310 Regent Street, W., to whom I am indebted for a number of valuable suggestions.

Each silk-catching roll is ruled with transverse numbered lines at 6-inch intervals. Rolls up to 75 sections in length may be used. The blades of the propeller are adjustable so that each section may represent an equal distance of one or more miles as required; the distance actually travelled by the instrument is measured by the ship's log.

At the end of the record the completed roll is unwound across a glass stage with mirror below and examined section by section with a microscope; occasionally an organism may have been removed from the netting for identification. As detailed an analysis is made as may be desired or time permits, from an exact quantitative estimation of all the species to a rough estimation of the general density in different places. The specimens are sometimes damaged in the process of winding, but in nearly all cases they can be identified; in areas where the plankton is well known determination is conspicuously easy. The instrument is not intended for collecting purposes, and, having different functions, is a supplement to, rather than a substitute for, the plankton net.

Fig. 3 shows one of the records obtained; it indicates the distribution of the Diatom *Thalassothrix longissima*, the Pteropod Limacina, the Copepoda, and young Euphausians on a run of 109·4 miles, each section representing approximately 2·3 miles. In the twenty-two records so far made there is evidence of a marked variation in the density and regularity of the plankton in different oceanic regions, and various methods of comparison may be adopted. Discontinuity is expected more in coastal waters, but in mid-ocean sharply defined patches of small Salps, *S. democratica* and *S. longicauda*, Pteropods of the genus Limacina, young Ianthina, Ostracods, Copepods such as *Candacia ethiopica* and *Calanus robustior*, and young Euphausians have been demonstrated. On the other hand, Diphyids and Chætognaths, where they occur, have tended to be constant in numbers. On one occasion, by their occurrence in patches on the roll together, a relation was suspected between small Salps and the Copepod *Sapphirina angusta*; this was afterwards confirmed by living material, the latter being found to enter the former and feed upon the food collected on the endostyle.

Operations with the instrument were temporarily suspended owing to a mechanical defect; this has, however, been remedied, and I hope in the coming season that many more results may be obtained.

City and Guilds (Engineering) College.

THE Duke of York, on October 21, opened the extension of the City and Guilds (Engineering) College at South Kensington, which has been provided by the munificence of the Goldsmiths' Company at a capital cost for building of 87,000*l*. Soon after the Royal Charter was granted in 1907 to the Imperial College of Science and Technology, of which the City and Guilds College forms the engineering department, it was decided that a large extension was necessary to provide adequate equipment for engineering education and research. A site was granted for the purpose by the Commissioners of the 1851 Exhibition to the north of the old college in Exhibition Road, and Prof. Dalby, the Dean of the College, drew up a scheme for three new laboratories: (1) hydraulics, (2) structural engineering, motive power engineering and strength of materials, and (3) railway engineering. Building was commenced in 1911 and completed in 1914, the architect being Sir Aston Webb. The laboratories, one of which is top-lighted, cover an area of 32,900 square feet. Apart from the cost of the building, defrayed by the Goldsmiths' Company, Mr. Hawksley contributed 4000*l*. towards the equipment of the hydraulics laboratory, the governing body of the Imperial College expended 20,000*l*. on equipment, and the Clothworkers' Company has provided 4000*l*. per annum for a number of years towards the cost of research. During the War, the buildings were occupied by the Government for war purposes, the structural laboratories, in particular, being used by the Admiralty as research laboratories.

