

## PHARMACOLOGY

**May Not Be Allergic To New Type Penicillin**

➤ THERE IS a good possibility the new super-penicillin developed by Beecham Laboratories in England may be tolerated by individuals allergic to the penicillin now commonly used.

The new drug, proved active against all strains of staphylococci tested at the National Institutes of Health, Bethesda, Md., caused no antibody response in the blood of individuals treated with it. Dr. Richard Aster of the National Institute of Arthritis and Metabolic Diseases made the antibody investigation.

The new synthetic penicillin is called Staphcillin. In other tests at NIH, it cleared up staph infections after regular penicillin and other antibiotics had failed. In one case, 35 days of Staphcillin therapy cured a nine-year-old boy who had had recurrent staph infections for most of his life—ten episodes of pneumonia, four of bloodstream infection and innumerable abscesses.

Bristol Laboratories has arranged with Beecham to distribute the new antibiotic in the United States.

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## AEROMEDICINE

**Man Can Fly "At Any Speed"**

➤ THERE IS NO SPEED at which it will become impossible for a fit man to fly, Air Commodore W. K. Stewart, consultant in aviation physiology for the Royal Air Force, told the Fifth European Congress of Aviation Medicine in London.

"There is no medical barrier to man traveling at whatever speed the designers of aircraft could make possible," Air Commodore Stewart said. "Nor would there be any limit to the height of flight, provided medical and engineering scientists worked together."

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## CHEMISTRY

**Sound Waves Measure Fast Chemical Reactions**

➤ SOUND WAVES can be used to measure more accurately the rates of fast chemical reactions, it has been found by a physicist at the University of California, Los Angeles.

Chemical reaction rates, the speed at which gases, liquids and solids combine or separate, are basic to an understanding of most substances and processes—from the formation of water to the workings of an internal combustion engine.

One way of measuring very fast reaction rates, those that occur in one-millionth of a second, is through sound waves, whose velocities change with the time of reactions.

Using a complex apparatus, UCLA research physicist Harvey Blend has developed a method for detecting very small changes in sound wave length and velocity, which in turn allows him to measure reaction rates more accurately.

Through a combination of optical, acoustical and electronic techniques, Mr. Blend has been able to measure changes in wavelength of two thousand five-hundredths of an inch, and changes in frequency of one cycle in a million. These measurements, taken together, represent a new high in accuracy.

In his apparatus, which he largely designed himself, Mr. Blend used two transducers to generate and receive sound waves. He sent his waves in short bursts to eliminate the echoes which had clouded measurements of earlier researchers.

Mr. Blend, who will join Sacramento State College in the fall as associate professor of physics, is experimenting in an area which has challenged chemists and physicists for more than 75 years.

By perfecting his measurements, Mr. Blend hopes to throw more light on the mechanism of chemical reactions, especially how molecules combine and separate during reactions.

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## PSYCHIATRY

**Twins Not Predisposed To Mental Illness**

➤ THE CONFUSION of ego identity said to occur commonly among twins does not cause schizophrenia, the mental illness of confused identity, Dr. David Rosenthal, psychologist at the National Institutes of Health in Bethesda, Md., has concluded. Neither does it cause other psychiatric illness requiring hospitalization.

The Archives of General Psychiatry, Sept., 1960, published by the American Medical Association, cites Dr. Rosenthal's findings based on studies in Sweden and Germany. His figures show that the frequency of twins among schizophrenics is actually less than the estimated frequency of twins in the general population.

Dr. Rosenthal's conclusions challenge the theory of some authorities that maintains that twins are more likely to develop confusion of identity because they are dressed alike, treated alike and have more problems of sharing, especially of the mother, than their brothers and sisters.

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## MEDICINE

**Drug Inhaler Gives Relief From Migraine Headache**

➤ A DRUG INHALER that can be carried in a pocket or purse gives quick relief to migraine headache sufferers, according to a report to the American Medical Association in Chicago. The Medihaler-Ergotamine is reported as "a very useful agent" by Dr. Robert E. Ryan of St. Louis in the Archives of Otolaryngology, September, 1960, published by the AMA. The Medihaler allows inhalation of small but effective doses of ergotamine tartrate, the drug commonly given by injection to relieve the pain of migraine headaches. Dr. Ryan says that 44 out of 60 patients who used the Medihaler obtained complete or partial relief.

