

# From The Encyclopedia of Common Diseases

## Section 53, Polio

by J.I. Rodale, Editor in Chief,  
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### Treatment of Polio Victims

Like it or not, the polio figures have been rising and, of course, with the incidence of the disease, comes the need for treatment and rehabilitation of the victims. In the earlier days, polio victims had their affected limbs splintered and bandaged into complete immobility until, even if there were a return of muscle power, the function had been partially or completely lost by atrophy of the limb. With the treatment devised by the gallant and forceful Australian nurse, Sister Kenny, a new attitude toward polio-paralyzed limbs was adopted. She proved that action, not immobility was the key to bringing affected arms and legs back to usefulness. Massage and whirlpool baths, etc., all aimed at the patient's earliest possible attempt to use the affected part, became standard procedure in the treatment of paralytic polio. As a result, the National Foundation reports that, of every 100 new cases: 50 recover completely, 30 are left with some muscle weakness, but not enough to interfere with normal life; 14 have more or less severe paralytic involvement; and 6 die.

Dr. George Boines, whose article on the subject appeared in the Virginia Medical Monthly (June, 1956), told of how he improved on the recovery rates given above by using a unique course of treatment which includes:

1. early ambulation,
2. muscular relaxation,
3. controlled and prolonged medical observation to attain maximum recovery and function of neuromuscular power still retained,
4. special nutritional program. As can be imagined, we were especially concerned with the final part of the program-special nutritional program.

### Polio Presents Added Nutritional Needs

Dr. Boines believes that the problem raised in the body by polio is a, disturbed nutritional absorption by the muscles and a loss of protein. He feels that both of these conditions can be remedied by improved diet and supplementary feedings. Dr. Boines even suggests that susceptibility to polio may be the result of the shortage of protein. As he sees it, the fundamental defenses of the body depend upon the presence of antibodies in the tissues and body fluids. The antibodies are protein, so if the protein intake goes down, the number of fighting antibodies is lessened and the chances for infection increase.

If the disease should strike, the protein situation becomes even worse. A negative nitrogen balance occurs with the usual high fever, and this results in a waste of the body's protein - the worse the infection, the greater the protein destruction. Now, with essential protein low to begin with, and further lowered by the fever, it must be replenished as quickly and generously as possible, if recovery is to take place. This will not occur on a regular diet. A special effort must be made to insure sufficient protein intake.

## General Diet Inadequate

Dr. Boines believes it is necessary to institute a nutritional program as soon as the patient is admitted to the hospital. Even if he is too weak to eat, the protein and glucose are poured into him intravenously. At this stage, the shortages are most acute and the body is in its most desperate need of continuing nourishment to arrest weight loss and to restore the size and strength of muscles. It is alarming to note that Dr. Boines is of the opinion that the general diets in hospitals are often inadequate in protein for any patient. They definitely do not furnish enough protein to supply a polio patient's needs, so supplementary protein must be furnished. If we cannot depend upon an adequate diet in a hospital, where can we expect to find such a diet? "Adequate" protein is not enough when one is so ill as to be hospitalized, for then the body needs super amounts of all nutrients just to "keep up." And what of the polio patients whose doctors are not conscious of the need for extra nutrition? If they must subsist on the general hospital fare, how much is their recovery hampered? How much do they lose in the process due to insufficient nutrition supply?

## The Importance of Capillaries

Added to Dr. Boine's special interest in a sufficient supply of protein for the polio patient is his concern for the proper condition of the patient's capillaries. This he insures by prescribing a daily dosage of 600 milligrams of vitamin C and 600 milligrams of hesperidin, a bioflavonoid, for each patient. The importance of capillary health is best realized by an enumeration of the functions of these tiny tubes that transport blood between the main blood vessels of the body:

1. They are part of the structure that supports the nerve tissue.
2. They hold the mechanism for maintaining a balance between blood plasma and cerebrospinal fluid.
3. They provide channels for the supply of nutrition and oxygen.
4. They regulate the mechanism for control of the intestinal functions.
5. They are a protective mechanism against disease.
6. They are avenues for the evacuation of dead materials from centers of soreness or infection.
7. They are sources of material for body repair. It is not surprising to find that one researcher has said that an "intact capillary system means a solvent body."

When polio strikes, as with any strong infection, the strength of the capillary walls is found to be diminished. The infection, which is more safely contained in them, tends to "leak" through the walls, attacking the more susceptible nerve cells. Vitamin C and the bioflavonoids have long been known to increase the strength of the capillaries so their use here is strongly indicated.

## Other Polio Theories

In the light of the importance of firm capillary strength in preventing and controlling infection, the theories of several distinguished scientists concerning vitamin C and polio make more sense than ever. C. W. Jungblat in the 1939 Proceedings of the Third International Congress on Microbiology in New York said, ". . . a study of the natural history of poliomyelitis suggests a vitamin C deficiency as one of the chief predisposing agencies. The tissues of the susceptible do not seem able to destroy the virus when it enters as they should." Dr. Jungblat, at another time, remarked that extremely small doses of ascorbic acid (vitamin C) are capable of inactivating many times the fatal dose of polio virus-

two or three milligrams of vitamin C are enough to inactivate 10 to 20 thousand fatal doses of polio virus. Dr. W. J. McCormick has said (Archives of Pediatrics, 69: 151), "There is an unusually broad spectrum of antibiotic action in this therapy (ascorbic acid), including all bacterial and viral infections." H. Scarborough (Edinburgh Medical Journal, 50: 85) says that ascorbic acid helps the vitamin P activity of hesperidin to increase the capillary resistance of man when given by mouth.

Doesn't it all add up to make one wonder if a careful support of vitamin C intake for everyone wouldn't cut down the polio rate without any vaccine? If there is such a thing as sectional areas of polio epidemic in our cities and states, can't it be that these poorer areas suffer, not from a lack of Salk vaccine, but a lack of vitamin C-rich foods and C supplements?

#### Dr. Boines' Record

Dr. Boines has used all this information to good advantage in treating his polio patients. He does not claim that the actual paralysis or permanent stiffness of limbs is decreased by his treatment. However, his methods do improve considerably over what the national statistics would lead one to expect. He has 1/3 fewer deaths among his patients than the expected average and 90 per cent less severely disabled. Only 17 of 474 patients in 8 years have had to use braces or crutches.

Food supplements are given and a check-up on the tray as it leaves the patient's room reveals whether or not they have eaten. If not, they turn up on a special fourth-meal tray. It is considered normal for the polio patient to have a weight loss of 10 to 40 pounds in the first 3 to 6 weeks. Many of Dr. Boines' patients maintain a normal weight, or even gain weight. The added protein and natural vitamin C and hesperidin are continued throughout the hospital stay and into the home life. The family is instructed on how best to prepare high protein foods and warned to withhold sweet drinks and candy from the patient.

It appears that Dr. Boines has a lot of good reference work and logic -not to mention results-to back up his choice of treatment. We can't imagine an excuse for a doctor's following any other. We think that the preventive measures for polio could well be based on Dr. Boines' theories. We hope that the authorities will seriously consider adopting them. You don't have to wait for a national movement, however. You can begin protecting your children right now. See that they get plenty of the protein that forms antibodies to fight infections such as polio. Stuff them with vitamin C-bioflavonoid-rich fresh fruits and vegetables and C supplements. Skip the sweets and sodas. You won't need to depend upon vaccines to protect them. Good health fortified with good nutrition will do the job.

Remember, too, the Sandler diet for preventing polio, which is a diet high in protein in which starches, especially refined starches, are completely eliminated, and even natural foods that are high in starch are restricted.

#### Polio in Primitive Countries

Wrote an Associated Press reporter on September 11, 1954, "Polio was pictured Friday as the great leveler, attacking the highest and sparing the lowest of the world's civilizations. Its incidence rises with the standard of living. It seems to thrive where other diseases fail. Where infant mortality is highest, it is lowest. It probably will continue to advance along with civilization, until some dramatic new vaccine brings it to a halt. "This phase of one of the world's problem diseases was presented Friday to the final session of the Third International Poliomyelitis Congress."

At the same congress, Dr. Rivers, Director of the Rockefeller Institute for Medical Research in New York, said, It is now well known among medical researchers that in primitive countries and in communities where the economic and social levels are low, antibodies against polio appear sooner than they do among the "privileged" children of the higher civilizations and communities. Said Dr. A. M. M. Payne of the World Health Organization, "Until the infant mortality rate falls to about 100 per 1000 live births, the incidence of poliomyelitis is generally below 2 per 100,000. As the infant mortality rate falls from about 50 to 20, there appears to be a tendency for the incidence of polio to increase alarmingly."

In our file on polio, we have some of the most astounding theories you can imagine-for instance, an observation that the paralytic aspects of polio may be much worse after the child has been transported in an ambulance to the hospital. We have theories on whether polio is hereditary, whether it attacks only certain racial groups and other equally nonsensical observations. And now we have the theory that, so long as children are living under the worst possible conditions of bad sanitation and squalor, they will somehow manufacture antibodies to combat polio when they are quite young, and so, will never get the disease when they are exposed it later on. If there is indeed anything to this theory, then we see even less need for the programs of spraying with DDT, which are carried out regularly in many parts of the country as a precaution against polio. We have never heard of any polio epidemic being stopped by spraying with DDT and we have heard of localities where the polio incidence rose after the DDT spraying.

But, to return to Dr. Rivers and Dr. Payne. You see where this line of thinking leads us-if we're just dirty enough and disregard even the basic laws of sanitation; our children will be safe from any threat of polio. Isn't that exactly what they imply in statements such as they made?

Polio Is a "Civilized" Disease.

Disregarding the theory about antibodies being formed in the blood only of children who live in filth, let's consider for a moment the well known facts (for they are well known by now) that children and adults in primitive countries simply don't get polio. And the more civilization they have, the more polio they have. The lower their infant mortality, as a result of wonder drugs and all the marvels of civilized medicine, the higher their rate of polio.

For instance, a letter from a Turkish correspondent in the Journal of the American Medical Association for August 6, 1950, assures us that polio is practically unknown in Turkey. Monthly reports submitted to the Ministry of Health and Social Assistance indicate that there are two or three cases of polio a year in the whole country. There is no evidence that an epidemic has ever occurred there. Medical students never observe the disease in its acute stage and seldom see a patient with recent paralysis. We are told that, in the summer of 1947, the child of a prominent physician, returning from a summer resort in Istanbul was the first patient admitted to the Ankara General Hospital with polio. Remember those conditions-the boy had been away to a summer resort on a vacation.

In Science News Letter for October 4, 1947, we read of a group of university scientists visiting the orient to take blood specimens in an effort to discover why American troops in Japan, India, and North Africa suffered from an increased incidence of polio, while the native populations had no polio at all.

Dr. A. B. Sabin, writing in the Journal of the American Medical Association for June 28, 1947, discusses the same puzzling aspect of polio. Why, asks Dr. Sabin, in the same year,

when polio epidemics are raging in cities like New York, Chicago, Los Angeles and Denver, do Chinese cities occupying the same latitude report only rare, rare cases of the disease?

Dr. Sabin tells how polio occurred among American troops in China, Japan and in the Philippines, in spite of the fact that there were no outbreaks of polio at the time among the native children and adults. In 1954, there were 246 cases of polio with 52 deaths among American troops in the Philippines. There have never been any outbreaks of polio among the native Philippines. For many years, medical magazines have been commenting and marveling on the scarcity of reports of polio among the races living in North China.

