<tr>
<td>Character education</td>
<td>1</td>
<td>0.17</td>
</tr>
<tr>
<td>Commercial geography</td>
<td>110</td>
<td>19.43</td>
</tr>
<tr>
<td>Dramatics</td>
<td>14</td>
<td>2.47</td>
</tr>
<tr>
<td>Economics</td>
<td>81</td>
<td>14.31</td>
</tr>
<tr>
<td>Guidance</td>
<td>89</td>
<td>15.72</td>
</tr>
<tr>
<td>Home economics</td>
<td>211</td>
<td>37.27</td>
</tr>
<tr>
<td>Manual training</td>
<td>132</td>
<td>23.52</td>
</tr>
<tr>
<td>Orientation</td>
<td>55</td>
<td>9.18</td>
</tr>
<tr>
<td>Political science</td>
<td>6</td>
<td>1.08</td>
</tr>
<tr>
<td>Psychology</td>
<td>11</td>
<td>1.94</td>
</tr>
<tr>
<td>Public speaking</td>
<td>17</td>
<td>3.00</td>
</tr>
<tr>
<td>Rural sociology and economics</td>
<td>317</td>
<td>56.00</td>
</tr>
<tr>
<td>Social science</td>
<td>13</td>
<td>2.27</td>
</tr>
<tr>
<td>Vocation agriculture</td>
<td>73</td>
<td>12.89</td>
</tr>
<tr>
<td><strong>Average offering per school</strong></td>
<td><strong>2.64 subjects</strong></td>
<td></td>
</tr>
</tbody>
</table>
The six most popular subjects, as indicated in Table XXIII, are higher arithmetic, rural sociology and economics, home economics, manual training, commercial geography, and guidance. The remainder fall low in percentage, and it is doubtful if their lack of popularity can be offset by a relationship to health instruction, particularly since expert opinion regards this field as the least applicable to a health instructional program. The six subjects that have been pointed out should be studied further and the next step will be to find out what their relationship is with each other. Table XXIV lists another comparison.

**TABLE XXIV**


<table>
<thead>
<tr>
<th>Subjects offered-number of schools—percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>None........................................ 56 .......................... 9.87</td>
</tr>
<tr>
<td>One.......................................... 124 .......................... 21.90</td>
</tr>
<tr>
<td>Two.......................................... 208 .......................... 36.74</td>
</tr>
<tr>
<td>Three....................................... 149 .......................... 26.33</td>
</tr>
<tr>
<td>Four......................................... 26 ............................ 4.59</td>
</tr>
<tr>
<td>Five......................................... 3 ............................. .53</td>
</tr>
<tr>
<td>All.......................................... 2 ............................. .35</td>
</tr>
<tr>
<td>Average offering per school..... 1.97 subjects.</td>
</tr>
</tbody>
</table>
The average achieved in this group of subjects is almost two subjects per school. This is slightly lower than the average for the whole group of sixteen subjects, but it can be explained by the fact that fifty-six schools failed to offer any of the most popular six subjects. This subject field falls far below the science field in popularity, but is well ahead of the definite health subject field. A comparison by average offering in the three fields that have been investigated is shown in Table XXV.

**TABLE XXV**

Comparison of Offerings From Tables I, III and XI

<table>
<thead>
<tr>
<th>Subject Field</th>
<th>Average Offering</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Health)</td>
<td>32 subjects</td>
</tr>
<tr>
<td>(Science)</td>
<td>3.47 subjects</td>
</tr>
<tr>
<td>(Other Subjects)</td>
<td>2.64 subjects</td>
</tr>
</tbody>
</table>

This comparison indicates that science is the richest field from the standpoint of the greatest number of offerings at least. Studies that have been made in regard to possible health content of subjects also point toward science, so it is reasonable to conclude that the field of science is the logical place to incorporate the health instructional program in the Nebraska situation.
An investigation of health content and enrollment statistics for the third division follows in Tables XXVI, XXVII, XXVIII, XXIX, XXX and XXXI.

**Table Number XXVI**

Enrollment Distribution of Sixteen Subjects

<table>
<thead>
<tr>
<th>Subject</th>
<th>Times offered</th>
<th>Enrollment reported</th>
<th>Ratio to total enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arithmetic</td>
<td>353</td>
<td>3,662</td>
<td>0.045683</td>
</tr>
<tr>
<td>Character Education</td>
<td>1</td>
<td>25</td>
<td>0.000318</td>
</tr>
<tr>
<td>Commercial Geography</td>
<td>110</td>
<td>1,298</td>
<td>0.016524</td>
</tr>
<tr>
<td>Dramatics</td>
<td>14</td>
<td>310</td>
<td>0.003946</td>
</tr>
<tr>
<td>Economics</td>
<td>81</td>
<td>423</td>
<td>0.005481</td>
</tr>
<tr>
<td>Guidance</td>
<td>69</td>
<td>544</td>
<td>0.006925</td>
</tr>
<tr>
<td>Home Economics</td>
<td>311</td>
<td>5,558</td>
<td>0.070739</td>
</tr>
<tr>
<td>Manual Training</td>
<td>152</td>
<td>3,812</td>
<td>0.048523</td>
</tr>
<tr>
<td>Orientation</td>
<td>35</td>
<td>397</td>
<td>0.005054</td>
</tr>
<tr>
<td>Political Science</td>
<td>6</td>
<td>72</td>
<td>0.000916</td>
</tr>
<tr>
<td>Psychology</td>
<td>110</td>
<td>39</td>
<td>0.000496</td>
</tr>
<tr>
<td>Rural Sociology and Economics</td>
<td>317</td>
<td>2,132</td>
<td>0.027289</td>
</tr>
<tr>
<td>Social Science</td>
<td>13</td>
<td>29</td>
<td>0.000359</td>
</tr>
<tr>
<td>Vocational Agriculture</td>
<td>73</td>
<td>2,591</td>
<td>0.022964</td>
</tr>
</tbody>
</table>
### TABLE NUMBER XXVII

**Commercial Geography Enrollment and Health**

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of schools</th>
<th>Enrollment</th>
<th>Total pages</th>
<th>Health pages</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whitbeck</td>
<td>31</td>
<td>481</td>
<td>430</td>
<td>14</td>
<td>.032</td>
</tr>
<tr>
<td>Staples-Y.</td>
<td>9</td>
<td>206</td>
<td>376</td>
<td>8</td>
<td>.021</td>
</tr>
<tr>
<td>Colby-F.</td>
<td>7</td>
<td>217</td>
<td>282</td>
<td>7</td>
<td>.024</td>
</tr>
<tr>
<td>Brigham</td>
<td>2</td>
<td>16</td>
<td>198</td>
<td>5</td>
<td>.025</td>
</tr>
<tr>
<td>Not given</td>
<td>61</td>
<td>278</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>110</strong></td>
<td><strong>1298</strong></td>
<td></td>
<td></td>
<td><strong>.0234</strong></td>
</tr>
</tbody>
</table>

### TABLE NUMBER XXVIII

**Economics Enrollment and Health**

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of schools</th>
<th>Enrollment</th>
<th>Total pages</th>
<th>Health pages</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hughes</td>
<td>5</td>
<td>417</td>
<td>405</td>
<td>0</td>
<td>.000</td>
</tr>
<tr>
<td>Fairchild</td>
<td>1</td>
<td>12</td>
<td>484</td>
<td>0</td>
<td>.000</td>
</tr>
<tr>
<td>Not given</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>81</strong></td>
<td><strong>429</strong></td>
<td></td>
<td></td>
<td><strong>.000</strong></td>
</tr>
</tbody>
</table>

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### Table Number XXIX

**Guidance Enrollment and Health**

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of schools</th>
<th>Enrollment</th>
<th>Total Pages of pages</th>
<th>Total Pages of health</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith-B</td>
<td>7</td>
<td>119</td>
<td>470</td>
<td>16</td>
<td>.034</td>
</tr>
<tr>
<td>Proctor</td>
<td>6</td>
<td>153</td>
<td>243</td>
<td>7</td>
<td>.028</td>
</tr>
<tr>
<td>Davis</td>
<td>3</td>
<td>57</td>
<td>242</td>
<td>9</td>
<td>.037</td>
</tr>
<tr>
<td>Brewer</td>
<td>2</td>
<td>68</td>
<td>243</td>
<td>12</td>
<td>.049</td>
</tr>
<tr>
<td>Not given</td>
<td>71</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>89</strong></td>
<td><strong>544</strong></td>
<td></td>
<td></td>
<td><strong>.0366</strong></td>
</tr>
</tbody>
</table>

**Average ratio of health pages...** **.0366**

---

### Table Number XXX

**Rural Sociology and Economics Enrollment and Health**

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of schools</th>
<th>Enrollment</th>
<th>Total Pages of pages</th>
<th>Total Pages of health</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lundquist-M</td>
<td>75</td>
<td>1647</td>
<td>299</td>
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<tr>
<td>Lantis-E</td>
<td>24</td>
<td>444</td>
<td>484</td>
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<tr>
<td>Not given</td>
<td>218</td>
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<td></td>
<td></td>
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<td><strong>Totals</strong></td>
<td><strong>317</strong></td>
<td><strong>2132</strong></td>
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<td><strong>.000</strong></td>
</tr>
</tbody>
</table>

**Average ratio of health pages...** **.000**

---

### Table Number XXXI

**Social Science Enrollment and Health**

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of schools</th>
<th>Enrollment</th>
<th>Total Pages of pages</th>
<th>Total Pages of health</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rugg</td>
<td>1</td>
<td>15</td>
<td>308</td>
<td>0</td>
<td><strong>.000</strong></td>
</tr>
<tr>
<td>Ross</td>
<td>1</td>
<td>14</td>
<td>372</td>
<td>0</td>
<td><strong>.000</strong></td>
</tr>
<tr>
<td>Not given</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>13</strong></td>
<td><strong>29</strong></td>
<td></td>
<td></td>
<td><strong>.000</strong></td>
</tr>
</tbody>
</table>

**Average ratio of health pages...** **.000**
Arithmetic, character education, dramatics, home economics, manual training, orientation, political science, psychology, and vocational agriculture of this group of subjects are not given in tabular form because the reports in most instances failed to give either the number enrolled or the text used. Possibly a better understanding could be achieved if all of the schools reported their full enrollment and also gave the texts used in every instance. Findings from this group of subjects will be summarized in Table XXXIV.

Another group of subjects has been left out of the investigation until now. The group is now listed and discussed under the next topic, the Course of Study.

4. Nebraska High School Course of Study

This part of the investigation has been placed here to show why some subjects are more popular than are others. English, mathematics (excluding higher arithmetic), American history, languages, and civics have not been examined. Two other required fields have been studied when science and social science were included in other comparisons. The reason the latter two were not left for this division is because the science and social science requirements are not definite as to particular subjects, and this resulted in a distribution within the main fields.
English, mathematics, language, American history, and civics are required in all high schools, and if health materials are adaptable to this list, then such an incorporation would be recommended. To make the requirements in Nebraska more specific, four of the main standards will now be quoted:

1. Not less than twelve units required for graduation from a senior high school (tenth, eleventh, and twelfth) or not less than fifteen units for graduation from a four year high school.

2. Pertaining to teachers, superintendents, etc., (not needed here).

3. Pertaining to teacher preparation, etc. (not needed here).

4. A standard wherein a minor of twelve hours will be recognized in (1) English, (2) Any foreign language, (3) Mathematics, (4) Any combination of biological science, (5) Any combination of physical science, (6) American history and other histories, and (7) Other social sciences.

Nine of the twelve units must be in English, foreign language, mathematics, American history, civics, natural science, or social science.

From these requirements it is found that English, language, mathematics, American history, and civics will be offered in all schools or in nearly all schools.

The following sample curriculum will satisfy all requirements:

<table>
<thead>
<tr>
<th>Sample Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grade IX</strong></td>
</tr>
<tr>
<td>English</td>
</tr>
<tr>
<td>Algebra</td>
</tr>
<tr>
<td>Gen. sci.</td>
</tr>
<tr>
<td>Language</td>
</tr>
<tr>
<td>Elective</td>
</tr>
</tbody>
</table>

| **Grade XI** | **units** | **Grade XII** | **units** |
| English | 1 | English | 1 |
| Mathematics | 1 | American hist. | 1 |
| Physics | 1 | Civics-econ. | 1 |
| Elective | 1 | Chemistry | 1 |

Health education, as such, is not mentioned in the high school manual. It is mentioned as a phase of physical education and is implied to a degree in the physiology outline. Since there are no other comparisons to be made in regard to subjects, this study will examine the suggestions for physical education and for physiology as outlined in the Nebraska High School Manual.

