

The Neurology of Immunization

Convention lecture

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The topic of immunity has always been controversial and promises to be that for some time to come. From the first comparative observation of patients with relation to other cases of the same disease, it was noted that with some conditions, the patient became immune after the first attack. Conclusions were drawn that natural immunity does exist and that an immunity can be actively acquired. Everyone agrees so far. The next step was to be deliberately exposed and induce a mild form of the disease to provide immunity later. This is still practiced by the laity with parotitis; mumps is easier on a child than an adult. From there Jenner et. al., tried inducing related diseases, e.g. cowpox, as an immunity to smallpox. This basic method is still used with smallpox vaccination. (Latin – vaccines, vacca, a cow) A further step then was to use serum from an immune animal supposedly containing antibodies not as a preventative, but to abort an already developed case of diphtheria. Here the patient has no part in making antibodies, so it is called a passive acquired immunity, is of short duration and of questionable value.

From these historical observations we have a terminology of immunization

Immunity

A. Natural – The wild carnivora are probably practically exempt from bacterial infection.¹

B. Acquired

1. naturally – as result of the disease clinically

2. artificially

a. actively – as result of the disease through deliberate inoculation with an antigen

b. passively – by injection with immune serum already containing antibodies

When any substance is injected into the tissues there is a reaction which may neutralize, clump, dissolve, kill or precipitate the invading substance. The injected protein is called an antigen. The reaction of the antibodies has been thought to be either neutralizing or absorbing. Depending on their actions, these antibodies are classed as antitoxins, lysins, phagocytes, opsonins, agglutinins or precipitins. Serum from an immune patient will have these actions in a test-tube or on a culture plate of appropriate bacteria. It has not been established whether this actually takes place in the blood stream.

Best & Taylor² define anaphylaxis as a reaction which follows the administration of a foreign substance (usually a protein) into an animal previously sensitized to the substance. Horse serum injected into a guinea pig results in bronchospasm and frequently death from pulmonary arteriospasm and the clumping of leukocytes which block blood circulation.

In man, fatal anaphylactic shock may follow the injection of horse serum into a person who has been sensitized by a previous administration. Allergic reactions, in general, show many similarities to anaphylactic reactions...although in the case of allergic reactions sensitization by an earlier exposure is apparently not required, the reaction

*appearing upon the first known contact with the foreign substance.*³ [The reaction takes place in the tissue cells and not in the blood plasma. Sudden death may result from the injection of horse serum e.g. diphtheria antitoxin or antitetanic serum, into an asthmatic subject without previous sensitization] *W.H. Manwaring found that the blood of the sensitized animal could be replaced by blood from normal animals without affecting the first animal's sensitivity.* ³

Previous sensitization is not always necessary. Best & Taylor say that intravenous peptone injection gives a similar reaction without previous sensitization. In order to better understand these reactions of the body to foreign substance, we must recall that

*Adrenalin when injected hastens the clotting process.... Adrenalin has no effect upon the coagulation of blood after it has been shed.*⁴

Hence, It can't possibly be a chemical reaction, but must be a reflex mechanism. Zondek says that even the hormones in the body are inactive until they reach the destination where they become activated.⁵ With this in mind, we can better understand Albert Kuntz in *The Autonomic Nervous System*.⁶ In 1937 Samara discovered

...phagocytic activity of reticulo-endothelial cells in the bone marrow like that in the corresponding cells in other organs, may be increased due to sympathetic stimulation. The hemopoietic activity of the bone marrow also appears to be subject to modification through sympathetic nerve stimulation. ⁷

Somogyi (1938) ...[reported] Faradic stimulation of the cervical sympathetic trunks resulted in increases of 27% in the number of erythrocytes and 23% in the amount of hemoglobin. ⁸

*Muller and Myers (1924) found the peripheral blood almost devoid of leukocytes for about ten minutes following the injection of 10cc of a 20 per cent peptone solution. During this period the leukocytes were concentrated in the vessels which are innervated by the splanchnic nerves, particularly those of the liver. [This involves only the polymorphs.].... If one limb is deprived of its sympathetic innervation, blood taken from this limb, following injection of one of the above solutions, shows no marked reduction in the number of leukocytes, although the rest of the peripheral area exhibits leucopenia. This fact strongly supports the theory that the distribution of leukocytes is regulated by the autonomic nerves.*⁹

