

# • New Machines and Gadgets •

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⚙️ **ANALOGUE COMPUTER** is operated by manipulation of dials and does away with need for "load slide rules" and consultant of charts, graphs and curves. The compact, portable computer provides instant visual interpretation of operating data in public utility electric power systems.

Science News Letter, December 20, 1958

⚙️ **BACTERIAL DRAINPIPE CLEANER** is especially formulated for septic tank and cesspool owners and consists of protein, sugar-starch and fat-consuming bacteria, plus agents to pre-condition drainpipes to provide optimum working conditions for the bacteria. The cleaner is non-caustic, safe to handle and simple to apply.

Science News Letter, December 20, 1958

⚙️ **INFRARED RADIANT HEATER** weighs seven pounds, is easily installed and throws heat across a 20-foot room. It does not emit any ultraviolet rays, and will not sunburn or give electric shocks. It is comprised of a quartz tube, a resistor coil and a polished chromium reflector.

Science News Letter, December 20, 1958

⚙️ **BEANIE CAP** for youngsters has built-in flashing beacon light powered by two standard penlite batteries. Its polyethylene plastic material resists breakage in rough



handling. In addition to providing a novel toy for girls and boys, the beanie, shown in the photograph, warns motorists when worn outside after dark.

Science News Letter, December 20, 1958

⚙️ **AUTOMOBILE REGULATOR TESTER** is also used for testing generators and volt and amp measurements without removing parts from car. It is fast and accurate

and can be connected on any car. It is accurate within two percent of full scale, needs no resistors and measures up to 60 amps load.

Science News Letter, December 20, 1958

⚙️ **PAINT ROLLER** of lightweight steel has a completely open core for easy cleaning and quick color change. Steel bearings provide smooth rolling and prevent paint discoloration. Fabrics are permanently bonded to the core to prevent their tearing or soaking off in normal use.

Science News Letter, December 20, 1958

⚙️ **ULTRASONIC CLEANER** has greater power, twice the efficiency, greater resistance to high temperatures, lower cost and faster cleaning ability than firm's previous model. It will quickly remove solder flux, radioactive soils, blood, fingerprints, lint and waxes. No special installation wiring is required.

Science News Letter, December 20, 1958

⚙️ **INDUSTRIAL PEN** for office use has its own ink eraser. The ink leaves a mark on smooth and rough surfaces. The pen is non-retractable and is made with medium or fine points in blue, black, red and green. The color of the pen indicates the color of the ink.

Science News Letter, December 20, 1958



## Nature Ramblings



By HORACE LOFTIN

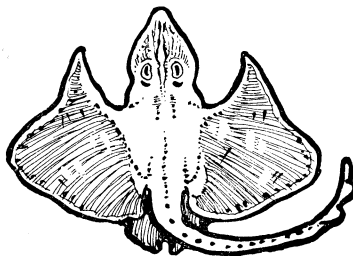
➤ UNDOUBTEDLY, old Noah had a bookkeeping job on his hands when he tried to make sure that a pair of every kind of animal came aboard the ark. In his effort not to miss any of them, he would certainly have had to start a system of classification. The most obvious dividing line between the kinds of animals is probably the presence or absence of a backbone. Perhaps this was his first major division.

The animals without backbones include a great variety ranging from the one-celled amoebas to the highly evolved insects. The backboneed animals, or "vertebrates," include several classes of "fishes," the amphibians, reptiles, birds and mammals.

In the dim borderline between the backboneed and non-backboneed animals are two groups which show similarities to both: the acorn worms and the sea squirts.

Superficially these most resemble the non-backboneed animals. But both have been shown to have a type of primitive "backbone," the notochord, at some time in their

### Up the Backbone Ladder



life histories. This notochord is fragmentary in both these animals.

However, in another "border-line" animal, the lancelet or Amphioxus, this structure extends throughout the length of the animal and persists through its lifetime. It is primarily its lack of a skull that sets this creature apart from its backboneed distant cousins in the zoologist's classification, though other of his features are distinct too.

Moving up the backbone evolutionary ladder of the vertebrates, the first true

representatives of the group are some fish-like animals, including the lamprey eel, the hagfish, and the extinct, bony-plated Ostracoderm. These so-called fish are distinct from their higher kin principally in their lack of jaws. The lamprey, for example, possesses a sucker-like mouth lined with horny, rasping teeth, through which it sucks the juices of living fishes on which it preys. The mouth is not supported by jaws.

Next in the order of evolutionary ascent are the sharks, rays and chimaeras (see picture). As can easily be seen by a glance into a shark's mouth, these creatures certainly possess jaws! In many other respects they closely resemble their higher kindred, the true fishes. They differ in one major respect, however: their skeletal system contains no true bone. Rather, it consists of the softer "pre-bone" called cartilage, such as is found in the human ear.

From the cartilaginous fishes, it is but a hop, skip and jump over a few million years to the true fishes and on to man.

Science News Letter, December 20, 1958