Course of Study in Physical Education

1. To set up major aims and objectives of physical education in harmony with the Cardinal Principles of Secondary Education.

2. To list the specific objectives growing out of aims, and practically achievable as an integral part of the present high school program.

3. To present a broad program of activities, which may be adapted in terms of the facilities and personnel available to develop the physical education program.

4. To list source materials which may be found helpful in the process of developing the physical education program.

5. To urge the appointment of a committee to prepare detailed courses of study in physical education for boys and girls in grades 1 to 12 inclusive.  

The aims of physical education as given in the Nebraska High School Manual are listed in Chart Number II.

CHART NUMBER II

1. To promote normal growth and development.
   (a) Intensive program of conservation.
   (b) Development to a fair degree of strength, skill, and endurance.
   (c) Development of good posture and bodily carriage.
   (d) Development of the neuro-muscular to a degree sufficient to insure accurate, graceful, and effective movements.

2. To develop social leadership through activities which appeal to the individual. This includes:
   (a) The use of games and athletic contests which contribute to the development of those traits


41. Ibid, p. 220.
of character which have a direct relation to society.

(b) The forming of habits of obedience, cooperation, loyalty, respect for the rights of others, sacrifice, sportsmanship, etc.

(c) The proper attitude toward victory and defeat -- neither gloating over victory nor Grabbing in defeat.

3. To train for physical leadership through the development of personal traits such as self-confidence, self-control, mental and emotional poise, alertness, resourcefulness, decisiveness, courage, aggressiveness, initiative, and perseverance, etc., that is, those traits of more direct concern to the individual than to society.

4. To create and instill in each individual a desire to develop skill in those physical activities which may be participated in after school days. Examples of such activities are: tennis, golf, swimming, baseball, handball, hiking, and riding.

5. To establish early in life, habits which conserve health, and provide instruction as a means of securing and maintaining physical well-being.

The scope of a physical education program as outlined in the Nebraska High School Manual is given in Chart Number III.

CHART NUMBER III

Scope of a Physical Education Program

1. Hygienic instruction and inspection for physical defects.

2. Medical examination to all entering high school for the first time; to those in competitive sports each season, and to those who have had a severe illness since their last examination.

3. Running and marching tactics.

4. Formal free hand exercises, occasionally with hand apparatus.

5. Gymnastic movements and dancing to music.

6. Dancing; folk, aesthetic, gymnastic, and social.

7. Exercise on apparatus of all kinds.

42. *Nebraska High School Manual*, op. cit., p. 221.
8. Intra-mural games such as handball, tennis, golf, wrestling, skating, soccer, swimming, and football.

9. Popular athletics such as football, basketball, baseball, track and field, playground ball, wrestling, tennis, and golf.

10. Mass games such as speedball, touch football, volleyball, battle ball, various relays, and skating.

The objectives and scope of the recommended program is about the same as in other states, although it does seem as though the Nebraska situation is over-balanced with objectives rather than with a program. Only forty-two schools require physical education in the state, and this certainly is a low percentage.

The Nebraska High School Course of Study states the following in regard to physiology:

"Physiology is a study of the signs or phenomena of life. Such phenomena can be studied only in living things. Nothing appeals to mind of the growing child, at all ages, as the object which is alive. There are always certain physiological questions that enter the mind of the child, that the child wants answered. These questions, the teacher should use as a guide in teaching physiology. If she will but follow such questions as the child puts, she cannot help but give an effective course in physiology. For an understanding of all health problems, physiology is basic, and the course given in the high school should be more of a course in pure physiology,
with an hygienic application."

This excerpt about physiology seems rather elementary in some respects, but it does imply that health and physiology go together. 125 schools offer physiology in Nebraska, and if all students in each of these schools were required to take the course, quite a contribution to the health program would be the result. Materials for reference in physiology are listed in Appendix III.

Before leaving the required group of subjects, some information concerning health instruction can be pointed out in American history and civics. The texts for the other subjects in this division were either not listed or when listed failed to show any health material, and so American history and civics are shown in Tables XXXII and XXXIII.

### TABLE NUMBER XXXII

American History Enrollment and Health

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of schools</th>
<th>Enrollment</th>
<th>Total Pages of health</th>
<th>Ratio</th>
</tr>
</thead>
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<tr>
<td>Muzzey</td>
<td>249</td>
<td>7363</td>
<td>539</td>
<td>0.005</td>
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<tr>
<td>West</td>
<td>45</td>
<td>1973</td>
<td>557</td>
<td>0.000</td>
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<tr>
<td>Fish</td>
<td>34</td>
<td>651</td>
<td>570</td>
<td>0.035</td>
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<tr>
<td>Cuitteau</td>
<td>23</td>
<td>961</td>
<td>473</td>
<td>0.000</td>
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<td>Beard-B.</td>
<td>17</td>
<td>419</td>
<td>498</td>
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<tr>
<td>Hammond-B.</td>
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<td>900</td>
<td>498</td>
<td>0.000</td>
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<td>Latane</td>
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<td>320</td>
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</table>


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# TABLE NUMBER XXXIII

## Civics Enrollment and Health

<table>
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<th>Author</th>
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<th>Total Enrollment</th>
<th>Total Pages</th>
<th>Pages health</th>
<th>Ratio</th>
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</thead>
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<tr>
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<td>7610</td>
<td>721</td>
<td>17</td>
<td>.023</td>
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<tr>
<td>Hughes</td>
<td>50</td>
<td>970</td>
<td>471</td>
<td>59</td>
<td>.125</td>
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<tr>
<td>Hill</td>
<td>14</td>
<td>365</td>
<td>520</td>
<td>78</td>
<td>.143</td>
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<tr>
<td>Mathews</td>
<td>5</td>
<td>174</td>
<td>533</td>
<td>22</td>
<td>.041</td>
</tr>
<tr>
<td>Munro</td>
<td>5</td>
<td>75</td>
<td>696</td>
<td>36</td>
<td>.051</td>
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<tr>
<td>Rugg</td>
<td>1</td>
<td>85</td>
<td>306</td>
<td>18</td>
<td>.058</td>
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<tr>
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<td>1</td>
<td>29</td>
<td>772</td>
<td>41</td>
<td>.053</td>
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<td>556</td>
<td>10162</td>
<td></td>
<td></td>
<td>.0667</td>
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</table>

Civics is shown as a potential factor in health instruction, since nearly seven percent of the textbook material pertains to health. This information should be regarded as an important factor since all Nebraska high school students take civics at some time during their high school course.

A summary of all subjects with the health material and enrollment involved is given in the next table.
Table number XXXIV gives a picture of the whole health instructional program in Nebraska high schools. Of course, this might be changed somewhat by obtaining complete statistics about enrollment, but the probabilities are that any change would be toward a more favorable showing. This statement is based upon the idea that with more students taking all courses, the negative subjects would remain constant while the favorable subjects would show to better advantage.

This table shows civics one percent ahead of biology as a health instructional course, but since biology
is taught to fewer students, the pendulum will swing toward biology when more students take it. To be sure, civics should be utilized as should any other available subject in teaching health. Reasoning from the information listed in this table, it now appears as though biology should be stressed as the main vehicle of health instruction at least until a special health instructional course is required of all schools.

5. Non-Curricular Health Instruction

The author has stated previously that much of health instruction cannot be accomplished without utilizing the non-curricular activities. Since this particular phase is not one of the objectives of this study, only prior investigations will be discussed in this division. The Nebraska high schools are typical of the western part of the United States, with a majority having from four to six teachers.

Since Sister Aimee Ely and Charles B. Wood have made related studies in Montana, a related state in location, at least, their investigations are important to this study. Sister Ely used the questionnaire method in obtaining information from thirty-eight Montana schools, a majority of which were on the elementary level. The significant findings of this study are:

1. Fifty percent of the schools studied, utilized general science as a correlated subject in the
teaching of health.

2. Twenty-five percent of the schools studied, utilized social science as a correlated subject in the teaching of health.

3. Twenty-five percent of the schools studied, utilized biology as a correlated subject in the teaching of health.

4. The physical plant, as a factor in healthful living, was found to be less than fifty percent satisfactory.

5. Equipment for examinations, as a factor in health service, was under fifty percent satisfactory.

6. The status of non-curricular health instruction was not noted in the final summary, thus admitting that it was considered as unimportant in that investigation.  

In a more recent study, Hood found:

1. Courses in which some health instruction was given ranged from four percent to sixty-eight percent.

2. Forty-two percent of the Montana high schools are following the Montana Course of Study in Health.

3. Persons giving definite health instruction range from one percent for the special teacher to sixty-two percent for the physical education teacher.

44. Ely, op. cit., Tables, VII, VIII, X, XVI, and XVII.
4. Home economics, general science, biology, physics, and social science are reported as the most used vehicles of health instruction.

5. Other health education activities reported in Montana, range from thirty-eight percent in health posters to three percent in health clubs, with hikes, excursions, health lectures, health plays, health programs, and health contests as the other activities.

The White House Conference Report suggests that mass education in health be done through:

1. Parent-teacher or home-school associations.
2. Pre-school associations.
3. Fathers' and mothers' clubs.
4. Institutes.
5. Child welfare conferences.

The White House Conference Report suggests group education through:

1. Study circles in parent-teacher associations.
2. Child study groups.

45. Hood, op. cit., Tables XXII, XXIX, XXX, XXXI, and XXXII.
4. Mothers' classes in kindergarten.
5. Parent training classes in churches.
6. Parent education courses in colleges and universities.47

The same report lists individual service through:
1. Visiting teacher activity.
2. School counselors.
3. Grade and room advisors.
5. Red Cross and public health nurses.
6. Correspondence courses which lead to direct cooperation between home and school.48

Strang listed the following:
1. The cafeteria.
2. Health examinations.
3. The athletic teams.
4. An accident in the school.
5. Sound safety measures.49

The National Survey of Secondary Education suggests:
1. Health posters.
2. Health plays and programs.
3. Physical safety measure.


48. Ibid., p. 343.

4. Hikes and excursions.
5. Health contests and awards.
6. Health clubs.
7. 4-H clubs.
8. The modern health crusade.
9. Campfire girls.
10. Christmas seals. 50

It should be pointed out that most of these lists from the various sources contain approximately the same materials. What is good for one school situation may not be in another, and the authorities of the individual school must investigate and decide what is best for their own situation. The use that is made of the non-curricular activities in health education is entirely up to the individual school, and the resultant success will reflect the amount of time and effort that has been expended by the school personnel.

6. Summary and Recommendations

Summary:

1. The definite health offerings in Nebraska high schools are too small to indicate a good program.
2. The offering in science is excellent, and undoubtedly

50. Monograph No. 28, p. 57-58.
a health instructional program can be incorporated here.

3. Social science, higher arithmetic, rural sociology and economics, commercial geography, home economics, manual training, and guidance are offered in a large enough number of cases to warrant an attempt to teach health material in the subjects.

4. There are no requirements in health education by the state department.

5. Physical education objectives are excellent but the total offering in this subject is very slight.

6. Physiology makes a fair showing since it is offered in almost a fourth of the schools.

7. Investigations by experts have pointed to science in general and to biology and general science in particular as the best field for correlated health instruction.

8. The non-curricular offering in most cases is slight. In fact, prior investigations indicate a lack of program rather than the status of one.

Recommendations:

1. The state department should set up aims and objectives for health education in Nebraska high schools.

2. The state department should devise and require a definite health instructional program with minimum requirements sufficiently high to be of value to
all pupils.

3. Physical education should become a required subject in Nebraska high schools.

4. To properly supplement the regular health instructional course, the whole personnel of every school should be obligated to participate in the health education program.

5. The schools should eventually assume the burden of teaching nearly all health in each community.

6. A program of health publicity, to enable the school administrator to gain financial support for the health program, should be instituted and carried on continuously.

7. Until a required course in health instruction is devised and required, the biological sciences should carry the load.

8. The other science courses should be utilized as far as is reasonable to supplement the biological science course.
1. The Organization

Before entering into specific considerations regarding health instruction, it is necessary that an organization set-up be decided upon. Organizations now in use are of three types:

1. Sponsored by the state departments of education.
2. Sponsored by the state department of public health.
3. Combinations, involving both branches.

The state health department is usually in a better position to supervise health from the knowledge standpoint, while the state education department is better from the organization and administration of schools standpoint. The probability is a dual relationship will be best suited to most situations.

In Delaware, the make-up of the State Health Council is as follows:

Lieutenant Governor; Dental Surgeon; Executive Secretary of the Delaware Parent-Teachers Association; Executive Secretary of the Delaware Anti-Tuberculosis Association; Nutrition Expert, Extension Division, University of Delaware; Assistant Superintendent of Wilmington Public Schools; State Supervisor of Home Economics; Director of Child Hygiene, State Board of
Health; and State Director of Physical Education and Athletics. The last named member is the chairman.

