

the giant squid that the sperm whales feed upon. It is an endless cycle of eating and being eaten.

Dr. Krogh points out that this necessary "stepping up" of the food cycle in the ocean is much more wasteful than is the corresponding process on land, where any plant-eating animal, even an elephant, can make direct use of the vegetation. But there is no escaping it in the sea, where the basic plants are so small that only tiny animals can find them.

Down through this zone of ceaseless kill-and-be-killed drift the diatoms as they grow older. If they are not eaten, they dissolve. Their life-stuff, their protoplasm, dies and filters out through their hard silica shells, their stored food-reserve of oil is dissipated, at last even the silica shells dissolve in the all-claiming sea. The dead diatom has contributed its bit to the ocean's vast kettle of inedibly thin soup.

*Science News Letter, December 16, 1933*

MEDICINE

## Diabetes Increase Not Caused By Greater Sugar Consumption

**T**HE INCREASED diabetes death rate is not due to an increased per capita consumption of sugar, nor to changes in the national diet or living habits, in the opinion of Dr. Charles Bolduan, director of health education, of the New York City Department of Health.

In fact, the increase in the diabetes death rate is more apparent than real, Dr. Bolduan believes. He set forth his views to the American Public Health Association.

Fifty or sixty years ago diabetes was considered a rare disease. Dr. Bolduan has concluded that it was no more rare fifty years ago than it is today, but that fewer cases were detected, chiefly because simple tests for the disease were not available and no routine examinations for diabetes were made.

The disease was once considered more prevalent among men, but Dr. Bolduan believes that this was because routine tests in the course of examination for insurance and for industrial employment were made much more frequently among men than women until recent years. With the increased number of women in industry and also an increased number of women carrying life insurance policies, tests for diabetes are made among many more women now and consequently more cases are being discovered. The result is an apparent increase in number of cases among women, Dr. Bolduan explained.

Much of the increase in deaths recorded from diabetes is fictitious, Dr. Bolduan said, for many of the deaths represent merely the death of a diabetic individual from some other cause. It

seems that when a person who has had diabetes dies, the death is officially registered under diabetes. If there were other causes, they were mentioned secondarily, but the result is a swelling of the diabetes death lists.

Diabetes develops most commonly after middle life. The aging of the population, because of a declining birth rate and cessation of immigration, has a marked influence in increasing the prevalence of the disease. Likewise, in New York City the relative increase in the Jewish population has led to an increased prevalence of the disease in the city, because the disease occurs much oftener among Jews than non-Jews, a health department survey showed.

Diabetes is more prevalent than is generally believed. No one knows exactly how many cases there are in the country because it is not reported like communicable diseases such as smallpox, typhoid fever, etc.

As to the increase of diabetes being charged to increased eating of sugar or marked change in the relation between the expenditure of physical energy and food intake, Dr. Bolduan does not see why these factors should affect the death rate of women exclusively. When allowance is made for the aging of the population, the increase is seen to be limited to diabetes deaths in women.

*Science News Letter, December 16, 1933*

Germany, homeland of the Pied Piper, is arranging to have extermination of vermin handled by scientists instead of pseudo-professionals who it is claimed do not sufficiently protect the public against accident and deception.

GENERAL SCIENCE

## Smithsonian Institution Benefits By Patent

**U**NSELFISHLY sacrificing his chance for personal profit in the interest of the advancement of science, Dr. Adolph M. Hanson of Faribault, Minn., has assigned to the Smithsonian Institution all income and royalties accruing to him from his process of extracting the active principle of the parathyroid gland, on which he has recently been granted a patent. The announcement of Dr. Hanson's benefaction to the Smithsonian Institution is made by Dr. Oliver Kamm in *Science*.

Dr. Hanson conducted the research leading to his discovery in the few spare moments allowed him by an active medical practice. He completed the work several years ago, but litigation to clear up conflicting claims has delayed the issue of the patent until quite recently. The parathyroid principle, which has important uses in medicine, is now being manufactured according to the Hanson process by three large pharmaceutical firms.

