

THE OPEN-AIR SCHOOL MOVEMENT.

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Introduction.

The purpose of this thesis is to trace the history of the open-air school movement in the United States and elsewhere; it is an attempt to determine the place it occupies in the history of education.

The plan of the paper is somewhat as follows:(1) to discover the forces and tendencies that led to the establishment of open-air schools; (2) an account of the first experiment at Charlottenburg, Germany; (3) a brief account of similar schools in Germany and England; (4) the movement in the United States; (5) results obtained from existing open-air schools; and, (6) their effect upon the educational policies of the future; (7) bibliography of open-air schools.

The statements in this thesis are the results of personal observation of open-air schools in Chicago and Minneapolis; correspondence with persons connected with such schools; and, extensive reading of the recent literature on the subject.

I. Forces and Tendencies Preparing the Way for Open-Air Schools.

The open-air school movement in the United States and elsewhere, is a vivid illustration of the distinctly paternalistic attitude which education has assumed toward the child, especially since the beginning of the twentieth century. In a larger sense, this movement is but a part of the elementary school, which, according to Dr. Dewey of Columbia, is, in turn, "an out-growth of the democratic movement in its ethical aspects." (a)

That education is a social process, is a comparatively recent idea, and, that the aim and end of education is to enable the individual to successfully "meet the emergencies and seize the opportunities of modern life," (b) is as yet realized by only too few educators. Social efficiency, in the highest degree, is possible only when all the powers and faculties of man are developed, and experience has proved that the prime requisite for social efficiency is a sound, healthy body; hence, the basis for all education is, or at least ought to be,

(a) Dewey, The Educational Situation, p.59.

(b) Tyler, Growth and Education, p.15.

physical. If the large number of papers devoted to physical education, presented before teachers' gatherings of various kinds, is a criterion of educational tendencies, we have reason to hope that the physical well-being of the child will be better looked after in the future than it has been in the past.

The increasing percentage of physical wrecks leaving our schools during the past quarter of a century, is a serious indictment of our educational methods. Myopia, hollow chests, and curvature of the spine, are but a few evils directly traceable to our schools. Even Germany, with her splendid educational system, has been guilty of grossly neglecting the physical welfare of the child. Dr. Cohn in examining 10,060 school children in Breslau, found an average of 19.2 per cent of defective sight, and that in every school, the number of near-sighted children increased with the grade of the school, from the lowest to the highest. Similar investigations in the United States brought out the following facts: "(1) That as a rule, near-sightedness originates in school life. (2)

"That a large percentage of the scholars are thus afflicted, the percentage progressing with the stage and advancement in study. (3) " That near-sight is progressive in degree according to the length of school experience." (a) But this is not the only evil traceable to the schools. Says Rowe: " Tuberculosis, rickets, bronchitis, catarrh, and headaches, are aggravated, if not brought on, by impure air; chorea, by fatigue of the muscles; spinal disease, by bad posture in sitting or in writing; indigestion and constipation, by too much restraint and sedentary habits."(b)

The increasing number of socially inefficient individuals, made so largely because of physical impairment, directly or indirectly traceable to the school, and the large sums of money expended each year in the work of educating children who died before reaching the age of twenty, i.e. before they could be counted as socially efficient individuals, rudely jerked society into a consciousness that something must be radically wrong. Investigations began; medical inspection in fact-

(a) Popular Science Monthly, Vol. 12, p.74.

(b) Rowe, Physical Nature of the Child, p.89.

ories and schools was but one result of this awakening. Day sanatoria for the prevention and care of diseases were established, and as medical science advanced, the curative properties of fresh air and sunshine were beginning to be understood, and, what was still more important, applied in the treatment of diseases, chiefly those of the lungs.

Some twenty years ago, a thesis given at the International Tuberculosis Congress in Berlin, aroused considerable interest in the subject of fresh-air treatment, and not long afterwards, hospitals of this kind were built in Germany. Thus we see that the idea of sanatorium treatment, combining an out-door life and plenty of good food, is not a new one. But that physical and mental well-being is the right of all, the poorest day-laborer as well as the millionaire, is something we had to learn by slow degrees. At first these fresh-air sanatoria, maintained by insurance societies for the sick, and also by parishes and local organizations, admitted only men; gradually, however, women and children were

given the same privilege. In order to prevent these children in these institutions from falling too far behind in their school-work, they were given a few hours' instruction each day. Here was the germ of the present-day open-air school movement. As is the case of nearly all educational reforms, it had its inception, not in the school, but outside the school, in the great social and industrial world.

II. The First Open-Air School Experiment at Charlottenburg, Germany.

As a direct result of the thorough medical inspection throughout the greater portion of the German empire, two men, Dr. H. Neufert, the city school director of Charlottenburg, and Dr. B. Bendix, chief school physician of the same city, decided that some special provision must be made for children, who, because of general physical weakness, were unable to do the regular school work. Together they devised a plan which combined the best features of the school and the sanatoria, and the result was the now famous Waldschule, near Charlottenburg, a suburb of the city of Berlin.

