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EDUCATIONAL HYGIENE

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EDUCATIONAL HYGIENE.

By WILLARD S. SMALL.

The early history of educational hygiene was largely the history of "school hygiene." The name was accurately indicative of character—the hygiene of the school as an environment rather than as a *community of children* learning under the leadership of teachers[1] to know and live health. Environment bulked large; the education of individuals for health, either personal or civic, was comparatively little thought of. The older books on school hygiene and the proceedings of school hygiene congresses show that the matters of major concern were the hygiene of the school plant and equipment; medical inspection for control of communicable diseases; examination for physical defects and development of methods and facilities for correction of defects and disabilities; the hygiene of instruction, especially the relation of fatigue and nervous and emotional strains to programs and technic of instruction; and other environmental factors.

The most striking fact in the recent history of educational hygiene is the shifting of emphasis from control of passive environment to organization of active education in the interest of health. In the total mass of interest and effort in the field of educational hygiene the environmental factors are by no means neglected, but the outpourings of enthusiasm and money are now directed toward "health education." Faith in salvation by environment has shifted to faith in salvation by individual knowledge and effort. The pendulum perhaps has swung too far. It was a natural phase of war psychology that school instruction and training should be seized upon with almost fanatical frenzy as a solvent of many difficulties and a balm for many woes. It was easy to call upon teachers and pupils to enlist as soldiers for health; the response was certain because a compelling motive was appealed to. As a result, too heavy a burden, perhaps, has been laid upon children. In our enthusiasm for active education we may have neglected temporarily the importance of an adequate protective environment. This unbalance, if it exists, will right itself, indeed is already righting itself, as is shown, for example, by recent reports of committees aiming to define the scope of educational hygiene,[2] the resurgence of interest in conservation of vision,[3] and in the programs of the child health demonstrations in Mansfield (Ohio) and elsewhere.[4]

[1] Teacher means here what it means in statutes—not only class teachers, but supervisors, superintendents, etc.

[2] E. g., Report of committee of the American Public Health Association, p. 2, and report of committee of the National Child Health Council, p. 6.

[3] See p. 27.

[4] See p. 29.

The war, however, can not be given blanket credit (or blame) for this redistribution of interest and emphasis. Many movements and influences antedating the war had been working to modify the too large reliance upon the effects of environment. Among these, to mention only a few, were the rediscovery by a germ-obsessed world that individual resistance is a large factor in defeating the inroads of the communicable diseases; the "newer knowledge of nutrition," as well as the newer knowledge of the internal secretions and the newer knowledge of mental hygiene; the slowly evolving conception of physical education as organic education through fundamental activities essential to physical, social, and ethical adjustment; the massive thrusts of the playgrounds-recreation movement and the various amateur and semiprofessional athletic movements which tended to focus attention upon the vitalizing function of play in the life of both children and adults; and the activities of the Women's Christian Temperance Union through many years, which brought about the enactment of "temperance-physiology" legislation and made the teaching of physiology and hygiene mandatory in practically all of the States of the Union.

This survey does not attempt to cover the entire field of educational hygiene; rather it attempts to present the developments within the past four years in some parts of the field and to summarize the activities of some of the organizations and agencies that are working in this large, varied, complex, and rapidly developing field, within the same period.

SCHOOL HEALTH SUPERVISION.

It was shown in the Biennial Survey for 1918 that health supervision in the public schools had suffered during the period of the war. Since the close of the war substantial progress has been made in compensating for those losses. New laws have been enacted and old laws have been revised. The scope of school health supervision has been enlarged, and its significance is better understood. The data in the following sections on State legislation, supervision in city schools and supervision in rural schools, are taken mostly from an unpublished study of the status of school health supervision made by Dr. E. G. Salisbury in cooperation with the Bureau of Education.[5]

State legislation.—In 1915, 26 States had some form of legislation relative to school health supervision.[6] At present 39 States have such laws. In several States the laws that existed in 1915 have been revised and improved. Two tendencies noted in the report of 1915 show progressive development in the legislation enacted in the intervening years. These are "the broadening of the scope of medical inspection into school health supervision" and "recognition of the education department as the logical administrative authority." The following

[5] See also Bul. 110, U. S. Public Health Service, "Synopsis of Child Hygiene Laws."
[6] Rept. Com. Educ., 1915, Vol. I, Ch. XVII, p. 419.

tabular summary of State legislation for school health supervision shows the date of enactment and the character of the law in each State with respect to certain important substantive and administrative provisions. The points covered in the tabulation are: (1) Nature of the law, mandatory or permissive; (2) laws of administration, both State and local, education authority or health authority or joint authority; (3) source of financial support, State or local;[7] (4) agent designated to examine or inspect, physician, nurse, or teacher; (5) extent of the examination or inspection, full or partial;[8] (6) whether reports are required to be made to parents or to board of education.

Summary of State school health supervision legislation.

Key to abbreviations.—Law mandatory (M) or permissive (P); administrative authority, education (E), health (H), or joint (J); financial support, State (S) or local (L); examination or inspection by physician (Ph), nurse (N), or teacher (T); extent of examination, full (F) or partial (Pt); reports made to parents (Pa) or board of education (B).

States.	Original act.	Nature of law.	Administration.		Financial support.	Executed by—	Extent of examination.	Reports required.
			State.	Local.				
Alabama	1919	M	J	J		Ph	F	
Arizona	1913	M		E		Ph		
Arkansas	1914	P		E				
California	1909	P	E	E	L	Ph, N		Pa, B
Colorado	1909	M[a]		E		T	Pt	
Connecticut	1907	M, P[b]	E	E		Ph, N		
Delaware	1919	P		E		Ph, N		
Florida	1915	M	H	H	S			
Georgia	1914	M	H	H		Ph, N	F	Pa, B
Idaho	1913	M	J	E	L			
Illinois	1915	P		E	L			
Indiana	1911	M, P	J	H	L	Ph, N	P	
Iowa	1919	P		E	L	N	F	
Kansas	1919	M[c]		E				
Kentucky	1915	P	H			N		
Louisiana	1911	M[d]	J			T		
Maine	1909	P	E	E	S, L	Ph, T	F	Pa, B
Maryland	1914	P	E	H	L	Ph, N	F	
Massachusetts	1906	M	J	E, H[e]	S, L	Ph, N	F	Pa, B
Minnesota	1919	P		H, J	L	Ph, N	F	
Montana	1919	M		E, J	L	Ph, N	F	Pa, B
Nebraska	1919	M	H	E		Ph, T	Pt	Pa
Nevada	1917	M[a]	H	E		T	Pt	Pa
New Hampshire	1913	P	E	E	S	Ph	F	
New Jersey	1909	M	E	E	L	Ph	F	B
New York	1910	M	E	E	S, L	Ph, N	F	Pa, B
North Carolina	1915	M	J	J	S	Ph, T	F	Pa, B
North Dakota	1919	P		E	L	Ph, N	F	Pa, B
Ohio	1912	P	J	E, H[e]		Ph, N	F	
Pennsylvania	1911	P	H	E, H[f]	S, L	Ph, N	F	Pa, B
Rhode Island	1911	P	E	E	S, L	Ph, T	F	Pa, B
South Dakota		P		J	L	N, T		Pa, B
Utah	1917	M	E	E		Ph, N, T	F	
Vermont	1917	P	E	E		Ph	F	
Virginia	1915	P	J	E	S, L	Ph, N	F	
Washington	1914	P		E		Ph	F	
West Virginia	1919	M, P		E		Ph, N	F	
Wisconsin	1919	M, P	J	J		Ph, N	F	
Wyoming	1915	M	E	E		T	Pt	

[a] For sight, hearing, and breathing by teachers.
[b] M for larger cities only.
[c] Dental examination only.
[d] Teachers required to examine eyes and ears only.
[e] Option of local school board.
[f] E in first, second, and third class districts, H in fourth class districts.

[7] Local support is implied in every law authorizing medical inspection, even in those cases where it is not specified.

[8] The distinction is between authority for complete examination and for partial examination; e. g., Alabama authorizes complete examination; Colorado authorizes examination only of eyes, ears, nose, and throat.

Health supervision in city schools.—In 1919 a simple inquiry was sent to the 2,395 cities with a population of 2,500 or more. The points covered were: Enrollment, total expenditures for school health work, source of funds, department administering, number of physicians (full time and part time), number of nurses, salaries of physicians and nurses, clinic facilities, and aid of voluntary organizations.

Replies were received from 1,595 (66.6 per cent). Of these, 1,117 (69.9 per cent) reported supervision by physicians or nurses or both.[a]

These city returns demonstate wide variation among the States in the prevalence of school health supervision. In three States—Massachusetts, New York, and New Jersey—all of the cities that replied to the questionnaire reported employment of physicians or nurses or both—a score of 100 per cent. The three lowest scores were made by South Carolina (10 per cent) and Louisiana and New Mexico (14.3 per cent each.) The disparity is the more marked when it is shown that replies were received from 75 per cent of the cities in Massachusetts, New Jersey, and New York, and only 40 per cent, 27 per cent, and 10 per cent replied from South Carolina, Louisiana, and New Mexico. The median for the 48 States is 51 per cent.

Although there are in every State some cities maintaining health supervision, there is an obvious connection between the character of the law (or absence of law) and the extent of health supervision. Thus the laws in Massachusetts, New Jersey, and New York are mandatory; South Caralina and New Mexico have no laws on the subject; and the Louisiana law only requires that teachers make examinations of sight and hearing.

The following table shows two things: (1) The relative frequency of school health supervision according to size of cities; (2) relative frequency of the three types of administrative responsibility—education, health, joint.

Cities having health supervision—Authority in charge.

