THERE IS TOO MUCH WASTE IN OUR EDUCATIONAL SYSTEM

Business Principles of Factories Should Be Applied to It, Says Leonard P. Ayres, of the Sage Foundation. We Don't Demand Definite Results and Don't Know What We're Aiming At.

By EDWARD MARSHALL.

AS builders of the future generation—the generation on whose shoulders the world's work will fall in the United States—we are not distinguishing ourselves.

"If you had a factory which damaged, tore or classed as seconds more than one-half of the raw material you tried to put through it, you'd become bankrupt," Leonard P. Ayres told me recently. Then: "That's exactly what the nation's most important factories are doing—the factories that manufacture men and women—citizens—the public schools."

And Leonard P. Ayres knows what he is talking of. Read the brief biography which heads this article and see what he has done to qualify himself to speak as an authority.

"Within a few days from the time when your article is published," he remarked reflectively, "vacation will begin throughout the land. More than a quarter of a million children will have graduated, in spite of the fact that as many will have dropped out of school during the year, as Prof. Gulick told you recently, in your remarkable interview upon that subject. When I say that 250,000 children will be graduated, I mean from the eighth grades of the city schools throughout the country that many will have marched out with diplomas. As many more will leak out without diplomas. Nineteen million children will be freed until the next term begins. Two problems are presented. One is that of stopping the great leak, and Prof. Gulick told of that. The other is that of doing what can be best done to help the children who have fought their little battle of the school year through and won at last, but, after it is ended, find themselves abandoned, as it were, by their mighty foster-parent, the school system of the land, until the next term starts. That, so far as we can see at present, is best done by means of the vacation schools. That they were delayed so long is most astonishing; that they have been so slowly taken up is sad; that they have been devised at all, have spread so rapidly and have done so well, is most encouraging.

"Here at the Sage Foundation we are backing the vacation schools with all our might. There are many reasons why we should and none why we should not. One reason why we should is that vacation, designed to set the children free for rest and recreation, sets some free instead from everything which their lives offer of real value. In the city slums vacation often doubtless does a myriad of children far more harm than good, taking, as it does, the one admirable influence from their lives which know no admirable home influence. Another reason for our backing is that vacation school attendance is voluntary, not compulsory, and we believe this spirit is sure to permeate through the whole school system if we foster it intelligently now. The child goes to the vacation school because he wants to. Stop and think of what a problem truancy has offered from the very start of schools! It was the outgrowth of the school systems which endeavored to compel attendance. If schools can be so operated that the child will want to go to them, he will be more regular in his attendance and his attendance will do him more good. Well, vacation schools are proving that this can be done and are teaching many educators throughout the whole country how to do it.

Children Attend Because They Want To.

"We have not at hand complete statistics of the work, its spread, or methods, but we have made a study of it in eight cities, namely, Buffalo, Cambridge, Chicago, Cincinnati, Newark, New York, Pittsburg, and St. Louis. These are fairly representative of the whole country. In all these cities schools have been devised to which the children during the vacation months are in attendance because they want to be. Could not schools be so operated that this would be true the year around? Unquestionably. Thus the vacation schools which soon will be in operation are teaching not alone the children but the educators much.

"The change cannot be made immediately and many of the school people do not think it can be made at all, but it is surely coming, and the sooner all the school people arouse to this and join the movement the sooner will a mighty army of the Nation's children have a new and splendid chance to grow into a competent citizenship. When the child studies each new thing because it interests him, because he realizes that in after years it will be useful to him, because, in other words, he actually wants to study it, then schools will really count. The new school idea should be not to cram more into the children, but to give them what they actually need and make them realize that they actually need it.

