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# SCHOOL HYGIENE AND PHYSICAL EDUCATION

By

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# SCHOOL HYGIENE AND PHYSICAL EDUCATION

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From every standpoint there has been progress during the past biennium in making the health of the school child something more than a mere theoretical objective. Not only has the day become less remote when it will be considered poor policy to waste the time and energy of the teacher (along with public funds) in trying to accomplish the impossible because of physical handicaps of the child, but there is evidence that the time is approaching when the child's physical education will be given as much recognition as his mental training, when, in fact, these will become fused into one.

## HEALTH EXAMINATIONS

School health work has its logical beginning in the appraisalment of the child's bodily state, just as we examine into the condition of any engine or tool before we attempt to do fine work with it.

This appraisalment, which began historically in a cursory examination for vermin and for active disease, is developing toward a thorough study of the child's physical condition, so far as our knowledge permits, and has widened to include his habits as affecting his health and physique.

The physician was once considered the only person capable of knowing the physical nature of the child, but the school nurse was later discovered to have eyes and ears and to be capable of using them and, of late, in the past biennium, there has been emphasis on the fact that the teacher not only possesses such powers of observation but that she sees the child more frequently and is better acquainted with his working capacity than either physician or nurse. Moreover, it is her business to know whether and when the instruments with which she works are "sharp" or "dull." The



past biennium has seen the teacher placed first in importance among health examiners, and her preparation for this work has gone on apace in many training schools. The physician (either family or school doctor) is no less essential than ever in the scheme of health work, but his labor is supplemented, his time is saved, and the data for his conclusions are greatly improved.

From the examination of the college youth a half century ago medical inspection filtered down to children of school age, and the past two years have finally seen its logical application to those who are not yet old enough to enter school. For years the schools of Germany have very sensibly been refusing admission to children found physically unfit (about 10 per cent since the war), but it is wiser to see that the child is examined and prepared before he is presented at the door of the school.

Another recent advance in school health work, important from every point of view, has been the taking of the parent into the confidence of the school by inviting him to be present at the examination of his child, thus securing first-hand information as to his history and home life and saving much of the time-consuming and expensive home visitation of the nurse for explaining the purpose of school health work and the results of the physical examination. In attempting to improve the health habits of the child we can accomplish little without the interest and cooperation of the home in which the habits must be practiced; and, while in many cases much can be done indirectly through the child, the establishment of an intimate understanding between the school and home goes much further toward producing the desired results. The presence of the parent at the examination of the child leads logically to such understanding and cooperation.

Much of medical examination in the past has been without adequate results, but there is evidence that the accomplishment of the end sought—the correction of defects—is being taken seriously. With examination and the sending of a written notice of defects, little was accomplished; with the go-between explanatory activities of a school nurse matters were improved, but with the presence of parents at the examination the best results should be attained. A number of districts in Virginia report 100 per cent correction of the defects of vision, hearing, nose, and dental conditions. Many districts and individual schools in other States report 100 per cent correction of dental defects, and at least one junior high school has gone so far as to make a certificate of sound or repaired teeth necessary before graduation.

In securing the physical improvement of the child, the school has something more in mind than the improvement of his mental re-



sponses and his consequent school progress, yet such improvement is to be expected. It is not easy to measure these results and set them down for the skeptical in black and white, for we have no control to go by; we do not know what the same children would have done had their physical or functional defects remained uncorrected. We have the unanimous opinion, however, of school principals and teachers that the general mental tone of the pupils has been improved, and there have been many statistical reports of marked change in school work, as well as saving in educational effort and monetary outlay.

The physical inspection of the child is fast changing from a medical inspection to a health examination, which looks not only to his present condition but to his future welfare. The future is looked to also in protective measures against disease, which include vaccinations against smallpox and diphtheria and which promise soon to include scarlet fever. The use of these preventive measures should reduce not only sickness and death from these diseases but the many defects which are left in their train.

There is a frightful amount of illness of pupils from "minor" ailments, such as colds and sore throats. It is not likely, however, that these causes of absenteeism, as well as of chronic disease, are likely to be much reduced save through developments in preventive medicine. In the meanwhile the early detection and exclusion of pupils having these never trifling ailments is the only sensible practice for all concerned.

As the study of the physical condition of school children has changed from a mere search for communicable diseases to a thorough overhauling for purposes of all-around improvement, there has been a change in administration of such activities from the department of health to the department of education. Medical inspection was begun in Boston in 1894. In 1915 this work was handed over to the department of education. In the past year a similar change has come about in the city of Providence, where such work has for many years been conducted in a thorough-going manner under the direction of the department of health.

#### SOLVING THE DENTAL PROBLEM

The most important single problem in the health of the school child is rotting teeth, though the very existence of such a condition is only indicative of causes back of dental disease which need to be dealt with.

