

## CHEMISTRY

**Chemical Cousin of Perfume Replaces Water in Boilers**

**A**CHEMICAL cousin of synthetic perfume is now being used in steam boilers instead of water to increase the power output for each ton of coal burned.

C. G. Brown, G. A. Gaffert, P. H. Konz and D. S. Ullock, all of Michigan University, have just completed tests on the new boiler chemical. Known as Dowtherm A, it freezes near room temperature, 54.7 degrees Fahrenheit, and is a mixture of di-phenyl and di-phenyl oxide.

At the high temperatures in steam boilers it yields a steam-like vapor but develops much less pressure than steam—a decided advantage.

The substance is related chemically to synthetic geranium perfume and to certain of the synthetic resins used in making plastic products.

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## MEDICINE

**Brighter Outlook For Heart Disease Patients**

**A**BRIGHTER outlook for patients suffering from heart disease of the type known as coronary thrombosis appears in the report of Dr. Louis Faugeres Bishop, Jr., New York City, at the meeting of the Southern Medical Association.

It is no longer necessary for the patient to live in deadly fear when his ailment has been diagnosed as coronary thrombosis or occlusion, Dr. Bishop indicated.

"Now it is well known that the chances of an individual surviving the first attack are extremely good, 80 to 85 per cent.," Dr. Bishop said. "Life expectancy following coronary thrombosis may extend as long as seventeen years."

The particular type of heart disease Dr. Bishop discussed is that in which one or more blood vessels of the heart itself are closed so that the blood cannot get through to nourish the heart muscle.

Improved methods of diagnosis and treatment are the factor credited by Dr. Bishop for the improvement in outlook for these patients. The electrocardiograph and determination of the sedimentation rate help doctors to detect the atypical and milder cases and start treatment early. Physicians have also learned to be on the lookout for heart ailments when a patient complains of abdominal distress, since it is now known that the

symptoms of this form of heart disease and of abdominal disease may be very similar.

Prolonged absolute rest, oxygen, and a diet low in calories are now recognized as important parts of the treatment and are helping to prolong the lives of many heart disease patients, he pointed out.

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## EUGENICS

**British Scientist Attacks Racial Superiority Theory**

**T**WO widely held biological opinions which are claimed to be the basis of the present policy of one European nation are attacked by Prof. J. B. S. Haldane of the University of London.

Sterilization of the unfit is not necessary for national hygiene, and the evidence that some races are superior to others is rather weak, Prof. Haldane pointed out in his Halley Stewart lecture.

As far as improving national hygiene by decreasing the number of unfit, other measures than sterilization are available in all cases, Prof. Haldane observed, mentioning as alternatives chastity or birth control for mentally normal persons and segregation for defectives.

"It is doubtful whether sterilization of all mental defectives would reduce the number in the next generation by 15 per cent.," Dr. Haldane said, referring to one of the arguments of those who favor sterilization of the unfit.

Prof. Haldane has analyzed five classes of human abnormalities that are determined genetically, or in the popular phrase, are inherited. His analysis shows that sterilization would be very effective in the case of such abnormalities as lobster claw, Huntington's chorea and similar conditions which may all be determined by dominant genes. Sterilization would be moderately or slightly effective in other conditions associated with dominant or sex-linked genes or the cooperation of several genes. It would, however, be totally ineffective in conditions associated with inbreeding, as in the marriage of cousins.

Discussing the theory of racial superiority, Prof. Haldane called attention to the fact that innate psychological characteristics of races overlap. Among the so-called races of Europe outside the Arctic there is also overlapping of physical characteristics.

Some facts, he said, support the theory that racial crossings for humans as well as other animals are advantageous in the first generation but harmful in later ones.

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**IN SCIENCE**

## ZOOLOGY

**Conservation Laws Make Moose Numerous in Sweden**

**T**HANKS to rigid game laws, Sweden now has the largest stock of wild moose in Europe, according to Wilhelm Kugelberg, a game preserve official. One hundred years ago the animal was found only in certain parts of the central provinces, Vermland and Dalecarlia, whereas today there are large herds of moose in practically every part of the country.

There is very little poaching, for the people as a whole take great interest and pride in the preservation of the animals. During the annual open season, which lasts only a few days, more than 6,000 animals are killed; but the game laws and the virtual absence of illegal shooting has helped to increase the stock enormously.

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## BIOLOGY

**Plant Spores Survive Trip to Stratosphere**

**S**URVIVING conditions where man would die, tiny spores of important plant diseases are growing in a laboratory of the Department of Agriculture after journeying nearly thirteen and three-quarter miles into the stratosphere with the balloon Explorer II.

Discovery that spores can still live after being sent to an altitude of 72,395 feet is the first scientific result of the recent ascension sponsored by the National Geographic Society and the U. S. Army Air Corps.

Here is what the spores carried aloft by Capt. Albert Stevens and Orvil Anderson to a new world's record had to withstand:

1. Temperatures lower than 65 degrees below zero Fahrenheit.
2. Atmospheric pressure so low that man could not live in it.
3. Ultraviolet rays from the sun which never reach the surface of the earth and which are capable of killing some forms of life.
4. Ozone.
5. Extreme dryness.

