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MEDICINE

Medical Science Freeing Childhood From Disease

By MARJORIE MACDILL

Mumps and measles will be a disgrace to the neighborhood, and whooping cough will be a reminiscence of greybeards, if medical research in children's diseases keeps up the pace of recent years. The last three years have seen scarlet fever receive several body blows, and the next three may witness the beginning of the end of measles if recent important work in Chicago and Detroit is substantiated.

The millennium of a diseaseless childhood is a goal toward which many an unsung knight of the test tube is contributing his bit in laboratories all the way from Munich to Chicago. Already the American Medical Association is predicting that the mortality from diphtheria will be negligible by 1930. This prophecy is based upon study of the steadily declining death rate of this dreaded scourge since the use of toxin-antitoxin as a preventive has become generally practiced. Scarlet fever toxin, lusty infant in the field of preventive medicine, already gives encouraging signs of achieving the same result for scarlet fever.

Numerous germs have been put forward recently by contenders of various nationalities as claimants for the doubtful honor of causing measles. So general is the interest in this most contagious of diseases that several scientists in Europe and America, all working independently, are engaged in what has resolved itself into a neck-and-neck race to produce a practical solution for the measles problem. They cannot all be right, but the more men and women there are in the front line of attack, the more quickly will measles become preventable.

Dr. Ruth Tunnicliff, of the John McCormick Institute for Infectious Diseases at Chicago, has been cultivating in laboratory test tubes a green streptococcus—the scientific name for the little round bacterium that grows in strings, which she has isolated from

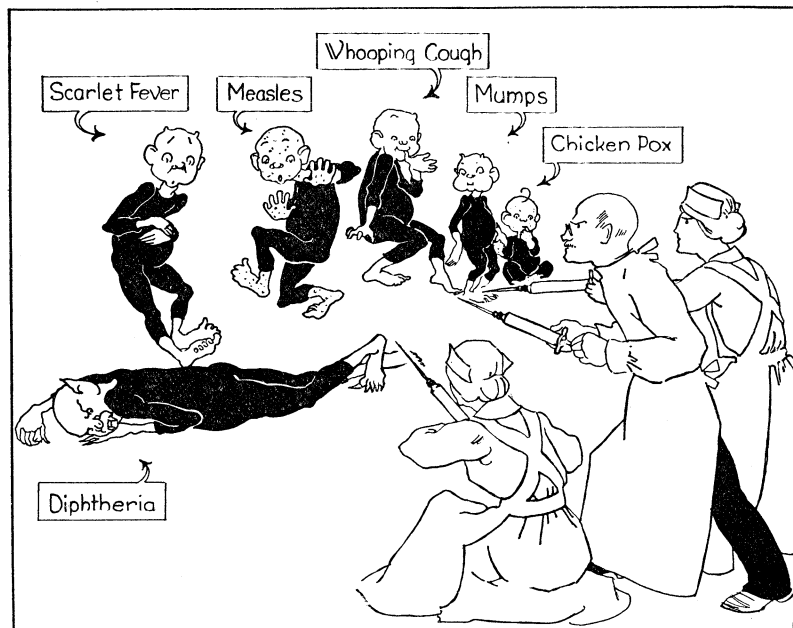
the blood of measles patients. With these germs she has immunized goats to measles and from their blood has produced a serum which acts as a preventive of the disease in people. When injected into susceptible children not later than the fifth day after exposure it will, in about 90 per cent of the cases, prevent the onset of the disease. If this goat serum continues to prove efficacious in bringing about even temporary immunity in susceptible children it will be a great help in bringing epidemics under control.

For centuries doctors have been as powerless in the face of measles epidemics as they were in the mediæval visitations of Black Death. Almost every mother knows that when the speckled countenance of measles shows up in the family, there is little she can do beyond keeping down the shades, administering light diet and hoping that the baby won't get it. The

first remedy to make even a dent in the progress of measles, once under way, was convalescent serum, made from the blood of adults recovering from the disease.

This convalescent serum, which has been used in France and Germany for several years, has enough of the protective antibodies in it to prevent the disease from taking a severe course when injected into exposed children. When used immediately after exposure it may give temporary immunity. It has found its greatest use in schools, orphanages and such institutions for children where a general epidemic is a pretty serious proposition. It is likewise invaluable for protecting babies and little children in whom pneumonia and ear troubles are likely to be severe complications. Only small quantities of blood, however, can be taken from convalescing chil-

(Just turn the page)



With diphtheria laid out cold, the cohorts of healthcare training their guns on scarlet fever and measles. Whooping cough's turn will come next.



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Childrens' Diseases

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dren, while adult sources of the protective serum are obviously limited.