### What Civilization Contributes to Polio

Isn't it discouraging how our experts will examine every aspect of the problem except the obvious one that is staring them in the face? They study the climate of Chicago compared to the climate of Shanghai. They study the blood of the children of China and compare it with that of American children. They note with care the number of flies in homes in Shanghai and on the South Side of Chicago. These and countless other angles have been investigated. Why have they never studied the food eaten by the people of these countries and compared it with the food eaten by Americans and Europeans, whether they are at home or abroad?

It's pretty obvious that American troops in all the fighting theatres of the last war ate, in general, the same foods they eat at home-including white bread, refined cereals, white sugar, soft drinks, ice cream, candy, canned vegetables, and all the degerminated, devitalized, refined foods that "civilized" people eat. And the American troops went right ahead consuming their annual 100 pounds of sugar per person. Consumption of sugar in China is 3.2 pounds per person, annually. Why is it that no writers except the "faddists" have pointed out this fact?

What kind of food did the Turkish physician's son have at the summer resort that was different from the food he ate at home? Does it seem far-fetched to believe that, because he was a physician's son, his family could afford to buy him refined and processed food such as the other Turkish children could not afford to eat? What would a survey reveal about the food habits of this boy and those of the other Turkish children who apparently are not susceptible to polio?

We do not believe that the per capita consumption of 100 pounds of sugar annually is solely responsible for the high incidence of polio among Americans abroad and the low incidence of polio among the native peoples in the same countries. But when the Third International Poliomyelitis Congress announces to the world that the higher the scale of civilization, the higher the rate of polio, we believe that the time has come to investigate the part played in such a circumstance by "civilized" food as opposed to the more or less natural foods eaten by people who have not as yet attained our level of civilization.

We suggest that one of the best guarantees against polio is to keep yourself and your family as nearly as possible on a diet, which is not "civilized"-that is, avoid the foods that have been put through the mill of civilized processing. Avoid foods made from white sugar and white flour, canned foods, prepared "mixes," ice cream, bakery products, cold cereals or any cereals that are not completely whole grain. Stick to the natural foods-fresh fruits and vegetables, as many raw as possible, for cooking is actually a form of processing, remember. Eat fresh meats, nuts, eggs, fresh or frozen fish. Even though you live in a civilized country, you do not have to suffer the penalties for that, if you will take just a little trouble to avoid the foods that civilization has turned into health menaces.

## Vitamin A vs. Polio

A very strong case for the addition of vitamin A to the list of elements of health known to be necessary to build up resistance to polio, is presented by Dr. Jose Guadalupe Reyes of New York City in his article in the New York State Journal of Medicine for August 1, 1945. Of 84 children suffering from polio who were admitted to St. Francis Hospital during the epidemic of that year, 98 per cent showed skin symptoms of vitamin A deficiency; and of these, all but two recovered under the proper care and with a well-balanced diet amply provisioned with vitamin A.

Dr. Reyes was especially interested in the skin manifestations of polio because physicians can very often determine what is taking place inside the body as evidenced by skin changes. A science of the various skin conditions would open the way to easier recognition of diseased conditions of internal organs. Addison's disease, for example, in which one or both of the glands located above the kidney is destroyed, produces brown pigmentation on the skin, especially near mucous membrane areas and over the bony prominences. A disease called hemochromatosis, in which metabolism is disordered, produces a bronze shade of pigmentation of the skin occurring at the same time as an enlargement of the liver and changes in the pancreas, a gland producing digestive juices and insulin.

In the cases of polio described in Dr. Reyes' article, the skin disorders were symmetrically located below both kneecaps, over the ankle bones, the arches and on the soles of the feet. These areas were typically horny and appeared as patches of warty elevations or scattered pimples with roughness and dryness on the skin of the legs. They varied in size from a dime to a half dollar and sometimes were covered with fine scales. Children's skin may often show irritation at places where friction is present—where tight clothes or shoes rub the skin, for instance. But these horny and scaly patches resulting from vitamin A deficiency were not to be mistaken for friction skin diseases, even though they occurred in some areas where friction might be present.

Some children even had a horny hardening of lymph sacs under the skin in certain areas such as below the kneecap, on the tops of the toes, especially the big toes, and on the fronts of the hips and the backs of the forearms. These were not of an inflammatory or acne-form type.

Since mucous membranes are also readily affected by vitamin A deficiency, Dr. Reyes expected to find evidences of equal injuries to the internal organs. He was not surprised, therefore, to observe gastrointestinal symptoms such as nausea, vomiting, diarrhea, and abdominal pain in 60 per cent of the cases. Moreover, 5 children had musical rales (a sound in the lung) all over the chest, with a cough similar to whooping cough without the whoop.

Investigations of vitamin A deficiency have revealed the course of the resultant changes in the body beginning with general disturbances and followed by structural changes affecting, primarily, the skin. There is a hardening and shrinkage of the outer layers with excessive multiplying of the basal cells. This occurs in the skin as well as in mucous membranes, such as the under surfaces of the eyelids, the tongue, mouth, nose and throat, the passages of the lungs, the urogenital system and "possibly the whole gastrointestinal tract." The hardening may also take place in the ducts of the mucus or the skin glands, with the formation of cysts or abscesses produced by the blocking of the duct passages. A description of the effects of vitamin A deficiency on the spinal cord and nervous system is given in Sollman's Manual of Pharmacology, indicating that degeneration of the myelin sheaths (or coverings) of surface nerves, especially the sciatic nerve and of scattered areas in the spinal cord, begins several days before other signs of deficiency appear in rats, and increases until the animals die, with muscular weakness, lack of coordination and final paralysis of the hind legs. The progress of this degeneration can be stopped by supplying the deficiency (of

vitamin A). In its effect on the rest of the body, this deficiency makes it easy for bacteria to enter into the deeper layers of the skin and nerves, and hence lowers the body's resistance to infection, since vitamin A is essential for the normal cellular metabolism of the body.

Dr. Reyes suggested that "It may be possible that this modified skin or mucous membrane may be one of the portals of entrance for the poliomyelitis virus, since the vitamin A deficiency has diminished or impaired the normal resistance of these structures. It is now known that this virus is highly neurotropic (nerve-loving) and that it travels mainly in the nerves through the myelin sheath.... Vitamin A deficiency also produces changes in the myelin sheath of the nerves, probably facilitating in this way the destruction wrought by the virus.... The final changes in the nerves, however, may be due to the combination of both factors."

Although vitamin A deficiency may be a factor in many diseases, it seems to have a special connection with polio. Children admitted to St. Francis Hospital for other diseases showed the skin manifestations described above once for every eight polio cases in which they occurred.

Many vegetables and fruits, such as carrots, yellow squash, broccoli leaves, beet greens, escarole, apricots, etc., contain carotene, which is converted into vitamin A by the body. Fish liver oils contain large quantities, in addition to vitamin D. Since the vitamin concentration of the blood depends on the amount eaten, it is good to eat plenty of carotene-bearing vegetables in summer when they are fresh. Vitamin A is fat-soluble; hence, oils and fats favor its absorption, so put plenty of dressing on your salads. Beware, however, of mineral oil, which prevents absorption of vitamin A as well as of calcium.

As Dr. Reyes recommends: "Routinely, a diet rich in vitamin A should be administered to all children, especially during the periods of epidemics, and this diet should be supplemented by cod liver oil." Rose hips are rich in vitamin A as well as vitamin C—they contain about 25 times as much vitamin A as oranges contain. So keep rose hip powder, syrup or puree on hand.

## Infantile Paralysis and Vitamin B Deficiency

By W. J. McCORMICK, M.D.

### Early History of Infantile Paralysis and Sleeping Sickness

During the last century, two modern diseases, poliomyelitis (infantile paralysis) and encephalitis (sleeping sickness), have made their appearance in epidemic form in civilized countries.

Epidemic poliomyelitis was first reported by Heine, a German orthopedic surgeon, in 1840. Epidemic encephalitis was first reported in 1917, during the food deprivation of the Great War, at which time a serious outbreak of the disease occurred in Austria. In the United States, at the present time (1951), poliomyelitis and encephalitis take an average annual toll of 800 and 2500 lives, respectively, besides leaving a much larger number of physical and mental cripples in their trail.

Microscopic examination of the nervous system in these two diseases reveals a very close relationship in the disease processes. In poliomyelitis, the motor nerves of the spinal column are attacked, whereas in encephalitis, the nerve structures of the brain suffer most. The disintegration of the nerve cells and fibers and the inflammatory reactions are almost

identical, the variation in symptoms being due to the different function of the nerve tissue involved in each case.

In the earlier history of these diseases, only the pronounced cases, exhibiting gross injury to the nervous system with resultant paralysis or pronounced mental symptoms, were recognized. However, with accruing knowledge from repeated epidemics, it has become apparent that a much larger number of mild forms of these diseases accompany the more frank cases. In poliomyelitis, it is now generally conceded that there are at least 100 mild cases to one paralytic case. It is thus evident that some basic constitutional defect, hereditary or acquired, provides the cause for the selective incidence of paralytic effects in these mysterious diseases.

### Vitamin B Deficiency

A correlated study of the various forms of paralytic disease which have been treated successfully by vitamin B, first suggested to the writer the possibility of a deficiency of this nerve-protective element in poliomyelitis as the cause of the paralysis.

Beriberi was the first paralytic disease found to be definitely attributable to vitamin B deficiency. In 1897, Eijkman found that paralysis could be produced in birds by an exclusive diet of polished rice. In 1911, Funk showed that beriberi could be cured and prevented by feeding extracts of rice polishings. After much research work, the nerve-protective element, designated vitamin B, was isolated. More recently, it has been produced synthetically, and is now available in chemically pure form for medical use.

Recent reports of the successful treatment of many diseases of the nervous system by vitamin B give support to the theory of a deficiency of this food element in poliomyelitis and encephalitis. Favorable results have attended the use of vitamin B in the treatment of alcoholic and arsenical neuritis, diphtheritic and typhoid paralysis, diabetic and anemic paralysis, and the paralysis associated with cases of pernicious vomiting in pregnancy (based on the assumption that the growing embryo increases the maternal demand for the vitamin, while persistent vomiting decreases the intake).

### Similarity of Diseases

In a comparative study of poliomyelitis and beriberi, many features common to both diseases provide a striking similarity. The former attacks mostly young children and adolescents, with a marked preference for males, while the latter has its greatest incidence in infancy and young adult males. Poliomyelitis has its peak of incidence in the hot weather- July, August and September in northern temperate climates, and the corresponding summer months in the southern hemisphere-while beriberi prevails in tropical climates where the weather is warm almost constantly. Both diseases are characterized by flaccid paralysis, the leg muscles being mostly affected. Alimentary disturbances and muscle tenderness are common symptoms, while nerve disintegration with inflammatory exudates and edema are present in both. Physical overexertion is a well recognized predisposing factor in both diseases.

There are a number of determining factors in relation to the vitamin B requirements of the body, which have a direct bearing on the question of the possible deficiency of this vitamin in poliomyelitis and encephalitis. In the first place, it has been shown that the storage of vitamin B in the body is very limited. It has also been shown that the vitamin B requirement bears a direct relation to the metabolic rate (rate of food utilization), which has its highest peak at the period of most rapid growth and activity, childhood and adolescence. The

metabolic rate is also noticeably higher in the male. Furthermore, with fever or increased physical exertion, there is an increased bodily demand for vitamin B. It is perhaps, therefore, not without significance that the age and sex requirement for vitamin B bears an almost parallel relationship to the age and sex incidence of beriberi, poliomyelitis, and encephalitis. Since digestive disturbances are usually associated with these diseases, the depletion of the nerve-protective vitamin is not only hastened thereby, but the intake of new supplies is impeded. Under the combined action of all these factors, it would seem reasonable to assume the possibility of the precipitation of a severe vitamin B deficiency. This in turn might so condition the nervous system that it would be more vulnerable to attack.

