

REVIEW OF REVIEWS

TYPHOID VACCINE BY MOUTH

The subject of typhoid vaccination by mouth is thus reviewed in a recent number of *The Journal of The American Medical Association*:

"Almost twenty-five years have passed since Almroth Wright made the first experiment in immunizing human subjects against typhoid by the oral route. He used a heat killed vaccine and estimated the success of his experiment by changes induced in the bactericidal power of the blood. In the seven subjects treated, bactericidal power was increased in three and diminished in four. These negative results seem to have discouraged further experiment for some years. French investigators, however, began to experiment with oral immunization in animals shortly before the war, notably Besredka, who was able to achieve successful results with paratyphoid vaccine in rabbits by preparing the rabbit's intestine with a 10 c.c. dose of bile. Besredka's experiments were interrupted by the war but were resumed as soon as he returned to civil life. The first clinical experiment in man was undertaken during an epidemic at a military school at La Fleche (Sarthe) in April, 1922. Of 521 students exposed to infection, 268 received vaccine by mouth and 253 by the subcutaneous route. Five new cases developed in the former group and ten in the latter. Since this experience the oral method has been used in larger communities and with apparently successful results. Recently two investigators in the department of bacteriology of the University of Washington have observed the effect of oral administration on antibody formation. Incidentally they confirm previous clinical reports that the oral administration does not lead to the rather severe systematic response which sometimes follows subcutaneous inoculation. Using the triple vaccine they found that 88.5 per cent of their subjects developed agglutinins for typhoid and a lesser number for paratyphoid bacilli. This is compared to 80 per cent who, according to the literature, develop agglutinins after subcutaneous inoculation and from 90 to 95 per cent who show a positive Widal reaction after suffering from the disease. The administration of bile before the vaccine increased the percentage and shortened somewhat the latent period in which agglutinins are developed. This interval, the investigators find, is no longer when the oral method is used than it is for the more orthodox method. Complement fixations and precipitins that were tested in smaller numbers are not large enough to make this observation significant. These results show a closer similarity in antibody formation to the immunity reaction of typhoid on the part of oral than of subcutaneous administration. It must be noted that actual clinical resistance to disease may not correspond accurately with the development of agglutinins or precipitins; indeed, Besredka in his experiments with the rabbit did not find any such correspondence. Moreover, a method that has been so well proved as subcutaneous inoculation against typhoid will not be lightly abandoned. However, there seems to be a growing mass of evidence that oral administration is effective. In cases in which the subcutaneous method has for one reason or another been rejected, oral administration may reasonably be given a trial."

RESOLUTION ON THE PREVENTION OF CONGENITAL SYPHILIS

The following resolution was adopted by the American Social Hygiene Association at its last annual meeting, held in New York in the month of January:

"WHEREAS, congenital syphilis is one of the most frequent causes of foetal and neonatal death, and of the greatest mental and physical disasters among those who survive, and

"WHEREAS, there are medical procedures which, when properly applied to the pregnant syphilitic woman, will almost certainly prevent congenital syphilis in the child, be it therefore

"RESOLVED: That the American Social Hygiene Association advocate the adoption of vigorous measures for the prevention of congenital syphilis, and especially directs its officers to promote the spread of information to the public regarding the great advantages of medical supervision early in pregnancy; to secure the cooperation of nursing, public health, and social groups with the medical profession in insuring the adequate treatment of every pregnant woman, thereby preventing congenital syphilis; and, in particular, to encourage those in charge of prenatal clinics to devote attention to the discovery and treatment of syphilis among all women who are in attendance."

HELP FOR THE CRIPPLED

The following editorial, about "The Care of the Crippled", was taken from a recent issue of *Hygeia*:

"With the advancement of civilization more and more attention is being given to the care of the defectives that are a product no doubt of the benefits that civilization has conferred upon some of us. The number of mental defectives is so appalling as to demand the formation of special societies to consider their problems. At least three million children have difficulties with their education because their hearing is not what it should be. The blind, the partially blind and those requiring the aid of glasses are a great group of the disabled. The pace of modern industry and the intricacies of the machines yield vast numbers of industrial injuries. The great toll of paralyzes from anterior poliomyelitis, or infantile paralysis, and from meningitis (the two great crippling diseases of childhood), from acute rheumatic fever and from chronic disturbances of the joints, from tuberculosis and similar diseases is one of the great social and medical problems of our day.

