

Do You Know?

Livestock often refuse to eat the feed that rats have contaminated.

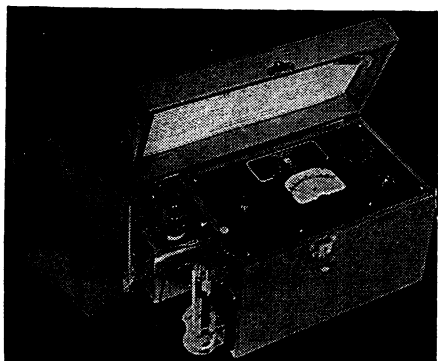
A modern *boiler* used in a power plant may contain as much as 85 miles of tubes.

From a ton of Douglas fir chips between 50 and 60 gallons of *alcohol* can be obtained by a fermentation process.

The *sting* of a honeybee generally hurts even the experienced beekeeper, but immunity from after-effects due to the poison can be gradually acquired.

Rare chemical elements, long thought to be useless, are now finding important applications; *uranium*, of atomic energy fame, was used until recently principally in coloring glassware.

The Galapagos islands, on the equator 500 miles west of South America, have never had any land connection with other lands; their 89 species and subspecies of *bird life* must have arrived as chance wanderers.



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many years extracts from beef heart have been used in blood tests for syphilis, but since these were crude extracts it was almost impossible to get two of them exactly alike. Consequently it was difficult to standardize the test material so that the test would be the same when performed in different laboratories.

BIOCHEMISTRY

Chemical Link to Vitamin

► DISCOVERY and synthesis of a new chemical compound which forms a third link in the chain leading to production in the body of the pellagra-preventing vitamin is announced by Drs. H. K. Mitchell and Joseph Nyc of the California Institute of Technology at Pasadena.

The chemical, known as 3-H for short, can also be obtained from love-in-the-mist, though it is unlikely you will be chewing the seeds of this plant, known botanically as *Nigella*, to get your daily ration of the vitamin.

The vitamin is niacin, or nicotinic acid, known for years as both cure and preventive of pellagra. More recently it was discovered that a quite different chemical, tryptophane, could be substituted for nicotinic acid in the diet of rats without any damage. They grew just as well on one as the other.

Tryptophane is an amino acid, one of the building-blocks of protein. Rats can get along without nicotinic acid if they are given tryptophane because, it is believed, they convert the tryptophane into nicotinic acid in their bodies. Proof for this conversion, however, has not yet been obtained.

Dr. Mitchell and associates, working with the red bread mold known scientifically as *Neurospora*, uncovered two steps in the chemical conversion chain. Tryptophane breaks down into a second stage to become a compound known as kynurenin. This is a result of a rearrangement of the atomic pattern of tryptophane.

In a third stage in the conversion, just discovered, a side chain of atoms is discarded. This results in the new compound, 3-H, known chemically as 3-hydroxyanthranilic acid.

Feeding certain strains of the red bread mold, *Neurospora*, any of the three isolated chemical compounds causes an increase in their production of nicotinic acid. Tests are now being made with rats and preliminary work has shown that feeding these animals any of the

Efforts to purify the beef heart extracts led to discovery of the new compound, *cardiolipin*.

Besides its advantages of specificity and ease of standardization, the new chemical has the further advantage of being adaptable to different test procedures.

Science News Letter, April 17, 1948

three compounds results in their excreting more nicotinic acid.

Whether it will work in man remains to be seen but Dr. Mitchell points out that surprising number of chemical mechanisms are common to both large and small organisms.

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Science Service Radio

► LISTEN in to a discussion on uranium, source of atomic energy, on "Adventures in Science" over the Columbia Broadcasting System at 3:15 p.m. EST Saturday, April 24. Dr. Robert A. Millikan, head of the California Institute of Technology, as the guest of Mr. Watson Davis, director of Science Service, will discuss the shortage of uranium. Dr. Harlow Shapley, director of Harvard College Observatory, will give a brief report on the ideas and accomplishments of Science Service.

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