Further data also indicate that endothelial permeability is modified by autonomic nerve impulses. *Examination of the skin of a patient in a chill reveals pallor, pilo motor stimulation, transient perspiration, and lowered temperature. The arterioles...are contracted. The muscles exhibit tremor. ...These phenomena cannot be explained as the direct effect of bacterium or the toxin..., but must be regarded as secondary effects of the toxic agent mediated through the nervous system.*¹⁰

Peterson & Muller (1930)....in their experiments carried out on dogs, [found that] external pressure on the eye sufficient to cause perceptible reflex cardiac inhibition applied for four minutes with repetition after five minutes was followed by a period of

*approximately seventy five minutes [of peripheral leucopenia]... When ocular pressure was applied for two minutes and repeated at one minute intervals, peripheral leukocytosis set in immediately with diminution in the calcium content of the lymph.*¹⁰

With that much established on nervous regulation of phagocytosis, etc., Kuntz quotes a series of experiments

*As reported by Reitler (1924) the formation of antibodies was initiated in rabbits by injection of an antigen into the ear following ligation of its vessels. The ear was also amputated immediately (about 3 seconds) after the injection. This result shows clearly that the formation of antibodies may be initiated reflexly and that it may occur in the absence of the antigen in the circulating blood.*¹¹

*Bogendorfer (1927, 1932) reported the results of a series of experiments, carried out on dogs, in which he demonstrated that the production of agglutinin is influenced by impulses emanating from a central nervous center. The injection of a specific antigen which resulted in active agglutinin production in normal animals was without effect, in the experiments, in animals in which the spinal cord was previously transected in the cervical region. If the cervical spinal cord was transected after the production of agglutinin was initiated, following the injection of the antigen, the reaction continued. These data support the theory that the production of immune substances represent specific reflex secretory reactions to specific stimuli.*¹¹

*Immunity and bodily resistance, in a large measure, are determined by the functional condition of the autonomic nervous system.*¹²

Here then, we have evidence of the production of antibodies actuated through the nervous system without the antigen in the blood stream and conversely, a bacteremia without the antigen response where the nervous system is not intact. If this can be done consistently, then there must be a specific nerve stimulus with antigenic properties.

Speransky points out more clearly the role of the nervous system in pathogenesis and immune response. Meyer & Ranson in proving the tetanus toxin traverses nerve trunks, introduced tetanus toxoid subcutaneously and blocked the corresponding nerve with tetanus antitoxin which prevented or retarded the symptoms. Aristovsky and Ponomarev repeated these, but blocked the nerve pathway with normal serum, producing identical results.

*In order to settle the question finally, we decided to repeat the experiment in a grotesque form and to bar the path with tetanus toxin itself. ...controls [were made] with antitoxin and normal serum. ...In some cases an even more pronounced effect was obtained by using toxin. Consequently the act itself of introducing a foreign substance into the nerve, whatever the nature of the substance, plays a fundamental role in the process....*¹³

After establishing that tetanus toxin and *novocaine* could be mixed without altering the toxin. They injected dogs and rabbits.

One animal of each pair received a subcutaneous injection into the knee of tetanus toxin. The other the same dose of toxin mixed with novocaine. In more than half the cases, the animals given a mixture of toxin with novocaine did not become ill. 13

Hence, the disease is **obviously a nervous reflex**, with the antigen (toxin) acting ONLY as a specific nerve stimulus. Speransky points out that

Diphtheria is a specific process. Now, exactly why do we call it specific? Two aspects of the matter must be distinguished here: the first is the external manifestation of the process; the second is the immune-biological reaction...Nikitin & Ponomarev...studied the effects of introducing diphtheria toxin into the central nervous system of guinea pigs. The animals have previously been given intravenous injections of enormous doses of specific antitoxins. This did not save them from death which usually occurred within the first twenty-four hours. On dissection, characteristic changes of the suprarenal glands and cardiac ganglia were discovered in these animals, although under the conditions indicated not a single molecule of the toxin could have reached either the suprarenal glands or the heart. It is clear that these changes under ordinary circumstances also do not depend on contact between the toxin and the elements of the organs themselves, and that the producing agent consists in process of a nervous nature. Nevertheless, the abovementioned changes in the cardiac ganglia and especially in the suprarenals, are regarded as typical, precisely of diphtheria.14

