

## BIOCHEMISTRY

# Molds Make Analyses

Humble, but specially bred, red mold can outdo chemists at difficult job of determining concentration of one kind of amino acid in protein.

► **MOLDS** that can outdo skilled chemists at one special and difficult job of analysis were the strange creatures introduced to the American Chemical Society at its meeting in Pittsburgh, by Dr. Erwin Brand of Columbia University.

The task at which these humble but biochemically sensitive plants have worked is the accurate determination of the concentration of one of the building-blocks of protein in extracts of several protein varieties. With their aid it has been possible to make such determinations in a few days, whereas by previously existing methods a whole corps of highly trained chemists would have to work for months to achieve an equally accurate outcome.

The story begins with the creation of special physiological races of a red mold, botanically known as a *Neurospora*, in the laboratories of Dr. George W. Beadle at Stanford University. By X-ray treatment, a parent strain was induced to undergo evolutionary changes. Pure lines of descent of these new races were assured by isolating single reproductive spores and growing small "gardens" of mold from each one.

Some of these strains were physiologically very choosy. They required one kind of amino acid, one of the building-blocks of protein, and would not grow without it. One of the strains had to have the amino acid known as leucine. This is the one that Dr. Brand used in his researches.

Grown on nutrient preparations of various proteins, this "minus-leucin" strain of mold would develop a certain amount of weight for each per cent of leucin present in its food. Then it would stop. After giving it time enough to reach full growth, Dr. Brand and his associates would harvest the mold, dry and weigh it, and thus learn immediately what would otherwise have taken months of tedious toil.

The practical value of this kind of research is very great, but it will take years of continued effort to develop it fully. Protein analysis is one of the most difficult of all chemical jobs, yet it is important for such work to be done because proteins are not only the stuff

our muscles are made of but also many of the other important though less bulky constituents of the body, and many of the poisons that make us ill and the medicines that make us well. Snake and spider venoms are proteins, and also insulin and all the physiologically important gland extracts. So there is plenty of work ahead for both the chemists and their specially bred molds, for a long time to come.

*Science News Letter, September 25, 1943*

## Vitamins from Wastes

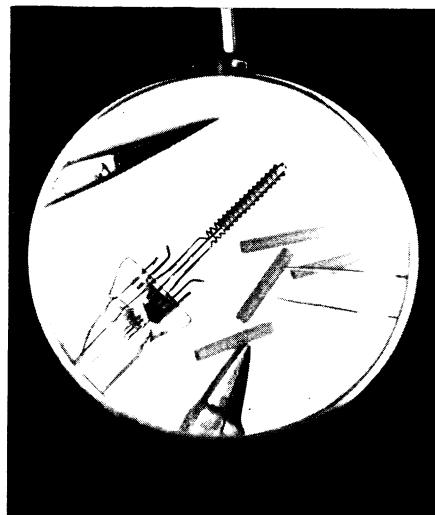
► **OF PERHAPS** more immediate interest was a report telling how two important vitamins, riboflavin and thiamin, can be recovered in quantity from brewery wastes, in which they are now lost down the sewer. Donald S. Herr, of the Resinous Products and Chemical Company, stated that if such fluids are passed through a mass of an insoluble synthetic resin known to the trade as Amberlite IR-100, ground into particles about the size of coarse sand grains, the two vitamins are all taken out and held tightly by the resin. Conditions can be so adjusted that both riboflavin and thiamin are retained, or the riboflavin permitted to pass and only the thiamin held. The vitamins can be subsequently released for use, by chemical means already well known.

*Science News Letter, September 25, 1943*

## New Vitamin Possible

► **THE POSSIBLE** existence of a new food factor necessary for reproduction, believed to be different from the already-known vitamin E, was suggested by H. W. Schultz, R. E. Gray and H. E. Robinson of Swift and Company. The new vitamin (if that is what it is) appears to be present in meat, but is made useless by heating.

Cats were used in the experiments. Some were fed on raw meat, others exclusively on meat that had been highly heated. Tomcats fed on the heated meat sired no kittens during a period of three and four years. Female cats similarly fed



**SPAGHETTI AT WAR** — Photographed through a magnifying glass, this is the filament of a radio tube with a short piece of ordinary spaghetti inserted inside the wire coil. The spaghetti supports the coil in accurate alignment while it is being welded. Then the spaghetti is burned away by electric current sent through the coil. Using spaghetti saves 75 per cent of the time formerly required in filament assembly.

either had no kittens, or had very few, and those unhealthy.

*Science News Letter, September 25, 1943*

## SPORTS

## All-in-One Golf Club Has Adjustable Head

► **WARTIME** golfers, forced on caddyless golf-links to carry their own fighting clubs, are promised relief in one of the 510 patents issued this week by the U. S. Patent Office. The patent is on an "all-in-one" golf club, a single club with an adjustable head so that it may be used as a putter, driving iron, mashie, niblick, cleek or any other club desired.

The club has a shaft with a shank and, at the proper angle at the lower end, a "bearing portion" with a threaded end. A reversible club head fits on this bearing portion and is held in position by a quick operating nut. The face of the head may be set at various angles and may be turned over for a left-handed golfer. The inventor is Charles V. Winter of Barrington, Ill.; the patent is No. 2,329,313.

*Science News Letter, September 25, 1943*