

MEDICINE—PUBLIC HEALTH

Battling a Plague

Scientists, Liberally Financed From President's Ball, Seek Protective Vaccines, Sprays, and Immunity Tests

By WATSON DAVIS

NEVER before did men fight a disease plague with such planned scientific determination.

Never have two score disease fighters, good, careful and unemotional scientists, all of them, banded together so closely and yet so independently to learn all they could about a human ill—and perhaps to conquer it.

Never has a birthday done so much to make safer the lives of the little children of years to come.

It is Jan. 30, 1935. Music, dancing, gay young couples and distinguished men and women—it is a ball, festival of rejoicing to honor the President of the United States on his birthday—but more important a rally to fight a plague. F. D. R. has known and overcome infantile paralysis. No better birthday present to him could be imagined than provision of support for the fight upon infantile paralysis.

So after the ball was over, there was a war chest—not just funds for the careful nursing and reconditioning of bent bodies back to health, not just support for the hospital at Warm Springs, Ga., and dozens of similar local human repair shops—but money for research.

Dollars where pennies were lacking before—thousands of dollars and each dollar perhaps to save a life of a child yet unborn. It was \$241,000—thirty per cent. of the President's Birthday Ball proceeds. Dollars that meant crucial experiments could be made promptly and on a wide scale.

Militant Band

A militant band came into existence—a group of leading medical researchers marshalled by Dr. Paul de Kruif, bacteriologist-writer, he of "Microbe Hunters," and steered by an advisory medical committee consisting of Dr. George W. McCoy of the U. S. Public Health Service, chairman, Dr. Max B. Peet of University of Michigan, Dr. Donald B. Armstrong, of Metropolitan Life Insurance Company, and Dr. Thomas M. Rivers of Rockefeller Institute for Medical Research—disease fighters all. And Jeremiah Milbank,

well-known philanthropist, is acting chairman of the Research Commission.

Back of "The President's Birthday Ball Commission for Infantile Paralysis Research" is the Georgia Warm Springs Foundation itself with President Franklin D. Roosevelt as president; Keith Morgan, Equitable insurance executive, as vice-president; and Basil O'Connor, formerly President Roosevelt's law partner, as treasurer.

Money, hard work, imagination and enthusiasm do not necessarily assure the conquest of a disease. Scientists may work for years and not produce the preventive and curative measures that are so earnestly needed and desired. So the renewed attack on infantile paralysis that began in 1935 was made hopefully but with no guarantee of success.

The scientists knew that it was an infectious disease, but exactly how and why were riddles. They knew that if experimental animals could be protected, then there was a chance that the method would be safe and simple enough to use in combatting the epidemics that every year threaten our children.

Vaccine?

In fact, distinguished investigators brought forth evidence that vaccines prepared from the virus would protect experimental animals. Should they be tested on little children? That was the first great decision of the anti-polio campaign.

Vaccination prevents smallpox, typhoid fever is not contracted by those who have anti-typhoid inoculations, and there is successful immunization against diphtheria.

It was only logical to hope to develop similar protection against infantile paralysis. And over a period of years scientists had been working toward that goal when the President's Birthday Ball Commission of the Georgia Warm Springs Foundation began to finance the research on this disease on a more adequate scale in 1935 than ever before.

There were many riddles and much divergence of opinion.

Would a vaccine made from the virus, unseen and unknown because its size is beyond the reach of the microscope,

protect monkeys, only experimental animals that will contract the disease? Yes, said two groups of experimenters, and we are ready to immunize children.

Hold on, said other equally reputable scientists, infantile paralysis attacks relatively few children in a given community. It would be wasteful to vaccinate all of them. And for some reason entirely mysterious the bulk of the children, even young children, are naturally immune to this plague. Perhaps we can find some way to put our fingers upon endangered children and then immunize them if we find out how.

Actual Trial

There was an epidemic in 1935 and experimental protective vaccines were deemed ready for human trial by their protagonists. Two sorts were used rather extensively. One, the Park-Brodie vaccine, was given field trials in epidemic areas with the financial support of the President's Birthday Ball Research Commission.



