

UNITED STATES DEPARTMENT OF THE INTERIOR

RAY LYMAN WILBUR, Secretary

US OFFICE OF EDUCATION

WILLIAM JOHN COOPER, Commissioner

BULLETIN, 1931, No. 20

BIENNIAL SURVEY OF EDUCATION
IN THE UNITED STATES
1928-1930

CHAPTER X
HYGIENE AND PHYSICAL EDUCATION

By

MARIE M. READY

ASSOCIATE SPECIALIST IN RECREATION
OFFICE OF EDUCATION

and

JAMES FREDERICK ROGERS, M. D.

CONSULTANT IN HYGIENE
AND SPECIALIST IN HEALTH EDUCATION
OFFICE OF EDUCATION

(Advance pages)

Vol. I



UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON: 1931

CHAPTER X

HYGIENE AND PHYSICAL EDUCATION

BY MARIE M. READY

Associate Specialist in Recreation, Office of Education

and

JAMES FREDERICK ROGERS, M. D.

Consultant in Hygiene and Specialist in Health Education, Office of Education

CONTENTS.—White House conference—A septennium of school health work—Buildings and sanitation—Health examinations—Dental disease and treatment—Ultra-violet light—Nutrition—Anthropometry—Health education—Mental hygiene—Athletics—Physical education—Research in play—School playgrounds—Community use of school property—Planning ahead—The summer camp in higher education—Land-grant colleges—Legislation

WHITE HOUSE CONFERENCE

The White House Conference is too widely known to need extended comment here. Suffice it to say that the collecting and presenting of facts and opinions bearing on the subject of child welfare and protection have never been carried out on so comprehensive a scale. While it was out of the question to make such investigations as would bring forth new facts, or solve knotty problems, such information and such practices as exist underwent a thorough investigation, weighing, and restatement.

Considering the school child, certain suggestions or proposals stand out as significant. One of these is with regard to the length of the school day. A school day of six hours was proposed as a maximum and "if homework is required the day should be shortened accordingly. * * * Home study should be eliminated in the first six grades in the elementary school, and has little to commend it in the higher grades."

Mental hygiene loomed large, if vaguely, and vocational guidance figured prominently. The need for trained workers in these fields was stressed at much length.

The long summer vacation has become a major problem in the education of the child * * * and the committee recommends that every school should assume the responsibility of providing for the child during his summer vacation opportunities for healthful and creative activities.

In physical education—

activities should be selected according to the individual needs, interests, and abilities of the pupil. The physical education period, within the school program of the day, should be chiefly a period of instruction, and should articulate successfully with the time and opportunity outside of regular school hours for the practice of activities and games belonging to a free or controlled program.

The health needs of rural school children were stressed, as was also the frequent neglect of negro and Indian children. The need for adequate care of cripples, hard-of-hearing, speech-defective, and other handicapped children was given full attention.

The importance of cooperation of the home and of parent education in school health work was emphasized; likewise the need for adequate training of the teacher to an appreciation and comprehension of the "whole child."

The special committee on legislation recommended that there should, by mandatory law, be ample provision for protection of the child as regards school housing conditions; that there should be ample space for play and that use of playgrounds during school hours and at other times should be safeguarded. Instruction in hygiene and in physical activities should be established by mandatory law with provision for stimulation and direction of such activities by the State department of education. Provision should be made for adequate teacher training along these lines. As regards health examinations the laws should be mandatory but not too specific; the State department of education should be made responsible for carrying out the provisions of the law; there should be a State director of medical inspection; the local board of education should be responsible for local administration; teachers should be trained in the detection of signs of communicable disease and of gross physical defects; permission should be given for setting up medical or dental clinics, if this seems desirable.

The reports of the White House Conference will be published both in summary and in detail.

A SEPTENNIAL OF SCHOOL HEALTH WORK

The reports of the White House Conference on Child Health and Protection, the Office of Education sent an inquiry regarding facilities and practices in public school medical and dental work, health education, and physical education to superintendents in cities from 2,500 population and over (2,805 communities) and to county superintendents (3,546). This was the first investigation in this field since 1923. Some comparisons of the information received in this sabbatical study are of interest.

In the more recent year 15 per cent more cities of 100,000 population and over (1920) and 30,000 to 100,000 population replied to our inquiry. This fact is probably only slightly significant of extension or intension of work along this line in cities of this size. However, replies were received from about 20 per cent more cities with a population of from 10,000 to 30,000, and from 47 per cent more of those with 2,500 to 10,000 people. In 1923 only 27 per cent of the latter answered and in 1930, 74 per cent. Making allowance for a more answerable questionnaire, there can be little doubt that there has been a very great increase in the number of schools in these smaller communities which have developed a considerable program in health work along all lines. As regards county school systems, 20 per cent more superintendents furnished information (30 per cent in 1923 and 50 per cent in 1930). Moreover, the recent replies gave evidence that very much more is being done in rural schools. Just what is happening in the very large number of schools that fall between county organizations and places of 2,500 people one can only surmise, but it can hardly be doubted that very much more effort is put forth in small communities for the preservation and improvement of the health of the child than was the case seven years ago.

As regards expenditures for school health work, a comparison of data from cities 10,000 and over indicates an average increase per pupil of about 10 per cent. The average increase for medical and dental service is in the neighborhood of 15 cents per pupil (school census), while that for physical education is about 32 cents per pupil. For physical education there has been an increase of nearly 20 per cent. There has been a decided increase in maximum salaries paid in cities with a population of over 30,000. One director of school health work receives \$7,500, two school physicians receive \$6,000, and five cities pay \$5,000. Including the above, 21 cities pay \$4,000 or more. In cities of the next group (10,000 to 30,000) 12 cities pay \$3,000 or more, up to \$5,500.

The average salaries of physical education teachers reported are about 20 per cent higher while a maximum salary, about 40 per cent higher, is given.

A very considerable number of cities (40 per cent of those having a population of from 10,000 to 30,000) do not employ school physicians, but there has been a slight increase since 1923 in the relative number of school physicians for the school population in the cities which employ these officials.

Most of these physicians are on part time and there is probably not more than one for 10,000 pupils enrolled if all physicians were considered on full time. Apparently there has been no relative increase in the number of school nurses. There is about one nurse for 3,200 pupils.

Mental hygiene has been much mentioned of late, though the import of the term varies extremely with its user. Apparently there is less work along this line, but this is not the case, as in 1923 the term was applied chiefly to "mental testing" in the wholesale sense, whereas it is now used in a more specific way.

There has been a very considerable decline in special nutrition classes, and in the supplying of mid-morning lunches in cities. On the other hand more attention is being paid to health instruction in elementary schools. There has been a considerable increase in such instruction in high schools, though the proportion of high schools in which there is adequate teaching of this subject is still very low. With this increase has gone an increase in the number of special teachers for this subject.

