

DEADLY LOCKJAW GERM

ODD WAYS IN WHICH TETANUS MAY ENTER THE SYSTEM.

Bacillus Lurks in Dirt and Any Scratch May Admit It—Cases from Toy Pistols, Diving and Bare Feet—Danger from Fishes Also—Symptoms of the Disease.

The lockjaw bacillus is a formidable beast. It is inseparable from dirt. Dirty hands, lurking bacillus, a scratch or cut—and the mischief is done, declares a writer in the New York Sun.

The unenlightened public persists in associating all lockjaw with rusty nails, and quite refuses to accept the bacillus that was formally introduced in 1885. As a matter of fact, the nail's only function is the making of a wound through which the poison can enter the system, and an oyster shell or a toy pistol can serve the purpose of the bacillus quite as well as a nail.

Why this bacillus should be especially prevalent in certain localities scientists do not explain, but the fact remains. The Shrewsbury river is a happy hunting ground for the beast, and a clam shell out of the mud, down there, may inflict a scratch that will mean death. All Long Island mud is full of the bacillus, and the fact that Long Island children live to grow up would speak volumes for their cleanliness, were it not that exposure to sunlight kills the bacillus immediately, and so the sun fights for the preservation of the Long Island species.

New York itself isn't inhospitable to the tetanus bacillus. In 1899 there were 90 deaths from lockjaw in New York City and its vicinity, many of the cases being due to accidental wounds made by toy pistols on the Fourth of July. The pistol wounds in themselves would not have bothered the small boys more than on any other Fourth. Probably there were no more of the wounds than there usually are on that glorious day; but, unluckily for the owners of the pistols, lockjaw bacilli were out in tremendous numbers that season and seized the opportunity offered by the pistol wounds. No boy can celebrate the Declaration of Independence properly and keep his hands clear, so there was no escaping the lurking foe.

Last year two cases of lockjaw in this city were due to abrasions on the head, caused by diving in shallow water. The diver in each case struck his head against something sharp on the river bottom, and the bacillus in the mud entered through the cut, causing lockjaw within a few hours.

A wound upon the face or head, if affected by the bacillus, will be more dangerous than a wound upon the foot or hand. The poisoning develops more rapidly and is more violent in form. A large majority of lockjaw cases originate in the feet or hands of the sufferers because those parts of the body are most exposed.

In warm climates the disease is more common than in colder localities, not because the germ revels in heat, but because the feet are less heavily shod in warm countries and so are more liable to injury.

For the same reason in the south, more Negroes than Caucasians have lockjaw. The Negro makes a practice of going barefoot and his feet are frequently scratched or cut. In one recent mild case of tetanus poison, caused by stepping upon a nail, a New York doctor analyzed leather scrapings taken from the shoe, around the point of incision, and found them full of tetanus bacilli which had been rubbed from the nail in its passage through the thick leather. Had the patient's foot been bare, the germs would have entered the wound.

Another New York doctor tells of several cases of lockjaw which he has treated, while at his summer home, and which have been caused by the introduction of the tetanus bacillus through wounds made by the horns of catfish.

"I have known of tetanus poisoning from cuts made by fish fins and from lobster claws and from oyster or clam shell," said the doctor to a Sun reporter, "and I'd advise any one to suck a wound like that vigorously, the instant it is made. The poison isn't ordinarily on the fish or the shell, but it is on the dirty hands, and a fisherman is pretty likely to have dirty hands and to get occasional scratches in handling fish."

The mosquito carries the tetanus bacillus along with other germs, and in localities where the bacillus is plentiful cases of lockjaw for which no cause could at first be found have been traced to mosquito bites.

In violent cases of lockjaw the poison toxin may develop and produce alarming symptoms within a few hours after the entrance of the bacillus into the blood, but in most cases the development is slow at the outset. The trouble shows first in a soreness and stiffness of the side neck muscles, and gradually slight spasms of the muscles appear.

These spasms increase in violence, and extend to the muscles at the back of the neck, and then to the entire spine and trunk. The abdominal and chest muscles become rigid, and the spine is ordinarily curved. The face takes on grimaces, with the forehead furrowed, the angles of the mouth drawn back into a grin, and the jaw firmly set; and this facial expression, in connection with the hoarse noise made by the sufferer, renders a case of violent tetanus poisoning one of the most frightful sights in the range of medical experience. Chronic convulsions sweep over the body, at intervals more and more frequent, as the case becomes more violent. The slightest noise or jar or even a current of air being enough to bring on one of the spasms. It is only during these convulsions that the patient suffers pain.

Mild cases may last several weeks; but in acute cases, death occurs in from one to seven days, and then mortality is very high. It is estimated that about 90 percent of the cases end fatally, and, among infants, there is no recovery. The mortality from lockjaw is, however, decreasing, as a knowledge of the nature of the disease becomes more widespread and physicians learn how to treat it.