Dr. Hanson's benefaction is to be known as the Martin Gustav and Caroline Runice Hanson Fund.

*Science News Letter, December 16, 1933*

PHYSIOLOGY

## Doctors Report Progress With Weight-Reducing Drug

**E**NCOURAGING results with the new weight-reducing drug which enables fat persons to lose weight while eating an ordinary diet have been obtained by Prof. E. C. Dodds of the Courtauld Institute and Dr. J. D. Robertson of the

### THE HUMAN-ANIMAL DISEASES

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an address by

**Dean D. J. Davis**

—of the University of Illinois College of Medicine

Wednesday, December 20, at 4:35 p. m., Eastern Standard Time, over Stations of the Columbia Broadcasting System. Each week a prominent scientist speaks over the Columbia System under the auspices of Science Service.

Middlesex Hospital, London. The results are announced in *The Lancet*.

The new weight-reducing drug has the chemical name of dinitro-ortho-cresol and is said to be five times more powerful than dinitrophenol, which American physicians have been trying out clinically.

Both drugs act to cause weight reduction by speeding up the rate of metabolism, the process of tissue change constantly going on in the body and embracing the change of foodstuffs and tissue into energy for the body's use. When the metabolism is speeded up, the body uses up energy faster, calling on the reserve stores of fat to augment the daily food supply. As a result, weight is lost.

The thyroid gland is a regulator of the rate of this process, and when because of disease or some other condition, it fails to function normally and the rate is very much slowed up, the condition of myxedema results. Thyroid extract restores the rate to normal and relieves the symptoms. The new drug which stimulates metabolism also restores the lowered rate of myxedema patients to normal, but without relieving the patient of the other symptoms of the disease.

This suggests a new and interesting point: either the relief of myxedema is independent of the raised metabolic rate or else increase in metabolism induced by medication differs from normal metabolism.

Dinitrophenol is a very potent and dangerous substance, not to be used without a physician's direction. Deaths have already occurred from its indiscreet use. Dinitro-ortho-cresol is said to be safer than dinitrophenol, but it is not intended for use without medical guidance.

*Science News Letter, December 16, 1933*

MATHEMATICS

## Mathematicians Abandon Aristotle's Logic

**T**HE PERSISTENCE of mathematicians in sticking to the Aristotelian laws of logic is an example of the "unscratchable stupidity of the human race," in the opinion of Dr. E. T. Bell, mathematician of the California Institute of Technology at Pasadena.

Mathematicians had been getting into trouble on account of following logic for thousands of years and they did not know what to do about it, Dr. Bell told

a meeting of Sigma Xi. A hundred years ago, an exactly analogous difficulty had been overcome in the field of geometry when Lobatchevsky, a Pole, first showed that a non-Euclidean geometry could be worked with complete satisfaction. Since then, infinitely many non-Euclidean geometries have been developed ignoring the famous "parallel postulate." Mathematicians all know about this, yet it was only three years ago that Lucasiewicz and Tarski, also Poles, had the sense and audacity likewise to ignore Aristotle.

Every intelligent and conscientious person has had difficulty answering the question: "Is this statement true or false?" The first improvement of the old logic was to show that one could allow, besides the answers "yes" and "no", the third answer "possibly," and still work out a complete system of in-

ference. In this sense, truth could be three-valued and still be logical. Then it was found by other workers that there could be any number of gradations of truth, even infinitely many.

These logics of "many-valued truths" are really closer to scientific matters than the true-false logic of Aristotle. In fact, the branch of mathematics which is most important in science, namely the theory of probability, has only now been put on a satisfactory basis by two Germans, von Mises and Reichenbach. There had been three hundred years of practically sterile discussions of this subject on the basis of the older logic, and meanwhile scientific workers could only hope that the imperfect theory of probability would not lead them astray. Of course, Dr. Bell said, it often did, but this will be less excusable in the future.

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