"Do that and there will be little difficulty in making the average child study when he is in school and make him so eager to attend school that the expensive machinery now in existence to compel attendance can be done away with. I shall say something which will sound revolutionary to some parents and some school boards—seem almost anarchistic. What they at all should be ashamed and start on the good work at once. There is another reason of tremendous weight to be considered. Two hundred and fifty thousand children drop out of school every year in the United States without having completed their courses—start out, in other words, upon the struggle of adult life without the foundation, the educational equipment, which the experience of the years has taught us is necessary as the underpinning for useful citizenship. This quarter of a million children forms as great an army as the bright-faced army of the children who complete the course and are graduated. You see a child which for any reason fails to get promotion at the end of the school year is, according to the old system, hopelessly behind his fellows for all time, except in the unusual cases where special brilliance makes it possible for him to 'make up' the lost year by double work in the year following.

"Now, the vacation school offers the most rational and simplest method of enabling many of this startlingly large number of unfortunates to avoid this awful penalty of a lost year. With a schoolroom open to him and with teachers ready to assist him in vacation time, if he himself has energy, ambition, almost any boy will take advantage of the chance.

"Conditions true in one part of the country in school matters are measurably true throughout the country, and in New York City alone at the end of this month 100,000 children will fail of their promotion in the public schools. That means that next year, if they do not drop out of school, entirely discouraged, they will have to repeat the grade, or half grade, do all the work over again. That is hard upon the children, isn't it? That will impress some people with the necessity for the adoption and the spread of any plan which may avoid it, but an argument which will be stronger with some others is that the method we now follow is expensive to the whole community. Each child which through a failure to pass examinations in New York is obliged to repeat a half grade costs the taxpayers $23. Now listen. Experience proves that practically all the children who fail in their June examinations and during the Summer attend one of the vacation schools make up whatever deficiency has been responsible for their failure and are ready in the Autumn to go on, as if they had not failed at all. The Summer schools cost the city, on an average, $4 for each child. Thus the saving to the city is the difference between $4 and $23 for each child affected. Summer schools are not mere sentimentalism. They are business, and good business. To save $19 in the eduction of a delinquent child, and at the same time save a year of that child's life for him, is an economy worth real consideration.

No Excuse for Erring School Boards Now.

"This investigative work in education is getting us down to the basic facts. We are no longer grubbing wholly in the dark here in New York, and there is no excuse for any school board anywhere throughout the country which fails to take advantage of the facts which are being slowly, but beyond denial, demonstrated. It's slow grubbing, this investigative work; there isn't any answer to the questions we are asking waiting for us in the back of the book; no one has gone the work before; each query he's to be worked out in a brand-new way and leads to a brand-new conclusion; but we are gradually getting at the answers, and we find some of them startling. One of them is that the vacation school work is among the most important movements which the country has yet known; one of the most important movements in the history of education; a movement which will correct thousands of mistakes made in the regular schools. The children like it; it solves a mighty problem for the backward; it saves money for the taxpayers. There has been opposition to it in some sections. There is no excuse for any opposition.

"It does more, too, than offer children opportunities for gaining education in essentials, it offers them escape from education in a multitude of undesirable details. To the child that must spend the long, hot Summer months in the city, the vacation school, whether he be backward in his studies or the brightest boy in his whole class, is a real godsend. It not only teaches him, it offers him a refuge, it amuses him. It's a different kind of school—not that of taskmaster, but one where study is a voluntary thing and, therefore, is delightful.

Help Children's Health.

"Vacation schools, too, because the work is voluntary, and is never hard, and always interesting, are good things for the children's health, and that is most important. More and more our educators are agreeing that the philosophy which considers the sound mind and the sound body separately is all wrong. The physical, mental, and spiritual are all interdependent. This must be recognized by school boards everywhere, before the ideal training is offered to the children of the Nation. In New York City there are 400,000 children with defective teeth. What have teeth to do with education? the average man who doesn't know what he is talking about will ask, a little scornfully. There are too many people in this country who may be put in this class. They need education quite as much as the school children do. Bad teeth have much to do with education. Actual measurement shows that children with bad teeth require one-half year longer to properly complete a public school course than children with good teeth do. That half year may, conceivably, cost the child success in life; it actually costs the New York taxpayer $20 for every backward child. This is one of the details in which the open-air schools and the vacation schools come in strong and will come in stronger every year.

