look like giant counterparts of a child's erector set. And they are handled almost as easily by the skilled workmen. As you may see at the top of the photograph, the workman holds the 13-foot piece of steel in one hand while he fastens the bolt in place with the other, although the steel weighs about 132 pounds. As the tower increases in height, the motor of the truck is used to hoist the sections up to the workmen.

When completed, the tower is exactly plumb and sturdy enough not to be swayed in the slightest by the winds.

Before this modern tower was designed, it was necessary to take great care in building a thoroughly braced wooden structure for the purpose. At least two days were required to build the old type of tower, and then the material had to be discarded when the triangulations were completed. One of the great advantages of the Bilby tower is that it can be easily dismantled and re-erected repeatedly on new locations.

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MEDICINE

Nerves Give Two-Way Transport to Paralysis Virus

Dr. Flexner Reports Path of Invasion of Poliomyelitis Probably Followed by Viruses of Other Diseases

EXPOSED endings of the nerves of smell, in the delicate membranes lining the nose, are the gateway by which the virus of poliomyelitis (infantile paralysis) may enter the system. The nerve trunks to the brain, nerve connections in it, and nerves returning to the body surface are the paths the invasion follows. So long as it stays with nerve tissue, the disease virus is to a large degree isolated from the blood and lymph, so that protective substances formed in the body or introduced into it cannot reach it effectually, and it is free to continue its malignant work.

This, in brief summary, is the story of poliomyelitis invasion, as studied by Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, New York City, and reported before the National Academy of Sciences meeting in Cambridge, Mass. Dr. Flexner made his studies exclusively on rhesus monkeys, in which he produced the disease by introducing into their noses a suspension in salt solution of the spinal cord of a paralyzed monkey. But he extended the significance of his findings, stating:

"While this communication relates specifically to poliomyelitis, it applies in principle to still other infectious and inflammatory diseases of the brain and spinal cord."

Dr. Flexner then sketched the details of the progress of the infection:

"The virus gives rise to no detectable pathological changes in the nasal mucous membrane. It possesses an affinity for the olfactory nerve cells—the organ of smell—which lie exposed in this membrane. The hairlike processes (dendrites) of these cells project into a layer of mucus which the virus enters to come in contact with the cells. The dendrites take up the virus and pass it on, by way of the axon or nerve fiber, to the olfactory lobe of the brain, whence it passes on still further, by nerve connections, to more distant parts of the brain and spinal cord. As the virus travels it becomes affixed to the motor nerve cells which control voluntary motion, injures them, and thus induces muscular paralysis. Other cellular changes, secondary and reactive in nature, are also induced in the nervous organs.

Carried by Olfactory Nerves

"Hence the olfactory nerves carry the virus from the periphery (nasal membrane) to the brain, and they also carry it in the reverse direction from the center (brain) to the periphery. This two-way transport has been shown for the first time in connection with the virus of poliomyelitis.

"The olfactory nervous structures are to a considerable extent isolated from the blood and lymph, which carry the protective, immune substances effective against impending infections," Dr. Flexner continued. "They afford, therefore, potentially a ready means of penetration of the virus into the central nervous system. It is only after the virus has reached the brain that the cellular reactions in the system, detectable by microscopic and chemical examination of the cerebrospinal fluid, make possible the escape of these protective substances. This phenomenon is more strongly marked among children than among monkeys, which probably accounts for the occurrence of many cases of mild poliomyelitis among children and few among the experimentally infected monkeys.

"The influence of the isolation of the olfactory nerves is observed in monkeys artificially immunized to the virus. These monkeys may be protected against the paralyzing effects of the virus injected into the brain, and yet respond with paralysis to virus instilled into the nose.

"Although this report deals only with experimental poliomyelitis, evidence exists showing that other viruses having a strong affinity for the central nervous organs utilize the exposed olfactory nervous structures in the nasal membrane in order to reach the nervous system. The origin of certain epidemic, nervous diseases of the higher animals is becoming explicable in this way."

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PSYCHIATRY

Physiological "Clumsiness" Feature of Mental Disease

THE PERSON suffering from the type of mental disease known to psychiatrists as schizophrenia has characteristic physiological as well as mental symptoms, Dr. R. G. Hoskins, of the Memorial Foundation for Neuro-Endocrine Research of Harvard Medical School, reported.

The equilibrium of body fluids, blood gases, and oxygen consumption rates usually maintained by normal persons is upset in the schizophrenic patient. The basal metabolic rates of the patients vary in consecutive tests without apparent cause. The rate of using up oxygen not only varies abnormally, but the average rate is low as compared with normal individuals. Blood pressure, pulse rate, and red blood cell count are also low. The waste fluid output averages twice the normal amount, and the amount varies three times as much as for the normal person.

"The schizophrenic is characterized by physiologic 'clumsiness' as he is by lack of social adaptability," Dr. Hoskins said.

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