Pupil enrollment.	Number reporting.			Per cent with supervision.	Authority in charge.					
					Education.		Health.		Joint.	
	Total.	No supervision.	Supervision.		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
10,000 or more...	78	000	78	100	44	56	20	26	14	18
5,000-9,999.....	96	5	91	95—	64	71	7	7+	20	21+
3,000-4,999.....	132	11	121	92—	80	66+	15	12+	26	21+
2,000-2,999.....	221	41	[a]160	72+	100	56—	15	8+	45	25
1,000-1,999.....	498	132	366	73+	209	57—	27	7+	130	36—
Under 1,000.....	497	196	301	61	158	52+	43	14+	100	33+

[a] Of the 221 reporting, 41 reported *no* supervision and 160 supervision by physicians or nurses; 20 reported supervision, but did not indicate satisfactorily that either physicians or nurses made the inspection.

[a] A similar inquiry in 1914 brought returns from 1,466 cities, of which 780 reported some form of health supervision. Rept. Com. of Educ., 1915, Vol. I, Ch. XVII.

With respect to frequency of supervision, the table shows diminishing frequency from larger to smaller cities. In the group "enrollment 10,000 or more" all of the 78 cities report supervision by physicians or nurses, or both, whereas in the "under 1,000" group only 61 per cent report supervision of any kind.

With respect to frequency of the different types of administrative control the table shows that "education" is by far the most frequent in all groups of cities; "joint" administration is second in frequency; "health" is least frequent.

The following table shows a comparison of the three types of administration in cities of 10,000 or more with respect to—(1) Average annual expenditures per pupil for school health work; (2) average number of pupils per physician; (3) average number of pupils per nurse; and (4) per cent of cities having school clinics. The relative position of the three types of administration for each of these four items is shown by the percentages. The 100 per cent assigned to health is purely arbitrary; health is taken as the standard of comparison because it is the lowest in each of the four counts.[18]

Cost of supervision per pupil—Pupils to each physician and nurse—Per cent of cities having clinics.

Type of administration.	Cost per pupil.	Pupils per physician.	Pupils per nurse.	Per cent of cities having clinics.
Health	$0.4547	5,648	4,135	80.5
Per cent	100	100	100	100
Education	$0.5858	4,964	3,075	84.5
Per cent	128.8	113.9	137.47	104.3
Joint	$0.783	3,573	3,573	92.9
Per cent	172.2	158.07	115.7	115.4

Health supervision in rural schools.—The following series of questions, sent to the 3,458 county, union, and district schools units, brought 2,286 answers:

(1) Does your county have a county school physician? ..... A county school nurse? .....

(2) Is the work of such physician or nurse under the control of the department of education? ..... The department of health? .....

(3) Does such physician or nurse work for the schools full time? ..... Half time? ..... One-fourth time? ..... Less? .....

(4) Is such physician or nurse paid from school funds? ..... Health funds? .....

(5) Is each pupil given a yearly physical examination? ..... Is there an attempt to correct defects of sight? ..... Hearing? ..... Teeth? ..... Throat? ..... Also skeletal deformities? ..... Are public clinics provided for the correction of defects? ..... Is the treatment free? .....

(6) Is provision made for sanitary inspection of school buildings and grounds, including water supply? .....

[18] Cf. "Health Service in City Schools of the United States," a report, by the joint committee on health problem in education, based upon questionnaire returns from 340 cities, 1921.

Of the 2,286 units making reply, only 708, or 31 per cent, report any service by physicians or nurses (20 per cent of total number of such units). As compared with the city returns, employment of physicians or nurses is less than half as frequent in the rural areas. Of the 708 reporting units, 43 per cent report administrative control by health authorities, 39 per cent by school authorities, 13 per cent by voluntary organizations, and 4 per cent not specified. The work is financed out of school funds in 209 units, out of health funds in 215 units, and out of other funds in 210 units. In the majority of cases "other funds" means funds of voluntary organizations, of which the Red Cross is most frequently mentioned. It is interesting to note that in only 95 cases is the administration specified in the hands of a voluntary organization, whereas the funds are furnished by such organizations in 210 cases. The explanation of this discrepancy is that in many cases the funds are turned over to the school or health authorities to pay for services under control of these official agencies. As a matter of fact most school-health work has its origin in the voluntary organizations, and in the rural areas it is still very generally in this primitive stage of evolution. Indeed, in the smaller cities this is true; 567 cities reported aid from such auxiliary agencies.

The extent and thoroughness of the examinations is not revealed by the questionnaire, but sight is specified in 805 replies, hearing in 1,585, teeth in 806, throat in 740, and skeletal deformities in 401. Free treatment to an indeterminate extent is reported in 212 units and school clinics in 147.

From the fact that so many more units report examinations than physicians or nurses, it is obvious that in many cases the only health examination is that made by teachers. (E. g., the report from Colorado, which has a law requiring teachers to examine eyes and ears of school children, shows 11 counties with physicians and nurses, whereas 31 counties report physical examinations.)

In general it is evident that there is progressive diminution from the large cities down through all lesser population groups to the rural areas in all phases of school-health work and equally in the thoroughness and competency of such work.

A probable positive correlation between the character of the State law (or absence of law) and the extent of health supervision was shown above with respect to cities (supervision). The probable correlation is not so clear with respect to the rural areas. It is significant, however, that Minnesota, Iowa, and Wisconsin (States with county nurse laws) and New York, New Jersey, and Pennsylvania (States with mandatory medical inspection laws) have the highest scores. The States with no laws or weak laws generally show low scores.

HYGIENE OF THE SCHOOL PLANT.

It is now generally recognized by educational officials that there are some basic principles in the planning and construction of school plants, whether large or small, elementary or secondary, urban or rural. These may be summarized as the principles of adaptation to uses (or functional adaptation), safety, hygiene, economy, and esthetic fitness. These principles determine not only the planning and construction of the school plant as a whole; they are also operative in the planning and handling of all important details. Obviously these principles can not be safely expressed as immutable formulæ or standards. Every school plant is an individual problem, and the application of these principles will vary in accordance with specific needs and policies. Study of successful practice in schoolhouse planning, as well as the recent literature of the subject, leaves no ground for doubt that the principles enumerated are vital to good planning and construction. Hygiene, for example, is the dominant principle in respect to lighting, ventilation, toilet facilities and water supply, as safety is the dominant principle in respect to heating, entrances and exits, corridors and stairways. The other principles in these instances are accessory or modifying influences.

The report on High School Buildings and Grounds of the Commission on the Reorganization of Secondary Education [11] illustrates satisfactorily the implications and applications of this principle. The commission, in its report on the Cardinal Principles of Secondary Education,[12] set up health as one of the seven main objectives of education. This report on High School Buildings and Grounds is in harmony with the earlier statement of objectives. It recognizes that the school plant is an important influence for or against health; from a preventive or protective point of view, by providing a hygienic environment; from a positive or constructive point of view, by providing facilities for active physical education.

It might be assumed that school lighting and school ventilation are so standardized that they are no longer live issues. There is comparatively little of new scientific data upon either lighting or ventilation, but unanimity of opinion is still lacking. This can only mean that some of the fundamental scientific determinations are yet to be made. The present status of enlightened opinion with respect to these two important aspects of schoolhouse construction is about as follows:

Eye hygiene and schoolhouse lighting.—There is comparatively little advance either in knowledge of the actual conditions of eyesight among school children or in the principles of school lighting since the publication of Berkowitz's Eyesight of School Children (Bu. of Educ.

[11] Bul. Bu. of Educ. 1922, No. 23. [12] Ibid, 1918, No. 35.

Bul., 1919, No. 65). The organization of the Eyesight Conservation Council of America and the enlarged activities of the National Committee for the Prevention of Blindness have increased the amount of effective propaganda for better eye hygiene in the schools as well as in industry and in the home, but no important additions of fact have been made. (See p. 27 for summary of activities of these organizations.) Perhaps the most significant advance in school lighting is the recognition that the problem is not solved by the formulæ "light should come from one side only, the left side," and "the window space should be one-fourth of the floor space." It is beginning to be understood that the lighting of a school building, like most problems of construction and equipment, is generally an individual problem and must be given individual study. This is recognized in the section on lighting in the report cited above, and in the report of the National Child Health Council on school health work.[13] It is more fully recognized and exploited in the report of the subcommittee on school lighting of the joint committee on health problems in education published in School Life, May 1, 1921 (Vol. VI, No. 9). This report also takes issue with the unilateral lighting dogma. The "few and simple essentials for good daylight illumination" are given as follows:

1. The selection of a site and plans such that neighboring trees or buildings shall in no case rise more than 15° above the horizontal plane of the bottom of the windows. Large trees, so close to the walls that they can be trimmed up to clear an angle of 60° with the horizon, may be permitted in warm climates, where it is important to keep down heat.

2. Placing the windows high enough to permit light from them to fall at an angle of 15° to 40° in the part of the room most distant from them, shutting off all glare of light below 15°, and placing such windows on all sides of the room available, and especially to the south, where the most light is obtainable.

3. Controlling direct sunlight by light shades that will intercept and diffuse it, and drawn out of the way when not needed for this purpose. Placing all dark shades at the bottom of the window, and drawing them up only as needed to raise the level below which glare is excluded from the eyes. Using polished shutters that swing on a horizontal axis to reflect light on the ceiling when obstructions to clear sky render this help necessary.

Ventilation.—The biennial survey of educational hygiene for 1916 included a summary of the investigations of the New York ventilation commission and a tentative conclusion as follows:

Good air is cool air, not over 68° F.; it is moist air with at least 50 per cent relative humidity; it is air in motion, free from dust, bacteria, and odors. The chief problems in ventilation are maintaining at the normal level the body temperature, the elimination of dust as the vehicle of bacteria, and the keeping of indoor humidity somewhere near the outdoor humidity.