It has been shown that the central nervous system provides the greatest means for storage of vitamin B in the body, the storage of the vitamin in all other parts of the body being more rapidly exhausted on a diet void of vitamin B. On the assumption that the nerve cells of the brain and spinal cord provide the vitamin storage in much the same way as a battery stores electricity, and that mental and physical activity discharge the storage while sleep and rest effect recharge, it would seem reasonable to conclude that mental exertion depletes the storage in the brain while physical exertion reduces the reserves in the spinal motor nerves. It may thus be possible to account for the seasonal incidence of these two diseases, poliomyelitis being more prevalent in the summer when physical activity predominates, and encephalitis occurring more often in the winter when mental activity is generally greater.

Professor W. T. Porter, of Harvard University, found, as the result of the observation of 3000 school children, that the period of greatest growth and weight increase was during the summer and early fall. Undoubtedly, the summer vacation is the period of greatest physical activity of children and young people generally; whereas the winter months are devoted more to mental activity in school and college life. The greater incidence of leg paralysis may be accounted for in the same way, by the predominant use of the leg muscles in sport and general activity with proportionate depletion of the vitamin reserves in the lumbar spinal nerves. A further observation, which supports this theory, is that, in animal experiments, it has been found that physical exhaustion produces certain changes in the nerve cells almost identical with those observed in poliomyelitis.

### Quarantine Ineffectual

By the assumption of vitamin B deficiency in poliomyelitis and encephalitis, not only are the peculiar features of age and sex incidence of these diseases accounted for physiologically, but the conspicuous lack of contagious relationship between the cases and the recognized ineffectual control by quarantine are explained. In a recently published paper on poliomyelitis in the American Journal of Diseases of Children, Davison says: "Isolation for 3 weeks of patients and contacts is required by most boards of health since 1916, but the evidence then and now does not indicate that anything is accomplished by this procedure. The disease rarely attacks more than one member of a family, and cases developed by contact are conspicuously rare. Of 2,070 persons definitely exposed, only 14 contracted the disease. Patients with the nonparalytic type of the disease must be so common that nearly the whole population should be isolated."

### Diet Supplement

In recent years, considerable prominence has been given, in both-the medical and commercial world, to the importance of the vitamins, particularly the A, C and D vitamins, as reflected in the increased use of fish liver oils, the irradiation of food products, the more liberal use of citrus fruits and leafy vegetables, and exposure of the body to ultra-violet-ray

lamps and sunshine. Vitamin B, however, seems to have been left in the background. The infant and young child of today are amply supplied with vitamins A, C and D in the form of cod liver oil, orange and tomato juice; but no routine measures are employed to contravene vitamin B deficiency in the diet of young children at a time when rapid growth and intensive physical activity make increased demands for this essential food element. McCollum, in his *Newer Knowledge of Nutrition*, points out that there is very clear evidence that nutritive disorders have a far-reaching influence in controlling the health of children, bringing about many borderline cases of malnutrition. He emphasizes the danger to health in adherence to a diet in which milled cereal products, particularly white bread and sugar, syrup, tubers and meat of the muscle type predominate—all deficient in vitamin B.

### Average Diet Faulty

According to a recent editorial in the *British Medical Journal*, the British soldier's ration in 1670 contained 1000 international units of vitamin B daily, based on the flour portion being of the whole-wheat variety. In 1782, the diet of the "parish poor" contained 660 to 850 units and in 1832, the poor-law diet (London) contained 1,230 units. A very different condition prevails in England today. The daily vitamin B intake now ranges from 200 units in the lower income levels to 500 units in the high income levels. Thus, the best-fed today, while getting twice as much vitamin B as people on low income, yet consume less of this essential food element than the "parish poor" of the eighteenth and early nineteenth centuries.

The situation in America, in respect to vitamin B consumption, is no better. The average diet, in which meat, potatoes, root vegetables, white bread, white sugar, corn syrup, jam, coffee and pastry products predominate, is sadly lacking in vitamin B. The consumption of milk, eggs, leafy vegetables, whole-grain products, and fresh fruits is still considerably insufficient in this country. A recent survey shows that the consumption of white bread is still 5 times that of all varieties of brown combined, aside from the fact that very little of the latter contains the wheat germ. Polished rice is still also a staple commodity.

In view of these facts, it may not be merely coincidental that the adoption of the modern steel-roller system of milling white flour, from which the vitamin-carrying elements of the wheat (the bran and the germ) are excluded, very closely preceded the historical appearance of infantile paralysis and sleeping sickness in epidemic form. This new method of flour milling was adopted in central Europe in 1839. The first epidemic of paralysis was reported in Germany in 1840. Steel-roller milling was not generally adopted in Western Europe and America until near the end of the century. In 1890, the Swedish epidemics of poliomyelitis were reported, and following this, perennial outbreaks have been recorded in England, France, and America. If the basis of the theory herein advanced is found to be physiologically sound, it would appear that a fair trial should be given to this natural nerve-protective agency, vitamin B, which has proved to be so effective in the treatment of other paralytic diseases of undoubted similarity. At least the use of preventive dietetic measures would not be fraught with any of the dangers that have attended the use of serum and chemical agents

### Suggestions

The following suggestions are offered to parents by the author of the above in the hope of protecting children from poliomyelitis:

1. Make sure your children are supplied with a liberal vitamin-balanced diet, giving special attention to the extra need for the nerve-protective vitamin B. Vitamin B is found in wheat germ, whole-grain products, yeast extract, egg yolk, spinach,

asparagus, green beans, soybeans, red kidney beans, nuts, rolled oats and tomatoes. Vitamin A is found in fish liver oils, milk, cream, butter, cream cheese, eggs, carrots, bananas, sweet potatoes, and green leafy vegetables. Vitamin C is found in grapefruit, lemons, oranges, apples, peaches, raspberries, strawberries, and blueberries. Vitamin D is found in fish liver oils, irradiated milk, egg yolk, and by exposure of the body to sunshine.

2. Provide for plenty of sleep in well ventilated and screened sleeping quarters.
3. Guard against overexertion in work or play.
4. Live outdoors as much as possible and wear light clothing.
5. Make liberal use of water, internally and externally.
6. Banish fear. Cultivate optimism. "A merry heart doeth good like a medicine."

Note: Since this treatise was submitted for publication, the author, through the cooperation of physicians throughout the country, has had opportunity to make practical application of the theory advanced. A number of acute cases of both infantile paralysis and sleeping sickness have been successfully treated by the medicinal use of synthetic vitamin B. The recovery was so rapid in some cases that the attending physicians were inclined to question their diagnoses. A number of last summer's convalescent "polio" cases have also shown a marked response to the new vitamin treatment.

As a further check on the validity of the theory, the writer has made a survey of the dietary habits of a considerable number of poliomyelitis victims, and has found that, almost invariably, they have been exclusive white-bread eaters prior to their illness.

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## Vitamin E for Post-Polio Disorders

With polio still showing every sign of shattering previous marks for incidence, the problem of caring for recovering victims of the disease becomes more important than ever. A letter, appearing in the Canadian Medical Association Journal (July 15, 1959), written by W. H. Jaques, M.D., Medical Director at Riverdale Isolation Hospital, Toronto, Ontario, Canada, suggests a very interesting therapeutic measure for chronic polio patients-vitamin E.

Dr. Jaques writes that polio victims with extensive residual paralysis often suffer from painful muscle cramps, tingling sensations and a feeling of coldness or numbing in the affected limbs. Because of previous success with the use of vitamin E for treating aged persons suffering with nocturnal muscle cramps, Dr. Jaques decided to try the vitamin on polio patients suffering from the above symptoms.

The results were most gratifying, as can be seen from the case histories Dr. Jaques includes in his letter. For example, a 28-year-old man who had been paralyzed completely in his extremities for 4 years, complained of painful cramps and ankle swelling. A month's treatment with vitamin E (1600 International Units per day) resulted in complete disappearance of cramps and a definite decrease in the swelling.

## Pain Disappearance Complete

A 19-year-old female, with extensive paralysis and wasting of the left leg, suffered from cramps and a feeling of coldness in the left leg. Eight hundred units of vitamin E per day, for 4 weeks, were prescribed and complete recovery from cold and cramps followed.

An attack of polio resulted in complete paralysis of the right leg and part of the left in a 42-year-old female patient being treated by Dr. Jaques. She, too, was troubled by crampy pains, tingling and numbness in the right leg. Conventional therapy was attempted, but to no avail. Three weeks of vitamin E therapy, consisting of 800 International Units per day, did the trick. Interestingly, it was found that, when the vitamin E treatment was discontinued, the patient experienced a return of her symptoms within 10 days. A maintenance dose of 400 International Units of vitamin E per day was prescribed indefinitely.

## Polio and Menstruation Difficulties

In some cases of polio involving women, the infection has the effect of disrupting the regular menstrual flow. The usual treatment consists of hormone injections. Dr. Jaques tells of two female patients who developed menstrual irregularity: one did not menstruate for 14 months, the other for 9 months. Hormone drugs proved useless. Vitamin E was tried, and after only one month of receiving a dosage of 400 International Units per day, complete regularity returned. The patients experienced no further difficulty even after the vitamin was discontinued. Three other women with irregularity after polio attacks, though not so pronounced, are mentioned as having equally good success with vitamin E.

## Further Investigation Is Needed

We hope that the experience of Dr. Jaques will influence others who work with chronic polio patients, causing them to experiment with vitamin E therapy for the relief of the symptoms described. What is more important, we hope to see increased use of vitamin E among doctors treating similar disorders in patients who have not suffered them as an aftereffect of polio. The numbness, tingling, and cramps in the extremities are common ailments of victims of poor circulation. If vitamin E will work in relieving such complaints among those whose limbs have been impaired by polio, why not with persons who are able to move about freely and do not have the phantom, and real, pains often associated with paralysis?

The usefulness of vitamin E in treating menstrual disorders has been established before, but the classic medical treatment for such conditions is still hormones, dangerous as they are. Again, if vitamin E can help in polio cases, where some physiological damage is likely to have caused interrupted menstruation, why not in cases where the extra hurdle of polio does not have to be met? Why not try vitamin E for hot flashes, painful or irregular menstruation, etc., before using drugs that are known to have severe side effects? The work of such men as Evan Shute, M.D., and Dr. Jaques offers excellent evidence upon which to base further investigation of vitamin E's powers in relieving such disorders.

## The Sandler Diet for Preventing Polio

Beneath all the hullabaloo over the Salk polio vaccine runs a consistent thread of hesitation and doubt expressed by responsible medical men throughout the world. There are doubts as to its safety; doubts as to whether this is the best way to make the vaccine; doubts as to

whether, even if the vaccine does conquer the present-day forms of polio virus, we will not then be confronted with a host of viruses just a little different, each of which will also have to have its own vaccine.

Reports from other nations indicate that events in this country during the spring of 1955 understandably did much to discourage these people from going ahead with their own vaccination programs. A press release from the World Health Organization indicates that, in France, vaccination was used on only a very small group of children, each of whom was carefully followed up. No ill effects were observed and no cases of polio were reported among these children. Even so, France had not at the time of this report decided whether or not to go ahead with polio vaccination.

In Great Britain, Salk vaccine was made, but was never issued for use because American experience in May, 1955, raised questions as to its safety. Sweden decided in April, 1955, to discontinue the use of the Salk vaccine they had made until "better proofs could be obtained of its safety."