In the way of equipment for physical activities there is a large increase in the proportion of high schools (junior and other) which have gymnasiums and swimming pools. What is much better, there is an increase in communities of all sizes in the number of schools, elementary and other, having playgrounds. However, in the largest cities, 12.8 elementary schools in a hundred do not have playgrounds; in the second group (30,000 to 100,000) 4.1 per 100; in the third group (10,000 to 30,000) 7.6; in the fourth group (5,000 to 10,000) 11.7; in the fifth group (2,500 to 5,000) 10; and in rural schools (100,566 schools included) 11 per 100 are without playgrounds.

Nearly half of the cities of the first group, 40 per cent of those of the second group, and 20 per cent of those of the third group report supervised physical activities after school and about 15 per cent in each group conduct such activities on Saturday.

In former biennial surveys we have stressed the importance of having parents present at the health examination, especially the first examination, of their children. Such a thing was hardly thought of in this country in 1923. In 1929 two cities of the first class reported that 100 per cent of children were attended by a parent, one, 90; one, 85; one, 80; one, 75; one, 70, and two, 50. In cities of the second group, there was 100 per cent attendance of parents in 3 and 75 per cent or more were present in 10 cities. However, in 44 out of 76 furnishing information no parents were present. In cities of the third class, 15 cities reported 100 per cent of children accompanied by parents and in 30 cities, 75 per cent or more were present. In 80 per cent no parents were present. The director of medical inspection in one of our largest cities states, "One of my hopes is to establish a routine procedure in which the parents are positively invited to be present at the time of examination." This has been a routine procedure in some cities abroad for a number of years. The school medical officer of London, where, in 1929, 88 per cent of beginners were attended by parents, remarks: (1929-30)

This very high proportion of parents now attending the inspection of the entrant child is a most important fact, for no general health propaganda can compare in its effect with the intimate discussion by the parent with the doctor of health questions, with the child present as an object lesson of more absorbing interest to the mother than any other could possibly be.

Seven years ago there was no "summer round up," and in very few school systems was the examination of children before entrance even thought of by school health authorities. In 1930 about 30 per cent of the largest cities reported the examination of children before entrance. In four cities 100 per cent, and in eight cities, 75 per cent or more were examined. In some cities the percentage of those examined who were treated indicates that the examinations might as well not have been made.

Fifty per cent of cities of the second group reported the examination of at least some prospective pupils before entrance. In 7 cities 100 per cent were examined and in 19 cities 75 per cent or more were examined. In one city 98 per cent were examined and 80 per cent of those found defective were treated. However, only two cities reported the treatment of more than 50 per cent of the defective.

In over a third of the cities of 10,000 to 30,000 people some examinations were made. In 13 all were examined, and in 40, 75 per cent or more. One city reports 100 per cent examined and 80 per cent treated.

The increase in replies to our inquiries by superintendents in places of 2,500 to 5,000 people, from about 27 per cent in 1923 to 76 per cent in 1930, indicates more than merely a better response conjured by the words "White House Conference." The questionnaires returned in 1923 indicated that little or nothing was being done healthwise and the comments of superintendents as to what they were doing were usually pessimistic. The replies and tone of the replies in 1930 are very different.

About 45 per cent of the 1,003 superintendents report the employment of a full or part time physician and about 63 per cent have a full or part time nurse. Some examinations are made in 85 per cent of schools reporting, and clinics are available in about 28 per cent of communities. Five per cent report a "special health supervisor." In about 90 per cent of these schools children are weighed and measured periodically. Health education is carried on in at least 97 per cent of the counties or districts represented. A noon lunch is served in 26 per cent of the schools.

The reports from county superintendents represented what is done or not done in 100,566 schools, or for about one-quarter of the total school population of the country. About 40 per cent of superintendents report the employment of a whole or part time physician

and about 50 per cent of counties have a full or part time nurse. There is a special health supervisor in 83 counties (6 per cent).

In 60 per cent of these counties pupils are weighed and measured (usually yearly). In 63 per cent the vision and hearing and teeth are examined and a general examination is reported for 52 per cent. Some attempt at securing treatment of defects or diseases is made in most of these counties. Medical clinics for treatment are available in 27 per cent of the counties. Psychological clinics are reported by 8 per cent, half of which are traveling clinics under the supervision of the State.

There is a playground for 89 per cent of all the rural schools reported. Health education is conducted in 93 per cent. A noon hot lunch is provided in 20 per cent.

BUILDINGS AND SANITATION

Dresslar and Sunderland, in studying the location of classrooms of school buildings, came to the conclusion that for latitude $36^{\circ} 10'$ the best orientation is either west or east. They say:

These furnish opportunity for purification of the room by sunlight before and after school, without interference with pupils, and call for fewer hours with window shades down during school hours. The next facings in order of desirability are southwest, southeast, and south.

The methods of study of the above-mentioned writers are reported in Peabody Journal of Education for July, 1929.

The subject of ventilation we have with us always. The New York Commission has been conducting further researches during the biennium and its reports will be of interest to those concerned.

In England a comparison was made by H. M. Vernon and his colleagues of 1,357 children in specially ventilated schools (called open-air schools in that country), with 514 children attending two ordinary schools with good cross-ventilation by means of windows. Children in the latter showed distinctly less absenteeism, 6.1 per cent as compared with 7.9 per cent. Where the cross-ventilation was moderate or poor, however, the absenteeism rose to 9.3 and 10.4 per cent, respectively. The average floor space was about 14 square feet per pupil. With a mean floor space of 16.6 feet the absenteeism was 7.5 per cent, while with a mean of 12.6 feet the absenteeism was 10.1 per cent.

These investigators concluded that "an air temperature of about 60° and a cooling power of about 7 should be aimed at while the air temperature should never be allowed to fall below 55° nor the cooling power to rise above 9." On account of differences in climate other than temperature, and differences in clothing, the above thermometric readings would, in this country, be about 68° and 65° .

HEALTH EXAMINATIONS

Most medical inspectors in this country have hitherto had little time to do more than their routine work along lines already laid down for them. They have been unable to contemplate the final results of their labors. Important contributions to this end have been made by Dr. A. K. Kaiser, of Rochester, N. Y., who has compared the histories of children for whom removal of tonsils and adenoids was advised and carried into execution at the age of 5 or 6 years with the histories of those children for whom the operation was advised at the same ages but not performed. Comparisons were made and published at the end of 3 years. The children are now in high school, and the comparison was again made 10 years after the removal or nonremoval of the tonsillar tissue. The number of children in each group was 1,000.

Doctor Kaiser arrives at the following conclusions: (a) Outstanding benefits from operation are apparent in influencing the incidence of sore throats over a 10-year period. Ten per cent of the tonsillectomized still have sore throat, while 35 per cent of the control children have repeated attacks. Twenty-two per cent of the first group and 30 per cent of the second group still have head colds, while a higher proportion of the first group than the second have infected sinuses and post-nasal discharge. The incidence of otitis media is slightly lessened by the operation. Laryngitis, bronchitis, and pneumonia were somewhat more frequent in the tonsillectomized, but primary attacks of rheumatic infections occur less often. Incomplete removal of tonsillar tissue does not afford so good protection against the usual throat affections as does more complete removal.

