

## MEDICINE

# Attack Schizophrenia

Find chemical, cholinesterase, that reduces some of the bizarre behavior of those afflicted with the serious mental disease, schizophrenia.

► A NEW chemical attack on the serious mental disease, schizophrenia, is now under way.

A chemical has been found which reduces some of the bizarre behavior of this sickness. The chemical has been given to patients by injection into the ventricles, or cavities, of the brain.

News of this new approach to the conquest of schizophrenia, which fills one-fourth the hospital beds in this country, is reaching the scientific world through two English scientific journals. The first report, in *NATURE* (Jan. 26), is by Dr. Stephen L. Sherwood, neurosurgeon at Middlesex Hospital in London, England, and Miss Ellen Ridley and Dr. Warren S. McCulloch of the department of psychiatry, University of Illinois College of Medicine at Chicago.

Cholinesterase is the chemical used by this group both in treatment of patients and in research on cats. The treatment of patients is still strictly on the research level, Dr. McCulloch stresses. It will be probably three years before the scientists will know its real value.

The treatment produces remissions, during which symptoms are lessened. Then the patient relapses. The injections of the chemical into the brain can be repeated, perhaps indefinitely, with improvement each time. But how long the improvement will last after further injections is not known yet.

Further limiting the treatment to the research level at present is the fact that cholinesterase, a body chemical, is not available commercially. For the Illinois research it was extracted from human red blood cells by Dr. James Bain of the University of Illinois.

The schizophrenia patients likely to be helped by this treatment, if further research proves its value, are those with catatonia. Stubbornness, negativeness, and a stupor or trance-like state are characteristic of this form of schizophrenia. Patients lie motionless, doing nothing for themselves. They will hold for long periods any posture their bodies are put into, such as head turned, one arm extended and body bent at the hips.

Cats get a condition that cannot be told from human catatonia as a result of a special kind of brain injury. When these catatonic cats are given cholinesterase injections into their brain ventricles, the symptoms disappear for an hour and a half to two hours. The improvement is sustained and advanced by repeated injections.

Most interesting to scientists and perhaps most hopeful for eventual conquest of the catatonic form of schizophrenia and maybe other forms is the chemistry underlying the cholinesterase treatment.

This body chemical normally destroys acetylcholine. This is another body chemical which is set free when nerve endings in voluntary muscles are stimulated to contract the muscles. The cholinesterase controls the acetylcholine, preventing too much of it from accumulating at nerve endings. A number of drugs counteract cholinesterase. Among them is di-isofluorophosphonate. In large doses this and similar chemicals produce symptoms resembling some mental diseases and they aggravate the signs and symptoms of schizophrenia.

These findings, made by other scientists, gave Dr. Sherwood the idea that cholinesterase and similar drugs counteracting acetylcholine might reduce the symptoms of schizophrenia. There are other, muscle relaxing drugs which counteract acetylcho-

line. Among these are some derivatives of the old Indian arrow poison, curare, and such synthetics as Flaxedil, Mytolon and Sincurine. Several investigators are now trying Flaxedil in patients with catatonia, but results are not yet ready for reporting.

These chemicals, although they counteract acetylcholine, do not achieve this in the same way as cholinesterase. The latter destroys acetylcholine. The others prevent a muscle from becoming permanently depolarized, thus relaxing it.

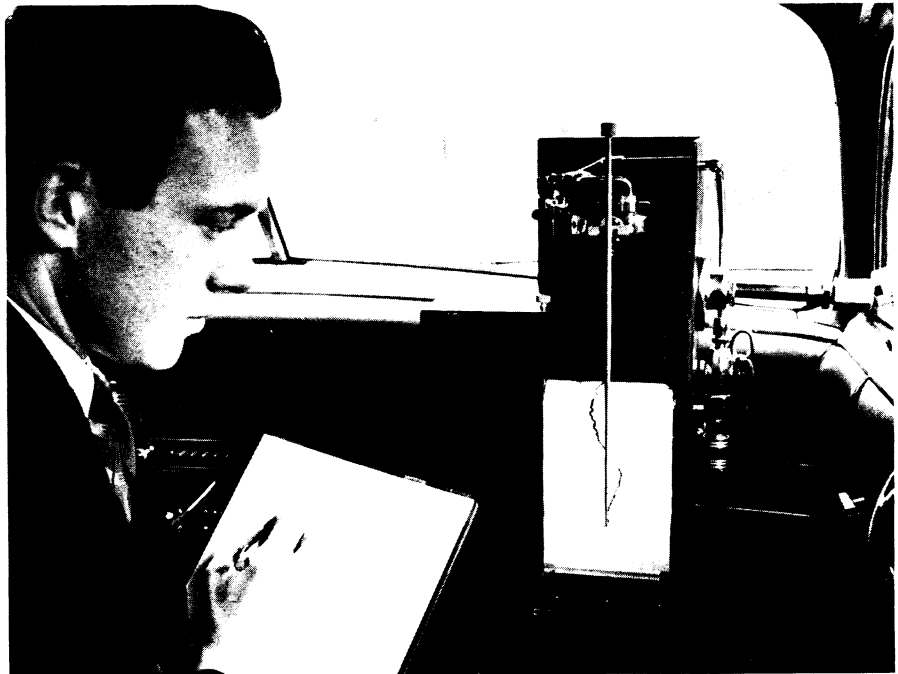
So far, no one knows whether the trouble in catatonia is accumulation of too much acetylcholine or over-sensitivity of some persons to normal amounts of acetylcholine. If the scientists can find out why cholinesterase and perhaps some synthetic drugs help even temporarily in catatonia, they may know what goes wrong in the body to produce the disease. Then there will be much greater hope of remedying or preventing the sickness.

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## ENGINEERING

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**ROBOT MOTORIST**—To help make automobile riding smoother, this device automatically records on a moving tape the slightest rolling, pitching or zigzag motions in cars under test. Chrysler Corporation engineers combined a small gyroscope, a spark coil and a metal pointer to make the robot motorist.