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Earthquakes occur because the earth is still growing. The outer shell of the earth, some forty to sixty miles in thickness, is cracked in thousands of places. As many thousands and millions of years of geologic time pass, blocks of the crust of the earth slip upon one another. A motion of only a few thousandths of an inch is sufficient slippage to cause a great earthquake.

When an earthquake takes place anywhere in the world it sends subterranean signals. These can be received and recorded by seismographs and interpreted by earthquake experts. In many cases long before telegraphic dispatches carrying the news of destruction and loss of life can reach the outside world, scientists are able to tell that an earthquake has occurred. Through an earthquake reporting service operated by Science Service with the cooperation of the United States Coast and Geodetic Survey and the Jesuit Seismological Association, it is now possible to locate definitely the center of each earthquake a very few hours after it happens. The earthquake sends its own dispatches to the seismologists who have the proper instruments and their experience allows them to read the story of the earthquake in these earth-conducted messages.

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PSYCHOLOGY

Lack of Ability Is One Cause of Illiteracy

LACK of educational opportunity is not entirely to blame for illiteracy in this country; many adults who have not completed the elementary school failed to do so because of relatively low native capacity for learning, it was indicated by a report of Dr. J. W. Tilton of Yale University to the New York Branch of the American Psychological Association.

Dr. Tilton's conclusion was based on tests given at a summer school for adults in grades 1 to 8 conducted by the South Carolina State Department of Education. Standard tests were used to measure progress in learning reading, writing, arithmetic, and spelling, and intelligence tests were also given. Those who had had the least schooling made the least gain and had the lowest average mental age.

Science News Letter, May 14, 1932

PHYSIOLOGY

Doctors Measure Blood Flow Without Cutting Open Vein

THE AMOUNT of blood flowing in veins and arteries can now be measured without cutting open the blood vessel, through the use of a "thermostromuhr" apparatus constructed by Drs. J. F. Herrick and E. J. Baldes of the Mayo Foundation. The method was invented by Dr. H. Rein, physicist of the University of Freiburg, Germany. It has not yet been applied to measurement of blood flow in man.

This result, useful to physiologists in estimating the efficiency of various organs of the body, has been achieved by steadily supplying a small amount of heat to the blood vessel and noting how much the temperature rises at that point. The faster the blood is flowing the smaller will be this artificial increase in temperature. It has then been possible for Drs. Herrick and Baldes, knowing the amount of heat supplied and the rise in temperature, to calculate the volume of blood passing per second.

A comparatively simple operation is necessary to insert the necessary electrical terminals in the neighborhood of the vein. Two metal plates pressed on opposite sides of the blood vessel carry a high-frequency alternating current and thus heat the vein. This "diathermic" method of heating the body tissues by high-frequency electricity is widely used by the medical profession.

The temperature, which never rises more than a tenth of a degree, is measured with the help of a thermocouple, an electrical device which conveys the temperature change to an electrical recording instrument.

The flow of blood to the kidney under various conditions has been successfully measured here by the method.

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ANIMAL PATHOLOGY

War Against Foot and Mouth Disease Shifts to New Area

SOUTHERN California's war against foot and mouth disease shifted suddenly during the week-end of May 8 to San Bernardino County, forty miles from the scene of its first outbreak in Orange County and almost directly east of Los Angeles.

Near the town of San Bernardino a herd of three thousand infected and exposed garbage-fed hogs have been discovered, killed and buried. An area six miles square has been placed under strict quarantine by U. S. Department of Agriculture authorities, to prevent the movement of any animals or materials that might carry the disease.

Orange County, south of Los Angeles, now presents the appearance of a clean-up. A total of 16,300 hogs in several herds have been destroyed there since the first discovery of foot and mouth disease during the last days of April. Bright, warm, dry weather prevails, and this is always favorable to the efforts of the clean-up men.

As yet it has not become necessary to ask Congress for additional funds for use in the campaign. Dr. John R. Mohler, chief of the bureau of animal industry of the U. S. Department of Agriculture, stated to Science Service that the emergency fund left over since the California outbreak of 1924 has not yet been exhausted, and that thanks to the present low market price of livestock it may be possible to reimburse the farmers for the hogs which have been killed without asking for more money.

A feature of the present outbreak has been the confinement of the infection to hogs. There are very few cattle in the quarantined areas, and of these only thirty-three have been destroyed. None of these cattle actually had the disease, but they had been exposed; and since they were all dry cows of little value they were killed as a safety measure.

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