The Purpose of the School.

The primary aim of this school, which opened on April 2, 1904, was to provide a place where the child could continue his schooling and at the same time regain his health. If sent to a sanatorium, his education would have to be postponed indefinitely, while to allow him to remain in the ordinary school, would spell a complete

physical break-down with its train of consequences.

To a causal observer, a secondary aim is discernible, namely, to prove experimentally, that a correlation exists between the mental and physical life of an individual. The theory that mental inability, dullness, etc., in school children, could be directly traceable to bodily weakness, was held by a number of medical men, but sufficient data was lacking to conclusively prove this hypothesis.

A third aim, which might be said to include the two previous ones, was to prevent the schools from turning out socially inefficient individuals, for the German government, perhaps more than any other, realizes that nothing is more expensive to a nation than a class of physical and mental weaklings.

Equipment: grounds, buildings, teachers, etc.

The site chosen for the new experiment was a pine forest, three miles outside Charlottenburg. A tract of about five acres of this forest land was acquired by the school, and the whole enclosed by a wire fence. A build-

ing already on the ground, was donated by the National Women's Club to be used as a kitchen and work-room. It also contained a rest-room and sleeping apartments for the nurse and servants, who are the only ones remaining over night. Five additional buildings were erected; two school barracks, each, one story in height, and eighty-one feet long and eighteen feet wide, with adjustable sides and partitions made of weather-proof paste board and wood. Each of these school houses contained two classrooms, two smaller rooms for the use of the teachers, and the housing of school supplies, and a lean-to at either end for the accomodation of the wraps, rugs, and school-bags of the pupils. This paraphernalia is kept in individual lockers, and the rugs are numbered so as to prevent their exchange or loss.

Another building of the same dimensions, completely open on the south side, and closed on the other sides, provides accomodation during rainy weather, for about two hundred children during the afternoon period of compulsory rest. Two large sheds serve as dining rooms and

are also used as class rooms during rainy weather or too bright sunshine. These last named structures can scarcely be called buildings, for they consist only of a roof, supported by beams.

Scattered about the school-ground are numerous small mushroom shaped shelters, covering a table and benches, where the children spend much of their time reading, sewing, etc. A number of small buildings containing shower baths, have also been erected.

The equipment of the school rooms is the same as that of any ordinary German school, but the desks are of a light weight, so as to be easily carried in or out as the occasion may demand. The great out-of-doors furnishes much of the material for instruction at the Waldschule.

A Red Cross nurse, already referred to, has the general supervision of the house-keeping and hygiene of the school. She superintends the serving of five meals a day; records the weight and temperature of each child; sees that he is given his proper bath three times a

week, and if in need of medical attention, brings him to the physician on his bi-weekly visits.

The duties of the school physician are two-fold: (1) a careful examination and selection of children to determine who shall be sent to the open-air school; (2) the treatment while they are in attendance. Special attention is given to heart, lungs, and the general development of the children; they are carefully weighed and measured at the end of each two weeks, and their condition compared with that noted upon the entrance into the school.

In 1908 there were nine teachers, three men and six women, in charge of the Waldschule. These teachers are chosen from the regular Charlottenburg schools, and their duties are similar to those of any other school, though the teaching is necessarily of a more informal nature.

The pupils sent to this open-air recovery school are those suffering from incipient tuberculosis, anaemia, heart trouble and scrofula. On the opening day, April 2,

1904, ninety-five of these children were present, but the enrollment increased to one-hundred-twenty during the same year, and since 1906, two-hundred-fifty, has been the constant enrollment at any one time.

Expense: maintenance, etc.

The cost of establishing the school was in round numbers \$ 8,000, the sum voted by the city of Charlottenburg, toward the experiment the first year; it costs the municipality 50,000 Marks (about \$12,000) annually, to keep up the institution. An itemized account of the expenditure during the first year, for a period of three months is given below: (a)

School-rooms	\$ 2,430
Open shed	315
Washing and bathing rooms	218
Offices	243
Water and drainage	243
Milk and vegetable cellars	73
Wire fence	131
Internal equipment	1,215
Educational equipment	219
Provisions	-1,336
Additions to teachers' salaries	111
Doctor's fee	73
Two cooks and two scullery maids	87
Tramway fares	82
Total	\$ 6,848

(a) Ayres, "Open-Air Schools", p.115.

The daily cost per child is 85 Pfennige (approximately 21 cents), of which half is for food. Toward this the parents are expected to contribute what they can, but many are unable to do so. In 1907, only eight paid as much as 12 cents a day, about one hundred paid from 2 to 5 cents, and the rest nothing at all. The city even pays for half the street car tickets.

