

PSYCHOLOGY

Why Not Ask the Man?

➤ ONE WAY for the Army to predict how a recruit will fight when he gets into the noise and fright of battle might be to ask the man himself.

At least this would be true if we can judge from the performance of college students who took an important examination under very difficult conditions in which they were constantly reminded of the danger of failure.

The students who say that they can not work well under strain actually did very poorly on the examination given under stress, but others who confess they would be terribly upset but nevertheless usually work better under strain, actually did well.

These results were reported to the Eastern Psychological Association meeting in Brooklyn, N. Y., by Drs. Richard S. Lazarus and Charles W. Ericksen of the Johns Hopkins University.

The person who does well under strain is not the person who looks and acts calm, the investigators found. Apparently they are actually distracted from their work by their efforts to control their emotions. The person who does his best under strain is the one who gets upset—whose hands shake, who breaks out in a sweat, whose heart pounds and who breathes hard.

Those who do well in college are less affected by stress than others, it was found.

Science News Letter, April 14, 1951



DIRECT SOLDER—The handle of this glass beaker is a metal spoon, soldered to the glass by a process that permits direct joining. Miss Jane Barstow of the General Electric Company is holding the "cup."

NUTRITION

Feed Cattle on Sawdust

➤ CATTLE MAY some day feed directly on sawdust piles, or on small wood wafers. They will be able to get about the same amount of nourishment value from wood wastes as from hay, if the feed material has been bombarded with high-voltage electrons.

The idea of using sawdust for cattle feed is not new. But previous methods have changed the chemical form of the wood, usually by acid treatment, to make it suitable feed.

The electron bombardment does the same job as the chemical treatment—makes the cellulose available. Wood consists mainly of cellulose and lignin, in which combination it is indigestible. By irradiation, the cellulose is separated in digestible form.

Dr. Robert E. Hungate, of the State College of Washington, Pullman, cooperated with researchers of the General Electric Research Laboratory, Schenectady, N. Y., in experiments pointing towards the direct use. Details of the work appear in the journal of the American Association for the Advancement of Science, SCIENCE (April 6).

The studies showed that after exposure to high velocity cathode rays, or electrons, part of the sawdust could be digested by organisms in the cow's stomach. Bacteria in the cow's stomach change the cellulose into several other compounds, such as acetic, propionic and butyric acids, that can be absorbed in the animal's intestines.

Since the tests could not be made with enough precision on live cows, Dr. Hungate used bacteria from a cow's rumen, kept in test tubes with the sawdust for one or two days at the cow's body temperature, about 100 degrees Fahrenheit. He then measured the amount of digestible acids formed.

Digestibility was spoiled by "overcooking." The scientists found that irradiation with electrons for less than a minute had little effect. Best results were obtained with exposures of about 12 minutes, when the digestibility by the bacteria was about the same as for hay. Longer irradiation reduced the digestibility.

Science News Letter, April 14, 1951

CHEMISTRY

Corn Chemical Promises More Cancer Knowledge

➤ A CHEMICAL from corn is expected to provide "better understanding of such complex diseases as cancer and arthritis," Dr. Henry E. Paul and colleagues of the Eaton Laboratories, Inc., Norwich, N. Y., told the American Chemical Society meeting, Boston.

The chemical is furacin. It is an anti-bacterial and has been used to treat skin and burn wound infections. A report that it could prolong the lives of cancer-stricken rats led Dr. Paul to investigate its effects on the adrenal glands. Results reported "indicate that in normal animals, furacin acts by first stimulating the pituitary gland which then in turn stimulates the adrenal glands."

Science News Letter, April 14, 1951

● RADIO

Saturday, April 21, 1951, 3:15-3:30 p.m., EST

"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Esmond R. Long, director of Henry Phipps Institute, University of Pennsylvania, and editor of the *American Review of Tuberculosis*, will discuss the "Fight Against Tuberculosis."

TECHNOLOGY

Glass Soldered to Metal In New Bonding Process

➤ GLASS IS soldered to metal at General Electric, Schenectady, N. Y., in a process utilizing titanium hydride which results in a bond stronger than the glass itself.

The same method can be used to solder metal to ceramics and carbon, G.E. scientists state. The glass and metal areas to be so soldered are painted with a thin layer of titanium hydride, and the solder placed on both painted areas. Then the parts are placed together and heated under a vacuum.

When the temperature reaches about 900 degrees Fahrenheit, the titanium compound decomposes. This causes the solder, which has already become molten, to adhere to the titanium-painted surfaces of both glass and metal.

By using soft metal solders, it is possible to subject this glass-to-metal seal to rapid temperature changes without danger of cracking, despite the wide difference in temperature expansions between glass and metal. This is possible because the differences in movement are absorbed by the solder, it is explained.

The new technique is already in use in aircraft ignition systems and has possible application for other uses.

Scientists responsible for the development are Floyd C. Kelley, Ralph J. Bondley and Lawrence J. Hogue. Early work was done by the first two. Present investigations are being conducted by Mr. Hogue.

Science News Letter, April 14, 1951