

the electrical particles or ions number about 2,800,000 per cubic inch. The F<sub>1</sub> region, with a height of 130 miles, has 5,300,000 per cubic inch and the F<sub>2</sub> region, 190 miles aloft, has 16,000,000. Ultraviolet light ionizes the two lower regions, while corpuscles from the sun

are believed to cause the high charge on the outermost layer.

During the past two years due to increased sunspots the electrical charge in the two lower layers has increased by 50 per cent and in the upper layer 200 per cent.

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AVIATION

## Airline Safety Problem Holds Focus of Attention

**T**HE WINDOW-dressing of aviation and the skeleton in the aerial family closet hold dual roles at the present time. The recent National Aviation Show in New York exhibited the new improved types of planes in the vanguard of developments in speed, safety, efficiency and performance. And in Washington the family skeleton of airplane crackups was up for an overhauling at the conference sponsored by the Bureau of Air Commerce.

At present prices few people can afford to buy airplanes, although the number of planes owned privately increases year by year. But a large number of people now ride the airlines and so have a personal stake in the crashes which in recent months have aroused public indignation.

In the present situation, therefore, the skeleton probably has more news value than the show window.

Up for discussion at the Washington conference were many things, but the highlights included:

1. The possibility that the investigation of airplane crashes be removed from the jurisdiction of the Bureau of Air Commerce. The point is that many accidents appear, either directly or indirectly, to be the fault of the so-called aids of navigation like radio beams, which are maintained by the Bureau. Thus, under the present setup the Bureau may be called upon to investigate itself. No matter how conscientiously this may be done there is bound to be, on occasions, a criticism of "white-wash." Eugene Vidal, director of the Bureau, has already pointed out this paradoxical situation and urged a change from the present arrangement.

2. A better system of blind landing. Back in 1933, the Bureau of Air Commerce had its choice of the Army system now in use and the bent beam system then under partial development by the scientists of the National Bureau of

Standards in Washington. At that time the system chosen may have been the best but whether it still stands in the favored spot today needs study. Demonstrations of the bent beam blind landing system were held during the conference. With the government economy wave of 1933, the scientists who developed this bent beam system were dropped from Federal employ but have since banded together as the Washington Institute of Technology and pushed further their development work.

3. Improved radio beacons on the airways. The known troubles of multiple courses that give false bearings to airplanes on occasion seem experimentally to be removed if the power of the beacons is decreased so that they can be heard only 50 miles instead of 100 or more as at present. The answer, therefore, seems to mean weaker stations, set closer together along the routes of the transport planes. But the necessary appropriations will require good arguments to bring them into being.

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PHYSIOLOGY

## Rats Wear Out Teeth In Order to Stay Alive

**W**HEN a rodent's teeth do not meet and wear by contact with each other he dies by slow and involuntary suicide, according to Dr. Dewey G. Steele, professor of genetics at the Connecticut State College.

Unlike the teeth of a man those of a rodent grow through its entire life. If by some chance they do not meet each other and wear down they often grow up through the mouth and into the nasal or brain cavities. The upper teeth grow down into the lower jaw.

Extreme pain, infection and death usually result, according to Dr. Steele.

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METEOROLOGY

## Dust Bowl Grows While Floods Rage

**F**LOOD is not a problem in some parts of the country, despite its continued dominance of newspaper front pages. In the Southwest's notorious Dust Bowl, drought shows its white fangs again, a summary report from the U.S. Weather Bureau indicates. During all of January and thus far into February, less than a quarter of normal precipitation has been received in considerable parts of the region.

Meantime, the Southeast continues to struggle with its problem of unseasonable warmth. Peach trees in Georgia are in full bloom, and Southern vegetables are far too advanced for the season. A stiff frost could work havoc throughout the Southeast—and the frostline pushed dangerously deep into Dixie recently.

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ANTHROPOLOGY

## Weather Disasters Bred Wars in U. S. History

**A**BOUT 250 years ago, disasters of weather suffered by Plains Indians were breeding wars for United States history. This object lesson from Indian archaeology is drawn by Dr. W. R. Wedel of the Smithsonian Institution.

The warlike temper of Plains Indians, when white settlers ventured in covered wagons among them, is blamed, indirectly at least, on drought.

It appears that before the white men came a major drought had swept the Great Plains, driving Indian farmers out of their villages, and ending an era of peaceful agricultural life in the region. The "rehabilitated" Indians found themselves pushed into a greatly restricted section after the drought. In their economic worries they quarreled among themselves, fortified their villages, endured raids and massacres from their neighbors.

When white traders came, bringing horses, the situation grew worse, as many tribes became roving bison hunters or combined farming with roving. With swift horses, raiding and defensive fighting among the Indians became more frequent. When white settlers arrived, the psychology of an entire region had subtly degenerated from a state of peace to a state of war and suspicion, and the white men were received with warcries and violent resistance from hostile red men.

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