Consequently Dr. Tunncliff's goat serum, if further tests continue successful, offers all the advantages of the human convalescent serum, in addition to being readily obtainable. Measles is a difficult disease to produce in animals, and this is one of the reasons it has baffled science so long. A disease cannot be satisfactorily studied if it cannot be produced experimentally in the laboratory. The sheep family may offer a saving grace where measles is concerned, however, for Prof. Rudolf Dekgwitz of the University of Greifswald in Germany, has made a sheep serum for which he claims results that may be compared to Dr. Tunncliff's goat serum. If it is administered the first day of the disease, when the temperature begins to rise, it prevents measles and finishes the fever after 24 to 36 hours, or else modifies the disease to a very mild form, he declares. With either alternative the immunity that follows is lasting, a very important consideration.

This serum has been in use longer than the goat serum and has in consequence had a more thorough try-out. Some of the results from its use have not been satisfactory, but much of the value of both of these treatments seems to depend on the point in the progress of the disease at which they are administered.

Last spring in Detroit, Dr. N. L. Fisher and L. W. Ferry announced that they had isolated a streptococcus, which has turned out to be the same organism as that found by Dr. Tunncliff, that could be used in the production of a measles antitoxin on a large scale. This antitoxin, it was thought, could be used in both preventive and curative treatment of measles. These claims have not been substantiated, but if the Detroit doctors make

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Ninth Down; No Gain

California and Minnesota have joined the list of states whose legislatures this winter have refused to pass anti-evolution bills introduced by Fundamentalists. The Minnesota house committee on education, by a vote of 12 to 5, recommended indefinite postponement of the proposed measure. In California the action of the committee was unanimous. No state legislature so far this year has been willing to join Tennessee and Mississippi in limiting the freedom of teaching in this field, and seven states have anticipated the action of Minnesota and California in declining that doubtful distinction.

Science News-Letter, March 26, 1927

Esperanto Tested in Schools

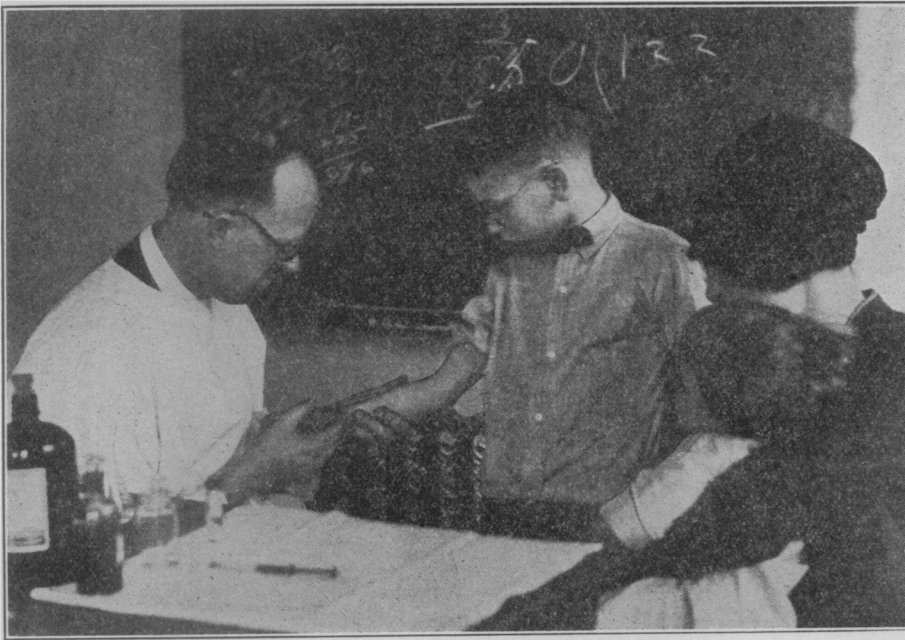
Learning Esperanto or some other simple artificial language is a good introduction to foreign language study for school children, according to Miss Helen S. Easton, of the International Auxiliary Language Association. In a talk before a group of Washington language teachers, Miss Easton pointed out that experiments in teaching Esperanto to school children are being made in New York, and in England, Switzerland, and other European countries. Some high school students have practically no ability to learn Latin, French, or other foreign languages, though their progress in other subjects is normal, Miss Easton declared. If a course in a simple artificial language is given before starting on a real foreign language, such students can be spotted and much time saved and discouragement averted.

Esperanto, the most widely known of the languages invented for international communication, has only sixteen grammatical rules, and there are no exceptions to the rules. Nouns, adjectives, verbs, and other parts of speech are built up from root words by adding suffixes, so that all nouns end in "o," adjectives in "a," and so on. With these rules for construction the students can learn to take a language apart and put it together, and this helps them to understand how real foreign languages are formed, Miss Easton explained.

Another advantage found through recent experiments is that the artificial language awakens the students' interest in words, and their use of their native language tends to improve.