About twice as many of the children who retained their tonsils were found to have enlarged cervical glands and it is significant that this group had twice the percentage with decayed teeth. The relation between bad teeth and enlarged glands is well known. One can but wish that, throughout the study, children with similar dental care had been considered, for the removal of tonsils and adenoids does not remove the possibility of infection direct from teeth to glands or a further extension of infection through the lymphatics. Apparently 43 per cent of the children who have had their tonsils removed ever had sore throat and frequent head colds and perhaps not so many, since a child may be subject to both conditions. Since these are about the only affections definitely influenced by operation it would seem that with our present knowledge the number for whom the operation was suggested might have been half as great.

Doctor Kaiser remarks that "no other medical procedure, with the removal or nonremoval of the tonsillar tissue. The number of children frequently advised and carried out, but the cost of tonsillectomies and the risk is far greater than for vaccinations. It is probable that each year nearly half a million school children have their tonsils removed, which at the low cost of \$20 each would mean an expenditure of well over \$10,000,000. This cost is negligible if the results are forthcoming, but where there are no indications other than "enlargement" of the tonsils, the operation would seem to be a pure waste, while a third of those operated upon, who previously had sore throats, still have them and about two-thirds retain their susceptibility to head colds. Such studies as this will lead to more care in selecting cases for operation and possibly clues will be found which will eventually do away with the need for such crude methods of treatment.

Investigations as to the causes of adenoids and defective tonsillar tissue are now in progress in England by a special committee of the board of education. In their preliminary report they conclude: "Prematurity, artificial feeding, and defects of environment are slightly but consistently commoner than among normal children." There is a possibility of a food deficiency. "Adenoids may occur as early as the first year of life, they seldom develop after the eighth year, and in the majority of cases are already established in the fifth year." They frequently develop following an attack of infectious disease.

Educational retardation is a fairly common result of adenoids, especially in the higher age groups. The cause in a certain number of cases is the defective hearing which so often accompanies this condition, in others there is a certain mental lethargy which may be due to some interference with the cerebral circulation. * * * The immediate results of operation are shown to be favorable in the great majority of cases, but less so in regard to aural symptoms than to those of the naso-pharynx. There is a small amount of evidence which suggests that the improvement in some children is not maintained.

The conclusions of Doctor Kaiser are in a large degree similar to those of Collins and Sydenstrycher, in their *Epidemiological and Statistical Study of Tonsillitis* (Public Health Bulletin, No. 175, July, 1927); and also to those of Wilson, Lingg, and Croxford, in their study of Tonsillectomy in relation to the Prevention of Rheumatic Heart Disease (*American Heart Journal*, December, 1928, 6. 19).

According to the Rome correspondent of the *Journal of the American Medical Association* (May 15, 1930), a census of school children with adenoids was made by order of the Government in the principal cities of Italy. Statistics were collected by specialists in otorhinolaryngology under the direction of the public health serv-

ice. In Milan 13 per cent of pupils were found to have adenoids and in Naples 17 per cent. Only 2.5 per cent were considered in need of surgical treatment. "In the statistics of Naples the relation between adenoids and retardation in mental development of the child was clearly proved." The retardation is in direct relation with the gravity of the physical condition.

Dr. H. S. Diehl, in a Study of Health and Scholastic Attainment of Students in the University of Minnesota (Public Health Report, December 13, 1929), concludes that physical defects which seem to be most significantly connected with poor school work are very defective hearing, overweight, flabby musculature, and anemia. Of more significance as affecting scholarship were the necessity for complete self-support, employment at physical or clerical work during the summer, and abnormal mental or emotional conditions.

Studies have been made with regard to the effects of physical defects on sickness of school children. The Milbank Memorial Fund reversed the process and, taking sickness records, attempted to find their causes in defects. They conclude that evidence that illness rates were higher among children with gross defects than among those who were free from them was by no means definite.

In other words, the findings of the physical examination, even when considered from the point of view of specific and serious conditions, are a poor indication of the extent to which the child is actually sick.

Kemp and Collins, in their Study of the Relation Between Mental and Physical Status of Children (Public Health Report, July 19, 1929), come to the following conclusion:

The I. Q. of children is definitely influenced by the child's experience, training, and other environmental conditions, including home surroundings. * * * It appears that the I. Q. is an indicator of the child's total present mental equipment rather than of his native intelligence, apart from his training and experience.

The prevalence of physical defects decreases as the I. Q. increases. This tendency seems to be independent of race, language, and other similar factors. * * * No particular defect, with the possible exception of defective hearing, stands out as having a particularly close relationship to the I. Q. The relationship between I. Q. and physical defects seems to be of a general rather than a specific nature. * * *

The mean bodily measurements of the children with high I. Q. were slightly but consistently higher than for those of low I. Q.

Dr. E. Blanche Sterling, from her investigation of the Hearing of School Children as Related to School Work (Public Health Report for May 16, 1930), concludes that among children with a loss of 9 or more units (audiometer), the older ones were in the majority. She writes:

In no group, at any age, did the rate of children with significant hearing loss rise as high as 4 per cent. The percentage of children with significant hearing loss was generally greater in the overage-for-grade group. Among the

children doing the poorest school work in the youngest and oldest groups there was the largest amount of significant loss. In the intermediate-age groups the findings were not clear cut.

For a general study of the physical defects of school children see *School Health Studies*, No. 15, Office of Education, 1929.

HEART CONDITIONS

An attempt is being made in at least one city school system to secure a more definite knowledge concerning the condition of the heart than has been afforded by mere stethoscopic examinations. The results of these studies will be looked forward to with interest. In this connection we quote the following remarks of Doctor Menzies, school medical officer for London, in his 1929 report:

It was formerly the custom to term "functional" all heart defects which were not accompanied by the signs of valvular lesions. It is now, however, better understood that there are defects of the heart muscle (myocarditis, etc.), in earlier years placed in the "functional" class, which are every whit as "organic" as valvular lesions, and even more attention is paid to hearts which betray the symptoms and signs of muscular trouble than to those with well-compensated valvular defect.

TUBERCULOSIS

Tuberculosis, while not much in evidence during the period of school life, becomes very much so in the decades immediately following—the death rate mounting ten times within 10 years and every fourth death being the work of the tubercle bacillus. Turning the picture about, those who die or are disabled by this loathsome ailment, were all in school not long before. Tuberculosis is usually a slow-going disease and it does not seem likely that deaths occurring so soon after school life were due to infection in this after-school period.

It has long been known that a considerable percentage of children are infected with the tubercle bacillus by the time of school entrance. The perfecting of the X-ray machine has brought with it the finding of the early lesions resulting from that infection. These are chiefly in the bronchial lymph nodes where, throughout childhood, at least, the disease usually remains. Children exposed to tuberculosis in the home are most commonly infected and most frequently show this "juvenile type" of tuberculosis. It is unfortunate that the evidence of disease is hid away where only the skill of the X-ray technician and the experience of the diagnostician can study them. Even so, it is a difficult task.