Serious evaluation of tetanus and diphtheria makes it vividly clear that even the pathological changes in the tissue are definitely reflex mechanisms and are NOT chemical reactions based on contact between the tissues of the organs themselves and the toxins. As for immunological reactions of diphtheria, Speransky cites the results of Ponomarev's experiments¹⁵ which show that under the most favorable introduction of antitoxin into the central nervous system, there could be an abortive reaction if done within 45 minutes after the toxin introduction. By 60 minutes there was no possible way for the disease to be altered. What does that mean then to the current practice of making throat cultures and the injecting of antitoxin after 3 or 4 days? As for the prophylaxis by immunization, he cites mortality rates in epidemics among the unprotected and fully inoculated groups with no overall differences. In fact, in many immunized groups the mortality rate was about tripled, but not always. Further, showing that most pathology is of reflex character, Speransky cites another series of experiments¹⁶ showing that tuberculosis of the kidney can be produced bilaterally in 100% of the cases by inoculating unilaterally a testicle. Kidney carbuncles replete with staphylococci can be induced by injecting a drop of formalin into an ovary. Further, necrotic ulcers of the foot which have many obviously endogenous bacteria can be induced by sectioning the sciatic nerve and then irritating the centripetal end of it with formalin. Since the ulcers begin as a deep abscess with no surface communication, the bacteria must be endogenous.

Speransky takes up the question of syphilis,¹⁷ which is a typical microbial infestation. Actually one can have a spirochetemia for an indefinite time without any symptoms, just as Kuntz had pointed out, and it is possible to have the clinical disease without the microbe in the body at all, provided that the microbe was used as a specific nerve stimulus to start off the reflex response. These two conditions of spirochetemia and clinical syphilis are entirely separate entities with only the moment of specific nerve stimulus in common. If the microbe enters into the blood stream without stimulation of the nerve endings at inoculation, syphilis will not develop. This happens in nearly 2% of lab animals. Clinically it is well known that the spirochete is not demonstrable after the acute chancre stage, in most cases.

Speransky reports that

Bacterial, chemical and physical agents were alike capable of beginning dystrophic processes within the network of the nervous system,[which] easily took on particular qualitative forms.... In experimental tuberculosis produced by infecting healthy laboratory animals, the bacteria is the initiator of the disease and being a specific irritating agent, it consequently gives rise to a constant form of response.... In the human clinic the tubercle bacilli are only very rarely the initiators of the disease....In cases of spontaneous tuberculosis it is futile to increase immunity by the introduction of live or dead virus or specific antibodies.... In one and the same animal the microbes behave differently at two almost neighboring places. In one place they produce generalization...beyond the limits of the injection; in the other they perish, sometimes so rapidly that it is not even possible to discover the spot. Immunity does not deprive the antigen of its property of being a nerve irritant, and tuberculin may easily intensify the already dystrophic process. Instead of the old foci being eliminated, new ones are formed. 18

From these observations Speransky states

Our task was to elucidate the basic mechanisms common to all diseases; and the reader has seen that the results of each of our experiments invariably turned our attention to the nervous system. The same happened in regard to the question of specific reactions. The quality of irritating agent proved to be its capacity to evoke in the nervous system the cyclical development of a definite process.... More than once, isolated voices of physicians have been raised in warning against the seductions of inoculations and the so-called diagnostic tests, (...Pirquet, Shick, Dick, etc.) which are widely used in schools and children's clinics.... The process [pathology initiated by the inoculation] may break out after many weeks or months and be manifested in an unexpected form, being, nevertheless, causally connected with an operation (inoculation) about which both doctor and patient have ceased to think.... As a result, the least scratch or prick is capable of being a stimulus for senescence. [Here is the climax.] The effect is enhanced if the scratch is accompanied by chemical irritation, especially from a substance of protein nature which has the property of evoking special forms of irritation." [Can you think of a better description the usual immunization?] Consequently the clinic, and especially the children's clinic, should accurately estimate the real need for skin tests and all sorts of inoculation...; otherwise the so-called "achievements of science" may easily be converted into one of the methods of crippling humanity.19