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**IN SCIEN**

## NUTRITION

**'Trap' in Corn Withholds Niacin From Body's Use**

➤ CORN HAS LOTS of niacin in it, yet persons eating high-corn diets still get pellagra, a niacin-deficiency disease. Nutritionists and chemists, long puzzled over this paradox, now have a reason for it.

Donald D. Christianson, a U. S. Department of Agriculture researcher in Peoria, Ill., said five weeks of experiments with rats revealed a chemical trap in corn that captures the niacin.

The trap would release its grip on niacin, however, after alkali treatment, Mr. Christianson said. He added that there is a nutritional parallel to his experiments:

In countries where corn is used in tortillas there is less pellagra than in other high corn-consuming areas. In the manufacture of tortillas, an alkaline treatment is used. This may liberate the niacin.

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## ANTHROPOLOGY

**Brain Size Found for Man-Like Creature**

➤ OREOPITHECUS bambolii, the ancient man-like creature who walked the earth in what is now Italy some 12,000,000 years ago, has had his skull pieced together and the cranial capacity determined.

His cranial capacity can "reasonably be regarded" as somewhere between 276 and 529 cubic centimeters, Drs. William L. Straus Jr. and Miguel A. Schon, anatomists of Johns Hopkins University in Baltimore, Md., who made the determination, reported in Science, 132:670, 1960.

The cranial capacity of the ancient Oreopithecus almost certainly falls within the ranges of variation of two of the great apes, the orang-utan and the chimpanzee, the scientists reported.

The cranial capacity is much larger than that recorded for any Old World monkey, they said.

The cranial capacity definitely identifies Oreopithecus as a member of the Hominoidae, the super-family that includes both the anthropoid apes and man and his immediate forerunners. The reconstruction, however, the scientists conclude, is of no help in deciding whether this creature belongs among the apes, man and his cousins, or in a family of his own.

The ancient skull was found in 1958 embedded in a coal mine at Baccinello, Italy. The many bone fragments were pieced together and a plaster reconstruction of the skull was made by the Swiss scientist, Dr. Johannes Hurzeler. An earlier specimen was described in the scientific literature in 1872, by Dr. Paul Gervais and wrongly identified as a monkey.

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# CE FIELDS

## NUTRITION

### Refrigeration Alone No Assurance of Safety

► IMMEDIATE REFRIGERATION of food prepared in large quantities, as for church groups, school lunches, etc., does not assure safety from food poisoning bacteria, University of Wisconsin home economists have found.

Researchers Maxine McDivitt and Mary Hammer found that 100-portion lots of cornstarch pudding refrigerated in stock pots did not cool fast enough to prevent the growth of food poisoning organisms. In order to obtain sufficient cooling to prevent growth of and toxin production by staphylococcus aureus, it was necessary to split the pudding into three parts and cool each in a wide, flat pan.

The home economists said that to prevent bacterial growth, food should be cooled to less than 50 degrees Fahrenheit within four hours. But in their tests, the internal temperature of pudding in the 100-portion lots was above 50 degrees for six or seven hours.

Since splitting large lots of foods and then cooling them is not practical for most quantity food preparation situations, it is important to keep bacteria out of the food from the start by practicing proper sanitation, the researchers said.

They noted that puddings and pie fillings provide almost perfect places for bacteria to grow, and cases of food poisoning have been traced to such foods which were contaminated during preparation. Staphylococcus aureus is one type of bacteria which causes food poisoning.

The researchers added staphylococcus aureus organisms to puddings to determine the course of their development. In 33-portion lots cooled in shallow pans, there was only a slight amount of bacterial growth after some hours in the refrigerator. But the larger 100-portion stock pots contained about 35 times as many organisms as at the start of the refrigeration period.

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## NUTRITION

### Eat Leaves and Grasses Instead of Burning Them

► LEAVES AND GRASSES used as fodder for farm animals would be better used to feed man, a leading biochemist reported.

"Instead of burning or ploughing leaves under, or feeding them to ruminants, cud-chewing animals, and getting back about a tenth of the protein, we should process the leaves mechanically and get half to two-thirds of the protein as direct human food," N. W. Pirie, head of the biochemistry department at Rothamsted Experimental Station, stated in the British journal *Discovery*, Sept., 1960.