This is a rather cumbersome board, but it should have an abundance of health knowledge and materials for a health program. Possibly the best situation for Nebraska would be: State Superintendent of Education, State Superintendent of Health, State Director of Vocational Education, State Director of Home Economics and The Extension Director of the University of Nebraska. This group is a blending organization or integrating group, all of whom carry on health projects. The next stop for this group is to establish a clearing house for the distribution of health knowledge to the schools, communities and other organizations where needed.

Huef in a New Jersey study of "Health Education in Senior High Schools", found there was no evidence to show that health education is the foundation of any definite administrative plan or centralized organization. She states that the principal and the majority of the

school staff have little or no preparation in the principles and procedures of administering a health program beyond the technical aspects, such as the medical examination or the educational methods of teachers. 52

The following chart outlines a typical organization plan which is suited to most states.

CHART NUMBER IV

Proposed Health Organization Plan

<table>
<thead>
<tr>
<th>Other Board Members</th>
<th>Superintendent of Public Instruction</th>
<th>Superintendent of Public Health</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>School Superintendent</td>
<td>County &amp; City Health Boards</td>
</tr>
<tr>
<td></td>
<td>Health Counselor</td>
<td>Physicians and Dentists</td>
</tr>
<tr>
<td></td>
<td>Teachers</td>
<td>Public</td>
</tr>
<tr>
<td></td>
<td>Students</td>
<td></td>
</tr>
</tbody>
</table>

Examine Chart IV, it is pointed out that the school Health Counselor is to be the person in direct charge of the individual health program. This procedure is suggested by a number of health authorities, and will probably be the best way to handle the program. The per-

---

son assigned to counsel, must be prepared in the field of health as well as in the fields of education. Several studies have been made, showing relatively the proper qualifications for a successful counselor. None of these studies mentioned the guidance director, except as a contributor to the health instructional program, while, in fact, the guidance director or counselor is probably better qualified to administer health than are most of the other members of the school personnel. One of the main objectives of guidance is to guide in health; and, to effectively guide, the director should be qualified in the field. The American Child Health Association, in "Health Trends", suggests the following criteria for designating the health counselor:

1. Good scientific training in personal and school hygiene, as well as in communicable disease control.

2. Thorough mastery of modern teaching technique.

3. Familiarity with the organization, aims, and limitations of a modern school.

4. Intelligent appreciation of aims, ideals, and practices of the best type of physical education and home economics.

5. Training in health publicity.

6. Training in emergencies, simple nursing, detection of departure from normal health, ability to interpret technical records, and ability to work with the school physician.
7. Sound scientific knowledge of intelligence tests, psychiatry, and a course in mental growth adjustment of adolescents. 53

The Sixth Yearbook gives the same requirements and adds the following:

8. Evidence of good character.

9. Sound body condition.

10. Evidence of general physical skill, indicative of future professional efficiency. 54

Additional requirements recommended by the Sixth Yearbook:

General courses in: English Composition and Literature; History; Civics; Public Speaking; Foreign Language; Chemistry; Physics; Biology; Sociology; Normal and Abnormal Psychology; History of Education; Principles of Education; Methods and Educational Statistics.

Special courses in: First Aid; Anatomy; Physiology; Personal, School and Community Hygiene; Physiology of Exercise; Kinesiology; Principles of Physical Education; History of Physical Education; Administration of Health; Gymnasium and Playground Management; Correctives; Health and Physical Education; Motor Ability and Achievement tests; Methods of Teaching; Observation and Practice


54. Sixth Yearbook, Department of Superintendent, (Ch. IX), p. 216-217.
Teaching; Personal Technique in Gymnastics; Games; Dancing; and Athletics. 55

If very many of our Nebraska schools find persons available, who can qualify as completely prepared, according to the recommendations, the writer will be greatly surprised. Possibly in the future, we can look toward finding a reasonable number of qualified health counselors. All that can be done at present is to select the persons who come the nearest to qualifying, and hope that they will continue in preparation. From present indications, it appears as though the physical education teacher would be more likely to be selected than any other in the school. Where there are no teachers of physical education, probably a science teacher or, better still, a teacher who is trained in guidance would be acceptable.

The duties of the health counselor, as suggested by the American Child Health Association, are listed in Chart V.

55. Sixth Yearbook, Department of Superintendent, (Ch. XXIV), p. 493.
Chart Number 56

Health Counselor Duties

1. Understand and interpret the physical, medical, dental, and psychological examinations.

2. Supervise sanitation of the schools, especially as to air conditioning and provision for the prevention of the spread of infections.

3. To teach personal hygiene in such a way as to improve the health of the individual student.

4. Carry on personal supervision of individuals, conferences with students, advisors, teachers, and parents.

5. See all students upon returning to school after absences due to illness, study their needs and supervise their readjustment.

6. Study attendance records and report monthly on absences due to illness — classify by causes and recommend policies.

7. Study causes of minor ailments and disabilities as shown in physical education and rest room records. Supervise the same by means of conferences.

8. Prepare or supervise publicity on health for the school paper, bulletins for advisors, letters to parents and foster parents.

9. Give talks on health classes, home-rooms, P.T.A., etc.

10. Counsel teachers who apply for guidance in personal health.

11. See that the students needing special attention are referred to the school physician, and by him to the family physician.

56. The Sixth Yearbook, op. cit., (Ch. IX), p. 216.
Now that the organization of the health program has been established, with the counselor selected according to preparation and ability, the teacher's place in the health program must be considered. According to the Pennsylvania State Department of Education, the teacher is active more constantly than in any other type of education. The trained and experienced teacher will rely less upon texts and more upon personal creative ability. The chief aim of the teacher, in the health program, is to establish right habits. The teacher's example exerts a mighty influence on the child, hence habits of cleanliness, neatness, good posture, voice, vitality and temperance are factors to be considered by the teacher first of all and by the counselor in his associations with the teachers. Thomas D. Wood, in his report of the International Health Conference, stated that teachers should be, in personal, social and professional conduct, wholeheartedly and mindedly devoted to the physical, mental, and character health of children and youth. They should present a stimulating and healthful

57. Pennsylvania State Course of Study, op. cit., p. 8
58. Sixth Yearbook, op. cit., (Ch. XXIV), p. 457.
59. Ibid., p. 469
60. Ibid., p. 471.
example for their students and their fellow teachers in thinking, and in attitudes and conduct affecting health, personal and social. By instruction and suggestions, they should be able to influence the students to participate constructively and progressively in a life of health, of helpfulness, and of the highest satisfaction.61

To sum it all up, the teacher must live a good life, must set a good example, must be prepared and qualified to participate in a constructive health program. This pertains to the whole teaching staff, since all teachers should be obligated to participate in the health program.

Table Number XIII from Monograph Number 23 gives some valuable information about teachers and their place in the health program. This survey, as reported in Monograph 23, includes only schools that reported definite health programs.

Table 10* p. 31

Number of schools reporting certain persons as giving instruction in health, and the average number of these persons in each school.

<table>
<thead>
<tr>
<th>Instructor</th>
<th>No. of Schools</th>
<th>No. of Persons</th>
<th>Average No. of Persons in each School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Teacher of Health</td>
<td>60</td>
<td>168</td>
<td>2.8</td>
</tr>
<tr>
<td>School Nurse</td>
<td>189</td>
<td>191</td>
<td>1.0</td>
</tr>
<tr>
<td>School Physician</td>
<td>110</td>
<td>120</td>
<td>1.2</td>
</tr>
<tr>
<td>Phys. Ed. Teacher</td>
<td>314</td>
<td>363</td>
<td>2.1</td>
</tr>
<tr>
<td>Science Teacher</td>
<td>237</td>
<td>420</td>
<td>1.8</td>
</tr>
<tr>
<td>Social St. Teacher</td>
<td>60</td>
<td>137</td>
<td>2.3</td>
</tr>
<tr>
<td>English Teacher</td>
<td>27</td>
<td>78</td>
<td>2.9</td>
</tr>
<tr>
<td>Hygiene Teacher</td>
<td>10</td>
<td>39</td>
<td>3.9</td>
</tr>
<tr>
<td>Home Economics Teacher</td>
<td>48</td>
<td>75</td>
<td>1.6</td>
</tr>
<tr>
<td>Guidance Teacher</td>
<td>4</td>
<td>6</td>
<td>1.5</td>
</tr>
<tr>
<td>Home-room Teacher</td>
<td>6</td>
<td>117</td>
<td>19.5</td>
</tr>
<tr>
<td>Athletic Coach</td>
<td>4</td>
<td>5</td>
<td>1.3</td>
</tr>
<tr>
<td>All Teachers</td>
<td>21</td>
<td>229</td>
<td>10.9</td>
</tr>
</tbody>
</table>

The qualifications of some of the teachers listed above and others included in the report might be questioned. A few examples are as follows: English teacher, social science teacher, home-room teacher, athletic coach, mathematics teacher, music teacher, shop teacher, commercial teacher, and principal. Such information might be termed casual rather than special. If instructor...
is to be more than casual, some attention should be paid to the special qualifications of persons who are to give it.

Another finding in Monograph Number 28 gives the number of schools reporting certain members of their staff as teaching health courses required of all pupils.

### TABLE NUMBER XXXVI

Monograph No. 28

Table 15, p. 34

Number of schools reporting certain members of staff as teaching courses in health required of all pupils.

<table>
<thead>
<tr>
<th>Teacher</th>
<th>No. of Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Ed.</td>
<td>108</td>
</tr>
<tr>
<td>Science</td>
<td>21</td>
</tr>
<tr>
<td>Regular Teacher</td>
<td>21</td>
</tr>
<tr>
<td>Nurse</td>
<td>20</td>
</tr>
<tr>
<td>Health</td>
<td>19</td>
</tr>
<tr>
<td>Hygiene</td>
<td>8</td>
</tr>
<tr>
<td>Home Economics</td>
<td>4</td>
</tr>
<tr>
<td>Principal</td>
<td>3</td>
</tr>
<tr>
<td>Physician</td>
<td>3</td>
</tr>
</tbody>
</table>

An examination of Tables XXXV and XXXVI shows that a number of teachers and subjects used in other health education programs are also available in Nebraska. This

63. Monograph Number 28, op. cit., p. 34.
will be taken into consideration in Chapter V of this study, where a definite curriculum will be set up for the Nebraska high schools.

2. The Curriculum

The initial set-up, or organization plan, has now been covered, along with considerations of the counselor and teacher. The next step is to arrange the curriculum. Bonser states his philosophy is that life, health, and education are one. He continues that the end and aim of all three are growth and enrichment of the human experience. Starting from this premise, the writer rationalizes that health is education, and that health should be thought of, and taught, as a part of all subjects. This reasoning seems sound because from it more can be achieved in setting up a high school curriculum. Bonser states further, that richness and length of life are conditioned by the qualities of life. He continues by saying that, in the long run, efficiency, satisfaction, and enjoyment all depend upon the healthful and normal functioning of the mind and body.

65. Ibid, p. 316.
The Sixth Yearbook emphasizes the contribution to health by all departments of the school.\(^66\) The individual characteristics and differences of adolescence must be considered, quite as much in this field as in others.\(^67\) Mental hygiene must be considered, emphasized and protected.\(^68\) If health education is to be integrated in the curriculum, responsibility for health cannot be assumed by one department, but, instead, must be shared, with all departments making their unique contribution.\(^69\)

The curriculum in health instruction should be specific and detailed in presenting health subject matter and outcomes, but should allow for much freedom in making use of such variable conditions and situations as are found in different classes, schools, and communities.\(^70\)

A. **Specific Knowledge to be Used in a Health Program.**

The Sixth Yearbook lists the following:

I. Health Habits.

II. Body and Body Structure.

b. Digestion.

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\(^66\) *Sixth Yearbook*, (Ch. XXIV), p. 470.

\(^67\) Ibid., p. 472.

\(^68\) Ibid., p. 471.

\(^69\) *Anne Whitney*, "School Health Education on the Job", *Journal of Health and Physical Education*, (October, 1930), p. 15.

\(^70\) *Joint Committee on Health Problems*, "Health Education", p. 74.

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c. Diet

d. Nutrition

e. Structure, function and care of the skin.

f. Respiration

g. Structure, function and care of eye, ear and nose.

h. Relationship of above growth and development.

