matters very little to himself or to the world. If there is anything of value in the man it is already showing itself in the position he has attained or in the quality of the work he is doing, and is due to the endowment of Nature. If it cannot be said that he has accomplished anything, and if it is obvious that he is occupied in an inferior line of work, it seems all the more to cast discredit on the process by which he obtained his degree.

W. A. T.

ANCIENT PLANT-NAMES.[1]

THE antiquity of plant-names needs no proof. We read in Genesis how man, early in his career, came to designate living things, and learn the name of the tree from which he improvised his first raiment. Semitic tradition is corroborated for other regions by Chinese ideographs which admit of comparative study and by Aryan vocables that lend themselves to ethnic generalisation.

The results of the study of ancient plant-names are only satisfactory when the incidence of the names is assured. But assurance is not easily attained. The work calls for the exact knowledge of the scholar, the historian, the ethnologist, and the naturalist. The requisite combination cannot always be secured.

There are, too, certain intrinsic difficulties. Names identical in significance are not always applied to one plant. The *tournesol* of France and the *girasole* of Italy belong to separate natural families, the *heliotrope* of Greece to a third. Words linguistically equivalent may connote distinct species. The *sarson* of Hindustan and the *sarisha* of Bengal are different crops, both equally prevalent in either country; the *sarshaf* of Persia is akin to, but distinct from, each.

The position of classical plant-names was that of plant-names to-day. Theophrastus, oldest in time, yet most modern in method, of Greek botanists, taught his pupils that most cultivated plants had names and were commonly studied, but that most wild kinds were nameless, and few knew about them. Yet European study of ancient plant-names is mainly that of Greek ones. As Sir W. T. Thiselton-Dyer has pointed out in Whibley's "Companion to Greek Studies," the Greek botanist had a name for every conspicuous Greek plant, and most of these names have come down to us, whereas nothing of the kind, if it ever existed, has survived from the Romans.

Renaissance students endeavoured to identify the plants described by Dioscorides. Their texts show great critical acumen; their illustrations are often most faithful. Yet much of their work is obsolete. Their appreciation of the principles of plant-distribution was imperfect. They sought in Central Europe for Mediterranean species, and often were in error when they felt most assured. It took the European naturalist three centuries to realise this; even yet the European scholar does not always appreciate the situation, and standard lexicons sometimes still remain "blind leaders of the blind." Until, two years ago, Sir W. T. Thiselton-Dyer gave us a compact enumeration of those plants actually Greek with which it is possible to wed a Greek name, no scholar and no naturalist in this country had any real assurance as to the accuracy of any accepted identification.

The same author has now, in the paper cited in our footnote, dealt with a special group of ancient plant-names, mostly Greek. With a restricted arable area and an extended seaboard, ancient Greece possessed an adventurous mercantile marine. The list of Greek names for cultivated edible, officinal, and coronary plants, or for wild species of economic interest was supplemented by one of names for plants or plant-products imported from abroad. The resolution of such exotic names is, not unnaturally, often most perplexing.

The aid this new contribution to the subject renders to the scholar and the naturalist cannot well be measured. Both can best repay their obligation by studying it with care. The space at our disposal forbids any attempt at its analysis. The account of ἄμωμον and καρδάμωμον, terse yet complete, carries instant conviction. The problem of the Idæan vine, the solution of which by Dodoens three and a half centuries ago has, as the author explains, been generally overlooked, amply merits restatement. But the other sections equally deserve unstinted praise. It may yet be necessary to modify in detail the conclusions reached regarding ὀποκάλπασον. This cannot, however, lessen the value of a note which manifestly puts the special student on the real track of this elusive bane, and gives the scholar something better than the old lexicographic acceptance of its identity with an innocent gum. The traveller responsible for that self-contradictory conclusion could justify it only by the assumption that Galen had been misled. This note may also spare us the repetition of a contrary suggestion, less consonant with phytogeographical considerations than anything ever hazarded by a Renaissance scholar, that in ὀποκάλπασον the ancients had somehow come into contact with the West African ordeal-tree.

[1] "On Some Ancient Plant-names." III. By Sir W. T. Thiselton-Dyer, K.C.M.G. *Journal of Philology*, vol. xxxiv., pp. 290–312.

WATER-POWER IN GREAT BRITAIN.

THE absence of co-ordination and systematic control in regard to the water resources of this country has frequently been alluded to in the columns of NATURE when reviewing the voluminous reports and statistics issued by hydrological departments on the Continent and in the United States. It is satisfactory to observe that this regrettable indifference to a matter of urgent national importance has at length become the subject of comment and discussion. At a meeting of the Royal Society of Arts on January 23, Mr. Alexander Newlands, engineer-in-chief of the Highland Railway, read a paper reviewing the water-power resources of the United Kingdom (with special reference to Scotland), estimating their extent and economic value. He pointed out that the situation created by the war had intensified the national interest in questions of economic importance, and that the abuse and neglect of the natural resources of this country were now being closely investigated, as evidenced by the report of the Coal Conservation Committee. Coal is certainly at present, and will probably be for some time to come, our principal source of power, but it should not be overlooked that 1 cubic foot of water per second falling through 11 ft. can supply a horse-power unit to any modern turbine. The past neglect of the water resources of the country is, therefore, an economic waste which should not be tolerated any longer. Of a total of $10\frac{1}{2}$ million horse-power generated in industrial engines in 1907 in Great Britain and Ireland, only about 180,000, or 1·6 per cent., was attributable to water.