The processed leaves would have little

or no flavor of their own and could be eaten in many different forms, he said. They could be combined with flour for bread, and in many other ways with commercially prepared foods.

Too many potential sources of food are being either ignored, wasted or inefficiently used, the biochemist charged.

He said, "The amount of protein thrown away by discarding the residue from soya, groundnuts, coconuts and other products used to produce oil could supply as much as one-third of the protein required by the entire world population."

Microorganisms, rather than meat-producing animals, will be used in the future to meet the world demand for food, he predicted. "Half a ton of bullock will make a pound of protein, but half a ton of yeast will make 50 tons and will need only a few square yards to do it on."

Whatever changes may be made in food for the future, Mr. Pirie debunked the notion that eating will degenerate into swallowing a few pills. Three thousand calories, average adult daily requirement, will not pack into less than three-quarters of a pound dry. By the time it is presented in a palatable form, it will weigh about two pounds—what it does now.

Pests and disease rob the world of at least 56 billion dollars worth of produce a year, he said, "a figure that looks impressive even alongside military expenditures."

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## PHYSIOLOGY

### Milk, Egg Production Triggered by Same Cells

► THE PRODUCTION of milk in mammals is apparently regulated by the same group of brain cells which, in the reproductive process, controls the release of eggs in the female.

In the natural process of birth and the suckling of the young, physiological stimuli may act on this brain area so that milk secretion is initiated and maintained while egg production is temporarily held in abeyance.

This has been suggested in experiments at the University of California Medical School, Los Angeles, by Drs. Charles H. Sawyer, Charles K. Haun, Jessamine Hilliard and Harry Radford.

They found that electrical stimulation of a certain group of cells in the hypothalamic part of the brain of the female rabbit initiated the egg release process. Destruction of these same brain cells with electric needles activated secretion of milk.

It has also been demonstrated that the tranquilizer reserpine will block ovulation and induce milk secretion in rabbits.

The brain controls these various functions by sending chemical messengers to the pituitary or master gland. The pituitary in turn releases special hormones, each of which initiates activity in a specialized gland such as the ovary or milk glands.

It has been suggested that the chemical messenger which causes the pituitary to send out the ovulating hormone also blocks release of the milk-secreting hormone.

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## METEOROLOGY

### Heat of Hurricane Equals Ten Million Atom Bombs

► THE DESTRUCTIVE SWATH of Hurricane Donna testified to its great energy and destructive power, but here are impressive hurricane figures:

The heat liberated by condensing water during the duration of ten days of a typical hurricane is equivalent to something like ten million atom bombs. This is enough to supply all the electrical needs of the United States for the next 600 years.

A hurricane expends energy at the rate of several hundred hydrogen bombs a minute. A typical hurricane takes in about 20,000,000 tons of air every minute at its lower levels, with the air rising swiftly and thrown out at the top, some 40,000 feet above.

Even the energy release of a mild shower over a few square miles is comparable to that of one of the early atomic bombs. (See also story p. 199.)

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## MEDICINE

### Girl Has Two Hearts French Doctors Find

► SURGEONS at the hospital at St. Germain-en-Laye, Paris, have found that a 17-year-old girl has two hearts.

She is Carmela Felice, the daughter of an Italian house painter who moved to France from Bari last year. She has never been able to live a normal life.

Carmela has been unable to play with other children and has also had to be taken out of school. She is not deformed, but she becomes exhausted far too easily.

Hospital surgeons at St. Germain-en-Laye are beginning a three-year study to determine if an operation is feasible.

An earlier two-heart case has been reported from Yugoslavia, where a 19-year-old boy was so diagnosed when he was called for military service.

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## AERONAUTICS

### Navy Will Get Trailers To Ready Pilots for Air

► THE NAVY has contracted for mobile pilot ready rooms that can be moved to new airfields to quickly provide pilots with the specialized equipment needed before take-off.

The Grumman Aircraft Engineering Corporation of Bethpage, N. Y., and its subsidiary, Aerobilt Bodies, Inc., of Athens, N. Y., will build the 40-foot long, trailer-like units under an \$850,000 Bureau of Naval Weapons contract. There will be two of these for each ready-room facility.

One of the trailers will be a dressing room with equipment to check out the various systems of fully pressurized flight suits. The second trailer will be a briefing and pilot waiting room. The pilot may plug his pressurized suit into an outlet in the wall to obtain ventilation.

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