Why not look elsewhere for a way of preventing polio? Dr. Benjamin P. Sandler of North Carolina stopped a polio epidemic in its tracks by going on the air and into the news columns with a diet for preventing low blood sugar. He stopped the epidemic, and he caused such a drop in the profits of ice cream and soft drink manufacturers that the diet was very soon buried from sight, even though Dr. Sandler's experiments had been published in the highly respected American Journal of Pathology for January, 1941.

Dr. Sandler came to his conclusions by studying rabbits—animals generally highly resistant to polio. Rabbits normally do not ever have low blood sugar. On the other hand, monkeys, who frequently have low blood sugar, are highly susceptible to polio. In his experiments at Morisania Hospital in New York, Dr. Sandler lowered the blood sugar of rabbits by injecting them with insulin. Those inoculated with polio during the time their blood sugar was low got the disease, some dying of infection within 14 hours.

Chronic hypoglycemia (low blood sugar) is a common disorder, especially among children and adolescents, being readily induced, according to Dr. Sandler, by overexertion and wrong diet. This would explain the high incidence of polio in the summer when the children are racing around playing and consuming unbelievable amounts of soft drinks, ice cream, candy and so forth.

Dr. Sandler was at the Oteen Veterans Hospital near Asheville, North Carolina, in 1948 when a polio epidemic struck the state. He claimed that he could establish complete immunity to the disease within a 24-hour period. On Thursday, August 5 of that year, the United Press carried the story through North Carolina and several neighboring states who were also suffering severely. The polio epidemic stopped in its tracks after the diet had been highly publicized in the local papers and radio.

What is the Diet?

The diet Dr. Sandler recommends is not one that the average American will look on with great enthusiasm, for it eliminates some of his favorite dishes. Your neighbor will laugh at you when you say that too many sweet foods may be the chief cause of polio. Yet, your neighbor knows that sweet things are not good for him; deep in his heart he knows it. And the evidence against modern, refined sweets is so overwhelming that they seem to be implicated in almost every disease of our century.

In a book called *Body, Mind and Sugar* by E. M. Abrahamson, M.D., and A. W. Pezet, we read of low blood sugar being the cause of a variety of disorders, as epilepsy, asthma, hay fever, allergies, rheumatic fever, ulcers, neuroses, alcoholism, fatigue, migraine, and so forth. How does Dr. Abrahamson know that these were caused by low blood sugar? He cured the patients with a diet designed to raise their blood sugar to normal levels. If you doubt us, read the book and get a new outlook on life!

### A Diet to Reduce Low Blood Sugar

Now about the diet that will bring blood sugar levels back to normal. It is not at all difficult to follow and it is certainly the most healthful diet anyone could eat, low blood sugar or not. Can you go on the diet for a day or so, then go back to your former ways of eating and expect to be immune from polio for the rest of your life? No, you cannot. But it has been our experience that, if you stay on the diet for a month or so, you will have no wish to go back to your old ways of eating. This holds good whether you are 9 or 90.

Actually, the diet boils down to a few very simple rules. Eat lots of protein; go easy on the starches and sweets. Eliminate entirely products made from refined sugar-that means desserts of all kinds. Don't forget that prepared dessert mixes, as well as most mixes of any kind (muffins pancake, etc.), contain white sugar and white flour.

Now is this really such a difficult diet to follow? Will this cause you any real hardship in preparing meals? What will you serve for dessert? Fruit, of course, fresh and raw-as delicious and satisfying a dessert as anyone could want. How can you do without spaghetti and macaroni, noodles, pancakes, pie, doughnuts, pastries? Just forget that they exist; cross them permanently off your grocery list. And in addition, forget about bread. Dr. Sandler forbids bread entirely on his diet.

Here is the diet, and we heartily recommend it as a year-round diet, except for a few slight changes of which health conscious readers are well aware. We believe that fruits are not damaging to the blood sugar level and we would say go on eating bananas, apples, etc., in any quantity. We would advise going easy on milk products, skipping bacon and ham because of their high salt content and taking not more than several oranges or grapefruit a week.

Make selections from foods listed below. Take special note of foods to be avoided:

1. Foods allowed in unlimited quantities: All dairy products- milk, buttermilk, cream, cheeses, eggs, butter. All meats, fish, poultry-prepared any style; no breaded cutlets or breaded chops; no gravies thickened with flour; no stews with potatoes or rice. Nuts-all kinds allowed except peanuts, cashews, chestnuts. Try to have meals on time. Take some milk, tomato juice, cheese, or nuts, between meals or at bedtime. Avoid sweet drinks.
2. Avoid completely: Sugar, potatoes, corn, rice, barley, lentils, hominy, split peas, bananas, tapioca, macaroni, pancakes, noodles, spaghetti, cake, candy, pastries, malted milks, prunes, raisins, canned fruit juices, cereals, bread, rolls, toast, ice cream.
3. Vegetables allowed: asparagus, string beans, wax beans, Brussels sprouts, cabbage, celery, spinach, cauliflower, kale, tomatoes, lettuce, olives, fresh peas, eggplant, endive, water cress, broccoli, green pepper, radishes, pumpkin, carrots, onions (cooked), squash, turnips, beets.

4. Fruits: oranges, grapefruit, lemons, limes, honeydew, cantaloupe, watermelon, apples (peeled), pears (peeled), peaches (peeled), pineapples, strawberries, blueberries, blackberries, raspberries, grapes, cherries, fresh plums (peeled).

Take only one portion of fruit at a meal; i.e., don't eat more than one orange or apple at a time. Apple sauce prepared without sugar is all right; apples may be baked without sugar. Don't use dried fruits.

### Suggested Meals:

#### Breakfast

1 small orange or Y2 grapefruit  
2 eggs (any style) with or without bacon or ham, or fish if desired  
cheese  
butter  
glass milk; light coffee without sugar.

#### Lunch

1.	2.
tomato juice or clear broth	tomato juice, fruit, broth
meat, fish, poultry	combination salad (egg,
cooked vegetables	sardine, salmon, cold cuts,
salad	etc.; no potato salad)
fruit	cheese
milk	milk, light coffee, no sugar nuts

#### Dinner

soup (clear broth, or vegetable soup cooked with permitted vegetables)  
entree (fruit, oysters, tomato juice, etc.)  
meat, fish, poultry  
vegetables  
salad  
butter  
fruit, cheese, nuts  
milk

coffee-cut down as much as possible-take light coffee.

Note: Don't sleep late and miss breakfast. If necessary, get up and eat and return to bed. Have something between meals at 10 am, 4 pm.

Tobacco-cut down as much as possible; don't smoke before mealtime.

For more details about Dr. Sandler's diet and the historic events at Oteen, North Carolina, when diet prevented polio, read Dr. Sandler's book on the subject, Diet Prevents Polio, published by the Lee Foundation for Nutritional Research, 2023 West Wisconsin Avenue, Milwaukee, Wisconsin.

## Garlic Tablets and Polio

Attempting to cure a disease after it has reached epidemic proportions is the usual formula. Trying to prevent a disease before it has reached the proportions of an epidemic is the hard, but worthwhile, way of doing things that we admire so much. When he was appointed borough medical officer of the town of Malmo, Sweden in 1935, Dr. Ragnar Huss decided that he would make some practical experiments with preventive treatment of polio as soon as signs of an impending epidemic would warrant it. In an article in the Swedish medical magazine, Svenska Lakartidningen, Vol. 35, p. 216, he describes such an experiment.

Dr. Huss tells us he has long been impressed with the fact that an unimpaired mucous lining of the intestine might give protection from polio. Much laboratory work has shown that animals in whom the intestinal tract is damaged, irritated, or inflamed are far more susceptible to infection by polio. He quotes Dr. Mayerhofer, a German biologist, as saying that an initial digestive "catarrh" is necessary before one can contract polio. Catarrh is a term used generally to signify inflammation from whatever cause.

Mayerhofer tried to prevent polio by protecting children from intestinal catarrh. He kept no records of these trials so we do not know how successful he was. However, says Dr. Huss, "Mayerhofer found in garlic a suitable means for the prevention of intestinal catarrh. This vegetable has a property-well-known from European folk medicine and tropical experience of preventing intestinal catarrhs as well as therapeutically influencing an already existing ailment of that kind."

Another researcher, Nohlen, in Dusseldorf, used garlic preparations to keep 45 monkeys in the city's zoological gardens free from disease during the fall, when inflammations of the intestinal tract are most common.

### Dr. Huss Begins His Experiment

In September 1937, then, signs were apparent in Malmo that a polio epidemic might be on the way, Dr. Huss tells us. In July, the first case appeared. In August, there were 8 more cases and a new one when school began in September. By the time the epidemic ceased in the middle of November, it had caused 67 cases of polio, almost half of them without paralysis.

Dr. Huss arranged to have the children in 3 schools take a garlic preparation at school under supervision of the teachers. They were asked to bring a signed letter from their parents granting permission for the experiment. Only 2.3 per cent of the parents declined to participate. Each day the teacher laid out the garlic tablets on her desk, the children filed past and each took two tablets which he carried back to his desk. Then, at a signal from the teacher, everyone in the room downed his garlic tablets. Altogether, 1,204 children were given the preventive tablets. There were, altogether, 13,829 children in the Malmo school district. No case of polio occurred among the children given the garlic pills.

Dr. Huss concludes that no cases among the treated children compared to 67 among those who were not treated, is a significant percentage which was probably the result of the treatment rather than mere chance.

Interesting as this experiment is as a polio prevention measure, it assumes an added significance when you consider all the other disorders that are undoubtedly preconditioned by an unhealthful state of the intestinal tract. Might one not assume that taking garlic would tend to prevent these disorders, too?

## What We Recommend

Our advice, then, is to do everything possible to prevent polio the year round-not just at the polio season. A diet high in trashy foods cannot possibly contain enough of the good foods. You must make good foods paramount in your diet and even then, you will not be getting enough vitamins and minerals unless you take food supplements. Considering the value of garlic for keeping the intestinal tract in a healthy state, don't you think you should add garlic to your supplements, too, making it part of your everyday meal planning? Garlic is especially useful in cooking when you have cut down on salt or eliminated it entirely, for the zesty garlic flavor is delicious in almost all meat dishes and vegetable salads. Garlic pearls contain the essential valuable oils of garlic in a preparation that will never taint your breath, for the pearl does not dissolve until it is well beyond the point in your digestive tract where its fumes might reach your breath. One more point on the subject of polio which we are sure will interest you. A Portugese researcher, writing in the Arquivos mineiros de Leprologia, Vol. 17, p. 110, April, 1957, announces that injections of vitamin E have been found to be powerful against muscle-wasting in lepers. Injections of 30 to 300 milligrams, given at intervals varying between one and three weeks, showed satisfactory results in all patients. It is unusual for an experiment of this kind to react favorably in all cases. We might expect that at least several of the subjects would react less favorably. But we are told that, in every one of the lepers, the volume of the muscles increased, the muscle tone and muscular movements of hands improved. Partial or total functional recovery was obtained. Furthermore, the results were permanent. Patients did not relapse to their former condition when the injections were stopped. Why not try such injections for polio patients, asks Dr. H. C. deSouza Araujo, author of the article? And indeed, this strikes us as a most sensible suggestion. We know that vitamin E is the muscle vitamin. We know that vitamin E, and plenty of it, is essential for muscle health. Why not shoot this wonder-working vitamin directly into the wasting muscles of polio victims? The Portugese article was reported in the Journal of the American Medical Association for February 1, 1958. We hope sincerely that many American researchers and physicians will experiment with vitamin E for polio patients.

