

DR. L. FARKAS, who has been working in the Department of Colloidal Science in the University of Cambridge for the last two years, has been appointed lecturer in physical chemistry and head of the new Department of Physical Chemistry in the Hebrew University, Jerusalem, Palestine.

THE University of Durham inaugurated in October 1924 a Department of Science, and a statistical summary of the work accomplished in it in the ensuing ten years 1924-34 has now been published. Its educational work has been mainly for the benefit of prospective school teachers, these numbering 220 out of a total of 304 students who entered for undergraduate courses, but a substantial volume of original work has been done. Excluding book reviews and other miscellaneous publications, original papers, including books, published from the Department between October 1924 and December 1934, numbered 118, of which a large proportion, 49, were concerned with geology, local or general. A distribution of undergraduate students in 1934 among subjects assigns to physics 47, geology 39, mathematics 36, chemistry 34, botany 22 and geography 4.

## Science News a Century Ago

### Improvements in Iron Manufacture

On March 16, 1835, Dr. Clark read a paper "On the Application of the Hot Air Blast in the Manufacture of Cast Iron", to the Royal Society of Edinburgh. After giving a general account of the manufacture of cast iron, he said that the method first suggested by Mr. Neilson of Glasgow and tried at the Clyde Iron Works consisted of previously heating the air thrown into the blast furnace. The method was found to produce a vast saving of fuel and of flux. During the experiments made in 1830, the air was heated to 300° F. In 1831, Mr. Dixon of the Calder Iron Works thought of substituting raw coal for the coke which had hitherto been employed for fuel, at the same time heating the air to 600° F. The result was that three times as much iron was now made by the use of a given weight of coal as formerly.

### Geology of the Cordillera

On March 11, 1835, H.M.S. *Beagle* anchored again at Valparaiso, and a few days later Darwin set out to cross the Andes to Mendoza by the Portillo Pass. In his account of the journey, he recorded on March 19, 1835: "All the main valleys in the Cordillera are characterised by having, on both sides, a fringe or terrace of shingle and sand, rudely stratified and generally of considerable thickness. . . . No one fact in the geology of South America interested me more than these terraces of rudely-stratified shingle. They precisely resemble in composition the matter which the torrents in each valley would deposit, if they were checked in their course by any cause, such as entering a lake or arm of the sea; but the torrents, instead of depositing matter, are now steadily at work wearing away both the solid rock and these alluvial deposits, along the whole line of every main valley and side valley. It is impossible here to give the reasons, but I am convinced that the shingle terraces were accumulated during the gradual elevation of the Cordillera, by the torrents delivering, at

successive levels, their detritus on the beach-heads of long narrow arms of the sea, first high up the valleys, then lower and lower down as the land slowly rose. If this be so, and I cannot doubt it, the grand and broken chain of the Cordillera, instead of having been suddenly thrown up, as was till lately the universal, and still is the common opinion of geologists, has been slowly upheaved in mass, in the same gradual manner as the coasts of the Atlantic and Pacific have risen within the recent period. A multitude of facts in the structure of the Cordillera on this view receive a simple explanation."

### Investigations on Vesuvius

At the Royal Society on March 19, 1835, Daubeny read a paper entitled "Some account of the Eruption of Vesuvius, which occurred in the month of August 1834, extracted from the manuscript notes of the Cavaliere Monticelli, Foreign Associate of the Geological Society, and from other sources; together with a Statement of the Products of the Eruption, and of the Condition of the Volcano subsequently to it". After the eruption, the author had descended twice into the crater, which then presented a comparatively level surface, its sides consisting of strata of loose volcanic sand and rapilli, coated with incrustations of common salt, coloured red and yellow by peroxide of iron. The vapours which issued from the various parts of the surface, collected and condensed by means of an 'alembic' introduced into the ground, were found to consist principally of steam and muriatic acid, with only a slight trace of sulphurous or sulphuric acids. The author considered that carbonic acid was also exhaled, but neither nitrogen nor sulphuretted hydrogen appeared to form any part of the gas omitted.

### The London and Greenwich Railway

In a note in its issue of March 21, 1835, the *Mechanics' Magazine*, referring to the London and Greenwich Railway, the first railway running out of London, said, "the Greenwich Railway will certainly not be ready to take passengers to the fair on Easter Monday, although according to some sanguine expectants, it was to be ready for that purpose two years ago. It is still progressing, however, and some of its arches have now made their appearance at the London Bridge end of the line, close to Tooley-street. It is understood that a locomotive will ply at Easter, for the conveyance of passengers on that part already completed; of course, such a trip will be taken more for the gratification of curiosity than for the sake of utility. A plan has been broached for erecting a landing place for steamers at Deptford, in connexion with the railway. . . . The success of such a speculation, however, is problematical. In nearly the same time that it would take steam-vessel passengers to land at Deptford, and get seated 'all right' in the railway carriages, they might by going on in the steamer, be at the end of their voyage; and could the transference be effected with even instantaneous rapidity, the railway carriages could not land passengers in the city, as the steamers now do, but in Tooley-street, Southwark, a good quarter of a mile away". As originally planned, the railway had 878 arches, and alongside the line was to be a tree-shaded road, a parade for invalids and children "incomparably superior to the boulevards of Paris".