A study of tuberculosis in children of school age in Massachusetts has been in progress on a large scale for some years and the gist of the findings is given in *Childhood Types of Tuberculosis*, by Chad-

wick, McPhedran, and Maurice, published by the National Tuberculosis Association. Another notable study was that made in the schools of Philadelphia by the Phipps Institute and the Metropolitan Life Insurance Co. The results of this study are to be found in Tuberculosis in Public-School Children, by Opie, Landis, McPhedran, and Hetherington, published by the Phipps Institute.

For some years Dr. Walter L. Rathbun, of the Newton Memorial Hospital, Cassadaga, N. Y., has made examinations and observations of high-school students and a summary of his experience is given in a paper on "Tuberculosis Among High-School Students of Chautauque County, N. Y.," published by the National Tuberculosis Association.

A summary of these various studies is given in Schools and Classes for Delicate Children, a publication issued by this office as Bulletin, 1930, No. 22. This publication contains the results of the investigation of open-air schools and classes and is the first study of this subject made since 1916.

DENTAL DISEASE AND TREATMENT

Dental decay is still the most common and most expensive of diseases in children of school age. When carious teeth are filled or removed the total expense is tremendous and there is risk of greater expense if the teeth are neglected. It is most important that these defects be prevented or treated in the most economical way. There has been much excellent research along these lines.

As regards the cause of caries, three investigations of the past biennium add to the abundant proof already offered that this condition is due chiefly to defective diet before or after birth. H. C. Pickerill, from a study of the skulls of Maori people, unaffected by contact with white civilization, noted only 1.2 per cent with carious teeth. The chief medical officer of health of New Zealand, in his report for 1929, states that perfect sets of secondary teeth were found in 172 per 1,000 Maori school children as against 51 per 1,000 white children, and that the more the Maori copies the white man's diet the more does his dental superiority vanish.

An investigation of dental diseases in Hawaii by Jones, Larsen, and Pritchard, published in Dental Cosmos for May-July, 1929, deals with decay in preschool children of many races resident in the islands. Some general conclusions were that "race and inheritance are not factors. * * * Certain diets that contain no milk and are extraordinarily high in carbohydrates have been compatible with sound enamel over a period of hundreds of years." There appeared to be a correlation between a certain type of diet and freedom from, or arrest, of decay. Diets of children 3 years of age or older con-

taining fruits and vegetables "in amounts sufficient to produce an alkaline ash were invariably associated with sound enamel or arrested decay." This was regardless of the child's exposure to sunlight or of his mode of living or activity.

In England the Commission on Investigation of Dental Disease has been following 840 selected children from 2 to 16 years of age. The commission has placed these children on special diets and will keep them under observation for three years. The basal diet of all is such as is generally considered adequate. Besides a group given only this diet there are five groups each receiving special additions to the basal diet. The children are examined every six months. At the beginning about 19 per cent of teeth were decayed. After four inspections (one and a half years) the percentage of teeth developing caries in children receiving cod-liver oil (vitamins A and D) and radiosterol (vitamins A and D), in addition to their basal diet, was approximately half that in the control groups.

In this country Prof. R. W. Bunting, of the University of Michigan, and his colleagues have succeeded in preventing and checking dental decay in children to a very large degree by the prescription of a certain general dietary in institutions where the feeding could be controlled. These studies, together with those already carried out and chronicled in previous publications of this office, point the way to fundamental efforts which should be put forth in the home through the educative activities of the school for the prevention of dental disease. Such methods are now being applied in certain schools.

On the side of tinkering with the results of our past ignorance, which is necessary for the time being, the American Child Health Association presents its Study of the Public Health Aspects of Dental Decay in Children. The report states:

There is absolutely no relation between either stain or tartar and the development of caries. Cleaning teeth as it is done by the dental hygienist may have its own values, aesthetic or educational, but the absence of stain is not associated with the absence of caries, nor is the presence of stain found to go hand in hand with caries.

Degree of gingivitis is related in a very slight degree with uncorrected decay. Gingivitis is probably enhanced to a small degree by caries if it remains uncorrected.

The filling of deciduous teeth, the report finds, "has no apparent effect upon the subsequent or contemporary decay of permanent teeth."

ULTRA-VIOLET LIGHT

In London 287 school children were divided into three approximately equal groups, one of which was exposed to ultraviolet rays in doses deemed appropriate, another to a similar lamp screened

by window glass, while the third group received no special irradiation. The experiment was carried out over a 6-month period. The height and weight of the children were noted periodically and the daily records of colds and coughs were kept. Incidence of diseases other than colds, progress in school work, and subjective impressions of teachers, physicians, and others were also noted. There was no clear evidence that irradiation had produced any results favorable or unfavorable.

In Detroit 27 children, from 11 to 14 years of age, attended for the school year a room glazed with glass permeable by ultraviolet rays. Thirty-six children of similar age in an ordinary classroom were used as a control. The two groups were studied with regard to their general physical improvement, increase of weight, and variations in temperature. Each child was given a "health score." The following statistics give the results of the comparison:

Age group	Room glazed with vitaglass average score of 27 children	Room glazed with ordinary glass average score of 36 children
11 years.....	75.0	77.2
12 years.....	82.4	84.6
13 years.....	83.5	86.3
14 years.....	88.4	88.0
Average.....	82.1	82.6

From the above table it will be seen that the average score for the children attending the room glazed with vitaglass was 82.1, and the average score for the children attending rooms glazed with ordinary glass was 82.6. While the latter group apparently has the advantage, the difference is so small that it is probable that if a larger group of children were studied in a similar manner, the scores would be more nearly alike. In other words, we do not find that the physical condition of children attending the rooms glazed with vitaglass was perceptibly improved over that of the children who attended rooms glazed with ordinary glass.

NUTRITION

Nutrition work has been prominent in recent years and deservedly. The study made by the Office of Education regarding open-air schools and classes showed that often miscellaneous, inefficient, and insufficient efforts are put forth for a few children selected with little certainty as to their needs. These methods are giving place to efforts at educating all pupils as to food and other health essentials and to securing the cooperation of the home. Not only do pupils who are merely poorly nourished do as well or better with the

latter method of attack, but, with a better bill of fare at home, the whole household is exposed to more healthful conditions. While it is the business of the school to furnish the best of conditions in the school it can not attempt to furnish these out of school hours, and very much of our health work is wasted because of lack of cooperation by parents, a cooperation that can usually be secured if we go at it in the right way.

ANTHROPOMETRY

There has been a revival of interest in the always interesting subject of anthropometry. The Public Health Service published the results of "Physical Measurements of Boys and Girls of Native White Race Stock" in Public Health Report for May 3, 1929. The measurements were of about 30,000 school children of native white parents and grandparents. The measurements were standing height, sitting height, weight, chest dimensions, and breathing capacity.