It is estimated that one person in 300 wears a glass eye.

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An expert in the U. S. Public Health Service is about to give these children both the Dick test and the Schick test that will tell whether they are susceptible to scarlet fever and diphtheria.

Childrens' Diseases

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good their promise a way has been opened up for the treatment of measles similar to that now in use to prevent diphtheria and scarlet fever.

When a child comes down with measles in a German family it is a current practice to prevent the disease or to forestall serious complications in younger members of the family by injecting them with the blood from one of their parents. In the densely populated countries of Europe the chances of reaching full-grown manhood or womanhood without contracting measles are very small. It is believed that the periodic subsequent exposures to measles resulting from everyday contacts in a thickly populated community stimulates, during the whole life, production of antibodies in the blood. Consequently the blood of European parents is used as a convenient immunizing agent to prevent this disease or to mitigate its severity in children.

When children are injected early enough, fifty per cent of the cases treated have been found to retain an immunity of several months. In the remaining fifty per cent the disease takes a mild form and confers immunity as lasting as that of a severe case.

To get the best results with this mode of attack on measles the inoculation must take place at an early stage of the game. The German health authorities are endeavoring to teach

this vital point to parents through propaganda distributed to school children, and the method has likewise the sanction of the health section of the League of Nations. Whether or not some such procedure in this country will prove to be another way out of the measles difficulty is yet to be seen.

Mumps and chicken pox are comparatively mild diseases, and because they are relatively benign, will have to wait for the attention of science until the problems presented by the more serious diseases are cleared up. It is thought that the former is caused by a filterable virus that is present during the course of the disease in the saliva. Chicken pox was long confused with small pox, and not until modern times have physicians differentiated clearly between the two.

Whooping cough is still the bad boy among children's diseases. If any philanthropist wants to do a good turn to the boys and girls of the universe he can come across with the where-withal for whooping cough research. Science has thus far been able to do very little about it. The causative germ is generally considered to be a bacillus, but some doctors dispute even this point. Vaccines have been tried and found wanting. Intramuscular injections and occasionally enemas of ether are modern innovations that have been useful in checking severe paroxysms in young sufferers. Radiation with Roentgen rays have been found helpful sometimes. One spe-

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Childrens' Diseases

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cialist in children's diseases considers whooping cough a condition of acidosis and reports good results from repeated dosings with the simple old fashioned remedy of sodium bicarbonate. But when all is said and done, fresh air and sunlight are mother's best aids when it comes to this long-drawn-out plague of childhood.

All of these diseases are spread by contact and it is wise, particularly where babies and little children are concerned, to keep them away from crowds and public places as much as possible at all times, and especially when an epidemic is abroad. The Schick test will show which are susceptible to diphtheria, and in many public schools is administered as a part of health routine. Those who are found susceptible are given the toxin-antitoxin mixture which renders the child immune to diphtheria for a long time. The toxin-antitoxin mixture is practically harmless, and is administered three different times at intervals of about a week. A similar course is now being worked out for the prevention of scarlet fever.

In 1923 Drs. George F. and Gladys

H. Dick, man and wife, at the John McCormick Institute for Infectious Diseases in Chicago, announced that they had produced experimental scarlet fever in volunteers by inoculating them with streptococci taken from scarlet fever patients. They found that these streptococci would produce a toxin much as diphtheria bacilli do. This toxin, they found after a great deal of experimental work, could be used in a skin test to determine susceptibility to scarlet fever, and it has since been widely used for this purpose. The Doctors Dick also discovered that by giving increasing doses of the toxin to those found susceptible, these persons would become insusceptible and would give a negative reaction to the Dick test. Thus we have a practical method for immunizing children against scarlet fever.

Antitoxin for the cure of scarlet fever is in general use and has done much to alleviate its danger and its frequent subsequent complications, but the general use of the toxin for its prevention will be the next step to make its eradication practicable. There is every reason to believe that the work of the Dicks is a corner stone on which a preventive program is being built up for scarlet fever comparable to that in progress at present for diphtheria.

Research workers are doing everything in their power to simplify these protective measures as much as possible. In these busy days the less time each health-inducing operation takes the greater is the number of children who will benefit by them. So men and women in the laboratory are endeavoring to work out processes whereby busy mothers will only have to send Johnny to the doctor's office once for his toxin-antitoxin treatment instead of the three times necessary now. If these trends in preventive medicine are worth anything as pointers, future generations will never know measles or whooping cough because they will be immunized as babies before hospital doors ever open to let them out into a germ infested world.

Science News-Letter, March 26, 1927

All the locust trees are natives of the western hemisphere.

At a recent test in an electrical laboratory a spark at a pressure of 2,100,000 volts leaped 21 feet.

A wireless transmitter in Great Britain starts and stops the fog signals in the Firth of Clyde more than a mile away.

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