The dental problem has hitherto been such an overwhelming one from all angles that nowhere has it been fully coped with, and all preventive measures have failed to save a large proportion of teeth from extraction or troublesome root fillings.



The announcement from the Forsyth Dental Infirmary of the results of its experiment in the solving of this problem marks the most important contribution to school hygiene of the past years.

Their method of attack is the result of search by many investigators pointing to faulty formation of teeth as the essential condition for their decay. The method of meeting the problem is, in brief, to examine the teeth of children, of both the first and second set, soon after their eruption, to find the faults of enameling (the pits and crevices) in which decay begins and by proper treatment to render these portions of the teeth resistant to the inroads of bacteria. It is claimed that—

around 90 per cent of the caries which was believed to be unavoidable, and which we have been trying to prevent by tooth brushing, is easily controlled by this plan of early treatment . . . We have available an exceedingly efficient method, if we will only adopt it and use the necessary educational plans to bring it before the public.

By the old methods of filling cavities, devitalizing pulps, removing decayed molars, etc., it was estimated that for the city of Boston over 1,000 full-time dentists would be needed. Although 90 per cent of children have faults of enamel (as many have dental decay sooner or later), by the new methods the school work for a city of this size can be accomplished by 16 dentists, or about 1 for 4,500 children. Thus an impossible task has been made possible, along with far better results for the welfare of the child than was dreamed.

Meanwhile the cause of the imperfect development of teeth (and hence of decay) in faulty prenatal and later nutrition is receiving attention, and it is not impossible that we are on the way to eliminate our most common disease and to lessen the need of the dentist, now so essential, if expensive, an agent in patching up the results of our ignorance.

#### NUTRITION

Much emphasis has been placed of late on the subject of nutrition, and certainly none too much; for nothing is more fundamental in the building of healthy vigorous children than the furnishing of right building materials and the appropriate conditions for their utilization by the body in its process of development. From numerous experiments on other animals we know that all manner of defects and deficiencies, both of structure and function, result from an inadequate supply of certain food elements, and we are now aware that the feeding of the human animal from his beginnings is often faulty. We know that rickets, a nutritional defect, is exceedingly common among all classes, and if it were not such a common condition we would be dumbfounded at the idea that 9 out of 10 children have rotting teeth, though no such state of affairs exists among wild animals.



We are accustomed to think of nutrition as only a quantitative matter—a height-weight condition—but this relationship may have nothing whatsoever to do with the incidence of defects; a rickety child may be a heavy child, and groups of children with carious teeth have been found proportionately heavier than those with sound dentures. Foods which merely produce fat may not be suitable for either the making or preservation of good teeth or of other essential body structures.

There has been a decided improvement as regards the school lunch, especially in rural schools. Simple appliances for warming foods sent from home have been installed, and the food brought by the child has been supplemented by the school and its selection improved by the teaching of the school. Moreover, the lunch hour has been made a time for practical teaching of hygiene in a general way.

The provision of an extra midmorning lunch has not always proved as productive of good as had been expected. Certainly it is more sensible to secure adequate home feeding if possible.

While special classes are still maintained in some schools for the badly nourished children, the tendency has been to stimulate all pupils to those practices in feeding, resting, etc., which lead to improved health and physique.

The teaching of the subject of nutrition to high-school and college students has been considerably improved by substituting for the learning of meaningless bugaboo terms such as "proteins" and "vitamins" the objective evidence of faulty feeding so easily demonstrated in experimental animals.

Of the score and more "indices of nutrition" which have been devised in recent years, none have survived in this country save the arbitrary percentage underweight standards as determined by the Baldwin-Wood tables, and the Dunfermline scale in which the general examination of the child furnishes the data for classification. The height-weight method has been widely used because of its simplicity, but, as has been pointed out, nutrition is not a mere matter of bulk, and the scales are more and more recognized as an imperfect, though useful, instrument for determining this condition.

It has been pointed out by more than one investigator that many healthy children are 10 per cent underweight and that the height-weight test does not always correspond with the results of general examinations. In the Scanlon School survey made in 1925 by the Municipal Tuberculosis Sanitarium of Chicago, 11 per cent of the boys and 17 per cent of the girls placed in the Dunfermline Groups I and II (excellent and good condition) were 10 per cent or more under average weight. In Groups III (fair) and IV (poor) the percentage of underweights ran much higher, 35 per cent for boys



and 66. per cent for girls. In these latter groups, however, 27 per cent of the boys and 12 per cent of the girls were of average weight for their heights.