The studies of Franzen, of the American Child Health Association, with reference to the relation of various bodily measurements to weight were mentioned in the report for the preceding biennium. For some years certain height-weight relationships have been in common use in schools as a means of determining malnutrition or at least undernourishment. Underweight of a certain degree has also been taken as a possible indicator of tuberculosis. A number of investigations of the past few years have shown that the latter interpretation, of relatively low weight for height, does not hold water with regard to children, and a number of observers have pointed out that very many of those who are underweight are normally underweight. Moreover, we are not at all certain that because a child happens to be of average weight for average height he is well nourished. One look at his teeth will usually tell us that he is not. In fact, in one instance at least, more dental disease has been found in children considered "well nourished" than in those of lighter weight for their height.

The use of the age-height-weight table as a test of possible tuberculosis, or (except in a very general way) as an indicator of poor nutrition, has been abandoned. This does not mean that weighing and measuring is also to be dropped, for this is as useful as a means of interesting the child in his physical development as it ever was. Moreover, it is most important that we know whether the child is adding to his height and his weight as, from what knowledge we have, we should be led to expect. Comparisons with the average child are not wholly without interest, but interpretations of relationships should be made with more caution.

HEALTH EDUCATION

There has been an awakening to the needs for health teaching in secondary schools, where, largely on account of college requirements of other subjects and lack of recognition of physiology and hygiene as subjects for entrance credit, health instruction has been very much neglected.

In California the State university has amended its regulations so that physiology is now recognized as a third or fourth year science for entrance credit.

In Pennsylvania, high schools, to be accredited, must present a course in health education concerning all years of study. The State department has prepared a course of study for health instruction organized on a 6-year basis.

The National Tuberculosis Association has made investigation as to the health needs of high schools and, through its field agents, is promoting work in these institutions. These agents found a general complaint from high-school students that home study is a factor in preventing an early bed time and adequate rest. The tuberculosis association has issued a publication on the importance of rest and sleep (*Rest and Sleep*, by Nora L. Reynolds), but for those pupils who have insufficient time or right conditions for either it will be of little use.

The American Child Health Association, in its conferences in 1929 and 1930, brought together much excellent material on the subject of health education which can be consulted in its reports. As regards high schools one very definite decision of these conferences was to the effect that there was need in these schools for a fully prepared person who would be responsible for all the health activities and for coordinating them. The terms "health counselor" or "coordinator" have been suggested for this agent. "Health director" would do as well, and is in use in some communities.

The department of education of the city of New York has reorganized its scheme of hygiene and physical education. It has prepared a new course of study in health education and has added a staff of 36 special health education teachers besides the director and assistant directors in this field. In addition, each elementary and junior high school will have at least two or three health counselors who will aid in the advancement of the health education program in their respective schools.

An interesting and evidently profitable health project is reported from a platoon school in Newark, N. J. Experimental and control classes were selected from grades 6 A to 7 B. Hygiene had been stressed as one of the subjects to which all of these pupils were

exposed in the auditorium work. A true-false health-information test (100 questions) was given to all pupils. The groups were also given the Otis intelligence test. Special health teaching of the experimental group was begun in December and health clubs were organized in February. The teaching was transferred from the auditorium to the home room. In May the groups were retested with the same questions. At the first test the experimental group averaged a score of 75.3 per cent correct answers, while this control group made 78.3 per cent. In the retest the first group scored 90.4 and the control 86.8. This experiment had the desired and expected effect. What we wish to point out here is that the results of the first test tally closely with similar tests of health information. A study was made in 1929 by a committee on research in health education, of the Portland, Oreg., schools in the month of December to determine, "so far as a written test can do this, to what extent the health work is stimulating correct and healthful habits and attitudes." The city averages for the 6 A grade were, regular schools 84.2; platoon 84.5; and for 7 B, regular schools 76.1, and platoon 78.2. (For all grades somewhat higher scores obtained in regular than in platoon schools.)

In Philadelphia, in a recent year, all grade A pupils were given a multiple choice test containing 40 elements "so constructed as to cover, rather completely, the important items of health knowledge prescribed for teaching by the course of study for grade 7 B." The general city median for all pupils was somewhat over 63 per cent, being the same for elementary and junior high school pupils.

The material in the tests used in these three cities and the method of giving them could not have been very different. Making allowance for the nature of the questions (some of which are very questionable as to the answers expected) we can infer that something like 25 per cent of our health information (which may or may not be valuable or even correct) is not retained for a period within the school year and that probably 10 per cent more is lost during vacation. When we consider that the average grades of students in all their subjects in one of our eastern universities are about 75 per cent, the results of our health teaching, without special drives along this line, are as good as we might expect. The health teacher, being more or less of an idealist (and rightly so, considering the importance of health), is often disappointed with these results, but she should not be. Much of the child's information in hygiene if not "inherited", is absorbed in family tradition, and to oust some of these beliefs (e. g., as regards the influence of "open" pores on the bodily economy) would require the application of Doctor Holmes's crowbar, even if that method were successful. Probably most of the questions (not puzzling in their requirements) answered cor-

rectly are done so with information which is newly acquired or which corresponds with the family traditions along this line. As confirmatory of this general conclusion we would point out that the results of teaching in ordinary schools, in platoon schools and in junior high schools are about the same.

MENTAL HYGIENE

The International Congress on Mental Hygiene, held in 1930 (the first of its kind), gave prominence to special efforts for mental health in schools and colleges. The latter institutions were represented on the program chiefly by persons from our own country, since special work along this line is more fully developed here. Professor Ferràri, of Bologna, Italy, speaking of mental hygiene and the high school, said:

It is generally admitted that three extremely complex processes form the basis of the child's personality: Biological heredity, psychophysical development, and the social environment.

Science can entertain the daring hope of one day achieving the knowledge of the causes and conditions of biological heredity in men; * * * but, for the moment, the basis of our activity is almost exclusively hypothetical. As to the laws of psychophysical development, they have become so very complicated through our knowledge of the hormones—those dynamic elements so complex and so varied, especially in their interrelations—that even when it is a question of observing and of forming judgments of the individuals whose development takes place before our eyes, and although we are familiar with the modes of action of the best-known endocrine glands, and although we presume to have learned something from the experience of having dealt with certain definitely pathological cases—still only a very small number of us, I think, on the basis of the known data of endocrinology, can cherish the hope of influencing effectively the psychophysical conditions of the mass of adolescents.

Observation of the antagonism that exists between the generations that immediately succeed each other is of long standing. It is said offhand that children love their grandparents more than they do their parents. The problem of discord between parent and child is the key to the psychology of the adolescent. Many reasons can be given to explain this. The innate tendency of the developing adolescent is oriented toward the goal of his progressive emancipation from the inevitable shackles of family life. We might even say that only thus is he able to justify his own existence in the world. Emotional and moral independence is the aspiration of almost all youth, but we may well understand how the parents, at least inactively, must nourish emotions quite antagonistic to this end.

Judging from the point of view of our psychology, it seems to me that mental hygiene can bring the greatest help to the generations that are growing up and are attending the high schools to-day, if it will take for a goal to insure that the child, arrived at adolescence and then at maturity, shall not lose but preserve, adapted to his age, qualities that make the grace and the allure-ment of childhood—that is to say, originality, spontaneity, disinterested sincerity, vitality, and optimism. If we were to succeed in keeping these qualities keenly alive in the consciousness and in the practice of young people, we would

be able, I am sure, to insure in the best possible way the well-being and progress of the race. By achieving this, mental hygiene will acquit itself of one of the most important tasks of its interesting mission.