Three reformers have been responsible for much of the change in the attitude of our public school management toward the children in attendance. The first of these reformers was the child with the contagious disease. When Boston began medical inspection in America, no longer ago than 1894, by dividing her schools into fifty districts and placing a doctor in charge of each district, she did so in the hope that the new measure would curb the waves of contagious disease that repeatedly swept through the ranks of the children, leaving behind a record of suffering and death. The experiment was successful, and other cities took it up. This sudden recognition of the necessity for safeguarding the physical welfare of our children grew out of the discovery that compulsory education, under modern city conditions, might also and easily mean compulsory disease. With the idea of forcing sound minds on the children, unsound bodies were unwittingly forced on them.

Making Sanitariums of Schools.

"Now efforts are being made to make the schools not breeding places for disease but sanitariums for the increase of health. The second great reformer was the backward child—a strange ally of education. It was discovered that the dragnet of compulsory education brought into the schools hundreds of children unable to keep up with their companions. They interfered with the smooth operation of school machinery seriously. This led to an extension of the scope of medical inspection to include the physical examination of school children with the aim to discover whether or not they were suffering from such defects as would hamper their educational progress and prevent them from receiving the full benefit of the free education furnished by the State. This work was in its infancy five years ago, but to-day 200 cities have systems of physical examination of their school children.

"Nor was this the only contribution of the backward child to the merits of our present system. He has taught us that if we insist that every child shall attend school then we must provide schools fitted to the needs of every child. As a result schools throughout the land are opening their doors and fitting especial work to the needs of the blind, the deaf, the crippled, and the mentally defective. It is in response to this realization, too, that we are at last beginning to make provision for that still more exceptional and vastly more important group—the children of especial talent, even genius.

What the Tuberculous Child Taught.

"The third reformer of this group was the tuberculous child—last in the triple alliance toward educational adaptation. Four years ago the City of Providence, R. I., started an open-air school for tuberculous children. This new work is in progress in twenty-eight American cities. These open-air schools are taking pale, sickly children and, while they are being educated, converting them into ruddy, strong, and healthy children, and they are teaching these ailing children faster than the regular schools in the same cities are teaching the strong and normal children—producing without overstrain a higher average of scholarship. And school men, noting this, are asking why, if pure air means so much to the sick children, pure air might not mean much to the healthy child. So engineers and ventilation experts are at work, endeavoring to devise school buildings which will give to every school child the advantages which the open-air schools now give to the tuberculous.

"So these three reformers—the child with the contagious disease, the backward child, and the tuberculous child—have done their good work well. The human race will be the better because of the great lessons they have taught. We needed them; not everywhere have they been taken seriously enough as yet. But because of them the child of the future will attend a school in which health and not disease will be contagious, in which the playground will be as important as the book, and where pure air, pure water, and abundant sunshine will be rights, not privileges. He will attend a school in which he will not have to be a truant, or delinquent, or tuberculous, or in any way defective, in order to get the best and fullest measure of education.

The Wonders of the Open-Air School.

"The open-air school especially is a new development and one which some school boards have been too slow in making use of. This idea did not originate in the United States. We have not been the most progressive Nation in the world in some details of educational work. The first was started at Charlottenburg, near Berlin, 1904, and in 1908 the London County Council established its first 'recovery school.' Plain sheds were erected on the outskirts of the town, to shelter the children during rainy weather, special teachers were put in charge and no teacher had more than twenty-five pupils. To this school such children as were defective or laggard as the result of anemia, various ailments in the incipient stages and the results of more serious diseases, from which they were convalescing, were assigned. The children reached the school at 8 o'clock and were given soup and bread and butter. Intervals of five minutes were allowed between each half hour of teaching. At 10 the children were given two glasses of cold milk and bread and butter. Then, till 12:30, they played about, read, or did manual work or gymnastic exercises. At 12:30 came dinner, and then two hours of sleep. At 3 o'clock there were some classes, and at 4 o'clock rye bread and jam. Until 7 o'clock there were informal instruction and play which, with a final meal, completed the day's 'labor.' At 7 the children were sent back to their homes.