Since that time there have been no important advances in knowledge of "good air." Winslow's statement quoted in Park's Public

[13] Bu. of Educ., School Health Studies, No. 1, 1922.

Health and Hygiene (1920), practically the same as that quoted above, is as follows:

The air should be cool but hot too cold; the air should be in gentle but not excessive motion and its temperature should fluctuate slightly from moment to moment; the air should be free from offensive body odors; the air should be free from poisonous and offensive fumes and large amounts of dust. The chief problems of ventilation are those of making the mechanical adjustments so that good air may be "served" to indoor spaces.

An admirable review of "What Fifty Years Have Done for Ventilation" is given by Dr. G. T. Palmer in "A Half Century of Public Health," the memorial volume published by the American Public Health Association in 1921. As applied to schools, the conclusions are as follows:

In schools which are mechanically ventilated we must discard the 30 cubic feet standard and also give up the idea that it is necessary to send air to every point in the room. The extremists, in 1870, wished to flush a room as a body of policemen would clear a hall, pushing all before them. This was ventilation by displacement. We now ventilate by dilution. It would seem that still better results could be accomplished in schools and auditoriums by substituting surface skimming in place of flushing. We must also substitute the intermittent or ejector type of air flow for the monotonous uniformity which now characterizes mechanical ventilation. This will mean changing the inlet register from its accustomed place on the inner wall to the space between the direct radiation and the outer wall. The course of air flow will be upward across the upper levels of the rooms and down the inner wall to the outlet. Windows may then be opened with impunity, the mechanical air flow creating an aspirating effect which will draw in the cold outside air and send it over the room. By this means we shall harmonize the conflicting interests of the teacher who wants the window open and the janitor who wants it kept closed.

The occupants of the room, it is true, will not be uniformly perflated. At times they will sit in an atmosphere higher in CO_2 than under the old arrangement, but they will not sit in direct drafts of unvarying air currents, and consequently they can stand lower temperature. It is almost impossible in many fan-ventilated schoolrooms to secure comfort at 68° F. temperature because of the appreciable air flow through the room, which cools by convection and evaporation; 70° and even 72° are more comfortable. Direct the circulating air over the upper portions of the room and temperatures of 68° F. and even 65° F. are not uncomfortable. Dryness will not be noticed with overhead air circulation. Air from the windows will aid in giving a pulsating or fluctuating motion to the mechanically propelled air stream, which will be both pleasant and stimulating.

PHYSICAL EDUCATION.

During the past half century there have been many "movements" each expressing one or more of the elements composing a comprehensive modern program of physical education (which includes, of course, health training). Some are indigenous; some are transplanted from foreign fields. Swedish gymnastics, German turnverein, and Bohemian Sokol are easily identified. College athletics originated in England. "School hygiene" was born in Germany. The kindergarten is also of German parentage. Its relation to physical educa-

tion may not be obvious, but Froebel's principle of education through self-activity is more far-reaching than is generally recognized. The Boy Scouts may be regarded as English in origin, but there is no doubt about the pure Americanism of the Young Men's Christian Association and Young Women's Christian Association activities, and the playgrounds movement. Numerous national athletic organizations for the promotion and control of athletics have grown up. Most of these athletic organizations have been concerned with athletics as recreation for the older adolescents and adults, not as physical education for growing boys and girls. On the other hand, the playground movement, the Boy Scouts, the Girl Scouts, and others, as well as the institutional organization of physical training activities in the schools, have been concerned primarily, in their physical activities, with the physical education of boys and girls during the period of growth.

Out of these and other movements concerned with the *physical activity life* of boys and girls is emerging slowly an understanding of the true nature and importance of physical education as part of the organized program of public education.

Physical education legislation.—The first State physical education law was enacted in Ohio, 1904, largely through the initiative of the Women's Christian Temperance Union. Twenty-eight States now have physical education laws. These are of varying degrees of effectiveness—a few broad and strong, some so weak as to be of little effect. Twelve States have State supervisors of physical education, under the State departments of education. In most of the laws health instruction and training are specified as part of the program of physical education. (In Utah the designation is health education.)[14] Seventeen of these laws have been enacted since 1917.[15]

Expenditures for physical education.—There are no statistics that are even approximately accurate of the expenditures for physical education throughout the Nation. An attempt was made in 1921 by the Bureau of Education to secure data from the State departments of education relative to the expenditures in the several States for "teachers and supervisors of physical education including school health supervisors and nurses," for the year 1920; also estimates for the "year 1922 and for ultimate expenditures to insure adequate and effective program of physical education." Replies were received from 42 States. Of these, 10 stated that the State office had no statistics of actual expenditures and no data upon which to base estimates of future expenditures. Thirty-two States, with an aggregate population of 69,641,172, gave information of more or less value. Of these 32 States, 10, representing an aggregate population of 23,944,084,

[14] For summary of State laws see "Recent State Legislation for Physical Education," Bul. Bu. of Educ., 1922, No. 1.

[15] For promotion of legislation by the National Physical Education Service, see p. 21.

returned replies showing that the expenditures reported for 1920 were based upon official records and their estimates for future expenditures were based upon plans at least partly formed. These 10 States represent a little more than one-fifth of our total population; they are widely distributed geographically; they vary greatly in economic character, in educational tradition, and in present educational status. With two or three exceptions, they are the States in which State-wide supervision has made the most progress and in which the largest expenditures are now made for physical education. Following is a tabular summary of the returns from these 10 States, arranged according to object of expenditure and amount of expenditure, present year estimate for immediate future and estimate for ultimate future needs.

Expenditures for supervision.

Object.	1920	1922	Ultimate need.
Teacher training	$314,755	$690,850	$1,081,250
Payment of supervisors and teachers	4,006,937	8,188,900	11,988,700
State administration	66,700	180,880	271,680
Total	4,388,392	9,060,630	13,341,630

If these figures could be taken as representative of actual expenditures throughout the country in 1920, then the expenditures of the country as a whole would be about $20,000,000. These 10 States, however, are not fairly representative, as they are the leaders in organization and expenditures. Total expenditures for the country probably do not exceed $12,000,000 at the outside.

The estimates for needed future expenditures are probably as accurate as any such prophecy is likely to be. On the basis of these estimates for the 10 States, the expenditures for the entire country for 1922 should be about $40,000,000, and a little more than $60,000,000 ultimately. Such an estimate for 1922 was fallacious. That amount of money could not have been spent economically and effectively. Lack of competent personnel alone would have prevented it.

The estimate of ultimate economical and effective expenditure of $60,000,000 is conservative, on the basis of present population. On that basis the country is not spending more than one-fifth of what should be spent for this essential educational service.

Physical education in the cities, as illustrated in Detroit.—Many of our cities have developed impressive programs of physical education during the past decade. It would be invidious to mention Detroit but for the fact that the Detroit school system is one of the outstanding laboratories of educational experimentation. The department of physical education in Detroit in 1920 changed its name to

the department of health education. It is administered as a division of the department of instruction, teacher training, and educational research.

The program is characterized by boldness of conception, definite educational purpose, unusually adequate facilities, and the experimental attitude on the part both of those immediately in charge and also of the administrative directors. The aim of the coordinated department activities is to "give the child increased physical ability, to insure normal growth, to avoid accidents, to decrease illness, to overcome defects, and to make possible an abundance of energy and vitality." Achievement of these aims is sought by "acquainting each child, through experiences, reading, and observation, with the basic elements of health and instilling in him an inner urge to do those things necessary to a healthful life."

All of the department activities aim to educate the child not only to care for his personal health but also to give him the abilities, both physical and social, needed for cooperation in the solution of community and national health problems. The activities employed are grouped as follows: (1) Plays, games, dancing, gymnastics, and swimming; (2) competitive athletics; (3) health instruction; (4) Boy Scouting.

Provision is made in the school schedule in all grades from lowest to highest for from 30 to 60 minutes a day—depending on age of pupils and type of school—of active exercise under trained teachers. The character of the exercise likewise depends upon the age, physical ability, and normal interests of the children. Sex differentiations in interest and ability are observed. Special provision is made for children with defects more marked than with the average child. These children are discovered through the medical examinations conducted by the city health department, through observations made by the regular teachers, and the more detailed observations of the trained teachers of individual gymnastics. Six types of defectives are given special assistance through instruction and advice: Those with poor posture—to lay a better foundation for future health; with infantile paralysis sequelæ—to prevent increase of deformity; with postural scoliosis—to direct attention to proper orthopedic treatment; with cardiac weakness—to strengthen the heart by carefully supervised work and play during early stages of disorder and to aid in resisting further progress of disease; with weak and fallen arches—to prepare for future efficiency.

Competitive athletics, for both boys and girls, extends from the sixth grade through college. The dominant aim is to provide an outlet for the natural surplus energy of children and to direct that energy into constructive channels.

A tentative course of study in health has been prepared and is being tried out in a limited number of schools. The course is organized around six leading ideas: Normal growth, physical ability, illness, safety, defects, energy, and vitality. Each of these leading ideas or motives is presented in its relation to and dependence upon nine contributing factors: Food, rest, air, exercise, cleanliness, clothing, posture, leisure time, state of mind.

The Detroit public school system is the first in the United States to employ a field scout executive. He is a member of the health education department and administratively responsible to that department, but is under direct supervision of the Detroit scout executive. After 15 months of operation, 28 school troops having about 600 scouts and 150 active volunteer male adult leaders are supervised by the field scout executive. All general contacts between the Detroit schools and the 4,000 Detroit Scouts are handled through this office.

Closely related to the department of health education is the work in "safety education," which seeks to educate children in the principles and practice of accident prevention.[16]

Physical education and physical fitness.—The immediate results of most educational procedures can be tested and measured with some degree of precision. This is true of physical education both in its physical activity aspect and in its health training aspect. The permanent effects of education are not easily measurable in the body politic of adult society. We should like to know whether our faith that physical education does produce results in increased physical fitness is justified. Doubtless it depends upon what and how much is administered.