Dr. Otto Rank, of France, speaking at the session on elementary school education, said:

A human life can not be understood scientifically. * * * Mental hygiene has to do with human nature, and science should recognize its limitations in dealing with this subject.

Speaking of the emotional life he remarked:

A free natural expression of emotion in the educator will most quickly stimulate such expressions in the child. One should not, therefore, fear an occasional unpedagogical display of emotion, even of one of the less desirable emotions, since through it one is serving a higher educational aim—the formation of the human being. We can not beget only good, beautiful, noble, and moderate emotions in the child. If the child is to have a human emotional life, it will always be capable also of the ugly, ignoble, and immoderate emotions, and even these will always be more valuable from a human standpoint than complete suppression of the effect which would then find some outlet in other not always beautiful ways.

Dr. Arthur Ruggles, of Yale, said:

The organization for mental hygiene should be set up in the university department of health, because, primarily it is directly a health problem; and because, without the cooperation of college physicians, we should be handicapped for lack of sufficient personnel to conduct the careful physical examinations that ought to precede special examination by the mental hygienist.

There is a prevalent idea I wish to dispel, and that is that mental hygiene in college means the search for mental disease. It means nothing of the sort. If it did it would at once be open to resistance on the part of college men and women. Mental hygiene as conducted in the college means the search for increasing efficiency, and therefore increasing happiness, for the students * * * A certain amount of emotional upset is bound to come in the college years, and in spite of our efforts will continue to come.

The department of mental hygiene would minimize the results of such upsets as far as possible.

ATHLETICS

The Carnegie report on athletics in colleges pointed out some questionable conditions already known to exist. Whether some of the rules and regulations governing college sports are or are not wise, the institution which does not live up to these is neither a good example of sportsmanship nor a good educator. The report calls attention to many insanitary practices (anything but educational) in connection with athletic training. The least that can be done for those who take part in intercollegiate sports is to see that as little harm comes to them in the way of accident or disease as is possible.

At a meeting of the Hunterian Society of London on March 24, 1930, school medical officers, directors of athletics, physiologists, etc.,

discussed the subject of school athletics. All shades of opinion were expressed as to the physical, mental, and moral virtues of games. The editor of the British Medical Journal concludes:

Out of such diverse opinions it is hard to draw a conclusion. Is it possible that the individual is the best judge of his own exercise requirements? The energetic boy is not readily deterred from exertion, and the more placid type has possibly less need of exercise. We accept the behavior of animals as natural, and believe them to fulfill their exercise requirements; it is at least conceivable that the intelligence of the human child is sufficient to inform him when it is necessary for him to run, and when he will profit by leisure.

In this connection the words of the regius professor of medicine at Oxford, Sir E. Farquhar Buzzard, in his address before the British Medical Association, are worth considering:

We should be well advised not to make a fetish of games as the only means of securing relaxation from working. * * * Recreation may be of various kinds according to the interests of the individual, the pursuit of art, science, or literature, or participation in sports or games. They all involve cerebral activity and derive their beneficial effects from the fact that the center of interest is temporarily changed.

The result to be aimed at is to have the mind preoccupied with problems entirely different from those associated with the individual's work. These factors are of much greater importance than the physical exercise a game involves in promoting a state of good health.

You may get as much benefit by watching a game of golf, if you are interested in watching it, as by playing it, or by reading a book, for that matter, if you are more interested in books than in golf.

PHYSICAL EDUCATION

A State supervisor of health and physical education was appointed in Texas. This brings the number of State directors up to 18, in the following States: Alabama, California, Connecticut, Delaware, Florida, Illinois, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New York, Ohio, Pennsylvania, Texas, Virginia, and West Virginia.

There are acting directors in Maine, Georgia, and Nebraska.

A statistical study of Physical Education in City Public Schools (Physical Education Series No. 10) was published in 1929 by the Office of Education. Notable from the information secured was the considerable number of cities conducting after-school activities for any or all pupils. Not a few have, also, such activities on Saturday.

Reading between the lines in the reports received, one is aware of a rather general misunderstanding, both among special teachers and especially among school principals, regarding the management of physical activities. This misunderstanding would seem to have its origin in the ill-defined meaning of the "physical education period." Formerly this period was "all there was" to physical education, but it is now chiefly a time for teaching activities which can be

carried out, with or without supervision, at other times (as at recess, after school, or on Saturday). Until this meaning is clear and put into practice accordingly, there will continue to be misunderstanding.

A study of the organized recess, published by the Office of Education, contains the following:²

In order that the limited school-yard facilities might be used to the best advantage by large numbers of children, school authorities began to divide the yard into limited spaces suitable for the various games, to arrange the children into groups, and to assign each group to a special area for a special activity during the recess period. Supervision by special or regular teachers was introduced.

The following conclusions were drawn from the study with reference to the results of this attempt at making the most of the recess period:

There is a tendency to a minimum of direction by teachers and a maximum of the development of pupils as leaders. * * * In general, physical directors and superintendents maintain that an unorganized recess period has little value for any child, and that inadequate time and space, along with lack of training of the grade teacher, present the main obstacles in the matter of carrying on an organized recess.

The study of the curricula of institutions giving professional training in physical education (a study which originated in a conference called by the Office of Education) was completed and published by the committee of which Prof. J. H. McCurdy is chairman. In connection with the White House Conference the committee on leadership training submitted a curriculum to a large group of advisors, and the results of this study will serve as an excellent reference for schools which are setting up or revising their professional courses along this line.

In California a study was made under the direction of N. P. Neilson, State director of health and physical education, of the needs for professional preparation of physical education teachers for secondary schools.

A detailed curriculum was published in 1930 which makes plain to all teacher-training institutions just what is desired by the State department in the way of teacher preparation for physical education in high schools. In an appendix to this publication the following qualities in the prospective student are listed as having high predictive value for success: (a) High intelligence, (b) excellent character, (c) good personality, (d) good social qualities, (e) excellent physical fitness, (f) average or better than average scholarship in academic subjects, (g) high ability and accomplishment in physical education activities, (h) evidence of leadership in extra-class student activities.

HIGHER STANDARDS FOR CERTIFICATION

There has been an increase in the number of States in which teachers of physical education are required by State departments of education to have a 4-year college course, including special training in physical education, for certification. Teachers of physical education for elementary schools must meet the above-mentioned requirements in 11 States, and after July, 1931, in 13 States. Teachers of physical education for high schools must meet the above-mentioned requirements in 16 States and after July, 1933, in 20 States.

