PUBLIC HEALTH

Firmer Food Standards Proposed for World

➤ STRONGER international standards are being sought for foods to safeguard people throughout the world and to facilitate international trade.

Too often in the past, food standards have been imposed arbitrarily by countries wishing to protect their own products from competition of imports, Nathan Koenig of the consumer and marketing service, U.S. Department of Agriculture, told the 149th national American Chemical Society meeting in Detroit.

Now an international Codex Alimentarius Commission is trying to eliminate the confusion and conflict of food interests and to simplify and harmonize food standards, he said.

International standards for nutritional sweeteners, including powdered sugar, glucose syrup and dextrose monohydrate, will be discussed by the commission this fall in Rome.

Fish, meats, fruits, vegetables, milk, food additives, pesticide residues and other materials are being considered, as well as aspects of food hygiene and health, and methods of sampling and analysis.

No nation is compelled to use a food standard developed through the commission, whose members include the Food and Agriculture Organization of the United Nations and the United Nations World Health Organization.

• Science News Letter, 87:248 April 17, 1965

ASTRONOMY

Five Telescopes in Orbit To Study Stars in 1967

➤ FIVE TELESCOPES are the main experimental part of the payload now being planned for one of the Orbiting Astronomical Observatories (OAO), to be launched some time in 1967.

The largest is a 16-inch instrument that will scan the sky from its orbit looking for nebulae, great clouds of interstellar dust and gas that often glow like stars in the sky. Readings from the 16-inch telescope will be fed to a photometer with special filters to enable it to anayze light of many different wavelengths. The photometer's information will then be telemetered to earth.

Four smaller eight-inch telescopes will be monitored by three-color filter photometers, which will record light from the stars in three different spectral bands as the filters are changed.

In addition, OAO will carry two six-by-eight-inch scanning spectrometers, used to analyze light from specific objects instead of large areas of sky. The two Orbiting Solar Observatories (OSO) launched so far used similar instruments to observe selected areas on the surface of the sun.

The OAO satellites are designed as "platforms in space" to provide a firm base, called "a stable table" by one NASA official, from which to conduct a variety of experiments. The OAOs will be orbiting the earth at altitudes of about 500 miles, using a tracking system that could pick out a golf ball 20 miles away.

The OAOs will give scientists one of their first opportunities to make observations from a satellite. Ground-based instruments are hindered by the earth's atmosphere, which makes good seeing difficult. The photometers will provide detailed information about the chemical composition, pressure and density of the stars.

Another experiment, one that requires great accuracy in guidance and tracking, will be to collect data on variable stars. The spectral intensity of these stars varies over a period of time, so the OAO must be able to lock onto the source for a series of observations.

The OAOs are heavy satellites. Other space probes have crammed all sorts of experiments into packages weighing less than 100 pounds. However, the astronomical observatories, because of their mirrors, diffraction gratings and other optical equipment, will each weigh almost a quarter of a ton. Even Mariner, now on its way to Mars with a load of cameras, ionization chambers and propulsion systems, weighs only about 550 pounds.

The OAOs require less than 10 watts of power for their experiments. All of the experiments in 125 OAOs could be run on the power used by an electric toaster.

• Science News Letter, 87:248 April 17, 1965

GENERAL SCIENCE

British Youth Compete With Science Essays

➤ YOUNGER SCIENTISTS will compete this year in an essay contest organized in conjunction with the British Association for the Advancement of Science. The subjects set for the essays are physics of the moon, physiological basis of memory, molecular sieves, chemicals from oil, mechanisms of enzyme action, strength of materials.

Winners will receive prizes, the largest of which is 50 guineas (about $150.00). The winners will be invited to attend the British Association for the Advancement of Science meeting at Cambridge, Sept. 1 to 8.

Prizes are being offered by Imperial Chemical Industries Ltd.

• Science News Letter, 87:248 April 17, 1965

CONSERVATION

New Jersey Bird Deaths Blamed on Insecticide

➤ THE INSECTICIDE DDT has been labeled murderer of 151 birds in Hanover, N.H., where elm trees were sprayed against Dutch elm disease, reported Charles F. Wurster Jr., Doris H. Wurster and Walter N. Strickland of Dartmouth College and Medical School at Hanover.

Chemical analyses of dead birds, observation of symptoms of DDT poisoning such as tremoring, and a population decline after the spraying indicate that the chemical poison caused severe mortality among robins, sparrows, warblers and other birds, the researchers stated in Science, 148:90, 1965.