In summary, Speransky states that the reaction to an antigen

*...is an old, excellently constructed function, in no way inferior to secretion of saliva, circulation of blood, etc. The encounter between the micro-organism and the macro-organism is the impulse evoking this function, just as bread placed in the mouth evokes secretion of saliva. In both cases, the quality and quantity of the response corresponds to the character of the agent evoking it. [This is]... a normal or physiological function, directed towards active maintenance of the equilibrium between the organism and its environment... Disease, as we have seen, is something entirely different. Its manifestations go outside the limits of physiology, they are not necessary to the organism... Hence, **struggle is not disease and disease is not struggle**. We have here*

two absolutely distinct phenomena. Coinciding in time, they actually intermingle their features but do not fuse them....[The] mutual interaction in the encounter between the foreign agent and the reacting organism...is in accordance with purely physiological laws. The pathological process arising simultaneously proceed independently. The task of medicine consists in finding means of actively interfering in their course.... Hence we have come to regard incubation as the time during which the irritation arising from one or several nerve points, draws other parts of the nervous system into the process and brings about temporary or permanent changes in them. 20

Neurophysiologists would refer to this as *summation of impulses*.

Some of Speransky's original experiments consisted of freezing spots of the cerebral cortex, a process which usually induces epilepsy and in certain degrees cause death. Later on

A special blow was delivered to our conception of the role of neurotoxins in this process when it became clear that 'fatal' freezing of the cortex at the usual spot, if carried out under narcosis but without morphine, practically loses all effect. 21

Friedland reported a series of experiments going further with anesthesia.²² A group of cats were given lethal doses of KCN. Naturally the controls died immediately. Those under anesthesia tolerated the KCN, which was excreted through the salivary glands. When the anesthesia cleared the animals showed no ill effects whatsoever. To further check the possibilities, another group of cats was given intravenous injections of camphorated oil and bile. Controls had severe epileptic convulsions and died with marked cerebral damage. Those under anesthesia showed neither convulsions nor cerebral damage. Lewisite, a violent irritant, was placed under the shaved thigh. Controls developed severe local inflammation while in those under anesthesia, the poison lay unabsorbed on the skin with no local reaction at all. As a check on hormonal action, a group of animals was anesthetized and then given insulin injections. Controls with insulin showed a marked drop in blood sugar as expected, even going into insulin shock. Under anesthesia the insulin went through the blood stream with no effect whatsoever on blood sugar. That reminds us of the effect of adrenalin on clotting time of shed blood and of Zondek's work on hormones.⁵ Both responses are dependent upon normal nerve function. As a climax the situation of anaphylaxis was simulated with intramuscular milk injections. [Milk is a vicious foreign protein, good for that purpose.] The controls developed high fever and the leukocyte count doubled. The animals under anesthesia showed no ill effects. Friedland's experiments strongly suggest that anaphylaxis is a reflex mechanism. It is evident that favorable or unfavorable antigen response is utterly dependent upon the integrity of the nervous system.²³

Let us return to Speransky for methods of treatment. He had shown that every pathology was essentially a nervous mechanism. Nerve blockage, nerve section, general anesthesia and specific antisera were evaluated and discounted as being too severe. He devised a general massage for the central nervous system called pumping.²⁴ Cerebrospinal fluid was withdrawn (10 cc syringe) and reintroduced, withdrawn and reintroduced, in and out until a tinge of blood showed, the last withdrawal being discarded. This general massage was used with many conditions. One group of patients with quinine-resistant malaria included 11 cases of tropical form. In 10 of 11, after pumping without quinine, the symptoms cleared and the parasites disappeared from the blood and did not reappear. With many similar findings he concludes that

the secret of the action of quinine in malaria, of salvarsan in syphilis and salicylic preparations in rheumatism[is in] producing a definite form of nervous irritation. 24

Consequently he says

The medicine of Virchow, Pasteur and Ehrlich is approaching exhaustion and cannot cope with the contradictions that have arisen. 25

Obviously then, **the nervous system of the host is the determining factor in any pathology and in any immune reaction.** Even the tolerance of animal parasites and their virulence within the body depends upon the functional state of the nervous system.

In order to better evaluate the immune reactions, we should check into the state of the antigens more closely. The monumental work of Tissot²⁶ goes further into that matter than any other I have seen. The third volume went to press in June, 1946.

