In reporting their biological triumph to the National Academy of Sciences, Prof. Pincus and Mr. Enzmann comment, "We believe, therefore, that this is the first certain demonstration that mammalian eggs can be fertilized in vitro."

The way for the experiments of the two Harvard physiologists was prepared by the work of earlier research men, to whom their communication gives due credit. That fertilized egg cells could be transplanted from the body of the mother animal into the body of another female, where they would then go through normal development, had been demonstrated as early as 1905 by an English physiologist, W. Heape, and his results had been confirmed in 1922 by a German group, A. H. Biedl, H. Peters and R. Hofstätler. Prof. Pincus had obtained similar results in 1930, but his effort to carry the process one step further had not then succeeded.

Babies born in glass flasks in the laboratory, instead of being brought forth by human mothers in the age-old painful way, have been a dream of modern biological romancers, just as the "homunculus," or synthetic little human being, was one of the dreams of old-time alchemists. In a little book called "Daedalus, or Science and the Future," published ten years ago, J. B. S. Haldane prophesied the "birth" of the first ectogenetic baby in 1951. But even with the success of Prof. Pincus and Mr. Enzmann before them, scientists hardly expect, in so near a future, that particular type of "blessed event."

Science News Letter, March 10, 1934

SEISMOLOGY

Chilean Mountains Shaken by Earthquake

THE MOUNTAINOUS region northeast of Valdivia, Chile, was the scene of a fairly severe earthquake on Thursday afternoon, March 1, seismologists of the U. S. Coast and Geodetic Survey decided after examining instrumental data obtained from five observatories by Science Service.

The epicenter was located in 39.5 degrees south latitude, 72.5 degrees west longitude, and the time of origin was 4:45.4 p. m., E.S.T.

Science News Letter, March 10, 1934

A plant under construction at Regensburg, Germany, will produce alcohol and saccharose products from wood.

SEISMOLOGY

Observing Ground Tilt May Aid Earthquake Prediction

PREDICTION of earthquakes a few hours before they occur may be possible in the future as a result of studies that have been made in Japan, Capt. N. H. Heck, chief of the U. S. Coast and Geodetic Survey's division of terrestrial magnetism and seismology, declared before the Brooklyn Academy of Arts and Sciences.

In a number of earthquakes there was perceptible tilt of the ground several hours before the earthquake, Capt. Heck said. In one case the villagers observing the tilt, feared a tidal wave and took to the hills. The tidal wave and earthquake came later.

A new machine for measuring tilt of the ground has been invented by George E. Merritt, formerly of the U. S. Bureau of Standards, and installed in California through the cooperation of the U. S. Coast and Geodetic Survey and the University of California. This apparatus is expected to throw new light on California's earthquake problems. Tilt on a large scale and the creep of the earth's crust, known to be a factor in earthquake production, can be detected through triangulation and leveling, such as is being undertaken by the Coast and Geodetic Survey.

Prediction of earthquakes, however, lies in the future, Capt. Heck emphasized. We now have, he said, no possibility of prediction beyond indicating whether or not a certain region is likely to have an earthquake in the not too distant future.

Science News Letter, March 10, 1934

ECOLOGY

Buttresses Formed on Cypresses By Action of Air and Water

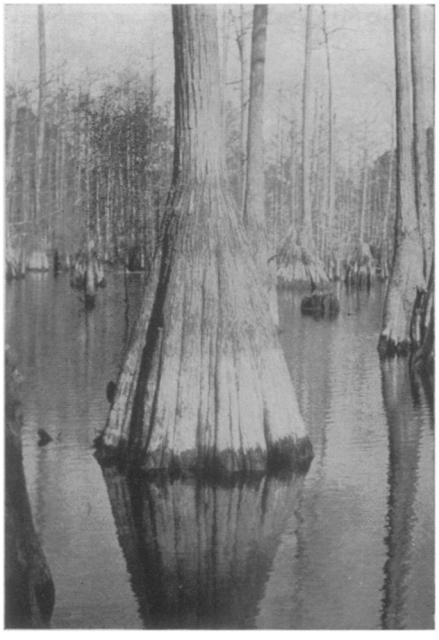
CYPRESS buttresses, those curious wide outgrowths that develop around the bases of these water-dwelling trees, are formed only when air and water have a chance to act together on the wood-forming tissues. Cypress trees growing on permanently dry land, or with their roots permanently covered with deep water, are alike in not forming buttresses.

So state Prof. Herman Kurz of Florida State College for Women, and Dr. Delzie Demaree of Stanford University, in the current issue of *Ecology*. Prof. Kurz has had unusual opportunity for observing cypresses in the vast swamp-forests of northern Florida, and Dr. Demaree has made a special study of the trees of the Reelfoot Lake region in northwestern Tennessee, where great areas of already existing forest were partly submerged by the great New Madrid earthquake of over a hundred years ago.

