

PSYCHIATRY

Possible Cure Hinted For Nervous Breakdown

A METHOD of curing nervous breakdowns in rats, that may contain a hint of useful methods for treating human mental trouble, was reported to the American Association for the Advancement of Science in Columbus by Dr. Norman R. F. Maier, University of Michigan psychologist who last year won the thousand-dollar AAAS prize for merely producing nervous breakdowns experimentally in rats.

The trick in Dr. Maier's cure for neurotic rats is to encourage them to find something to do even though it fails to solve the conflict that confronts them. He calls this "abortive behavior." Rats forced to act in a manner which they have learned is wrong suffer nervous disorder. Dr. Maier, to cure them, trained them to just make a halfway jump toward solving their dilemma.

Translated into human applications, this is the way Dr. Maier's new therapeutics, at present tried intensively only on two rats, might work out:

A man driven by hunger of his children to steal bread but prevented by honesty might have a nervous breakdown. If he makes a clumsy and unsuccessful attempt to steal, his mind would be restored.

A girl urged by her parents to marry might dislike both of two available suitors. Forced to marry, she would break down. If she engages herself to one but is cold to him, so that they drift apart, she is saved. A substitute activity, such as a career of nursing, would serve the same purpose.

Occupational therapy in a mental hospital serves to fill this need for substitute or partial activity.

Science News Letter, January 13, 1940

ENGINEERING

Static Electricity Used For Industrial Separation

STATIC electricity, the kind that makes your hair stand on end when you comb it, is now being used by the food industry for the dry separation of particles.

Shelled nut meats can be separated from the shells. Raisins can be stripped from leaves and stem material. Watercress seed can be removed from rice, and pest seeds separated from various economic seeds. O. C. Ralston and Foster Fraas of the U. S. Bureau of Mines told the Chemical Engineering Symposium of the American Chemical Society at the University of Michigan.

Electrostatic separation—making use of the different behavior of dissimilar particles under the influence of an electric field—has long been used for mineral separation, said the Bureau of Mines scientists. To a large degree it has been superseded in this field, however, by flotation methods. In contrast, the food industries, where a dry separation is needed, use it widely and it is constantly being improved.

This progress, in turn, indicates possi-

bilities of applications in mineral separation by the electrostatic method. One new advance, said scientists Ralston and Fraas, is to pre-condition the surface of the mineral to be separated so that the particles can be more easily drawn apart in the electric fields. Acidic gases, such as hydrofluoric, have been found effective for silicate minerals. Feldspar and quartz can be separated by this method. The hydrofluoric acid forms potassium and aluminum fluorides on the feldspar particles, whereas the quartz particles are merely etched by the treatment and silicon tetrafluoride vapor passes off.

For separation of minerals like limestone, dolomite, magnesite and borax vapors of acetic and benzoic acids have been used for the pre-conditioning treatment.

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Flotation Purifies Cement

NEW WAYS of removing contaminating minerals from the limestone that is to be used for cement were de-

scribed by George K. Engelhart of the Valley Forge Cement Company, Catasauqua, Pa. Fatty acids are used to remove tiny grains of quartz from the limestone by an inverse flotation process; that is, the calcite—source of the lime—is floated off and the quartz dust left behind.

On the same program Prof. C. C. De Witt of Michigan College of Mining and Technology explained that nearly two-thirds of all the non-ferrous metal ores produced in the United States are concentrated by some variation of the flotation method. Citing figures for 1935, Prof. De Witt said that of the 49,000,000 tons of non-ferrous metal ores produced 34,000,000 tons were concentrated by flotation.

Science News Letter, January 13, 1940

Separation by Adsorption

JOHN W. Hassler of the West Virginia Pulp and Paper Company, New York City, described how adsorption can be employed to remove contaminations from solutions. Adsorption is the ability of solid materials to attract other materials to their surfaces.

Fuller's earth and activated carbon, Mr. Hassler said, are two of the best adsorbers. A handful of the latter has a total interior and exterior surface equal to an acre.

In some cases, he declared, adsorbers help to remove "negative catalysts." "We think of catalysts ordinarily as being something which helps speed up a chemical reaction," he explained. There are cases, however, where materials are present which slow down the chemical reaction and it is sometimes necessary to remove these negative catalysts before the reaction can occur.

Mr. Hassler cited the recovery of iodine from oil well salt water as a splendid example of the separation of valuable material by activated carbon. A single installation on the West Coast for several years supplied one-third of the nation's needs of iodine by this method. It is available for similar production at any time and would be especially valuable in case of war.

Science News Letter, January 13, 1940

● RADIO

Karl P. Schmidt, curator of reptiles at the Field Museum of Natural History will tell about recent discoveries of new crocodiles as guest scientist on "Adventures in Science" with Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Thursday, January 13, 4:15 p.m., EST, 3:15 CST, 2:15 MST, 1:15 PST.

Listen in on your local station. Listen in each Thursday.