PHYSICS

Latest Laboratory Aids

Braille milliammeter, automatic X-ray processing unit, neon lamp to tell water conductivity and photo-slubber among equipment displayed.

➤ THE LATEST scientific equipment from audible Braille milliammeters to photo-slubbers currently was under the sharp eyes of British scientists gathered in London to look over the Physical Society's 36th exhibition of modern laboratory aids.

A milliammeter, used to measure small electric currents, is constructed so that blind persons can feel its raised dial markings. An outside pointer arm can be set by the operator at the current value desired for the circuit under study. Current is gradually applied until the proper amount is flowing.

When that point is reached, the milliammeter's working pointer touches the outside pointer arm and a buzzer sounds inside the milliammeter telling the blind operator that the desired circuit current is flowing.

An automatic X-ray film processing unit on display can handle up to 960 X-ray films each eight-hour work day. From the time the radiographer puts the X-ray film into the developing solution, no hands touch it until it is required for viewing. In emergency cases, the X-ray film can be obtained as soon as it emerges from a light-trap and enters the washing stage.

Controlling the temperature of the developer is best done by thermostatically controlling the temperature of the dark room, the manufacturer reports. However, the developer temperature can be controlled by localized methods. A refrigerator unit is an "optional extra" when the machine is to be used in the tropics.

Neon lamps have been built into a device to indicate the conductivity of de-ionized water. As the conductivity of the water increases, more current flows between electrodes in the liquid and the rate at which a neon lamp flashes increases.

A second neon lamp can be set to flash at a constant rate corresponding to the desired conductivity of the fluid. By comparing the two flashing lamps, the operator can see whether the conductivity of the solution is what it is supposed to be. The range of the instrument can be varied by using different sizes of electrodes, or by spacing them at different distances.

The photo-slubber, though its name sounds like that of a machine from Mars, actually is nothing more than a device which watches yarn being wound on weaving cones. Excessively thick lengths of yarn are called "slubs," and when woven into high-quality material reduce its commercial value.

The photo-slubber keeps its photo-electric eye focused on the yarn as it passes by at the rate of several hundred yards each minute. When the yarn becomes too thick, the eye signals an amplifier which fires a gas-filled tube which, in turn, operates electromagnetic snippers which cut the slub before it reaches the weaving cone. The slub then is removed by the operator.

Porous Plug Curtails Cusswords

A device which the British report can "save many harsh words" is a small porous ceramic plug used as a mercury seal in pressure-measuring manometers. The plug has enough pores to allow air to pass through it easily. However, the pores are too small to permit mercury to spill out when small overloads are applied inadvertently to the manometer.

A pressure differential exceeding one atmosphere must be applied before the mercury will flow through the plug.

Problems of heating substances being studied under vacuum have been reduced by a radiant heating source. Heat from a gas-filled, tungsten-filament lamp is concentrated by an ellipsoidal reflector on the specimen under a glass, air-tight envelope.

A magnetic stirrer solves some other problems encountered in the laboratory when it is necessary to agitate a liquid without air getting to it. The magnetic stirrer is nothing more than a stoppered flask in which a small bar of metal lies.

The flask sits on a stand somewhat resembling a hot-plate. Strong electromagnetic fields are generated inside the flask stand. The magnetic field grips the little metal bar inside the flask and whirls it at speeds from 100 to 1,200 revolutions a minute, much in the same way as magnetic fields turn flywheels in electric clocks.

Science News Letter, April 12, 1952

SMALL WHALE FETUS—Dr. Harold E. Anthony, chairman of the department of mammals of the American Museum of Natural History, and Benjamin J. Goldberg, SCAP representative on the 1950-1951 Japanese Whaling Expedition to the Antarctic who gave the whale fetus to the museum, examine the animal.

MARINE BIOLOGY

Small Whale Fetus Displayed at Museum

➤ THE AMERICAN Museum of Natural History in New York now has on display "Oscar, the Unborn Whale." Oscar is the male fetus of a Finback whale, the smallest and best preserved whale fetus ever received by the Museum. Scientists calculate the fetus to be about six to seven weeks old. Its length is only 11 inches.

The baby whale, in spite of his early age, however, looks remarkably like an adult whale with well formed flippers although without the characteristic ventral grooves. Had Oscar been born he would probably have been 21 to 23 feet long at birth and would have been about 75 feet long upon reaching maturity.

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