upon their breasts and, figuratively or literally, put ashes upon their heads.

What is crying but a form of self-torture and self-mutilation?

"Rebound" Marriage

A "marriage on the rebound" of a person who has been jilted may be a mental parallel of such physical self-punishment in grief. Dr. Dabrowski tells of an 18-year-old girl who found that the boy she loved had deceived her. Within a few hours after hearing this, she gave herself to the least acceptable and even physically repulsive of her suitors in a sort of self-revenge.

Dramatization and a need for the spotlight may be another explanation for self-torturers.

Here is the usual motive behind the child who puts on temper tantrums. When a youngster chooses a public place or an embarrassing moment to throw himself on the floor, kick and scream, or hold his breath until he becomes actually blue in the face, his eyes pop out and his life seems in danger, you may suspect a desire for the spotlight. He may have a feeling of inferiority and takes this way to gain attention.

Children have been known to bring on nose bleeds, make themselves sick, and feign convulsions because they enjoy the excitement and commotion in the household which such behavior produces, Dr. Dabrowski found.

Asceticism

A higher motive for self-torture is found in asceticism which is known among all peoples, primitive and civilized. Certain forms of deprivation and self-sacrifice are essential to the building up of character and the manly virtues, is the belief underlying religious fasting, humiliations, prohibition of certain pleasures at certain times.

The Catholic girl who gives up candy during Lent, or the Methodist boy who refrains from card-playing or the Dunker who dons plain clothing is acting upon the same general motive as that activating the Hindu who lies on a bed of spikes.

Carried to extremes such forms of religious self-torture produce a sort of ecstasy that seems to lift the convert from the commonplaces of ordinary existence.

Michelangelo, Dostoyefsky, and Tolstoy are among a number of geniuses described by Dr. Dabrowski as practicing self-torture in connection with their art.

Michelangelo suffered an intense feeling of inferiority. He was not good looking. His body was poorly proportioned, and what facial beauty he might have had was destroyed by a broken nose. That to a person in whom love of the beautiful amounted to a passion, was tragedy. He abused his health and especially in his later years he endured hunger, terrible hours of work, and privation. And when he had finished a masterpiece he would ruthlessly destroy it unless it were taken from him by force.

Dostoyefsky's and Tolstoy's tales of suffering reflect the torture that they themselves endured in their pursuit of mental self-punishment.

Has Served Society

Thus, this universal craving for discomfort and pain, which seem so useless and harmful when it takes its ordinary outlets of nail biting and lip chewing may be turned to very noble purposes and serve society in outstanding ways.

"A feeling of inferiority may be an incentive to put forth one's best efforts, and perhaps no great accomplishment has ever been attained except under the spur of some such stimulus," said the psychiatrist Dr. C. Macfie Campbell, who is quoted by Dr. Dabrowski.

If you must suffer, let your suffering be to some good purpose, urges Dr. Dabrowski as the result of this study. "Severity to oneself should be accompanied by sensitivity to the sufferings of others," he says.

The forgetfulness of self that makes a man dive into icy waters to save a companion from drowning, that kept the commander of the Hindenburg persistently at his post until he was forcibly dragged out of the flaming wreckage, and that enabled other men to jump into that inferno for rescue work, is a result of training in submitting the natural instincts to authority of the intellect and moral principles in order to reach a high degree of self-control.

Science News Letter, May 29, 1937

PSYCHIATRY

Insulin Cuts Short Circuits In Brain of Mental Patient

INSULIN shock treatment is banishing hallucinations and clearing up befogged minds of mentally sick patients by isolating short circuits in the brain which are responsible for the mental confusion, Dr. Manfred Sakel, Viennese psychiatrist who discovered the new treatment, explained to members of the American Psychiatric Association meeting at Pittsburgh.

The particular mental disorder for which Dr. Sakel introduced insulin shock treatment is schizophrenia, also known as dementia precox. Psychiatrists estimate that 100,000 persons suffer from the disease in the United States alone.

The insulin shock treatment also works on narcotic addicts, aiding in the difficult process of weaning the addicts away from the drug they love. Instead of being morose and mentally disturbed after the drug is taken away they become extremely friendly and interested in the world around them. The new treatment was first discovered by accident during treatment of a drug addict who had diabetes. Insulin, a gland extract, has been the standard treatment for diabetes for over a decade.

