

## High-Protein Biscuit For Asian Children

► A MILK-BASED biscuit for children in protein-short Asian countries is now in limited production at the new Dairy Research Institute, near Massey University of Manawatu, New Zealand.

Technicians at the Institute, a non-commercial research organization supported by the Government and the New Zealand Dairy Production and Marketing Board, have designed a pilot plant to produce the high-protein biscuit in quantity.

The process produces a light yellow wafer, the shape and weight of a small tablet of chocolate. Containing the food equivalent of a quarter-pint of whole milk, the biscuit contains milk and whey powder and grated cheese. Curry and other flavorings are varied according to the country to which the batch is to be sent.

Stirred into a damp, crumbly consistency, the mixture is then weighed out and put into trays with a forming frame in each. After being subjected to five tons of pressure in a mechanical press, the trays are baked for three hours in a vacuum drying oven at 120 degrees F.

Under the pilot scheme, children in eight schools in Taiwan, the Philippines, Malaysia, Thailand and Pakistan will be supplied with two biscuits a day. Present production is 200 pounds daily, enough for 3,000 children.

Initial distribution will be free and careful records will be kept by educational authorities in each country to show each child's weight and height gain with the new food over the first year. A full-scale factory will be set up later to manufacture the biscuits in bulk.

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### NEUROLOGY

## Severe Face Pain Helped By Experimental Drug

► A FACE PAIN so severe that it makes victims neglect brushing their teeth, shaving, washing their faces or even eating solid foods can be relieved by a new experimental drug.

The disease, which affects the fifth cranial nerve in the face, is called trigeminal neuralgia or tic douloureux. The drug, reported at the meeting of the American Neurological Association, Washington D.C., is carbamazepine, or Tegretol, and is in use in Europe but is not yet on the market in this country.

More than 100 sufferers between the ages of 29 and 89 get relief from the drug, Dr. William Amols of Columbia University College of Physicians and Surgeons, told the meeting.

Surgery has been the recommended treatment for permanent relief, al-

though a hot water injection to kill the offending nerve has also been reported, along with a few other drugs.

The new drug, available in very small quantities for experimental use among physicians with facilities for testing it, may have a few side effects, but Dr. Amols said they tend to disappear after a week or less. Dizziness, nausea and unsteadiness are among the most commonly reported side effects.

Physicians who use Tegretol, produced by Geigy Pharmaceuticals, Ardsley, N.Y., are warned that the effects must be closely watched because dosage needs will fluctuate according to the patient's reaction and in correlation with any side effects.

Dr. Amols is assistant professor of clinical neurology at Columbia, and attending neurologist at the Neurological Institute, where the patients have been studied for two years.

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### DENTISTRY

## Electronic Dental Spies Are 'Bugging' Teeth

► WHILE SPIES are worrying the world's leaders with their ingenious electronic listening devices, two dentists in league with a physicist have designed a tiny transmitter that can be hidden in a tooth.

No military secrets are in danger from the device, however. Triggered by a metallic filling in the opposing tooth, the miniature sending set provides detailed information about the subject's bite.

A loop of wire around his neck picks up the transmitter's signal and relays it to receivers that amplify and record it. Chewing, swallowing and other functions of the "oral cavity" can be investigated with the instrument.

Drs. Irving Glickman and Jan H. N. Pameijer of the Tufts University School of Dental Medicine put together their gadget with the help of Raytheon Company physicist Fred W. Roeber. Dr. Glickman said that tests have been made under all sorts of conditions, including coffee-drinking, hamburger-eating and a mixture of both.

The transmitter occupies less than one-hundredth of a cubic inch and is usually implanted in a small bridge replacing a lost tooth. It is not the first "tooth-radio," but it is reportedly the first capable of reporting on all tooth contacts in their normal, foremost and rearmost positions.

