

## ELECTRONICS

## Spot Unlicensed TV Sets

On display at the National Radio Show in London were the TV set detective, an electronic altimeter for pilots and a self-priming battery.

► AN ELECTRONIC detective has been built in London to track down and expose "criminal" television receiving sets operated without the license required by the British government.

On display at the 19th National Radio Show in London, the device is housed in a truck that can be moved about easily. It has three loop antennas fitted to the roof of the truck. The antennas pick up electromagnetic waves created by video set scanning coils. A comparison of the strengths of the signals received by the three antennas reveals the location of the unlicensed set.

Among other items on display during the show were an electronic altimeter for pilots, a stencil-cutting machine, a self-priming battery and a fireless way to heat-treat steel.

Using frequency-modulated radio waves, an altimeter can tell pilots whether they are five or 5,000 feet above the ground. The device requires no adjustments in the air and can be used by the pilot to the point of touch-down on the landing field.

An electric spark jumping from a needle-like point to special mimeograph stencils

can reproduce practically any sort of printed matter from a photograph to a blueprint. An electric eye scans the original copy while the spark "cuts" the stencil. In principle, the process is similar to sending photographs by wire.

The problem of supplying adequate battery power to life-raft radio sets, even if the battery has been stored in the emergency raft for months or years, has been met by a self-priming battery. Its plates are sealed from the battery acid by a thin diaphragm. The diaphragm is pierced when the battery is needed. Battery voltage comes up to full strength in a few minutes.

Radio waves can heat small sections of one-inch steel rods to red-hot temperatures for instant quenching and metal hardening by means of an apparatus consisting of a seven-kilowatt radio frequency generator and a coiled copper water-cooled tube. The steel rod is inserted in the coil and the power is turned on. As soon as the steel section is hot, water is sprayed over the coil, quenching and hardening the steel.

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A few genera in the recent New Zealand fauna, which are related to South America and not with Australia, are considered to be of New Zealand origin and to have reached South America through the agency of west-to-east circumpolar currents.

Science News Letter, September 6, 1952

## ASTRONOMY

## New Comet Heads Northwest Through Sky

► THERE IS another new comet in the sky, but it is far too faint to see.

Discovered in the constellation of Cepheus, now visible in the north, the comet is heading northwest. Of the 15th magnitude, it can be seen only through a powerful telescope.

The new comet was spotted on Aug. 18 by Robert Harrington of the California Institute of Technology, Pasadena, and the Mt. Wilson and Palomar Observatories, as part of the sky survey being conducted by Palomar Observatory and the National Geographic Society. Mr. Harrington discovered another faint comet last October, and within the past 13 months has co-discovered two more.

Science News Letter, September 6, 1952

## ENGINEERING

## Radio Static Not Linked To Electric Power Lines

► THE POPS and crackles that mar radio reception are not caused by wind, dust and smoke blowing across high-tension electric power lines, George S. Smith and Andrew B. Jacobsen, both of the University of Washington, reported to the Pacific meeting of the American Institute of Electrical Engineers in Phoenix.

Wind tunnel tests at the University and field tests near Burke, Wash., produced little evidence that wind-carried dust or smoke particles created radio static, "at least within the range of wind velocities and voltages applied," they said.

Science News Letter, September 6, 1952

## CHEMISTRY

## More Pleasant Pepper Taste Made Chemically

► A PEPPERY bite taste more pleasant than that of the natural black pepper taste substance has been achieved in chemical manipulations by Drs. Torsten Hasselstrom, Harold W. Coles and Norene E. Kennedy at the U. S. Quartermaster Corps' Pioneering Research Laboratories in Philadelphia.

They did this by substituting chemicals called pipercolines and methyl pyrrolidones for the piperidine that gives taste to pepper's piperine.

A taste-testing panel of eight members evaluated the seven new chemicals produced, Dr. Hasselstrom and associates report in *Science* (Aug. 22).

Science News Letter, September 6, 1952

## PALEONTOLOGY

## Australian Fossil Link

Fossils show that millions of years ago, at varying periods, different animals migrated between Australia and New Zealand and Europe and America.

► MILLIONS OF years ago there was migration of lower animals between Australia and New Zealand and Europe and America, the Australian and New Zealand Association for the Advancement of Science meeting was told in Sydney.

Fossil discoveries in Australia have added greatly to the knowledge of one or two orders of early Cephalopod mollusks and it is possible that at least one of them, the *Endoceratida*, had an independent center of development in the Australian region.

Drs. Curt Teichert and B. F. Glenister of the University of Melbourne, who have studied mollusks of the Ordovician period, find that they show surprisingly close affinity with those of eastern North America of the same period.

In the twilight of ancient geological time, early Cambrian, trilobites, peculiar marine animals now extinct, swarmed in Australian seas and many of these were immigrants from the Baltic and from China. Later, in

Devonian times, the faunas of Australia and New Zealand were almost entirely of European derivation, Dr. Edmund D. Gill of the National Museum, Melbourne, told the scientists.

Later, during the Lower Carboniferous or Mississippian period, fossils again have strong affinities with North American and European species.

From the study of foraminifera, minute marine organisms, of the more recent Tertiary deposits, H. de B. Hornibrook and Heather Leed of the New Zealand Geological Survey conclude that New Zealand and South America were at the time populated from a common source in the southern ocean.

Evidence from fossil sea-urchins and starfishes of the same period indicates, H. Barraclough Fell of the Victoria University College, Wellington, N. Z., has found, that these shallow-water animals migrated southwards along the Indo-Malayan Archipelago.