Unfortunately, few of the larger English rivers are trustworthy enough in discharge, or possess sufficient intensity of fall, to render them utilisable to any great extent. On the other hand, there are large rivers in the Scottish Highlands which have falls of 14 ft. to 16 ft. per mile, and several Irish rivers have very considerable falls almost at the points where they enter the sea. Scotland, particularly the region which lies north of the Forth and the Clyde, possesses greater potentialities of supply than any other part of Great Britain. Taken as a whole, it has the greatest rainfall, the only localities comparable with it being Seathwaite, in Cumberland, and Snowdon, in Wales. (An annual rainfall of 160 in. has been recorded on Ben Nevis, 182 in. in Cumberland, and 193 in. on Snowdon.)

Mr. Newlands computed that in Scotland—chiefly in the Scottish Highlands—there are about 11,500 sq. miles of country with a rainfall of 50 in. or more, as compared with 3360 sq. miles in England, 3390 sq. miles in Wales, and 5910 sq. miles in Ireland. By impounding the discharge from the lock basins, and assuming an average rainfall of 42 in. (representing a yield from the catchment area of 3 cubic feet a second per sq. mile), of which two-thirds, or 28 in., would be available for power purposes, he estimated that the supply in Scotland would amount to 375,000 horse-power in round figures. This is exclusive of the basins of the Clyde, the Forth, and the Tweed, on account of their other important interests, and of rivers and small streams. By diversions and the linking-up of adjoining catchment areas, and by impounding in excess of the quantity provided for in the estimate, it might be assumed that for, say, 100 days' supply 650,000 horse-power would be available.

According to the figures of Mr. Archibald Page, of Glasgow, the power requirements of Scotland in 1916 were 1,119,000 horse-power units, and it would appear, therefore, that there is sufficient water-power in the Scottish Highlands to meet a large proportion of this demand, though it is doubtful whether, after development and transmission to existing industrial areas, the cost would be less than that of power generated there at the pit-head. One of the most interesting features of this water-power was that it existed in a territory destitute of coal.

In surveying the situation in regard to England, Wales, and Ireland, Mr. Newlands remarked that the absence of large lochs and the lack of sufficient elevation in the country as a whole detracted from the possibilities of any great development of water-power, which, so far as it was available, would have to be derived from river-flow. The paper concluded with a plea for more support and recognition of the work of the British Rainfall Organisation and of the Scottish Meteorological Society than those bodies receive.

BRYSSON CUNNINGHAM.

SOME AMERICAN VIEWS ON AERONAUTICS.

ON April 14, 1917, the American Philosophical Society held at Philadelphia a "Symposium on Aeronautics," of which the papers are now published in the society's Proceedings (vol. lvi., No. 3).

The titles of some of the papers contributed to the conference—namely, "Dynamical Aspects," by Prof. A. G. Webster; "Physical Aspects," by George O. Squier; "Mechanical Aspects," by Dr. W. F. Durand; "Aerology," by William B. Blair; and "Engineering Aspects," by Dr. Jerome C. Hunsaker—show that every attempt was made to ensure a thoroughly representative discussion. But in reviewing the proceedings one cannot help being struck with the opinion that modern aeronautics is too straggling a subject or collection of subjects to be dealt with efficiently in a meeting of this character. Thus, Dr. Webster, the author of a standard treatise on "Rigid Dynamics," reproduces certain familiar diagrams of lines of flow and explains the meaning of lift and drag; Mr. Squier tells us that in the past few years several elements, helium, argon, neon, krypton, and xenon, have been found in the air; Dr. Durand enumerates the problems which have to be solved in the development of the aeroplane—problems more often enumerated than solved; while in Mr. Blair's paper a large amount of space is taken up with twelve diagrams, although he fails to explain what connection these figures have with the mean of wind observations in "Highs" and "Lows," or what the different parts of the diagrams represent. The three pages which Dr. Louis A. Bauer devotes to his subject refer to difficulties attending the use of the compass in aeroplanes arising from deviations of the apparent vertical due to normal and other accelerations.

An original composition to the programme of the meeting is represented by Prof. Edwin B. Wilson's second paper on "The Theory of an Aeroplane Encountering Gusts." The first of these papers was published in 1915 by the American Government Advisory Committee. Together the two constitute a mathematical extension of the theory of small oscillations from free to forced oscillations. Apart