Comparisons are traditionally odious. At least they are hazardous. This is especially true of statistical comparisons relating to physical efficiency. The following is no exception to the rule. In view of the fact, however, that systematic physical education has been universal in the Swedish schools for many years, it may be worth while to venture one or two comparisons with conditions in our own country, even though more complete knowledge of the facts should show these comparisons to be inaccurate or even groundless.

(1) Physical examination of 35,000 young men of military age (21 years) in 1918 in Sweden resulted in the rejection of only 14 per cent. Our initial draft examinations resulted in the complete rejection of about 16 per cent of those drafted. The partial rejection amounted to more than twice as many. It would be well worth knowing whether this apparent difference is a real difference in physical fitness or merely a difference in standards and methods of procedure. If

[16] St. Louis is another city school system that is strong in safety education.

the differences are real, are they due to physical education or to other causes?

(2) In 1918 the physical examination of all high-school pupils of Sweden (ages 9 to 18) gave the following results in regard to body development: Very good, 76.7 per cent; good, 19.9 per cent; poor, 3.4 per cent.[17] There are no statistics in the United States that are satisfactorily comparable with these Swedish statistics, but the results of the examinations of Harvard freshmen with respect to "bodily mechanics" offer material for a possible comparison. Probably bodily development and bodily mechanics do not mean exactly the same thing, but they are closely allied. The Harvard reports[18] show that "only 20 per cent of the freshmen at entrance use their bodies well, while 35 per cent use their bodies very badly." This would seem to indicate that the Harvard freshmen are distinctly inferior to the Swedish high-school pupils with respect to ability to use their bodies. Physical training is universal and compulsory in the Swedish secondary schools (gymnasia 9 to 18 years of age); it is by no means universal and compulsory in the secondary schools from which Harvard freshmen are drawn. If "bodily development" and "bodily mechanics" do mean entirely different things, there is at least a probability that there is a causal relation between the physical training and the superior bodily development of the Swedish youth. This probability is strengthened by the fact that with respect to organic soundness (i.e., freedom from disease or disability likely to be permanent) the Harvard freshmen are superior.

The figures are, respectively: Harvard students 95 per cent satisfactory and 5 per cent unsatisfactory; Swedish high-school boys 89.2 per cent satisfactory and 10.8 per cent unsatisfactory. It is unlikely that the Harvard standards are inferior to those governing the Swedish examinations. On the other hand, it is highly probable that Harvard freshmen, as a class, have had good medical care from birth. Apparently the Harvard students are better organically, even though they are inferior mechanically. Which are the fitter, i.e., which will live longer and bear up more buoyantly "under the slings and arrows of outrageous fortune?"

The two obvious and certain conclusions are that "bodily soundness" and "bodily development" are equally necessary objectives of physical education, and that the possession of the one is not a guaranty of the possession of the other.

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[17] See hearing before the Committee on Education, House of Representatives, 66th Cong., 3d sess., in H. R. 12652, Part 2, Feb. 8, 1921, p. 123 ff.

[18] Similar figures are reported by the Harvard department of hygiene for a number of years.

VOLUNTARY ORGANIZATIONS.

Different types of voluntary organizations influence educational hygiene in different and various ways. A rigorously accurate classification of such organizations is not possible, as some of them function in more than one way. The following classification, however, shows approximately the character of the organizations and the way in which they are related to and influence educational hygiene:

(1) Organizations the membership of which consists in whole or in part of children and adolescents and which includes in the general program of activities a more or less specific program of health activities, such as Boy Scouts, Girl Scouts, Camp-fire Girls, Young Men's Christian Association and Young Women's Christian Association, and Junior Red Cross.

(2) Organizations to promote programs of health instruction and training in the schools and other organizations that control children, such as the Child Health Organization of America,[19] the Modern Health Crusade of the National Tuberculosis Association, the Playground and Recreation Association.

(3) Professional organizations which directly or indirectly influence the standards and practices in the field of educational hygiene, such as the American Public Health Association, National Organization of Public Health Nursing, American Physical Health Association, American Medical Association.[20]

(4) Organizations for the promotion and study of special fields in hygiene, such as the American Social Hygiene Association[21] National Committee for Mental Hygiene, National Committee for Prevention of Blindness.

(5) Operating organizations which carry on investigations, demonstrations, etc., either with their own funds or as supplied by other organizations, such as the Elizabeth McCormick Memorial Fund, National Child Health Council.

(6) Foundations which generally are nonoperative but supply funds for research, demonstration, and promotion through other existing organizations, such as the Rockefeller, Commonwealth, Milbank.

(7) Organizations devoted in whole or in part to promotion of child welfare through creation of public opinion, promotion of legislation, and other means, e. g., National Child Labor Committee, National Congress of Mothers and Parent Teacher Associations, Women's Christian Temperance Union, National Physical Education Service.

The list of illustrations cited is not exhaustive, even of the organizations national in scope. Sectional and local organizations are not

[19] Now combined with the America Child Hygiene Association under the name of American Child Health Association.

[20] Especially through the joint committee of American Medical Association and National Education Association on Health Problems in Education.

[21] See section on education and social hygiene, p. 33.

mentioned. The number of these is large, and many are very influential. Furthermore, the classification might be extended to include a variety of other kinds of organizations, some of which exert much influence, e. g., insurance companies, commercial organizations, labor unions.

Summaries of the recent activities of 21 voluntary organizations in the general field of educational hygiene and their contributions thereto follow. This list does not necessarily include all the organizations that have made important contributions. Selection has been determined in large measure by definiteness and concreteness of the activities and contributions. It is probable that a good many other organizations have contributed very effectively though less obviously.

Boy Scouts.—The enrollment of Boy Scouts in 1922 was 421,865. The educational program includes instruction and practice in both preventive and curative measures, personal and public health and first aid. Beyond the indirect influence of the scout's oath to keep himself "physically strong, mentally awake, and morally straight," and the eleventh law to keep "clean in body and thought, stand for clean speech, clean sport, clean habits, and travel with a clean crowd," scouting bears a direct influence on educational hygiene through its requirements for promotion to second class and first class scouts and the award of merit badges.

Of the 48 merit badges offered, 16 are for physical and health achievements, such as athletics, camping, cycling, first aid, horsemanship, pathfinding, personal health, physical development, public health, stalking, and swimming. These require a daily practice of hygienic habits, care of teeth, proper diet, use of bath, knowledge of the effect of alcohol and tobacco on the growing boy, value of medical examination, and healthful games.

The merit badge for public health requires knowledge of (1) the chief causes and modes of transmission of such diseases as tuberculosis, typhoid, and malaria; (2) the disease-spreading house fly; (3) proper disposal of garbage; (4) how cities should protect milk, water, and meat supply; (5) the sanitary care of a camp, and the candidate must produce satisfactory evidence of having given active cooperation to health authorities to prevent diseases. Boy Scouts are active leaders in the annual spring clean-up put on by public schools of Chicago and other cities.

First aid, both elementary and advanced, is required of scouts passing both second-class and first-class tests. Elementary first aid includes treatment of injuries, fainting, shock, fractures, bruises, sprains, burns, scalds, carrying injured, and the use of bandages. Advanced first aid covers methods of panic prevention; what to do in case of fire, ice, electric, and gas accidents; what to do for mad dog

and snake bites; treatment of dislocations, poisoning, fainting, apoplexy, sunstroke, heat exhaustion; and freezing; treatment of sunburn, ivy poisoning, bites, stings, nosebleed, earache, toothache, grit in eye, cramp, chills; and demonstration of artificial respiration.

We must also consider the health value of life out of doors for 421,865 Boy Scouts. In the State of New Jersey 15 minutes a week credit under the physical training law is given for outside activities, among which is mentioned scouting. New York State in its physical training law also recognizes scouting among its important outside activities.[32]

The American Red Cross.—The American Red Cross is not concerned directly with educational hygiene or school health work. Indirectly, however, it makes continuous and important contributions.

The Mansfield, Ohio, child health demonstration of the National Child Health Council is financed by the Red Cross. (See Child Health Council.)

The regular activities of the Red Cross that bear on school health work are as follows:

(1) Much of the work of the 1,140[33] public health nurses maintained by the American Red Cross throughout the United States deals with health education. In many communities the only health work carried on in the schools is done by the Red Cross nurses.

(2) Women and girls (numbering 93,443) have been trained in Red Cross classes in home hygiene and care of the sick. A majority of these classes have been carried on in high schools and normal schools.

(3) Certificates in first aid (5,705) have been awarded to persons who have been trained by the American Red Cross. Many of these are high and normal school students.

(4) Classes in nutrition (1,636) have been held, with an enrollment of 102,116, the majority in connection with schools.

(5) Health lectures, health exhibits, classes, and clinics have been conducted in the 377 health centers in which the American Red Cross has been interested. School children have benefited in all cases.

In addition to the activities mentioned above, the Junior Red Cross is interested in good health in the schools and cooperates with official and voluntary agencies to bring this about.[34]

The Child Health Organization of America began life in 1918 as the "Child Health Organization" under the auspices of the National Child Labor Committee. The bud grew so rapidly that it soon broke off from the parent stem. It was incorporated under its present name in January, 1921. In the past two years it has made large gains in "height" and "weight," due in large measure to the constantly

[32] See p. 13 for integration of Boy Scouts in the health education program of Detroit public schools.
[33] The figures in this and succeeding paragraphs are for 1921-22.
[34] For the work of the Junior Red Cross in establishing a children's hospital in cooperation with the public schools of Spokane, Wash., see Proc. of Am. Sch. Hygiene Assoc., 1921.

increasing interest in health education throughout the country.[a] The activities and interests are varied, as shown by the following samples:

(1) It has demonstrated the value of dramatic methods in teaching health through the success of its dramatic characters. During 1921 "Cho-Cho," the "Jolly Jester," and "Happy" gave 965 performances to over half a million children. "The Health Fairy" has given demonstration performances and held conferences with teachers throughout several States. Her experiences in California are typical. There she visited 56 cities under direction of the State board of health, gave 66 demonstrations, 61 conferences, and met over 72,000 persons.