"Such work cannot be taken up too rapidly in the United States. Note the effect. After the first two weeks, better appetites, closer attention, and improved general temperament marked the improvement in the pupils. Among 107 children suffering from anemia, scrofula, heart trouble and pulmonary diseases, seventy-four were totally cured or greatly improved in the three months the school remained open. On an average they gained half a pound a week during the entire period. Many of them increased eight or ten pounds during the three months, and some of them as much as eighteen pounds.

"These physical changes for the better were gratifying, but really not astonishing. But one really amazing outcome of the important experiment was the startling fact that these children did not fall behind in their school studies. On the contrary, although they devoted less than half as much time to the regular studies as the children in the ordinary elementary schools did, they had no trouble in keeping up with their classes. When, having recovered physical health, more by means of their school than through the work of doctors, they returned to their regular places in the ordinary schools, it was found that they had gained, not lost ground, and were almost invariably in advance of their old companions who had not been ill at all.

America's First Open-Air School.

"For the first American open-air school at Providence an ordinary schoolroom was remodelled so as to leave three sides open to the air. In this room in the dead of winter they began to teach a class of children variously termed 'anemic' or 'pre-tubercular.' The pupils worked in their outdoor wraps, sat in warm sitting-out bags and had, on particularly cold days, warm soapstones at their feet. They were well fed and their school studies reduced in quantity, not quality. The success of the work, so far as the children's health went, was shown conclusively by hemoglobin tests. The normal percentage in a healthy child is, of course, 100. When the children entered the Providence school they averaged a little less than 74. In five months it had increased just 10 per cent. Now note this: That period ended the school term, and the children, on vacation, deteriorated almost to the old average—within less than one degree. School opened in September and it began to rise again. By January it had risen to 79, and when school again closed the following June again had risen to 84. Why, in view of the enormously beneficial results which have accrued from every one of these experiments, more cities have not taken up the matter is a mystery. In Boston an open-air school in a park arrested or entirely cured tuberculosis in 23 children out of 41, and the children gained in their scholastic grades. Sent back to ordinary schools, all but two remained in perfectly good health. New York lagged, beginning work three years ago, on an abandoned ferry boat, which shows that apparently useless localities may be utilized by cities in this movement. The cry of great expense can not properly be raised against it. The children organized the school themselves, being patients from a hospital, taken to the ferry boat to convalesce. They organized a strike against the system which deprived them of all education. Astonishing, but absolutely true. They practically said that if they could not get some instruction they would not get well. The Board of Education offered instantly a teacher and the necessary school material. Since the opening of this school three other ferry boats and a roof have been pressed into service. In Chicago work was begun three years ago in a camp and has progressed. The children last Winter refused absolutely to take their Christmas vacation. They demanded that they be allowed to go to school as usual, and the school authorities yielded to their demands. Hartford has done good work in a tent. Pittsburg utilizes the large balconies of a hospital. In Washington, Rochester and Newark fine things have been done.

The Thing Wrong With Our Schools.

