

MEDICINE

World Polio Conference

Scientists attending the Fifth International Poliomyelitis Conference in Copenhagen discussed the merits of killed versus live polio vaccine, Tove Neville reports from Denmark.

Newborn Babies, Protected From Polio, Can Lose Immunity if They Are Given Vaccine

► INFANTS protected against polio at birth from antibodies due to their mothers' immunity may lose their protection when given polio vaccine shots, Dr. Gordon Brown, professor of epidemiology of the University of Michigan School of Public Health at Ann Arbor, told the Fifth International Poliomyelitis Conference at Copenhagen.

He said these studies as well as those of other workers in the field suggest that serious consideration should be given to delaying polio vaccine injection of infants until their passive immunity to the disease has reached a very low level or has disappeared entirely.

It has been known for some time that newborn babies are protected for several months from polio through their mothers' immunity, Dr. Brown said. However, recent studies of two- to four-month-old babies showed that most babies who had detectable antibodies and, therefore, immunity, before the first injection failed to show any added immunity when given a

multiple vaccine against polio, diphtheria, tetanus and whooping cough.

In fact, many of the babies showed decreased immunity after three injections, some to such an extent that no antibodies could be found at all.

When infants also showed immunity to diphtheria, tetanus and whooping cough, the same pattern of suppression of existing immunity upon vaccination observed for polio immunity was found for the other diseases.

Dr. Brown said babies who had no immunity before vaccination developed antibodies and immunity from the vaccination, proving that the vaccine was effective for this age group.

Since older children and adults respond well to vaccination although they already have produced antibodies, Dr. Brown said the conclusion can be drawn that the question is not whether antibodies are present or not, but whether they are actively produced in the body or passively acquired as in the baby from the mother.

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Live Vaccine Could Attack Unprotected Unless Whole Population Is Vaccinated

► THERE IS RISK in using live polio vaccines unless the whole population of an area is vaccinated, Dr. Svend M. Clemmesen, Danish member of the International Poliovirus Congress, said at the Fifth International Poliomyelitis Conference in Copenhagen.

Harmless live virus, in passing from one person to another, might become dangerous, he suggested. Unless all or most of a population were vaccinated against polio, the dangerous forms could attack the unprotected.

The live vaccines were developed by Dr. Albert B. Sabin of the University of Cincinnati, Ohio, and Dr. Herald Rea Cox of the Lederle Laboratories in Pearl River, N. Y. The vaccines are taken orally.

The developer of the older, killed virus vaccine, Dr. Jonas A. Salk, director of the Virus Research Laboratory of the University of Pittsburgh School of Medicine, said, however, that his vaccine is as effective as the live vaccine—it is just a question of making the vaccine strong enough. He also said he believes that immunity can be achieved with one shot of his type vaccine. Three are usually given.

But Prof. M. P. Chumakov, director of the Institute for Poliomyelitis Research of the Academy of Medical Sciences in Mos-

cow, said the live virus must be accepted for mass vaccination in order to eradicate polio as an epidemic disease. He said he considers the Sabin strains of live vaccine completely safe.

Dr. Georg Henneberg, director of the Robert Koch Institute in Berlin, reported that the live vaccine was given in West Berlin because the population there does not like injection-type vaccination and because an epidemic was expected in the area.

The live strain used in Berlin was the Cox vaccine. Dr. Henneberg reported three types of reactions, which he said had been termed interference reactions.

1. On the first day only there were headaches, fever in some cases, diarrhea.

2. Three to five days after vaccination there were pains in limbs, diarrhea and symptoms of tonsillitis, appendicitis and colds.

3. Nine to 13 days after vaccination there were neuromuscular symptoms such as those occurring in neuromuscular diseases.

However, part of the batch of vaccine used in Berlin was used elsewhere without resulting in these reactions.

Dr. Henneberg said that about the time of the vaccination, 48 cases of polio occurred in the area. Some occurred among those in contact with the vaccinated.