Two new dramatic characters have been created. One known as "Joy" demonstrates to teachers how health plays may be put on as classroom games, with only three rehersals; and "Happy" has developed the rôle of "Professor" Happy, in which character he delivers a lecture to high-school students.

As a result of increased interest in health education in California, a staff representative of the Child Health Organization is now employed in California; and finances come jointly from the State and the San Francisco Tuberculosis Association.

(2) The new publications of the Child Health Organization for 1921–22 include "My Health Book" for high-school girls; "Happy's (Health) Calendar"; "The Nutrition Class"; four health plays dramatizing stories from "Cho-Cho" and the "Health Fairy"; "Miss Jenkins's Sketch Book," a painting book for children; "Many Roads to Health," a facsimile reproduction of a class health book; "The Value of Weighing School Children," and others. During 1922 an arrangement was made with one of the large publishing companies by which some of its books for children are now distributed by that company, and two new books have been published: "Every Child's Book" and "Food and Health and Growth." Within the same period it has prepared, in cooperation with the Bureau of Education for publication by the bureau, three pamphlets: "Your opportunity in the schools," "Suggestions for a program for health training for elementary schools," and "Milk."

(3) At the invitation of the president of the Child Health Organization a group of experts met in conference in 1921 to consider a revision of the standards of weight and height of children. From the conference a national committee was formed of representatives from various organizations. The committee will soon issue a report on its findings.

(4) The Child Health Organization conducts an increasingly large correspondence with educators and health workers in all parts of the

[a] In November, 1922, the Child Health Organization and the American Child Hygiene Association were merged into a single "American Child Health Association."

world. From January, 1921, through August, 1922, 38,785 letters were received, 42,992 letters were sent, and 3,023 conferences were held with visitors at the office.

(5) An international exchange of health posters made by school children has been established.

Mohonk Health Education Conference.—This conference, held under the joint auspices of the Bureau of Education and the Child Health Organization of America at Lake Mohonk, June 26–July 1, 1922, brought together about 100 persons who had each something to contribute to the solution of the many problems involved in "Health Education and the Preparation of Teachers."[28] The membership of the conference included pediatricians, nutrition specialists, school health supervisors, hygienists, physical education specialists, public health and school nurses, superintendents of schools, college and normal-school teachers, public-school teachers, representatives of voluntary health organizations, and others. The work of the conference was carried on through general sessions for discussion and special committee activities, both of which were concerned with the following topics:

Subject matter in health education; place of health education in the curriculum; incentives and motives in health education; the promotion of health habits—successes and failures; and the preparation of teachers for health education.

The results of the conference discussions and deliberations were precipitated in a brief statement of recommendations, as follows:

1. RECOMMENDATIONS REGARDING CONTENT AND METHOD.

(1) *Kindergarten through fourth grade:* That here primary emphasis should be laid upon habit formation, in a healthful school environment. Health principles should be emphasized in relation to actual situations and in the project work in these grades.

(2) *In the fifth and sixth grades* the basis should be more broadly biological and should convey a conception of the functions of the body as a whole, although the content of the course should still be correlated with health habits and practices.

(3) *In the junior and senior high schools*, while continuing the effort to fix the habits and broaden the knowledge indicated for previous grades, problems arising from group activities offered in the school, home, and community should be stressed. In these grades the dominant idea should be service.

2. RECOMMENDATIONS REGARDING HEALTH EDUCATION FOR TEACHERS IN TRAINING.

(1) *Health education* in a training school should include three factors: (*a*) A student health service; (*b*) healthful surroundings; (*c*) content course or courses.

(2) *Student health service:* The Student Health Service should include: (*a*) A complete health examination and such subsequent examinations as may be necessary. (*b*) Health advice and supervision of students throughout the course. (*c*) The correction of remediable health defects. (*d*) The maintenance of a healthful regimen of living. "Healthful living" shall be understood to include proper hours

[28] Complete report published by the Child Health Organization, 1922.

of sleep, proper food, clothing, bathing, and exercise. (*e*) As far as practicable, the student's attitude and conduct in regard to the above points shall be a basis for recommendation for a professional position.

(3) *Healthful surroundings:* The administration of teacher-training schools should make provision for supervision and control of the living and working conditions of students, whether the students live in dormitories or elsewhere.

(4) *Content:* The following subject matter topics are suggested, in order that teachers may have an appreciation of community health work and may do their part in health instruction to the best advantage. It is important that there be adaptation of these principles to the problems of urban and rural schools, and it is further suggested that the best practicable distribution of time and relative emphasis be given these topics according to local conditions.

The fundamental subject matter should be derived from the following fields: (*a*) Personal hygiene; (*b*) nutrition; (*c*) community hygiene; (*d*) social hygiene; (*e*) mental hygiene; (*f*) health and care of infants and young children; (*g*) health of childhood and adolescence; (*h*) first aid and safety; (*i*) hygiene of the worker; (*j*) home nursing and care of the sick; (*k*) school hygiene; (*l*) physical education; (*m*) principles of health education and practice teaching. Practice teaching to include all types of contact with chifdren incident to health work in the school.

(5) *The preparation for the course in health education:* The subject matter fundamental to the above course or courses in health education should include general principles of applied chemistry, applied physiology, applied psychology, applied bacteriology; to be taught in the normal school, if adequate work in same has not already been done in high school.

National Tuberculosis Association (Modern Health Crusade).—The National Tuberculosis Association is the pioneer propaganda health association of America. During its 18 years of activity it has used extensively and systematically about all of the methods and devices devised by the publicity and advertising fraternity for "educating" the public, including newspaper publicity, the printed word other than newspaper publicity, the spoken word and graphic and display methods, such as motion pictures, exhibits, and various dramatic devices. The aim was enlightenment of the general public, primarily the adult public. Early, however, it was perceived that valuable as might be the results of "broadcasting" to the adult public, more valuable probably would be the results of direct instruction of school children. At the least, this would be a powerful supplement. The first efforts in this line were merely adaptations of the methods already employed in the propaganda efforts, especially talks to school, literature devised for school children, and graphic devices.

Recognizing the relative ineffectiveness of casual incursions of propaganda methods and material into the schools, the association in 1916 began experimenting with a plan designed to stimulate and encourage children to practice health habits. The *Modern Health Crusade* is the result. The central feature is the chore record, a list of 11 health tests or chores to be performed daily and recorded systematically. It has sought to marry the psychology of habit formation to the quest of health as a romantic adventure. The factors

of play, romance, and competition stimulate interest in a study that otherwise is likely to be prosaic and monotonous.

The results are not entirely easy to summarize or evaluate. Numerically it is certain that millions of children of all grades and in all parts of the country have "enlisted as crusaders." In 17 States the crusade program has been adopted, or strongly recommended, by the State education departments as an integral part of the health instruction in the State schools. The Ohio State course of study in hygiene, published 1921 by the State department, has the crusade for its foundation. A number of other State departments and a larger number of city departments of education have drawn liberally from the crusade in their manuals for teachers.

The 1922–23 edition of crusade material includes graded sets of chores for the third, fourth, fifth, and sixth grades, and also a nutrition edition designed for use by underweight children. This exemplifies the purpose of the directors of the crusade to modify and develop the program in accordance with realities.

The tendency of school departments, State and city, to adapt the crusade material and methods to broad programs of health teaching, to select and incorporate appropriate parts of the crusade program, is testimony to the vitality and probable permanence of this invasion of the schools by an extramural friend and coworker.

National Physical Education Service.—This organization was established in 1918 as a special service of the Playground and Recreation Association of America for purpose of promoting physical education legislation, State and National. At the time it was established there were 11 States having physical education laws. Since that date 17 others have enacted physical education legislation—8 in 1919, 4 in 1920, 5 in 1921.[37] In all of these States the National Physical Education Service has given substantial aid in bringing the legislation about, by furnishing drafts of bills and information necessary for perfecting bills in process of enactment and also material for publicity, and by personal service of field representatives. In these States and other States the Physical Education Service has also done a large amount of preliminary publicity and organization work preparatory to the legislative campaigns. In 1921 legislative campaigns were conducted in 8 States where the bills failed of enactment. The ground was broken and cultivated to such an extent, however, that success is confidently expected in the next biennial session (1923).

In addition to aiding in the promotion of new legislation, the Physical Education Service has rendered effective assistance in several States in defending existing legislation against economy threats in the legislatures.

[37] The compulsion of these laws has been a stimulus to thousands of educators to develop better content and methods of instruction in this field.

Another important and growing function of the Physical Education Service in States where legislation has been enacted is that of stimulating the educational authorities to develop and strengthen the physical education programs authorized under the laws. It was recognized when the establishment of the Physical Education Service was undergoing incubation that the enactment of a law was only the first step in securing an effective state-wide operating program of physical education, and it was foreseen, therefore, that this stimulative function would become progressively more important. Coincidently with this service is the equally important and more necessary service of building up popular appreciation and support. To that end the Service works through many other organizations, furnishing them with information and suggestions for effective activity.

The Physical Education Service has carried on a continuous, persistent, and cumulative campaign for Federal legislation since the original Fess-Capper bill proposing Federal leadership and encouragement to States was introduced in 1920. Extensive hearings were held before the Senate Committee on Education and Labor in May, 1920, and before the House Committee on Education in February, 1921. Indorsement of the idea of Federal encouragement to physical education was given by both the presidential candidates in the campaign of 1920 and express indorsement was given in the Republican platform. In April, 1921, the Fess-Capper bill (H. R. 22 and S. 416), revised to overcome a number of reasonable objections, was reintroduced. In the administration plan for reorganization of Government departments provision is made for enlarged recognition and support of physical education in the proposed reorganization of the Bureau of Education.