Tissot's work began with an investigation of cancer, especially a search for its cause. In 1922 he had already found the

...ovoid, transparent cells, with Brownian movement inside the other cells, numerous sticks like B. Typhosa [E. typhosa] having knobs at their ends and taking stain as well as numerous hyaline-like granulations of various sizes.26

In August 1959 Van Delen in his syndicated newspaper column cites "recent" discoveries of Leuchtenberger of "peculiar round bodies in polyp cells" and quotes

Helwig continued these studies and found identical round nuclei in ulcerative colitis. Leuchtenberger noted these bodies in more than 600 cases of benign and malignant polyps of the colon. Preliminary studies under the electron microscope indicate that viruses are in these bodies.

Tissot, however, followed this up in 1924 and found that the apparent virus discovered each year since by many investigators in cancer cells can be modified by cultural changes and fuse to form bacteria and then clump to form typical mycelia. Soon he found that degenerating normal cells will disintegrate and the debris will assume bacterial or virus forms. These granules and rods can and do then agglutinate and form typical germinal centers of molds which sprout mycelia that, in turn, break off to form more granules and rods. This is coming so fast that it sounds fantastic for bacterial forms to be changing forms and characteristics, but before we are too critical of this great scientist, let us check with an accepted bacteriologist, Jordan.

Bacteria, like higher organisms respond to changes in environment. This may be...either morphological or physiological. Capsules, flagella, and lipoid sheaths may be lost or accentuated. Spore formation and virulence may be lost or accentuated.... Increased resistance may be developed so that chemotherapy loses effectiveness. Ordinary laboratory cultures when plated out on agar media develop into two kinds of colonies. Smooth-virulent and rough-avirulent. 27

The constant tendency is toward the avirulent (rough) type. Hence, we know that bacteria are modified by their environment. Anthrax bacillus, diphtheria bacillus, and the vibrio of cholera are indistinguishable from identical saprophytic forms, except for serological or virulence tests. The same situation exists with the treponema of syphilis, leptospira, and entamoeba. When one has to inject the organisms into an animal to determine the virulence or non-virulence before naming the microbe, then what kind of specific science have we? Jordan further states

*Tubercle bacilli and typhoid bacilli can sometimes pass through well-constructed filters. It is quite plausible to regard these filterable forms as portions of fragmented cells. Non-acid-fast granules were described by Much as occurring in the material from cold abscesses and elsewhere in which acid-fast bacilli could not be demonstrated but which proved to be infective. These granules are viable and virulent and give rise to typical acid-fast rods.*²⁷

Kendall²⁸ found that by varying the culture medium he could, at will, make many common organisms disintegrate into filterable sub-microscopic forms or integrate them again into the usual visible morphology. Manwaring writes

*The mere addition of sterile milk to a routine culture medium allegedly caused the acid-fast tubercle bacillus...to transmute into a non-acid-fast coccus...[which] can be grown indefinitely as an apparently stable new species.*²⁹

With these facts from accepted authorities in this country pointing out the great variability of bacteria dependent upon their environment, we can be more open-minded for more of Tissot, when he states that streptococci "are constantly produced from aging sterile horse serum at room temperature."³⁰ Tissot discusses diphtheria toxin, a filtrate, which others claim to contain endo and exotoxins. He found the active agent of diphtheria to be composed of granules 0.2 – 0.7 micron which on contact with air are reintegrated into corynebacterium diphtheria within 2 to 4 days. After extensive illustration of many varied experiments he concludes that each bacterial species is only one provisional form of basic living material.³¹ These subcellular bionts, the granules and the knobbed rods, are the building blocks of all normal cells and are the scrap material when the cells disintegrate. Consequently, each bacterial species can be modified and changed severely by environmental changes. So-called typical constant types are only those held under rigid control. These pathogens have both bacterial and hypomycetic (mold) forms. To point out that cellular disintegration results in bacterial forms he cites a classical experiment done by Savel in 1874.³² A dog is sacrificed by femoral hemorrhage, the abdomen opened, the liver and kidneys ligatured and removed aseptically, then immediately suspended in a 1% solution of chromic acid (a bactericide) and kept at normal laboratory temperature – (15-20°C). After 5 days microscopic examination will show the periphery to be perfectly sterile, no bacteria and only the normal microzymic granules; the center, by contrast, is filled with bacteria which are active. This was vigorously denied by Pasteur. Altman, Bechamp and others repeated these experiments and refuted Pasteur. More recently Wurtz & Hermann showed *E. coli* in the liver, spleen and kidney from 24 – 36 hours after death in 16 of 32 autopsies.³⁴ Others said there must be intestinal lesions which illustrates *the falsified interpretations, thanks to Pasteur's errors.*³³ Tissot points out that

