

the sources of that stream are to be sought in Rhodesia, where the ancient gold-workings are stated to have yielded a total output of at least 75,000,000*l.* Then it is asked, "Where else but Rhodesia did the ancient Sabæans obtain the vast supply of gold which they purveyed to Phœnicia, Egypt and the rest of the then known world? The only answer possible at present is: Rhodesia; and the later discoveries in Rhodesia only serve to strengthen and emphasise this answer." Hence the inference that Rhodesia was the Biblical Ophir, though the point is not regarded as settled. Indeed, in their preface, written after the appearance of my "Gold of Ophir," the authors seem inclined to adopt the modified view that Rhodesia was the source, and Ophir in South Arabia the importer and distributor, of these treasures throughout the ancient world. My conclusions bearing on this solution of the question are given in full, and seem to be tacitly accepted.

But the authors remind us more than once that their object has not been to advocate any particular theory,

crucibles showing gold in the flux, and especially the massive gold objects—beads, bangles, plates, wire, pegs, nails, ferrules—which were so characteristic of the monuments of the first period, and of which more than 2000 ozs. have already been collected (Fig. 2). Some of the ornaments, obviously manufactured on the spot and displaying considerable artistic taste and technical skill, were found on the original cemented floors, while others were taken from the skeletons of men, women and children buried under the floors. "All the branches of the goldsmiths' art were practised by them, including gold wire drawing, beating gold into thin sheets, plating iron and bronze with gold, and burnishing" (p. 93). It is evident from such details as these, as well as from the slave-pits, the chains of forts stretching along the old highways seawards, and the terraced slopes erected with prodigious labour for agricultural purposes, that the country was not merely conquered, but settled, that it was a true colony in the modern sense of the term, and was held as such by the South Arabian Himyarites for many generations. But enough has perhaps been said to show the great value of a work which places the Ophir question on a new footing and sets history back some two millenniums in the austral world.

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FIG. 2.—Gold ornaments and pottery discovered at Dhlo-Dhlo and M'telegwa Ruins.

but "to allow facts to speak for themselves." Judged from this standpoint, the work must be pronounced an unqualified success. It would be impossible to improve upon the general plan, by which law and order is introduced into a chaos of small but indispensable details, brought together during six years of continuous exploration amid the ancient ruins south of the Zambesi. Students of Rhodesian antiquities will also feel grateful for the aid afforded by the accompanying large-scale map, which covers the whole ground and shows in red lettering the exact position of the five hundred ruined sites which have so far been either described or reported in every part of Rhodesia.

Limitation of space prevents more than the merest reference to many incidental matters, such as the structures now recognised as slave-pits, the extensive terraced slopes of the Inyanga and Mount Fura districts exactly resembling those of the Yemen uplands, the quartz crushers, the gold-smelting works, the numerous gold

After "(*Journal Inst. Elec. Engin.* vol. xxx. p. 475), in which the author dealt with the question of England's backwardness in the development of electrical engineering. The paper may be considered in some respects one of the most important communicated to the Institution of late years. It led to a prolonged discussion—the report of the proceedings occupies more than sixty pages of the Institution's *Journal*—in which, though various opinions were expressed as to the cause of our deficiency, the general conclusion seemed to be reached that the backwardness was due largely to the out-of-date and grandmotherly legislation which governed electrical undertakings. As a result, a powerful committee was appointed by the council of the Institution to report on the subject and advise the council whether they should take any action, and if so what action, to improve the position. The members of the committee were the following:—Prof. W. E. Ayrton, J. Perry and S. P. Thompson, Major P. Cardew, Lieut.-Colonel R. E.

THE INSTITUTION OF ELECTRICAL ENGINEERS AND ELECTRICAL LEGISLATION.

REFERENCE is made in our notes columns to the ceremony performed by Sir Frederick Bramwell in connection with the South Wales electrical power distribution scheme. The Bill for the promotion of this scheme was, it will be remembered, one of six before a Select Committee of Parliament presided over by Sir J. Kitson last year. These Bills gave rise to a paper read by Mr. W. L. Madgen before the Institution of Electrical Engineers on "The Electrical Power Bills of 1900: Before and

Crompton, and Messrs. S. Z. de Ferranti, R. Hammond, H. Hirst, J. E. Kingsbury, W. L. Madgen, W. M. Mordey, R. P. Sellon, A. Siemens, C. P. Sparks, J. Swinburne and A. A. Campbell Swinton. This committee, after holding eleven meetings and collecting a quantity of evidence, has just published its report, which has been adopted by the council of the Institution. As the subject is one of vital importance, not only to the electrical profession, but to the whole nation, it will be of interest to consider this report in some detail.

By their first resolution the committee state that "the development of electrical science in the United Kingdom is in a backward condition as compared with other countries, in respect of practical application to the industrial and social requirements of the nation." As a case illustrating this contention, the American equipment of the Central London Railway will occur to everyone; the undisputed competition between Messrs. Ganz and Co. and the Westinghouse Company, two foreign firms, for the electrical equipment of the Metropolitan and District Railways affords a second illustration. The South Wales distribution scheme is a third case in point, for it will be seen from the note to which we have referred already that though the engines are to be of English make, the electrical generators are to be supplied from abroad.

