New Robot a Tireless Counter

Physics—Biology

Much of the wearisome, routine, midnight-oil work that now besets biologists and other scientists will be taken off their hands by a new electrical robot described at the meeting of the National Academy of Sciences. The device is the invention of A. L. Loomis, banker-scientist of Tuxedo Park, N. Y., and has been given its first extensive workout by Prof. E. N. Harvey of Princeton University.

The mechanism is intended for the recording of natural rhythms, such as breathing, the beating of a heart, or the rapid impulses along a nerve trunk. It is geared in such a way that ten successive beats are recorded by a straight line drawn by a pen, the length of the line indicating the time of the action. Then the pen goes back to the zero line and starts recording another ten beats, on a line parallel with the first. The instrument will keep this up for hours or days on end, so long as ink, recording paper, and the pulsating animal or organ hold out. In the meantime the scientist who used to have to sit and watch his experiment through many weary hours can lecture to his classes, or play golf, or go home to bed.

Prof. Harvey has made use of the new chronograph in three series of experiments, one on a rhythmically flashing neon lamp, another with human subjects tapping a telegraph key, and the third and most extensive with the isolated heart of a turtle. The flashing of the lamp, a purely physical process, did not vary one per cent. during four hours. The infinitely more complicated and variable human mechanism, as was expected, showed fluctuations of as much as 20 to 30 per cent. in 15 minutes.

The turtle's heart was selected because it keeps on beating indefinitely after the animal has been killed and it has been taken out of the body. Kept at a constant temperature in a physiological solution, it continued to beat, in one of the experiments, for 36 hours.

It was learned that individual hearts show wide individual variations. One slowed 60 per cent. during a 12-hour period, while another varied less than two per cent. over nearly five hours, and less than one per cent. over half-hour periods.

There are commonly periodic changes in rhythm superposed on the heartbeat. A heart may show a six per cent. decrease in rate, lasting three minutes, every twenty minutes for four such periods, or similar three to four per cent. increases in rate lasting a few minutes for three 15-minute periods.

After learning something of the performance of the "normal" isolated heart, the effect of drugs can be studied. When adrenalin is added to the solution containing a heart it accelerates the action of the muscles and at the same time makes them operate more regularly. The 36-hour record for one of these hearts was obtained by means of adrenalin.

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Giant Jewels Found

Geology

Enormous crystals of beryl, 12 to 14 feet long and two or three feet in diameter, have lately been discovered near Albany, Maine, Prof. W. B. Scott of Princeton University reported to the National Academy of Sciences. Beryl is usually rated as a semi-precious stone, and crystals of this size are simply monumental. Prof. Scott wishes to find some way by which this group can be saved from destruction and permanently preserved as it now stands.

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In This Issue

Indian-Eskimo Kinship

Anthropology

Promise that the puzzling question of the relationship, if any, between Eskimo and Indian may at last move toward solution was held out by Dr. Ales Hrdlicka of the U. S. National Museum, speaking before the meeting of the National Academy of Sciences.

On this season's expedition into Alaska, from which he has just returned, Dr. Hrdlicka sought out a group of Eskimos along the Yukon river, who had never before been measured for scientific purposes. About 200 full-blood Indians and Eskimos were measured, and in Dr. Hrdlicka's phrase, "there is a growing warmth for the hope that before long it may be possible to say something definite about the origin of the Eskimo and his relation to the Indian."

The expedition also did much toward establishing the ancient migration route of the first human beings to people this continent. One highly significant discovery by Dr. Hrdlicka was that of a type of burial known before only from the east cape of Asia. The oldest human remains ever discovered in Alaska were found; but nothing was of geological antiquity. It does not seem likely that such remains ever will be found in this region, because of the great changes the river has wrought in its shores and delta.

Science News-Letter, November 23, 1929

A Pilgrim Worships

Entomology

The most striking, even dramatic, nature photographs are usually posed quite unconsciously. A short time ago, during the autumn migration of praying mantises that usually follows the first chill weather, one of these strange insects blundered through the open window of the Bell Telephone Laboratory in New York City and alighted on the base of one of the new dial telephones. It rested there, in its spectral pose, long enough for one of the studio photographers to set up his camera and "shoot" the picture reproduced on the cover of this issue of the SCIENCE NEWS-LETTER.

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