"Temperamentally the thing wrong with our schools is that we, as a people, do not demand definite results. We don't know what we are aiming at, or whether we accomplish it or not, even in the simplest manifestations. Our schools are ignorant of what they want to do, of what they ought to do, and even of what they may do. It as though we had a banker, who, when we asked him how much money he had on deposit, answered that he did not know. Suppose he said: 'We do not count it, but can tell you the year's average.' What would you think of him as a banker? Well, the children are our National assets. We don't know now what actual good the schools are doing—definitely, I mean. We don't know what effect the various schemes of schooling have upon the afterlife of people in the mass. How would that do in banking? Suppose you asked that banker how his money was invested, and what returns it was bringing in, how much had been lost, how much has been gained, and he again replied, 'I don't know'? I imagine that you'd transfer your account to some other bank immediately, even if he told you that the general results were all that could be expected. Well, that's the way our public schools have been run. Substitute children for dollars. Our neglect along these lines has been amazing. Chaney of the Connecticut Board of Education has put this forward within a few months as a brand new proposition—the idea of applying to the schools of Connecticut some of the same principles which would be applied in business if they were factories which turned out wagon spokes instead of factories which turn out men and women. Children are the raw material, and the educated child the finished product. It is really a commercial proposition. How could we have failed to see it and act accordingly so long?

"We are chasing a lot of fallacies, here in the Russell Sage Foundation, and we chased this down. We asked many educators who had made the statement where their facts came from, and only one had any evidence to offer in support of his assertion, and that evidence was the experience of one of his own children. We tabulated 16,000 cases from school records and found that children making the best progress were those who start between 6 and 7 years. Thus we utterly refuted one of the accepted theories of American pedagogy. How many others we shall prove to be quite false, who knows? Certainly the superstitions, the utter lack of common sense, which we find infecting American school management from time to time are almost unbelievable. Woefully ignorant are our great 'educators.' We asked 72 cities whether children made better or slower progress in the regular public schools after they had had kindergarten training. None knew absolutely, although it would seem easy to discover such a fact. Forty-nine believed they did, but didn't know for sure; 23 held opposite opinions, but were equally uncertain. Absolutely no one actually knew, yet this is a vital point and one which might have been with real ease ascertained, for we've had kindergartens for full half a century.

What Should Be Done.

"There ought to be established by this Government a clearing house for educational information. As things stand, the man who wants to know the experience of other communities than his own is helpless. He can't get it. Yet these things are absolutely vital to our progress as a nation. The present Bureau of Education in Washington should be made into a body which will gather information and supply it regularly to Superintendents of Education everywhere throughout the land. This Sage Foundation is a private although great philanthropy. We are deluged with appeals for information which the Government should furnish.

"Our ignorance on vital things is really appalling. Nobody knows, for instance, what is the best ratio of humidity in the schoolroom air; we only know that a large part of the present schoolrooms are absolutely pernicious, that by actual measurement their air is dryer than the air in the dryest part of the Desert of Sahara. Plants won't grow in them; they dry up. Must not children dry up, too? They must and do. Yet no investigation has been made. Cotton mill operators know under what condition of temperature and humidity their employes work best. You see, that means dollars in their pockets. They investigated and they learned. What waste not to know the same thing about conditions affecting studying children! Well, we are now at work upon the matter, but ought it to have been left to us to do? It is one of Dr. Gulick's investigations for the Foundation and will be done brilliantly, of course; but it ought to have been made long, long ago.

Woeful Ignorance.

"We do not even know the best methods of lighting schoolrooms. We know some schoolhouses in which 62 per cent. of the children have defective eyesight, and others in the same city, drawing from the same sort of population, in which only 31 per cent. of the children's eyesight is affected. What's the difference? How shocking that we do not know! We do not even know, for certain, whether the boy who works through the public school and then through high school actually does better in his after life than the other boy who leaves school early and starts at his work. Is not such ignorance entirely unbusinesslike? We don't know how much it is actually worth in dollars and cents to send a boy through high school, although we know exactly what it costs to do it. Loose business methods, eh? We are trying now to learn this, too, here at the Sage Fundation. It will, of course, have a tremendous influence on schools, schooling, school attendance. Why was it not done years ago?