It has been the custom of school health authorities to give special attention to the examination of children 10 per cent below average weight for evidence of tuberculosis, but the observation of Morse that tuberculosis is seldom the cause of malnutrition in children, the studies of MacDougall, and the conclusion of Reisman that there is no greater incidence of tuberculosis among undernourished children from 5 to 15 years of age, should turn our attention to the adequate examination of all children without regard to weight. In this connection it should be mentioned that Prof. H. W. Hill, in a study of 6,000 children of Vancouver, found that there was no difference in the incidence of scarlet fever, diphtheria, measles, mumps, smallpox, whooping cough, and chicken pox among those 10 per cent underweight and those of more nearly average adipose. The results of these studies, while upsetting some accepted opinions in regard to immunity to disease, do not in the least minimize the importance of good nutrition.

Though the value of the height-weight index as a measure of nutrition has been overestimated, the weighing and measuring of children are of great importance as a stimulus to interest in health and physical activity, and the time and effort employed in this work are well spent. Each measurement is an additional peg on which to hang health lessons, though the measurements in themselves may be of no significance as to the health or fitness of a child as compared with other children.

#### POSTURE

The subject of posture has received special attention in the physical education of children of all ages. Widely differing estimates of the amount of poor posture have been made, ranging from 1 per 1,000 to 900 per 1,000. With such extreme variations it must be evident that the diagnosis has been based merely on the diverse interest and opinion of the examiners. It should be stated that the very low estimates have probably been made in the examination of school children fully clad, but even so the differences of opinion denote indefiniteness of ideas on the subject. As a matter of fact, while there is general recognition of a fine or imposing posture, we do not know what constitutes a good posture from the physiological standpoint, and we know less as regards the extent to which we can modify posture. What we are usually striving for in "posture work" or "corrective gymnastics" is the production of a fine presence, and even where this can not, for anatomic reasons, be attained we are justified in our efforts in this direction; for there can be



no doubt as to the value of fine posture from the aesthetic, if from no other standpoint.

A valuable contribution to the subject in the past two years has been the results of Röntgen-ray studies of boys and girls of college age by Dr. E. H. Arnold, who finds that bony deformity lies at the root of many cases of evidently bad posture, and such being the case no amount of gymnastic exercises or anything else will have much effect toward their improvement. Recent animal experimentation shows that all manner of skeletal deformities follow faulty feeding, and considering the amount of malnutrition among humans it is little wonder that we have much poor posture on an organic basis. Malnutrition and fatigue are associated, and fatigue has long been recognized as a factor in poor posture. Posture is, then, not a separate problem, but is one resting on inherited physical type as affected by various hygienic conditions, including those peculiar to school life.

A study of posture of children in the schools of Boston under the direction of orthopedic surgeons of that city, undertaken this present year, may furnish some light on this subject, as may also the elaborate investigation made by the Public Health Service, which has not yet been published. The Children's Bureau has contributed to the stimulation of interest in good posture through the charts and films which it has recently issued.

#### MEASUREMENTS AND TESTS

The search for some simple test of physical fitness has been a fascinating field of study for the past half century; a search usually more productive, however, of negative than of positive results. It has served over and over again to impress the baffled student with the complexity of the human organism.

After running the gamut of measurements, anthropometry has now settled down to the taking chiefly of heights and weights, to classification by types, and observation of increments of growth. As to tests of physiological function, the simpler ones have failed to be always reliable, and combinations of these have proven hardly more satisfactory save for general application. The most recent students of the subject—Hambly, Pembrey, and Warner—find the comparison of pulse rate, at rest and after exercise, the best single indication of fitness.

The search for means of classifying pupils for physical education classes has given new impetus to studies along these lines and to an extensive investigation of "motor ability" tests of both boys and girls at all ages. These studies have been carried on chiefly by a committee of the American Physical Education Association and cover several groups of activities.



While tests of this kind are valuable for classification of pupils in those neuromuscular activities which we term physical, it should be borne in mind that they measure chiefly power and ability to do certain types of work and are not necessarily tests of health or general fitness. As Schneider pointed out, none of these tests "yield results which do not require interpretation and correction for interfering factors, such as knack, practice, alertness, interest, willingness to undergo discomfort and effort, cooperation, and incentive."

Tests of achievement as regards information concerning physiology and hygiene have been devised, of which the Gates-Strang Health Knowledge Test has perhaps been most used.

Indexes of nutrition are mentioned under another heading.

#### HEALTH EDUCATION

"Teaching of the laws and practice of health will, in some more civilized age and country, be held a necessary element in the school course of every child—just as necessary as reading, writing, and arithmetic—for it is, after all, the most necessary branch of that technical education of which we hear so much, namely, the technic or art of keeping alive and well." This prophesy, made 50 years ago by the Rev. Charles Kingsley, ardent apostle of public health, as well as distinguished man of letters, seems in a fair way to be realized; for, even where such teaching is not yet introduced, its importance seems to be recognized.