ANCIENT

An important official family of sixteenth century Virginia—as the society page might say—is pictured here. They are the wife and charming daughter of Chief Pomeoc painted by John White for Sir Walter Raleigh. Note the Elizabethan doll with feathered hat carried by the little Indian girl.



MODERN

Miss Nellie Courtney, who is "one-half Kiowa Indian," examines one of the finer portraits in the Smithsonian's historic collection of painted Indians. The big chief with the pipe is *Touch the Cloud*, a Sioux, painted by Henry Ulke in 1877.

The vaccines did not do what was expected of them; they did not protect. Here was "negative knowledge." Scientists, good scientists, are quick to drop even pet projects when seemingly good ideas, careful work and high hopes are proved wrong. Enormous time, energy and money have been wasted in many fields of medical science by the perpetuation of use of various erroneous remedies and alleged preventives not subjected to critical scrutiny of other workers.

Inside a year research decks were cleared for new research. Grantees of the Commission, checking the original work, were unable to support the claim that formalinized vaccine protected monkeys or produced immunity in their blood. And the unvaccinated children of the 1935 North Carolina epidemic produced virus-neutralizing substances about as fast as the vaccinated.

Still Hope

Does that mean there is no hope of immunizing against infantile paralysis? Not necessarily. Dr. Sidney D. Kramer of Long Island Medical College, for instance, has a treatment that makes monkeys, normally 100 per cent. susceptible to the disease, immune. Half to three-quarters of those treated are protected. It is a very simple spraying of the nose

with a mixture of a pituitrin extract, ephedrine and adrenaline. And he is working also with a vaccine, an ingenious mixture of virulent virus with a serum that holds the paralyzing, fatal activity of the virus in check. These may be the solution. Tests will tell.

Chemical warfare is the present hope of preventing infantile paralysis. Nose and throat specialists are spraying noses with a chemical, zinc sulphate solution, to blockade the path of the submicroscopic marauders through the nerves of smell to the spinal cord and brain where they produce paralysis and sometimes death.

Immunization attempts had failed, both the earlier treatment with so-called immune blood serum and the later vaccines made from the virus. Probably one of the troubles was that the infantile paralysis virus lives in and destroys nerve tissue. It cannot be reached through the blood. Two research groups, one consisting of Dr. Maurice Brodie of New York City and Dr. Arthur R. Elvidge of McGill University, the other of Drs. E. W. Schultz, Harold Faber and L. E. Gebhardt of Stanford University, had demonstrated that it is through the delicate, hairlike endings of the nerves of smell high in the roof of the nose that virus invades the victim.

On two sides of the continent, quite independently, two investigators—Dr. Charles Armstrong of the U. S. Public Health Service at Washington, D. C., and Dr. E. W. Schultz at Stanford University, Calif.—hit upon the same idea. Would a simple, safe chemical applied to these nerves of smell protect the monkey or child against the disease?

Chemical Experiment

It did, in monkeys. Both found that alum or tannic acid would do the trick. Then both—and working independently still—found picric acid was even better. Dr. Armstrong and Dr. W. T. Harrison used the picric acid spray in the human epidemic in Alabama, Mississippi and Tennessee in the summer of 1936. And last winter and autumn Dr. Schultz searching for a chemical, better, conferring longer protection, and if possible less irritating, discovered that weak solutions of zinc sulphate sprayed in monkeys' noses conferred almost 100 per cent. protection against overwhelming inoculations of otherwise fatal infantile paralysis virus. And the protection lasted one or two months, not just a few days.

The experience resulting from the use of Dr. Armstrong's picric acid-alum preventive used in the South's 1936 epi-

ETHNOLOGY

Material In Museum For Gallery of Indian Art

THERE'S the makings of a national gallery of old American portraits at the Smithsonian Institution in Washington.

In other words, Indian paintings—hundreds of historic portraits—are scattered around the walls of curators' offices or stored carefully away. A few weeks ago, Herbert Krieger, curator of ethnology, selected a couple of hundred choice specimens, and made up an exhibit, so the streams of tourists who drift through Washington can get an idea of what a real Indian art gallery would be like.