LEADERSHIP TRAINING

More than 200 institutions including colleges, universities, and teachers colleges now offer 4-year professional courses in physical education and health education, leading to a bachelor's degree. In general, these courses are offered in the departments of education, although in some instances they are offered in the departments of liberal arts or physical education. In addition to the above-mentioned courses a large number of institutions offer as special electives courses in recreational leadership, community recreation, handicraft, pageantry and dramatics, Boy Scout leadership, Girl Scout leadership, Girl Camp-Fire leadership, and courses in the organization and management of school and municipal playgrounds.

In regard to the preparation of special teachers of health education, physical education, and recreation for rural schools a beginning has been made. A few institutions offer elective courses in health education and physical education especially planned for rural schools. A large number of State universities offer through their extension divisions, in cooperation with the United States Department of Agriculture, rural leadership courses and, in addition, assist in the organization of 4-H Club camps, which offer educational and recreational activities to more than 760,000 boys and girls in rural sections throughout the country.

In regard to the problem of preparation of courses for rural leaders, an interesting study was made by John Bradford, of the National Recreation Association. Questionnaires were sent out to leaders in the rural sections as a means of finding out the various kinds of recreational activities in which rural communities were interested. As a result of that study it was found that community singing ranked first in popularity. Dramatics ranked second, and music appreciation ranked third. Among the other activities listed in order of popularity may be mentioned: Party programs, story-telling in the home, home play, folk dancing, rural community organization, group games, active games for boys, picnic programs, active

games for girls and women, church recreation programs, discussions on reading, social dancing, camp recreation programs, handicraft, nature study, and debating.

During the past year the rural drama service of the National Recreation Association arranged for a large number of training institutes for training rural amateur play directors in various States throughout the country. These institutes were made possible largely through cooperative efforts of the extension divisions of State universities.

RESEARCH IN PLAY

Lehman and Witty have made a further contribution to the study of play activities in relation to school progress, this time with regard to retarded children as contrasted with the accelerated. They find that the former (a) participate in a greater number of activities; (b) select more social games; (c) select fewer humorous games; and (d) like games with more motor activity.

SCHOOL PLAYGROUNDS

A recent study, *School Playgrounds*, published by the Office of Education, points out the fact that laws have been passed in eight States requiring that certain areas be provided for school playgrounds. Rules and regulations have been made by State boards of education in 20 States requiring certain areas for school sites. Definite areas have been suggested as standards for city and rural schools of various enrollments by 36 State departments of education.

Areas required by law vary from 1 to 6 acres. Areas required by rules and regulations of the State boards of education vary in the elementary schools from 1 to 6 acres and in the high, junior high, and senior high schools from 2 to 10 acres. Areas recommended by State boards of education vary in the elementary schools from 1 to 12 acres, in junior high schools from 1 to 10 acres, and in senior high schools from 1 to 20 acres.

Furthermore, the study shows the gradual development of standards in the matter of determining the space necessary for school playgrounds for elementary, high, junior high, and rural schools. It shows the need for a well-planned layout of school playgrounds into special plots suitable for the children of the various ages and grades. It shows the tendency to plan sufficient areas, not only for the required program in physical education and recess activities, but also for after-school sports.

COMMUNITY USE OF SCHOOL PROPERTY

There has been an increase in permissive legislation regarding the use of school buildings and grounds for after-school and com-

munity recreation, not only for children but for adults. Many States have permissive recreational acts. City boards of education and State departments of education are encouraging and providing recreational programs.

Boards of education in 119 cities are maintaining or are cooperating with local park commissions in maintaining school and community recreation programs. In some cities these programs are carried on only during the summer months. In others they are carried on throughout the entire year.

State boards of education in some States are not only encouraging the use of school property for community recreation but are recommending that rural teachers participate in activities outside the classroom whenever possible.

The State board of education of Vermont advocates an extensive use of schoolhouses and grounds during the after-school hours. In a recent booklet regarding the improvement of rural schools, it is suggested that teachers arrange to spend two week-ends of each month in recreational activities with the pupils. Outdoor games and hikes are recommended. However, if the temperament and tastes of the teacher lead her to emphasize other forms of recreational activities, such as art, community singing, literature, or even cooking or sewing, it is suggested that she should try to secure the interest of the children and of the community along any of these lines. It is urged that the teacher participate in the activities of the children outside of the classroom.

In Alabama, a study of school playgrounds of the entire State was made by the State director of physical education.

PLANNING AHEAD

Definite planning for construction and equipment of indoor and outdoor recreational facilities is recognized as an important problem of a school-building program. Gymnasiums or large playrooms are advocated as a part of school-building equipment and in all new buildings these facilities are generally located so that they are easily accessible for after-school and community use.

City planning commissions are giving special attention to the matter of setting apart school and community recreation areas as a major factor in city planning. Recently a special study in regional planning was made in Denver, Colo. As a result of that study plans were submitted to local authorities showing the need for additional school and municipal recreation areas in various sections of the city in order that there might be an equal distribution of these areas for school and community use.

There is a definite tendency for locating park areas near schools in order that they will be accessible for school play. In Portland,

Oreg., and in Dallas, Tex., cooperative planning by city park commissions and boards of education has resulted in the establishment of city playgrounds near by or adjoining schools in order that the facilities may be available for the use of school children at all times and especially at recess.

In 1867 the Office of Education made its first survey of health and recreation activities and urged cities to look ahead in planning for the recreational needs of schools and communities.

During the past biennium, and especially in connection with the White House Conference, it was pointed out that while many city school systems have made unusual progress in the matter of providing health and recreational facilities, there are still many sections of the country in which provision is inadequate. It is encouraging to learn that some cities are planning ahead for 50 or 75 years.

THE SUMMER CAMP IN HIGHER EDUCATION

The summer camp has had a phenomenal development in institutions of higher education. Colleges, universities, teachers' colleges, and normal schools have established organized summer camps for the purpose of providing students with opportunities for practical experience out-of-doors as a part of the required work of certain curricula; providing for students and teachers a means for vacation study which is a combination of recreation and education; and providing professional courses in leadership for camp counselors. Among the various departments of colleges and universities by which the summer camp has been introduced may be mentioned the following: Engineering, geology, science and biology, nature study, education, health education, physical education, recreation, and forestry.

The demand for specially trained camp counselors by private, institutional, and municipal camps has become so large that departments of education, science, physical education, and recreation in colleges, universities, and teacher-training institutions are beginning to provide extensive courses in camp organization and administration for camp counselors.