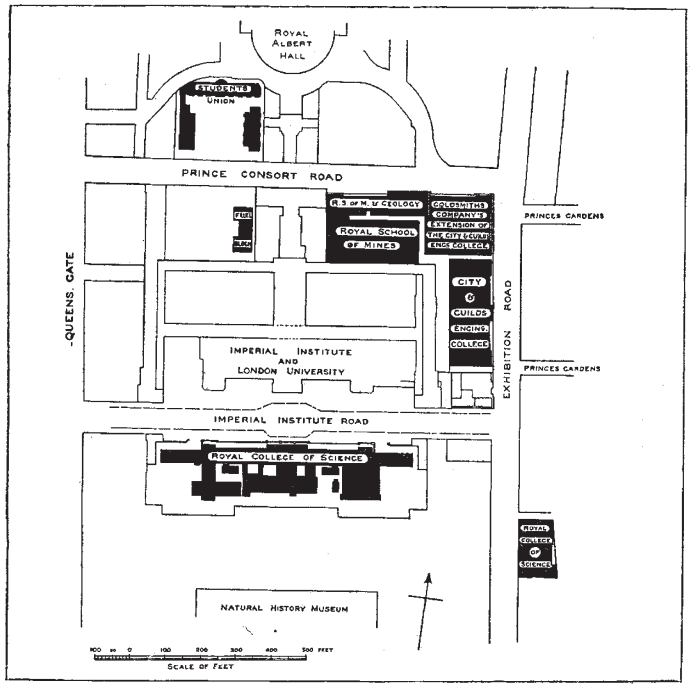

FIG. 1.—General plan of the associated buildings which have been erected on the site of the 1851 Exhibition. The areas coloured black indicate the buildings of the Imperial College of Science and Technology.

The main building of the extension is in the shape of a letter L, the short arm facing Exhibition Road and the long arm Prince Consort Road, the space in the angle being filled by the top-lighted laboratory. The façades are pleasing and well-designed, and the building forms a worthy addition to the great group of educational and public buildings for which South Kensington is famous. Equipment has been provided

for the laboratories on a generous scale with the double object of training engineering students and providing for research. With the old building the new extension forms a complete unit providing undergraduate training in all branches of engineering for 500 students, post-graduate instruction for between 50 and 100 students, and opportunities for research.

In the unavoidable absence of Lord Buckmaster, the chairman of the governing body of the Imperial College, the guests were received by Mr. Herbert Wright, the chairman of the Executive Committee. Sir Dugald Clerk, as Prime Warden of the Goldsmiths' Company, delivered the building to Mr. Wright, representing the governing body of the Imperial College, and to Mr. Walter T. Prideaux, representing the delegacy of the City and Guilds (Engineering) College. The Duke of York, in declaring the building open, made a graceful reference to the interest which his grandfather, the late King Edward VII., had always shown in technical education. The late King, then Prince of Wales, laid the foundation column of the original City and Guilds College building in 1881 and became president of the City and Guilds Institute. Three years later he opened the buildings, declaring that the college represented one of the most cherished objects his lamented father (the Prince Consort) had in view. Finally, in 1909, towards the end of his reign, King Edward laid the foundation stone of the new Royal School of Mines, adjoining the engineering extension and also forming part of the Imperial College. Throughout his life his interest in technical education, inspired by the example of his father, was sustained and enthusiastic, and he took an active part in establishing many of the institutions at South Kensington which were rendered possible by the success of the 1851 Exhibition.

The completion of this great undertaking, which places London in the leading position it should occupy in engineering education and research, provides an appropriate occasion for expressing appreciation of the work of the City Guilds in the promotion of technical education. Their munificence was enlisted in the earliest days of the movement and has not been restricted to London. Mr. C. T. Millis, the historian of technical education, states that the total grants of the City companies to the City and Guilds Institute amounted to the end of 1924 to 1,122,994*l.*, the Goldsmiths' Company heading the list with total grants of 204,523*l.*, followed by the Clothworkers', the Fishmongers' and the Mercers' Companies. Adding contributions to other institutions, including the Universities of Leeds and Sheffield, and the East London College, he estimates that the total amount expended by the companies must have exceeded 2,000,000*l.*

Naturally, the original schemes for promoting technical education were somewhat nebulous and have suffered modification in course of time. For example, the college at South Kensington, now dedicated to the training of engineers, was originally intended for the training of teachers in diverse crafts and industries. With the lapse of time also, the Government

FIG. 2.—The front, facing Exhibition Road, of the Goldsmiths' Company's Engineering Extension of the City and Guilds (Engineering) College.

and other public authorities have accepted an increasing responsibility for the maintenance of technical institutions; and the companies, relatively impoverished by the War and confronted by many other urgent calls for financial assistance, have shown a tendency to restrict their educational expenditure. One of the unfortunate results of this economy has been the recent closing of the Finsbury Technical College.

There is a desire also on the part of some of the companies to restrict their interest in technical education to the crafts represented by the respective companies; thus, the Clothworkers' Company has subsidised the textile department of the University of Leeds by a capital sum of 220,000*l.* and an annual grant of 4000*l.*; the Drapers' Company has devoted 20,000*l.* to scholarships for the textile industries; and the Leathersellers' Company have expended more than 20,000*l.* for a building for the Leather Tanning College.