The most hopeful sign in health education is its actual absorption into the school program as something legitimate and essential. Similarly in books on teaching, and in the instruction of teachers in training schools, the subject is coming to be treated on a plane with others; and pedagogic methods having in view the bringing about of practice of the thing taught are set forth in a few recent works as explicitly as for reading or arithmetic.

While we are really making progress from the mere preaching of the gospel of hygiene to directing the daily doing of the child along these lines, this subject will always differ from every other of the school curriculum in that the practice of hygiene must be chiefly carried out in the home. Little progress can be made without the cooperation of the parents, and hitherto we have overlooked this important fact. We have often imposed on the child the double duty of reforming his own ways and of revolutionizing family traditions and practice.

The parent-teacher association is proving a powerful agency in establishing a better understanding of the health work of the school, and at the suggestion of this organization the Bureau of Education has recently issued a special publication explaining to parents the



purposes of health education and the need for parent cooperation in this work.

Many school authorities hold up their hands helplessly when the subject of health education is mentioned, with the exclamation, "We are poor and have no facilities for carrying on this work!" As a matter of fact health teaching requires less school furniture and expenditure than any other subject; and while special preparation of the teacher in methods is important, this is not essential. In thousands of rural schools excellent results are being obtained without extra expense and without special instruction. As to what can be done without costly supervision and with the handicap of most unfavorable home conditions, we have an encouraging account of an undertaking in Public School No. 106, New York, made during the past biennium under the direction of Payne and Gebhardt and reported in *Method and Measurement of Health Education*, published by the New York Association for Improving the Condition of the Poor. New York University and this association acted merely in an advisory capacity in this project, and assisted in the evaluation of results. The only expense incurred was for the community survey.

The conclusions of the report are:

1. A program of health education in the schools, if adequately conceived and carried out, will bring about definite improvements in the practices of the children in the homes and in the home practices of adults.
2. Such a program can be carried out as a regular feature of the school work by introducing health instruction into the regular subjects, by the method of instruction, by the use of the school and classroom organization, and by the use of measurement or survey of results of instruction.
3. The introduction of the health activities as a feature of the school will increase the interest of children in the regular school work and will secure better results in the conventional school subjects.
4. An adequate health program may be carried out without additions to the school staff, and by placing the responsibility for health results upon the regular school staff, school work will become more meaningful to them.

In what has been said we have had reference to teaching in the elementary grades; when it comes to the high school, hygiene is as interesting and simple of presentation as any subject, but it is not only poorly taught but usually not taught at all. The results of an important study by Laura Cairns, associate in hygiene, University of California, while made in California schools, is typical of the country at large. She found that the time given to this supposedly most important of subjects in high schools ranged anywhere from "incidental" to 200 minutes per week. It is taught by a variety of partly trained teachers in connection with some other subject. It is often included as an incidental in courses in biology, but biology is by no means required of all high-school pupils, and the biology teacher



is often far from prepared to do justice) to the subject of human physiology and hygiene. The best teaching was done where the subject was listed as "physiology," but Bailey, Foster, and Erwin found that only 2.7 per cent of the enrollment in science classes in California in 1923-24 were in physiology classes. Perhaps the chief reason for this failure of high schools is due to the fact that they are busy preparing students for college, where small credit is given for knowledge of the human body, and where as a rule sketchy courses in hygiene are offered if they are offered at all. Between the omissions in both high schools and colleges the pupil at this stage of his development often misses adequate instruction in health matters altogether, though he gets plenty of information and "training" along traditional lines of far less value to him or to the race.

It is true that physical-education teachers are often expected to teach hygiene, but unfortunately they are not always interested in the subject or are ill prepared to do it justice, even if they were given sufficient time for such teaching. Many training schools for teachers of physical education have extended their courses and are furnishing a more adequate preparation for the teaching of hygiene, and not a few graduates are serving successfully as special teachers of this subject. Certainly these schools should be able to give better schooling to this purpose than any save the medical schools, and they will doubtless do so when there is a demand for good teachers of physiology and hygiene.

#### EDUCATION IN HUMAN REPRODUCTION AND DEVELOPMENT

Spencer's remark that our educational program is planned for a race of celibates is not quite as true in the twentieth as it was in the nineteenth century; still, considering the recognized importance of parenthood, our schools seem woefully remiss in furnishing information either concerning the matter of mating or of the guidance of children through the long labyrinth of their unfolding.

