

PSYCHIATRY

Find Stress Failure Point

Mental illness resulting in schizophrenia has been traced to the failure of the adrenal glands to respond to a pituitary gland hormone.

► THE point in the body-mind mechanism that fails under stress, resulting in the serious mental sickness, schizophrenia, has been located. The mechanism goes wrong where the outer parts of one set of glands fail to respond to stimulation by a hormone from another gland. The stimulating hormone comes from the pituitary gland in the head. It is called ACTH, scientific shorthand for adrenocorticotrophin. The glands that should respond are the adrenal glands which lie one just above each kidney.

This location of the stress response failure in schizophrenia was discovered by Drs. Hudson Hoagland and Gregory Pincus, of the Worcester, Mass., Foundation for Experimental Biology in studies reported to the American Psychiatric Association in Montreal.

The gland-to-gland stress failure point was located by giving injections of the pituitary hormone ACTH, to schizophrenic patients, to normal persons and to patients with less serious mental illness of the kind scientifically termed psychoneurosis. The schizophrenics did not respond to the

ACTH until given three and four times the amount that normal and psychoneurotic persons responded to.

The response of the adrenal gland cortex to the ACTH from the pituitary was measured in a number of ways. Most reliable, the Worcester scientists reported, was the amount of potassium excreted. Potassium is familiar to the layman in potash. But this chemical element is found in the body and is of great importance in the excitability of nerve and in the generation and propagation of nerve action currents.

AERONAUTICS

Wright Brothers' Studies

► EXACT copies of the wind tunnel instruments devised and used by the Wright Brothers in their wind tunnel studies in 1901 are now available for inspection in the Wilbur and Orville Wright Laboratory

building at Oberlin College, Oberlin, O. The originals, long lost but relatively recently found, were bequeathed by Orville Wright to the Franklin Institute in Philadelphia. The replicas were made from them.

Patterns of nerve messages, the scientists pointed out, constitute the physical basis for thought and conduct. And the potassium which plays such an important role in this nerve action is regulated by the outer part, or cortex, of the adrenal glands.

"It is possible," the scientists stated, "that faulty potassium metabolism (utilization) in the face of repeated stresses of daily life may be an important cumulative factor in the development of psychosis (mental disease)."

It may be, they suggested, that gland deficiencies of this sort, which may perhaps be determined by heredity, make some persons more vulnerable to the stress of living than others. Such persons never become mentally sick if their lives present few problems. But under more severe environmental and personalized stresses their glandular defects may result in faulty functioning of the brain with consequent mental disease.

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WRIGHT WIND TUNNEL INSTRUMENT—Here the late Orville Wright is shown with one of the simple but effective wind tunnel instruments devised by the Wright Brothers. Their original instruments have been bequeathed to the Franklin Institute in Philadelphia.

The title of the Wright Brothers as the fathers of aviation means more than merely devising and flying a plane. It comes also for their scientific work on which their successful plane was designed. It is well known that the giant and speedy airplanes of today have their origin in the Wright plane. Less known, however, is the fact that the complicated wind tunnels of today, used to obtain flying secrets and the best plane designs, have their origin in a simple wind tunnel and instruments devised by the same men.

These instruments made it possible for the Wright Brothers to select suitable flying surfaces for their machines and to accumulate all the necessary data to predict subsequent performance, scientists at the presentation of the replicas to Oberlin College were told by Max P. Baker, aeronautical engineer of General Motors Corporation. The modern student of aerodynamics and engineering can well afford to study the direct simplicity and inherent accuracy of these exact replicas of the original instruments which made the first airplane flight possible, he said.

The first instrument is a pressure testing machine. "It is our belief," Wilbur Wright was quoted as saying in 1902, "that the method and construction employed entirely avoid errors from the following sources: variation in wind velocity, variations in temperature and density of the atmosphere, travel of center of pressure,