

## ELECTRONICS

# New Germanium Transistor

➤ A TINY fleck of germanium some day may save many lives at sea by sending out a radio beacon signal to guide rescue planes directly to persons in distress.

The germanium leaf, about two ten-thousandths of an inch thick, can be made into an oscillator that is attached to lifeboats. When in contact with sea water, the tiny device manufactures the radio signals to guide search-rescue planes.

This possible application of the germanium leaf was described by David B. Smith, vice-president of research at the Philco Corporation, Philadelphia. Mr. Smith told the Franklin Institute and the Institute of Radio Engineers that this new germanium transistor also can be applied to electronic "brains."

Most transistors so far have been restricted to "non-critical" tasks in hearing aids and other devices where the transistor's stability is not greatly important. However, the production of a transistor with reliable performance in high radio frequencies will open new civilian and military horizons to the tiny devices.

The new transistor, etched to its delicate thinness by two tiny streams of liquid indium salt, is said to work at frequencies up to 70 megacycles—which includes the military very-high-frequency communication band.

It promises to make possible portable military communications receivers that work on only two flashlight cells. Because of the transistor's small size and its tiny



*ETCHING GERMANIUM—Shown here is a magnified picture of the electrochemical etching of a small germanium slab to make the "surface-barrier" transistor. The tiny jets contain an indium salt.*

power consumption, the military receivers can be shrunk to the dimensions of a cigarette pack, which would have many advantages over more bulky equipment.

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## STATISTICS

# Moves Are to Cities

➤ IN SPITE of the fact that big cities are a "natural" target for atom bombs, Americans keep moving to town. This is shown in an interpretation of latest census reports by the Population Reference Bureau in Washington.

"Now, at a time when atomic-hydrogen warfare could blow our cities to bits, we are building up ever heavier concentrations of people in urban areas," the report comments.

During the ten years from 1940 to 1950, the city-dwelling population grew by 14,500,000, and this is about three-fourths of the total population increase.

The American people are restless folk, the report indicates. Not only are they moving from country to city; they are shifting about from state to state, from coast to coast. The trek is mostly toward the West. The West has almost tripled its share of the total population, while the area east of the Rockies is losing people. In 1950, more than 35,000,000, or 23.5% of the population, lived in states other than the one of their

birth. This compares with 17.8% in 1900.

Pennsylvania lost the most people—1,185,000. California and Florida showed the greatest gains, 4,922,000 for California and 1,072,000 for Florida.

Although internal migration has kept up an active stream, the number of people coming to this country from abroad has dropped to a mere trickle. Even in New York, which has the highest proportion of foreign born, three-fourths of citizens over 21 were native born in 1950.

Americans are growing older at a rather rapid rate. The proportion of people over 65 has doubled since 1900. In 1950, there were more than 12,000,000 people over 65.

Americans are becoming better educated. Those over 25 have completed on the average 9.3 years of schooling. The figure in 1940 was 8.6. The greatest gain was where the lack was greatest, among the Negroes. The figures for non-whites rose from 5.8 to 6.9. For city people, the figure is 10.2, a gain from 9.3.

Americans are marrying younger and are

having more children. The birth rate reached an all-time low in 1933. It began to rise in 1937 and reached a peak in 1947, and since has declined only slightly.

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## NATURAL RESOURCES

## Land Conservation Needs Re-shaping

➤ "CONSERVATION FOR destruction" has often resulted from land-use policies followed on public lands in the West, Dr. George H. Hart, dean of the School of Veterinary Medicine, University of California, told the second annual meeting of the Agricultural Research Institute in Washington.

In the past, scientists have designed their land-use programs on the huge public lands without consideration for animal life, he declared. The result has been that brush piled up. Then fires, started by lightning in the brush, could not be controlled.

Dr. Hart urged that all land-use policies consider animal-plant unity. Feeding of animals on land reduces the amount of piled up brush and therefore keeps the fire hazard down, he said.

Millions of acres of public lands as well as mesquite and sagebrush land in the West must be utilized if the nation is to have enough meat, Dr. Hart pointed out.

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## VETERINARY MEDICINE

## High Blood Pressure Kills Old Chickens

➤ HIGH BLOOD pressure is one of the causes of death in old chickens, Dr. Paul D. Sturkie, poultry physiologist at the Rutgers Agricultural Experiment Station, New Brunswick, N. J., has found.

After perfecting a method of taking the blood pressure of birds, Dr. Sturkie discovered that blood pressure increases in birds with age just as in humans. The blood pressure of male fowl is much higher than female, the investigation showed.

The research was stimulated by the fact that about half of the adult birds lost each year die of non-infectious diseases and old age. Dr. Sturkie's study established that one cause of death in old birds was high blood pressure.

The percentage increase in blood pressure in chickens 10 to 42 months of age is almost the same as in human beings 20 to 65 years of age, it was reported.

On the basis of this experiment, poultry breeders may be able to increase the life span of chickens by selecting for breeding purposes those hens whose blood pressure does not change much with age.

Attempts are also being made to relate blood pressure to egg size, number of eggs, longevity and other money-making factors concerning the poultry industry.

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