

## SURGERY

**Monkey Babies Quiet After Cesarean Birth**

► **BABY MONKEYS** delivered surgically are quieter, more depressed and less responsive than baby monkeys born naturally.

This observation is in agreement with a prevailing impression that human babies delivered by cesarean operation show greater lethargy, decreased reactivity and cry less frequently than those born naturally.

In a carefully controlled study of 26 baby monkeys, half of which were delivered by cesarean section and the other half naturally, marked differences of behavior were observed by Dr. Gilbert W. Meier, National Institutes of Health, San Juan, Puerto Rico.

The naturally delivered infants were more active, more responsive, and on the fourth and fifth day after birth began making avoidance responses—actions to avoid an experimental electroshock.

These avoidance responses, which are the beginnings of a learning process, were not shown by babies of the same age which had cesarean birth, Dr. Meier pointed out in *Science*, 143:968, 1964.

The monkey babies were kept in pediatric incubators for the first five days of life, with regulated air temperatures and oxygen concentrations. Dr. Meier fed them on glucose solutions and then concentrated formulas. All precautions were taken to maintain similar controls between the two groups.

Several mechanisms may explain the behavioral differences, Dr. Meier pointed out. One is the presence of a chemical agent produced in the normal birth process. This chemical acts in an excitatory fashion, stimulating the normal birth infant.

Another is a hormonal agent with a generally depressing effect, produced naturally during pregnancy but diminishing when the baby is ready to be born. With cesarean infants, this hormone may still be present and affect the baby's behavior.

• *Science News Letter*, 85:168 March 14, 1964

## BIOCHEMISTRY

**Human Blood Typing Uses Cattle Serum**

► **TEST FLUIDS** for determining some human blood types can be obtained from cattle, research by Prof. W. H. Stone of the University of Wisconsin genetics department has shown.

Cattle can yield large amounts of typing fluids which vary less in strength and are less expensive than the fluids now being used.

Human blood is typed for a number of reasons, but most commonly to prevent dangerous reactions that can occur when blood of one type is mixed with blood of another type in transfusions.

The J factor of cattle is much like the A factor of human blood. Therefore, cattle blood serum containing antibodies that react with the J factor will also react with the A factor of human blood.

Cattle having the J factor but not the

anti-antibodies can provide a source of antibodies for testing blood of type O, Prof. Stone found. There is also evidence that cattle can provide typing fluids for other human blood group systems as well.

It may not be necessary to rely on naturally occurring antibodies, Prof. Stone said. Experiments have indicated that when human cells are injected into cows, the cows will produce antibodies against these cells.

This means that theoretically a cow could be injected with human blood containing a certain type of blood factor. The cow would then produce antibodies against that factor, which could be processed into typing fluids.

In research, this has been done successfully in the production of typing fluids for the M group of human blood. But the researchers have not yet obtained a cattle blood type factor for the human Rh system.

Typing of blood for the Rh factor is given close attention by obstetricians, because some combinations of positive and negative reactions in the mother and child can be harmful to the newborn baby. Some Rh typing fluids are very scarce, and the discovery of such reagents in immunized cattle would be of great help.

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## TECHNOLOGY

**Wood Pulp Paper Decay Threatens Record of Past**

► **BOOKS, JOURNALS** and newspapers published since the development of wood pulp paper are disintegrating with such speed and in such quantities as to pose a major and little recognized problem for science and society.

The earliest printed books of the 15th century are still in good condition, however, because they were printed on paper made from rags, Prof. Robert Vosper, head librarian at the University of California, Los Angeles, said in Los Angeles.

The word "progress" should be redefined, Prof. Vosper said. A counterattack against the eroding forces of time and chemistry on wood pulp paper has been launched by a "book conservation corps," composed largely of librarians and led by the Association of Research Libraries.

Prof. Vosper, who is national chairman of the Association, said that librarians, as the ones who must "bear the responsibility of assuring the durability of man's written record," are deeply worried, and are exploring many facets of the problem.

These facets include microfilming, re-printing, chemical treatment, use of rag paper and the development of an extradurable wood fiber paper.

Ironically, it was cheap wood pulp paper, as contrasted with durable but expensive rag paper, which made the written word available to the masses. Now this same paper may be responsible for depriving future generations of their rightful heritage.

Prof. Vosper called attention to studies made by W. J. Barrow for the Virginia State Library which show that 71% of the books published between 1900 and 1949 are already too weak to be rebound.