The resolutions which follow attribute the backwardness largely to "the restrictive character of the legislation governing the initiation and development of electric power and traction undertakings, and the powers of obstruction granted to local authorities," and point out that "local boundaries have usually no reference whatever to the needs of the community in regard to electric supply and traction," and that the development of these undertakings offers the most favourable means of relieving congested centres. The economic importance of the question is thus clearly insisted upon by the committee. As regards the power of local authorities, it is recommended that the Electric Lighting Acts 1882-8 and the Tramways Act 1870 should be amended in so far as they enable local authorities to veto or delay electrical undertakings of proved public utility. A similar recommendation was made by a joint committee of the two Houses of Parliament in 1898, but nothing has been done so far to give effect thereto.

In addition, it is pointed out that the technical staffs of the Government departments are inadequate for present needs, and finally the committee recommends that a deputation from the Institution of Electrical Engineers should wait on the Prime Minister to urge the removal of the present disabilities and restrictions. It is to be hoped that this final resolution will take effect and will produce the desired result. It is not to be supposed that the legislative difficulty is the only one which has hampered electrical development in England, but it is unquestionably one of the greatest. As more than one speaker pointed out in the discussion on Mr. Madgen's paper, we have to cope with the superior organisation of foreign manufactories, due to the recognition of the high value of scientific training and the closer assimilation of theory and practice. In the industrial war which we have to carry on it is, as Prof. S. P. Thompson said, "brains really against which we have to fight." And we have to meet something more than this, namely, the experience which foreign manufacturers have gained in constructing electrical machinery, not for their own requirements merely, but for ours also. If we are to make up our leeway and be successful in this struggle, it is essential that we should not be hampered by out-of-date legislation. Reform may be necessary in other directions as well, but that does not lessen the need for reform in this direction. Anything that can be done to make our path more easy should be done without

delay, lest we find, when it is accomplished, that we are too late. To do what is in their power for the furtherance of this object is the interest, not only of electrical engineers, but of all who do not desire to see our commercial supremacy pass to other countries.

DECORATIVE PLANTS FOR GARDENS.¹

IN the second volume of the fifth series of the *Atti del Reale Istituto d'incoraggiamento di Napoli* (1901), Dr. Nicola Terraciano has an elaborate paper on the wild plants of Italy that are most suitable for decorative purposes in gardens. Such indications are greatly needed in many countries besides Italy. At this season of the year, if the botanist or the flower-lover pays a visit to a garden, or particularly to a flower-show, he will see hundreds of daffodils, for instance. If by chance he visits another locality he will still see hundreds of daffodils of the same kind. They are very beautiful, and to the student of evolution most-interesting and most worthy of study. But after a time they get somewhat monotonous, and the visitor begins to long for a change. These daffodils of which we have been speaking may be referred to some two or three, or at most half a dozen, species only, but if we turn to the memoir before us we find some twenty species enumerated, and we wonder why more of them are not pressed into the service. Again, if we look to the "schedules" of the flower-shows at the Cape of Good Hope, or of any of our Australian colonies, we find slavish imitations of European procedures—chrysanthemums galore in their season, daffodils, roses and the like, just as in an English exhibition—but the representatives of the local floras are not represented. And yet the Cape flora and the West Australian flora are probably much richer in plants suitable for cultivation than those of any similar areas in the world. What a disappointment to the botanist to visit a flower-show in South Africa or Australia and find little or nothing but chrysanthemums when he is eager to see the beauties of the Cape Peninsula and of the Swan River.

Dr. Terraciano evidently holds the same views, for he puts before us a long list of the plants of Italy more or less suitable for garden decoration. He points out how great are the resources of the Italian peninsula, stretching as it does from Alpine almost to sub-tropical regions, with a long coast-line, with marshes, heaths, forests and endless diversity of soil, and situation clothed with a corresponding diversity of vegetation.

It is no wonder, then, that his list is a long one. There are fourteen species of tulips, for instance. Some of the plants might perhaps have been omitted, such as some of the eight species of *Juncus*. To the botanist pure and simple mere beauty is, of course, subordinated to other considerations. We remember a botanist's garden at Reigate many years since which was full of interesting things, but when the garden changed hands, the new proprietor is recorded to have said, when giving orders for their destruction, that he "must draw the line at docks"!

Dr. Terraciano indicates the soils most suitable for the cultivation of particular plants, and recommends for many of them a compost of peat, fragments of chestnut wood and leaf-mould.

Considering what a favourable nidus this would in our damp climate form for fungus spawn, we should hesitate to employ it on a large scale. Cultivation in sphagnum moss we first saw in Italy many years ago, and succeeded in growing sarracenias in it in a London suburb for a time.

¹ "Le piante della flora italiana più acconce all'ornamento dei giardini."