• Science News Letter, 87:248 April 17, 1965

IN SCIEN

PHYSICS

Laser Beam Successful Low-Level Altimeter

➤ THE LASER BEAM has been successfuly tested in England as a super-accurate altimeter.

Aircraft that use automatic landing systems and terrain-following radar need altimeters that are very accurate when used less than 100 feet above the ground. Present systems use a radio altimeter, which measures the time required for a radio beam to bounce back from the ground. Radio altimeters, however, are only accurate up to about 60 feet.

An infrared laser beam, fired earthwards through a camera lens and timed by a super-accurate quartz "clock," can give accurate readings to within a few inches, up to heights of 100 feet. The advantage of the laser beam over radio waves is that it is not reflected from treetops, or from features below ground level, such as the water table.

The variable-wing F-111 and the British TSR2 supersonic jet fighter planes both carry "hedge-hopping" radar systems that could use laser altimeters.

The instruments are being developed by the Aeroplane and Armament Establishment, Boscombe Down, Wiltshire, where tests are being made on a Comet jet airliner. Similar tests have been made in the United States with laser altimeters mounted in helicopters.

The British experiments were reported in New Scientist, 25:557, 1965.

• Science News Letter, 87:248 April 17, 1965

ICHTHYOLOGY

Fish Fly in Air To Escape Enemies

➤ FLYING FISH literally fly from danger, spreading their fins and gliding at speeds of 35 miles per hour about five feet above the surface of the sea.

Once airborne, these flying fish cannot be seen by their underwater pursuers such as bonitos and dolphin-fishes, it was reported in Nature and Science, March 15, 1965.

A pursued flying fish speeds along just below the ocean surface, then turns upward and spreads its fins into the wind. It taxis for a while with the lower part of its tail beating in the water, picks up speed, then rises into the air.

Flying fish do not move their fins as birds flap wings, but glide for 100 to 300 feet, staying aloft for about 10 seconds. The largest flying fish, which measure about 18 inches, sometimes glide 1,000 feet or more.

People once thought these silvery fish of the tropical oceans caught their food while they soared through the air. Studies now show they have an underwater diet of tiny fish, shrimp and other small sea animals.

• Science News Letter, 87:248 April 17, 1965

CE FIELDS

IMMUNOLOGY

Mice Give Disease and Antibody to Offspring

➤ EXPERIMENTS with mice disclose that although leukemia is passed from infected mothers to some offspring, antibodies to fight the disease are passed along too.

Still to be produced is evidence that human lukemia, cancer of the blood-forming organs, is caused by virus.

At the meeting of the American Association for Cancer Research, Drs. Edwin A. Mirand and James T. Grace Jr. of Roswell Park Memorial Institute, Buffalo, reported findings of a four-year study with the Friend virus involving more than 2,000 animals. Dr. Charlotte Friend of Sloan-Kettering Institute, New York, discovered the virus in 1957.

The scientists inoculated offspring of infected mothers with a dose of virus after birth and found a significant amount of protection against the disease.

A high amount of resistance found in the first few weeks was due to protection from antibodies produced originally by the mother and passed to the offspring through the placenta and the milk. This is called passive immunity.

Low resistance to the leukemia virus during the fifth and sixth weeks, just after the mice were weaned, is explained by the fact that the supply of antibody afforded by the mother's milk is diminished.

High resistance to the virus occurring in the seventh and eighth weeks after birth is probably due to the phenomenon of active immunity. The low level of virus passed through the milk infected the young animals with the disease, thereby stimulating the production of antibodies against the virus. These new antibodies protect the offspring against any further infection.

At the present time, the researchers do not know what application their findings might have for human leukemia. Their work serves as a model of virus-induced leukemia in which it is possible to protect offspring against the disease by immunization of mothers before the offspring's birth, Dr. Grace said.

• Science News Letter, 87:249 April 17, 1965

PSYCHIATRY

Hypnotist in Danger As Well as Subject

➤ DANGERS OF HYPNOTISM can include the hypnotist as well as persons hypnotized, a report in the Journal of the American Medical Association, 192:9, 1965, pointed out.

The hypnotist may become convinced that he is somehow superior to other people because of his ability to induce hypnosis and influence others, the report stated.

The process of such corruption may turn a well-meaning hypnotist, devoted to his work, into a grandiose professional cripple.

Those who use hypnosis as part of a program of professional treatment may rely on it too heavily and risk becoming narrow specialists rather than broadly skilled physicians and psychiatrists.