"The latter problem has appealed particularly to Governor Franklin D. Roosevelt, himself a sufferer from infantile paralysis, but a man who has risen triumphantly above the effects of his disease.

"In his message to the Legislature of the State of New York the governor devoted special consideration to the care of the state's cripples:

"While we have made and are making splendid progress in caring for the general health of our citizens, there are two specific matters in which we can lay the foundations for great public benefit.

"The first of these is the care of adults and children who, through accident or disease, are crippled. It is estimated that at least 50,000 men, women and

children in the State of New York are thus seriously handicapped and many of them require constant attendance on the part of some able-bodied person. As a matter of good business, it would pay the state to help in restoring these cripples to useful citizenship, and the great majority of them can with the aid of modern medical science be so restored. Most of them are, however, not today receiving adequate care or treatment for the very good reason that such treatment costs more time and money than the average family can afford.

"But there is an added reason. I conceive it to be the duty of the state to give the same care to removing the physical handicaps of its citizens as it now gives to their mental development.

"Universal education of the mind is, after all, a modern conception. We have reached the time now when we must recognize the same obligation of the state to restore to useful activity those children and adults who have the misfortune to be crippled. I shall submit to you a carefully worked out program to initiate this much needed care.

"The medical profession will await with the greatest interest and sympathy the amplification of the Governor's views as to how the difficult problem of the care of the crippled is to be solved. Nowadays everyone realizes that the problems of medical care are closely bound with such questions as the provision of fuel, shelter, food, clothing and other necessities of life.

"The question of the rehabilitation of the crippled involves not only surgical operation and the provision of artificial limbs, but also massage, exercise, physical therapeutic methods, occupational treatment and the finding of a position in which the crippled person may earn a livelihood despite his disability.

"Not only is the medical profession concerned with research to determine the cause, the method of spread and the prevention of infantile paralysis but also with specific methods of treatment for this and other infectious diseases. The forward looking statesman will be as much concerned certainly with the prevention of crippling as with the treatment of the crippled that are now with us.

"Every statesman since the time of Pericles and more recently of Benjamin Disraeli has emphasized that the first care of the state is the care of the public health; but the problems of health are far different from those of education.

"They concern the individual in an intimate relationship not even slightly approached by educators. The mental aspects of the life of the crippled are just as important perhaps as the physical ones. The ability of an Elizabeth Barrett Browning, of a John Erskine, of a Trudeau or a Steinmetz, indeed, of a Franklin D. Roosevelt, to triumph over their disabilities is an indication of the importance of the mental factors. No doubt the Governor of New York, having all these matters in mind, will take counsel with medical and other specialists in all the fields concerned in working out his plan."

WHEN TO PROTECT THE CHILD AGAINST THE INFECTIOUS DISEASES

Here are the ages at which it is best to give preventive treatment against the infectious diseases of childhood, according to *Hygeia*:

"The first vaccination against smallpox is best performed between the ages of four months and six months, provided the child is in good health.

In case the baby has any abnormal condition of the skin, such as eczema, it is best that vaccination be postponed until the condition is brought under control.

"Vaccination during infancy or early childhood generally causes less disturbance than does a first vaccination at a more advanced age. Autumn and winter, the cool months of the year, are preferable for vaccination, as secondary infections are less likely to occur than during the warm summer months.

"Toxin-antitoxin for the prevention of diphtheria is best administered at about one year of age. It must be remembered that it requires as a rule from four to six months before complete immunity is established following the toxin-antitoxin treatment.

"If the child has recently had a successful vaccination against small-pox, the diphtheria preventive (toxin-antitoxin) treatment may be started as soon as the vaccination scab has dropped off. In giving toxin-antitoxin the season of the year makes little difference.

"For the prevention of scarlet fever, five hypodermic injections of toxin at weekly intervals are recommended. This treatment may be given at any season of the year. If successful vaccination against small-pox has recently been performed, the protective treatment for scarlet fever may be undertaken as soon as the scab has dropped off.

"If the diphtheria preventive has been given the child, it is probably preferable, under ordinary circumstances, to wait six months before beginning the scarlet fever toxin injections.