Considering that such subjects were hardly mentioned a quarter of a century ago, we have made rapid progress, for the process of reproduction is certainly given more emphasis in classes in biology and physiology than was formerly the case, and by having a glimpse of this fascinating page of the book of life the pupil is encouraged to find in his teacher a source for further satisfying his natural thirst for knowledge of human beginnings. A few high schools and colleges, recognizing the ignorance or negligence of parents, are going further into the treatment of such subjects, on the very wise principle that information furnished by the teacher is likely to be more valuable and safe than that which is derived through the usual vicious channels.



Training in child care is offered in a practical way by an increasing number of high schools and colleges, but unfortunately to a limited percentage of students. The recent creation of a department of ethnics at Vassar is important in itself and from its example.

#### PHYSICAL ACTIVITIES

There has been a steady increase in interest in the promotion of the activities of pupils in playgrounds, gymnasiums, and pools. No recent statistics are available as to the equipment of schools for physical activities, but there is no doubt that there are more and larger playgrounds than ever; and in new buildings gymnasiums are not only included, but are better planned and located than in previous years, while swimming pools are a not infrequent feature of recently built high schools.

The time devoted to physical activities has been extended in many schools by the provision of supervised afterschool play periods, and, while the ideal minimum suggested by this bureau of two hours of out-of-door activity for every child is seldom attained, so far as school supervision is concerned, it has been more nearly approximated. In California one period of each day's high-school session has for some time been devoted to physical education.

The emphasis everywhere on games and dances rather than upon gymnastics and upon outdoor rather than indoor activities continues.

If we may judge from the demand for a circular on games recently issued by this bureau, there is an increasing interest in the promotion of group physical activities in rural schools in all sections of the country. This interest has been stimulated by the State departments, and in many instances by the teacher-training schools in which practice teaching in physical education is stressed.

Fifteen States now have State directors of physical education. These States—Alabama, California, Connecticut, Florida, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New York, Pennsylvania, Virginia, and West Virginia—include about half the population of the country, so that children in at least half of our rural schools have the benefit of experienced direction and stimulation of physical activities.

Since high-school attendance has been made compulsory, inter-school athletics have been a prominent feature of high-school life; and, following closely the lead of the colleges, the athletics of high schools have developed all the faults and failings found in higher institutions. But these are minor matters compared to the favor shown to these notoriety-and-excitement-furnishing sports at the expense or neglect of normal healthful activities for all students. As L. H. Wagenhorst, a supervising principal who recently made a



careful study of the problem, exclaims: "It is inconceivable that fair-minded people will subscribe to the rank injustice of the relatively large outlay for the physical training of those who need it least." Such a study as this of Wagenhorst, with its recommendations, bodes better not only for the school management of interschool athletics but for the better development of intramural games. The bringing of State athletic associations under the direction of the State department of education, where they logically belong, would help greatly in the solution of this problem.

It is not likely, so long as there is special outlay for coaching and a charge for admission to games, that interscholastic athletics will be other than a doubtful good to anyone concerned. At present they can hardly be said to have very sound physical or other legs to stand upon.

The ideals and efforts of the women's division of the Amateur Athletic Federation have made themselves felt throughout the country in both high schools and colleges, and in the past biennium interschool athletics for girls have in most quarters been placed under sensible control, while the rank and file of students have not been neglected.

#### SPORTSMANSHIP

In connection with athletics the rise of the Sportsmanship Brotherhood, and the dissemination of its code, deserve mention. This organization grew out of the effort of persons prominent in many walks of life in England and America to spiritualize sport and to make use of it as a means not only to better social but international behavior. Its code contains nothing new, but merely emphasizes and encourages the attitude and practice of honesty, loyalty, and generosity. It reads:

Keep the rules,  
Keep faith with your comrade,  
Keep yourself fit,  
Keep your pride under in victory,  
Keep a stout heart in defeat,  
Keep going—keep going to the end,  
Keep a sound soul, a clean mind,  
and a healthy body.

This code has been adopted in the schools of Massachusetts, New York, New Jersey, Missouri, and other States, not only in connection with athletic activities but as a motto for all school relations. The brotherhood is now engaged in spreading its gospel throughout this and other countries.

#### MENTAL HYGIENE

In elementary and secondary schools the better understanding of the child mind (which means fine appreciation rather than classifi-



cation by tests) is leading to better mental hygiene. The fitting into grades in school by the measure of general progress, rather than advancement in one subject, and above all the avoidance of the terribly depressive and repressive repetition of a grade must redound to the physical and psychic welfare of the child. Each year sees a better appreciation of the fact that the exceptionally gifted child (the child who is by no means equal in all things or he would not be exceptional) is often the one on whom the world depends for later guidance along the lines of his special aptitudes, and the physical health of such children is receiving better care through better understanding of their mental peculiarities. The child of very deficient mental powers is also receiving better attention by fitting his school work to his abilities and looking in such training to his future welfare.

