

## METEOROLOGY

**Method Improves Temperature Forecasting**

► A NEW METHOD of predicting temperatures five days and 30 days in the future greatly increases the accuracy of such forecasts.

The method is sufficiently simple so that anyone given the proper instructions in using an electronic computer can make the temperature forecast. The results as taken directly from the machine are as accurate as the five-year average of temperature predictions made by previous methods, which involved use of all possible corrections. And the untampered results from the machine can then be further improved by additional corrections.

The probability that the highly accurate temperature predictions made in the last eight months through use of the system are due to chance is only three in 10,000, Jerome Namias told SCIENCE SERVICE. Mr. Namias is chief of the Weather Bureau's extended forecast section in Suitland, Md.

The method is described as "objective" because all information is calculated according to certain formulas. The weather forecaster's subjective, or personal, opinions do not affect the prediction.

With the increasing use of electronic computers, weathermen are relying increasingly on objective methods of predicting weather over large areas. Local forecasters, however, still must rely on their personal knowledge of conditions in their area in making predictions for limited regions.

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## MEDICINE

**Suggests Way to Prevent Fatal Heart Blowout**

► A WAY TO prevent fatal blowouts of the heart has been suggested through a new concept of the steps leading to such an occurrence.

Dr. Walter J. Freeman of the University of California at Los Angeles Medical School has advanced the new concept in *Archives of Pathology*, published by the American Medical Association, following a study of the hearts of 36 patients who had died of a myocardial rupture.

Dr. Freeman found the blowout, occurring in the heart muscle wall, had been preceded in most cases by development of a series of tiny infarcts, areas of tissue death resulting from diminished blood supply through narrowed arteries.

These small infarcts commonly occur three to seven days before the blowout and result in local weakness in the heart's inner wall.

Just prior to the blowout, as was previously known, a blood clot lodges in a narrowed heart artery, causing a large area of tissue death surrounding the tiny infarcts. Like a damaged tire tube this area of the heart wall bulges and blows out.

Patients had reported symptoms, some

severe, apparently caused by the tiny infarcts, Dr. Freeman says. It has also been noted that small infarcts cause a slight change in the electrocardiograph pattern.

If the patient is treated with anticoagulants as soon as first signs of tiny infarcts appear, clots may not form and the blowout may be prevented, he believes.

Dr. Freeman, a U. S. Public Health Service Postgraduate Fellow at UCLA, initiated the study at Yale University Medical School. He was recently awarded the Oliver Douglas Memorial Award by the Los Angeles County Heart Association for an essay on this topic.

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## BIOLOGY

**Russians Denounce Own "New Cell Theory"**

► SOVIET BIOLOGY is being subjected to scathing criticism by two of their own scientists, according to a translated report in *Science* (July 25).

In contrast to the commonly accepted theory of how cells evolve, originated by the Germans, Schwann and Schleiden, more than 100 years ago, the new theory claims cells develop from acellular "living substance." The development of "true living cells" from crystal-like structures in cultures of egg white, as described by O. B. Lepe-shinskaya, is an example of the new theory.

The generally accepted theory states that cells develop from other cells which in turn are the units of living matter.

The Russian critics object to Lepe-shinskaya's cell theory because it is "not founded on solid, firmly established facts and, consequently, does not reflect any laws actually existing in nature." Her hypothesis, the Russians say, can only claim "to depict the personal, subjective views of her and her supporters."

None of the attempts of other scientists to prove the proposed theory have been successful, critics L. N. Zhinkin and V. P. Mikhailov of the Moscow Oblast Scientific Research Institute of Obstetrics and Gynecology report. All the research reaffirms the "old" cell theory.

Despite the fact that Russian scientists, including Trofim Lysenko, have gone along with the new theory and that, by order of the U.S.S.R. Academy of Sciences, the theory is being taught in schools, Mr. Zhinkin and Mr. Mikhailov condemn the theory as "speculative hypotheses, linked with a quite primitive understanding of biogenetic law."

Until recently, critics of the new Russian theory have been described as reactionaries in science along with the metaphysicists and idealists.

As more evidence piles up pointing to inaccuracies in the new cell theory, and is published, the new theory may be thrown out. Russian scientists may be obliged by the facts to return to the old western theory of the cell.