The Women's Patriotic Alliance provides the food, servants, and the Red Cross nurse; already referred to. The municipality furnishes instructors and school equipment. The teachers receiving besides their board, 50 Marks per month in addition to the regular salary, for the hours are longer and no holiday possible, as the school is open every day in the week.

The School Session.

During the first year, 1904, the school session covered but three months; the time was extended to five months in 1905, eight months in 1906, and now, the session continues all the year except from December to April, the worst months of the North German climate.

The school is open seven days in the week, but on Sundays lessons are omitted and only three of the nine teachers are in attendance. The individual school day is rather long, from seven in the morning to seven in the evening. During the long midsummer vacation no lessons are given but the teachers are present directing the play of the children.

Methods of instruction.

Since body-building is of utmost importance, the feeding of the children occupies a prominent place on the day's program; no less than five meals a day are served, as follows: (a)

7.15 A.M.-	1st Breakfast.	"	Rice or rye-meal porridge with rolls and butter.
10.00 "	- 2nd	"	" Milk, black bread and butter.
12.30 P.M.-	Dinner.	- - -	" Meat, potatoes, and green vegetables, and on Sundays a pudding.
4.00 "	- Lunch.	- - -	" Milk, black bread and jam.
6.30 "	- Supper.	- - -	" Porridge or pudding, black bread and butter.
			"

Each child is given all it can eat, some returning for two or three helpings.

(a) Outlook, Dec.5,1908,pp.793-95.

One can readily detect the frugality and foresight of the German character in the menu provided these children. The food is of the simplest, and yet it is substantial and nourishing, such as within the reach of the peasant and the poorer classes. It would be unwise to allow these children to acquire a taste for foods which they cannot afford to get when they take their place in the ranks of industry.

In the Waldschule the same general subjects are taught as in the regular Volksschule, all the seven grades except the lowest being represented. The smallest children are left out because the distance is thought to be too great for them. In age the children range from seven to fourteen.

The number of pupils in each class-room is from twenty to twenty-five, never more. The lesson periods are but twenty-five minutes long, no recitation following another without 5-10 minutes' intermission. The weaker children have but four, and the others six lesson-hours per day.

Much of the teaching is of an informal nature. In order that inclement weather may not interfere with the holding of classes out-of-doors, rugs are provided for chilly weather and capes for rainy days. Nature study, singing and voluntary gymnastic exercises are given more time than in ordinary schools; out-door games of various kinds, especially digging in the sand, are frequently indulged in, and a two-hours' rest after dinner is compulsory on the part of each pupil every day in the week.

About seven o'clock in the evening the children return to their homes, a few living near walk, but most of them take the street car. They return the same way about seven in the morning.

When the school closed the first year after a three months' session, the promoters of the experiment were gratified to note, that not only were the children improved in health, but twenty-three percent of them were actually cured, as is seen in a subsequent table. Other results will be given in a later chapter.

Health record of the pupils after the first
three months' experiment.

Name of disease.	" Aggravat- " ed. "	" Un- " changed. "	" Im- " proved. "	" Cured "
Anaemia (34 children)	" 1 "	" 9 "	" 11 "	" 13 "
Scrofulous diseases (38 children)	" -- "	" 8 "	" 22 "	" 8 "
Heart diseases (14 children)	" -- "	" 7 "	" 7 "	" -- "
Pulmonary diseases (21 children)	" 1 "	" 8 "	" 8 "	" 4 "
Total (107 children)	" 2 "	" 32 "	" 48 "	" 25 "

Ayres, "Open-Air Schools", p.76.

III. Other Out-door Schools in Germany and England.

The experiment at Charlottenburg was so successful that inside a few years, many similar schools were established in other German cities. Some of these are maintained by private individuals and organizations, while others are supported by the state. All of these German schools have one thing in common, namely this, that they are located in parks or the forest, a distinct advantage over many of our American open-air schools which are located on the roofs of buildings.

In major details all the Waldschulen of the empire are patterned after the one at Charlottenburg, hence, a detailed account of each is unnecessary. A few facts concerning some of the schools will be tabulated for the sake of convenience. (see page 19)

Other cities which have established out-door schools are: Aix, Berlin, and Bucker-in-der-Mark; Cologne, Essen, Pankow, Solingen, and Strassburg were considering plans for similar institutions in 1909.

Some facts concerning certain German
Waldschulen.