The mental and emotional life of the twentieth century high-school and college student is more complicated than formerly, and while the lowering of standards and the increase of extra-curricular activities have made life more livable for those of inferior intellectual caliber or interest, there is often need for mental hygiene. Special personal and vocational guidance has been furnished with benefit in many schools. Better physical care of the student has furthered his mental health to some extent, but, contrary to much teaching, the possession of a sound body does not insure against mental ailments.

Some application can be made of psychology for the preservation and promotion of health from the mental side; and departments for research and for consultation service have recently been established in institutions of higher education.

The most elaborate venture along this line is the Institute of Psychology at Yale University, which was announced in 1924 as the "first organization of its kind." This institute will be financed for five years by the Laura Spelman Rockefeller Memorial and will devote its efforts to investigation of behavior, experience, and personality. A group of special workers has been brought together. Psychology will be considered in all its broadest aspects, and the institute expects to instruct its students in the knowledge of human behavior and the practical application of that knowledge.

#### THE SCHOOL DAY

The length of the school day fluctuates from time to time, and just at present the day seems to be waxing rather than waning. While this may be a good thing for children unfortunate in their home conditions, it should be constantly kept in mind that children, like other animals, thrive best with open air, sunlight, and activity, conditions which ordinary school life do not yet afford. It needs also to be remembered that it is just as fallacious to affirm that the more we



school a child the better educated he is, as it is to believe that the more we exercise his muscles the stronger he will become, or the more we feed him the bigger he will grow.

As Dr. F. H. Richardson, consultant of the New York State Department of Health in children's diseases, expresses it, "the most menacing habit of childhood \* \* \* is nothing more nor less than undue indulgence in school attendance." In many of his own patients shortening the hours of attendance has resulted in more than a gain in health, for they were able to take more interest in their studies and to do better work educationally with the shorter hours. In the lower grades, at least, the child's capacity for work is exhausted in three hours or less, and to urge him to work thereafter is as ineffectual as trying to persuade a horse to drink when he is in no mood for so doing. In this connection L. M. Terman, in his recently published *Genetic Studies of Genius*, notes that "within a given age group the intelligence and achievement scores earned are totally uncorrelated with length of school attendance."

The part-time system, enforced by necessity in some schools, may in many schools be a blessing rather than otherwise when the school day for pupils in attendance is thus shortened. While the most favorable hours for school work can not be arranged in double session, we have failed to hear of schools in which the progress of the pupils was less satisfactory than with full sessions.

With such opinion and evidence one must feel inclined to put oneself more in sympathy with the child than is usually the case of the anxious pedagogue, and to wish to shorten rather than lengthen the school day if not the school year. When it comes to filling the child's brain with a multitude of facts, possibly the time element may seem essential; but the average results of achievement tests would indicate that he either has little appetite for what he is fed or he is sadly oversupplied with fodder.

There is another side to the subject, however, and the average child is perhaps at present better off than if his school hours were shorter, for if he faces the Scylla of pedagogic demands on the one hand, there is, on the other, the Charybdis of indifference to his needs out of school hours. The solution of the latter problem lies in the program of highly varied activities and in wisely (though not too much) supervised play. Instead of the half day of directed physical activities of the Greeks, whom we are always envying but never imitating (how did they ever attain such superiority with so few hours of study?), the twentieth century child has hardly more than a half hour of supervised play in school and seldom any supervision (even if furnished a place to play) out of school hours.

The problem of the school day resolves itself into one of making it subserve both the physical and mental needs of the child. The



hours of school attendance matter but little if the school activities adequately fulfill this broad purpose. In many schools such a purpose is now gropingly aimed at.

Possibly some day schoolmen will consider our children of as much value as the zoological authorities do their animals, and we may come to emulate in our schools the London zoo where, after testing their effects with astonishing results, such ideal indoor conditions for health are now installed as a flood of artificial sunlight, a constant circulation of pure air, access to the out-of-doors at all times by means of revolving doors, electrically heated shelves to rest upon, and of course as nearly an ideal diet as it is possible to furnish.

A great many children are in need of wise supervision throughout the summer vacation. This need is supplied in some communities by an increasing number of supervised playgrounds and, for the well-to-do and the very ill-to-do, by summer camps. Both public and private agencies have, in the past two years, increased the number of opportunities for the average child to live close to nature for a season and, through the efforts of the National Department of Agriculture and the extension divisions of agriculture in educational institutions, camp life has become a part of the experience of many children from the farms.

The summer camp happily reverses the procedure of the school room, placing out-of-door activity and nature study first in its program, and, in the matter of health teaching, it links precept with practice. A bulletin on this missing link in our educational system, "The Organized Summer Camp," was issued in 1926 by the Bureau of Education.

