

BIOPHYSICS

Mold Turns Glucose Into Fat; May Rob Pigs of Their Job

FARMERS of the far future may keep pans of *Penicillium* instead of pens of pigs. For experimenters of the U. S. Bureau of Chemistry and Soils have found a species of mold, known botanically as *Penicillium javanicum*, that beats the hogs all hollow at the job of turning carbohydrates into fat. At the spring meeting of the American Chemical Society in Washington, D. C., G. E. Ward and L. B. Lockwood told of their researches on this and other fat-making molds.

They found several species of *Penicillium* that contained a good deal of fat when well fed on glucose, but the one called *javanicum* was the champion of the lot. Its matted mass of white threads, when dried, contained from 20 to 43 per cent. of fat, depending on culture conditions. It takes only twelve days for the mold to produce the maximum quantity of fat out of the glucose solution.

When they extracted the fatty material it came out as a reddish-orange

oil, with a nut-like odor. A preliminary chemical examination showed it to be built up of the same constituents as many of the fats and oils that are now familiar articles of commerce. The new "mold-oil" is still in the experimental stage, and no definite commercial use for it has been suggested, but there is no doubt that industrial uses may be found for it if large-scale production makes it cheap enough.

Several of Messrs. Ward and Lockwood's colleagues described other recent progress in the taming of the aspergilli and the penicillia. Two tasks at which molds have proved themselves efficient workers have been the production from glucose solutions of citric and gluconic acids. The former is the familiar acid of lemons; the latter is a rarer acid, of possible use in medicine and industry, which thanks to the work of the government researchers now costs dimes a pound where it used to cost dollars.

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MEDICINE

Calcium Fails to Stop Cancer; Pepsin Index to Ulcer State

CALCIUM, claimed by some investigators to have a checking effect on cancer, failed in this respect in a large number of experiments on mice performed by Dr. M. J. Shear of the U. S. Public Health Service. Dr. Shear reported his work before the spring meeting of the American Chemical Society in Washington, D. C.

He transplanted cultured cancers of two types onto the bodies of some 1200 mice, and administered three different chemical salts of calcium either in the drinking water, in the food or by injection into the body. But the results were all negative.

"Treatment produced no reduction in the number of takes," Dr. Shear said. "Slightly smaller tumors were some-

times obtained in the treated mice, but a definite, regular reduction in the size or in the rate of growth of the tumors was not obtained."

The amount of pepsin in the stomach juice of patients suffering from stomach ulcer may give physicians a good index as to the progress and outcome of the disease, it appears from a report by Drs. Arnold E. Osterberg and Francis R. Vanzant of the Mayo Clinic. They studied the pepsin concentration in the stomach juice of some 400 patients after an Ewald type of test meal. They found a correlation between the pepsin concentration and the severity of symptoms which indicated that the pepsin concentration is a valuable prognostic sign.

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INDUSTRIAL REVOLUTIONIST, 80

ELECTRICITY-BIOGRAPHY

Millions of Birthday Lights For Dr. Elihu Thomson

NOT MANY REMAKERS of the world see their handiwork stir a civilization and infuse it with new comforts and new ideas.

Elihu Thomson is one of the industrial revolutionists of yesterday and today. Hale and hearty at four score years he was given a birthday party March 29 at Massachusetts Institute of Technology. The lights on his birthday cake are not merely 80, they are 80 times millions, electric lights, flashes from electric trolleys, flares from welding, throughout the world.

For Elihu Thomson, like Edison, is an electrical pioneer. Both present and past tenses must be used in describing his achievements, for at Lynn, Mass., Elihu Thomson still bears the torch of research onward in the General Electric Company's Thomson Research Laboratory that was built around him.

He was one of the original "big four" in pioneer electricity in America, the others being Thomas A. Edison, Charles F. Brush and James J. Wood, all of whom have died.

He successfully started an electric-light system, 1878-82, using arc lights.

He invented the first three-phase electric dynamo, a type of design now in everyday use.

He was the first man to use transformers on electric circuits in a modern manner.

He discovered the secret of electric resistance welding. (Turn Page)