...biopsies of liver, spleen, kidney, etc. from normal healthy living animals give rise to E. coli cultures.... Cultures of normal blood or serum...oxylated plasma or pure fibrinogen solution give rise to the same bacteria. Hence, the allegation of infection by E. coli traversing the intestinal mucosa is not only false, it is ridiculous. ...Rico found E. coli in

the liver 20 of 27 times 15 – 45 minutes after death.... Wurtz showed E. coli 5 of 7 times in the heart cavity and in the peritoneal cavity as soon as the temperature dropped to between 29.5 and 32°C. Rico found Proteus vulgaris and E. coli...with cantheride poisoning during the crises.33

With that start on the nature of bacteria and toxins which are the antigens in immunology, let us venture further into this field. Tissot shows that barley grains with the surfaces sterilized can be ground and cultured. In 24-28 hours on broth culture they grow Cladosporium which by conjunctival inoculation develops typical false membrane and the typical diphtheria bacilli.

Does diphtheria antitoxin immunize against or even retard diphtheria? M.D.s know that the incidence in immunized and non-immunized humans is about the same... Statistics published in Greece and France prove that immunization does NOT decrease the number of cases, rather they increase.... In Greece, general immunization was performed on everyone from 1926. In 1929 they had 750 more cases than previously and in 1934, 1840 MORE.... The cases doubled in France and quadrupled in Germany during the 10 years of heaviest immunization.34

Regarding tetanus, Tissot states

Faber, Behring, & Kitasato in 1890 filtered out the bacteria and communicated tetanus with the filtrate. They developed in the same year the tetanus antitoxin which worked in vitro and rendered an injected laboratory animal refractory but it did not help a tetanized animal.... The general fatal mistake was to assume that what worked in animals also worked in man. Actually the tetanus toxin often sensitized man and prepared him for anaphylactic shock. In animals the reaction was one of autogenous vaccine and was good ONLY for the animal from which it was derived.... Cl. Tetani is definitely autogenous with each animal species.... Tetanus toxin on air exposure cultures typical E. coli.” [Of these findings Tissot states] “Tetanus antitoxin and diphtheria toxoid ought to be outlawed because they are worthless and also injurious.35

Tissot’s studies of the tubercle bacillus show it to be a developmental stage of degeneration of the knobbed rod which is a normal cell component.

In 1865, Pidoux wrote, “Tuberculosis is a spontaneous degeneration”. Today he stands justified in spite of later errors by the Pasteurian school. ...Since it is an endogenous condition... It is impossible to be immunized against ANY autogenous disease.36

Regarding rabies, Tissot states

The Pasteur treatment consists of injections of rabid rabbit spinal cord of increasing virulence. It started in 1885. In 1886 [more died from the Pasteur treatment than from dog bites.] Dog symptoms and those of man rabid from a dog bite are convulsive. Rabbit symptoms are paralytic. [This difference allows reports blaming the Pasteur treatment.] Brains of rabid dogs were obtained from the government laboratory and checked. Negri bodies proved to be well developed spores of Aspergillus. Typical Aspergillis developed richly in the tissue culture. These spores, emulsified and injected subdurally in dogs developed clinical rabies and the convulsive crisis on the 3d day. (Dogs dying AFTER the

Pasteur treatment have paralytic, rabbit, serum type.) Rabies, therefore, is developed within the nervous system by the development of Aspergillus. It is actually autogenous. Under these conditions vaccination is impossible.³⁷

Regarding immunity, Tissot said.