Everywhere the story is the same. Where there is no standing water the cypresses form no buttresses. Where the water level is shallow and constant, the buttresses are low but very wide. Where the water level fluctuates considerably, buttresses of a more or less conical shape develop. An interesting variant of this latter condition was discovered by Prof. Kurz in some moderately deep cypress lakes that went suddenly dry and then re-filled, a season or two ago. Here the tree-trunks had buttresses twelve feet or more high, with "waists" in them, so that they resemble the bottles in which a familiar soft drink is sold.

The form and magnitude of the buttresses are directly proportional to the total time that the various buttress horizons are in contact with air and water. This relation is so clearly revealed by the buttress forms that their profiles may be used to interpret water depth and water level fluctuations of lakes in which cypresses grow.

Dr. Demaree found convincing evidence that buttresses are not necessarily formed around roots, when the water level of Reelfoot Lake sank far below



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normal during recently droughty summers. The trees growing in this lake, which date back to before the great earthquake subsidence, have formed typical buttresses far up their trunks, which were left hanging high and dry by the lowering of the lake level. He terms this type "bell buttresses."

Cypress "knees," conical spongy-wooded upgrowths on the trees' roots, are formed as the buttresses are formed, only where air and water work together, the two botanists state. Botanists hitherto have considered knees as organs of aeration. Prof. Kurz and Dr. Demaree, on the contrary, consider these outgrowths as responses to air and water. They never appear on the roots of dry-land cypresses, and never on cypress roots immersed permanently in deep water.

Science News Letter, March 10, 1934

PHOTOGRAPHY

On The Front Cover

A HIGH SPEED photograph of what happens when a hammer and a pane of glass meet is reproduced on the front cover of this week's SCIENCE NEWS LETTER.

This picture was made by Prof. Harold E. Edgerton and Kenneth J. Germeshausen of the Massachusetts Institute of Technology at an exposure of 1/100,000 of a second. The camera caught the scene at the moment of impact when the fragments of glass were about to separate.

Science News Letter, March 10, 1934

HISTORY OF SCIENCE

Civilization Lived With Arabs During Misnamed 'Dark Ages'

Historians of Middle Centuries Said to Have Ignored Arabic Records of Progress in Science and Culture

THE "DARK AGES," modern historians' convenient device for sweeping their own ignorance of the past under the bed, never really existed. Between the sixth and tenth centuries A. D., western Europe may have suffered a recession of the Roman culture, which it had in any case never enjoyed for very long; under the trampling feet of barbarian invasion the torch of Rome itself may have been almost extinguished; but in the lands around the eastern end of the Mediterranean, which are the real original home of our somewhat misnamed "Western" civilization, the light of culture never even burned low. From its brilliance in the hands of the Byzantine Greeks it passed to even greater brilliance in the hands of Arabic culture that built itself around the unifying conquests of the followers of Mohammed.

This is the thesis advanced by Dr. George Sarton, historian of science and research associate of the Carnegie Institution of Washington.

The trouble with the "orthodox" historians of the Middle Ages, Dr. Sarton points out, is that though they may be good Latinists they cannot read Arabic; and it was in Arabic that almost all progress in science and culture were recorded, and continuity with the past maintained, from the time of Mohammed until the middle of the eleventh century.

This does not mean that the brilliant civilization of the Moslem empire, which stretched from central India to the then "wild and woolly West" of Spain, was exclusively the work of the Arab conquerors. On the contrary, when they first launched into their career as world masters, Dr. Sarton says, they were not much better off culturally than our western Indian tribes. But they were remarkably apt pupils, learned with miraculous rapidity the lessons which Byzantine Greek civilization could teach, and in two centuries rose to as high an intellectual level as any people has ever reached.

At the same time, the culture they established proved itself adaptable and absorptive toward the educated minds among the many races the Arabs ruled. Among the learned men identified with the Arabic culture of that long period there were at least as many Christians and Jews as there were Arabs. Their adaptations of Greek learning and their extensions of science carried them to primacy in such fields as astronomy, mathematics, medicine, physics and chemistry.

They influenced cultures outside their own. The greatest of Jewish philosophers, Moses Maimonides, wrote not in Hebrew but in Arabic; and Arabic influences are now acknowledged to have been strong in the development of St. Thomas Aquinas, founder of scholasticism, which was the bridge between medieval and modern thinking.

The cultural chain therefore is complete and unbroken, Dr. Sarton points out: from the Greek to the Arabic culture, and from that to the high European civilization of the later Middle Ages and modern times.

Science News Letter, March 10, 1934

PHYSICS

Institute of Physics Dedicated to Einstein

DEDICATION of the new Einstein Institute of Physics at the Hebrew University of Palestine took place Tuesday, March 6, in the presence of a gathering which included high officials of the Palestine government, noted scientists, and friends of the University.

Research in the new Institute will be divided between the purely scientific and the more directly applied aspects of physics. An important part of the program will be work on the analysis of light, or spectroscopy. At the same time, a laboratory for the testing of building materials and other commodities is to be placed in commission, and is expected to have an important influence on the Palestine reconstruction program.

Science News Letter, March 10, 1934