

hands become hard by honest labor, and thus resist a great amount of friction. That is not saying that a mechanic's hands can not be blistered by friction and that slivers can not penetrate them.

The blacksmith can handle hot iron—so hot that it would burn others. Yet blacksmiths may have burned hands. Men chew and smoke tobacco to a certain extent and live to a good old age, because they do not go beyond the limits of natural ability to resist these baneful influences. These men may step over the line and suffer from the effects of the nicotine.

Resistance or endurance is a known physical principle, and may be natural or acquired. The pigeon can take enormous quantities of opium. The hog will get fat upon arsenic. Some persons never have measles or scarlet fever. These are examples of natural resistance, while the taking alcohol, opium, tobacco, etc., are acquired.

Dr. Paget had worked for years upon the cadaver and paid no attention to cuts upon his fingers or scratches on his hands, because he had an acquired resistance to the virus, microbes, ptomaines, etc., but in later life he abandoned his work among the dead, and in after years he attempted a post-mortem and nearly lost his life; was very sick for a long time with blood poisoning. This shows that an acquired resistance may be lost.

Resistance is positive; susceptibility is negative. Destroy resistance and you establish susceptibility. A puerperal woman is susceptible to scarlet fever and erysipelas. The puerperal state has destroyed the resistance.

Nature furnishes scavengers in the form of flies, crows, vultures and jackals; the carnivorous animals to keep in check the too rapid increase of other animals which would overrun nature and thus bring a total destruction of all living things. The cat checks the mice, the wolf keeps down the rabbits, the hawk prevent the too rapid increase of the pigeons, the sparrow saves our shade trees by devouring the destructive worms.

The leucocytes do this work for us in our bodies. Your catgut ligatures are removed by the carnivorous leucocytes. A sliver in the flesh causes congestion, brings a whole army of leucocytes in the vicinity, and they loosen the sliver by enlarging the cavity in which it is lodged. These faithful leucocytes as sentinels attack the microbes and eat them, and thus save us from the effect of the bacilli tuberculosis.

While the trophic nerves are normal, producing or recruiting and keeping up the ranks of these leucocytes, we are saved from consumption. The microbes are the rats while the leucocytes are the ferrets, and while the ferrets are healthy, vigorous and sufficiently numerous, we have a resistance to consumption.

While the nervous system is normal the blood making process goes on, the various functions of the body are correctly performed. In this condition a person breathes the air from the lungs of a consumptive patient. The bacilli are few in number and the healthy person receiving the microbes has an active and vigorous army of leucocytes, and the battle is sharp but decisive. The leucocytes are the victors. Let us suppose a wife has been watching and caring for a consumptive husband for a long time, depressed mentally, anxiety wrought up to the highest pitch, there has been loss of sleep. Here is a chain of causes which will break down the nervous system

enough to cause serious nervous and mental disease. There is a loss of appetite, impaired digestion and wasting of all the tissues. In this condition she is taking in the air which is loaded with the bacilli tuberculosis. The leucocytes are greatly reduced in numbers and strength. In the battle the bacilli are the victors. They multiply rapidly and reign supreme until the death of the patient.

There was a point in this patient's history had she been placed in an atmosphere destitute of the bacilli and before resistance had been destroyed, when the nerve energy would have been recuperated, appetite, digestion and nutrition would have been restored and the patient might have been saved.

Confinement in prison causes great mental depression and worry, and this causes the majority of the inmates of prisons to die of consumption.

It is reported that two-thirds of the prisoners at Joliet have consumption, and nearly all the deaths that occur in that institution are of phthisis. Living in dark, damp houses will do the same.

If we ever expect to cure consumption we must do something more than fight microorganisms, which at best is but cutting off the tops of the Canada thistles and leaving the roots in the ground.

We are recognizing to-day the fact that the nervous system with its fibers going to every organ, every tissue and every cell in the body, governing and controlling every action and every function in the grand and wonderful structure of the human body, when it is attacked by disease digestion fails, absorption fails, assimilation fails, and the very citadel of life fails. The King of Terrors rides triumphant through all and over all.

EXPERIENCES WITH SCABIES.

Read before the Section of Dermatology and Syphilography, at the Forty-third Annual Meeting of the American Medical Association, held in Detroit, Mich., June, 1892.

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So long as scabies remains the important disease that it is—actively contagious, at times difficult of diagnosis and also of treatment, being often dovetailed into the community where it is found—so long is it a subject worthy of our consideration. What I have to relate bears upon the foregoing statements.

Some years ago I entered upon a country practice where there had been a well-trained and able physician. How he missed certain cases of the itch I do not know, unless it were from the fact that they occurred in the foremost family in town, who were unwilling to admit that they could have the itch. Said the mother to me, "I thought it was poor folks that had the itch." I replied that the mites liked rich folks just as well, only their more liberal use of soap was in the parasite's way. In this family the father, who was at home but little, escaped. The mother, the grandmother, and four daughters were all affected. The irritation on the grandmother was very great, producing blebs, boils and abscesses. After a little, I succeeded in prevailing on them to use the usual remedies, and with success. The grandmother's case alone would have been difficult of diagnosis on account of its complications. As a whole they demonstrated that scabies is no respecter of persons, and that under certain circumstances, the disease places the physician at a disadvantage to cope with it.