Actually immunity against disease does NOT exist. It is only relative. This is because the disease passes to the chronic mycellian stage and quickly clumps newly added foreign protein to old germinal masses.³⁸

Obviously this material of Tissot's 30 years of intensive research is quite revolutionary in comparison to the concepts usually taught to the lay public and in most U.S. colleges since WWI. He has pointed out the extreme variability of bacteria, morphologically and pathogenically. He has shown that bacterial forms are usually the end product of cell breakdown and, therefore, the immunization is not well supported. He has shown us that bacterial variation is due to environmental influence. In the clinic, is not the environment, the living tissue, under nervous regulation?

To illustrate how fast the concepts of immunology are changing among accepted authorities, we need only check the lectures at the International Congress of Microbiologists. For years it has been known that filterable viruses can be grown only within living, crippled cells. When the cell has been injured just so and then infected the cell may recover and show no injury for several generations or it may lyse quickly with production of more virus. Bald states that.

Wounding is, therefore, a prerequisite for entry by the virus... only a fraction of a percent of the cells... are wounded in the right way and to the right degree for the entry and establishment of virus in living...cells.³⁹ [Luria defines a virus as a] submicroscopic unit capable of multiplication only inside specific cells. "40

Or it may be said that the virus acts as a template or pattern for further cellular breakdown to make more virus. Since a healthy, normal cell cannot be infected by a virus without previous injury, one could conclude that in epidemics a person must be sick first for the microbe to effect any disease process. Probably the crowning statement on this trend of ideas is by Alton Taylor

*Even with the tremendous impact that the continually expanding tissue culture approach has made in recent years and its application to the analyses of various host-virus systems, the emphasis still is predominantly on virus activity, rather than on the more inclusive concept that the events that occur are the result of the interaction between the agent and the host cell. In this respect, it should be evident that the host cell is the determinant; in reality, the virus must be considered to be a relatively fixed entity **entirely dependent upon the host**, first for acceptance and growth, and finally, for manifestation of its presence. This manifestation may be grossly apparent in the form of a neoplasm or a disease, or it may remain dormant and be detectable only by special means. Although it has been established that many viruses can coexist in harmony with the host in latent form through many generations, there may be some basic nonpathogenic cellular entity which, under proper chemical or physical stress or stimulus is activated to become a virus-like or neoplastic agent. Whether the disease entity is considered a mutable gene or a cell particulate does not really matter.... In the further progressive analyses of these intricate associations between infectious agents and their*

*hosts, it seems likely that **certain concepts and even whole philosophies must change.***⁴¹ [Emphasis added]

Sperry⁴² reported on the reassociation of separated cells. By dissolving the intercellular cement with peptone they isolated the individual cells of embryonic tissues. It was noted that the kidney cells would reintegrate, form tubules and secrete; that cartilage cells would build cartilage and that skin cells make skin even to the start of feathers [chicken cells]. Extremely young cells would not integrate by themselves unless a few spinal cord cells or brain cells were included. In the presence of the nerve cells they would form special tissues. Each of these features illustrates more completely the nervous system supremacy, embracing pathology, bacterial form and pathogenicity including the antigen responses of immunity and of anaphylactic shock.⁹

[The following paragraph was added in August, 1960 regarding discoveries during the previous year]

There are already over 90 viruses identified as being capable of inducing paralytic polio in appropriately conditioned persons. If the foregoing material is borne out, as is probable by interpolation, eventually there will be as many different strains IS there are polio patients. This also helps explain why over 1,000 cases of paralytic polio developed in the USA during 1959, AFTER they had been “completely immunized”, and why many died of polio AFTER three and four Salk shots. This makes it easier to understand why Dr. G.W. Wilson.⁴³ termed Salk vaccine “too dangerous” and said that the majority of paralytic polio cases were CAUSED by the vaccine. This information makes it more apparent that the nervous system is paramount. Theories are changing rapidly. [RW 1960] 23% of the paralytic polio cases in 1960 previously had received three or more Salk shots. Less than 1/3 of the population had been so inoculated. [RW 1962]

If the foregoing material has made any sense to you, it becomes apparent why the authorities are often the last to inoculate themselves and their families for immunization. With the concepts changing so fast, we can expect the Salk vaccine to be obsolete next year and be replaced in the “favor of the gods” by a live vaccine.