Analysis has shown that tetanus poison is much like strychnine poison in its effects, though much stronger, and various experiments have been made to find an antitoxin that will neutralize the poison. While the results have not been thoroughly satisfactory, prompt inoculation with tetanus antitoxin is undoubtedly valuable in many cases and should always be tried, if that is possible.

Thorough cauterization of the wound is necessary, and, if done promptly, will ordinarily prevent danger; but the difficulty is that the wound is often too slight to occasion any notice or alarm until the toxin has developed and the harm is done.

When the disease is once fully developed the physician has a difficult proposition upon his hands. The patient is relaxed by the use of chloroform, and hypodermic morphine and bromide injections are given. Hot applications are sometimes beneficial. The patient is kept in a dark room and absolutely quiet, the slightest excitement being enough to bring on convulsions. If there is no tooth missing in the patient's closed jaw it is not unusual to extract one, so that a stomach tube may be passed through the opening and nourishment given in that way. Artificial respiration is often necessary. A case developing before the sixth day has chances of recovery; but, if the trouble does not appear until after the 12th day, there is comparatively little hope for the patient.

MORALS AND HEALTH.

Important Facts Discovered by the Scientific Study of Children.

The school systems of the whole world are likely to be revolutionized by certain investigations which have been made recently in Chicago, writes Edward Marshall in Frank Leslie's Popular Magazine. Seven thousand school children have been examined and experimented with as carefully and as scientifically as any student is taught to experiment with chemicals in a school laboratory. Three facts of tremendous interest to every father and to every mother who have intelligence enough to appreciate the high privilege of parentage have been discovered.

First, it has been found that quite as much depends upon physical development as upon the mental calibre of school children. In fact, the investigation shows that the two are almost co-ordinate. Admitting, as in every other generalization, that there are many exceptions to the rule, it has been proved that the strong child and the big child is the bright child in school.

Secondly, it has been found that a serious difference exists between girls and boys in mental capacity. This is so great that it may lead eventually to the abandonment of the education of the two sexes in common.

Thirdly, Professor Lombroso's theory that the perfect man physically is more likely to be the perfect man morally than is the man who is not perfect, has been substantiated. The prize-fighter and the professional athlete will immediately come to mind in refutation of two of these statements—that concerning dependence of mental development upon physical development and the dependence of moral development upon physical development and symmetry. Nevertheless, careful study of men of this class will show that they are not perfect physically; that it, that they are not normal. It will show that in nine cases out of 10, and, indeed, in 99 cases out of a hundred, the physical development of such persons is abnormal. Perfection, to the mind of the scientist, means absolute normality. Certain qualities of the body of the prize-fighter have been developed at the expense of certain other qualities. There are certain things about their physical make-up which are as distinctly below the average as the muscles with which they fight and for which they especially train are above the average. If James Corbett or Robert Fitzsimmons, the pugilists, were put through the same tests which the 7000 Chicago school children have undergone, their average would, in all human probability, be found to be very low. The fact that the college athlete is generally not a particularly good student by no means disproves the results obtained by the Chicago investigators. That he is a notable athletic of itself suggests physical abnormality.

It is the normal man who is apt to be the most moral man. It is the normal man who is commonly the happiest man. It is the normal man who usually makes the member of society. The genius in any line may very likely not be the best citizen, because he is abnormal.

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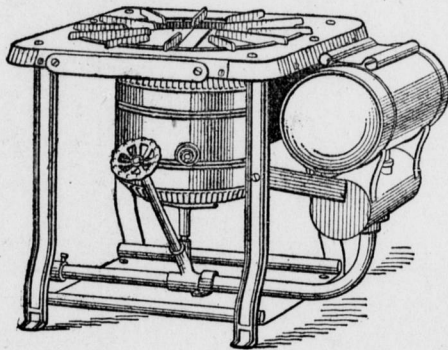
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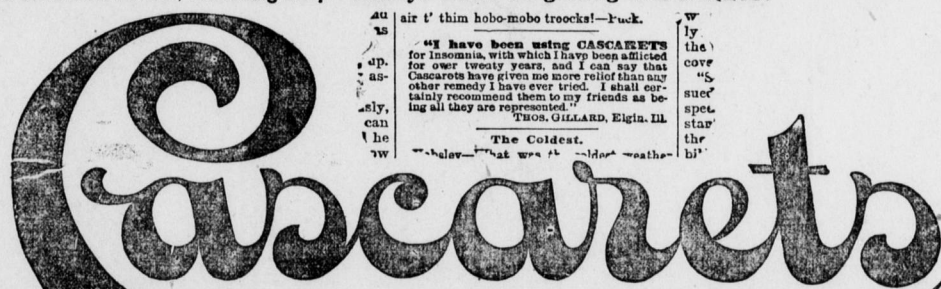
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