THE LAND-GRANT COLLEGES

The Office of Education completed in 1930 its extensive survey of the land-grant colleges and the results have been made public in Bulletin 1930, No. 9. From the chapters on "Health service" and "Physical welfare" we quote the following:

Reports from the land-grant institutions reveal that the stages in the development of student health service cover the widest possible range. One school reports that it provides its students neither with the services of a college physician nor with any health service facilities of any type. The picture

at the other extreme is that of the most modern provision for health care in every field. Between these two extremes range the land-grant institutions, with 8 or 10 well toward the bottom of the scale, a large number in the middle, and 5 or 6 at the highest level, not only in the excellence of their hospital plants, but also in the adequacy of the specialized service provided to the student at a very low cost. * * *

It might be expected that the excellent opportunity afforded for a demonstration of the principles of hygienic living by its practical application in college dining halls, dormitories, gymnasiums, and classrooms would have been eagerly seized upon by the institutions. Such does not seem, however, to have been the case. All too often the food furnished by the institution itself and the unsanitary conditions of its own dormitories violate many basic hygienic principles. Twenty reported that some effort is made to exemplify the teaching of hygienic principles in the dining halls and dormitories. This consists largely of inspection by some college official, although in five institutions the diet in the dining halls and cafeterias is based on the principles of the balanced ration. One institution has the class in hygiene inspect and grade the store-rooms, kitchens, and dining halls. This would seem to be a most valuable practice from many standpoints. Twenty-five of the institutions replied that the gymnasiums exemplified the principles of hygiene, but in checking the reports on this section with those on the one in regard to the inspection and standards of cleanliness, insisted upon for gymnasium suits used on the floor, there seemed to be a wide discrepancy. The reports in the latter case indicated that the inspection is most cursory and that it depends largely upon the fastidiousness of the individual class instructor. There is no periodic laundering of suits in most cases, either in the men's or the women's classes, although the reports from the women's section indicated rather more care in this matter. The replies on inspection as to cleanliness of gymnasium suits for the women ranged from "none" to "weekly," with such enigmatic answers as "dependent on the self-respect of the student," "inspector expected to enforce a high standard," "reasonably fresh," and "depends on the fastidiousness of the individual teacher." * * *

The course in hygiene is the answer of the college to the insistent demand that students should know more about wise living and the care of their bodies. Theoretically it should be the most useful course in the whole curriculum, and yet 27 of 44 land-grant institutions that reported do not make such a course a universal requirement. In two institutions it is required for the women but not for the men. It is absurd to assume that men have no need for the same type of information.

What is said of the land-grant colleges will apply in a large measure to other institutions of higher education.

LEGISLATION

In the past two years Texas passed a law authorizing that "physical education shall be established and made a part of the course of instruction and training in the public elementary and secondary schools of the State by September 1, 1920."

Minnesota passed the following law in 1929:

It shall be the duty of every school nurse, school physician, school attendance officer, superintendent of schools, principal, teacher, and of the persons charged with the duty of compiling and keeping the school census records to cause a

permanent public health record to be kept for every child of school age. Such record shall be kept in such form that it may be transferred with the child to any school which the child shall attend within the State and transferred to the board of health when the child ceases to attend school. It shall contain a record of such health matters as shall be prescribed by the board of health, and of all mental and physical defects and handicaps, which might permanently cripple or handicap the child. Nothing in this act shall be construed to require any child whose parent or guardian objects in writing thereto to undergo a physical or medical examination or treatment. A copy shall be forwarded to the proper department of any State to which the child shall remove.

Whenever any child shall be brought into juvenile court, the court shall request and the custodian of the record shall furnish a complete certified copy of such record to the court, which copy shall be received as evidence in the case; and no decision or disposition of the pending matter shall be finally made until such record, if existing, shall be considered.

It shall be the duty of the State commissioner of education to cause a report to be made periodically to the children's bureau of the State of all diseases and defects that are of a continuous nature or that might result in a permanent handicap to the child, which have not been heretofore reported. He shall also furnish to the State board of health such information from the records as that board shall desire.

Any intentionally false statement in such certificate and any act or omission of a superintendent or superior officer to connive at or permit the same shall be deemed good cause for summary discharge of the person at fault regardless of any contract.

In an effort to improve the effectiveness of the school nurse the State of New York has established a special educational requirement for the position of "school nurse-teacher" as follows:

A nurse certified by the teacher training division of the State education department as possessing the required qualifications (outlined below) for working in the schools, and employed by school authorities to work in the schools, is now known as a nurse-teacher, this term replacing the term "school nurse" which was formerly used.

In the administration of the medical inspection law all provisions referring to the "school nurse" now apply to the "nurse-teacher."

The law authorizes the employment of school nurse-teachers in all the schools of the State. For approval as school nurse-teacher under the provisions of section 571-a of the education law for the school year beginning September, 1925, and thereafter, the following qualifications have been set up:

1. Graduation from an approved 4-year high-school course or its equivalent.
2. Graduation from a training school for nurses registered by the regents of the university.
3. Certification as a registered nurse in New York State.
4. Completion of at least six semester hours in approved professional courses in health education.

Limited licenses may be issued for a period of three years. During this period school nurse-teachers who otherwise qualify but who have had not more than six semester hours of professional work in health education must complete additional approved courses to the extent of one summer's work of not less than six semester hours. At the end of this limited period, on proper evidence of the completion of required professional work and at least

two years' successful experience as school nurse-teacher, the limited certificate may be made permanent.

In this connection it should be noted that the term "health teacher" no longer applies to a school nurse-teacher. In order to qualify as a health teacher one must complete the professional requirements in general teacher-training courses covering a minimum training period of three years, during which special emphasis is given to the field of health and hygiene. Nurses' training is of value to the health teacher, but is not one of the requirements.

There should not be more than 1,500 school children under the care of one school nurse-teacher, and for each additional 1,200 children there should be one additional school nurse-teacher employed. Many large high schools are employing a full-time resident nurse-teacher. In rural schools 500 pupils are often as many as one nurse-teacher can serve because of the scattered population and school centers. An increasing number of large villages with less than 500 pupils not under a superintendency are utilizing full-time nurse-teachers to a decided advantage.

The trustees or boards of education of two or more districts may unite in employing the same school nurse-teacher and in paying the expense thus incurred in proportion to the assessed valuation of taxable property in the several districts. For nurse-teachers meeting the stipulated requirements there is available to boards of education employing them a State quota of one-half the salary, \$700 being the maximum paid.

In small communities, where the school medical inspector visits the school infrequently, it is very advantageous to delegate most of the health service to the school nurse-teacher, who acts under direction of the school medical inspector and summons him to her assistance when necessary to carry out the provisions of this law. Never, however, can the annual medical examination be done by her. The law, as well as the nature of such work, makes it impossible for a nurse to do it.

The function of the school nurse-teacher has been defined by the education department as follows:

"The primary function of the nurse-teacher shall be to assist the school medical supervisor (school physician or medical inspector) and other school officials in protecting the health of school children; by assisting in examining pupils; by rendering first-aid service; by visiting homes; by making health inspections of the school plant; and by such other health protective duties as are permitted by law and may be prescribed by the board of education. The secondary function of the school nurse-teacher shall be to teach health habits and health information through contacts with individual pupils, parents, and teachers. The nurse-teacher shall not be regarded as a classroom teacher nor engage regularly in hygiene instruction in classrooms."

Usually the school authorities find it an economy to furnish the school nurse-teacher with some means of transportation. Often the correction of defects found by the school medical inspector can not be secured without a home visit by the nurse; in many ways the contact the nurse furnishes between the home and the school is a valuable feature. Without proper transportation facilities it must of necessity be very limited and very expensive.

The department of education of Newark, N. J., has made similar educational requirements for the school nurse.

