ELECTRICITY IN BULK.

HOWEVER far we may still be from a proper understanding of the actual nature of the phenomena connected with the production of electrical energy, the past twenty years has clearly shown that in its economic aspects it follows certain well established laws. Just as the great increase in the scale of wholesale production and the invention of new and more rapid means of distribution enables the big manufacturer and stores to compete with the local workshop, or shopkeeper, so the lower first cost of producing electricity on a large scale, and the higher electrical pressures used in its transmission, enable the central authority to compete with the smaller local source of production.

The economy of concentration and bulk production of electricity was recognised by Ferranti nearly twenty years ago, and that his attempt to carry it out at Deptford in 1889 was unsuccessful was solely due to the fact that there, as in the case of the "Great Eastern," the idea was in advance of the state of manufacturing knowledge.

The size of units proposed for the Deptford station in 1889, 10,000 h.p., and the pressure used, 10,000 volts, have since been exceeded, and the latest serious proposal for the supply of electricity wholesale to London, was based upon 20,000 h.p. units, and 20,000 volts pressure. But although the premature attempt to concentrate electricity production at Deptford did not meet with the success it deserved, the correctness of the principle was not lost sight of. Another company, the Metropolitan Electric Supply Company, in the succeeding ten years carried out a policy of partial concentration in its own area, abolishing a number of small stations in the West End, and replacing them by a larger station at Willesden. But nothing so radical has taken place in electricity as has been the case in gas supply. The Ordnance Maps of forty years ago recall the existence of some seventeen or eighteen gas works, scattered throughout the Metropolitan area, nearly all of which have now been dismantled. To-day, 90 per cent. of the gas used in London is produced at Beckton, on the Greenwich Marshes, or at Nine Elms.

There are still, however, more than seventy electric generating stations in Greater London, and at present little prospect of their number being reduced. For Parliament has now rejected the third and last possible alternative for solving this knotty but urgent problem. The freedom with which the process of concentration was carried out in the case of gas arose largely from the fact that the undertakings were entirely in private hands, and that no political questions were raised in connection with their abolition.

The need for improvement, and the technical soundness of the methods suggested for improving existing electrical conditions, have now been generally admitted, both by those who favour municipalisation and those who favour private enterprise under municipal control. The fact that the existing stations, which have cost 45*l.* to 50*l.* per kw., could now be built for 10*l.* per kw., that the present cost of production is more than 1*d.* per unit, and in a new station need only be 0·2*d.* per unit, that the consumption of electricity in London is only one-tenth of that in other great cities, are no longer questions of discussion.

During the past three years three serious attempts have been made to carry out a similar concentration, the first by private enterprise, and the second by the London County Council. Although the first only failed to become law by a few days, neither of these proposals succeeded in obtaining Parliamentary sanction. It was, therefore, hoped that the third and last alternative, that of co-operation between municipal and private enterprise, which was put before Parliament this year, would have been more successful. The fact that it also shared the fate of the previous proposals, and has been rejected, is therefore the more to be regretted, for it appears as though the scientific solution of London's electricity supply difficulties will now be indefinitely postponed. Private enterprise cannot be expected perpetually to provide the money for promoting schemes which are endorsed by Parliamentary Committees on their merits and rejected by the House of Commons on political grounds. The London County Council naturally does not feel justified in making further proposals for establishing a wholesale supply of electricity at the ratepayers' expense, in view of the recent elections. The supporters of complete municipalisation, however, have indicated that they are unwilling to agree to any proposal other than one for the complete municipalisation of electricity supply, and hence the present deadlock.

NOTES.

WE are glad to be able to notify that the honour of a knighthood of the Most Honourable Order of the Bath (Civil Division) has been conferred upon Sir Archibald Geikie.

THE *Times* announces the death of Dr. W. D. Miller, professor of odontology at Michigan University, the author of many treatises on the teeth, and until last year professor of odontology in the University of Berlin.

BY the death of Angelo Heilprin on July 17, at the age of fifty-four, science loses an enthusiastic naturalist, geologist, and explorer. He was born in Hungary, but at an early age emigrated with his parents to the United States. His education was completed in England at the Royal School of Mines during the years 1874–7, when he showed especial aptitude for natural history and gained the Edward Forbes medal. Returning to the United States, he was in 1879 appointed professor of invertebrate palæontology and curator in charge of the Academy of Natural Sciences at Philadelphia, and for a time he was professor of geology at the Wagner Free Institute of Science in the same city. He was author of a handbook on the local "town geology," of a memoir on the Tertiary geology of the United States (1884), as well as of works on the Bermuda Islands and west coast of Florida. For the International Scientific Series he wrote the "Geographical and Geological Distribution of Animals" (1887). He was author of an essay on the Arctic problem, and in 1892 he led the Peary relief expedition to the Polar regions. In later years he turned to volcanic phenomena. In 1902 he visited Mont Pelée while it was still in eruption, and wrote a work entitled "Mont Pelée and the Tragedy of Martinique" (ed. 2, 1903); while in a recent article, published in *Science* (New York, 1906), he discussed the "Concurrence and Interrelation of Volcanic and Seismic Phenomena."

THE first meeting of the Italian Association for the Advancement of Science will take place at Parma from September 23 to 29. According to the *Lancet*, the medical sciences will be strongly represented, particularly in anatomy, human and comparative; and the section devoted to anthropology, ethnography, and palæoethnology will have special attractions because of its programme. It is expected also that fresh light will be thrown at the meeting upon the subjects of forest growth, rainfall, and hygiene.