

of the names of nine varieties of the Sweet Violet (*Viola odorata*). Again, at p. 309, Vétiver, or Cus Cus, is rightly described as the root of *Andropogon muricatus*, after which follow the names of five synonyms. In reference to this Mr. Sawyer says, referring to the "Asiatic Researches," that "there is a verse in the Sanskrit language composed of nine words, arranged in two lines, purporting to be the nine names under which the plant was known; doubtless they were poetical names, as they are not found in the extensive list of local names recently enumerated by Watt." This would show that Dr. Watt, who in his "Dictionary of the Economic Products of India" does not err on the score of brevity in the adoption of synonyms, considered that there was a line to be drawn somewhere. We may perhaps also be allowed to draw attention to a paragraph on page 19, where the musk tree of Jamaica and the muskwood of Australia have got confused. The paragraph in question runs thus: "The *Eurybia argophylla* or *Guarea Swartzii*, the silver-leaved musk tree of Jamaica, New South Wales, and Tasmania, is a meliaceous tree, attaining a height of twenty-five feet." *Eurybia*, or more properly *Olearia argophylla* is the muskwood of New South Wales and Tasmania, and belongs to the natural order Compositæ, while *Guarea Swartzii* is a meliaceous tree of Jamaica, where it is known as musk tree. Another muskwood, not mentioned by Mr. Sawyer, is that of *Moschoxylum Swartzii*, a highly fragrant resinous tree, closely allied to *Guarea*, and a native also of Jamaica and Trinidad. We refer to these matters in no captious spirit, but simply with the hope that Mr. Sawyer may see his way to overhaul and modify this part of his useful book in a future edition, so as to make it even more useful and trustworthy. We are glad to note that he "is still engaged upon studies in this department, and hopes to publish another volume in due course."

OUR BOOK SHELF.

Catalogue of Eastern and Australian Lepidoptera Heterocera in the Collection of the Oxford University Museum. By Colonel C. Swinhoe. Part I. Sphinges and Bombyces. (Clarendon Press, 1892.)

THIS volume is the first part of a Catalogue of the moths from the Oriental and Australian regions in the collection of the late Mr. W. W. Saunders, which was acquired by the Oxford Museum some fifteen years ago, and consists chiefly of specimens collected by Wallace during his famous voyage to the Malay Archipelago, and described by the late Francis Walker in his British Museum Catalogue. Since Walker's arrangement of the collection it has remained untouched and mostly neglected by lepidopterists, so that a rearrangement and comparison of the types had become highly necessary, which useful work has been undertaken and very ably carried out by Colonel Swinhoe. All the types have been brought to the British Museum, their synonymy carefully worked out and the species placed in their proper families and genera, many of them being figured in the eight coloured plates, and it is to be hoped the other parts will soon follow, and also that a list of the types which should be in the Museum and are missing will be added. There is one statement in the preface which requires correction; the only types of Walker's species described in his Catalogue which are in the Oxford Museum are those which

are expressly stated to be in "Coll. Saunders," all the others are in the British Museum, including those for which a locality is given before the list of British Museum specimens.

Charles Darwin: His Life Told in an Autobiographical Chapter and in a Selected Series of his published Letters. Edited by his son, Francis Darwin. (London: John Murray, 1892.)

PROF. DARWIN describes this volume as practically an abbreviation of the well-known "Life and Letters." The task of compression has been accomplished admirably, and there can be little doubt that the work will be cordially appreciated by a large number of readers. Of course it has been necessary to omit many details which are of interest to men of science; but everything is included which is really essential to a proper comprehension of Darwin's fine personal character, and a sufficiently full and clear idea is given even of his scientific labours. No one will read this fascinating book without feeling anew how much reason England has to rank Darwin among the greatest and noblest of her sons. The volume is enriched with a reproduction of an exquisite photograph of Darwin by the late Mrs. Cameron.

Strange Survivals: Some Chapters in the History of Man.

By S. Baring-Gould. (London: Methuen and Co., 1892.)