The critical review is translated by the Pergamon Institute for the Russian scientific translation program of the National Institutes of Health, Bethesda, Md.

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**IN SCIENCE**

## TECHNOLOGY

**Australian Process Gives Pants Permanent Crease**

► EVEN WHEN IT RAINS "down under," Australians will be able to keep their trousers creased and their skirts permanently pleated, thanks to a new wool treatment process.

A dilute chemical solution followed by setting desired creases with steam is involved in the process invented by Dr. A. J. Farnworth. Treated garments keep their creases during prolonged use and drycleaning and will "remain sharp even after wetting with water." The method of applying it is said to be simple, costing about 13 cents a garment. Finished garments need little or no pressing after drycleaning.

Dr. M. Lipson of the Commonwealth Scientific and Industrial Research Organization's (CSIRO) wool textile research laboratories and Dr. Farnworth recently demonstrated the process in New Zealand where it is expected to be used by the garment trade.

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## ELECTRONICS

**Race Bets Computed in Three-Hundredths Second**

► THE AMOUNT of money won on a race track bet is computed automatically and accurately in three-hundredths of a second.

The American Totalisator Company's parimutuel installation at Roosevelt Raceway, Westbury, N. Y., demonstrated the mathematical calculations involved in a two-dollar bet. Prof. John R. White, professor of civil engineering at New York's City College, showed the apparatus to mathematics students and the press.

About three billion dollars in wagers are now being placed annually through parimutuel machines in 25 states and in Canada, Mexico and Puerto Rico. These wagers are all registered and computed with the automatic machines, each of which costs a million dollars.

Hundreds of bets on eight different horses and at different prices, from two dollars to \$100, are handled by the equipment virtually simultaneously. The computers, which receive the various bets, store them and then relay them on to the American Totalisator's automatic odds analogue computer.

The 'tote machines rarely make mistakes. The machines are adjusted to deduct the state's percentage, usually about ten percent, and the track's share from the total pool when they make the final computations. Racing fans are thus wagering among themselves.

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# CE FIELDS

## PSYCHIATRY

### Half of Suicides Had Given Advance Warning

► DOCTORS need to rid themselves of the myths that the person who talks about suicide never carries out the threat and that suicide is always the act of an "insane" person.

This warning, based on study of 140 suicides in the state of New Hampshire during 1955 and 1956, was given the American Psychiatric Association meeting in San Francisco.

Half of those suicides had given suicidal warning either by threatening to take their own lives or by actually attempting it, yet only about one-fifth had ever been under any form of psychiatric care.

It should be possible legally to put the suicidal patient under psychiatric observation entirely on the responsibility of the physician, Dr. David J. Vail, assistant superintendent of the New Hampshire State Hospital, told the meeting.

Of the suicides who had been hospitalized, half were psychotic and one-third had signed themselves in voluntarily.

"But the alcoholic, or immature character type, flirts openly with suicide over a long period, and the psychoneurotic patient has highly elaborate ways of covering up," Dr. Vail said.

"An unknown number of cases are evidently free from any detectable symptomatology, and arrive at their decision with complete rationality."

On the other hand, no one knows how many people threaten suicide or brood on it, and eventually die of something else. The physician should be provided with techniques for recognizing the psychotically depressed patient. The medical practitioner stands at the front line in the battle against suicide and it is only through him that the psychiatrist can exert any measure of control.

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## DEMOGRAPHY

### Latin America Soon to be 2nd Most Populous Area

► BY THE YEAR 2000, Latin America's teeming millions may be exceeded only by those of Asia.

This is revealed in a report by Robert C. Cook, director of the Population Reference Bureau, to the *Population Bulletin* (Aug.), published in Washington.

If the present growth trend continues to the end of the century, Latin America will have almost twice as many people as the United States and Canada. They will have 593,000,000 against our 312,000,000 while Asia will have 3,900,000,000, remaining in first place.

Today, Latin America has the most rapid population growth of all the major regions

of the world. In 1920, Latin America had 91,000,000 people, five percent of the world's population. By 1956, the population there had jumped to 187,000,000, or seven percent of the world's population.

Latin America is a region of youth; children under 15 years of age make up more than 40% of the population in most Latin American countries.