#### RURAL SCHOOLS

The problem of school health work in country schools is better met than formerly, partly through a wider appreciation of the fact that a force of specialists is unneeded to put a program in operation and partly by improved preparation of the new teacher in the theory and practice of health examinations, health teaching, and physical education. However, supervision in these activities is imperative if uniformly excellent work is to proceed throughout a county or district, and this is now furnished to an increasing extent by the employment of district or county health supervisors. There is a demand for well-equipped persons along this line in some parts of the country that can not be fully met by institutions training such workers. If the training schools for regular teachers and for special supervisors realize their opportunity, we can be assured of a rapid advance in rural health work. It goes without saying that stimulation and supervision from State authorities is of great importance and, as mentioned elsewhere, this is now provided in 15 States.



Sanitary surveys of rural schools are now under way in Kentucky and Connecticut, and perhaps in other States, which will lead to improvement along these lines. Progress in rural public health organization should be of help in the promotion of school health activities, but such developments are by no means to be waited for, as, save for community sanitation and the handling of communicable diseases, the schools are sufficient unto themselves. Too many local health departments are manned by those with little training for their duties and with little interest in, or knowledge of, the nature or possibilities of school health work. The experiment of the establishment of rural hospitals will be looked upon with interest, as these will offer much-needed facilities for treatment of physical defects.

#### COLLEGES

While hardly more than 50 per cent of our colleges as yet take the physical welfare of their students seriously, the number is growing, and the institutions already having a concern for the health and physique of those in their care are strengthening these departments.

In the matter of medical inspection some colleges have established the practice of wholesale health examinations of newcomers at the opening of school or in "freshman week" preceding the beginning of the fall session. Assisting examiners are employed, including specialists in eyes, nose and throat, etc. This method has the advantage of obtaining a knowledge of the student's physical condition early in his school life, whereas physical examinations by the regular college staff often extend over a half year or more before all the freshmen have been looked over.

In the physical examinations the habits of the student are studied more than formerly, and the very important matter of his nutrition is given more attention than it has hitherto received.

The finding of defects and the recommendation of their correction is often not sufficient to produce the desired results in the way of treatment. The College of the City of New York has set the pace in more active efforts toward physical improvement by refusing entrance to certain applicants on physical grounds, and by making it plain to other students that they must report at an early date to the college physician with evidence of having had their defects corrected or with good reasons for not having done so. In the teacher-training schools of Connecticut the State department of education has gone still further by placing students having remediable defects on probation and by dropping them from the school in case they have not had these defects treated within a reasonable time.

In the past biennium more serious efforts have been made to provide opportunities and instruction in physical activities, especially



for out-of-door games for the rank and file of students. The neglect of the average student, in this respect, as compared with the heroes of the diamond and gridiron is still glaring enough, but the exceptions to this rule are becoming fewer. Some universities report more than 90 per cent of students participating in intramural sports, and, as an example of facilities afforded for these activities, Amherst with about 700 students provides 53 acres of ground with accommodations for the playing of baseball or soccer, tennis, etc., for 300 students at one time. Amherst is setting an example in student health activity to-day as she did over a half century since.

To find out the status and needs in college health work, the past two years have been fruitful of surveys of the situation notably that by the deans of women's colleges issued in 1926, the very comprehensive study by Dr. W. E. Forsythe, of the University of Michigan, and that of the committee of 50 on college hygiene, of which Dr. Thomas A. Storey is chairman, which is nearly completed.

The prominence given to intercollegiate athletics, which annually is attacked and defended from physical, mental, and moral points of view, has been the outcome of the extension of higher education to a class not formerly reached, and the crowding of colleges with students who find in extracurricular activities an outlet for superfluous energy and a solace for compulsory school attendance. Every vigorous child has kindlier recollections of his spontaneous playground activities than of his compulsory classroom exercises, and as the interests of college life sometimes seem to center more in the winning of intercollegiate games at all costs than in scholastic attainments, afterschool memories are chiefly of physical rather than mental athletics. Hence the exalted place of sports in the mind of the average alumnus. This interest and the influence of the alumni have extended not only to their representation in the control of athletics, but to the introduction of graduate management. A few schools have helplessly allowed their athletics to be magnified out of all proportion and to be exploited by the alumni until it is difficult to say whether the schools manage the athletics or the athletics run the schools. It is little wonder that with such a state of affairs there is an annual crop of difficulties and criticism. There is, however, a growing consciousness that the school should control these sports through its faculty and that they should be in charge of the department of physical education. The doing away with expensive coaching and gate receipts has also been advised as a means of a return to a normal state of affairs.

