

## PUBLIC HEALTH

**Cold Wave May Prolong Influenza Outbreak**

**M**ORE influenza cases are being reported each week to the U. S. Public Health Service, and in the presence of the recent widespread cold wave health officials do not see any prospect for an early falling off in cases of this disease.

For the latest week on which figures are available, about 8,000 new cases were reported. This is an increase of some fifteen hundred over the previous week. Because so many cases of influenza are not reported, the actual number in the country is probably five or more times the reported number, health officials point out. Increases were reported from widely separated states, indicating that the present outbreak is nation-wide.

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## MEDICINE

**Finds Certain Substances Reach Brain via Blood**

**F**INDINGS suggesting that a way may be found to protect the brain from harmful substances, such as lead, which when it reaches the brain causes the most serious form of lead poisoning, were reported by Dr. Ulrich Friedemann of the Rockefeller Foundation to the Yale Medical Society.

The brain receives various materials directly from the blood capillaries rather than by way of the spinal fluid, as hitherto has been supposed, Dr. Friedemann announced.

These tiny blood vessels bring the brain its nourishment, scientists know, while the spinal fluid has been considered something in the nature of the drainage and water supply system of the brain. How chemical poisons and disease-causing viruses reach the brain is not definitely known in all cases. The virus of infantile paralysis, for example, is now thought to reach the brain by way of the nerves. Lead probably gets there by way of the blood vessels. Dr. Friedemann's discoveries give scientists more building-stones with which to construct knowledge of this problem in brain injury.

Electro-positive substances pass through the walls of the tiny blood capillaries more readily than electro-negative substances, irrespective of the chem-

ical constitution of the substances or the size of their particles, Dr. Friedemann found.

This supports the view that the tetanus toxin, which causes lockjaw, reaches the brain through the nerves rather than through the blood vessels, since the tetanus toxin is electro-negative, and therefore does not pass through blood vessel walls readily if at all.

Injections of adrenalin and of pituitary gland extract increase the ease with which substances pass through the capillary walls, Dr. Friedemann said.

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## ASTRONOMY—PHYSICS

**Exploding Stars Suggested As Cosmic Ray Sources**

**E**XPLODING stars as the birthplace of the powerful cosmic rays are suggested by Prof. Werner Kolhoerster's researches reported from Germany.

It is not a new idea, but scientists hot on the trail of the cosmic ray mystery are greatly interested in his report just published in Berlin that more cosmic rays come from the spectacular erupting star in the constellation of Hercules than from the rest of the sky.

Dr. Fritz Zwicky, of the California Institute of Technology, a few months ago put forth the idea that cosmic rays are let loose when a gigantic stellar explosion occurs, but he has felt that even the new Hercules nova, seen since December as a brilliant star near Vega, was too feeble to give many cosmic rays.

Prof. Kolhoerster, who is a pioneer cosmic ray investigator, has found that when he pointed his cosmic ray counters directly at Nova Herculis during its recent eruption the cosmic ray intensity increased as the star grew brighter and brighter. An article published in the *Berliner Tageblatt* states the cosmic ray intensity increased from one to two per cent. as he sighted his cosmic ray "telescope" at the star.

Hitherto observers have found no increase in ray intensity as they pointed their instruments at the sun or other stars in the sky; a finding which has led to the belief that cosmic rays come from interstellar space.

Prof. Kolhoerster's discovery, if confirmed, suggests that these past researches were not timed properly; that the special nova type star is the one which needs watching.

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**IN SCIENCE**

## SEISMOLOGY

**North Pacific Bottom Shaken by Earthquake**

**T**HE UNEASY sea bottom off the Aleutian islands, one of the most active earthquake regions of the world, took another shaking early on Wednesday morning, Jan. 23, when at 2:24.1 a. m., eastern standard time, a severe quake took place. Seismologists of the U. S. Coast and Geodetic Survey, working with data obtained telegraphically through Science Service, gave the epicenter location as latitude 51 degrees north, longitude 168 degrees west. This is approximately 130 miles south of Unalaska island.

Stations reporting to Science Service were those of the Dominion Observatory, Ottawa, Canada; Seismological Observatory, Pasadena, Calif.; the University of California, Berkeley, Calif.; University of Montana, Bozeman, Mont.; Georgetown University, Washington, D. C.; Canisius College, Buffalo, N. Y.; and the observatories of the U. S. Coast and Geodetic Survey at Ukiah, Calif., Tucson, Ariz., and Chicago.

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## METEOROLOGY

**Products of Winter Rain Rival Cave Stalagmites**

See Front Cover

**F**AIRYLAND lovelinesses in crystal, rivalling the stalagmites of limestone caverns in fantastic form and gleaming whiteness, are likely to greet our eyes on any morning when winter hesitates between thawing and freezing, and a rain falls that solidifies into ice wherever it strikes a solid object. Not only are trees thus glorified, but also the humblest grasses and the small wiry shrubs that lift themselves scarcely higher. Evanescent, though, this beauty is: it seems a pity that the sun, whose light is needed to give us the full benefit of this glittering glory, should at the same time be darting arrows of warmth to take it all away.

