

CARDIOLOGY

Record Heart's Current

► **BETTER RECORDS** of the heart's electrical currents and therefore better knowledge of its state of health or disease are coming from new techniques reported at the American Heart Association meeting in Cincinnati.

Some of the distortions caused by tissues through which the current must pass en route from the heart to the body surface where it is recorded are eliminated by vectorcardiographic techniques reported by Dr. George E. Seiden of the University of Pennsylvania, Philadelphia.

This variation of electrocardiography records the heart's electricity simultaneously not only from the front but also from the sides.

This "three-dimensional" picture is transmitted in the form of loops or vectors, rather than on a straight-line graph. Because a greater area of the chest is reached at one time, some authorities consider that the vectorcardiogram provides more information than standard electrocardiographic tracings.

Dr. Seiden has added a "resolver" to the vectorcardiographic apparatus. This device turns the loops around until the greatest

possible surface can be observed. Thus, more data become available and new mathematical devices can be employed in interpretation.

Another major distortion is caused by the fact that the blood in the heart is a much better conductor of electrical currents than the heart muscle. As a result, some of the heart's current is "short-circuited" before it reaches the surface.

The loss in voltage by the time the heart's currents reach the surface of the chest is about 25% in the normal heart, Dr. Clifford V. Nelson of Portland, Me., estimates.

In hearts enlarged by disease, the current travels through a greater volume of blood and the voltage loss is higher.

Dr. Nelson made his discoveries in studies on animal hearts made while he was at the University of Utah. These experiments were aimed at measuring the amount of current lost because of short-circuiting by the blood. Different fluids of known electrical conductivity were substituted for the blood in the heart chambers while the electrical activity of the heart was studied.

Science News Letter, November 10, 1956

METEOROLOGY

Major Drought Hits U.S.

► **THE DROUGHT** in the U. S. mid-section had reached "major proportions" by Sept. 30, end of the "water year," the U. S. Geological Survey reports.

Ground-water levels generally were below average in the South, the Southwest and most of the mid-continent area, according to the annual summary of water resources. In many wells in these areas record low levels were reached.

Water levels were about average or above in the Great Lakes area, the Northwest and the Northeast.

"Disastrous" floods hit California and Oregon during the year covered by the report. Those occurring in Connecticut and New York were "destructive." Floods hitting Nova Scotia and the Columbia River Basin were "outstanding."

Annual runoff of Columbia River was the highest since 1894, and flows of Fraser, Ohio and St. Lawrence Rivers were also above normal. The Mississippi and Missouri Rivers carried less water than normal. Flow of the Colorado River was "deficient."

Runoff of water over the United States was deficient over about 40% of the country, the largest area since 1934.

This 40% figure, according to the annual summary, reflects the spreading drought in southern United States that in some areas has become "quite serious."

The area of excessive runoff, although

small, was still about five times as large as in the 1955 water year. There was no area of deficient runoff in the Northwest but, in the southern half of the country, runoff was excessive only in parts of California and Nevada.

There was no extra runoff in any month of the year at any of the key gage stations reporting in North Carolina, South Carolina, Georgia, Iowa, Nebraska, Kansas and Colorado.

In Canada, runoff was somewhat less than in the 1956 water year than in 1955. Areas of deficient runoff were in eastern Canada and northwestern British Columbia.

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GEOPHYSICS

"Dawn Chorus" Heard in Two Places at Same Time

► **THE "DAWN CHORUS,"** radio noise that sounds like a rookery heard from a distance, occurs simultaneously at two stations 360 miles apart, two New Zealand scientists report.

The many whistles of the "dawn chorus" are heard most frequently in the early hours of the morning at a rate of one rising tone every few seconds.

The occurrence of these audible noises in the radio frequency range is related to magnetic activity, but there is as yet

no theory to account for their production or propagation.

Occasionally a "burst" of the dawn chorus occurs, during which the rate of rising whistles has a "sudden and spectacular increase."

The audible tones then often overlap, G. McK. Allcock of the Dominion Physical Laboratory, Lower Hutt, and L. H. Martin of the New Zealand Broadcasting Service, Dunedin, report in *Nature* (Oct. 27).

The two stations at which the simultaneous occurrence of the dawn chorus was recorded were Wellington and Dunedin, New Zealand.

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