PROFESSIONAL ORGANIZATIONS PROMOTING HEALTH.

The American Public Health Association has a standing committee on school health program. The latest report of this committee (1921) set forth the fundamental requirements of a modern school health program, grouping them as follows:

I. Health Protection.—(*a*) Sanitation of the school plant; (*b*) examination. (1) physical, (2) psychological; (*c*) communicable disease control.

II. Correction of Defects.—(*a*) Special classes; (*b*) clinics; (*c*) follow up.

III. Health Promotion.—(*a*) Hygienic arrangement of the daily program; (*b*) physical activities; (*c*) health instruction and motivation for teacher, pupils, and parents.

This report seeks to fix a standard terminology and to specify the activities that logically can be carried on in a school health program.[28]

Committee on Health Problems in Education.—This committee was established in 1911 as a joint committee of the Council of Education

[28] Am. Jour. Pub. Health, March, 1922.

and the American Medical Association. In 1921, after 10 years of useful activity, it was formally established as a permanent committee of the National Education Association. Throughout these years there has been effective cooperation with the Bureau of Education, especially in the matter of publication and distribution of reports in the earlier part of the period. The earlier studies produced by this committee have been reviewed in former Biennial Surveys: "Rural Schoolhouses and Grounds"; "Minimum Health Requirements of Rural Schools"; "Health Essentials for Rural School Children"; "Health Chart Report"; and "Health Chart Series." The recent activities of the committee may be summarized as follows:

I. Studies completed and published:

(1) A pamphlet entitled "The Teacher's Part in Social Hygiene" has been prepared in cooperation with the American Social Hygiene Association and published by that association (1921).

(2) "Health Improvement in Rural Schools" completes the introductory plan of the committee for promoting a complete health program in rural schools (1922).

(3) "Health Service in City Schools of the United States" is a careful summary of the equally careful questionary reports from 340 city school systems on current organization, methods of work, and accomplishments in school health work (1922).

(4) "Daylight in the Schoolroom" is a report on school lighting published by School Life (May 1, 1921) and in a number of scientific and educational periodicals. Unfortunately it has not been issued as a separate pamphlet.

II. Studies in progress or projected:

(1) Report on "Ventilation of School Buildings." The report will represent the up-to-date and practical findings.

(2) Projected:

(*a*) Mental Hygiene for Normal Children; What Every Teacher Should Know About it.

(*b*) Making Athletic Games Safe and Healthful for School Children.

(*c*) Standards of Health Norms and Defects of School Children.

(*d*) Health and Efficiency for Teachers.

(*e*) Essentials in the Hygiene of Instruction and School Management.

III. The committee undertook in April, 1922, as a major project, the preparation of a program of health education for public-school teachers and teacher-training institutions. The purpose is to "study, interpret, and coordinate the materials and methods in health education so that the schools of the country may be provided with an educationally sound program of health teaching and training." Subcommittees have been appointed to grade the health-teaching material for kindergarten, elementary schools, high schools, and

normal schools; and to serve as "technical groups to judge and organize material from the standpoint of teachers, physicians, educational psychologists, dentists, nutrition experts, teachers of physical education, biologists, and public health specialists." It is planned to issue a preliminary report by the end of 1923 "to provide the best available guidance to the schools of the country relative to health teaching in the immediate future."

IV. State committees on health problems in education. The American Medical Association in 1920, through its house of delegates, "voted to urge upon each of the State medical societies that a committee of five physicians be appointed to cooperate with a similar committee of the State Teachers' Association as a joint State committee on health problems in education." This action was indorsed by the National Education Association in 1921 and each State teachers' association was urged to appoint such a committee. Forty-four State medical societies have acted and have oppointed their committees. No information is available at this time relative to the action of State teachers' associations. The committee on health problems in education is urging the State associations to act. The "National Committee" "can propose material and secure data of great value, and can recommend measures that would secure better health conditions in the schools of the country," but the adoption and effective operation of such measures must depend upon organized State and local action.

American Physical Education Association.—The American Physical Education Review, published by the association, gives annually over 400 pages of material which represents the best articles printed on physical education during the current year. It includes, also, practical hints to teachers, news notes, and abstracts from current magazine articles. These abstracts are largely from medical literature. During the past two years the association has prepared (through its committees or in cooperation with other organizations) and published: (1) Uniform Medical and Physical Examination Blank for College Students (also used by secondary schools); (2) physical efficiency tests for elementary schools, city and rural; for secondary schools, boys and girls; and for Young Men's Christian Association, Young Women's Christian Association, clubs, and industrial organizations; (3) a five-year survey of college physical education; (4) a classification for a physical training library with complete index, based upon a study of the best libraries of physical education in the country. It is a complete revision of material that has gone through four revisions during the past 30 years.

Society of college directors of physical education.—The most notable activities and achievements of the society of physical directors in colleges during the past two years have been along the line of

clarification of the aims and scope of physical education and of the relation of physical education to general education.

Two reports have been issued, as follows:

(1) A report on the "Aims and Scope of Physical Education," by a special committee of the society. (Published in the American Physical Education Review, June, 1920. A slightly revised report, as adopted at the annual meeting in December, 1920, was published in School Life, February, 1921.)

(2) In cooperation with the United States Bureau of Education, a committee of the society in 1920 made a quinquennial survey of the physical education in colleges. (Published by the American Physical Education Association.)

American School Hygiene Association.—The association was established in 1907. Up to the time of the war it held annual meetings, published an annual volume of proceedings, and served as a clearing house for the workers in the various fields of school hygiene. It organized and conducted the fourth international congress on school hygiene, Buffalo, 1913. The war interrupted its activities, and no meeting was held in the years 1917 and 1918. Meetings were resumed in 1920. The proceedings for the years 1920 and 1921 have been published. The association has also published, in cooperation with the American Red Cross, a pamphlet entitled "The School Child's Health: What Mothers Should Do About It." This pamphlet aims to give mothers and teachers a practical knowledge of the diseases and body defects that school children in a large measure are subject to; a knowledge of what to look for as evidence of the existence or approach of these evils; how to prevent their occurrence; procedure in securing their cure or correction.

American Students' Health Association.—This association was organized in 1919. Its membership is composed of men and women engaged in student health work in colleges and universities. Annual meetings are held. A preliminary study by questionnaire has been made of existing conditions of student health service in colleges and universities. A beginning has been made of an employment bureau for men interested in this line of work. The secretary is Warren E. Forsythe, director university health service, University of Michigan.

NUTRITION IN EDUCATION.

Nutrition work has penetrated the schools with astonishing rapidity during the past four or five years. Nutrition classes for malnourished children have spread like influenza, and instruction in nutrition has taken almost the first place in the school health program. Two State departments of education, New York and Pennsylvania, employ nutrition supervisors. The recent development of the "newer knowledge of nutrition" and the consequent leaping demand for instruc-

tional work in nutrition by social welfare and educational organizations have demonstrated the necessity both for work of this kind and for preparation of the workers.

Nutrition clinics for delicate children.—This national organization was established in 1919 with the following chief objectives: Determining methods for identifying malnourished children; organizing physical growth and social examinations and a nutrition program by means of which the causes of malnutrition can be found and removed; training physicians, nurses, teachers, and other experienced persons in the technique of administering this nutrition program. Nutrition institutes on this basis have been held in Boston, Chicago, Rochester, New Haven, Hartford, Manchester, Grand Rapids, Battle Creek, Lincoln, Denver, Atlanta, San Francisco, Los Angeles, Honolulu, and other cities. Work in health education has been done in connection with public schools in these and other cities. The program has proved to be applicable in rural, parochial, and private schools. Satisfactory results have come from the organization of this preventive medical work as a community program in cooperation with tuberculosis associations and various types of child-helping societies. An interesting feature is the work carried on during the last three summers in connection with Doctor Grenfell's undertakings in Labrador.

The New York Nutrition Council was organized in 1920 with the primary purpose of providing a clearing house for the multiplicity of organizations in New York City that in one way or another are concerned with nutrition work. Approximately 100 organizations are represented in the council. The council, through committees, has prepared and issued a number of important reports, including "Record forms," "Training standards," "Correlation of nutrition activities," "Nutrition bibliography," and "Height and weight as an index of nutrition." These studies and reports have developed primarily out of recognized needs in the New York field, but they will be equally useful elsewhere.

ORGANIZATIONS IN SPECIAL FIELDS IN HYGIENE.

National Committee for Mental Hygiene.—The division of education of the National Committee for Mental Hygiene has recently directed much atteention to the problems of mental hygiene of childhood. Its surveys have reached into the schools. During the last two years seven State surveys have been conducted, and a few cities and counties have been studied in addition. In the recent surveys special attention has been given to school children. They are studied with reference to mental diagnosis, school retardation, behavior history, environment, personality make-up, etc. The survey that was com-

pleted in Cincinnati, May, 1922, included over 4,000 public-school children. A similar study has just been completed in Louisville, Ky.

In the Cincinnati survey—

Conducted in order to find out what proportion of the school children are mentally handicapped, mentally maladjusted, and hence likely to furnish us with the grist for future juvenile and adult courts, jails, delinquent institutions, dependent institutions, and the like—a study was made of over 4,000 school children. Two per cent of these public-school children were classified as feeble-minded, 2 per cent as cases of border-line mental defect, 3.5 per cent were diagnosed as nervous and psychopathic children, 4.8 per cent as subnormal, 0.1 per cent were suffering from epilepsy, and 0.7 per cent from endocrine disorders. Approximately 6 per cent showed conduct disorders.

