positive gradients of the mineral elements is not conclusive, the ontogeny showing storage of calcium, initial storage of phosphorus followed by depletion, and no storage of potassium. The gradients are consequently negative in the two former cases and positive for potassium. The observed positive gradient of total osmotic pressure in the bark would seem to lend support either to a diffusion or a mass flow mechanism. The authors claim, however, that the data in general support the view that "movement of materials along the phloem is determined independently for each material by the concentration gradient of its mobile form in the channel of transport". W. E. B.

[1] *Ann. Bot.*, **47**, 585; 1933.
[2] *Ann. Bot.*, **42**, 189; 1928. **42**, 571; 1928.
[3] *Ann. Bot.*, **45**, 125; 1931.
[4] *Ann. Bot.*, **48**, 119; 1934.

University and Educational Intelligence

WALES.—The Council of University College, Cardiff, has made the following appointments: Mr. E. E. Edwards, adviser in agricultural zoology; Dr. Dorothy Strangeways, assistant lecturer in histology; Dr. R. W. Haines, assistant lecturer in anatomy; Mr. C. W. Startup, assistant lecturer in physiology.

The Council has awarded the Dr. Price prize in anatomy to Mr. Henry Vernon Jones.

CHARLES W. ELIOT, the Harvard president who did so much during his forty years of office to make his University famous, has been the subject of many addresses and articles commemorating his birth a hundred years ago. One of these, by the present head of the University, Dr. J. B. Conant, published in *School and Society* of April 7, emphasises the unusual combination exhibited in his character of rigid principles and invincible faith and courage with a power of mental growth persisting through a great part of his career. This power was exemplified in the reshaping of his original conception of the function of a university as primarily "regular and assiduous class teaching". Influenced in part by the ideas which guided his friend Gilman in inaugurating advanced study and research work at Johns Hopkins University in 1876, he came to recognise graduate work as essential to the idea of a university. There is an element of irony in the juxtaposition in another issue of the same journal of a quotation from one of Eliot's latest pronouncements on education and a paper read before the Association of American Universities at its last annual conference on the "alarming growth" of graduate work in institutions not designed and equipped for it and in many instances not even fully qualified for work of the college grade. It appears that some 20,000 awards of the master's degree are now made annually and it becomes increasingly difficult to protect even the Ph.D. against inflation. Recent investigations show that, without counting teacher-training departments of universities, there are 233 graduate schools, of which no more than 27 have been deemed eligible to membership of the Association of American Universities, while, to make matters worse, additional institutions of undergraduate calibre are constantly breaking into the graduate field, and the aggregate enrolment in these pseudo-graduate schools, some of which have the effrontery to offer a doctorate, is mounting at an amazing rate.

Science News a Century Ago

Halley's Comet

A century ago, much interest was shown in the approaching reappearance of Halley's comet, which had last been seen in 1759. Damoiseau in Italy, Pontecoulant in France and Lehmann and Rosenberger in Germany had all made calculations regarding it, and had shown that it would be visible again in the latter part of 1835. An American paper, however—the *New York Commercial Advertiser*—announced in the late summer of 1834 that Halley's comet was visible in the east, near the constellation Taurus, and that its distance from the earth was 40,000,000 miles. It also said that on September 13 the comet would be only 22,000,000 miles distant and that on October 6 it would be nearest the earth, being then only three and a half million miles distant. The announcement was reprinted in the *Times* of October 6, 1834, and it was followed a few days later by a note from an Irish paper in which a correspondent pointed out that the comet would not be seen until a year later. As a matter of fact, the comet was first observed from the Jesuit Observatory in Rome on August 5, 1835.

Invention of a Sphygmometer

In the *Times* of October 6, 1834, it is recorded that at a meeting of the Paris Academy of Sciences, Dr. Magendie made a report upon an instrument invented by Dr. Hérisson called the 'sphygonemètre' which shows the rate of the pulse, its rhythms and anomalies. In pursuance of the conclusion of the reporter, the Academy passed a vote of thanks to the author of this most useful and ingenious discovery. Dr. Hérisson published a memoir, showing the results of his several applications of this instrument in studying the diseases of the heart. After six years of clinical researches supported by numerous anatomical proofs, he claimed that it was capable of distinguishing organic affections from cases which only assume the appearance of such affections. As the sphygmometer gave the numerical force of the pulse, it was possible, according to the observations of Dr. Hérisson, to prevent such attacks of apoplexy as arise from a too great determination of the blood towards the head.

The Dublin and Kingstown Railway

The first railway in Ireland was that from Dublin to Kingstown constructed by C. B. Vignoles (1793–1875) and the first train ran on October 9, 1834. The following comments are from *Saunder's Dublin News Letter* (Oct. 10, 1834). "Yesterday, Oct. 9, a train of carriages proceeded for the first time from the station house at Westland Row to Salt-hill. A great number of ladies and gentlemen, invited by the directors, enjoyed this so novel a treat in this country." Two trips were made, the train being drawn in the first instance by the locomotive *Hibernia* built by Sharp, Roberts and Co., of Manchester, and in the second by the locomotive *Vauxhall* built by Messrs. Forester and Co., of the Vauxhall Foundry, Liverpool. Among other remarks it was said that, "nothing could surpass the admirable manner in which the spiral springs which are attached to the buffers ward off the concussion when the train is stopped. . . . Every person who joined in the trip was delighted with the perfect ease to themselves.