Place	"Date of "opening	"By whom "maintained	"No. of "child- "ren.	"General "information.
Charlottenburg	" April 22, " 1904	" Municipi- " pality.	" 240	" The first " experiment.
-----	-----	-----	-----	-----
Dresden	" 1905	" Private " & municipi- " pality.	" 20	" 4 meals a day " given; a reg- " ular Volk- " schule.
-----	-----	-----	-----	-----
Dortmund	" 1908	" Municipi- " pality.	" 100	" 4 teachers " employed.
-----	-----	-----	-----	-----
Elberfeldt	" 1908	" Private or " ganization	" --	"
-----	-----	-----	-----	-----
Geiser.	" April " 1909	" Private or " ganization	" --	" Held in the " city forest.
-----	-----	-----	-----	-----
München-- Gladbach.	" May " 1906	" Municipi- " pality.	" 100	" Established " in memory of " silver wedding " of the Kaiser.
-----	-----	-----	-----	-----
Milhausen	" 1906	" Municipi- " pality.	" 100	" For anaemic " children only.
-----	-----	-----	-----	-----
Lübeck	" May " 1908	" Private or " ganization	" 58	" School gard- " ens a feature " of this school.
-----	-----	-----	-----	-----

The Forest School at München-Gladbach.

The two institutions now representative of the open-air school movement, are the Waldschulen at Charlottenburg and München-Gladbach; though copied after the former, the München-Gladbach school has some features of its own. It is located some little distance from the town in the Hardter Forest, and is planned especially for weak and anaemic children, those suffering from infectious and repulsive diseases, and serious heart, lung, or nerve trouble, are excluded. As is the case in nearly all German schools, the children are selected by the public school physician, fifty pupils being sent out at one time. Since any individual child is permitted to remain but eight weeks, something over two hundred children are cared for annually.

The school session during the first year, 1906, lasted from May 28th to October 1st, but was extended to eight months in 1907. School is held seven days in the week, but no classes are taught on Sundays. The regular program for one week will be given below.

Course of Instruction at München-Gladbach.

A.M.	Monday.	Tuesday.	Wednesday.
	"		
9- 9.30	" Religion	German	Mathematics
9.30-10	" Exercise at this hour every school day.		
10-10.30	" Mathematics	Natural history.	German
10.30-11	" Exercise at this hour every school day.		
11-11.30	" History	Mathematics	Writing
12	" Lunch	Lunch	Lunch
P.M.	"		
1- 3	" Rest on benches under trees every day.		
3- 3.30	" Singing	German	Gymnastics
3.30- 6	" Walking or playing every school day.		
6	" Milk at this hour every day.		
6.30	" Walk to tram station.		
-----	"	-----	-----
A.M.	Thursday.	Friday.	Saturday.
	"		
9- 9.30	" Religion.	Mathematics.	German.
9.30-10	" Exercise at this hour every day.		
10-10.30	" Mathematics	Natural history	Mathematics.
10.30-11	" Exercise.	Exercise	Exercise.
11-11.30	" History	German	Writing
12	" Lunch	Lunch	Lunch.
P.M.	"		
1- 3	" Rest on benches every day.		
3- 3.30	" Singing	German	Gymnastics.
3.30- 6	" Walking or playing every school day.		
6	" Milk at this hour every day.		
6.30	" Walk to tram station.		

The children are given four meals a day, the food being supplied from a neighboring sanatorium.

The buildings at Gladbach, patterned after the block-houses of the Scandinavian countries are used only when the weather makes out-door instruction impossible. Other equipments are similar to those of an ordinary school, school, and together with the buildings, represent a total expenditure of about \$4,000. The daily charge for each child is 50 Pfennige, this includes the cost of food and the transportation to and from the city.

English Out-door Schools.

The London County Council took the initiative in introducing open-air schools into England, the first one being established at Bostal Wood, just outside London, July 1907; the following year, four additional schools were known to exist in Great Britain. Since all these schools are almost exact copies of the German Waldenschulen. it is unnecessary to repeat the description of same. For the sake of comparison, however, a table, similar to the one used for the German institutions will be made. A second table, giving the program for the day of one of the typical English schools, will also be given.

Some English Open-air Schools.

Place	"Opening " date."	"How " maintained."	"No. of " child- " ren."	"General " information."
Bostal Wood. later changed to Shooters Hill, Wolwich.	" July " 1907. " 1908.	" Govt. grant " \$2,000 in " 1907, increas- " ed in 1908 " to \$10,000. " Private dona- " tions.	" " " 100 "	" School kept o- " pen little over " 3 mo; 1 head tea- " cher, 4 assts; 3 " meals a day giv- " en. Cost \$10 a " mo. per child.
Horniman Park.	" 1908	" Munici- " pality.	" 75	" Staff: 1 head " teacher, 3 assts, " nurse, cook, & " helper.
Kentish Town	" 1908	" Munici- " pality.	" 75	" Children 6-10 " years of age; " school day from " 8 a.m. to 7 p.m.
Halifax	" July " 1908	" Munici- " pality.	" ?	" School opened " on untenanted " estate.
Bradford.	" Aug. " 1908	" Munici- " pality.	"	" 3 meals a day; " school day from " 9 a.m. to 6.30 " p.m.; for deli- " ciate and an- " aemic children.