## Iodine Against Polio

By J. I. RODALE

I was amazed some time ago, in reading the September 1, 1955, issue of the Canadian Medical Association Journal, to come across a letter written by a physician to the editor, in which he shows some astounding facts about iodine and polio. It is surprising during all the talk and hullabaloo about the Salk vaccine, that not a word was mentioned about iodine as a factor in polio, in view of what this doctor proved. And the American Medical Association Journal, which abstracts so carefully from the medical literature of the world, did not deem this item fit for comment.

First let me reproduce the letter. I am giving the letter in full even though parts of it are very technical. When Dr. Edwards refers to iodine as a "virucide", he means that it destroys viruses. Here is the letter:

"To the Editor:

1. "The highlight of my attendance at the recent meetings of the British and Canadian Medical Associations in Toronto certainly was not the panel discussion on poliomyelitis. Though it was very well organized, one came away feeling that the profession is permanently sold on the idea 'there is no treatment for poliomyelitis.' Therefore, we must suffer its horrors until Salk vaccine or its counterpart is perfected

and made 100 per cent effective. And our British colleagues are content to wait and see.

2. "Fortunately for many, but not nearly enough, a few of us have been successful in therapy in the acute case of poliomyelitis. I refer to the work of Drs. Ortiz and Calcada of Mexico City; Dr. R. R. Scobey of Syracuse, New York; and myself. Working independently and unknown to each other we have found that iodine therapy will control acute poliomyelitis.
3. "Quoting from Drs. Ortiz and Calcada, 'Colloidal iodine solution was the only medication used. Symptomatic relief was prompt and remarkable in all cases. Headache, spinal rigidity, pain in the neck, fever, tremor, irritability, and positive Kernig sign all disappeared within 12 to 24 hours of the first injection. Recovery was complete, with no sequelae of infantile paralysis.'
4. "Dr. Scobey and I concur in this finding and recommend its use, or some modification thereof, to any practitioner faced with a poliomyelitis problem. The response to this therapy is most rewarding.
5. "I have also learned that a German doctor is linking poliomyelitis with hypothyroidism. I have, I am sorry to say, failed in obtaining his reports.
6. "My personal findings, during the epidemic years of 1952 and 1953 and with endemic cases in 1954 and 1955, link poliomyelitis control and immunity very closely with iodine metabolism. Dr. Louis Gershenfeld of Philadelphia has confirmed my opinion that iodine is a virucide, proving its virucidal quality in solutions of a few parts in a million in 5 to 10 minutes' contact with poliomyelitis virus Type I. But in the human subject, the virucidal reaction is not always 100 per cent, as two of my 1954 cases made a complete recovery on iodine therapy while expelling poliomyelitis virus Type I in the stool. This would imply that a secondary reaction shortly comes into play, a reaction I have observed since 1952. This appears to be an activation of antibody reaction.
7. "Another rather unexpected reaction noted in 1954 was that, in two of my patients, antibody titres after recovery were so low that they are, I would say, lacking in immunity against the type they have already had. Could these be representative of the group who fail to immunize with Salk vaccine?
8. "As a prophylactic medium, iodine appears to be of value for approximately 60 days, after which the iodine level falls below par and must be renewed.
9. "The success of this therapy rests in early diagnosis and early treatment. It would be of tremendous help to clinical diagnosis if we had a rapid confirmatory test for poliomyelitis.
10. "My present therapy is 7- 1/2 grains sodium iodide, intravenously every third day in bulbar polio, and Iodaminal, one tablet 3 times a day for 10 days in spinal cord poliomyelitis.
11. "May I again urge the use of this simple, harmless therapy by any treating acute poliomyelitis.

**J. F. EDWARDS, M. D.**  
**Winnipeg, Manitoba"**

The amazing thing is that iodine is not only effective as a cure, but may be depended upon as a preventive for this dread disease.

The fact that some iodine is lost in perspiration could be one of the reasons why polio generally strikes in the summer, and after undue exertion, when one would tend to perspire freely. During the summer, also, the secretions in the thyroid gland are lowest, thus resulting in less iodine available to the body. These two items-less iodine in summer due to underactivity of the thyroid, and loss of iodine due to perspiration-could very well be the main reasons why polio strikes during hot weather.

In Dr. Edwards' report on his therapy written up in the Manitoba Medical Review for June, 1954, he puts himself in a group of "we farmers." Farmers usually are much more concerned about the health of their animals than of their own families. Thus, a long time ago, Dr. Edwards learned about iodine deficiencies in animals. If you will go to an animal feed store, you will find on each sack of feed a list analysis of the food elements contained in it. This you will never see on foods intended for human consumption.

And talking about farming, I wonder whether present-day farming methods, with the use of chemical fertilizers, are not partly responsible for the great increase in polio? We once made a test of wheat that we grew by the organic method (that is, with the use of decomposed organic matter, such as manure, weeds, leaves, etc.) compared with the same variety of wheat grown by a neighboring farmer with chemical fertilizers. Some iodine was present in our wheat, and not in the other. Organically grown foods are generally richer in minerals and in vitamins.

We believe we have unearthed something in medical literature which is extremely significant. It should be given wide publicity. It should be brought especially to the attention of Parent-Teacher Associations and given full discussion there.

### The Slow Death of the Salk Vaccine

For the most part, people who dread the grim possibility of polio's striking in their family rest easy once the children have had their third Salk shot and easier yet if they've had their fourth. How soothing to know that the children are safe. How reassuring to read the words of Basil O'Connor, President of the National Foundation, spoken in March of 1959: "Because of it (Salk vaccine), no child in this country or anywhere else in the world need ever suffer the paralysis of one disease-polio." How calming, the words of Dr. A. D. Langmuir of the United States Department of Health, Education and Welfare, which he wrote in the Journal of the American Medical Association (171: 271, 1959) ". . . the marked downward trend of poliomyelitis in the past 4 years is due in large part to the immunization program . . ." How wonderful to know that, according to a publication of the Health Information Foundation (March, 1959), "Until recently, polio was a widespread and increasing danger, and little could be done to control it. But medical progress, culminating in the Salk vaccine, has reduced this disease to its lowest levels in many years. The evidence is now overwhelming that the full series of 3 or more Salk inoculations provides a high level of protection from paralytic polio." How deceiving! In 1959, more than 5,000 paralytic polio cases occurred-50 per cent more than in 1958, and 100 per cent more than in 1957. This trend has developed in spite of 300,000,000 doses of Salk vaccine administered in the nation by the end of 1959.

## The True Situation

Dr. E. Russell Alexander of the United States Public Health Service Communicable Disease Center in Atlanta, Georgia, faces the issue a bit more honestly as he is quoted in the New York Times (April 21, 1960). Commenting on the growing incidence of polio in the United States, he said, "It has been a sobering experience for those enthusiastic epidemiologists who had anticipated a progressive disappearance of this disease with increasing use of Salk vaccine." In the October 16, 1959, Public Health Service report on polio, we find that, of 3,389 paralytic cases, whose vaccination records are known, 595 cases of paralytic polio were recorded among persons who had received three or more shots of Salk vaccine, another 302 had had two shots. Dr. Harold Faber predicted in the Journal of the American Medical Association (April 9, 1960) that, of a probable 6,000 paralytic cases expected by the end of 1960, 1,000 were likely to have had the 3 shots.

Scope Magazine (June 29, 1960) reported on an outbreak of polio in British Columbia, Canada. Of 17 cases of paralytic polio from January, 1960, to March 25, 1960, 6 were fully vaccinated and 4 were partially vaccinated with Salk polio vaccine. One of the paralyzed children had had two complete series—a total of 6 injections! In the New York Times (April 24, 1960), we see this statement: "About 2/3 of the polio cases are among unvaccinated persons." This means that 1/3 of the persons who contract polio are among the vaccinated!

The point of all this is that the expected, the promised immunity from paralytic polio, which is implied or guaranteed for those who have had the Salk vaccine, simply does not exist. One can hardly label as deliberate and unashamed lies, the assertions that the polio rate is going down steadily spoken by such persons as Basil O'Connor and Dr. A. D. Langmuir—who have much better reason to be aware of the published figures on rising polio rates than we do. Yet, these respected personages, and others in similar positions, persist in creating the impression that the child who has been vaccinated with the Salk vaccine is guaranteed safe from paralytic polio. The actual fact is that there is no absolute proof that the vaccine works in humans at all, and no scientific assurance whatsoever that your child with 3 or 4 or 5 shots of Salk vaccine is any safer after receiving them than he was before.

## What About the Decrease in 1956?

When the people who are pro-vaccine are forced to defend their position, they point to the impressive decrease in polio from 1955 to 1956, the first year of the vaccine. The drop was 37 per cent, reported the United States Public Health Service proudly, and there was no doubt that Salk vaccine had been responsible. Interestingly enough, in the same period infectious hepatitis decreased 383-1/2 per cent—no vaccine, no inoculations, no explanation by the United States Public Health Service. The record of polio shows it to be one of the diseases which runs in cycles, up one year, down another. Polio naturally decreases after a high incidence year. In 1953, it showed a drop of 42 per cent over 1952's high incidence. In 1916 to 1917, the drop was equally impressive, but there was no vaccine which could receive the credit for the improved state of things. It had just spontaneously happened.

Unfortunately, the Salk vaccine is not willing to take the rap when the polio rate rises, in the same way it is willing to take the bows when it falls. When polio goes up, the authorities say it's because not enough people have availed themselves of the shots. Yet, in 1956, when the rates went down, the polio experts assured us that the decrease occurred only because so many people had had their vaccine shots. Now if enough people had been vaccinated after the vaccine was in use only one year, how, after 5 years of vaccination, can we be expected to believe that polio rates are rising because not enough people have availed themselves of the vaccine?

## The Facts Don't Match the Hopes

The claims are one thing—the ideal of how everyone wishes the Salk vaccine had worked out—the facts are something else. It began with the field trials of the vaccine prior to its national release in 1955. After these trials, the public was told that the vaccine was 90 per cent effective in preventing polio. These same field trials get this evaluation from K. A. Brownlee in the *Journal of the American Statistical Association* (50: 1005, 1955): “. . . 59 per cent of the trial was worthless because of a lack of adequate controls. The remaining 41 per cent may be all right, but contains internal evidence of bias in favor of the vaccinated.... The reviewer (Mr. Browlee) would point out that gamma globulin was triumphantly proclaimed effective by the National Foundation after a similar trial....” (Gamma globulin has since been shown to be valueless in preventing polio.) Doesn't it seem to be a grave omission that this opinion by a top statistician, appearing in a technical magazine devoted to statistics, was never referred to in the *Journal of the American Medical Association*? If one is searching for the truth about the effectiveness of the Salk vaccine, the results of the field trials are obviously not the place to look.

The truth is that no one knows where to look. Officials of the Public Health Service are preconditioned to expect nothing but success from the Salk vaccine, no matter what the situation seems to be. When persons who had one or two shots get polio, we are told that they were not “fully protected,” although the National Foundation's pamphlet for physicians says that paralytic attacks should be 75 to 80 per cent lower among persons with one or two inoculations than among the unvaccinated. That's just a little less than the 90 per cent we're led to expect from the full series of shots. However, in the same pamphlet, we read that the frequency of paralytic polio is 59 per cent in the unvaccinated, 47 per cent among those who have had one shot, and 32 per cent among those with two shots. When one considers the vast number of unvaccinated over vaccinated, the percentage does not seem to mean much as an advantage.