Latin America has comparatively few at the other end of the life span. Less than seven percent of the people are 60 years of age and older except in Argentina and Uruguay. In the U. S., 13% of our people are 60 years old or older while only 30% are under 15.

The report on Latin America as a rapidly growing region of youth was written by Annabelle Desmond and based on a research report by Sarah Lewit.

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## EVOLUTION

### Ability to Make Ascorbic Acid Related to Evolution

► THE FACT that you need a daily dose of vitamin C should please you: It is another piece of evidence indicating that man has a high place in the scale of evolution.

Virtually all animals except primates and the guinea pig are able to make their own ascorbic acid or vitamin C. Apparently, two Indian scientists report in *Nature* (Aug. 2), the capacity to synthesize this very important vitamin has been lost in the high animals.

R. N. Roy and B. C. Guha of the University College of Science and Technology, Calcutta, India, experimented with the vitamin-making powers of amphibians, reptiles, various kinds of birds, and mammals, including the Indian fruit bat.

They found that the kidney tissue of reptiles, amphibians, and those birds belonging to a group that evolved early, could make vitamin C. However, in the most recent group of birds, represented by the magpie robin, crow and myna, the liver tissue had this ability. In one of these birds, the red-vented bulbul, neither organ could bring about the synthesis of vitamin C.

The fact that the Indian fruit bat could not make the vitamin may be further evidence, the scientists report, that the bat is closely related to primates. In contrast, rat liver can make vitamin C.

Tests showed the enzyme systems involved in making vitamin C, whether in liver or kidney, are identical or closely similar for all species.

The technique of testing laboratory cultures of liver and kidney tissue to see if they produce vitamin C, with D-glucuronolactone as the substrate or building material, together with cyanide, may be a useful device for placing difficult-to-classify animals in the correct evolutionary group.

"In the evolutionary ascent," the scientists conclude, the mechanism for ascorbic acid synthesis "seems to pass from the kidney to the liver and then to disappear also from the liver."

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## PUBLIC HEALTH

### Scientists Make River To Study Water Pollution

► THE PROBLEMS of how rivers become filth-laden and how they can be made clean again may be solved once and for all by a group of Philadelphia scientists who are building their own river "to find out how rivers operate."

Dr. Ruth Patrick and her staff of water biologists at the Academy of Natural Sciences, Philadelphia, will build a "bulldozed" river 150 feet long and six feet wide on a private estate at Paoli, Pa.

The man-made river and the water pollution study program are sponsored by the Manufacturing Chemists' Association, Washington, which has been sponsoring similar projects at the Academy for five years.

Gen. John E. Hull, president of MCA, said "it is hoped the studies being conducted at the Academy will add appreciably to knowledge of what makes a stream healthy or unhealthy."

Dr. Patrick, who invented the Academy yardstick of judging a stream's health by the plant and animal life it can support, said the artificial river will be used by water biologists in much the same way control animals are used by other biologists.

Scientists in other fields, she said, study a specimen from its birth through maturity. Dr. Patrick plans to follow the same plan with the little river.

It will be allowed to develop, naturally, acquire its own plant and animal life, and follow a river's normal life. During this time it will be under constant surveillance to find out what factors make it healthy or unhealthy.

That knowledge may help other scientists to restore the health of "sick" rivers.

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## BOTANY

### Nickel Inhibits Rust Development on Wheat

► A SOLUTION of nickel metal ions may prove to be an effective way of curbing stem rust in both resistant and susceptible varieties of wheat.

Tests with cobalt, molybdenum, copper, manganese and iron showed none of these affect rust development. However, nickel is "very effective in the prevention of rust development" in detached leaves of susceptible varieties of wheat, D. Wang, P. K. Isaac and E. R. Waygood of the University of Manitoba's botany department, Winnipeg, Canada, report. Zinc also had a slight inhibitory effect when used at high concentrations.

The scientists, reporting their results in *Nature* (July 26), believe it "unwise" to state that nickel acts as a fungicide. It apparently slows down the synthesis and breakdown of chlorophyll, according to studies of both green and blanched or white uninfecting detached leaves.

Nickel inhibited both germination and growth of the rust fungus, *Puccinia graminis tritici*.

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