Giving insulin, the diabetes remedy, to the schizophrenic patients in doses large enough to reduce the amount of blood sugar almost to the point of collapse, banishes the hallucinations and restores their sanity. Dr. Sakel reported that this treatment had succeeded in bringing 80 per cent. of the patients back to a normal mental state.

The mystery of how insulin shock treatment accomplishes this was explained by Dr. Sakel on the basis of a new theory of the cause of the disease.

Stimuli coming to the brain from sense organs, such as the eyes and ears, probably travel along pathways from one brain cell to another, Dr. Sakel suggested. Injury at any point may distort and confuse the pathways. Then the stimulus, coming from eye or ear or other sense organ, loses its way or is short-circuited.

When the stimulus comes in over the short circuit or false pathway, the brain's response may consequently be false. This would explain the hallucinations of the mental disease. A stimulus that should have come, say, over the pathways from the eye got short-circuited along the way

● RADIO

June 1, 4:15 p. m., E.S.T.
SEA SERPENTS AGAIN—Dr. Paul Bartsch of the U. S. National Museum.

June 8, 4:15 p. m., E.S.T.
SCIENCE DIGS A MINE—Charles F. Jackson of the U. S. Bureau of Mines.

In the Science Service series of radio discussions led by Watson Davis, Director, over the Columbia Broadcasting System.

and arrived on the pathway from the ear. The thinking part of the brain received it as an ear stimulus and the patient heard voices that did not exist.

When the blood sugar is lowered by insulin, the false new pathways or short circuits are isolated, Dr. Sakel believes. This banishes the hallucinations.

Because the false pathways are the most recently formed ones, they are most easily isolated. When the false pathways have been in existence for a long time, as in mental cases of long standing, it may not be possible to isolate them. This probably explains why the insulin treatment is more effective in acute, newly-developed cases of schizophrenia than chronic ones and in young rather than old patients.

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PHYSICS

Attempt to Split Neutron A Failure at Cavendish

THE neutron has not yet been disintegrated. This subatomic particle, one of those unknown until recent years, can not be split into electron and proton, older building blocks of the universe.

A scientific trio from famous Cambridge's famous Cavendish Laboratory, consisting of C. W. Gilbert, C. L. Smith, J. H. Fremlin, attempted to confirm a report from Japan that the neutron could be broken up. They bombarded it vigorously with the hearts or cores of heavy hydrogen atoms, called deuterons. But the neutron refused to split. (*Nature*, May 8).

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INSPECT NEW HEALTH CENTER SITE

Surgeon General Thomas Parran and other officials of the U. S. Public Health Service showed Sir Henry Dale, Nobel Prize Winner and director of the British National Institute for Medical Research, the spot near Bethesda, Md., where ground has been broken for the new U. S. National Institute of Research. The plans call for four buildings to house the federal health service's research activities in the fight to protect America from disease. When Sir Henry saw the site and plans he expressed unbounded admiration, tinged with envy, although his own institute is one of the world's outstanding medical research centers. "I wish we had the same thing," he said. Left to right: Prof. Carl Voegtlin, U. S. National Institute of Health; Dr. R. L. Thompson, director, U. S. National Institute of Health; Sir Henry Dale; Surgeon General Parran; Dr. R. E. Dyer, assistant director, U. S. National Institute of Health.

PHYSIOLOGY

British Scientist Describes Chemical Emissary to Muscles

MILLIONS of charges of a chemical, acetylcholine, spurt from nerve endings every time a thought commands a muscle to move, Sir Henry Dale, director of the British National Institute for Medical Research, explained in his first interview in the United States since sharing the Nobel Prize award for this discovery.

Research leading to the discovery was described by Sir Henry before medical audiences in Washington, D. C., Baltimore, and New York.

"When I talk to you," Sir Henry said, "millions of charges of acetylcholine are released to move my tongue and lips."

This same chemical is what causes sweat to stand out on a man's face when he has had a bad fright or other shock, Sir Henry explained. It was formerly thought that this effect was caused by adrenalin, product of the adrenal glands.

With the exception of the sweat glands, acetylcholine is concerned only with the nerves that control voluntary muscles. It is probably formed at the endings of these nerves. Only an infinitesimal amount is released at each discharge.

Acetylcholine was known to scientists at least 50 years before its important role in the body was discovered. The research leading to this discovery was done partly by Sir Henry and partly by Prof. Otto Loewi at Graz, Austria, who shared with Sir Henry the Nobel Prize in medicine and physiology for 1936.

Practical application of the discovery is already being made in the case of a serious disease of muscle weakness, myasthenia gravis. The defect in this condi-