## Some Statistical Principles Violated

According to Dr. Ernest Ziesler, Clinical Associate Professor of Medicine at the Chicago Medical School and Ph.D. in mathematics, in *The Minority of One* (rune, 1960), the position that polio among the vaccinated is less frequent than among non-vaccinated is not quite proven. First, he notes that a primary statistical principle is that no reliable conclusions can be drawn from samples that are not random. No sample, consisting of volunteers for some procedure, such as vaccination, is random. The people who volunteer have to be different from those who do not volunteer to an extent that may affect the experiment. Mothers who bring their babies in to a doctor for vaccination may be more informed of the current medical thinking, they may be more concerned about their children's health, they may be able to spend more money on their children, they may be free to bring them to a doctor when other mothers have to work, they may have only one child or only a small family, they may feed their children more carefully, supervise their rest more consistently. These and many other factors might make one mother volunteer to have her child vaccinated while another does not. Any one of these might also have had a bearing on whether or not the child contracts polio, regardless of his having been vaccinated. It is as though a parent were to have his child inoculated against snake bite, then forbid the child to go anywhere snakes might be found. If the child does not then ever suffer from snake bite, one cannot claim that the inoculation was any more responsible than the fact that other precautions were taken to avoid the possibility of snake bite. Yet this is precisely the assumption of the promoters of the Salk vaccine. They simply refuse to recognize the possibility that any of the above factors could influence the occurrence of polio, or lack of it, in the vaccinated. Without good

evidence of equality, comparisons between volunteers and non-volunteers should not be made.

### No Attempt to Eliminate Personal Bias

Also, there has been no attempt to eliminate personal bias in diagnosing polio. There are a dozen illnesses due to viruses other than poliomyelitis which are difficult to distinguish from paralytic polio, except by special virus tests-tests which, incidentally, are not readily done by the average practicing physician. When a doctor sees a patient with one of these paralytic illnesses, he asks if the patient has had the Salk injections. If the answer is yes, he will begin serious testing for one of the other illnesses, and, if a doubt arises, he is likely to say it is not polio. How could it be? The patient has had the shots that the physician believes effectively protect him from polio!

If the patient admits that he has not had the injections, the physician is likely to be less careful in his diagnosis. He is likely to assume even without exhaustive tests, that the disease that looks like polio is polio, especially since the patient has not had protection from the vaccine. All of this may be done in the best faith and with complete honesty on the part of the physician, but chances for complete objectivity are slim, and such diagnoses provide a poor basis for the scientific tabulations being made by the United States Public Health Service.

### Where Outbreaks Occur

Much has been made of the stand taken by the National Foundation and the Public Health Service, which intimates that polio outbreaks occur in the slums or in areas in which the people are not interested in protecting their children. Each time there is an epidemic, each time the polio rate goes up, that is the excuse-polio has been concentrated among those who did not receive their inoculations. In California's Health (May 15, 1960), the publication of the State Department of Public Health, we are told that, except for a higher incidence in the preschool group (the group, incidentally, which is very highly immunized, since most babies are receiving the injections as part of their pediatric schedule), there are no concentrated cases in any particular segment of the population. California is a state with wide variations in its population and geography. It goes from the plush beach houses of Malibu to the squalor of skid row in Las Angeles, from the Mexican quarter of Los Angeles to Chinatown in San Francisco, from the heat of Bakersfield in the desert to the snows of Squaw Valley in the Sierra Nevada mountains. Los Angeles is one of the largest and most thickly populated cities in the world, while some of California's desert towns are made up of only a dozen families. If the theory of sectionalism were valid in the case of polio incidence, it would certainly show up in California. Incidentally, 16 per cent of the cases of paralytic polio in California in 1959 occurred in persons who had 3 or more Salk injections.

The Public Health Service cites Negroes living in the slum areas, Indians on reservations, certain religious groups who keep to themselves and residents of housing developments for military personnel as being higher than the national average in polio incidence. In each case, there are many obvious extraneous factors, which would have bearing on the occurrence of any disease, whether the victims had been vaccinated, or not, None of these situations is average or ordinary. Chances are very good that their incidence rate of any disease would be higher than average.

The experience in Massachusetts in 1959 provides an added illustration. In that state's epidemic, the 157 cases (137 paralytic) were scattered throughout the state and through all

economic levels, and a remarkably high percentage of the victims had received 3 or more Salk shots.

### Does It Work or Not?

How good is the Salk polio vaccine? The New York Times (April 24, 1960) will tell you that the results ". . . of the Salk vaccine have shown that it is even more effective than had been predicted from 1954-1955 field trials...." Four days previous to that statement, which means that the vaccine was more than 90 per cent effective against all 3 types of polio virus, the same paper carried a news story on a purified and concentrated Salk vaccine giving an even higher rate of immunity. Yet, before the announcement, vaccinated persons were already made by many public health figures to feel 100 per cent safe from polio.

In the Saturday Evening Post (July 25, 1960), we read, in connection with trials on the new live-virus vaccine, that there ". . . is recent evidence that Salk vaccine has not been as effective as it was hoped it would be . . . (the) report evaluating the 1954-55 field trials rated the vaccine 80 to 90 per cent effective. Many people subconsciously thought of this as almost 100 per cent protection and hailed the end of polio." Not the least of these "hailers" was the National Foundation, which turned its attention to other things, having finally caused the end of polio. Even Dr. Salk was looking for new research fields to conquer. Now everyone is rolling up his sleeves again, promoting the new oral vaccines, and Dr. Salk is trying to salvage his doomed vaccine by making super concentrated batches that are better than the old kind.

The oral vaccine discovered by Dr. Albert Sabin consists of live polio viruses that have been so weakened that they no longer cause the active disease, but do cause the body to manufacture a resistance against any stronger polio virus which might attack. Dr. Sabin says, in Archives of Internal Medicine (July, 1960), that the vaccine has proven itself.

### Will the Oral Vaccine Take Over?

The United States Public Health Service demanded to know the answers to several questions before approving the new vaccine. You will note that (where they apply) the questions have yet to be answered about the Salk vaccine:

1. How much immunity is conferred by the vaccine, and for how long?
2. Should the mono- and trivalent vaccines be given early in life?
3. Is it significant that attenuated strains can and do revert to forms virulent to monkeys?

We don't know yet how much Salk vaccine is good for how long, yet we're urged to take it. We don't know about the safety of the injections of Salk polio vaccine for tiny babies; we just do it, taking a chance that it will be all right. As to the question of the safety of a vaccine whose virus becomes strong enough to kill monkeys, the consideration of the possibility is admirable, but what of the danger in the Salk vaccine mentioned in Medical News (June 22, 1960): There is a dangerous virus sometimes present in the kidney cells of monkeys used to make the polio vaccines for humans. "Virus-infected culture fluids used to prepare killed poliomyelitis or adeno virus vaccines are commonly contaminated with simian agents...." This statement was made at the Second International Conference on Live Polio Vaccines.

The Sabin vaccine has been extensively used overseas, and the reported results are heartening. The British Medical Journal (June 4, 1960) tells of two countries (Estonia and

Lithuania) who used the Sabin vaccine on all between two months and 20 years of age. Estonia's polio figures for the years 1955 to 1959 read like this: 1955-180; 1956-213; 1957-102; 1958-963; 1959-8. Lithuania: 1955-411; 1956-247; 1957-124; 1958-264; 1959-17. The results are said to be similar in the Soviet Union. The figures certainly qualify for the "startling if true department." We have no reason to doubt their authenticity, but can we be certain that the vaccine and nothing else was responsible? More time is needed.

It is interesting to see that Dr. David E. Price of the United States Public Health Service agrees. He is quoted in the Saturday Evening Post (July 25, 1960) as saying: ". . . there are serious objections to drawing conclusions about its (the Sabin vaccine) effectiveness after such short observation periods." He said he would like more evidence that the drops in polio incidence are not simply due to fluctuations in the polio pattern. This is an extremely sensible viewpoint, one with which we wholeheartedly agree. But where was this watch and wait attitude with the Salk vaccine? The trials weren't nearly so extensive when the results were published, yet the United States Public Health Service was pushing the vaccine as a great advance on the day it was released to the public. In the next year, the same conservative Health Service was pointing with pride to the toppling polio-incidence figures. The Health Service never mentioned that there are natural fluctuations in the polio pattern until it questioned the Sabin vaccine. Could it be that a postponement of the okay on the Sabin vaccine was dictated by powerful drug firms who would be left high and dry with millions of unsalable Salk doses if the Sabin vaccine were approved at once?

We do not know how effective or safe the Sabin polio vaccine is. No one does. It would appear from available data that it is safer and more effective than the Salk vaccine was shown to be when it was approved. It is our guess that the Sabin vaccine will take over the leadership, and the Salk vaccine will be allowed to fade peacefully into the background as "a great advance," a "real pioneer," "the almost-perfect vaccine." Its short comings will never be truly explored. The story of the money thrown away on it, the people fooled by it, the faith wasted on it, will never be told. Let us hope that the next polio vaccine, whatever it is, will be safe and effective -if there can ever be such a thing. We prefer to rely on the common sense of good health, carefully fortified with good diet and food supplements, to fight the body's battles against all infections. Vaccines can never take the place of sanitation and the natural immunity of a healthy body in counteracting disease.

### Scientific Experts Reveal the Salk Vaccine Hoax

In a series of two articles, the respected Illinois Medical Journal (August, 1960 and September, 1960) has had the courage to expose the Salk vaccine as a frank and ineptly disguised fraud. And don't think it didn't take courage to publish a direct contradiction to the releases and pronouncements of the AMA, the United States Public Health Service and just about every other organization and agency that has anything to do with health and medicine in the United States. It took courage, and it took a solid foundation of proof furnished by qualified, reputable experts whose opinions and statements could not be discredited. The opportunity to present such evidence came through a panel discussion moderated by none other than Herbert Ratner, M.D., Director of Public Health, Oak Park, Illinois, and Associate Professor of Preventive Medicine and Public Health, at Stritch School of Medicine in Chicago. The panelists were Herald R. Cox, Sc.D., a leading authority on live virus vaccines, as well as killed vaccines, and at that time, president-elect of the Society of American Bacteriologists; Herman Kleinman, M.D., an epidemiologist from the Minnesota Department of Health, and co-author in 1957 of a paper entitled "The Efficacy of Poliomyelitis Vaccines with Special Reference to its Use in Minnesota, 1955-56," wherein it was concluded that "analysis has revealed (that) the use of two doses of Salk poliomyelitis vaccine . . . (was) 83% protective against paralytic poliomyelitis"; Paul Meier, Ph.D., a biostatistician from the University of Chicago, who is known in the field of polio for this analysis, "Safety Testing of

Poliomyelitis Vaccine," which suggested, futilely, that a searching study of the entire Salk vaccine program by an appropriate body be conducted; and Bernard G. Greenberg, Ph.D., of the Department of Biostatistics of the University of North Carolina, School of Public Health, and former chairman of the committee on Evaluation and Standards of the American Public Health Association. This distinguished panel presented its views before the Section on Preventive Medicine and Public Health at the 120th Annual Meeting of the Illinois State Medical Society (May 26, 1960). There can be no question of the qualifications of these men, and their conclusions have yet to be answered or disproved.

The chairman, Dr. Ratner, began the session with a review of the increasing rise in the polio rate in the United States, quoting Dr. Langmuir (in charge of polio surveillance for the United States Public Health Service) when he said that the polio trend ". . . has been a sobering experience for over enthusiastic health officers and epidemiologists alike." Dr. Langmuir made a prediction in the fall of 1955 that, by 1957, there would be less than 100 cases of paralytic polio in the United States. This has proven to be grossly optimistic. The 1959 figure for paralytic polio was 6,000 cases, 1,000 of which occurred in persons who had received 3, 4, or more doses of Salk vaccine.

