BACTERIOLOGY

## Block-Busters Blow Disease Germs Apart

➤ MICROSCOPIC block-busters exist which literally blow disease germs apart.

Discovery of this battle strategy of bacteriophage, a minute virus used to treat certain diseases, is announced by Dr. A. P. Krueger, professor of bacteriology at the University of California.

The death blow comes to disease germs within two or three hours after the virus establishes a beachhold within the cell. The virus grows 10,000 to 100,000 times, then bursts through the cell wall, Dr. Krueger estimated from a microscopic study of a bacteriophage attack on staphylococcus, the germ that causes boils.

Bacteriophage strategy interests scientists, because the organism is a simple example of the filterable viruses, others of which cause infantile paralysis and encephalitis.

Results of Dr. Krueger's studies appear in the *Journal of General Physiology*.

*Science News Letter, October 19, 1946*

AERONAUTICS

## Pulsating-Jet Engine To Power Aircraft

➤ A SIMPLE PULSATING-JET engine will furnish cheap auxiliary power to conventional aircraft, can be used at the tips of helicopter blades, power pilotless aircraft and assist glider take-off, L. B. Edelman of the Navy Department has reported to the Society of Automotive Engineers. It is an engine of the type used in some of the Nazi bombs that fell upon London.

The engine as now developed is a simple powerplant, requiring only air, liquid fuel, a shaped tube, some form of check valve, and a sparkplug for starting. It can produce thrust, he said, of up to 900 pounds per square foot with fuel consumption of only about one and one-half pounds an hour.

The engine is economical, he continued, yields speeds up to one-half that of sound, requires neither expensive high-temperature alloys nor costly machining operations, and operates on any liquid fuel available without noticeable variation in performance.

Helicopters equipped with these engines at blade tips will be lighter and less complicated, he said.

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EVOLUTION

## NATURE RAMBLINGS by Frank Thone

### Down From the Trees

➤ MAN'S ANCESTORS may have got started toward becoming human simply by growing too big to hang around on the old family tree. If our remoter forebearers really were tree-inhabiting animals (whether they swung by their tails or not) they must have been relatively small. Very few animals that make their homes permanently in the tree-tops weigh more than 15 or 20 pounds, and most of them are much smaller—squirrel-sized rather than monkey sized. Among the heaviest are the sloths—and see how cautious they have to be, to avoid falling to the ground where the jaguars can get them!

True, we commonly picture the great apes, most nearly related to man of all the animals, as tree dwellers—but is the picture a correct one? Zoologists tell us that the biggest and in many ways most nearly human one of the lot, the gorrilla, spends the greater part of its waking hours on the ground. Certainly no gorilla could leap nimbly from branch to branch, as the lighter-bodied monkeys do —the branches just couldn't stand the gaff.

The middleweights among the man-like apes, the chimpanzee and the orang-utan, can manage an arboreal existence better than the massive gorilla, but even they are said to descend to ground level pretty frequently. Only the little gibbon, featherweight among anthropoids, is light enough to be completely agile in the treetops.

The less man-like among the apes, like the baboons and drills, are almost wholly ground-dwellers. They are highly agile, but their refuge is among rocks rather than in trees. However, they made the evolutionary mistake of remaining four-footed—or even of becoming actually more quadrupedal than their putative monkey-like ancestors.

Any animal that comes down out of the trees to live upon the ground must necessarily leave the forest more or less behind. In the perpetual twilight that reigns on the floor of a mature, closed forest few food plants have a chance to grow. To find something to eat, the quondam treetop-dweller must haunt the streamside openings, the brush-grown clearings, the tapering edges of the forest—or even venture boldly into the open grassland. Away from tree cover, there is a premium on speed (hence, presumably, baboons and the like) or on an erect posture giving better scope for vision and more chance to let the fingered forefeet become hands—hence, perhaps, man.

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CHEMISTRY

## Spectrograph Gives Fast Quantitative Analysis

➤ FASTER METHODS of analyzing metals, particularly the scrap collected from farms, homes and shops during the war, were found by the use of the spectrograph, and the processes promise to become routine practice in the future. Knowledge of scrap content is essential; a little tin in steel, for instance, makes it unusable for many purposes.

Details relative to the research conducted and the methods developed are now revealed in a report recently issued by the Department of Commerce, prepared by D. H. Deik of Johns Hopkins University. Though direct-reading photoelectric methods still present some problems, the fundamental processes underlying spectrographic analysis have now been worked out, he declares.

The report outlines the essential steps in the process. First, a sample of the metal is brought into a light source and partially vaporized by electrical excitation. The light becomes characteristic for the composition.

This light is sent through a spectrograph and the spectrum formed is photographed. This spectrum shows the lines characteristic of the metals included. The photograph, after developing, is analyzed in a micro-photometer, which measures the intensities of key lines. From these intensities, the amounts of the various elements are determined.

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