First European artist who went in for Indian portraits was John White, who was told by Sir Walter Raleigh to make records of the strange natives in the Virginia colony region. White's pictures are treasured by the British Museum. The Smithsonian once had a painter copy them, and is almost as proud of the fine copies as if they were originals.

White was a better observer than artist. He once painted an Indian with two right feet.

Whatever you think of White's art, you can learn a lot about old-fashioned Virginia and Carolina Indians from his portraits. On many occasions, these Indians wore more paint than clothes, and White shows how varied were the body decorations. Looking at his pictures shows you why museum curators find it hard to be helpful when some historic-minded person writes in anxiously to say he is going to be an Indian in a southern historic pageant, and what should he wear.

Most prolific of historic Indian painters was George Catlin, whose brush recorded 3,000 figures, in portraits or scenes. The Smithsonian has 550 original Catlins.

An extraordinary person, George Catlin early in the eighteenth century grew so interested in Indians that he left his law office, his books, and his wife and set out to paint nothing but Indians. Journeying by canoe and packhorse, he got around the Plains country and the Great Lakes region and other Indian haunts, and managed to paint 48 different tribes.

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demic was encouraging. There was evidence that mass sprayings by mothers and fathers, certainly not skillful or positively protecting, nevertheless caused an

apparent decrease in the cases occurring.

With a more effective chemical and with more knowledge of how the spray should be applied, there is hope that the preventive treatments are saving many more children this year. One thing is certain from research by Dr. Max M. Peet and his associate at the University of Michigan. The spray must be applied by experts so that it reaches high in the nose so as to block the nerves of smell. It is no job for an amateur or an ordinary nasal atomizer.

So temporary, epidemic protection against the dread polio may have been achieved. The tests are not yet complete, but the prospects are good for success. A year or two should tell.

Meanwhile the fight goes on, unabated. There are so many questions still unanswered.

If physicians could sort out by some sort of simple test those children who are susceptible to infantile paralysis from those who are not, the fight against this disease would be made more effective.

The Schick test is used upon thousands of children annually to tell whether

they need to be protected against diphtheria or whether nature has already done it. A similar test in the case of infantile paralysis is the goal of one of the many researches supported by the President's Birthday Ball Commission for Infantile Paralysis Research.

As a first step toward this objective Dr. Joseph Stokes, Jr., of the University of Pennsylvania is hard at work at the chemical "purification" of the virus, that is, he is freeing it from nerve tissue of monkeys which at present is the only source from which experimenters can obtain it. The presence of the monkey nerve tissue would obscure any skin test that might be attempted on children. Pure virus promises to be the first step toward a susceptibility test.

Immunity a Puzzle

Another problem is just why children are susceptible. Dr. W. L. Aycock of Harvard, a grantee from the same fund, has boldly questioned whether the so-called immunity of the blood, long a test used medically, really has anything to do with human resistance to this plague. Evidence has accumulated in the past two or three years that the disease's

virus lives and propagates in the nerve tissues, not affecting the blood.

Glands may be a vital factor in protection. Dr. Aycock found that castrated monkeys, with their sex, pituitary and other glands upset, have thinner mucous membranes of their noses, making them easier to infect. Gland preparations may aid protection in both monkeys and men.

A little cloud on the research horizon arises because there seem to be several kinds of infantile paralysis virus. The epidemics of 1934-5-6 in California were of a milder disease than those in the East and Europe. But scientists suspect that it is also more contagious, more easily passed from victim to victim. This is suggested in experiments by Drs. John Paul and James D. Trask of Yale University Medical School.

This is alarming, but what is even more worrisome is that this virus can be passed from one monkey to another by simply injecting it into the skin. Should this hold, too, for human beings, with new viruses in future epidemics, what then would become of the hopeful protection by spraying chemical solutions into noses?

It would help greatly if the virus could be grown outside the animal body the way visible germs are cultivated. Now the only source of the virus is the nerve tissue of dying monkeys. Already Dr. Peter Olitsky at the Rockefeller Institute has propagated the dangerous agent in the nerve tissue of human embryos. With financial support of the Commission, two other research groups, those of Dr. Karl F. Meyer of University of California Medical School and Dr. Paul Clark of University of Wisconsin Medical School, are also tackling this problem.