"If it is possible to make a choice in regard to the age of the child, when giving the scarlet fever preventive, the second year of the child's life is a good time to select.

"In the presence of an epidemic or a threatened epidemic, the application of any one of these protective measures is recommended."

TREATMENT OF LEPROSY

The following remedies were used at the "National Leper Home" (United States Marine Hospital) Carville, La., during the year 1928, according to a report of Surgeon O. E. Denney, of the United States Public Health Service:

"Among the antileprosy remedial agents used in this hospital, crude chaulmoogra oil has continued to occupy first place. The irritating properties of the crude oil which, when continued for months and years, have discouraged most patients, have been overcome by the introduction of benzocaine into the crude oil. The satisfactory results, a preliminary report of which has been published, have been continued, and at present 160 patients are taking biweekly intramuscular injections of benzocaine-chaulmoogra oil. The average dose is five cubic centimeters at each injection. The majority of the patients show satisfactory improvement.

"Mention has also been made of the use of benzocaine with chaulmoogra oil in oral administration to counteract the emetic effect and gastric irritation associated with the oral administration of chaulmoogra oil to some

patients. This method of administration is being continued with very satisfactory results. Nearly all patients who were unable to take the crude chaulmoogra oil are taking it in this form with no complaint from gastric disturbance.

"During the year, a series of foreign proteins have been used experimentally in the hope that the reaction provoked by them might exert a favorable influence on the course of leprosy.

"The proteins included hirudin, heparin, and avlan, a lactalbumin. Of these, hirudin may be said to provoke a definite reaction, while the avlan and heparin have failed to show anything definitely or constantly positive.

"In one case in which hirudin has been used (the only patient on this drug who has persisted in treatment up to the present time) the patient shows a very marked clinical improvement, though still bacterioscopically positive.

"Recently glandular extracts have been given by mouth to a series of cases. The glands selected included the thymus, ovary and thyroid.

"One patient on thyroid extract has improved remarkably, though the improvement can not be positively attributed to the treatment, as the patient was in an improving phase of the disease when treatment was commenced."

—"The National Leper Home," Carville, La.

(O. E. Denney; Public Health Reports, Vol. 44, No. 10, page 529.)

ANOTHER VACCINE FOR TUBERCULOSIS

The following vaccine has been used by S. Mallannah, of Deccan, India, in the treatment of phthisical patients who expectorate tubercle bacilli in the sputum. He claims that after several injections of the vaccine "The germs in the sputum are not only decreased in number but become thinner and shorter and ultimately become highly granular until they disappear from the sputum. Physical signs in the chest gradually clear up if the case is not far advanced".

The sputum of the particular patient is collected in a sterile, wide-mouth glass stoppered bottle and then an equal volume of carbolic acid solution (5 per cent) with distilled water is added. The whole is well shaken and heated in a water bath at 60°C. for an hour on three consecutive days. It is then treated with an equal volume of chloroform and ether for an hour, while shaking the bottle well all the time. The supernatant fluid after removing chloroform and ether is taken and sterile vaccine bulbs of l. c. c. capacity filled with it and sealed. These bulbs are heated in a water bath at 70°C. for an hour on three consecutive days.

The emulsion thus treated and purified is a clear opalescent fluid and is free from living germs. When injected into a healthy rabbit it produces no local reaction or rise of temperature and it is harmless.

I have named the vaccine "phthisin", states Dr. Mallannah, in

order to distinguish it from tuberculin, and it differs from tuberculin in the four following points:

1. It is an auto-vaccine of tubercle bacilli derived from the patient.

2. It also includes auto-vaccine of other organisms of the mixed infection which may be present in the patient.

3. Tubercle bacilli are here defatted and hence they are easily attacked by the phagocytes and body fluids of the patient.

4. As the vaccine contains inflammatory exudate, there is a probability of the existence of anti-tuberculin in it.

This vaccine when injected subcutaneously into a phthisical patient produces no reaction or rise of temperature, but on the other hand it reduces the existing temperature. This decline of temperature lasts for three or four days and patients feel relieved for the time being. Injections (beginning with $\frac{1}{2}$ cc. and gradually rising to 1 c. c.) are given once a week.

—(S. Mallannah: A Vaccine for the Treatment of phthisical patients, etc., *The Indian Med. Gaz.*, Vol. LXIV, No. 4, p. 198.)