It has been pointed out many times that intercollegiate sports make use of rather than cultivate health and physique; and no matter what their value in the way of diversion the school has no business to foster them at the expense of the physical welfare of the general



student body. There is more appreciation of this fact than formerly, as indicated by better provision for the physical education of the general student body, but many schools have far to go in this direction.

#### SIDE RESULTS OF BETTER HYGIENE

Among the results of better hygiene, especially in women, which includes, of course, more rational clothing, more exercise and out-of-door life, it has been recently pointed out that chlorosis, so common to young women a generation since, has practically disappeared. The reports by Doctor Van Duyne, of Goucher College, in regard to dysmenorrhea are equally significant. In 1900-1901, 30.3 per cent of students complained of slight inconvenience, and 7.1 per cent were disabled from this cause; while in 1923-24 only 13.1 per cent had any discomfort and only 0.3 per cent complained of severe pain. These results are not attributed by Doctor Van Duyne so much to physical change as to new mental attitudes induced by a healthful college life.

#### HEALTH OF THE TEACHER

While in other occupations the health of the employee is taken quite seriously from the standpoint of securing best work, if from no more unselfish point of view, the physical welfare of the teacher has not been given the attention it deserves. From time to time the matter has been mentioned and some guesses have been made concerning the occupational hazards in the teaching profession, but few school systems have interested themselves in statistics of sickness or ill-fitness, and there has been but little material for comparative studies.

Improved salaries have supplied better living conditions; in some sections homes have been supplied for teachers almost as a matter of necessity, and the provision of pensions has proceeded apace. Some cities have been liberal in the giving of sick leave, and a few have offered sabbatical leave, but these provisions have occurred only in spots, and in most cases the treatment of the teacher is niggardly enough in these respects.

Teachers in training have been furnished (though not more than other college students) with facilities for physical exercise, and a few schools have given them adequate physical examinations and general health supervision. One State, Connecticut, now requires a physical examination by a physician responsible to the State board of education, has debarred those evidently unfit from a physical point of view, and has placed on probation those who would be in better condition after physical repairs; but again such serious attention to the students' welfare is infrequent and by no means the rule.



The Bureau of Education has in the past biennium made a study of the health of the teacher as indicated by such statistics as are available, and of what is done and what might be done to bring the teacher to her best condition for work. The results of the study are embodied in School Health Studies, No. 12, "The Health of the Teacher," issued by the bureau.

#### PROFESSIONAL TRAINING AND REQUIREMENTS

The passage of laws requiring physical education (in either its narrow or broad sense) by three-fourths of the States created a large demand for specially trained workers in this field. The demand has increased the enrollment in special schools and has brought forth a large crop of major courses in other institutions. Of the latter there are now at least 100.

While the schools devoted especially to this subject have increased but little in number, they have extended their courses to cover three years of special training, and they are still contributing a decidedly large proportion of the special workers in this field. Besides preparing directors of playground and gymnasium activities, they are also giving attention to the production of teachers of physiology and hygiene.

In the past two years there has been a stiffening of State requirements of special supervisors and teachers of hygiene and physical education. In a few States three years of special preparation are demanded of supervisors, and in a dozen or so States a major college course is required.

#### SANITATION

While recent surveys in three States, which are not exceptional in their conditions, show that schools are often without safe water supply and sanitary toilets, or may be lacking in either water supply or toilets, there is steady improvement in school housing and in school conditions. Such investigations serve, of course, to bring about a change for the better and to hasten the time when the school plant will be an object lesson in healthful conditions. There is also improvement in methods of heating, ventilating, and lighting of buildings. The building program still fails in many communities to keep pace with the growth of population, and in fact this has been a chronic condition in many cities for a half century. Children are better taken care of, however, than formerly and with less resort to basement or other ill-lighted and ill-ventilated quarters and with less crowding.

Surveys of colleges and universities recently conducted by this bureau indicate that these institutions are not always places of



higher education in health, either from the standpoint of instruction or from the sanitary point of view.

#### HEALTH AGENCIES

While the work for the physical welfare of the school child is being rapidly incorporated in the school program, there is still need for much missionary and constructive work by outside agencies, and this is being ably carried on by such organizations as the American Child Health Association, the joint committee of the National Education Association, and the American Medical Association, the American Public Health Association, the American Red Cross, the National Physical Education Association, the National Tuberculosis Association, the national physical education service of the Playground and Recreation Association, and the parent-teacher associations, while special assistance for the obviously crippled child is vigorously promoted through the National Committee for Prevention of Blindness, the Eyesight Conservation Council, the Federation of Organizations for the Hard-of-Hearing, the International Society for Crippled Children, etc. Besides the conferences held by some of these organizations and their publications the four-year cooperative child health demonstration in Mansfield and Richland Counties, Ohio, was completed the past year, and the report of this program has been issued by the American Child Health Association.

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