May Not Be Alive

The virus may prove to be a chemical and not a living germ, or some strange bridge between the two, such as other viruses seem to be.

Such fighting against this disease must be continued for the sake of humanity. The President's Birthday Ball of 1935 has kept research underway in many centers. And the fight is only beginning.

The scientific battle against infantile paralysis must continue. Funds must be provided to allow the scientists to work at full capacity. Perhaps President Roosevelt will have to have another birthday.

To medicine's progress, the present campaign points a method that can be applied to research upon other diseases, such as cancer, syphilis, or the blood pressure disease. Planning boards could be set up to serve, inform and coor-

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dinate medical research workers in these fields just as the Infantile Paralysis Research Commission has drawn together, without invasion of individual initiative and enterprise, nearly all infantile paralysis research, whether financially supported by them or not.

Continuation and extension of the research upon infantile paralysis is indicated by President Roosevelt's recent announcement of a new National Foundation for Infantile Paralysis to be formed shortly.

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ARCHAEOLOGY

Seek Virginia Indians Older Than Known Tribes

THE ancient history of Virginia is proving hard to write.

Most of it is so far lost that archaeologists are assembling it from small puzzle pieces, indeed—such things as fragments of pottery and stone tools. These scraps, however, interpreted by experts, are bringing to light the real “first families of Virginia,” and may eventually show where they hailed from.

A good deal of attention is being given to the archaeology of this historic state by David I. Bushnell, Jr., of the Smithsonian Institution. Mr. Bushnell roams hills and fields of the state to examine sites where Indians once had flourishing villages.

He has just published a report on sites below the falls of the Rappahannock, where lived Algonquian Indians who knew Capt. John Smith and his Jamestown colonists. Some of the Indian villages on Smith's famous 1624 map of Virginia can be identified with more or less certainty.

These interesting Algonquians, Mr. Bushnell points out, were far from being the earliest Virginians. On the ground at their deserted camp are relics of several periods of occupancy. Most of this material seems to be from Indian trash heaps, which white settlers scattered when they pushed their plows over the ground.

Carefully salvaging the fragments of Indian existence, Mr. Bushnell finds imprints of cloth and netting on clay bowls—showing types of textiles these tribes made. He studies types of stone knives skilfully flaked, and styles of pottery used in early Virginia housekeeping. Some objects he assigns to earlier eras than others.

Underground may still be hidden the foundations of houses and also burials, perhaps in levels indicating their ages.

There may be some thousands of years of human existence to account for, before the story is done, for the Rap-

pahannock's left bank has yielded one Folsom-type dart point, and in western states the hunters who made this kind of stone weapon are rated as having roamed some 10,000 years ago.

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GEOGRAPHY

Vikings Rivalled Chinese As Compass Inventors

VIKING navigators, who explored and settled in North America four centuries before Columbus, and left their sagas to intrigue and stimulate him in his dreams, may also have been the inventors of the mariner's compass that guided him across the ocean. This is the opinion of a Berlin geographer, Heinrich Winter, who has been making a search for medieval manuscripts for mentions of the use of the magnetic compass.

Herr Winter discounts the commonly accepted story that the compass was first invented by the Chinese, then passed by them to the Arabs, and learned from the Arabs by navigators of Amalfi, in southern Italy. Arabian mention of the compass, he states, is later than a number of references in the medieval literature of western Europe.

There is at least one definite mention of the compass as early as the middle of the thirteenth century, and numbers of references in the fourteenth. Even the phenomenon of compass variation with change in longitude, which terrified Columbus' sailors, was known in the fourteenth century, declares Herr Winter, adding that it was mentioned by the English poet Chaucer in 1380.

The earliest type of compass was simply a piece of natural magnetic iron ore enclosed in a small box and floated in a basin of water. This magnetite compass was called a “leidarsteinn” by the Norsemen. This word is cognate with early English “lodestone,” and means the same thing—a stone that leads or guides. An-

other Norse name for it was “sejersten,” which means “sailing-stone.”

Herr Winter believes that Norse sailors brought their invention south with them. There was a Norman Kingdom of Sicily in the Middle Ages, which could serve as a contact-point for exchange of information between the men of the North and the seafarers of Italy.

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ss.
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