Whatever we spend to-day in adequately studying, treating, and training these children will be returned a hundredfold to-morrow in prevention of crime, insanity, and dependency.[29]

A survey of the teaching of mental hygiene in normal schools was recently conducted by the questionnaire method under the auspices of the National Committee for Mental Hygiene. The result of this study was published in the January, 1921, issue of Mental Hygiene. The survey showed that, although few normal schools are giving definite instruction in mental hygiene, many are interested in doing so.

Another recent development in the organization of the National Committee for Mental Hygiene has been the establishment of a division on the prevention of delinquency. This division plans to furnish demonstration psychiatric clinics to a limited number of juvenile courts in this country. One is already established in St. Louis. It is cooperating with the public schools and other agencies dealing with children. Another phase of the work of this division is the conducting of demonstration clinics in communities over an extended period of time. Such a clinic is now in operation in Red Bank, N. J., serving Monmouth County. This clinic is making special studies of schools and school children, including mental and physical examination, personality studies, etc., with recommendations for treatment. This clinic cooperates with other health and social agencies in that community.

National Committee for the Prevention of Blindness.—The work of the National Committee for the Prevention of Blindness includes research, promotion of legislation, and educational activities. It carries on intensive studies into the causes of blindness and deterioration of sight and methods of prevention. It prepares bills dealing with prevention of blindness and sight conservation and aids in legislative campaigns. Its educational activities include preparation of literature and graphic material, cooperation with educational institutions, and other appropriate measures. In a large sense all its activi-

[29] Report of the Mental Hygiene Survey of Cincinnati, May, 1922, p. 18.

ties are educational, for they all converge upon measures for conserving vision and the training of the visually handicapped.

During the past two years the committee's more important contributions have been as follows: Three films have been produced under the title "Saving the Eye of Youth," and a large number of slides have been added to the loan collection. It has held several conservation-of-vision weeks, has exhibited at a number of health expositions, and has given 440 lectures in 15 States. The committee conducted a special educational campaign in Porto Rico at the request of and in cooperation with the Children's Bureau, and it cooperated with other organizations in underwriting and arranging for a course in Columbia University summer school for training teachers of sight-conservation classes. Model legislation covering all phases of preventing blindness has been drawn up by the committee. A course has been outlined for normal schools to prepare teachers to conserve the sight of their pupils. It has distributed 311,867 pamphlets and bulletins and 23,406 sets of posters.

The Eyesight Conservation Council was organized in 1920. Its chief activity in the first year was cooperation with the Federal Engineering Societies in their study of waste in industry. The report of the Hoover Committee on the Elimination of Waste in Industry included a section on eye conservation in industry, subsequently published by the council as "Eyesight Conservation Bulletin 1."

The council has also published a number of folders; also a Vision-testing Chart for Schools, with special literature for the school-teacher. Many thousand copies of the vision chart and folders have been sent to superintendents and teachers throughout the country. All superintendents of education are on the mailing list of the organization.

Elizabeth McCormick Memorial Fund.—The activities of the Elizabeth McCormick Memorial Fund have been concentrated on the health of children. Within the past two years the fund has continued to promote open-air and open-window rooms for frail children, as well as for well children; in the latter connection making special studies of the ventilation of schoolhouses in an effort to secure natural ventilation.

The organization has been especially interested in undernourished children, and in this connection has promoted the establishment of scales in schools, weighing and measuring of children, the establishment of milk service in schools, and adequate lunches. As intensive work it has carried on nutrition classes for undernourished children. In one high school nutrition classes were maintained for the freshmen, physiology credit being given for this. One physiology period during the week was given in charge of the nutrition worker from the fund.

In connection with the nutrition classes, each child is given a complete medical examination. Intensive study is made of cases that fail

to gain. The fund has cooperated with two school systems, of about 6,000 pupils each, Oak Park and Joliet, Ill. The work in each of these places has been under a special health teacher in the employ of the fund. The plan in each has been to develop a program of health education which could later be taken over by the existing forces within the school itself, one important phase of which has been the training of the teachers already in the schools in subject matter, methods, and devices. Statistics on weight, height, rate of growth, physical condition, and anthropometric measurements have been gathered.

Six institutes for the training of nutrition workers have been conducted by the fund at its headquarters, the last two institutes being held in 1920 and 1921.

ORGANIZATIONS AFFECTING PUBLIC OPINION AND LEGISLATION.

National Child Health Council.[29]—This is a council of national organizations, founded in March, 1920, as a coordinating agency for child health activities. There are six constituent organizations: American Child Hygiene Association, American Red Cross, Child Health Organization of America, National Child Labor Committee, National Organization for Public Health Nurses, and National Tuberculosis Association.

The chief activities of the council up to the present time may be summarized as follows:

(1) It serves as a clearing house for the plans and policies of its constituent organizations and in increasing measure as a clearing house for information generally in the field of child health.

(2) It has created advisory committees, three of which have prepared important reports, as follows: (*a*) Report on Desirable Health Provisions in State Laws, published by numerous periodicals; (*b*) Report on Health for School Children, published by the Bureau of Education; (*c*) Report on Nutrition, published by the United States Public Health Service.

(3) Organization and general supervision of a demonstration in methods of solving child health problems of children, for which an appropriation of $200,000 was made by the Red Cross.

"THE MANSFIELD DEMONSTRATION."

In August, 1921, Mansfield and Richland Counties, Ohio, were selected for the demonstration, as fairly representative of the average of American life with respect to economic conditions, community responsibility, and existing institutions necessary for cooperation.

[29] The National Child Health Council was liquidated in March, 1923. Most of its functions were taken over by the American Child Health Association.

It was believed that the results achieved in such a community would be applicable in the majority of American communities. Under direction of Dr. Walter H. Brown, work was actively begun in October, 1921. A special report from Docter Brown in September, 1922, gives the following summary of what is planned for the "school health" part of the demonstration:

I. Health Education.—This will include all the curricular activities in the school. The director of health education has been officially appointed by the city and the county boards of education as supervisor of health education in the schools. This will give us an official entrée into the schools. With this as a basis, we are thinking in the following terms:

(*a*) Health institutes: We have just conducted a four-day institute for illustrating methods and content of health teaching. In addition, small institutes will be held during the year.

(*b*) Extension courses: The State normal schools have agreed to give credits for an extension course which will be established at Mansfield.

(*c*) Efforts are being made to have included in the normal schools such courses as the National Child Health Council and its advisory committees shall work out.

II. Health Supervision.—This will include a working out of the usual medical inspection of the schools to suit local conditions.

(*a*) Medical service: It has been possible to secure the active cooperation of the local physicians, under supervision of the director of the demonstation, to carry out the program of medical inspection.

(*b*) Dental service: The same conditions are arranged for dental service.

(*c*) School nursing: It is planned to try out the school nursing as a part of the generalized nursing program. At present we are furnishing nursing service in Mansfield to every school every day. We are just working out a plan that is less intensive for the rural area.

Bureau of Educational Experiments.—This is a "group of men and women of varied professional backgrounds" organized for the furthering of the "cooperative study of normal children in a normal environment." Its department of social, mental, and physical experiments is concerned with the experimental study of children's growth and the relation of growth to social, mental, and physical needs. In 1918–1920 the bureau conducted an elaborate "nutrition class" experiment in Public School 64, New York. A very complete report of this experiment has been published under the title of "Health Education and the Nutrition Class." The report includes an accurate description of the educational theory and procedure, studies of height and weight and mental measurements, and analysis of the health examinations. The significance of this piece of detailed experimentation is well summarized by Professor Bonser, of Teachers' College:

The unity of life which has been brought out by the experiments must be appreciated by any program which can hope to accomplish much. It may be a disappointment, yet at the same time it is a helpful fact, that to raise a child's weight from subnormal to normal involves almost the entire life situation of the child, the school, the health workers, and parents, and even the community.

Through its department of information the bureau offers its services freely to those desiring information on current experiments.

National Congress of Mothers and Parent-Teacher Associations, Inc.—The National Congress of Mothers and Parent-Teacher Associations has branches in 41 States, the Territory of Hawaii, and the Territory of Alaska. During the past two years local organizations all over the United States have presented programs in connection with the various phases of health and physical education. The Bureau of Education's Health Education Leaflet No. 5, Child Health Programs for Parent-Teacher Associations and Women's Clubs, has been widely used. In many States special programs on health have been prepared and distributed to the locals. Health plays have also been given. As this organization believes that it is better to have a strong mind in a strong body, it does all that it can to bring to the parents and teachers everywhere the necessity for teaching right health habits.

The national organization, through the Women's National Legislative Council, has cooperated consistently in the interest of Federal legislation looking to the physical education of school children.

National Child Labor Committee.—The National Child Labor Committee, which is "incorporated to promote the interests of children," has contributed consistently during the past decade and more to the progress of educational hygiene. Its effective insistence upon physical standards for working papers in State legislation governing child labor has borne fruit in a number of States. Its other major contribution has been made through its survey of child welfare, state and local. In the past two years it has conducted a survey in Tennessee for the Tennessee Child Welfare Commission, which included a thorough study of health conditions. It has also conducted two local surveys as follows:

(1) It participated in the survey of child health in Erie County, N. Y., made under the direction of the National Child Health Council in the fall of 1921. (Mother and Child, Supplement for May, 1922.)

(2) A study was made of health conditions of 1,200 working children in various occupations in Newark, N. J., and attending continuation school three hours per week, in cooperation with two Newark physicians and the school authorities. Particular attention was given to defective vision and teeth. The preliminary report was published in the American Child, for November, 1921.

FOUNDATIONS AND FUNDS.