### Data Handled in a Misleading Way

Statistician Dr. Bernard Greenberg, spoke first: ". . . my primary concern, my only concern (as a statistician) is the very misleading way that most of this data (on the Salk vaccine results) has been handled from a statistical point of view." He goes on to tell of the rise in polio incidence in 1958, 1959, and the resultant alarm sounded by officials of the Public Health Service and "one large voluntary health organization" over every mass communications media, to persuade more Americans to become vaccinated. ". . . the misinformation and unjustified conclusions about the cause of this rise in incidence gave concern to those interested in a sound program based on logic and fact rather than personal opinion and prejudice," says Dr. Greenberg. "One of the most obvious pieces of misinformation," he goes on, ". . . is that the 50 per cent rise in paralytic poliomyelitis in 1958 and the real accelerated increase in 1959 have been caused by persons failing to be vaccinated. This represents a certain amount of 'double talk' and an unwillingness to face facts and to evaluate the true effectiveness of the Salk vaccine.... If the Salk vaccine is to take credit for the decline from 1955 to 1957, how can those individuals who were vaccinated several years ago contribute to the increase in 1958 and 1959? Are not these persons still vaccinated?" Dr. Greenberg refers to an Associated Press release warning of the threat of increased polio and giving as the main reason that "millions of 'children and adults have never been vaccinated." If all of these millions never were vaccinated, undoubtedly the number given as vaccinated during, 1955, 1956 and 1957 was exaggerated, for then the same officials were claiming that the polio reduction was due to the vaccine and all those who had taken advantage of it.

### Effectiveness Is "Unknown and Greatly Overrated"

Dr. Greenberg states flatly that, "A scientific examination of the data, and the manner in which the data were manipulated, will reveal that the true effectiveness of the present Salk vaccine is unknown and greatly overrated."

The Francis report of the field trials of 1954 actually says no more than that the vaccine used then was 72 per cent effective in preventing paralytic polio for one season. For 1955, changes in the manufacture and testing of the vaccine were introduced. Merthiolate was removed. Live viruses were found in several lots and the foundation of Salk's theory of inactivation was questioned. Great variations in the potencies of different lots from different

manufacturers became alarming, especially since the product was to be administered on a mass basis. To insure "absolute safety," an extra filtration step was introduced in November, 1955. The effects of all of these changes, and any other since then, upon the present vaccine are unknown.

### Reported Rate Had to Decrease

If the vaccine was indeed less effective, one might wonder why the tremendous reduction occurred in the years 1955, 1956 and 1957. Dr. Greenberg offers this explanation: prior to 1954, any physician reporting paralytic polio did his patient a favor by qualifying him for subsidized care, and he was doing his community a favor by reporting a communicable disease. All that was required was an examination on admittance and another 24 hours later; if the classic polio symptoms were discernible, the patient was considered to have polio. No lab test, no residual paralysis were required to establish a paralytic polio case definitely.

### Criteria of Diagnosis Were Changed in 1954

In 1954, the criteria were changed-unless there is residual paralysis 60 days after onset, polio is not now considered paralytic. This is actually a new disease, namely paralytic poliomyelitis, with a longer lasting paralysis. So the minute this new rule of diagnosis for paralytic polio was introduced, with the simultaneous introduction of the Salk vaccine, the number of cases of paralytic polio was bound to decrease. All the cases in which paralysis lasted more than 24 hours and less than 60 days would no longer be listed as paralytic polio. Many of the cases that doctors had always considered to be paralytic polio simply were not reportable as that any longer. Fewer cases reported meant less incidence shown on the Public Health records. When one considers the possibilities in such sure-fire insurance against failure of the vaccines early reports, it is surprising that the authorities weren't able to report an even greater drop in the incidence of paralytic polio than they did! Even if there hadn't been a bit of vaccine used, the reported incidence rate had to drop.

### New Forms of Diagnosis

Another reason for the reported decrease of paralytic polio, when the Salk vaccine came out in 1955 and through 1957, was the new forms of diagnosis. Publicity had us convinced that paralytic polio in a vaccinated child was practically impossible. When such a rare event did occur, every known test was made to be sure of the diagnosis. When an unvaccinated child showed signs of paralytic polio, there was less skepticism. It is as though a 60-year-old woman were to announce that she is pregnant. The testing to make certain would be much more extensive than if a 22-year-old woman were to make the same announcement. Physicians have been conditioned to consider the first circumstance extremely unlikely, and they would use every opportunity to prove their preconceived notion to be correct. The second case would get a casual examination, really just to confirm what was already accepted as true. One cannot term such examinations as unbiased and objective. The attitude was, and is, exactly the same in examining suspected victims of polio, depending upon whether or not they have had the shots. These, among other more technical things, were the highlights of Dr. Greenberg's opening speech.

## "I Am Getting Nervous"

Dr. Kleinman, who had actually been a forceful promoter of the Salk vaccine in his home state of Minnesota, was next to make a statement: ". . . Let me tell you why I am getting nervous about the Salk vaccine. My first reason is the definite increase in paralytic polio. In Minnesota, we have found that 20 per cent of our 1959 paralytic experience has occurred in triple and quadruple vaccinees....

". . . Laboratory findings are another reason why I am getting nervous. If polio antibodies mean anything in respect to protection, then I am forced to conclude that much of the Salk vaccine we have been using is useless....

"I should like to emphasize Dr. Greenberg's remarks on the changing concepts of polio. It is now extremely difficult to get a Minnesota physician to make a preliminary diagnosis and report of paralytic polio.... As a result, the only polio that is being reported today are cases with frank paralysis. "

## "Absolutely Silly"

"I would also like to agree with Dr. Greenberg that the insistence upon a 60 day duration of paralysis for paralytic polio is absolutely silly. There isn't a doctor in this room who hasn't seen a case of frank paralytic polio which has not recovered within 60 days....

"I would like, then, to have my position understood . . . as that of an agnostic so far as the Salk vaccine is concerned. I am not against it. I think it is the only medium we have which has some degree of reliability; but I think there are better methods, and I think we should take advantage of these methods if it seems at all reasonable."

## Disappointment of Former Salk Vaccine Proponent

These are the words of one of the foremost promoters of the Salk vaccine in Minnesota. His disappointment is evident and his characterization of the vaccine as "the only medium we have which has some reliability" is a far cry from the high estimates of 92 per cent immunity, which we've been told we can expect from the Salk vaccine. And even the "some degree of reliability" Dr. Kleinman mentions is hard to accept on the face of the other statements made by this panel.

Dr. Cox spoke next: "First let me say that I am convinced that living virus vaccine is going to be the final answer. I base this statement on my experience in the virus field since 1928. I am not against killed virus vaccines. I was the first person to prove they could be made....

". . . The reason our company refused to make the killed Salk vaccine was because we knew it was impossible to produce enough virus by known tissue culture methods to make a good killed polio virus vaccine."

## Manufacturing Methods Deficient

Dr. Cox went on to say that a worthwhile killed virus vaccine must have at least 100 million particles per dose. In mass production, the Salk vaccine manufacturers don't often get more than 10 to 30 million. This means that the vaccine would have to be concentrated 5 to 10

times to get a proper end product. This means that the 39 cents a cubic centimeter it costs to make the killed vaccine would have to be multiplied 5 or 10 times, plus labor costs, to make a proper vaccine. Dr. Cox's company didn't think it worthwhile to risk such large sums, when other companies were not above making and selling the cheaper product. "No one manufactured the vaccine that would properly have 100 million particles per cubic centimeter. Actually no one ever got the proper vaccine."

Dr. Cox continued, ". . . the killed (virus) does a fairly good job . . . against Type II polio virus. But Type II represents only about 3 per cent of paralytic cases throughout the world. The killed vaccine does a poor job against Type I, however, which causes 85 per cent of paralytic cases, and Type III, which causes about 12 per cent. In other words, the killed vaccine is doing its best job against the least important type . . . it was proven in Israel in 1958, when it had its big Type I epidemic. They did not see any difference in protection between the vaccinated and the unvaccinated."

### Potency Varies Astronomically

Dr. Cox was asked if he knew of any variations in the potency of the Salk vaccine that is on the market. He replied that it varies considerably. Dr. Ratner added to this in detail: "New York State Health Department investigations reported in September, 1956, that there was a six hundred fold variation in the potency of commercial Salk vaccine on the market.... Today many inoculations of Salk vaccine are needed to accomplish the same results that were claimed in 1955 with one inoculation. In the history of drug therapy there are few drugs, if any, which become progressively inferior with increasing years."

A little later, Dr. Ratner made one of the most amazing declarations of a very amazing panel discussion: "To close the discussion on potency, back in May, 1957, the largest producer of Salk vaccine in the United States had several million dollars worth of vaccine on hand which did not pass the minimum potency requirements of the United States Public Health Service. Subsequently, the Division of Biological Standards reinterpreted the minimum requirements to make possible the commercial utilization of this vaccine."

### Salk Issue Confused?

Dr. Meier of the University of Chicago then commented upon the little one has heard of any doubts concerning the Salk vaccine. He said, "How is it that today you hear from members of this panel that the Salk vaccine situation is confused; yet what everybody knows from reading the newspapers, and has known since the vaccine was introduced, is that the situation, as far as the Salk vaccine is concerned, was and is marvelous? The reason for this discrepancy lies, I think, in a new attitude of many public health and publicity men. It is hard to convince the public that something is good. Consequently, the best way to push forward a new program is to decide on what you think the best decision is and not to question it thereafter, and further, not to raise questions before the public or expose the public to open discussion of the issues."

(Does that not sound like the entire fluoridation scheme?)

Dr. Cox and Dr. Ratner then spoke of the testing procedures for insuring safety of the Salk vaccine. Each offered evidence to show that, in mass production, testing procedures were pared to a minimum, and only one test, not the recommended 3 was done to determine the vaccine's safety. Figures submitted show that the vaccine used in 1955 was inadequately

tested, and the cases of vaccine-induced polio, which followed, were not wholly a surprise to the scientists.

### Live Viruses Found

Even with the recommended procedures, the vaccine's safety was doubted by some. Dr. Ratner tells us that, "In 1953, experienced investigators at the Michael Reese Hospital in Chicago failed to produce a safe vaccine by the Salk formula. Their findings were dismissed by the backers of Salk.

"In the spring of 1955, one of the manufacturers using safety tests more rigid than those required by United States Public Health Service found live virus in its own vaccine, in another manufacturer's vaccine on the open market, and in one of Dr. Salk's vaccine preparations, used as a standard for commercial vaccines.... Some of the released vaccine of this manufacturer, however, had already been used in Massachusetts, which experienced an epidemic....

### Safety Testing Inadequate

"It should be stressed that safety testing was inadequate when Dr. Salk developed his vaccine and when the vaccine was commercially prepared for the field trials of 1954, and for licensing and use in 1955. The claim of long duration of effectiveness, then, . . . really applies to a vaccine that did not exclude the presence of a live virus. It does not apply to current vaccine in which potency has been sacrificed for safety. (Italics ours).... At present, epidemiological methods employed by the United States Public Health Service to assure safety of the vaccine are inadequate."

A question was asked of the panel as to whether any state health department at present advised against the use of the Salk vaccine. Dr. Ratner said he knew of none, but presumed it to be unlikely that such a department could oppose the mass propaganda and its effect on public opinion, by doing so.

The discussion concluded with a long and rather technical talk by Dr. Cox concerning the theory and development, as well as the safety and effectiveness of the live-virus vaccines. There seemed to be little disagreement among the panelists that, if a vaccine is to be effective against polio, it will have to be a live-virus vaccine.