"All over the country, in the cities, there is now and has been for a long time, at intervals, lack of accommodations in our growing cities, so that a certain proportion of the children have had to be content with half time in the schools. In New York City there will be, this year, close to 80,000 half time children. Do they, or don't such children make as good progress as those children who get full school time? We claim that they are being cheated out of their rights, but we can't prove it. How utterly absurd that we cannot! As a matter of plain fact, we do not know how many hours a day a child should go to school. And this is wholly wrong. While we have been crying out that children should be studious, we, the adults, have not studied. It is high time that we did,—that everybody did. The work should not be left entirely to such organizations as this one, founded by the wisdom and philanthropy of a good, wise woman."

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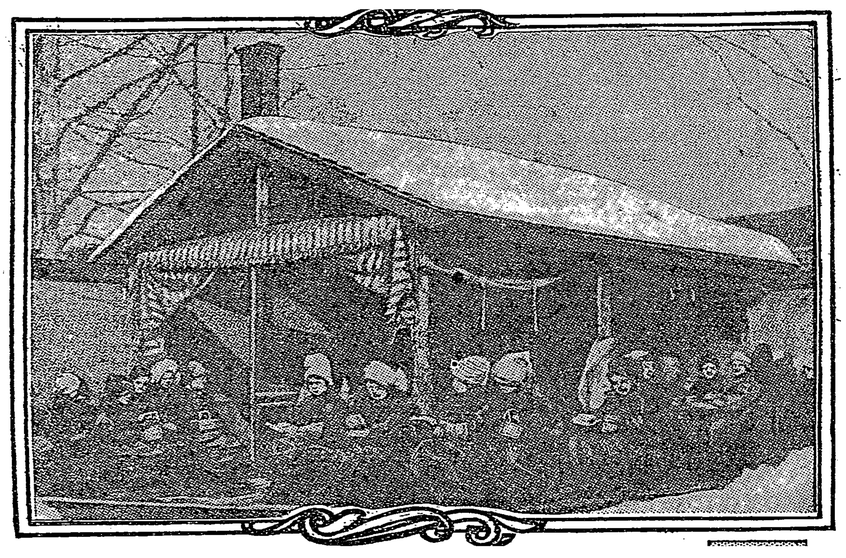
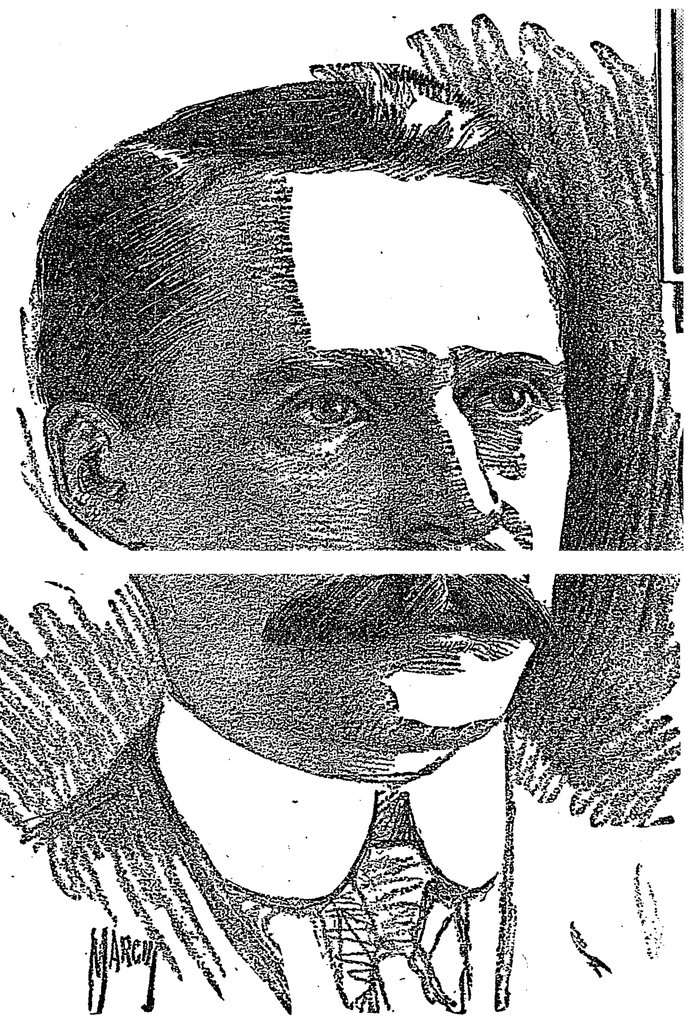
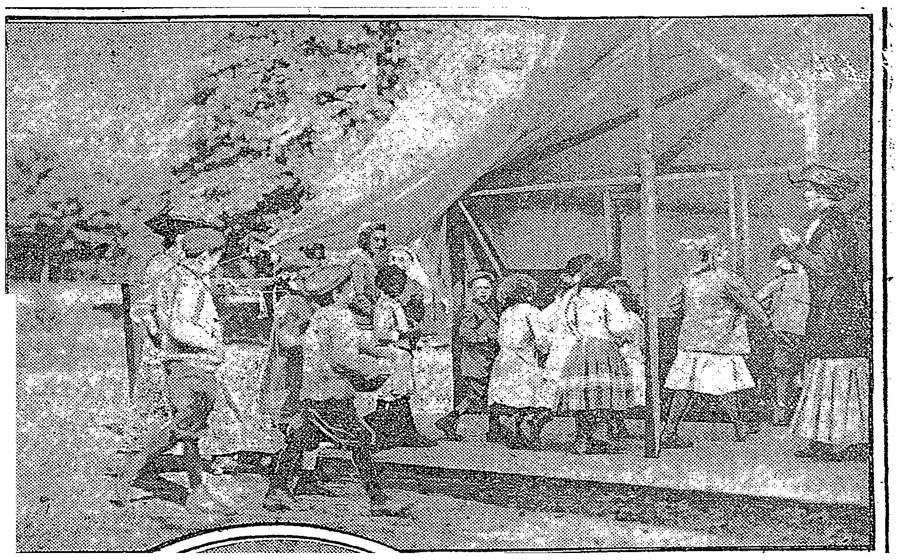
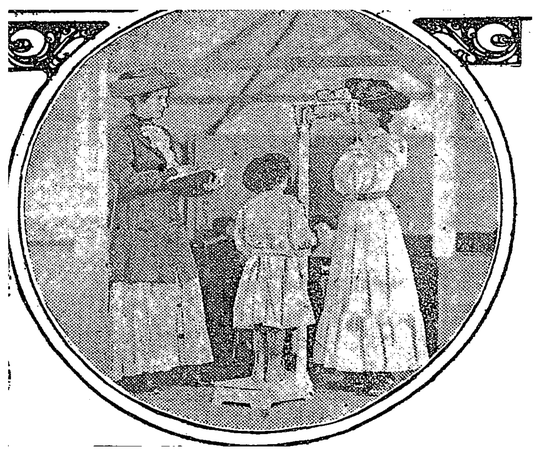


Outdoor School in Philadelphia During the Winter.



Leonard P. Ayres, of the Sage Foundation.





Children Arriving at an Outdoor School at Newark.

Weighing a Child so as to Watch Physical Progress in an Outdoor School.

Recess at Newark's Outdoor School.

LEONARD P. AYRES.

Leonard P. Ayres, who in this interview calls attention to some startling facts, both good and bad, in connection with American public schools, is a product of Connecticut, where he was born in 1878. He is a graduate of half a dozen educational institutions and holds several degrees. He began work as a teacher in Porto Rico, after the American occupancy, and was made Superintendent of the Porto Rican schools and Chief of the Division of Statistics in 1906. He has been connected with the Russell Sage Foundation since October, 1908, and his work has attracted international attention. He is a member of the Council of the Playground Association of America and of half a dozen other important educational bodies, and has written several important works on educational topics.

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