III. Disease, Posture and Hygiene


b. Posture, good and poor.

c. Hygiene of the home.

d. Industrial hygiene.

e. Tuberculosis.

f. Narcotics and drugs.

g. Tobacco and alcohol.

h. Insects and vermin enemies.

i. Relation of human welfare to medical progress.

j. Sex hygiene. 71

The White House Conference Report lists the following:

a. Food and food habits.

b. Sunshine and fresh air.

c. Rest and sleep.

d. Exercise.

e. Elimination.

f. Body cleanliness.

g. Sanitation and preventive measures.

h. Hygiene of special organs.

i. Clothing.

j. Safety and first aid.

k. Mental hygiene.

l. Sex education.

m. Alcohol, tobacco and drugs.

n. Physiology, general and anatomy.

o. Posture. 72

B. Specific Topics That May be Utilized in the Health Program

The Joint Committee report suggests the following:

For junior high school:

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71. Sixth Yearbook, (Ch. XV), p. 471-472.

Nature study
Social study
Arithmetic
The school lunch
Drawing and poster making
Play activities
Science
Home economics
Physical education
English and grammar
Home nursing
Clubs
Campaigns or drives
Industrial hygiene

For senior high school:

Biological science
Social science
Home economics
Applied science
Physical education
English
Higher arithmetic
Home nursing
Play activities
Clubs and organizations
Campaigns or drives
Industrial hygiene
Construction activities.

The Pennsylvania State Course of Study lists:

Field trips
Debates
Camping, fishing and hunting
Special community or national drives
Emergencies
Epidemics

Nearly all references in this particular phase of
the curriculum, recommend approximately the same subjects.

73. Joint Committee on Health Problems, op. cit., p. 206-221.
Winslow adds history, which is really a social science, and also mentions recess. The "Health Trend" grouping is enough different to warrant inclusion here:

Basic subjects—contributing to knowledge, understanding, and grasp of principle, in relation to those activities which are taught in the specific health subjects.

Specific Health Instruction—courses in hygiene closely applied to healthful living; dietetics, closely applied to feeding self or family with little or no theory.

Contributory Subjects—all those subjects where items or facts pertaining to health, can be utilized.

Spencer advises the use of devices, stories, plays, songs, rhymes, and experiments in teaching materials of health. She continues that the methods used by the classroom teacher will be diverse since the different teachers achieve results in various ways. Our concern is the teaching result rather than the methods involved. From the foregoing examples, it can readily be seen that the average school curriculum is sufficient to be of

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much use in a health program. The trouble in the past has been that the individual teacher has not presumed that it was his or her duty to emphasize the materials of health in the various subjects and activities. The next topic will be a consideration of materials of health for the required courses in Nebraska High Schools.

C. Health Instruction in Required Subjects

Science, Mathematics, Social Science, Civics, English and Foreign Language comprise the requirements for Nebraska High Schools. 78 American History as a social science, is taught in all schools, with the other offering in this field left to the discretion of the school involved. The results of a study of the average offerings in Nebraska High Schools, as shown in Table XIII, point to science as the most frequently offered field. Since science is required, the materials involved therein, will be taught to all or nearly all of the high school students. Some science courses contain better health materials than do others, as is shown in Table X. It is practically impossible to draw up materials for each individual school, and consequently the procedure here will be to list the particular knowledges that can be

taught in each subject.

Starting with Biology, since it has been proved the most fertile field by Meier, 79 Chappelar, 80 and Lobbitt, 61 this study will take up the other science subjects before listing the residue of required courses.

**Biology**

1. Studies of growing plants or animals to understand their life functions. Plant studies to be the foundation for the study of animal and human life processes.

2. The nervous system; its anatomy and functioning, in frog and in higher animals.

3. The utilization of food by the animal in digestion, absorption, circulation and assimilation.

4. Fatigue, work, sleep and rest. Value of work to the body. The relation of work to fatigue and fatigue poison. Time and amount of rest to be of greatest value. Sleep, the perfect form of rest. Relation of sleep, fatigue and rest to health.

5. Sense organs; eye structure; ear structure.

6. Skin; its functions; proper care; protection, heat regulation; sensory organs; excretion and beauty.

7. Reproduction; plants and animals.

8. Micro-organisms; relation to personal and communicable hygiene. 82


80. Chappelar, op. cit., p. 103-104


82. Joint Committee on Health Problems, op. cit., p. 212-213.
The preceding knowledges were accumulated by the Joint Committee on Health Problems and a detailed description, along with the opportunities and possible health activities, is listed in the report on pages 212-216, as specified under footnote 75. Practically every writer has compiled a similar list, although the writer believes the Joint Committee list to be the most inclusive. The Oakland, California schools have worked out a gradation of the materials from the Joint Committee, and these outlines may be obtained by writing the Board of Education at Oakland, 83 The complete report on this subject, as given by the Joint Committee, is shown in Appendix III, of this thesis.

**General Science**

This subject is closely related to Biology, and many of the materials listed under Biology can be incorporated into the General Science project. The five most common fields that are related to health are listed as:

1. Foods—nutrition and digestion.
2. Disease—cause and prevention
3. Cleanliness—personal and general
4. Air—ventilation and breathing.
5. Eyes—structure, defects and care. 84

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84. Chappelear, op. cit. p. 103-104.
Physics

This subject, as shown by Table VI, is offered in more schools in Nebraska than is any other subject. The offerings shown are 63.55 percent, which is unusually high. Physics can be utilized for health instruction to quite an extent, as shown in both of the investigations by Keier and Chappelcar. Very few authorities give definite materials for this subject, and it probably remains for the individual teacher to work out this problem. Chappelcar's investigation shown in Table XIII is now quoted:

Health Materials in Physics Texts

1. Air—breathing and ventilation
2. Eyes—structure, defects and care.
3. Foods—nutrition and digestion. 87

Chemistry

Chemistry is not as popular in Nebraska high schools as are the three preceding subjects, but, nevertheless, it should be considered and utilized in the health program. Chappelcar again is quoted, from Table XIII:

Health Materials in Chemistry Texts.

1. Foods—nutrition and digestion
2. Cleanliness—personal and general
3. Safety—personal and property
4. Clothing—hygiene and care
5. Disease—cause and prevention 88

85. Keier, op. cit., p. 87-89.
86. Chappelcar, op. cit., p. 103-104.
87. Ibid., p. 103-104.
88. Ibid., p. 103-104.
Minslow and Williamson suggest:

6. Pure food laws
7. Medicine, dust, etc. 89

Agriculture

This subject has not been mentioned in any of the well known investigations, but the writer is sure that some health values can be taught here. A few items that occur follow:

1. Care of animals.
2. Nutrition, feed and the finished product.
3. Animal diseases and their care and prevention.
4. The milk supply.
5. The world's market basket.
6. Accidents and first aid on the farm.

Doubtless, the teacher of agricultural courses will be able to add a great many items to this list, and if the teacher will try to incorporate health teaching in this course, it can be made very valuable.

Botany

This subject, since it is so closely related to Biology, will not be considered at great length. Practically every knowledge that has been suggested for Biology, will also be applicable in this subject. Nature study, with all of its implications, can easily be utilized in teaching the Botany course.

Zoology

This subject is offered too few times in Nebraska to

be at all significant as an important subject. If it becomes more popular, it will no doubt become an important subject in health since it is closely related to Biology. In fact, nearly all of the materials suggested for Biology are also applicable for Zoology.

**Geography (Physical)**

This subject is very popular in Nebraska High Schools, being offered in almost thirty-five percent of the cases. Some investigations have been done in this subject, with the following recommendations:

1. Products of different countries.
2. Panama Canal story.
3. Health conditions of different lands.
4. Laws of sanitation in various countries.
5. Health conditions of different times.
6. Spread of epidemics (plagues, etc.)
7. Climate and its effect on health.

It is as true of this subject, as it is of any other, that what the teacher wants to do about health materials, is the best criteria as to whether or not the subject will be beneficial.

**Physiology**

This is the last of the nine science courses offered in the schools of Nebraska, and it should be the most

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91. Joint Committee on Health Problems, op. cit. p. 203

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important. At least from the viewpoint of content, physiology is the best course of all for the teaching of health knowledge. There is little use to go into detail in regard to the materials available in such a subject, because practically every information concerned is related to health. Appendix III lists the suggested texts for physiology courses as given in the High School Manual.

**Mathematics**

This field of required subjects is important if health materials can be taught, because every high school in the State of Nebraska offers instruction in mathematics. Higher Arithmetic is a better subject than the others, although not required. A few suggestions have been found, and they are now listed:

1. Dimensions of the gymnasium and athletic field.\(^9\)2
2. Calories; expenses of food; market procedure; origin of foods; cost of foods, etc.
3. Height and weight charts.\(^9\)3
4. Gain and loss of weight.

---

\(^{92}\) Winslow and Williamson, op. cit., p. 257

\(^{93}\) Sixth Yearbook, op. cit., (Ch. IX), p. 218
5. Death and birth rates.

6. Graphs of health statistics. 94

7. Estimate of individual food requirements, quantitatively, making a schedule of the day's activities by minutes and calculating calories per pound per hour.

8. Calculation of proportions of different foods in diets.

9. Examine several of the "Standards of Living" studies and see what parts of incomes are used for food.

10. Calculation of costs of meals having proper dietary values, using expensive foods in contrast with inexpensive foods to show the possibilities of healthful but inexpensive diets. 95


12. Air space in school rooms and requirements for each pupil, etc. 96

English

This subject is required in all schools, and is undoubtedly very important in the health program. A number of suggestions as to materials of health can be found, a partial list of which follows:


95. Joint Committee, op. cit., p. 209

96. Ibid., p. 220.
1. Debates on health topics.
2. Dramatizations of health situations.97
3. Sentences about health.98
4. Themes on health topics.99
5. Measuring characters in books by health standards.
7. Historical novels giving living conditions of the past and comparing those with present living conditions.
8. Slogans in health.100
9. Reading of achievements in health.
10. Compositions on health topics.101
12. Punctuation of health paragraphs.102

This field is not used nearly as much as it should be. English teachers can easily teach health information by merely using such in their daily class work and in assignments for outside readings.

Foreign Language

Very little literature is available about health

98. Ashby, op. cit., p. 78.
100. Health Trends, op. cit., p. 74.
work in this field. Some health information could be taught by the foreign language teacher, if she will only try to incorporate such information into her teaching materials. The health of other countries can be studied as translations may involve health topics. In Latin, the health of the Romans is utilized as one of the more important topics. Discussions could be brought into the class program about such things as, "What did health have to do with the downfall of the Roman empire?" Here again, the teacher is the one to work out the solution to the problem, and her ability in correlating health materials into the subject, will just about indicate her true ideals as to the best interests of the child.

Social science

American history and Civics, both required in Nebraska, are included in this field. The writer is not going to outline a different set of materials for each of the social sciences, because most of the subjects treat similar material to a great extent. A list for the whole field follows:

1. Influence of health and disease on great movements of history.
2. Health organizations.
3. Taxes and where they go. 103

103. Sixth Yearbook, op. cit., (Ch. IX) p. 215.
4. Health conditions in Ancient Rome and Greece.
5. Living conditions of any era. Plagues of middle ages.
6. Athletics of the past and present. 104
7. Moral and social health.
8. Reproduction. 105
10. Family budgets and their revision.
11. Savings accounts.
12. Morality and sex. 106
13. Homes and stories about furnishings. 107
15. Clothing and protection. 108
16. Food and transportation.
17. Community civic topics.
18. Houses and shelter.
19. Public and private lives of men of history. 109
20. War and the need for correctives.

105. Ibid., op. cit. p. 274-275.
107. Ashby, op. cit., p. 78.
108. Joint Committee, op. cit., p. 133.
22. A citizen's relationship to the community.
23. Safety in labor and amusements.
26. State and national aids to health and safety.
27. Life insurance and morality. 110

This is indeed a rich field for the teaching of
health, and the writer is sure that more will be done
here, after more schools become aware of the possibilities.

D. Materials of Health for Specific Subjects

Rural Sociology and Economics:

This subject, offered in fifty-six percent of the
Nebraska schools, see Table II, is very closely related
to social science and agriculture. Both of these sub­
jects have been considered previously, under the classi­
fication of required subjects, and, consequently, will
not be considered again. The writer reiterates that the
individual teacher is the person to whom we must look
for results in this subject, as well as in others of sim­
ilar nature. Every teacher, while administering this
subject, can find ways and means of utilizing some of the
materials for specific health objectives.

Home Economics:

This subject, offered in a little over thirty-seven percent of the Nebraska schools, is considered a fine vehicle for the teaching of health knowledges and practices. The main argument against this subject is that it does not have an effect on boys, because the boys, as a rule, do not enter such courses. Specific materials follow:

1. Food and clothing for the child and family.
2. Houses and shelter for the human race.  
3. Clothing and health; warmth, ventilation, freedom of movement, cleanliness.
4. Interest in good living habits, in order to insure health, so that one may enjoy life more fully.
5. Interest in healthful foods; cost, preparation, serving and choice.
6. Interest in dietary requirements of the body.
7. Interest in beautiful, orderly and comfortable homes.
8. Interest in food functions.
9. Interest in personal health, correct diet, and correct care of the body.

