

BIOLOGY

Single Diet For All Life

Scientist creates a semisynthetic diet with all nutrients required by any living forms, from man to plants to bacteria. It is called "Universal Diet No. 1."

► A SINGLE diet designed to nourish all forms of life, from man to bacteria, viruses and plants, has been created by Dr. Thomas D. Luckey of the biochemistry department at the University of Missouri School of Medicine.

The diet is semisynthetic. Dr. Luckey calls it "Universal Diet No. 1," and says that it has some limitations and omissions that will be corrected when subsequent universal diets are made.

The diet has now been fed to monkeys, cats, pigs, dogs, rats, mice, rabbits, guinea pigs, an opossum, chicks, goldfish, cockroaches, snails and tomato plants. All these grew at satisfactory rates. The guinea pigs and snails had offspring. Four consecutive generations of mice and cockroaches were fed the diet.

Besides these representatives of different orders of living organisms, such much smaller organisms as yeasts, molds, fungi, algae and bacteria were kept going through ten generations by sterile mixtures of the Universal Diet No. 1 in water.

The diet itself would never be cheered by any chef or epicure, and Dr. Luckey does not say how the monkeys and other animals liked it, although sugar was added to "give it good acceptability." Also, the physical character of the diet was changed to suit the conditions of the experiment or to appeal to the animal being fed.

Large amounts of vitamins were put in in order to satisfy any extraordinarily high requirement that some form of life might have. Special consideration was given to the salt requirements of chicks and guinea pigs, the fiber requirements of rabbits, the high-protein requirement of chicks and the fat requirement of dogs.

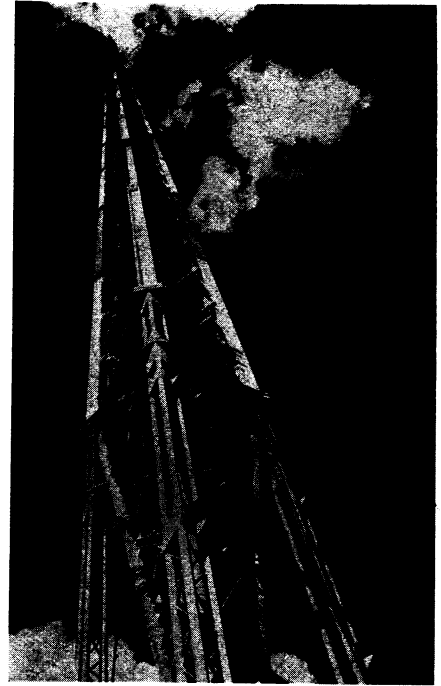
The diet was made up of the following ingredients: purified casein (milk protein), corn oil, cornstarch, cellulose, sucrose (sugar), and included potassium, calcium, sodium, an iodide, magnesium, manganese, cobalt, zinc, iron and an aluminum compound. Vitamins A, D, C, E, K and all the B vitamins were included.

The exact forms and quantities of these substances are given in *Science* (Sept. 3).

Dr. Luckey got the idea for the diet from considering the fact that while man and other animals eat quite different kinds of foods, the essential constituents of these foods are largely the same. Discoveries in recent years have further shown that some of the B vitamins essential to man were first discovered as substances needed by bacteria for their growth.

The universal diet, he believes, will be valuable in many kinds of research where keeping diet a constant known factor eliminates variables that could affect the findings of the research.

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TV TOWER — *The world's tallest television tower, now nearing completion, is shown here. The triangular 1,572-foot transmitter for station KWTV, Oklahoma City, is 12-foot on a side up to the 1,420-foot level. From there it tapers to the base of the antenna.*

ASTRONOMY

Two Sky Objects Spotted in Aquarius

► TWO COMETS, one a new discovery and the other first seen in 1943, have been spotted in the constellation of Aquarius, the water carrier, visible in the southern sky.

Both comets are much too faint to be seen without a large telescope. The new comet, now known temporarily as Comet Van Biesbroeck after its discoverer, Dr. George Van Biesbroeck of Yerkes Observatory, Williams Bay, Wis., is of magnitude 14. The faintest stars visible to the naked eye on a dark, clear night are of magnitude six.

Comet Oterma, of magnitude 19, was first discovered in April, 1943, by Miss L. Oterma. Its orbit lies between those of Mars and Jupiter, so it can be observed throughout its entire path, but it is so faint that sometimes it is not spotted for two or three years.

Comet Oterma was found by Robert G. Harrington and George Abell of Mt. Wilson and Palomar Observatories as part of the National Geographic Society-Palomar Observatory Sky Survey, Harvard College Observatory, clearing house for astronomical information in the Western Hemisphere.

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BIOLOGY

Dog's Social Register

► MONGREL, MUTT or pedigree have no meaning in the world of dogs, and it may very well be that a dog with no background is high up in the canine aristocracy, while his opposite with a string of titles as long as a dachshund, may be just another dog.

Dr. W. T. James, University of Georgia psychologist, told the American Institute of Biological Sciences meeting in Gainesville, Fla., in the canine society there are no social climbers, back-slappers or glad-handers, but many social leaders.

A dog, from the time he is born, is fixed in his social position and no amount of education, good deeds or luck will ever change his status in the dog world. It is virtually an iron-clad caste system.

Among dogs, the whole social order is based on dominance, and every dog bullies the one directly under him. Competition over food is the best method of emphasizing dominance in dogs, according to Dr.

James. When higher and lower social types are placed in a pen together to eat, the dominant dog will approach the food rapidly and let out a warning growl. He then eats all the food.

Dominance is strictly inherited, the psychologist said. The mother dog can no more teach her weak minded pups to be strong leaders than she can teach her dictatorial pups to be humble.

"One aspect of canine society is strangely reminiscent of man's lust for power," he added. "The more power a dog has, the more he wants. Among the upper class there are frequent conflicts to determine which dog is boss, and in the middle class many a minor skirmish for a secondary position. But at the bottom of the ladder there are no conflicts at all."

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Gas temperatures in *rocket* motors run as high as 6,000 degrees.