EVERY one who has given any attention to anthropology is aware that many remarkable customs and beliefs, which are still to be found among the uneducated classes even in highly civilized communities, are relics of ancient superstitions. In the present volume Mr. Baring-Gould examines various groups of these curious survivals, and traces them back to their origin in the ideas of past ages. He knows his subject well, and, being interested in it himself, is able to present it in a way which is likely to make it interesting to others. The value of the text is considerably increased by some well-selected illustrations.

LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

Botanical Nomenclature.

IN NATURE for October 6 (p. 549) there is a note "on the progress of the negotiations concerning the nomenclature of genera, started by a committee of botanists at Berlin to supplement the decisions of the International Botanical Congress held at Paris in 1867." It is stated that "the botanical authorities of the British Museum favour the suggestions; those at Kew are against them."

Now this requires a little correction. It may be remarked to begin with that many botanists are exercised at the present time not merely about the nomenclature of genera, but also about that of species. Kew has, however, never given its adhesion to the attempts that have been made to bring about an international agreement on these matters. It has always felt that so many considerations must determine the course taken by the systematist in any particular case, that there is no advantage, but positive inconvenience, in being subjected to a hard and fast rule. It is therefore with no disrespect to, or want of sympathy with, the able school of Berlin botanists, who have recently formulated some new proposals with regard to nomenclature, that Kew has officially refrained from expressing any opinion upon those proposals. It has neither expressed approval nor disapproval.

In America Harvard has long occupied the leading place in the botanical world, and the principles adopted there have been substantially in accord with those adopted at Kew. Hitherto,

therefore, the leading English-speaking botanists who have occupied themselves with systematic botany have been in substantial agreement that the adoption of a strict law of priority in nomenclature must give way to considerations of convenience.

Well known and accepted names are not therefore to be lightly changed as the result of mere bibliographical research. As to specific names the often merely mechanical process of describing a new species is held to be of little value compared with the more difficult task of assigning to the plant described its true affinities and correct systematic position. The principle which guides Kew practice in this matter is laid down by Sir Joseph Hooker in the preface to "The Flora of British India" (p. vii). He remarks:—

"The number of species described by authors who cannot determine their affinities increases annually, and I regard the naturalist who puts a described plant into its proper position in regard to its allies as rendering a greater service to science than its describer when he either puts it into a wrong place or throws it into any of those chaotic heaps miscalled genera with which systematic works still abound."

The following paper on the subject deserves the wider circulation which its reprint in *NATURE* would give it. It represents the Harvard tradition and practice, and is the last scientific utterance of Dr. Sereno Watson, who so soon followed to the grave his illustrious predecessor, Asa Gray.

Kew, November 14.

W. T. THISELTON DYER.

ON NOMENCLATURE.¹

[It was the request of the late Dr. Sereno Watson that the following communication, dictated by him in his last illness, should appear at an early date in the *Botanical Gazette*.—EDS.]

FOR some time I have had a desire to give expression to my views upon botanical nomenclature. Under the circumstances, I must speak briefly and somewhat dogmatically. In my opinion botany is the science of plants and not the science of names. Nomenclature is only one of those tools which is necessary to botany, and this being the case, points of nomenclature should be subordinated to science.

A principle of botanical convenience has been established by those who prefer one name to another on account of expediency or convenience. This principle should have a great deal of influence. It has been so recognized by the greatest botanists, and from their authority receives great weight. I prefer the word *expediency* as a better term than convenience to designate the principle, that the demands of science over-ride any merely technical claims of priority, &c.

Priority of specific names appears to be based entirely upon one section of the code of 1867. That simply says that when a species is transferred from one genus to another, the specific name is maintained. This principle is usually understood and applied in the way that the oldest specific name has a right in all cases to be retained. It cannot fairly be so interpreted and applied, since it governs only to the extent that this should be the law, but it is not to be made an *ex post facto* law. Thus when a transfer has been made, that ends the matter so far as the choice of a specific name is concerned, and no one is authorized to take up a different name. This practice of retaining the oldest name *under the genus*, no matter what older specific names there may be, was adopted by Dr. Gray in his later years and by the Kew botanists, for the reason that once established and pretty generally recognized, it would avoid the great mass of synonymy, which is being heaped like an incubus upon the science. I must express surprise that Dr. Britton had not considered it his duty to publish the last written words of Dr. Gray which were addressed to him upon this subject and which expressed his positive opinions upon this point.