### Public Owes Gratitude to Panelists and Journal

We believe that we owe a great debt of gratitude to the men who had the courage to participate in this panel discussion. There is no question that they have laid themselves open to professional and private reprisals. They have accused organized medicine and the government's medical authorities of conspiracy to deceive the public about the effectiveness and safety of the Salk vaccine. You can be sure this will not be taken lightly by these groups. This is especially true because of the stature of the panel members in their profession. These men can't be brushed off as cranks or know-nothings. Each of them has been especially honored by his profession for his expertness in his chosen field. These men speak with undeniable authority.

A bow should go, too, to the Illinois Medical Journal for printing the transcript of the discussion. We wonder how it went with the editor when his intention was made known. We wonder if he is still editor.

## Complete Investigation of Campaign Is Necessary

Of course, it is impossible to carry the entire discussion in these pages, but its essence is here. Show this material to those who have been depending on the Salk vaccine to keep them and their children polio-free, in spite of bad diet and careless exposure to crowds during the season. Urge them to write to their congressmen demanding a complete public investigation of the campaign that has led Americans to believe that a Salk-vaccinated child is safe from polio. The grim fallacy of this impression is all too evident in the statistics, yet the papers, radio, and TV blare out the lie again and again. The Salk vaccine is a fiasco, and the public must not be deluded any longer into believing it is anything else.

## Confusion Reigns over the Salk Vaccine

There must have been a gasp from coast to coast on the day the Journal of the American Medical Association for February 25, 1961, hit the mail boxes of America's M.D.'s. The doctors who turned to the Questions and Answers pages of the Journal found a startling answer to a question from a Wisconsin physician concerning the effectiveness of the Salk polio vaccine. The answer, highly critical of the vaccine in general, most particularly noted the variations in the manufacturing procedure which result in "an unstandardized product of an unstandardized process." The author of this opinion is Herbert Ratner, M.D., Health Commissioner of Oak Park, Illinois. He went on to state that 335 million of the polio shots given until now were a waste because they were too weak to be effective. He went on to imply that the Salk shots are undependable, and that, unless one were to be inoculated with a complete series of an improved vaccine, one's chances against polio, regardless of the previous number of shots, were no more dependable than those of someone who had not been inoculated at all.

It was not too many hours before accusations and denials as to just what the American Medical Association meant to convey by carrying such a statement in its official publication began to fly. Dr. Ratner was identified by Journal spokesmen as a "competent authority" and a "qualified health officer" whose opinion "must carry weight."

### "A Little Inclined to Agree with Him"

John Troan, who wrote the story for the Scripps-Howard Newspapers (New York Herald Tribune, March 1, 1961), quoted two of the Journal's staff from conversations he had with them over the phone. Dr. Wayne C. Brandstadt, an editorial assistant who chose Dr. Ratner to answer the questions, said, according to Troan, that he was "a little inclined to agree with him (Dr. Ratner)." Dr. Brandstadt held his opinion in the face of Dr. Jonas Salk's blaming the failure to use the vaccine, not the vaccine itself, for the continued occurrence of polio; and in the face of the assertion of Public Health Service epidemic expert, Dr. Alexander Langmuir, that 3 Salk doses reduce, by at least 80 per cent, a person's chances of being crippled by polio, and 4 doses cut the risk by at least 90 per cent. Said Dr. Brandstadt, "The interpretation of statistics is open to some question." He charged that the United States Public Health Service got into "an embarrassing position" by "jumping the gun a little on the Salk vaccine," and has been compelled to continue backing it "to save face."

Dr. Ratner's statement in the Journal of the American Medical Association was at variance with the American Medical Association's House of Delegates proclamation that the vaccine "has proved to be effective" and its urging "widest possible use" of it, pending the availability of the new live virus preparation. In an immediate effort to extricate itself from an embarrassing situation, the Journal announced that Dr. Ratner's answer was his own

and did not represent the official view of the Journal of the American Medical Association, nor of the Association itself. Any signed material in a publication is legally the responsibility of the signee, not the publication. Therefore, the Journal was on firm ground in disavowing Dr. Ratner's opinion, at least technically.

### A New Editorial Policy?

Practically speaking, the insistence on this editorial practice leaves one to wonder about the sponsorship of the rest of the answers in the Questions and Answers section of the Journal. Will we see more answers that are not strictly in agreement with AMA pronouncements? We would be gratified, for instance, to see an answer from Dr. Fred Exner, famous anti-fluoridationist, to the next question on the value and safety of water fluoridation. We would like to see Dr. W. C. Hueper, famous cancer expert, comment on the danger of food additives and Dr. Shute of Canada write on the value of vitamin E for heart and vascular disorders. Perhaps the Journal has introduced a new policy by publishing the contradictory view of Dr. Ratner on the Salk vaccine. If so, one can only applaud its forthrightness. However, in the interests of preventing a repeated misunderstanding such as that caused by Dr. Ratner's remarks, it seems to us it would be well to make this policy known more fully, perhaps in an editorial. Currently, we are convinced, most M.D.'s who read the Questions and Answers section in the Journal of the American Medical Association, believe that the answers reflect the current thinking of the Journal and of the American Medical Association. According to a regular, but inconspicuous statement on the editorial page, this is not true.

Actually, the American Medical Association has not, of itself, made a full investigation of the Salk vaccine. The Association's approval of the Salk vaccine has been based not upon its own evaluation of the vaccine, but on that of the National Foundation and the United States Public Health Service. When these two organizations decided that the Salk vaccine was effective, the officers of the American Medical Association got together to make a policy decision—not a scientific or medical decision, but a political one. They agreed that it would be to the interest of the AMA, as an organization, to go along with the National Foundation and the government health service in the approval of the Salk vaccine. Nothing more than that!

### A Business Matter

The American Medical Association has a great deal of influence in the field of medicine, but it should be understood that this is a business group. It is the job of the Association to look out for the business or professional interests of its members. It has no responsibility to us to check on the value of a medication, to warn us of its danger or its lack of effectiveness. One has as much right to demand that the United States Chamber of Commerce rule with exactness on something like the entertainment appeal of Philadelphia. The main function of the Chamber of Commerce is to look out for the business of its members. It will take the word of the mayor of Philadelphia and, perhaps, the governor of Pennsylvania, that Philadelphia is a wonderful place to play. It will tell anyone who asks that Philadelphia is a hot bed of entertainment:

1. because it likes to say something positive about a member city;
2. because it trusts the opinion of the mayor and governor;
3. because the United States Chamber of Commerce has never sent anyone to check Philadelphia's entertainment firsthand, and doesn't know differently.

One tends then to put more stock in the word of such a group than is actually intended or desired. If the Chamber of Commerce says that entertainment in Philadelphia is tops, that is

a policy decision to promote the charms of Philadelphia, because the Chamber of Commerce thinks it good business to do so. If the House of Delegates of the American Medical Association decides to support the Salk vaccine, it is because the House also thinks it is good business and good policy to do so.

This is not to say that the American Medical Association ignores doing any scientific investigation on its own. To the contrary, when a question of science reaches grave proportions of controversy, as has the value of the Salk vaccine, then the AMA appoints what is termed an Ad Hoc Committee (an objective scientific group) to investigate in full detail the claims of the Salk vaccine.

### Official Responsibility

Who is responsible officially for the popular opinion that the Salk vaccine is 96 per cent effective? The United States Public Health Service and the National Foundation. The National Foundation (formerly the Polio Foundation) is, again, a private organization. We have no control over its conclusions and promotions. It poured plenty of money into the Salk vaccine at a time when it needed a winner in the polio fight. The Salk vaccine was ordained to be that winner on the day Dr. Salk thought he had found the answer in his dead monkey virus. Even if it had caused polio instead of preventing it, as indeed it did in the horrible Cutter Laboratories incident, the National Foundation would probably have pumped advertising money into its sinking ship to keep it afloat. The Salk vaccine had to pay, or the National Foundation might have been dealt a blow from which it could never recover.

The United States Public Health Service promotion of the Salk vaccine is not so easily explained. This is a government agency, not a private one. It is an agency whose specific job it is to protect us from any dangerous or fraudulent health measures, and to investigate, scientifically, before it approves or disapproves of anything in the health field. You pay this agency through your taxes to do only this. It is answerable to you if a mistake is made, answerable to you if its conclusions are open to question. It is, in short, answerable to you concerning Dr. Ratner's statement that 335 million Salk shots were useless due to inferior potency. Dr. Ratner gave a reputable reference for the proof of the potency variations. You have a right to insist that the United States Public Health Service disprove this finding, or modify its stand, which gives the impression that the Salk vaccine has no limitations or drawbacks.

The statistics compiled and released by this government agency to prove the Salk vaccine's value have been seriously questioned by statistical experts. The very criteria for diagnosing a polio case have been changed, with the approval of this agency, in favor of the Salk vaccine, since its approval of the vaccine in 1955. The other ingredients (aside from the actual vaccine) in a standard polio shot have been blamed for causing other serious diseases.

The statements as to the number of shots needed to ward off polio have been changed so often by the United States Public Health Service that no one seems sure even our doctors-of just how many shots are required to confer maximum immunity. (We have these current recommendations: 3, 4, 5, and 8 shots. Some say a shot a year, no matter how many the individual has had!) Yet each recommendation is made with the assurance and positiveness of the Ten Commandments. The Public Health Service's epidemic experts fluctuate in their public statements about the vaccine between its being "a disappointment" and its being "96 per cent effective."

Can they actually be talking about the same vaccine? In early statements, the United States Public Health Service was jubilant about their estimate of the Salk vaccine's 85 per cent

effectiveness. Can they be disappointed now when they can say that it is 96 per cent effective?

### Plenty of Personnel and Money Plenty of Personnel and Money

The editorial assistant at the Journal of the American Medical Association suggested that the Public Health Service had "jumped the gun" on its approval of the Salk vaccine. Why should it have done such a thing? It has the personnel, the money, and the duty to investigate thoroughly, and as long as necessary, any question which affects our health. The announced Sabin live-virus vaccine was under study for years before it was given an okay by this agency. It was used on millions all over the world before it was approved. The Salk vaccine was in the hands of the doctors even before the official Francis Report of its effectiveness was made known, and this was permitted without an official, independent investigation by the United States Public Health Service. This government agency took the word of the Francis Report as the basis for its approval of the vaccine for the use of United States citizens. The Francis Report was commissioned by the National Foundation, the group which sponsored the Salk vaccine. The United States Public Health Service's acting on that recommendation alone was as though one were to write to an aspirin manufacturer and ask him if his aspirin is effective, and order it on the strength of his saying yes. The answer was bound to be yes.

### Hard to Turn Back

Once committed to the positive value of the Salk vaccine, the Public Health Service could hardly change its mind publicly, without looking silly and losing public confidence. So, instead, it has ordered changes in manufacturing procedure; it has changed the potency requirements up and down, and it has increased the required number of shots.

We defy the United States Public Health Service to state that the bottle of vaccine your doctor is using in his office today is even approximately the same vaccine approved by this organization in 1955. It is not, of course. The vaccine of the Francis Report is no longer being made. The vaccine we are now using has been modified for safety. This is less potent, and therefore should be, by all the laws of logic, less effective. The United States Public Health Service has increased by 10 per cent the original estimate of its effectiveness. What basis is there for so much controversy over the Salk vaccine? It is a question that must be answered. The answer should come through an open Congressional investigation of the Salk vaccine and the part played by the United States Public Health Service in promoting it. Let all of the evidence, pro and con, be gathered together so that it can be discussed and evaluated. We pay the Public Health Service to be as anxious as we are to know the truth about the Salk vaccine. They should be demanding an investigation so that they can justify their position in all of this confusion. Perhaps Senator Kefauver is the man to initiate such an investigation. Perhaps he is only waiting for the suggestion from us that he do so.