The more detailed accounts of earthquakes in the literature of the nineteenth century had often recited the occurrence of a swinging motion like that which is felt on the deck of a ship, though less in amplitude. It was an invisible motion, but it was distinctly felt and sometimes caused nausea. At considerable distances from the epicentrum people in the upper stories of buildings felt a swinging motion, and the chandeliers or other freely suspended objects would swing, while no movement would be felt by those out of doors or upon the ground floor. This slow, swinging motion would be perceived when no other form of vibration was sensible. It was observable not only at great distances from the epicentrum but at intermediate points.

When the seismograph came into use in Japan the first records obtained from it showed that vibrations of short period, from a tenth to a quarter of a second, were usually superposed upon and simultaneous with vibrations of one or two seconds. The short vibrations were usually a little before the longer ones, but quickly died away, leaving the longer ones predominant and at length the exclusive form of oscillation. Thus was given a partial confirmation of the ancient idea as expressed by Seneca. The seismograph showed the long, swinging movement like the rocking of a ship and at the same time the quick tremors which, though not strictly a *succussio,* were enough like it in their effects to be readily mistaken for it.

Science News Letter, November 21, 1931

ZOOLOGY

Bear with Bell Proud Although Ostracized

KNOWING that bears hate and fear noise, some packers on the trail in Glacier National Park this past season roped a black mother bear that had become too great a nuisance around their camp and hung a bell on a leather collar around her neck. She was then released.

The effect was amusing. Her cubs immediately ostracized her, squealing their displeasure. At first the mother bear resented the jingling neckpiece, then became accustomed to it, and finally actually displayed pride in it.

Her new cubs, if she retains the belled collar during the hibernating period, next summer probably will consider their mother a superior member of the bruin family because of her decoration.

Science News Letter, November 21, 1931

ENGINEERING

Research Hailed as Means To Save Railroad Lines

CONTINUED increase in efficiency of railroad operation as has been practiced during the past decade will be one of the chief methods by which the common carriers will extricate themselves from their present predicament. This thought is gathered from an address given by William C. Dickerman, president of the American Locomotive Company, before the Franklin Institute in Philadelphia.

Coming at a time when the railroads have been seeking higher freight rates, Mr. Dickerman's address emphasizes the great technical advances and economies the roads have made since 1920.

In spite of the fact that from 1920 to 1929 there was a reduction of 42 per cent. in the number of passenger-miles per year, this loss has been counteracted by savings and increased efficiencies, Mr. Dickerman pointed out. The loss of passenger-miles is not as serious as it at first seems because the bulk of the railroads' revenue is derived from freight, and freight revenue-ton-miles increased about ten per cent. during the decade.

Mr. Dickerman said that railroad operating costs in 1929 had been reduced to nearly three-fourths their 1920 value. The number of employees was reduced by 18 per cent., and 10 per cent. less coal was burned.

The concentration of trains into larger units and the expenditure of nearly $7,200,000,000 for capital improvements taking advantage of technical advances are held responsible for these savings. The number of freight cars decreased during the ten-year period, but their average size and their total carrying capacity increased. There are also fewer locomotives by 7,000, but as a group they have greater power and higher speed, and make longer engine runs with less fuel than they did in 1920.

"This technical experience with its background of research, invention and resourcefulness," Mr. Dickerman said, "may be expected to continue its unrelaxed efforts towards greater efficiency, whether to be secured through superpressures in steam practice or in refinement of internal combustion power far beyond anything that commercially has been developed to date."

Mr. Dickerman believes that the most immediate economies to be achieved by the railroads will come from replacing 25,000 locomotives more than 20 years old—nearly half the total number in the United States—with modern up-to-date efficient locomotives. Leaders in practically all fields have long recognized what obsolescence means to the progress of industry. They have not hesitated to replace their prime mover equipment as more efficient apparatus has been developed. Mr. Dickerman believes that the same economic analogy holds good in the field of railroad motive power.

Science News Letter, November 21, 1931

ZOOLOGY

Wild Boars of European Ancestry Roam in South

WILD BOARS, famous game animals of Europe in modern and mediæval times, exist today in certain mountainous regions of the South. Some thirty years ago their ancestors, believed to have been imported from Europe, were turned loose in the mountains immediately south of the Great Smokies.

The boars of today have the appearance and all the characteristics of the European boar, although it has been argued that they have crossed with the razor-back hog. In any case, however, the Tennessee boars are no less courageous or aggressive than their pure-blooded ancestors.

Science News Letter, November 21, 1931

MEDICINE

Adrenal Gland Operation Relieves Nervous Condition

AN OPERATION on the adrenal glands in which certain nerves are cut is successful in relieving the nervous condition known to scientists as neurocirculatory asthenia, Dr. George Crile, of the Cleveland Clinic, has announced. This condition acquired the name of soldier's heart during the World War, when a number of officers and men at