There is nothing whatever of an ethical character inherent in a name through any priority of publication or position which should render it morally obligatory upon any one to accept one name rather than another; otherwise it would be applicable or true as well in the case of ordinal names, morphological names, teratological, and every other form of name, to which now no one feels himself bound to apply the law of priority. The application of this law as at present practised by many botanists, which would make it the one great law of botanical nomenclature, before which every other

must yield regardless even of common sense, is a mere form of fetishism exemplified in science. Many instances of the application of this law are not science but are rather superstition.

SERENO WATSON.

February 22, 1892.

The Reflector with the Projection Microscope.

THE lantern is now used for so many purposes—scientific, photographic, and recreative—that any improvement in its construction will be acceptable. When we look into this instrument whilst at work we must be disappointed at the large quantity of light lost by reflection and by dispersion—light which ought to go to the illumination of the screen. In the ordinary form of the lantern three lenses of dense glass are employed as condensers. Each of these six surfaces reflects and scatters the light, and the glass itself is absorbent of its rays.

The dioptric construction of the projection lantern has been well worked out by Messrs. Wright, Newton, Salomons, and others, but the catoptric principle, which would eliminate almost entirely these disadvantages, has been scarcely at all studied.

Although my experiments have been made solely with the limelight in various forms, the following remarks may equally apply to light given by the electric arc:—

If a reflector be used instead of the ordinary condensers it is obvious that the position of the lime cylinder must be reversed. This will present no difficulty, for the tube holding the jet can be bent into a helical form. The dark image of the lime-cylinder also will have no more practical disadvantage than is experienced by a like image formed by the small plane speculum of the Newtonian telescope.

As to the mirror itself, although a parabolic form is the most correct, a spherical surface will be sufficient for mere illuminating purposes, and thus expense may be spared in the grinding of the more difficult curve. A speculum of from 5 to 7 inches diameter, having a radial curvature of from $2\frac{1}{2}$ to 3 inches, will grasp a large quantity of light, much more than that obtainable from the 5-inch condenser usually employed.

Silver deposited by one of the various reducing processes on the surface of a clear glass lens will have many advantages over a metal mirror. The front surface will give perhaps the finest definition, but by silvering the back part of a spherical glass film, or that of a ground lens, the brilliant surface will remain untarnished for an indefinite time, and the whitish bloom formed by slow volatilization of the incandescent lime is easily removed. This silver film adheres with remarkable tenacity, and it will bear a great deal of heat without blistering or becoming detached.

I have had considerable success in constructing such mirrors from the large ornamental glass spheres blown in Germany, and silvered within by Liebig's process, viz. with milk sugar and ammonio nitrate of silver. A glass sphere of 10 or 11 inches in diameter may be easily cut into eight or nine mirrors by a red-hot iron, and this without disturbing the silvering, which will require only gentle friction with a pad of cotton impregnated with a trifle of rouge to brighten it. Thus, at the cost of a few shillings, eight or more mirrors can be made, and also provision be made against possible accidents of cracking by heat.

The light-radiant is so placed that the secondary focus is intercepted by a plano-concave lens of dense glass, as has been happily proposed by Mr. L. Wright. The convergent rays from the speculum are thus made into a parallel beam, which must be deprived of its heat by an alum-trough, for the light and heat at the substage condenser is very great.

Convergence, I find, is usefully promoted by a plano-convex lens of about eight inches focus, placed two or three inches before the above-noted plano-concave lens. In all other respects the arrangements are like those of the usual modern projection microscope.

I have pretty constantly used the ether-oxygen saturator, and I consider it to be perfectly safe, if ordinary precautions be taken. The oxygen, compressed in cylinders, is much recommended, as there can be no mixture of vapour, except at the right place. The U-shaped horizontal saturator, plugged with flannel, must be well charged with ether, or with the best gasoline, and care should be taken, before beginning or ending an exhibition, to shut off the oxygen tap before closing the ether

¹ From *Botanical Gazette*, vol. xvii.