A man, lately from the war, was greatly annoyed

by an itchy condition of the skin, yet showing but little eruption. He went to the ablest physician in the regions, who pronounced the disease the *army wildfire*, and prescribed for it. The remedies not putting the fire out, I was summoned to the house. When the other members of the family were brought up, there was no difficulty in making out what the trouble was with him. Insecticides were prescribed with the usual results. The first physician saw only the father and therefore did not have the opportunity that I had, moreover it was at the time when lichen was very prevalent, and that would not yield as readily to remedies as the itch.

The contagiousness of scabies is eminently illustrated in the following: A clergyman whose family had grown up and gone from home, feeling lonely, went to an eleemosynary institution and took out a girl to racket in his house. This clergyman had drifted into the tide with other Methodist ministers, and gave his influence in favor of the fashionable New England fad, homœopathy, and had the impudence to call me a fool because I would not swear on Humphrey's specifics. Such people are self-deceived and are sooner or later likely to betray their ignorant conceits. It was so in his case. The orphan he brought home had an eruption which he assumed to be the scrofula which he plied with his favorite specifics. Neighbors visited his house and caressed the child. He carried the child with him into nearly all the families in his parish where it was petted and caressed. At length the leading families required my services for the itch, referring the cause to that child. And it was no small setback he received when he found, that through his ignorance of medicine, he had spread the itch throughout his parish, nor was it difficult for me to show whose foot the fool's shoe fitted. Ministers' mouths should not be open concerning medicine when the highest they can swear by is by Humphrey's specifics.

When I was a student with my preceptor in this city, forty years ago, we had a pretty large swing through the North End, he being dispensary physician to a district in that part of the city. At that time Dr. Silas Durkee was giving instruction to a private class on dermatology, and requested my preceptor and myself to let him know if we found any cases of scabies. He said it was one of the rarest skin affections in the city. We did not find him a case, but had invitation to his office to see one which he had elsewhere found. It was in a girl of sixteen, had lasted seven years, and was the only case of the *seven year itch* I ever saw.

Since that time there has been a great change, with respect to this disease in this city, and the various dispensaries are annoyed by the frequency of the cases of it. I have been connected with the North End work for the last year or two and have been particularly impressed with its prevalence among the Italian and Jewish peddlers. They seem not to have a consciousness of the nuisance they are to the community, and that they are spreading the parasite into well-to-do families by their trade; for they go from house to house, undoing and exhibiting their cloth and other wares for the people to handle, when they are themselves alive with the pest.

In the country there is a larger degree of moral sense and the physicians are fully capable of handling the disease. In the city it is otherwise. Though he cure a few cases he can not usually get to the

depth of the cause, in the rags and squalor in which the poorer people live. Hence there is need of organized action. The boards of health are, as a rule, the only competent parties to ferret out and destroy the parasite among the foreign people and in the densely crowded quarters; and this should be an element in their business. Scabies should be put among the diseases with which they deal, should be reported to them the same as measles are, and they should go at it with disinfectants as they do at other infectious diseases. Nothing short of this can rid our densely crowded quarters of the infecting pest. And moreover they should add to this, thorough disinfection, a critical examination of immigrants, and prevent the landing of any who are subject to the disease, till they have gone through the proper course for cleansing. The important nature of the affection demands this action; and unless it be done our immigrant cities must be and remain hot-beds of infection of this kind to our own and better people; for it is impossible that any private physicians can do this work.

MYXOSPORIDIA IN THE COMMON TOAD WITH PRELIMINARY OBSERVATIONS ON TWO CHROMOPHILE SUBSTANCES IN THEIR SPORES.

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The myxosporidia belong to the class sporozoa (Leuckart), a sub-division of the sub-kingdom protozoa. The sporozoa are unicellular parasitic organisms, obtaining their nourishment by the absorption of the liquids of their host. This class of parasites is particularly interesting to the pathologist at the present time, because of their supposed causative relation to carcinoma and other neoplasms. The classification of the sporozoa lately adopted by Braun is that of Mingazzini, who divides them into four groups:—1. Gregarinida (including coccidia). 2. Myxosporidia. 3. Sarcosporidia (including microsporidia). 4. Hæmosporidia. From this it will be seen that the myxosporidia form a separate group of the sporozoa, having been set aside in this manner because of certain characteristics peculiar to themselves; and in this grouping, the principal feature which distinguishes the myxosporidia from other sporozoa, is the presence of thread-like flagellæ in their spores.

The life history of most of the sporozoa is still obscure, though the labors of many investigators in this important field are gradually widening our knowledge. A very striking peculiarity in the biology of these lowly animal forms is the complexity of their development. In the development of a species of the group gregarinida, for instance, there are described no less than the *seven stages* in its metamorphosis. In the so-called "pseudo-navicella" stage, and in the "crescentic germ" stage, in the development of the sporozoa, protoplasmic particles are produced by the segmentation which are of extreme minuteness; and in this condition their examination, even with the highest power of the microscope, is extremely difficult. This difficulty of observation is the case where these organisms are studied free from the tissues of the host, and naturally, it must