For developing health responsibilities in the individual pupils:

111. Joint Committee Report, op. cit., p. 219
112. Health Trends, op. cit., p. 112.
1. Habits:

- Wearing of neat and sanitary clothing.
- Habits of diet.
- Self-control.
- Proper regular habits of living.

2. Attitudes:

- Increasing desire for right and proper kind of clothing.
- Interest in good results of good habits.
- Love of family, neighbor, community and country.

3. Knowledge:

- Right kind of clothing.
- Rules of diet.
- How to prepare and serve wholesome food.
- Knowledge of household problems.

4. Check:

- Observation of girls' clothing.
- Weighing girls and keeping weight charts.
- Use of health score cards.
- Food selection score cards.
- Note books.
- Discussion.113

Another report from the same source indicates:

1. Attractiveness and dress.
2. Knowledge of fibers.
4. Care of the eyes.
5. Care of the sick at home.
6. First aid.114

113. Health Trends, op. cit. p. 112.
114. Ibid., p. 113-114.
7. Sanitation of stores and appearance of clerks.
8. Milk inspection.115

The materials of health, to be utilized in home economics, are practically limitless, as the individual teacher knows. The writer believes that the best summarization of health materials and methods is found in "Health Trends in Secondary Education", published by the American Child Health Association, 450 Seventh Avenue, New York, N. Y., p. 109-125. If this publication is not in the school library, it is suggested that it be sent for by the Home Economics teachers. The writer disagrees with the statement of the Joint Committee that where health lessons are taught, chiefly in home economics courses, the tendency is to give the boys no health teaching, and it should be avoided.116 This study agrees with the recommendations of the Health Trend report, where it is suggested that more boys be allowed to enroll in home economic courses.117 Even if the boys receive no health instruction, that is not the criteria as to whether or not girls should be taught health essentials. No matter

115. Ibid., p. 116.
what the approach, all avenues of health instruction should be utilized as far as possible in the school.

Manual Training (Shop Work, Printing)

This type of activity compares to some extent to the home economics subject just discussed. This subject is usually taught to boys, and the many knowledges and habits of health that can be utilized here make quite a contribution to the health program. There is no reason why girls should not participate in this activity if there is an interest.

Specific Materials:
1. Correct working posture.
2. Work placements for natural and artificial lighting.
3. Ventilation of the shop.
4. First Aid.
5. Clean hands are necessary for high grade work.
6. Infections due to small cuts.\textsuperscript{118}
7. Workman's compensation and liability laws.
8. Safety devices.
9. Sobriety and the prevention of accidents.\textsuperscript{119}

\textsuperscript{118} Health Trends, op. cit. p. 74-75
\textsuperscript{119} Joint committee, op. cit. p. 222-223
In this division, it is as important for the teacher to look for the health avenue, as it is in any other subject. In fact, some of the materials mentioned above have not been suggested in any other department. The shop is a fine place to put over the industrial hygiene materials and many of the personal knowledges as well.

Guidance

This subject is commonly taught as a vocational course, or rather as a guide to vocations. True guidance includes health as a specific objective, and, as mentioned in the consideration of the selection of the health counselor, the guidance teacher should be qualified in health knowledges. Specific materials for instruction in a guidance course are not available. The pertinent point here is that the child should be guided in such a way as to improve his or her health. If adjustments are brought about in such a way as to improve a child's health, certainly that is fulfilling an important part of the health program. The manner and means of guiding toward health is a matter for the guidance teacher to work out in his program. The guidance teacher, or director, as the case may be, should be in contact with the health counselor very often. The health counselor and guidance counselor may be one and the same party, and, if so, it would be a suitable arrangement.
because the two fields overlap to a large extent.

**Vocational Agriculture**

Avenues of teaching health in this subject are numerous. Practically every project has health implications if the teacher will make an effort to show the way. The shop, science materials, agricultural projects, the farm, and animal projects all contain many health elements. A few of the common items that occur to the writer follow:

1. Care of animals.
3. Animal and plant disease; their care and prevention.
5. The market basket of the world.

**Orientation**

This study is closely related to guidance, since it usually is offered as a freshman subject to enable new students in becoming acclimated to a new school situation. Mental hygiene enters in here to a large extent, since the proper adjustment by the individual is necessary for mental happiness. The proper procedure for the teaching of this course, is best left to the discretion of the local school administrator. He knows the pertinent reasons for giving a course in orientation, and for that reason, is best qualified to conduct it. More
schools should utilize orientation as an avenue of pupil adjustment and, in this way, an important phase of health will be taken care of.

Public Speaking, Dramatics, Commercial Geography, and Character education:

The above four subjects are either offered too few times to be significant as health subjects, or closely related subjects have been treated previously. Commercial geography is closely related to physical geography and many of the recommendations will be acceptable for both. Public speaking, dramatics and character education are offered in only a few instances. Materials of health for this group follow:

1. Health conditions in different times and different lands.
2. Sanitation in various countries.
3. Dramatization of health plays.\(^\text{120}\)
4. Debates on health topics.
5. Moral, social, and individual health practices.

In each of these subjects, the teacher will be able to work out some related health information if she so desires. The success achieved in teaching health knowledges is almost entirely up to the individual teacher. If the whole staff is interested in teaching health, the health

\(^{120}\) Joint Report, op. cit., p. 203.
program will develop. If only one or two teachers are active in this endeavor, the program will fall far below the hoped for standard.

E. Materials of Health for Definite Health Subjects

The required subjects, those offered most frequently, and all others except definite health subjects, have been treated in much the same way. In the order of their importance from a distribution standpoint, physical education, hygiene, home nursing, military science and social health will be considered. The above order in the classification may not be true in all states, but it probably is true in Nebraska because the frequency of offerings point to these subjects in that order.

Physical Education

This course, offered in only forty-two schools, is one of the very best means of teaching health. In fact, health is always set up as the most important objective for physical education. Almost every phase of the physical education program deals with health and healthful activities. The success of the various school programs in teaching health through physical education varies, of course, directly with the teacher’s knowledge and ability. The weakest point in the physical education programs of today is the competitive athletic program.

Competitive athletics should be merely a phase of physical education, and if they grow to overshadow the physical education part, they should be abandoned. Every teacher of physical education has ample opportunity to incorporate health instruction into his program. If the teacher is qualified, he has a knowledge of the ways and means of accomplishing this, and if he is not qualified, he should not be teaching. There are many good publications on the proper administration of physical education, and most teachers of the subject are probably aware of a number of good ones. An outstanding book, used by many teachers of physical education, is "The Source Book in Health and Physical Education", by T. D. Wood and C. L. Brownell, published by Macmillan and Company, 1925. The bibliography recommended by the Nebraska High School Manual are listed in Appendix II.

Hygiene

This subject is another avenue for the teaching of health and it should be offered in more schools. Practically every text in this subject has been written with the objectives of health instruction in view, and it remains for the individual teacher to select the book most closely correlated to his or her ideas of hygiene instruction.

tion. More knowledge, without the practice in the ideals is to be averted whenever possible.

Home Nursing

This health source could be utilized in more schools if the curriculum was not so crowded. Practically all materials in home nursing courses pertain to health so no additions are suggested.

Military Science

This subject is offered in only two schools of Nebraska, and in those instances it is as a substitute for physical education. The military science course can be a fine approach to teaching health if conducted in the right manner. Many of the principles of physical education are utilized, and if the instructors so wish, fine habits can be taught. Posture, cleanliness, physique, general training, and special information pertaining to parts of the body can and should be utilized here.

Social Health

This subject was offered by only one school. None of the references have mentioned such a subject, and, consequently, it will not be considered at length. The idea of teaching social health, as such, may be excellent, and, undoubtedly, the purpose of this course was recognized by the principal involved.

This group of subjects, pertaining to health in-
struction, has not been offered in enough schools to be significant. All avenues of teaching health should be utilized, and if the students of the schools involved are benefitting, these courses should be continued. With the return of sufficient financial support for the schools, more offerings of this nature can be hoped for.

F. Non-Curricular Health Instruction

This phase of the health program is not developed as it should be. All schools have non-curricular activities which potentially have excellent possibilities as health contributors. Most of these activities have a teacher for a sponsor or advisor, and with wise advice from the sponsor, a great deal can be accomplished. Strang suggests the cafeteria, health examinations, athletics, and safety measures.\(^1\) The National Survey of Secondary Education suggests health posters, health plays and programs, hikes and excursions, health contests and awards, a 4-H club, campfire organizations, etc.\(^2\) The object of this study is not to compile a large list of activities, but instead to emphasize again that all of the non-curricular activities are a means of teaching

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\(^{1}\) Strang, op. cit. p. 556

\(^{2}\) Monograph No. 23, p. 57-58.
health knowledge and health practices to the child.

Horn mentions a new idea in regard to music and health. He states that the child who enters into music with abandon, feels a sense of satisfaction afterward, and this contributes to his mental stability. A large share of the physical education program is concerned with extra-curricular activities, as are debating, clubs, dramatics, and others. The non-curricular activities that are now offered in the various schools are a means toward health. The health taught thusly is more likely to impress than are the plain health facts of the classroom.

G. Aids and Hindrances to Health Instruction

It may be well to list the hindrances first and follow with the aids. No doubt most educators have found a sufficient number of the hindrances in their particular school with too few of the aids. Hood in his Montana investigation listed some four hindrances as reported to him on his questionnaire. He lists, lack of cooperation from parents as occurring in twenty-six percent of the schools. Lack of facilities within the school was given

in sixty-eight percent of the returns. Lack of cooperation from outside agencies was listed as seventeen percent, and poor organization was listed in one percent of the schools.\textsuperscript{126} This last listing, while probably true in more cases than was shown, is indicative of a situation which need not exist in any school. Every superintendent should be duty bound to set up as good an organization as his plant and personnel will allow. Bailey mentioned the inertia of the teaching staff and lack of initiative by the administration as two significant hindrances to health education.\textsuperscript{127} The inertia problem has been suggested in this study and the lack of initiative by the administration seems to fall into the same category. Inertia and lack of initiative are very closely related, and they, together with the lack of funds to enrich the curriculum, are the main hindrances of good health instructional organizations. The lack of preparation by the personnel in health matters, and the lack of method by the various teachers are important as they, too, can and should be listed as serious hindrances to the health program. The failure of the parent as a cooper-
ting agency is significant in some situations, and the failure of the school counselor or administrator to achieve cooperation from the local health official is a very great hindrance in other situations; the remaining important hindrance that occurs to the writer is the lack of definite health requirements by the various states. Nebraska falls into the last group since health education, as such, is not mentioned in the High School Manual.

The aids of health instruction are becoming more numerous. Many people are becoming more interested in the schools and the living conditions within the school. This is indicative of improvement since interest by the public always leads to improvement in time. Hood, in his Montana study, found that twenty-four percent of the schools reported cooperation from the parents; twenty-four percent reported cooperation from outside agencies; good home conditions were reported by fourteen percent of the schools, and good facilities at the school, were reported by fourteen percent. Indications of other aids are mentioned by "The Trend of Health", where the available figures show that many national health organizations have come into existence to aid in the drive for

128. Hood, op. cit., p. 82.
child health. Organizations listed include: National Tuberculosis Association, National Committee for Mental Hygiene, National Organization for Public Health Nursing, American Social Hygiene Association, National Society for the Prevention of Blindness, American Heart Association, The American Child Health Association, and others. Municipal health departments have grown in most instances, many schools have increased their health offerings, and the net result of all this is that the public is more "health conscious". This, naturally, is an aid to the schools because it is much easier to ask and receive financial help from a community that wants a health program. Most of the hindrances that have been mentioned can be overcome by a good school administrator. Health publicity must be expanded and continued if the schools are to receive the aid that the health of the children requires.

Ch. V. Health Instructional Plan for Nebraska High Schools

In this chapter a definite plan of health instruction for the Nebraska high schools is the objective. This plan is based upon the findings in prior chapters with the investigation in chapter III as the chief guide. The terminology here will conform to that as recommended in chapter I. Starting with an organization, which has been discussed in chapter IV, the entire set-up follows.

1. The State Health Council shall be composed of:
   (a) The State Superintendent of Education.
   (b) The State Superintendent of Health.
   (c) The State Director of Vocational Education.
   (d) The State Director of Home Economics.
   (e) The Extension Director of the University of Nebraska.

   The state superintendent shall be chairman of the council because of his relationship with the schools. The whole council shall act on all matters of policy and each member shall contribute to the health education program.