Even though it fits in the space of a missing tooth, however, the transmitter may save many other teeth, Dr. Glickman said, by enabling early detection of "occlusal stresses," or bite problems. One way to use the tooth-radio's data would be to compare X-rays of someone with a suspected problem with the normal bite "standards" obtained by radio.

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# IN SCIENCE

### VETERINARY MEDICINE

## Distemper Vaccinations Recommended Annually

► RECOMMENDATIONS for canine distemper immunization were made by a panel of experts and reported in the Journal of the American Veterinary Medical Association.

Foremost among the panel's recommendations is the annual vaccination of all dogs, excluding pregnant bitches.

Results are best, the panel advised, if the vaccinated animals are serologically tested within 30 days.

They recommended attenuated live-virus vaccine of chicken embryo or tissue culture origin as the immunizing agent.

The experts found no evidence of untoward reaction caused by this vaccine in debilitated animals nor did it appear to interfere with the natural course of distemper in previously exposed animals.

They stated that continuing evidence indicates passive immunizing agents are less effective than multiple doses of attenuated live virus vaccine.

The panel was composed of representatives from the AVMA's Council on Biological and Therapeutic Agents and Council on Veterinary Service, the American Animal Hospital Association, the American Association of Veterinary Clinicians, the Agricultural Research Service of the U.S. Department of Agriculture and the Veterinary Biological Licenses Committee of the Animal Health Institute.

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### GEOPHYSICS

## Dead Volcano in Sudan May Not Be Extinct

► HOT GASES emerging from cracks in a volcano in Sudan may be indications of a coming eruption, the first in hundreds of years.

Two British investigators for a company that has been monitoring the Jebel Marra volcano since 1957 reported that previous observations by another scientist of hot springs and fumaroles in the area may be more foreboding than at first believed.

Though Jebel Marra has "clearly" been inactive for "many centuries," said A. N. Burton and G. E. Wickens in Nature, 210:1146, 1966, such activity might only have been the last traces of earlier life. However, no such fumaroles have been reported in previous observations, which indicates that perhaps they were formed in the last few years.

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# E FIELDS

## BOTANY

### South Pacific Plants Yield Valuable Drugs

► MORE THAN 1,000 plants grown from seeds gathered throughout the South Pacific are being studied as possible sources of valuable drugs.

Flowering in various shades of blue and with some bearing fruit, the plants, New Zealand poroporo, commonly called bullibulli, are growing in a half-acre garden at the University of Otago, Wellington, New Zealand. The project, supported by a Swiss drug concern, is being undertaken by the head of the botany department, Prof. G. T. S. Baylis.

"We are looking for a race of plant or one of its allied species which might give a better yield."

The botany department has more than 50 different species of the plant, gathered from as far afield as New Guinea. They are thriving differently in the garden, depending on the climate from which they have come.

The fruit is poisonous when green, but can be eaten when ripe, said Prof. Baylis, "though it is not very pleasant to taste."

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## SOCIOLOGY

### Population Tide Can Be Turned Back

► DEMOGRAPHERS now believe "the population tide can be turned back," the Planned Parenthood-World Population organization said in New York.

Hope is based on the rapid acceptance of family planning programs in newly developing countries, 23 of which have already set up nationwide programs.

As late as two years ago, world population in 2000 A.D. was projected at 7.5 billion. Now the official United Nations projection stands at six billion. The figure assumes that the trend toward massive government-aided birth control programs evident in the past year will accelerate.

Among countries which have begun large programs are India, Pakistan, Chile, Communist China, Taiwan, Korea, the United Arab Republic, Tunisia, Turkey, Japan, Kenya, Ceylon and Jordan.

Latin America, a Johnny-come-lately in the field of birth control, has now also begun to face the problem. However, only Chile and Honduras have national programs. Chile has family planning clinics in 55 hospitals serving more than 150,000 women a

year. Still troublesome are countries such as Brazil where anti-birth control laws and a conservative religious attitude make progress difficult.