The Daily Program at Bradford. (a) ^{Land}.

9 A.M.	Breakfast
9.45 to 10.45	Ordinary school work.
10.45 to 11	Play
11 to 12	Ordinary school work
12.30	Dinner
1 to 2 P.M.	Rest
2 to 3	Play
3 to 4.30	School work, outdoor lessons, e.g., nature study, geography, etc.
5.00	Tea
5.30 to 6	Play

The English schools do not feed their children as frequently as do the German, only three meals a day being served. A glance at the table above proves that attendance at these schools does not spell ease and luxury, for the school hours are long and continuous, lasting from one to one and a-half hours. The time spent in the class room in the English open-air schools each day is three and a half hours as compared with the two hours given over to recitations in the German Waldschulen, and the schools are entirely closed on Sundays and other religious holidays. On Saturdays no school is held after one o'clock in the afternoon.

(a) Ayres' "Open-Air Schools", p. 41.

The Manchester County School.

An institution somewhat similar to the open-air recovery schools previously described, and yet standing in a class by itself, is the Manchester County School, which might be called a vacation school, similar to those found in Sweden. The school originated as follows: In 1904 a number of private citizens in Manchester leased five acres of land ten miles outside the city, and erected a permanent camp where teachers and pupils of the city schools were sent out in relays for a two-weeks' "change of air and scenery". Two permanent buildings and a number of tents on the ground afforded accomodation for some two hundred sixty people at one time.

A resident matron and a corps of assistants had charge of this vacation colony. which from its very beginning had the support of the Commission of Education and later on was taken over by the city and made a part of the regular school system.

Each teacher and pupil pays seven shillings for this outing including the railroad fare both ways.

IV. The Open-Air School Movement in the United States.

The open-air school movement reached the United States in 1908, four years after the establishment of the Waldschule at Charlettenburg. To Providence, Rhode Island belongs the distinction of establishing the first open-air school in this country; other cities soon followed suit as is seen in the table below.

Year.	No. of cities having open-air schools.
1908	4
1909	7
1910	15
1911	32

As far as we now know, forty-seven of these schools were to be found in the United States in 1911; several additional schools have been opened this year, (1912) among others, the one in this city, (Minneapolis), but the figures showing the exact number, are not yet available.

Most of the fresh-air schools of this country were

launched directly or indirectly, by the anti-tuberculosis associations and public and private charities of our larger cities. These organizations usually defray the expences of food, clothing, and medical attendance, the board of education supplying the teachers, and necessary school equipment, and in some cases the building also.

Data as to the administration of forty-seven open-air schools in different American cities are as follows: (a)

Administrative agency.	No. of schools.
Board of education and tuberculosis association. - - - - -	20
Board of education and private association. - - - - -	11
Board of education only. - - - - -	7
Board of education and other city department. - - - - -	6
Tuberculosis association only. - - - - -	2
Board of education and private fund. - - -	1

Additional data concerning the administration of open-air schools in certain American cities are here given:

(a) Proc. N.E.A. 1911, p. 901.

Administrative report of open-air schools
in certain American cities.(a)

City.	Opening date.	How school is maintained.	
		Teacher.	Food & clothing.
Providence, R.I.	January 1908.	School Committee	"School Committee & "Providence League for "Suppression of Tb.
Boston, Mass.	July 1908	School Committee	"At first, Assn. for "Relief & Control of "Tb.; later, the City "Consumptives' Hospital
New York	"	Board of Education.	"Food, Bellevue Hospital "clothing, Woman's "Auxillary, Bellevue "Tb. Clinic.
Ferry-boat "Southfield"	December 1908	Board of Education.	"Ladies' Aux. of City "Health Department.
Ferry-boat "Middletown"	August 1908	Board of Education.	"Am. Nat. Red Cross & "Vanderbilt Clinic.
Vanderbilt Day Camp.	May 1909	Board of Education	"City through "Bellevue Hospital.
Ferry-boat "Westfield".	September 1909	Board of Education.	"Food, Charity Organ- "ization Society; "clothing, City.
Public School No. 21	April 1910	Board of Education.	"Dispensary Aid "Society of Tb. League.
Pittsburg, Pa.	May 1908	Tuberculosis League.	"

(a) Kingsley's "Open Air Crusaders", p. 107.

Administrative report of open-air schools
in certain American cities.(a)

City	Opening date	How school is maintained.	Teacher.	Food & clothing.
Cambridge Mass.	April 1909	School Committee.	"	Anti-Tuberculosis Ass'n first; now, City.
Chicago.	"	"	"	"
Chicago Tb Inst. School	August 1908	Board of Education.	"	Tuberculosis Institute
Graham School	September 1909	Board of Education.	"	None.
Elizabeth McCormick Open-Air School.	October 1909.	Board of Education.	"	United Charities of Chicago.
Chicago Tb Institute Schools.3	July 1910	Board of Education.	"	Chicago School Extension Committee.
Rochester, N.Y.	October 1909	Board of Education.	"	Food, Public Health Ass'n; clothing, Needlework Guild.
Hartford, Conn.	January 1910	Board of Education.	"	Society for Prevention of Tuberculosis.