However, Dr. Sabin reported to the conference that not a single case of polio had occurred in Cincinnati and Rochester, N. Y., where 180,000 and 150,000 children, respectively, had been vaccinated with the Sabin-strain live vaccine.

Dr. Sabin said he could not understand why more time was needed for trials, since it had been shown that the live vaccine creates a resistance to polio.

The use of the live virus is most difficult in subtropical and tropical climates, Dr. A. M.-M. Payne, director of Communicable Diseases at the World Health Organization in Geneva, reported. In Leopoldville in the Congo, vaccination resulted in only 35% immunization, which is hardly satisfactory.

Dr. Payne said that the live vaccine can be concluded to be safe for small children, and that the safety for older children will be confirmed. Certainty of its safety for adults must wait until more data is available, he said.

Since 1957 England has had progressively fewer polio cases, Dr. C. H. Stuart-Harris, professor of medicine at the Royal Hospital in Sheffield, told SCIENCE SERVICE. The vaccine used in England has been the Salk type. He said that Salk-type inactivated vaccine is likely to be used exclusively in England. The vaccine is available under the National Health Service.

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Polio Immunity Possible In One Shot, Salk Says

► IMMUNITY against poliomyelitis should be possible with just one injection of killed polio virus vaccine, Dr. Jonas E. Salk of the University of Pittsburgh School of Medicine told scientists at the Fifth International Poliomyelitis Conference in Copenhagen.

The number of shots needed for complete immunization depends on the potency of the vaccine. Dr. Salk said past vaccinations show that, in some cases, complete immunization was achieved with only one shot.

General rules for the behavior of killed virus vaccine have been found by analyzing experiences with the vaccine during the last five years.

Dr. Salk said that more shots were needed in cases where the vaccine was not so potent. In the United States immunity has been 90% to 92% effective after two doses and 96% effective after three doses. In other countries, the killed virus vaccine has been 95% to 99% effective after three doses.

There is no known decline in immunity after six years, Dr. Salk said, although such permanence was not expected. Shortly after the vaccine has been given, immunity is very high. Then it levels off, and so far the level of immunity has not declined. The immunity had been expected to drop.

Dr. Salk said that the cost of the killed virus vaccine should not be a limiting factor in using the vaccine.

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(Other polio stories on p. 109)

Henry Cecil Spencer and Ivan Leroy Hill—*Macmillan*, 86 p., illus., paper, \$4.50. Compact workbook, covering basic fundamentals, presenting problems that are thought-provoking rather than requiring much routine drafting.

THE TRUE BOOK OF ANIMAL HOMES—Illa Podendorf—*Childrens Press*, 48 p., illus. by John Hawkinson, \$2. Shows youngest readers where different animals live.

UNDER THE DEEP OCEANS: Twentieth Century Voyages of Discovery—T. F. Gaskell—*Norton*, 240 p., illus., \$3.95. Chief scientist of British oceanographic expedition gives non-technical account of seismic prospecting, the Moho, deep sounding and deep drilling, seabed sediments and wandering continents.

THE WEATHER OF OREGON—Fred W. Decker—*Oregon State College*, 40 p., illus., paper, 50¢ direct to publisher, Corvallis, Ore. Outlines some of the interesting facts about the causes of Oregon's weather.

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MEDICINE

Germans to Get Multiple Shots of Vaccine

► BEGINNING this fall, West Germans will begin to receive multiple shots of polio, tetanus, diphtheria and whooping cough vaccine, Hans von Behring of Behringwerke AG, Marburg, West Germany, said at the Fifth International Poliomyelitis Conference.

The multiple shots are expected to give immunity in one to two shots, Mr. von Behring said. He said that only 25% of children between three and six years of age are vaccinated against polio, and only six to seven percent of the West German population was immunized during the last two years.

Mr. von Behring said the West Germans are not as eager to take the vaccine shots as persons in other countries. The West Germans have to pay for the shots whereas many other European populations receive the vaccine free.

Mr. von Behring's father, Emil von Behring, discovered the passive serum treatment of diphtheria for which he received a Nobel Prize in 1901.