2. The council shall select and appoint a health education director who shall have charge of the health program in all schools, and who will work through the state education and state health departments. This director must be trained in school and public health and educational procedures. A man trained in medicine is the logical choice.
provided he has the educational knowledge as well. The health council will be able to administer a successful health education program for the schools because of the relationships involved in this set-up. The state health department will furnish much material and will also be of great value to the individual school because of the jurisdiction it has over local and county health officers. The duties and policies of the director shall be outlined by the council and they should conform to accepted standards. The director shall administer health in all phases through the education department set-up. All schools will be responsible to the director for their health programs.

3. Each school superintendent shall appoint a school health counselor who shall be responsible for the health program of the individual school. This counselor shall be the best trained individual that the school personnel affords. The counselor shall see that the state requirements in health education are carried out in the school. Each of the three main divisions of health education shall be under the jurisdiction of the school health counselor. The school health service and school healthful living are divisions in which the local and county health officers should cooperate with the counselor in order to create proper situations. The third division, health instruction

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shall be primarily under the counselors supervision.

With such a set-up established, it now becomes possible to achieve the objectives of health education as they have been outlined in chapter II. The health council with the health director in attendance shall decide which subject field is best adapted for the inclusion of health material for instructional purposes. This study in chapter III found that science in general and the biological group in particular, are best suited for the main vehicle of health instruction. Consequently, this decision will undoubtedly be reached by the health council when they meet to decide upon curricular health materials. Appendix IV gives a complete outline for the biological sciences as health material pertains to them. This outline should be adopted and required. This outline is briefly summarized on the last pages of this chapter. Less than five percent of the high schools fail to offer a biological science, so it will be an easy matter for all schools to include the subject in their curriculum. The state superintendent can require such a subject, and he should do so, if he desires health instruction in the Nebraska high schools.

This requirement should be the minimum with no maximum limit to be set. All other sciences should teach health material wherever possible, because the health of the child
shall be primarily under the counselor’s supervision.

With such a set-up established, it now becomes possible to achieve the objectives of health education as they have been outlined in chapter II. The health council with the health director in attendance shall decide which subject field is best adapted for the inclusion of health material for instructional purposes. This study in chapter III found that science in general and the biological group in particular, are best suited for the main vehicle of health instruction. Consequently, this decision will undoubtedly be reached by the health council when they meet to decide upon curricular health material. Appendix IV gives a complete outline for the biological sciences as health material pertains to them. This outline should be adopted and required. This outline is briefly summarized on the last pages of this chapter. Less than five percent of the high schools fail to offer a biological science, so it will be an easy matter for all schools to include the subject in their curriculum. The state superintendent can require such a subject, and he should do so if he desires health instruction in the Nebraska high schools.

This requirement should be the minimum with no maximum limit to be set. All other sciences should teach health material wherever possible, because the health of the child
is of prime importance. The council should look forward to requiring physical education in all schools. Such a requirement would add materially to the health education program of the schools.

While it has been shown that all subjects can be made to contribute to the health instructional program, the author does not believe it necessary, provided that both physical education and a biological science be required in all schools. Until physical education becomes a required subject, it is advisable to supplement the biological science with health material in social science subjects. Chapter IV contains an outline of health material for all subjects that are taught in Nebraska high schools. This is not a complete compilation, but it is authentic, since the source for the most part is the investigations of experts.

Further materials may be obtained from publications of the American Chile Health Association; the Joint Committee Report on Health Problems; the American Medical Association; the Department of Interior, Bureau of Education; the Child Welfare Association; the Brown Shoe Company; the Metropolitan Life Insurance Company and others. Material has been available, but the health instructional program in Nebraska high schools is practically non-existent at present.
Biology Outline

A. Introduction (four days)
B. Flowers (nine days)
C. Insects (ten days)
D. Leaves (seven days)
E. Stems (five days)
F. Fruits and seeds (seven days)
G. Roots (five days)
H. Fungi (three days)
I. Bacteria (seven days)
J. Protozoa (two days)
K. Fishes and frogs, mammals (thirty-five days)
L. Hygiene (seven days)
M. Birds (five days)
N. Variation and mutation (four days)
O. Generalizations and reviews (twelve weeks)

Under this last heading the main health materials will be handled. The health inferences are not to be neglected until the final twelve weeks of the course, but the bulk of instruction in this field will be given here after a fair understanding of biology is achieved.

The succeeding pages will give an outline of the subjects, along with definite health materials, and the approximate time that they should be brought into the class schedule.

Biology Outline (last twelve weeks)

1. Fruits and seeds; stems and fungi: (two weeks)
   study of plant needs for the healthy normal growth of the individual: as minerals, air, water, sunlight and how needs are met through vital processes, respiration, assimilation, etc.

   The opportunity for health education here is excellent in a study of the manufacture and composition of plant foods, of plant food as a necessity to man, of food values of various plants, and of the value of the different parts of plants to the plant.
A study of the individual and his relationship to height-weight graphs can be brought in here. Health practices to enable the child to grow heavier and healthier should be introduced at this time.

2. Bacteria and protozoa; fishes and frogs; mammals (six weeks) study of bacterial diseases, protozoan diseases, defense of the body against micro-organisms of disease, and the theory of immunization. An enlarged study of mammals should be brought up in this period with a study of whatever marine forms are to be utilized in the biology course.

Cells as the unit of life, a study of animal processes and their comparison with plants is to be introduced here. In this connection, the utilization of food by the animal; ingestion; absorption; circulation; and assimilation of animals should be studied. The nervous system — its anatomy and functions in both the frog and higher animals is an important phase. Fatigue, work, sleep, and rest are to be studied. The relation of work to fatigue and fatigue poison; the time and amount of rest to be of greatest value; sleep the perfect form of rest; and the relation of fatigue, rest and sleep to health are all to be studied in this division.

The materials suggested will lead to a study of production and food value of animal products, the constituents and importance of balanced ration, and experiments involving vitamins. Further opportunities involve animal behavior studies, physiological basis of habits, study of the nervous system in relation to body controls, circulation, respiration, secretions, temperature, digestion, posture, over-exertion, fatigue, poor hygiene, alcohol, tobacco, and opiates. Further opportunities include waste and fatigue, sense organs, and the skin. Eye and ear structure, bathing and cleanliness, and relationship of clothing all can be brought into discussion as a part of this division.

3. Hygiene (two weeks)

Here the evils of stimulants, narcotics, and drugs, as well as the uselessness and evil effects of patent medicines form the basis of some useful class work. Coffee, tea, tobacco, and alcohol should be further investigated here. Morphine, heroin and cocaine should be the basis of some splendid class discussions. Personal and community hygiene, children’s diseases, common colds, infections, immunity, vaccines, serums, quarantines, and about everything in the school that
pertains to the health of the surroundings can be brought in to the class in this part. First aid should be taught here, and the pupils should have an opportunity to make the different kinds of bandages, etc.

4. Appreciation of nature, Great biologists and Agriculture (one week).

Here the development of appreciation of nature by the child is very important. The recognition of certain species of plants and animals add to interest and appreciation. A practical outcome here is the establishment of landscape projects. Fishing as a recreation may be introduced, and all varieties of nature study can be recommended so that the pupils can become interested in worthwhile endeavors which make their leisure time a healthful activity. Study of great biologists and their discoveries is interesting and should be utilized here.

5. Sex education (one week).

A normal and healthy idea of sex is essential for all pupils and it may easily be worked into the biology class. If the sexes are not segregated, it may be difficult to go into detail, and probably should not be done that way. If it is possible to have the boys and girls in different divisions for this phase, a great deal can be accomplished. Seeds and their pollination, fertilization, development of the embryo, germination, and growth all contribute to pupil knowledge in this field. With internal fertilization, as it pertains to animal life, the use of the frog, the salamander, snail, and hen's egg may all be used to aid in the establishment of necessary knowledge. Dissection of mature frogs, pigeons and rabbits, both male and female aids in the reproductive study as well as further enhances the studies of circulation, digestion and respiration.

Plant and animal improvement, evolution, heredity and environment can be taken up in this division. The results of evolution, how man has improved, Mendel's Laws, Burbank's results and how man has improved plants and animals by selection and breeding, should be studied here.

All of the opportunities that have been suggested also have associate activities which should be encouraged. If the pupils become interested in the materials as outlined for the various weeks, they could end
should become active in the related activities. For example, the study of foods should lead to an investigation of market conditions; the study of the nervous system should lead to observation of the pupils' own activities and also of others; the study of ears and eyes should lead to an examination where the results may be handled in a constructive way.
VI. GENERAL SUMMARY

Determining the status of health instruction in Nebraska high schools is the general objective of the study. Gathering materials, suitable for use in the secondary schools, and showing how they may be used is another objective while a third objective is to set up a course of study which is suited to the Nebraska situation.

The present policy in health trends is toward a more compact alliance between educational and health aims and objectives. Definitions and terminology are becoming more fixed and are more generally accepted and understood by the teaching profession.

The objectives in health education are similar to the objectives of education in general. In fact the general welfare of the child is the hoped for outcome of all branches of the educational field.

The health of the teacher, mental health, and physical education are important sub-divisions of the main topic. Without a good example and proper environment little can be hoped for in teaching health. Without physical education, the direct road to teaching health habits in play and activity is closed.

The curriculum of every Nebraska high school has been examined from the view-point of health instruction. Definite health instructional courses are given in only a very minor number of schools and therefore do not comprise a good program.

The non-curricular health instructional offerings, as reported in several studies, have been found unsatisfactory.
in every instance. Science has been shown as a potential factor in building a health program because of the importance it has in the curriculum of Nebraska high schools. Other subjects offered enough times to warrant further study are social science, higher arithmetic, rural sociology and economics, commercial geography, home economics, manual training, and guidance.

The state department has not set up requirements for health instruction and until this is done very little will be done by the various schools. Physical education objectives are excellent and if this subject could be required in all schools a fine contribution would be made. Physiology is offered in nearly one fourth of the schools but is not required in most of these so the importance of the subject on this basis is lessened.

Investigations by experts point to science in general and biological science in particular as the best field for a correlated health instructional program. An examination of the Nebraska set-up shows that this type of an instructional program would be the most promising since the biological sciences are offered in nearly every school.

A dual relationship organization with the state department of health and the state department of education united in the health program for schools seems best suited for most purposes. The school health counselor must be the best qualified individual available. In instances where physical
education is offered, the physical director probably should be selected. The science teacher or the guidance director might be the next logical choice as far as preparation in concerned.

The curriculum of health instruction is to be arranged according to the local situation. The materials of all subjects have been covered with emphasis upon the sciences since the biological sciences are to be the main vehicle of instruction. Materials of non-curricular value have been enumerated and should be utilized whenever possible. The chief hindrances to a successful program are: lack of facilities, lack of cooperation by parents, lack of cooperation by outside agencies, and poor organization. The chief aids to a successful program are: increased interest by parents, better home conditions in general, increased activity by national health organizations, and "health consciousness" by the general public.

An organization plan for Nebraska has been set-up with the State Superintendent of Education, State Superintendent of Health, State Director of Vocational Education, State Director of Home Economics, and Extension Director of the University of Nebraska as members. The whole council is to contribute and act on matters of policy with the State Superintendent as chairman. A health education director is to be selected by the council and the director is to have direct charge of the program in all schools working through the state department of education and through the state department of health.
The main vehicle of health instruction is to be the biological sciences group. Physical education has been recommended as a required subject. Until physical education becomes required, the social sciences are suggested as a supplementary group in the teaching of health materials.

In General

This study should be an aid to the high schools of Nebraska because it points out the definite weaknesses of the Nebraska situation. Further this study should be a means of showing how progress can be made since a workable program is suggested.