Mexico's population rate is still going up, and though a nationwide service has been planned, little is available outside Mexico City.

Primarily responsible for the new optimism is the intrauterine contraceptive device (IUD). Second in importance has been the birth control pill, said the Planned Parenthood Organization. Communist China and India are manufacturing and using devices, but most of the progress in Korea and Taiwan, outstanding examples of birth control, is attributed to the IUD. Pakistan is one of the few countries to use oral contraceptives primarily.

Both methods will probably be outdistanced in ease and acceptability, however, by new contraceptive means such as injection, still experimental.

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## SPACE

### Charts May Guide Return From Moon

► AN EMERGENCY cutting short a manned flight to the moon halfway through the journey may leave astronauts with no way to calculate their return but a handful of charts and graphs. But that will probably be enough.

Malfunctions at either end of the flight, while orbiting either the earth or the moon, pose problems of a different sort. Orbits can be very accurately measured by computers, so while actually aborting the mission may be a difficulty, doing the necessary mathematics is not.

During flight from earth to the moon, however, the exact position and speed of the spacecraft are harder to determine at a given moment. The problem is calculating how to turn and reaim the spacecraft so that it will hit the earth's atmosphere at the proper re-entry "window" to preclude its burning up from friction.

Now two National Aeronautics and Space Administration scientists at NASA's Ames Research Center, Moffett Field, Calif., have reduced the problem, with the aid of a chart, to "simple arithmetic" and one small trigonometry problem. Using their method, astronauts could even pick their landing spot, unless an emergency required "minimum return time."

George P. Callas and Robert B. Merrick have been working on midcourse aborts from lunar flights since 1963. One source of error in their systems has been, and still is, that corrections in velocity cannot be made as accurately as they can be measured. This means that performance of the system is limited by the errors in the thruster rockets. Computer-simulated moon flights have shown, however, that accuracy is at least adequate.

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## TECHNOLOGY

### Liquid Methane May Be Suitable Fuel for SST

► LIQUID METHANE fuel could increase the supersonic transport plane's carrying capacity and reduce operating costs as much as 30%.

Richard J. Weber, head of the Lewis Research Center mission analysis branch of the National Aeronautics and Space Administration points out that methane has a heat of combustion 16% higher than the commonly used JP or kerosene aircraft fuels, is rapidly available from natural gas, and would present no major problems in redesign of turbojet or turbofan engines.

Since liquid methane is a cryogenically cold fluid, there would be some problems in handling and storing the fuel. However, Mr. Weber said these problems might be offset in development of the SST because "in some respects, the engine may be easier to develop for methane than for JP fuel."

Discussing his work before the Second Propulsion Joint Specialist Conference of the American Institute of Aeronautics and Astronautics in Colorado Springs, Mr. Weber noted that "although many varieties of aircraft could benefit from the use of methane, its advantages can be illustrated in terms of a representative SST configuration."

Mr. Weber's paper, titled "Methane-Fueled Propulsion Systems," was co-authored by James F. Dugan Jr. and Roger W. Luidens.

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## AERONAUTICS

### Boeing Stretches SST By Twenty-Seven Feet

► THE SUPERSONIC transport design being prepared by the Boeing Company as a competitor for what may be the biggest contract in the history of aviation has grown by 100,000 pounds, 27 feet and 41 passengers since it was first announced.

The new design is more than 298 feet long, can carry up to 291 passengers and has a gross weight of 300 tons.

In addition, Boeing has moved the four huge jet engines back from under the wings to beneath the horizontal tail. Chief reason for this was that wing-mounted engines would have limited the amount of movable wing area in the variable-sweep design. Previously, the wing pivots would have had to be 40% of the wing's length out from the fuselage. Tail mounting the engines allows all but 23% of the wing to be movable.

Finally, the once widely separated wing and horizontal tail have been moved closer together so that in supersonic configuration they will form virtually one continuous surface.

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