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MEDICINE

Polio and Tetanus No Threat to Newborn Baby

► POLIO and tetanus are not diseases dangerous to a newborn infant as a rule, Dr. Pierre L. Lepine of the Pasteur Institute in Paris told the polio conference.

Dr. Lepine said that diphtheria and whooping cough are much more dangerous for the newborn. He said that protection of the infant could be achieved by giving one shot at birth for diphtheria and whooping cough; smallpox vaccination at the age of six months; after that tetanus and polio; and later the booster shots.

He said that the Pasteur Institute has experimented with multiple vaccine shots for some time, and that polio vaccine as well as vaccine for tetanus, diphtheria and whooping cough has been found to stay usable when mixed.

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PSYCHOLOGY

Test Predicts Success

► INK BLOTS, in the hands of a psychologist, can be used to predict whether a man will be a success or a failure as a business executive, Dr. Zygmunt A. Piotrowski of the Jefferson Medical College of Philadelphia indicated to the International Congress of Psychology in Bonn, Germany.

The blots can also help predict whether a man will be a criminal.

Dr. Piotrowski used the famous ink blot test developed by the Swiss psychiatrist Hermann Rorschach in his predictions. The extent to which a person is inclined to look at the pattern of a blot as a whole (his W score) rather than to pay any attention to small parts is significant for predicting whether he will be successful as a high-ranking executive.

The average W score of men who reach the vice presidential level and then fail is a little over 10, Dr. Piotrowski found in a study of 50 top ranking executives. This score of 10 is about the average W score to be expected from a group of adults with superior intelligence.

Highly successful executives—those who kept advancing in power and achievements—averaged nearly 18 in W score or nearly twice as high as the high executive who failed at the top level.

Perhaps the most important clue to potential behavior is what the psychiatrist calls a CR (color response). The individual makes a color response when he pays attention to the color that appears on some of the Rorschach cards.

He may, for example, point to a squiggle in one corner of the card and say, "That looks like a caterpillar." If pressed for his reason why, he may say, "Because it is green." That is a color response.

Color responses measure emotions and the desire to associate with or separate from others. If an individual produces no CR he is assumed to be emotionally flat or indifferent.

Color responses can be positive or negative, indicating attraction toward others or repulsion. If a person sees such wholesome objects as landscapes, flowers, fruit, warmth giving (controlled fire), he is giving positive color responses, an indication that he is drawn toward others.

If the color on the blots makes a person think of blood, anatomical slides, wounds, burning houses, an explosion, etc., he is giving negative CR that (unless he is a surgeon or medical student) predicts he will withdraw from others.

Dr. Piotrowski described another test which might be used to predict behavior, especially anti-social or aggressive delinquent

behavior. The Hand Test consists of nine cards, each containing a picture of a human hand in a position different from those on the other cards. The person tested is asked to tell what each of the hands might be doing.

The tenth card is blank and the person tested is asked to imagine a hand for that card and then to talk about it.

The test is scored as follows, according to what is seen:

1. Aggressiveness—if the hand is seen as hitting.
2. Directing—if the hand is seen as giving signals as a traffic policeman.
3. Fear—warding off aggression, self-protection.
4. Affection—if the hand is seen as reaching out in a friendly way.
5. Communication—getting ideas across to others, emphasizing a point.
6. Activity—hands performing skillful mechanical work.
7. Submissiveness—calling for help.
8. Passivity—no action, "waiting for finger nails to dry."
9. Exhibitionism—attracting attention to oneself.
10. Crippled hands—hands deformed or diseased.

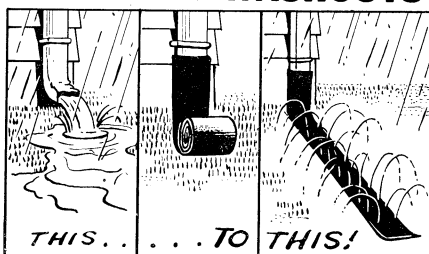
Scores on this test were found to distinguish between prison inmates and normal individuals, between prison inmates and indigents, and between normal individuals and withdrawn mental patients.

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