Criticisms by this study have not been intended to pertain to any individual or individual school. Rather this study was planned as a means of giving the true picture of the Nebraska health instructional field in general without drawing attention to an individual or an individual school. For this reason the status of instruction was not given as it pertained to a single school and the names of the schools are mentioned only in Appendix I.
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B. Appendix

1. Names of Schools Investigated.

2. Bibliography Recommended by Nebraska High School Manual for Physical Education.

3. Books Recommended by Nebraska High School Manual for Physiology

4. Biological Science Materials in Health, Joint Committee Report
Appendix I

High Schools Investigated

Alda
Alvo
Amherst
Anoka
Archer
Arlington
Ashby
Ashland
Ashton
Atkinson (St. Josephs)
Atlanta
Auburn
Avoca
Axtell
Barnewton
Beemer
Belden
Bellevue
Bellwood
Marletta (Bellwood)
Benedict
Bennet
Bennington
Berwyn
Bingham
Blair
Bloomington
Blue Springs
Boelus
Bradshaw
Brainard
Bristow
Brock (Consolidated)
Brule
Bruning
Brunswick
Burchard
Burr
Bushnell
Cairo
Carleton
Carroll
Cedar Bluffs
Dunbar
Duncan
Dunning

Center
Central City
Ceresco
Chadron (Assumption
Chadron Academy)
Chadron (Normal high
Chambers school)
Chapman
Cheney
Clarks (High Prairie)
Clatonia
Clinton
Cody
Coleridge
Columbus
Columbus (St. Bonaventure)
Comstock
Concord
Cook
Cordova
Cortland
Cotesfield
Crab Orchard
Creston
Crofton
Crockston
Culbertson
Cushing
Dakota City
Danbury
Dannebrog
Dawson
Daykin
Decatur
Denton
Deshler
Lewesee
Lickers
Dix
Dixon
Doniphan
Douglas
DuBois
Hartington
Hastings
Hastings (St. Cecilia)
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<td>Hebron (Academy)</td>
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<td>Hebron</td>
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<td>Elsie</td>
<td>Hickman</td>
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<tr>
<td>Emerson (Sacred Heart)</td>
<td>Mildrith</td>
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<td>Holstein</td>
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<tr>
<td>Falls City</td>
<td>Homer</td>
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<tr>
<td>Falls City (Sacred Heart)</td>
<td>Horace</td>
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<td>Farwell</td>
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Lodgepole (Goodview Consolidated)  
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Loomis  
Lorenzo  
Lushton  
Lyman  
Lyons  
Madison  
Madison (Liberty Consolidated)  
Madrid (Consolidated)  
Magnet  
Malcolm  
Marion  
Mascot  
Maskell  
Max (Rural)  
Maxwell  
Maywood  
McCook  
Kead  
Karriman  
Killer  
Lincoln  
Mitchell  
Sunflower  
(Consolidated)  
Monroe  
Moorefield  
Morrill  
Morrill  
(Libert Rural)  
Murdock  
Naper  
Neponca  
Nebraska City  
(St. Bernard)  
Nehavka  
Nemaha  
Newport  
Pleasant Dale  
Pleasanton  
Plymouth  
Ponca  
Potter  
Prague  
Primrose  
Randolph (St. Francis)  
Raymond  

North Platte (St. Patrick)  
Oakdale  
Oakland  
Oconto  
Octavia  
Odessa  
Chiowa  
Omaha (Benson)  
Omaha (Brownell Hall)  
Omaha (Cathedral)  
Omaha (Central)  
Omaha (Creighton Preparatory)  
Omaha (Holy Name)  
Omaha (North)  
Omaha (Notre Dame Academy)  
Omaha (Convent of Sacred Heart)  
Omaha (Sacred Heart)  
Omaha (St. Johns)  
Omaha (St. Marys)  
Omaha (School of Individual Instruction)  
Omaha (Technical)  
Omaha (Underwood)  
Oag  
Orchard  
Orleans  
Osmond  
Otoe  
Pace  
Palisade (Rural)  
Palmer  
Palmyra  
Panama  
Papillion  
Parka (Consolidated)  
Paxton  
Pender  
Perry (Training)  
Petersburg  
Platte Center  
Thayer  
Thurston  
Trumbull  
Tecumseh  
Unadilla  
Union  
Upland  
Utica  
Valley
Republican City
Reynolds
Rising City
Riverdale
Riverton
Rock
Rosedale
Rosedale (Consolidated)
Roy
Salem
Salem (Honey Creek)
Scottsbluff
Senda
Seward (Concordia)
Shelton (Academy)
Shickley
Shoals (Consolidated)
Shubert
Sidney (St. Patricks)
Snyder
South Sioux City
Sprague (Central Rural)
Springfield
Stedmaner
Stella
Stockham
Stockville (Rural)
Strang
Summer
Sunol (Consolidated)
Surprise
Sutherland
Swarlock
Takoma
Takoma
Takoma (Riverside)

Valpa also
Venango
Verdigris
Verdon
Vesta
Vicka
Vaco
Yahoo
Yaho (Luther)
Yakesfield
Walace
Walhill
Walton
Waterbury (Consolidated)
Waterloo
Wauza
Waverly
Wayne
Wayne (Teachers)
Wepning Water
Westfield
Westerville
Weston
West Point (Guardian Angel)
Whitman
Whitney
Uteco
Linnebago
Winn-toon
Winside
Wood Lake
Yymore
Yymot
York (St. Ursulas)
Yutan

This comprises the list of regular high schools. The Normal Training high schools follow:
### Normal Training High Schools

<table>
<thead>
<tr>
<th>Adams</th>
<th>Clay Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ainsworth</td>
<td>Clearwater</td>
</tr>
<tr>
<td>Albion</td>
<td>Cowles</td>
</tr>
<tr>
<td>Alexandria</td>
<td>Cozad</td>
</tr>
<tr>
<td>Allen</td>
<td>Craig</td>
</tr>
<tr>
<td>Alliance</td>
<td>Creighton</td>
</tr>
<tr>
<td>Alliance (St. Agnes)</td>
<td>Creighton (St. Ludgers)</td>
</tr>
<tr>
<td>Alma</td>
<td>Crete</td>
</tr>
<tr>
<td>Anselmo</td>
<td>Curtis (Nebraska School of Agriculture)</td>
</tr>
<tr>
<td>Anselby</td>
<td>Davenport</td>
</tr>
<tr>
<td>Arapahoe</td>
<td>David City</td>
</tr>
<tr>
<td>Arcadia</td>
<td>Effing</td>
</tr>
<tr>
<td>Arnold</td>
<td>Elgin</td>
</tr>
<tr>
<td>Arthur</td>
<td>Elginwood</td>
</tr>
<tr>
<td>Atkinson</td>
<td>Emerson</td>
</tr>
<tr>
<td>Aurora</td>
<td>Fairbank</td>
</tr>
<tr>
<td>Bancroft</td>
<td>Fairview</td>
</tr>
<tr>
<td>Bartlett</td>
<td>De Soto</td>
</tr>
<tr>
<td>Bartly</td>
<td>Farnam</td>
</tr>
<tr>
<td>Bassett (County)</td>
<td>Franklin</td>
</tr>
<tr>
<td>Battle Creek</td>
<td>Friend</td>
</tr>
<tr>
<td>Bayard</td>
<td>Fullerton</td>
</tr>
<tr>
<td>Beatrice</td>
<td>Gandy (County)</td>
</tr>
<tr>
<td>Beaver City</td>
<td>Geneva</td>
</tr>
<tr>
<td>Beaver Crossing</td>
<td>Genoa</td>
</tr>
<tr>
<td>Belgrade</td>
<td>Gibbon</td>
</tr>
<tr>
<td>Belvidere</td>
<td>Glinton</td>
</tr>
<tr>
<td>Bankerston</td>
<td>Gondor</td>
</tr>
<tr>
<td>Bertrand</td>
<td>Gothenburg</td>
</tr>
<tr>
<td>Big Springs</td>
<td>Grant (County)</td>
</tr>
<tr>
<td>Bladen</td>
<td>Greenfield</td>
</tr>
<tr>
<td>Bloomfield</td>
<td>Grovel</td>
</tr>
<tr>
<td>Blue Hill</td>
<td>Guinon</td>
</tr>
<tr>
<td>Brady</td>
<td>Gibbon</td>
</tr>
<tr>
<td>Bridgeport</td>
<td>Garland</td>
</tr>
<tr>
<td>Broadwater</td>
<td>Grants</td>
</tr>
<tr>
<td>Broken Bow</td>
<td>Grant County</td>
</tr>
<tr>
<td>Burwell</td>
<td>Gerington</td>
</tr>
<tr>
<td>Butte</td>
<td>Hartsburg (Kolby)</td>
</tr>
<tr>
<td>Campbell</td>
<td>Harrison</td>
</tr>
<tr>
<td>Cambridge</td>
<td>Hartington (Holy Trinity)</td>
</tr>
<tr>
<td>Capebello</td>
<td>Harvard</td>
</tr>
<tr>
<td>Cedar Rapids</td>
<td>Hayes Center (County)</td>
</tr>
<tr>
<td>Chappell</td>
<td>Heningford</td>
</tr>
<tr>
<td>Chester</td>
<td></td>
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<tr>
<td>Clarks</td>
<td></td>
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<tr>
<td>Clarkson</td>
<td></td>
</tr>
</tbody>
</table>
Appendix II

Bibliography Recommended by Nebraska High School Manual For Physical Education

BOOKS

Wood & Cassidy

The New Physical Education
Mackmillan

Bowen & Mitchell

The Theory of Organized Play
(1923), Barnes

Joint Committee on Health Problems in Education

Report (1925)

Heatherington

School Program in Physical Education (1923), World.

Bancroft

Posture of School Children (1914), Macmillan

Williams

The Organization and Administration of Physical Education (1926), Macmillan

American Red Cross First Aid (1923), Blakiston

Life Saving Methods, Campfire Outfitting Co.

Pearl & Brown

Health by Stunts (1923)
Mackmillan

Staley

Games, Contests and Relays (1924), Barnes

Physical Education for Senior High Schools, Oakland Public Schools, Oakland, Cal.

Burchenal

Folk Dances and Singing Games (1909), Schirmer, New York
### Appendix II

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title and Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hetherington</td>
<td>School Program in Physical Education, World</td>
</tr>
<tr>
<td>Keene</td>
<td>Manual of Physical Training: Games and Less Competition, World</td>
</tr>
<tr>
<td>Bancroft, Club &amp; Johnson</td>
<td>Games (1925), Macmillan</td>
</tr>
<tr>
<td>Clarke &amp; Dawson</td>
<td>Baseball (1922), Scribners</td>
</tr>
<tr>
<td>Handley</td>
<td>Swimming and Watermanship (1916), Macmillan</td>
</tr>
<tr>
<td>Gill</td>
<td>Track and Field, Bailey &amp; Himes, Champaign, Ill.</td>
</tr>
<tr>
<td>Meanwell</td>
<td>Basketball for Men (1922), Madison (Wis.), Democrat Printing Co.</td>
</tr>
<tr>
<td>Mitchell</td>
<td>Intramural Athletics (1925) Barnes</td>
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</table>

### Magazines

<table>
<thead>
<tr>
<th>Magazine Name</th>
<th>Details</th>
</tr>
</thead>
</table>
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The Mind and Body
(Monthly except July and August),
82, Mind and Body Pub. Co.,
New Ulm, Minn.

The Athletic Journal
(Monthly except July and August),
41, J.L. Griffith, Ed. & Pub.,
6559 Glenwood Ave., Chicago.

OTHER REFERENCES

Athletic Badge Test

Athletic Badge Test, Playground
and Recreation Association,
1 Madison Ave., New York

Manual of Nebraska State League
of High School Girls' Athletic
Associations, High School,
Navelock, 25¢

Athletics for Girls

Official Handbook of National
Committee on Women's Athletics
American Sports, 25¢

Schoedler

Inter-Competitive Athletics
for Girls, Women's Division
N.A.A.A.F. of America, 2 W. 45 St.,
New York, Free

Apparatus

Manual of Nebraska State League
of High School Girls' Athletic
Associations, High School,
Navelock, Nebr., 25¢

Archery

Manual on Archery, Boy Scouts
of America, 200 Fifth Ave., New
York
Appendix II

Baseball


Frost & Wardlaw

Basketball and Indoor Baseball for Women, Scribners $1.75.


Basketball


Frost & Wardlaw

Basketball & Indoor Baseball for Women, Scribners, $1.75.

Captain Ball

See Games

Bancroft or Forbush & Allen
### Appendix III

**Books Recommended by Nebraska High School Manual**  
**For Physiology**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andress &amp; Evans</td>
<td>Health and Good Citizenship, Cinn</td>
</tr>
<tr>
<td>Andress, Aldinger &amp; Coldberger</td>
<td>Health Essentials, Cinn</td>
</tr>
<tr>
<td>Blount</td>
<td>Laboratory Guide to Health, Allyn</td>
</tr>
<tr>
<td>Bunington</td>
<td>Physiology and Human Life, Silver</td>
</tr>
<tr>
<td>Blount</td>
<td>Health, Allyn</td>
</tr>
<tr>
<td>Hartman</td>
<td>Laboratory Manual, World</td>
</tr>
<tr>
<td>Hutchinson</td>
<td>The New Hand Book of Health, Houghton</td>
</tr>
<tr>
<td>Hough &amp; Sedgwick</td>
<td>The Human Mechanism, Cinn</td>
</tr>
<tr>
<td>Lippitt</td>
<td>Personal Hygiene and Home Nursing (for girls), World</td>
</tr>
<tr>
<td>Martin</td>
<td>Human Body (Adv. 1926), Holt</td>
</tr>
<tr>
<td>Pearce &amp; MacLeod</td>
<td>Fundamentals of Human, C. V. Mosby Co.</td>
</tr>
<tr>
<td>Ritchie</td>
<td>Human, World</td>
</tr>
<tr>
<td>Ritchie</td>
<td>Sanitation and, World</td>
</tr>
<tr>
<td>Ritchie</td>
<td>Primer of, World</td>
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<tr>
<td>Walter</td>
<td>Physiology and Hygiene, Heath</td>
</tr>
<tr>
<td>Williams</td>
<td>Healthy Living, Macmillan</td>
</tr>
<tr>
<td>Winslow &amp; Williamson</td>
<td>The Laws of Health and How to Teach Them, Merrill</td>
</tr>
</tbody>
</table>

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Appendix III

Winslow

Wood & Rowell

Healthy Living, Book Two, Merrill

Health Through Prevention and Control of Diseases, World
**Biological Science**
**Materials in Health**
**Joint Committee Report**

**Biological Subject Matter from Courses in Biology, Botany or Zoology**

**Opportunities for Health Education**

**Possible Health Activities**

I.