(a) Kingsley's "Open Air Crusaders", p.107.

Nearly all of the open-air schools of America have been established expressly for tuberculous children, both open, incipient, and predisposed cases being admitted. Children in the various stages of the disease are usually separated, those in the open stage, not being allowed to mingle too freely with pupils having but a slight touch of tuberculosis. Pupils from all the grades in the public schools are admitted. There is an increased tendency, however, to make provisions for the care of weakly and anaemic children, who have no particular disease, and at least one of these schools, (Graham School, Chicago) has opened its doors to ordinary school youngsters.

Equipment.

Conditions in the United States are not always such that parks and forests are available for open-air schools, but Yankee ingenuity soon found a way out of the difficulty. In New York City, for example, where land is scarce and expensive, several unused ferry-boats were turned into "schools", and in Chicago and elsewhere, the roofs of buildings were used for the same purpose. In

found them very satisfactory for school purposes. No heat is supplied in these rooms and yet the children are comfortable, which goes to prove that the wind and not low temperature is the cause of suffering from the cold.

Another kind of open-air school is the cold room, i.e., ordinary school rooms having all the windows open all the time, and no heat turned on even in the coldest weather. The Graham School, mentioned above, has twenty of these cold rooms. A few warm rooms are retained in this building so that pupils and teachers who find the cold too strenuous, may use the same.

Buildings especially erected for open-air schools are, of course, the best.(see Dr. Carrington's "How to Build and Equip an Open-Air School", in the Survey, Vol. 24, pp.144-151), but when these cannot be obtained substitutes can be used. An idea of the great variety of kinds of buildings used as open-air schools in this country may be gained from the list given below. Thirty-nine schools are here represented.

of buildings are used for the same purpose. In still other instances, rooms in ordinary school buildings have been re-modelled by removing one or more walls, wholly or in part, and inserting in their place windows extending from floor to ceiling. These windows are provided with hinges and pulleys so arranged that the lower ends can be raised, leaving one side of the room entirely open to air and sunshine. The Providence, R.I. school is of this latter type.

Where school is held on the roofs of buildings shelter tents and wind-breaks are erected, as at the Mary Crane Nursery, and the Elizabeth McCormick open-air schools, Chicago. At the former, the roof is completely inclosed by a high frame work of wire netting. Against this, evergreen trees are placed as wind-breaks in winter, and vines cover the meshes in summer. Some of the tents have canvas curtains on all sides, and these are usually lowered on the side from which the wind blows.

In the Graham School, Chicago, the board of education constructed canvas-sided rooms on the roof, and

Structures utilized for open-air schools
in the United States.(a)

Remodeled rooms - - - - -	14
Special buildings - - - - -	6
Roofs - - - - -	6
Regular class rooms eith open windows - - - - -	5
Boats - - - - -	5
Tents- - - - -	2
Barn - - - - -	1

Tables and chairs replace the rigid school desks in the open-air class rooms. In the Providence, R.I., school, the chair and desk of each child is placed on a movable platform, which follows the sun around the room all day, so that the child's back is always in the sun. Steamer chairs and canvas cots are a part of the regular equipment of these schools, for the children all take daily naps. Sleeping bags, blankets, and rugs afford ample protection against the cold.

While at work, the children are provided with warm gloves and sitting-out bags, made of thick quilting, and into which they put their legs. This bag comes up over the backs of the pupils, who also keep their outside wraps on. Hot soap-stones to keep the feet warm, are pro-

(a) Proc.N.E.A. 1911,p.901.

vided during the coldest weather. In some schools the children slip on Eskimo suits made of heavy blankets, over their ordinary clothing. These suits are provided with caps, which can be put on or thrown back, as they are needed, and with blanket trousers, which are tucked into lumberman's boots. All clothing is sufficiently loose so as to afford the greatest freedom of movement. Boys and girls alike wear the same outfit.

Individual drinking cups and tooth-brushes are also given to the children, and in a few instances, under-clothing and other necessities are given to those who are too poor to get them.

Kitchen and dining-room furnishings are usually a part of the regular equipment of these schools; some of them are also supplied with shower baths and other conveniences found in up-to-date public school buildings.

Personel: teachers, officers, etc.

The staff of these open-air schools includes the teacher, physician, and nurse;;some of them also have a matron, an assistant matron, and a cook or helper. The

duties of each will be tabulated so as to be seen at a glance.

Duties of Physician:

1. To examine children for admission.
2. To make monthly examinations and also special examinations as indicated.
3. To supervise records.
4. To pass on all routine and submit same to the consulting staff for approval.
5. To arrange diet.