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**IN SCIEN**

## AGRICULTURE

**Thunderstorm Ozone Toxic to Onion Crops**

► **THUNDERSTORMS** CONTRIBUTE to a costly disorder in onions called "onion tipburn."

University of Wisconsin horticulturists R. L. Engle and W. H. Gabelman found that the air under a thunderstorm contains an excessive concentration of a gas known as ozone, which is toxic to onions.

Ozone is a triple-weight form of oxygen. There is always some ozone around, the researchers said, but in the air under a thunderstorm it reaches a relatively high concentration, sometimes as much as eight-tenths of a part per million.

Greenhouse experiments have shown that ozone concentrations of only four-tenths of a part per million can cause tipburn in onions.

University researchers are working on onion varieties that will resist the harmful effects of ozone, and in time such varieties may become available commercially.

They also are investigating the possibility of developing some chemical that could be dusted onto onions to deactivate ozone before it could do much harm. To do this they would have to find not only a suitable chemical, but also a way to make the chemical stick to the waxy onion leaves.

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## PSYCHOLOGY

**Psychiatrist Gives Rules To Prevent Alcoholism**

► **HERE ARE** a psychiatrist's ten commandments to prevent alcoholism. They were written by Dr. William B. Terhune, founder and director of the Silver Hill Foundation, New Canaan, Conn., a center for the treatment of psychoneuroses.

1. Never take a drink when you "need one."

2. Sip slowly and space your drinks. Take a second drink 30 minutes after the first, the third an hour after the second. Never a fourth drink.

3. Dilute your alcohol.

4. Keep an accurate and truthful record of the amount and number of drinks you take—never take a drink every day.

5. Do not drink on an empty stomach.

6. Never conceal the amount of alcohol you drink. Instead, exaggerate it.

7. Stop drinking on "signal." (Signals are lunch, dinner, fatigue, sex stimulation, boredom, frustration and bedtime.)

8. When tired or tense, soak in a hot tub and follow with a cold shower.

9. Make it a rule never to take a drink to escape discomfort—either physical or mental.

10. Never, never take a drink in the morning thinking it will offset a hangover.

• *Science News Letter*, 85:168 March 14, 1964

# CE FIELDS

## NUTRITION

### New Ulcer Diet Contains More Vitamin C, Proteins

► A NEW ULCER DIET that contains 15 times the vitamin C and iron, as well as nearly twice the amount of protein as in the traditional milk-cream mixtures, has been marketed.

The canned liquid, called Quell, provides only 45% of its calories from fat, compared with 80% in the Sippy diet, prescribed for approximately 90% of the 2,440,000 ulcer patients in the United States.

Elevation of cholesterol and triglyceride levels in ulcer patients who have taken large amounts of milk and cream is believed by some investigators to cause hardening of the arteries. One study reported a 14% higher death rate from arteriosclerosis among white male ulcer patients compared to white males in the general population.

Drs. W. Stanley Hartroft and Robert M. O'Neal of the Washington University Medical School, St. Louis, Mo., found that heart disease occurred twice as often in a study of Sippy-treated ulcer patients as in those not treated by the Sippy diet or in persons not having a peptic ulcer.

Clinical studies at the Mead Johnson Laboratories, where Quell was developed, show that the new product reduces initially high cholesterol and triglyceride levels in ulcer patients while providing "buffering" capacity at least equal to the Sippy diet.

The Sippy diet, named for Dr. B. W. Sippy, has been in use for nearly 50 years, although it has been modified.

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## TECHNOLOGY

### Reason 'Soup' to Think Like Human Brain

► ENGINEERS of the future will turn on a faucet and let coded chemicals flow into a computer "soup" that reasons like the human brain.

Just as the human brain reacts to problems and produces solutions, the chemicals in the computer would react with the coded chemical to produce answers in the form of long chain nucleic acids. The tanks of chemicals would store information in the same way that deoxyribonucleic acid (DNA) and ribonucleic acid (RNA) molecules store and transfer genetic information.

Prof. Arthur E. Laemmel of the Polytechnic Institute of Brooklyn, New York, discussed the logical basis for such a computer in a recent progress report. All elements of the computer would float free, and each would be duplicated many times. The computer would be relatively slow, but like the brain, it could carry on many processes at the same time and many programs would be run simultaneously.