The researchers suggested stricter legal curtailment of hypnosis used for entertainment or by amateurs, quacks and lay healers.

"One college girl developed a severe anxiety hysteria when an amateur hypnotist at a party ordered her to cut off her hair with imaginary scissors," the report said.

Although hypnosis is a valid tool of medicine and psychiatry its careless use may bring on a psychiatric illness, making existing mental conditions worse, or it may revive symptoms of an illness that was improving.

One danger to the patient is that hypnosis may mask symptoms so that he appears to be healthy. He may even feel and act well, but such masking may delay much-needed medical or psychiatric treatment.

Criminal activity and sexual seductions are believed induced by hypnosis wrongly used, although there is insufficient evidence to make these results positive.

The researchers said that hypnosis had been used to reinforce the wavering virtue of a war-bride when her husband was overseas, "much to the anger and frustration of her nearly successful seducer."

Hypnosis should be included in undergraduate and graduate training for psychiatry, but psychiatrists should avoid over-commitment to hypnotism as a technique in psychotherapy, they said.

Dr. Louis J. West of the department of psychiatry, neurology and behavioral sciences, University of Oklahoma School of Medicine, Oklahoma City, and Dr. Gordon H. Deckert of the Oklahoma City Veterans Administration Hospital reported the study.

• Science News Letter, 87:249 April 17, 1965

PUBLIC HEALTH

Anaerobic Bacteria Used Water Pollution

➤ A BREED of bacteria that does not need air is being cultivated to fight pollution of water with wastes.

These anaerobic bacteria consume chemically combined oxygen in waste rather than in free air. Bacteria requiring air have been used in modern waste-treatment plants, but the new breed appears to be more efficient and less expensive to use.

Air-breathing bacteria normally clean streams and keep them free of pollution. However, since man and industry cause overloads of waste, the air-breathing bacteria over-flourish, and thus consume all oxygen in the streams. Robbed of their oxygen supply, fish and plants cannot survive.

Prof. Don E. Bloodgood and his staff in Purdue University's department of sanitary engineering, Lafayette, Ind., are conducting experiments with two types of anaerobes—one to break down the pollutants into digestible by-products and the other to turn these into dissipating gases.

• Science News Letter, 87:249 April 17, 1965

SPACE

Mariner IV Passes 200-Million-Mile Mark

➤ AT ABOUT TEN MINUTES past midnight, April 2, the Mariner IV spacecraft passed the 200-million-mile mark on route to Mars.

This was the 125th day in Mariner's journey, which began on November 28. The National Aeronautics and Space Administration sends out regular progress reports on Mariner, even if nothing spectacular is happening, if only because the 138,000 separate parts in the spacecraft are still working.

Mariner IV has been designed for a life expectancy of 6,500 hours, which allows a margin of scarcely eight percent over the time required to reach Mars.

• Science News Letter, 87:249 April 17, 1965

GENERAL SCIENCE

Scientist Raps Art, Calls Humanities Enemy

➤ ONE DISCORDANT note is being sounded in the otherwise harmonious support being given by scientists to the proposal for a Government foundation to uplift and promote the arts.

The off-beat note comes from Dr. Lawrence La Fave, psychology department, Detroit Institute of Technology. Dr. La Fave said that "scientists who write in support of the cause of the humanities lend new empirical substantiation to the hypothesis that the road to Hell is paved with good intentions."

In taking this stand, Dr. La Fave sharply disagreed with many other scientists, including Dr. Glenn T. Seaborg, Chairman of the Atomic Energy Commission. Dr. Seaborg, for example, in testimony on a bill to create a National Foundation on the Arts and the Humanities, told the Congress that the scientific community should consider itself part of an over-all whole of humanity in which the arts play a major role.

On the other hand, Dr. La Fave believes that science in general may have surpassed the humanities, at least in public prestige. Therefore, contemporary scientists are persuaded that science, as a good winner, ought to help the humanities to their feet.

"They assume that the humanities, once upright again, will not deliver to science a stinging blow.

They must believe that the two can grow together. In my opinion, it would be more correct to view science and the humanities as cut-throat competitors."

Dr. La Fave, who states his views in a letter to Science, 147:1242, 1965, believes that the social sciences have the most to lose by competition from the humanities.

"Still the underdog, social science is in fierce competition with the humanities—and only the fitter will survive.

"Come the day of reckoning, history will be devoured by sociology, and applied science will occupy that territory which today is called the arts'. Conclusion: Help stamp out art!"

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