Duties of the Nurse:

1. To take the morning temperature and observe the general condition of the children each day.
2. To report any case of rise of temperature of 100° and or more, or any unusual symptom to the physician.
3. To inspect the home and advise the parents about sleeping rooms, daily routine, etc.

Duties of Matron:

1. To have immediate charge of all physical care of the children while in school.
2. To give baths.
3. To see that the children are properly clothed.
4. To plan meals.
5. To take the afternoon temperature.

Duties of the Assistant Matron:

1. To assist the matron.
2. To look after washing and cleaning.
3. To assist the cook.

Duties of the Cook:

1. To purchase, prepare and serve meals.

The above is taken from reports of Chicago open-air schools.

The education of a child in an open-air school costs nearly three times as much as does that of a child in an ordinary school. The average cost for food per child each day is from sixteen to twenty-five cents, according to the location of the school. The individual equipment of each child is somewhat as follows: (a)

Eskimo suit - - - - -	\$ 3.50
1 double wool blanket - - - - -	6.50
Canvas folding cot(special 28x66 in.)- - - - -	1.75
Sleeping bag (canvas-lined, with cheap blanket)	2.00
Felt boots - - - - -	60
Gauntlet gloves, fleece-lined - - - - -	35
Thermometer- - - - -	25
Tooth brush - - - - -	10
Paper napkins- - - - -	10
Record sheets - - - - -	10
Towels - - - - -	1.00
Laundry - - - - -	50
Miscellaneous disinfectants- - - - -	25

The cost of maintenace, based on the actual cost of handling an average attendance af thirty-five child-

dren is as follows:(a)

Matron - - - - -	\$ 50.00	per month
Assistant matron - - - - -	30.00	" "
Cook - - - - -	30.00	" "
Food (cost per child)		
Raw material - - - - -	.09	" day; \$1.80 per month
Milk- - - - -	.07	" " ; 1.40 " "
Gas	.01	" " ; 20 " "

(a) Kingsley's "OpenAir Crusaders", p.60.

Methods of Teaching.

The routine of the school day in most of the American open-air schools is almost identical, and shows the influence of the German Waldschule. The physical welfare of the child is the first consideration as is seen from the following account of one of the Chicago schools: "On teaching school in the morning the child is first given a bath in the school bathroom. He is then given breakfast consisting of an egg, some oatmeal porridge, and all the milk he will drink. Then with frequent interspersions of physical exercises, games and drills, he pursues the ordinary school work till noon. At noon he is provided with a heavy soup or broth, two-soft-boiled eggs, bread, butter, and jelly, a simple dessert, and again all the milk he will drink. After the noonday meal partaken of within doors, the children again repair to the open air, and on cots provided for the purpose, and snugly wrapped in woolen blankets, sleep for an hour. They are then awakened and pursue their regular school work until a quarter past three, when they return to their homes for the night just as othe

just as other children do." (a)

Much of the school work is ungraded and the instruction is largely individual, made possible because of the small classes, no more than twenty pupils are given to each teacher. The regular curriculum in some of these schools includes manual training, sewing, drawing and raffia work. Typewriting and stenography are taught in a few instances. Nature study occupies a prominent place in the program, and school gardens are provided whenever possible. On the ferry-boats, used for schools in New York City, each child is given his own little garden plot. During the long winter months, seed catalogs are studied and plans made for the prospective gardens. In a word, everything is done to make the children forget their suffering, and to make them happy and contented.

(a) Proc. N.E.A. 1911, pp. 891-92.

V. Results Obtained from Existing Open-Air Schools.

Ten years ago the open-air recovery-school was an unheard-of thing; to-day, about fifty such schools have sprung into existence in various parts of the world, demonstrating the fact that we are beginning to understand the value of fresh air as a factor in education.

Physically, the children of the open-air schools have gained in weight, health and vigor; heart and lung troubles have been greatly benefited, and color has been coaxed back to pale lips and cheek of tuberculous children, many of them becoming almost normal. At Charlottenburg, all the pupils showed immunity to colds, and an almost complete freedom from infectious diseases, and children suffering from anaemia, scrofulous and pulmonary diseases were actually cured, (see table on p 17.) Several schools in the United States report that the sight grows stronger and that the strenght and tone of the voices of the children improve, as a result of their stay in the open air.

Diagrams showing the weight and general health record of children in open-air schools may be found in such books as, Ayres' "Open-Air Schools", pp. 86, 87, and 142-43; Kingsley's "Open Air Crusaders", p. 61; and from the Annual Reports of the Board of Education of such cities as Berlin, London, Boston and New York. (see the bibliography following this thesis).

It is almost unnecessary to mention that the teachers also, are much benefited by the life in the open air. Headaches and other causes of irritability are removed, and as a result, mental and physical poise is maintained up to the close of the day.