Data in molecular form would be pumped

into the computer by a fluid pumping device. Question molecules would have to be constructed according to a visible signal, and the code on the answering nucleic acid molecule would have to be reconverted to an understandable signal.

Some suggested methods for reconvertng the answers include a paper chromatogram, used to analyze complex molecules by mapping them to show protein placement, and a spectrogram tracing in which the answer molecules would be fed into an infrared spectroscope for analysis.

The computer would have a high reliability because of the duplication of all elements. Prof. Laemmel said that a multiplicity of computers could be made from the original computer soup by pouring it into smaller containers.

This study, which is being carried out under a U.S. Army contract for the study of coding processes, is expected to affect conventional computer design by suggesting ways for storing information on molecules for electronic retrieval.

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## ZOOLOGY

### Shrews Change in Size Depending on Season

► THE SMALLEST MAMMAL in the world may become even smaller in winter. This is a suggestion by a biologist whose research was reported in Moscow.

Tiny shrews, those mouselike animals with long pointed heads, small eyes and short rounded ears, have been reported to change in size, depending upon whether it is summer or winter.

In the winter, the skull of a shrew has 27% less volume than during the summer, and is 15% shorter, reports the Polish biologist I. Jacina in the Soviet monthly, *Nauka i zhizn* (Science and Life).

He reports that the brain also shrinks. It weighs 35% less in winter than in summer. The experiments were made at the Bialowieski Institute for Research of Mammals, an institution of Poland's Academy of Sciences.

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## TECHNOLOGY

### Pocket Radio Pages Workers Directly

► WORKERS IN LARGE factories may now carry a tiny pocket transistor radio which will transmit a direct voice message from any plant telephone.

Its designers at General Electric Company, Lynchburg, Va., say the pocket radio will eliminate paging systems, increase speed, and save personnel and equipment costs.

From his regular office phone, the person making the call dials the person he wants to talk to. The pocket receiver beeps; the wearer pushes a button and hears the voice message. The system eliminates the ambiguity and delay encountered when a third person relays a message.

The system can be keyed for use within one building or over distances of several miles.

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## ASTRONOMY

### Three Pygmy Planets Receive Yugoslav Names

► THREE ASTEROIDS, have been named in honor of Tito, Yugoslavia and Belgrade.

They are among the 14 now christened with a name instead of being designated with a number, usually used for identification. The Cincinnati Observatory made the naming official in a bulletin to astronomers.

Asteroids, of which some 1,600 are known, circle the sun between the orbits of Mars and Jupiter.

The three asteroids were discovered by M. Protitch at the Observatory of the Yugoslavia Academy of Sciences in Belgrade. The astronomer spotting a new minor planet is traditionally given the honor of naming it.

Mr. Protitch named asteroid #1517 Beograd in honor of Belgrade, his native city and capital of his country. The pygmy planet previously numbered 1550 is now named for Tito, president of Yugoslavia and "an early enthusiast of the United Nations."

Asteroid #1554 will henceforth be called Yugoslavia, which "has been defended by martyrs during two world wars."

Among the 11 others given new names, five were christened by Y. Vaisala of the University Observatory at Turku, Finland.

The asteroid numbered 1492 is now named Oppolzer, in honor of the Viennese astronomy professor who compiled the still-authoritative book on all solar eclipses between the years 1207 B.C. and 2061 A.D.

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## BIOLOGY

### Creatures From Outer Space Held Unlikely

► THE EXISTENCE of man-like creatures or recognizably intelligent life elsewhere in the universe may be virtually impossible, Dr. George Gaylord Simpson, Harvard professor of vertebrate paleontology, has concluded.

In a new book, "This View of Life: The World of an Evolutionist" (Harcourt, Brace & World, Inc., \$5.95), he contends that more can be learned about possible extraterrestrial life by studying life on earth than by imagining life on another planet.

Dr. Simpson's argument is that there may be planets similar to earth, and it is plausible that they developed life resembling that on earth in its fundamental chemical structure. But the paths of evolution are so diverse and involve so many possible alternative courses that repetition would be impossible if a life form did arise.

Even if intelligent life evolved on another planet, it would be entirely different from what is called humanoid. The chances of finding and communicating with it are just as slim as the chance that it evolved at all.

Dr. Simpson feels that time and money will be better spent in seeking out the secrets of life on earth than in a hopeless search for extraterrestrial fellows.

An excerpt from his book was published in *Science*, 143:769, 1964.

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