In early summer 1959 the press announced that there was so much Salk vaccine becoming outdated that it would soon have to be dumped. In early July, 1959 the Ohio legislature passed a bill which in essence says that every child must have polio and other inoculations for admission into public schools UNLESS objected to by the parent or guardian in writing OR unless the school board had ruled otherwise. Since the entire responsibility falls back onto the individual school board members, they have a grave responsibility. One question remains to be answered. **With inoculation of an individual under protest, who assumes the legal and moral responsibility for any ill effect of said inoculation, including crippling and death?** The school board members should be aware of this question and of the entire immunization problem.

Kuntz⁶ summarized this matter by showing that antibodies can be developed in response to nervous reflexes without the antigen being in the body. He conversely showed that a bacteremia can exist without the usual antigen responses where the cervical cord was previously sectioned. If this can happen under these circumstances, it is likely that the antigen is merely incidental after the moment of initiating the specific nerve stimulus.

Speransky showed many examples of this same fact that bacteremia and the clinical disease are two distinct entities and can occur independently. He further showed that the characteristic pathologies

develop reflexly and not as tissue response to chemical injury. The pathology can be far removed from the antigen and still develop as result of the pathogenic reflexes. Out of these observations he questioned the value and the safety of all skin tests and all inoculations believing that nerve tissues may become sensitized to such antigens and evoke a delayed pathological response from the irritant-stimulus. He has vividly demonstrated the nervous supremacy throughout the entire broad coverage of pathology. Speransky repeatedly showed that not only the continued presence of viruses, bacteria and even animal parasites within the human body, but also their manifestation in any disease process, is entirely dependent upon a functionally adequate nervous system.

Tissot has shown more clearly the relationship of the micro-organism to each other and to the host. He has shown us vividly that bacteria, to remain fixed species, must have a rigidly controlled environment. In nature with a continually changing environment the bacterial forms are continually changing in adaptation. [see 44] With these changes, the microbe-host relationship is in good equilibrium most of the time. Only when the host loses its adaptability does disequilibrium exist which becomes manifest as pathology. Incidentally, it is generally agreed that the nervous system is paramount to adaptation. Tissot then shown that the bacteria are usually debris of cellular degeneration and as such are the product, not the cause, of disease. Tissot has shown the bacterial toxins to be minute granular bionts which are capable of independent existence. These granules can be reintegrated into the parental bacterial forms. Obviously then, the theory of immunization is considerably altered and it becomes ridiculous to attempt to inoculate against one's own normal tissue components. Tissot has also shown here an explanation for the failure of most vaccines to be of any value to the patient. Since he has shown that the "vaccines" of diphtheria, tetanus, rabies, tuberculosis, and typhoid have no protective power and since they are dangerous, he says emphatically that

THESE FIVE INOCULATIONS SHOULD BE PROHIBITED. With the inefficiency and the dangers of these... known, will the French continue to use their children as guinea pigs for the sole purpose of the financial prosperity of the Pasteur Institute?44

Both Speransky and Friedland cite tests on animals showing that when anesthesia temporarily suspends nervous activity, bacteria, toxins, chemical poisons and even hormones have NO effect. The role of the antigen is thus limited to a specific form of pathological nerve stimulus.

Taylor hints at all these findings and says that the host must invite the virus before "infection" can take place. The virus is entirely dependent upon the host. *Concepts and even whole philosophies must change.*⁴⁰

Thus we can see a great difference between the test tube reactions and the body reactions. The supremacy of the nervous system becomes more apparent with each experiment.

In conclusion, please don't sell yourself short. Remember that favorable or unfavorable antigen response is utterly dependent upon the functional integrity of the nervous system. There is a need for more thoughtful research. One topic in particular is the induction of subluxations with consequent pathology. Then their correction with reversal of pathology following adjustments. This was already done by some osteopaths at the turn of the century. The second is a study of antigen response including anaphylaxis following spinal adjustments, and under anesthesia. When the results are known, we will have an even better understanding of the neurology of immunization.

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- [45. Many 1990 news releases verify the virus adaptability, notably AIDS.]

(This lecture, illustrated with 22 slides, was first prepared for and delivered to the Ohio Chiropractic Physicians Association at their convention in Cleveland, Ohio, October 3d and 4th, 1959 at the Pick Carter Hotel. Additional material has been included during 1960 & 1962. See also Simon, H. J., *Attenuated Infection*, Lippincott Phila. 1960. This later material has similar conclusions on the minor part played by microorganisms.)