The most marked effect of open-air life seems to be in mental quickening. Dr. Frank G. Bruner, assistant director of the department of child study and educational research, of the Chicago public schools, in speaking of the effects of fresh air and low temperature upon children, says: " Children who had shown three and four years of retardation in their studies were able to complete the school work of one and a-half, and in four in-

stances of two, grades in a single year..." and, continues he, "there was observed an increased adaptability, a greater resourcefulness, a keener insight in the unraveling of puzzling situations, and an appreciable development in persistence and tenacity in solving difficult and complex problems." (a)

From Germany comes the report that children show marked improvement in attention and alertness, and that almost all the children are able to resume regular school work, as a result of a few months' stay in the Waldschulen. The children of the out-door schools of England show "enhanced mental endurance", and those of Boston, strikingly demonstrate the mental tonic of fresh air. "Truant habits were broken up, the aforesaid helplessness and mental indifference disappeared, and a consequent alertness and spontaneous interest in the routine of the school work developed."

Under conditions conducive to physical and mental well-being, the problem of discipline is reduced to a minimum; in fact, it has almost entirely disappeared.

(a) Proc.N.E.A. 1911,p.897.

Kind treatment on every hand, fresh air and good food, wisely chosen lessons and exercises, together with the intimacy which grows up between teacher and pupils as a result of the "family life" of these schools, has resulted in better natures and gentler manners. Moody and quarrelsome children become thoughtful and considerate, and many of those little social graces which make life more worth living, are ^{ac}quired, especially are the table manners of the pupils vastly improved.

Incidentally, the aesthetic side of the child's nature is developed, for life in the open means first-hand observation of the habits of animals, the beauty of the wayside flower, and the majesty of the forest, sea, and sky.

Other results of the open-air school movement are: a closer relationship between the home and the school; better ventilation of schools and other public buildings, and in a few instances, compulsory opening of windows in schools, certain times during the day, as is the case in the Chicago public schools; free medical treatment of all

children; the instruction of parents in matters of fundamental hygiene by social settlement workers and medical men, and a general awakening to the importance of the science of eugenics.

The economic value of the open-air school is apparent when we consider that the thousands of young people who now die off each year, could have been saved by proper medical attention while in school. Another economic advantages of the open-air school is that it will save millions in money in buildings, fuel, etc.

Indirect results are the establishment of an increasing number of summer camps and vacation schools, and a greater appreciation of the beauties and wonders of nature.

In brief, the physical, educational, moral, economic and social results of the open-air school movement, merit the careful consideration of every thoughtful individual.

VI. Effect of the Open-Air Schools on the Educational Policies of the Future.

The lessons learned from the open-air schools of to-day, will undoubtedly have a wide-spread influence upon the educational policies of the future. If we read the signs aright, the time is not far distant when every school will be an open-air school, where classes will be held either in the great out-of-doors, or in buildings so constructed that sunshine and fresh air will reign supreme. But this is not all-- the gospel of fresh air will spread to the home and our dwelling houses will be constructed on the same principle as our schools. Bodily health and mental vigor will be the rule, not the exception; sickness, poverty and mental deficiency will be minimized, for the open-air school experiments have proved conclusively that an intimate relationship exists between the physical and mental life of the individual. Physical health means a return to mental and moral equilibrium.

The school of the future will no longer be run by

school masters of archaic ideas and ideals, for society has learned that it is an expensive policy to "let well enough alone" when it comes to such vital problems as the education of the youth. The physician and the school nurse will be as familiar figures in the school room as is the teacher. The health of the child will be made the first consideration, and the school work, secondary. No one will be allowed to study at the expence of his health. The relationship between the teacher and pupil will be one of freedom and informality; a spirit of comradeship will supplant the one of misunderstanding and antagonism which exists to-day in many schools. In a word, the home and the school will join hands with society in producing socially efficient individuals.

Elnora Whitman Curtis, who's account of the open-air schools, is the best and most comprehensive in the English language, says: " The present movement for the establishment of open-air schools while relating to sickly and backward children merits the serious consideration of educators, as pointing to possible changes in

methods and curricula likely to be of practical benefit to all school children." (1)

Perhaps no one individual has made such an extensive study of the open-air school movement, as has Leonard P. Ayres, associate director of the department of child hygiene, Russell Sage Foundation. Dr Ayres in speaking of the effects of this movement upon the educational policies of the future, makes the following statement:

" The open-air school will take its place in the history of education as marking a long step toward that school system of the future in which health will be contagious, instead of disease, and where pure air, pure water and abundant sunshine will be rights and not privileges. In that school of the future, the child will not have to be either truant or tuberculous or delinquent or defective to get the best and fullest measure of education." (2)

(1) Curtis, "Outdoor Schools", Ped. Sem., Vol. 16, p. 169.

(2) Proc. N.E.A. 1911, p. 903.

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