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# E FIELDS

## SEISMOLOGY

## Quake Under Pacific 400 Miles off Ecuador

THE center of disturbance of the equatorial Pacific earthquake of Saturday, Nov. 23, has been calculated at a point about 400 miles off the coast of Ecuador, according to the U. S. Coast and Geodetic Survey. The epicenter was one degree north latitude and 86 degrees west longitude.

The position of shock, which was of moderate intensity, was computed from data supplied by Science Service through the cooperation of the following seismological stations: Georgetown University; St. Louis University; Coast and Geodetic stations at Honolulu and San Juan; the University of Wisconsin; the weather bureau station at Manila, P. I.; and the Carnegie Institution station at Huancayo, Peru.

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## PHYSICS

## Applied Physics Council New Link With Industry

AMOBILIZATION of physicists to aid industry is under way. Following the conference on industrial physics held at the University of Pittsburgh, a National Advisory Council on Applied Physics has been formed.

Radio, aviation, refrigeration and other new industries resulted from the application of physics. The research workers in physics are eager to bring home to business and banking leaders the possibilities of translating the products of the laboratory and physical theory into new products and machines for our civilization.

Forty leaders in physics form the new council, and they will point out the way physics can aid railroads, housing, air-conditioning, food preservation, glass, rubber, paint and other manufacture, photography, television and many other fields.

Included among the membership of the newly formed council are:

Dr. Karl T. Compton, president of Massachusetts Institute of Technology and chairman of President Roosevelt's

Science Advisory Board; Carl L. Bausch, Bausch and Lomb Optical Company; Dr. Lyman J. Briggs, director, U. S. Bureau of Standards; Dr. Paul D. Foote, executive vice-president, Gulf Research and Development Corporation; Dr. Lloyd A. Jones, physics department, Research Laboratory, Eastman Kodak Company; Dr. C. F. Kettering, general director of Research and Vice-President, General Motors Corporation; Dr. George B. Pegram, professor of physics, Columbia University; Dr. F. K. Richtmyer, dean of the graduate school, Cornell University; and Dr. Henry A. Barton, director of the American Institute of Physics.

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## MEDICINE

## Drop in Rickets Ascribed To Use of Vitamin D Milk

DISCOVERY in recent years of methods of adding the sunshine vitamin D to milk and other foods seems to justify the hope that the public health problem of preventing rickets can be solved, Dr. Fred O. Tonney of the Chicago Board of Health told experts at a conference on irradiation held by the Wisconsin Alumni Research Foundation, which holds patent rights to one method of adding vitamin D to foods and medicines.

The individual child may be safeguarded from rickets by the guidance of his own doctor, but for the great mass of children in the country, many of whom do not obtain medical care unless seriously ill, preventing rickets seems to be the problem and responsibility of the health officer.

One measure of protecting large numbers of children against rickets may be the addition of vitamin D to milk. The value of vitamin D milk from the public health standpoint cannot be estimated definitely yet, because of the short time since its introduction and the small amount consumed, Dr. Tonney pointed out. However, in Chicago during the past year the consumption of fluid and evaporated vitamin D milk has amounted to 16 per cent. of the total milk sales. During the same time severe rickets has disappeared and milder forms have declined noticeably in a group of preschool children examined regularly every year at child welfare stations, Dr. Tonney reported. He believes that vitamin D milk should therefore be given a more general trial as a rickets-preventing agent.

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## NUTRITION

## Little Girls Want More Spinach, Not Dessert

WHAT do girls ask for on "second helpings" when allowed freedom of choice from the menu? Desserts, one would expect; bread and jelly, at least.

Actually, according to a food study of the requirements of girls from 6 to 13 years of age, made by Martha Koehne and Elise Morrell at the University of Michigan, they ask for more meat, potatoes, and vegetables, or for more cereal and milk at breakfast, and especially for more fruit, seldom for custards and puddings constituting desserts. Second helpings of even spinach, liver and fish were requested. Nor does a quart of milk daily interfere with the amount of food the girls consume, according to the observers. On the contrary, children, they say, regard milk merely as something to drink, and eat as much food with it as without.

Another common belief, that children tire of the same menus repeated on certain days each week is exploded by this study. In fact, the children seemed to prefer repetition of well-balanced meals, to constant change.

This study forms part of an investigation into the factors which affect dental decay in children and consists of observations on 28 children between the ages of 6 to 13, hospitalized for local treatments which did not interfere with general body processes.

The relative amount of energy obtained from protein food in the standard diet, in which freedom of second helpings on any food was allowed and weighted carefully, shows a remarkable uniformity, and is very close to that recommended by authorities in the field of nutrition as optimum. Nutritionists recommend 15 per cent.; and the girls got 14.3 per cent. of the total calories of energy from the foods they ate.

Fat-rich foods were partaken of liberally; the percentage of calories from fat, 43.2, is a little higher than that recommended as optimum in earlier studies. For carbohydrate food, however, it is a little lower, 42.6 per cent. as against 51 per cent.

Calcium and phosphorus needs, too, were adequately met by the abundance of milk consumed, but iron tended to be rather low in the diet. Free choice of foods from this menu yielded a diet well on the basic side with respect to minerals, showing 5 parts base to 2 of acid.

The study ranged from 28 to 192 consecutive days.

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