**Studies of growing plants or animals to understand their life functions.** Plant studies to be the foundation for the study of animal and human life processes.

(a) Study of plant needs for the healthy, normal growth of the individual; as minerals, air, water, sunlight and how needs are met through vital processes, photosynthesis, respiration, assimilation, etc.

(b) Cells as the units of life.

Lay foundation for future understanding of study of physiological processes.

Study of manufacture and composition of plant foods; of the food values of various plant parts, as leaf, root, stem, tuber, bulb, fruit, nuts, grains, juicy fruits; of their food relations to the plant and to man.

Study of individual's height-weight graphs.

Correlate with keeping of individual health habit score cards, using these to check up individual health practice with the knowledge obtained through classroom studies to the left. (For example of this see Oakland, Calif. Course of Study in Science, Grades 7, 8, 9).

See nutrition suggestions for further work in food values and preparation.

In school gardens raise vegetables needed to give certain required food elements, as minerals, vitamins.
Appendix IV

<table>
<thead>
<tr>
<th>Biological Subject Matter from Courses in Biology, Botany or Zoology</th>
<th>Opportunities for Health Education</th>
<th>Possible Health Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>(c) Study of animal processes. Compare with plants to show similarities, differences and adaptation.</td>
<td>Study of production and food value of animal products; meat, milk, butter, cheese, eggs, interrelation of plants and animals. Constituents and importance of balanced ration.</td>
<td>Investigation of adequacy of markets. Investigate adequacy of home dietary; school lunch facilities.</td>
</tr>
<tr>
<td>1. The utilization of food by the animal; ingestion, absorption, circulation, assimilation.</td>
<td>Make study of experimental work done on animals to show value of all food elements including vitamins in their proper relations.</td>
<td>Self-testing and developmental physical education activities and effects on physiological development correlated with knowledge gained in class.</td>
</tr>
<tr>
<td>2. The nervous system--its anatomy and function--in frog--in higher animals.</td>
<td>Human utilization of food prepared by plants and animals.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Animal behavior studies.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Opportunity to show physiological basis of habit formation.</td>
<td></td>
</tr>
<tr>
<td>Biological Subject Matter from Courses in Biology, Botany or Zoology</td>
<td>Opportunities for Health Education</td>
<td>Possible Health Activities</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>3. Study the nervous system in relation to body controls; circulation, respiration, secretions, temperature, digestion and posture. Effect of over-exertion, fatigue, poor hygiene, alcohol, tobacco, and opium on nervous system.</td>
<td>List habits observed in selves and others. Decide which are useful, which are harmful. Study methods of establishing habits. Each decide upon habit he wishes to establish and try out method, keeping graphs of progress.</td>
<td></td>
</tr>
<tr>
<td>5. Fatigue, work, sleep and rest. Value of work to body. Relation of work to fatigue and fatigue poison. Time and amount of rest to be of greatest value. Sleep the perfect form of rest. Relation of fatigue, rest and sleep to health.</td>
<td>1. Study relation of wastes to fatigue. Look up fatigue poison experiments that have been made on animals. That have been made with people.</td>
<td></td>
</tr>
<tr>
<td>2. Measure fatigue by use of ergograph. (See in Gregg, Hygiene by Experiment.)</td>
<td>2. Measure fatigue by use of ergograph. (See in Gregg, Hygiene by Experiment.)</td>
<td></td>
</tr>
<tr>
<td>3. Action of fatigue poison upon nerves, muscles, blood, heart.</td>
<td>3. Action of fatigue poison upon nerves, muscles, blood, heart.</td>
<td></td>
</tr>
<tr>
<td>4. Study trend of modern times to shorten the work day. Is this justified from findings on fatigue?</td>
<td>4. Study trend of modern times to shorten the work day. Is this justified from findings on fatigue?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Budget your own time in relation to facts learned. Live on this budget over a reasonable period, and note results.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Determine conditions under which sleep is most beneficial; ventilation, dark room, proper bed, bed clothing suitable to weather.</td>
</tr>
</tbody>
</table>
Biological Subject Matter from Courses in Biology, Botany or Zoology.

Opportunities for Health Education

Possible Health Activities.

4. Sense Organs
(a) Eye-structure and functions. Defects and how corrected.

(b) Ear-structure and functions. Include relation to eustachian tube.


To study effects of various types of bathing on skin functions; of cosmetics; to develop value of cleanliness to physical and social efficiency.

To study relation of types of clothing to efficiency of skin functioning.

4. Correlation with Home Economics through acquiring skill in processes.

3. Acquire technique in shampooing, manicuring.

1. Correlation with Physical Education.

2. Correlate with Physical Education.

III.

Studies in reproduction.

1. Plant studies
Biological Subject
Matter from Courses in Biology, Botany or Zoology

(a) Study of simple plants to get idea of asexual and sexual reproduction, and growth thereafter.

(b) Seed Plants: pollination, fertilization, development of embryo, germination and growth of seed.

2. Animal Life:
Use frog, salamander, snail or hen's eggs to study embryonic development.

Discover that fertilization is necessary. In external fertilization little or no care is given to eggs or offspring. With internal fertilization greater care for egg and offspring.

Collect and carefully watch frog's eggs, noting divisions and changes. Continue to watch successive stages in development of young. Live frogs may be kept in laboratory during spring.

3. Dissection of mature male and female frog, pigeon or rabbit. Trace out systems of respiration, circulation, digestion, etc., as well as reproduction.

The entire series, plant, or animal or both, should result in provision of needed vocabulary and concepts for thinking sanely, directly and scientifically about sex and the origin of life. Make human applications during individual conferences between teacher and pupil, when opportunity is ripe.

Opportunities for Health Education

Moving picture studies to show development.

Possible Health Activities

Rearing of animal families may become a health teaching of first importance, especially for the mental hygiene values, in development of sex knowledge.
<table>
<thead>
<tr>
<th>Biological Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matter from Courses in Biology, Botany or Zoology</td>
</tr>
<tr>
<td>Opportunities for Health Education</td>
</tr>
</tbody>
</table>

Theory of evolution. Importance of heredity and environment.  
Results of evolution in improved plants and animals.  
How man has improved plants and animals by selection and breeding.  
The value of Mendel's Law in this work. Good or bad qualities may be inherited.  
Work by Burbank.  

Appropriate to child's age, studies in sociology, history, literature and the arts should accompany biological studies in this field, to maintain normal viewpoint.  

Thorough hybridizing experiments with flowers, note inheritance of qualities from both parents.  

Study inheritance among human families.  

Study graph of famous family histories.  

The personal factor of will power.  

Importance of wise choice in marriage.  

With older pupils—relation between personal fitness and racial improvement may be developed.
### Biological Subject Matter

from Courses in Biology, Botany or Zoology.

<table>
<thead>
<tr>
<th>Opportunities for Health Education</th>
<th>Possible Health Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td></td>
</tr>
<tr>
<td>Relations of micro-organisms to personal and community hygiene.</td>
<td></td>
</tr>
<tr>
<td>(a) Relation to food supply. Conditions favorable and unfavorable to growth with application to their control.</td>
<td></td>
</tr>
<tr>
<td>Consider useful, harmful and neutral in relation to human infections.</td>
<td></td>
</tr>
<tr>
<td>(b) Relation to disease:</td>
<td></td>
</tr>
<tr>
<td>Children's diseases, common colds, typhoid, tuberculosis, smallpox, malaria, hookworm, infected wounds.</td>
<td></td>
</tr>
<tr>
<td>Study of immunity; vaccination and serums, quarantine.</td>
<td></td>
</tr>
<tr>
<td>Action of bacteria, yeast and mold on food in home. Protection of foods. Preservatives, good and bad.</td>
<td></td>
</tr>
<tr>
<td>Make and use culture media in study of bacteria. Raise and study yeast and mold. Experiments with disinfectants and antiseptics.</td>
<td></td>
</tr>
<tr>
<td>1. Visit to Health Department to learn its functions and activities.</td>
<td></td>
</tr>
<tr>
<td>2. Development of public opinion as to standards and needs for good water supply; proper care in production and handling of milk; sewage and garbage disposal; food inspection (see score card used by Health Department of Akron, Ohio); public and individual responsibility for quarantine vaccination, reporting of communicable diseases, etc.</td>
<td></td>
</tr>
<tr>
<td>Find out and cooperate with all sanitary ordinances. Make surveys of home and neighborhood to locate unsanitary conditions, breeding places of flies and mosquitoes. Aid in clean-up campaigns.</td>
<td></td>
</tr>
</tbody>
</table>

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**Biological Subject Matter from Courses in Biology, Botany or Zoology.**

<table>
<thead>
<tr>
<th>Opportunities for Health Education</th>
<th>Possible Health Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Study of life history of fly and mosquito can be carried on in laboratory. Experiments with methods of control.</td>
<td></td>
</tr>
<tr>
<td>&quot;Anti-cold&quot; campaigns. Tabulate personal habits and home practices making for health based on classroom studies. Score self and home. Correct defects. Practice in simple first aid and home nursing activities to illustrate class principles to left.</td>
<td></td>
</tr>
<tr>
<td>Be vaccinated against smallpox.</td>
<td></td>
</tr>
</tbody>
</table>

(c) Use of immune varieties and individuals to breed varieties with high resistance.

Natural and acquired immunity in man.

Careers of distinguished workers in health field.

Biographies of Darwin, Pasteur, Corgas, Jenner, Lazear, Koch, Lister, Florence Nightingale.

Develop appreciation of the work of the scientist in fields basic to health activities. Stress the fact that courage, self-denial, altruism and skill of the highest quality were exercised by each.

Work out lines of conduct by following which we can best realize the health advantages conferred upon us by the work of the scientist studied.
Biological Subject
Matter from Courses
in Biology, Botany
or Zoology

Opportunities for
Health Education

Possible Health
Activities

Note 1—First
aid subject matter
is best intro-
duced at appro-
priate places, as
bandaging in con-
nection with circula-
tion study or study
of micro-organisms;
resuscitation, in
connection with res-
piration, or circu-
lation, etc.; an-
tidotes, fractures,
strain, etc., in
same way as appro-
priate.

To arouse inter-
est in safety pro-
cedures, acci-
dent prevention.

To develop skill
in first aid.

Practice in the
first aid activity
under discussion.

Development of First
Aid Station and
organization of
First Aid Corps
in school to care
for minor emergen-
cies—older pupils
for younger, etc.

Note 2—Drugs and
beverages should be
studied when foods
and their physio-
logical effects are
considered.

Study pure food
and drug laws. Col-
lect medicine ad-
vertisements and
labels from patent
medicines. deter-
mine which are
true and which
false as to claims.
Consult druggists
as to harm of in-
gredients noted.

Opportunity to
develop an enlight-
ened, discriminat-
ing attitude to-
wars use of "med-
icines" as contrasted
with hygienic
daily regime.

Scouts—methods
demonstrated.
Note 3 — Much scientific subject matter fundamental to Health Education is contained in the courses given as general science. Such material is drawn from fields of chemistry or physics, rather than biology, strictly speaking, and is not given here. Such topics are ventilation, heating, lighting; chemical processes incident to cooking; to cleansing. For the use of a general science course as a vehicle of Health Education, see Oakland Public Schools outline for general science, Grades 7-8-9, also High School Journal, Oakland Public Schools for articles on courses in physiology, chemistry, physics for Senior High School, in which material for health education is well presented.

Where the heads of departments wish to accomplish health education as earnestly as to meet college entrance conditions, conferences, and cooperation will develop a common aim and secure the enthusiastic adoption by pupils of a program of study and activities integrating all the activities of school in the pupil's health interests.