Most of the great foundations contribute in one way or another to the development of educational hygiene. For the most part their contributions have been through grants of funds to operating organizations devoted to special fields or projects in the general field of

educational hygiene. The two examples presented are selected because of their large benefactions within very recent years.

Milbank Memorial Fund.—This fund is not an operating agency. It works through recognized organizations, either in response to requests for support or by discriminate selection of the organizations best qualified to carry out the aims and purposes of the fund. Its chief aim, broadly stated, may be regarded as the promotion of health and physical fitness through education. For a number of years it has supported in whole or in part the child health activities and the general health and research work carried on by 15 such organizations. Indirectly it has made a large contribution both scientifically and practically to the cause of educational hygiene.

Commonwealth Fund.—In the third annual report of the Commonwealth Fund (January, 1922) it is stated that "its efforts in the main have been directed increasingly toward accomplishing results in the three fields in which its interests mainly lie—education, child welfare, and health." Thorough study of these fields of opportunity has been carried on with the definite purpose formulating well-matured programs of continuing activity in these three fields.

Coincidently "certain limited grants have been made to miscellaneous and comparatively unrelated projects." These include allotments to a considerable number of organizations concerned directly with the problems of educational hygiene.

A comprehensive program to aid child health was prepared and announced in June, 1922. This program provides the funds and outlines the procedure for three comprehensive "Child health demonstrations" to be carried on in three typical cities, geographically distributed, of different size but aggregating 100,000 to 120,000 population. Under general supervision and direction of an administrating committee created by the Commonwealth Fund, the program is to be carried out jointly by the American Child Hygiene Association and the Child Health Organization of America; the former in charge of the program as it is related to the preschool age, the latter with the school age.[30] Support of the program is guaranteed for a period of five years, at an estimated annual cost of $232,750.

The presupposition is that a complete program of child hygiene, including prenatal and maternity care, infant care, preschool care, and adequate care and instruction through the school years will demonstrate results of such value that hundreds of other communities will be encouraged to adopt similar programs.[31]

Prophecy is of dubious value, but the cost is likely to be prohibitive of any extensive adoption of similar programs, no matter how successful these special demonstrations may be. On the other hand,

[30] The two organizations were amalgamated on Jan. 1, 1923, as the American Child Health Association.
[31] Fargo, N. Dak., was named as the seat of the first demonstration.

it is likely that out of these councils of perfection may be precipitated certain "minimum essentials" that will be widely adopted.

EDUCATION AND SOCIAL HYGIENE.

A number of voluntary organizations have made contributions to the study of sex as an educational problem and to the development of sound principles and rational procedures in sex education. Chief among these is the American Social Hygiene Association. Others are the Women's Foundation for Health and the Bureau of Social Hygiene.

American Social Hygiene Association.—In its educational phases the work of this organization has been directed toward the extension and improvement of methods for education in respect to sex. The work has been guided constantly by the presupposition that sex education should be chiefly concerned with "attitude," and only in small degree with actual information.

The major activities of the association for the years 1920–1922 may be summarized under seven heads:

(1) Production and distribution of literature and study and graphic material. This includes the publication of three books and seven pamphlets on special topics, and collaboration with the Bureau of Education in publication of a fourth book, the organization and conduct of a two-year correspondence course for social hygiene leaders, enrolling 120; the production of four new social hygiene films, and numerous slides, posters, and charts. Closely allied is the work of the association library, which has loaned books widely and has guided many public libraries in the selection of books on sex education.

(2) Cooperation with educational institutions. Four lecturers have addressed more than 100,000 high-school, college, and normal-school students each year. Of significance in this connection is the increasing request for a series of talks rather than a single talk; a realization that to present sex as a normal factor requires more than a sporadic lecture. Study groups in social hygiene have been formed in the higher institutions; more faculties are including aspects of sex as a regular part of their courses; close cooperation with the Interfraternity and Panhellenic conferences has resulted in well-defined social hygiene programs for them. Different phases of sex education have been presented in section meetings of the National Education Association conventions.

(3) Cooperation with communities. In a dozen cities there have been inaugurated community programs in social hygiene, which aim not only to rid the family of the threat of prostitution and the venereal diseases but also to train parents to effective method in sex education for their children.

(4) Cooperation with ministers. At the request of the home board of the Methodist Episcopal Church, a series of lectures was given before eight summer sessions for town and country pastors, emphasizing practical methods of procedure. This has been supplemented by a pamphlet on the minister's part in sex education and by talks at ministerial conferences.

(5) Negro work. This includes lectures to over 6,000 college and summer school students, cooperation with ministers and with the Federal Council of Churches, community surveys in conjunction with the United States Public Health Service and United States Interdepartmental Social Hygiene Board, and definite inclusion of social hygiene as part of a general negro health program supported, among others, by the negro insurance companies.

(6) Research. Arrangements have been made with the National Research Council for systematic study of the psychology of sex and the assembling of trustworthy data thereon.

(7) Cooperation with foreign lands. The association has given considerable aid to movements for the extension of social hygiene teaching to foreign countries, notably in China, Japan, and the nations of South America.

Three Government agencies have also made contributions in this field.

Public Health Service—Bureau of Education.—These two Federal bureaus have carried on the following cooperative activities in the biennium 1920–1922:

(1) Conferences. Eighteen State and regional conferences held with a total attendance of 4,511; and 29 intraschool (high school) conferences with a total attendance of 1,202 teachers.

(2) Investigations. Six special studies have been completed, as follows: Status of sex education in high schools; status of sex education in colleges and normal schools; status of sex education in summer schools, 1921 and 1922; methods used by high-school teachers in teaching reproduction and sex hygiene; opinion of college presidents on prevailing attitudes and practices of college students in sex matters; comments of 200 high-school principals on the New York City biology teachers (Peabody) report on sex education.

(3) Publications and reports:

(*a*) High Schools and Sex Education, 1922.

(*b*) The Status of Sex Education in High Schools, Bureau of Education, Bulletin, 1921, No. 52; Public Health Service, V. D. Bulletin No. 69.

(*c*) Suggested Outline of Summer School Course for Teachers.

(*d*) Summary of Comments of High School Principals on Peabody Report.

(*e*) The College Students and Venereal Diseases—What College Presidents Say. Public Health Reports, August 4, 1922, and Social Hygiene Bulletin, September, 1922.

In addition to these reports several articles, based on the investigations noted above, have been prepared and published in the School Review, School and Society, Physical Education Review, School Science and Mathemathics, Journal of Education, Educational Review, and other periodicals.

Interdepartmental Social Hygiene Board.—This board was created by act of Congress in 1918. It concluded its activities at the end of fiscal year 1922. Within those years Congress appropriated to the board $800,000, to be—

> paid to such universities, colleges, or other suitable institutions or organizations as in the judgment of the Interdepartmental Social Hygiene Board are qualified for scientific research for the purpose of discovering and developing in accordance with the rules and regulations prescribed by the Interdepartmental Social Hygiene Board more effective educational measures in the prevention of venereal disease, and for the purpose of sociological and psychological research related thereto.

In fulfillment of this obligation the board devoted the funds at its disposal to two purposes.

(1) Establishment or enlargement of departments of hygiene in normal schools, colleges, and universities for the purpose of "influencing the education of young men and young women of to-day to instruct the intelligent parent, the highly trained teacher, and the influential citizen of to-morrow."

(2) Stimulation and support of psychological and sociological research that promised substantial results toward "better educational measures in the prevention of venereal disease."

It was recognized that exact demonstration in these fields of research, involving as they do complex and subtle problems of human motive and action, is exceedingly difficult, and that weight of evidence showing reasonable probability is in most cases the result to be expected.

The following summary shows the nature and distribution of these researches:

Johns Hopkins University Psychological Laboratory: Investigation of the informational and educational effect upon the public of certain motion-picture films (1919).

American Social Hygiene Association: (1) Preparation of a series of six motion-picture films (1919); (2) study and preparation of new social hygiene literature (1919).

Massachusetts States Psychiatric Institution: Investigation on the family of the syphilitic (1920).

Johns Hopkins University Medical School: Developing a laboratory manual and illustrative material to be used in connection with part 2 of the outline and syllabus on hygiene issued by the board (1920).

American Social Hygiene Association: (1) For completion of motion-picture films authorized under previous appropriation (1920); (2) preparation of three new motion-picture films (1920); (3) formation of a competent committee to investigate, evaluate, and report on informational and educational values of social hygiene literature (1920).

University of Oregon: Special educational demonstration in cooperation with the Oregon Social Hygiene Association and selected school systems within the State of Oregon (1921).

Stanford University: (1) An investigation in moral development with special reference to the problems of social hygiene (1921); (2) an investigation of educational means and measures in social hygiene (1921).

American Social Hygiene Association: For continuing and extending the stimulation of educational research and demonstration activities in normal schools, colleges, and universities (1921).

Forty normal schools, colleges, and universities were aided to develop their departments of hygiene so as to include in the—

departmental program regular curricular provision for the classroom presentation of the scientific facts of hygiene in conformity with established educational methods; periodic confidential individual health examinations of all students, with proper safeguarding personal advice and subsequent follow-up conferences; and the organization and supervision of physical training, recreation, and athletics, for all students. In addition there was supplied experienced counsel and advice for assistance in the organization of these programs under the independent educational control of the institutions concerned.

In this group of 40 institutions were included 4 schools for the colored people, 14 normal schools and teachers' colleges, and 22 colleges and universities. During the year 1922 at least 54,000 young men and young women in these institutions came under the influence of these departments.

Reports from the responsible administrative officers of these institutions indicate that progress has been made in giving sex social hygiene its right setting as a normal part of a complete educational program; in recognition of the importance of a well-organized and competently conducted department of hygiene as an adjunct to efficient administration; and in appreciation of the rôle of hygiene in the general life of the institution; and that in most of them the gains made through this Federal aid will be permanent in these institutions.

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