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# THE FIELDS

## CHEMISTRY

### Synthetic Rubber, Positron, Win Gold Medal Awards

**D**ISCOVERIES of synthetic rubber and a new fundamental unit of matter won the two gold medals of the American Institute to be presented Feb. 7 to Rev. Julius A. Nieuwland of Notre Dame University and Dr. Carl D. Anderson of California Institute of Technology.

Promising to compete in price with natural rubber and superior for some special uses, Father Nieuwland's synthetic rubber, chemically produced from acetylene, was developed by du Pont chemists and marketed under the name Duprene.

The positron discovered by Dr. Anderson, one of Dr. R. A. Millikan's associates, is the positive electron. It is considered one of the three fundamental entities of the universe. Its discovery toppled the old idea that protons and negative electrons alone are the ultimate stuff of atoms.

Dr. Anderson is not yet 30 and one of the youngest American science leaders. Father Nieuwland, Belgian born, graduated from Notre Dame, studied chemistry at Catholic University and while there did some of the research that led to lewisite, deadly but unused American war gas.

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## ZOOLOGY

### Lemur's Tooth Comb Joins "Ain't So" Club

**S**CIENCE has taken from the lowly lemur, way-back ancestor of man, his only other claim to notice. This is his "built-in" comb for dressing his fur.

The comb is really his lower front "buck" teeth. They jut out almost horizontally. Each tooth, moreover, is serrated into prongs like those of a fork, the resemblance to a real comb being therefore striking. In fact, scientists could never see any other use for this strange instrument, although they did wonder at the apparent flippancy of Nature in providing it.

There was even a built-in "tooth brush" in the lemur's mouth. This was the under side of the tongue, with which the animal was thought to clean away the hair collected by the "comb" during the grooming.

But now M. Russell Stein, Columbia University anthropologist, watching affairs at the Bronx Zoo, finds that the lemur rarely primps. When he does, it is generally with his claws.

Nor could the creature comb himself with his teeth, even though he might wish, it was seen. The prongs are so close together that dental floss cannot be forced through them.

Back home in Madagascar, the comb-myth about the lemur is blasted too. In his native habitat, the front buck teeth are merely used to shred edible morsels of green bark from branches.

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## ENGINEERING

### Obsolete Roads Demand Replacement

**L**ACK of planning in the past finds the United States with the greatest system of roads of any nation in the world but roads for the most part now obsolete.

This is the theme of the annual report to the American Road Builders' Association by its president, Capt. H. C. Whitehurst.

The unforeseen and unnoted increases in the volume of motor travel and the great increase in road speeds by motor vehicles now bring the nation to the place where inadequate and wornout highways must be replaced, said Capt. Whitehurst who is director of highways for the District of Columbia.

If for no other reason, Capt. Whitehurst indicated, the modernization of highways must come to cut down the growing death and injury toll of traffic. Tracing the growth of the highways, he said:

"In the early days of the automobile the sudden demand for highways resulted in improving surfaces on old locations which have since become inadequate. Most of our large metropolitan areas are further faced with the problem of building or improving arterial highways and eliminating grade crossings. And sooner or later we must construct national highways, transcontinental from east to west and from north to south."

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## RADIO

### Electrons in "Mobs" Set Radio Limits

**T**HE ALMOST moblike characteristics of the particles of electricity flowing through a radio set is what sets the ultimate limit to which engineers can push amplification of faint radio signals in their search for more and more distant reception, Dr. J. B. Johnson and Dr. B. F. Llewellyn of the Bell Telephone Laboratories told the meeting of the American Institute of Electrical Engineers in New York.

The rushing about of the electrons in a radio circuit, wherein they batter one another and the wire through which they pass, makes a tiny noise which radio amplification makes louder and louder until finally it may screen out some faint signal.

This noise in a radio set, limiting amplification, is caused by the thermal agitation of the electrons. There is nothing engineers can do about it unless one tried to operate the radio set in a bath of liquid air which, because of its low temperature of hundreds of degrees below zero, would reduce the thermal rushing characteristics of the electrons. This procedure is not practical.

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## GENERAL SCIENCE

### Smith College Granted Chapter of Sigma Xi

**T**HE distinction of being the first woman's college to be admitted to the ranks of Sigma Xi, scientific honor society, has been won by Smith College, Northampton, Mass. The establishment of a chapter there marks the breaking of a deep-rooted tradition on the part of the organization.

The petition of the college to have a chapter established on its campus was granted after five years of persistent effort on the part of the science faculty, led by Dr. Howard W. Meyerhoff, professor of geology, and President William Allan Neilson. Reports of a committee of the society which visited Northampton and inspected the equipment and work of the science departments at Smith College were so enthusiastic that the petition for a chapter was unanimously granted at the last meeting of the society.

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