In the early days of the technical education movement, a strong feeling was expressed by Huxley and others that part of the wealth of the city companies could be used to great advantage for the assistance of technical education. The educational deficiencies of the British workman were the first object of solicitude, and the provision of purely craft training still retains an important place in schemes of technical education. Developments in engineering, in the use of electricity, and in many other industries based on science, brought a demand for more specialised training, a demand which, in respect of civil, mechanical and electrical engineering, has been admirably met by the City and Guilds (Engineering) College.

The College has been loyally served by many distinguished professors and instructors and has rigorously maintained a high efficiency in all its work. No college can be trusted more implicitly to ensure proper standards of education and training in the award of degrees and diplomas. The College has sent out a large number of well-trained engineers to all parts of the world, and the Duke of York was well advised that he may expect to meet many City and Guilds men during his forthcoming Imperial tour. It will afford great satisfaction to all friends of engineering education that the College, thanks mainly to the generosity of the Goldsmiths' Company, has acquired this important addition to its equipment.

Obituary.

MR. G. W. LAMPLUGH, F.R.S.

BY the death of George William Lamplugh on October 9, British geology has lost one of its ablest exponents. Born at Driffield on April 8, 1859, he was educated at private schools, but spent the latter part of his boyhood at Bridlington, where the absorbing interest of the Yorkshire coast stimulated his natural bent for geology. Here arose a question, the answer to which was to determine the course of his future life. He had actually embarked upon a commercial career with geological work as a recreation. On one hand lay lucrative posts with the possibility of affluence; on the other, scientific research with a small competence. He considered the matter with characteristic deliberation; the possibility of affluence appealed to him not at all; he decided in favour of a life of research as soon as he was satisfied that the competence, if small, would suffice for his modest needs. In 1892 he joined the staff of the Geological Survey.

Lamplugh's first paper was published in the *Geological Magazine* in 1878 when he was nineteen years of age. In this and several papers which followed in the next few years, he described the sequence of beds which constitute the glacial drift of the Yorkshire coast, and the occurrence of marine shells, more or less fragmentary, in them. He noted also the drawn-out remains of a pond deposit crowded with the freshwater shell *Limnæa peregra*, which occurred as lenticles in the boulder clay. At that time marine shells in the glacial drift were held by many to betoken submergence. Lamplugh then, as always, formed his own conclusions. Of the Bridlington Crag he writes that it is "probable that its great thickness and amassed appearance may have been due to the accumulating power of a huge mass of ice, which, grounding (and not, as with the smaller bergs, merely grating) on a soft bottom, would slowly continue its forward course for some distance . . . and might push before it a constantly increasing mass of sand and shells"; and again: "the movement of ice at one time on a soft sea-bottom and, at another, over the silty bed of a pond, has produced precisely similar effects." More than thirty years later I was with him and shared his excitement on seeing the process of transportation he had pictured, actually in operation in Spitsbergen.

The more important part of Lamplugh's work in those early years lay, however, in his study of the Speeton series and of his comparison of it with the Tealby series of Lincolnshire. He approached the subject from a thoroughly scientific point of view, bringing to bear an intimate knowledge of the fossils, acquired apparently and not taught, as well as detailed field-work. One of the results was to show "that in Lincolnshire, as in Yorkshire, the various species of belemnites present in the rocks afford the most natural and convenient means for classifying the strata; but that the well-defined zones which they form do not always coincide with the lithological divisions." This work attracted the attention of Prof. Alexis Pavlow, of the University of Moscow, and led to a joint paper on the correlation of the Upper Jurassic and Lower Cretaceous horizons of Speeton with their equivalents in Russia and other parts of Europe.

In 1892, as a member of the staff of the Geological Survey, Lamplugh commenced official duties which were to occupy nearly all the remainder of his life. He was entrusted soon after his appointment with the geological surveying of the Isle of Man. Except for a few weeks, during which I accompanied him for the purpose of initiating him in survey methods, he accomplished this great work single-handed. The range of problems which confronted him was prodigious, including as it did the sequence and structures of the older palæozoic rocks, the mapping of the newer palæozoic rocks and of the Trias, the great suite of igneous rocks, both contemporaneous and intrusive, an extraordinary development of glacial deposits, and lastly, mining developments that had once been of much importance. Some of