

important and consist of wind velocity, its change with altitude, and the angle it makes with the course. With the aid of a cleverly devised table, the effect of the winds aloft upon the rated cruising velocity of the airplane is obtained, and this effective cruising speed is plotted upon the chart. The intersection of the maximum effective cruising velocity with the minimum rate of climb and maximum rate of glide curves results in the most efficient flight

path.

Although the theoretical considerations are complicated, the resultant graph is quite simple and a best flight path can be determined in fifteen minutes. In transcontinental flights, however, the meteorologist must correct for the progress of waves in air masses which will influence the winds aloft at the time the airplane will be flying over a given area.

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#### MEDICINE

## Cancer Growth Checked By Kidney Secretion

### Substance Found in Secretion of Expectant Mothers Retards Cancerous Growth in Mice and Rats

**A** SUBSTANCE that produced a tenfold decrease in the growth of cancers in mice has been found in the kidney excretion of expectant mothers, it was announced by the International Cancer Research Foundation in its first scientific report.

The discovery of this substance was made by Drs. Henry J. Ullmann, Fritz Bischoff and Richard D. Evans, with L. C. Maxwell, chemist, of the Santa Barbara Cottage Hospital, Santa Barbara, Calif., whose studies were made under a grant from the foundation.

So far the studies have been made only on experimental animals. No application of the results to the treatment of human cancer was reported.

The fact that a small but important gland in the head, the pituitary gland, produces a growth-promoting substance which affects the growth of cancers was the starting point for the studies which led to the discovery of a cancer-inhibiting substance in the expectant mother's excretion.

X-ray treatment of this pituitary gland significantly retarded the growth rate of cancers in mice and rats under certain conditions, the Santa Barbara investigators found. However, this could not be applied to the treatment of cancer unless a way could be found to X-ray the pituitary without destroying its ability to produce certain other important substances, such as the sex hormone.

The decrease in cancer growth rate obtained by X-raying the pituitary was augmented in some animals by injec-

tions of a preparation from the kidney excretion of expectant mothers, Dr. Ullmann and associates found. This suggested a more practical method of treating cancer. The next step was to try the kidney excretion without the X-ray treatment.

According to the most successful experiment reported, an amount of this substance equal to thirty times the weight of the mouse contains enough inhibiting substance to produce a tenfold retardation in the growth of the tumor.

The substance which checks tumor growth is not the sex hormone which has been found in kidney excretions of women and other animals before the birth of offspring and which forms the basis of the very delicate Ascheim-Zondek test for pregnancy.

Whether the new substance has a specific effect directly on the cancerous growth or whether it checks the growth indirectly by destroying the growth hormone of the pituitary gland has not yet been determined.

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#### ANTHROPOLOGY

## The Annoying Cowlick Is a Strictly Human Trait

**S**CIENCE has discovered something good to be said for that plague of mankind—a cowlick.

Every mother who brushes desperately at her son's hair to subdue a bristling cowlick at the crown can take

comfort. A cowlick, anthropological investigations have disclosed, is a truly human trait. It is typical of man alone. However monkey-like may be Junior's behavior at times, that cowlick—if he has one—is a reassuring badge. He's human.

Dr. T. D. Stewart, physical anthropologist of the Smithsonian Institution, is making a study of the directions in which hair grows over the whole body. He is comparing man in this respect with various numbers of the anthropoid family, the gorillas, chimpanzees and oranges.

Orang-utans have a somewhat similar pattern of hair to the human cowlick, but it occurs on the back of the head, not the crown. The cowlick is a point of divergence, at which the hair streams out in all directions.

The cowlick is the most conspicuous divergence of hair in a human being, but the hair direction pattern of the back is perhaps even more striking, Dr. Stewart's investigations show. The hairs start from both sides and converge at about the middle of the spine. In anthropoid apes the back hair streams downward from the back of the neck and shoulders, suggesting a continuation of the head hair pattern.

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#### RADIO

## High Power May Make Radio Stations Interfere

**R**ADIO tuning which separates stations according to their wavelengths may not be sufficient to prevent interference if the power of broadcasting transmitters is sufficiently increased, Dr. Balth van der Pol, director of the Philips Radio Works in Eindhoven, Holland, stated before the meeting of the Institute of Radio Engineers.

Dr. van der Pol reported that interference has been noted in Holland between two distant high-power European broadcasting stations separated in wavelength by over 800 meters. If these conditions appear as the power of American broadcasting stations is increased, the Federal Radio Commission may have new problems to consider.

Dr. van der Pol, who directs one of the largest radio research organizations in Europe, attributes the observed interference to an interaction or cross-modulation of the two high-power signals in the region of the upper atmosphere called the Kennelly-Heaviside layer.

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