

To begin instead of this the following scene with a commonplace accord and a dry recitative, shows indeed an enormous want of taste; and fortunately Sir Michael Costa had left out the whole of it; but this prejudiced the heavenly duet of Florestan and Leonora by its juxtaposition with the foregoing piece.

Of the performance as a whole we may say: *Fidelio* (Mdlle. Titiens) and *Marcellina* (Mdlle. Sinico), excellent; *Florestan* (Sig. Vizzani), bad—the high G at the beginning of his aria being a dead failure: male chorus in the first act detestable.

FRANZ HÜFFER.

#### MUSIC AT THE INTERNATIONAL EXHIBITION.

THE ceremonial with which the International Exhibition was opened on the 1st instant, was brought to an end by a musical performance in the Royal Albert Hall, of, among other things, four works composed expressly for the occasion. Not one of these, it is true, was very characteristic of the "nationality" of its composer; indeed, they were, with one exception, singularly the reverse. Signor Pinsati "represented" Italian music by a "Chorale"; M. Gounod French by a "Psalm"; and Mr. Arthur Sullivan English by a "Cantata," the characteristic features of which were certain passages suggestive of Oriental melody. Dr. Ferdinand Hiller represented his country by a "March."

Signor Pinsati's music was of broad and simple character—for the most part in single counterpoint, with here and there an imitation—better adapted perhaps, from its gravity, to the "Chorale" than to the occasion. It was sung, without accompaniment, by a choir more remarkable for numbers than quality. M. Gounod's setting of parts of the Psalm "Quomodo sedet sola civitas" is grandly conceived, and carried through by the employment of many—indeed most—of those effects with which he has already made us so familiar. The greater part of the movement is in E minor; it is needless to say that it has a *coda* in E major, with wind instruments moving in triplets to each beat, and the emphasis reinforced by harps. Mr. Sullivan's "Cantata" is one of his most felicitous productions, worthy of a closer analysis than can be made of it now. The "Morescan" element—a minor scale with a sharpened fourth—is of itself interesting, and was introduced and treated with consummate skill. The orchestration is broad, as becomes the subject. Dr. Hiller's "March," trifle though it may be, is the trifle of a great musician; various in spite of the rhymical bonds of this kind of composition, and coherent with all its variety. A passage in B flat, wherein the flutes and clarionets double the first and second violins moving in octaves, is exquisite both in form and colour. Doubtless there are others as beautiful which may easily have passed unnoticed in a first hearing. The four new works were conducted by their respective composers.

The performance of Beethoven's *Missa Solemnis* and ninth symphony at the sixth Oratorio concert was highly creditable to Mr. Barnby and his band and chorus, although a certain fatigue became noticeable in the performers as well as the audience during the latter part of the concert. The tempi of the first movement and scherzo of the symphony were wanting in rhythmical energy and liveliness.

Liszt's First Concerto in E Flat for Pianoforte and Orchestra, and "Die Symphonische Dichtung" (*Les Préludes*) will be performed at Mr. Bache's Concert on May 26, the latter composition for the first time in England.

A *Missa Solemnis*, by Pergolese, has been recently discovered in the archives of San Fernando at Naples.

On the 28th of April Sigismund Thalberg died at Naples, after fifty-seven days of suffering, from inflammation of the lungs. He was born at Geneva in 1812, and was for some time a pupil of Sechter of Vienna.

An "International Mozart-Institute" has been founded at Salzburg. In connection with it, it is proposed to establish a musical High-school, to build a Mozart-house, and, by keeping yearly a Mozart-day, to afford composers and students an opportunity of propounding musical questions and exchanging interesting information.

#### Physical Science.

**Natural History of the Azores, or Western Islands.** By Frederick Du Cane Godman, F.L.S., F.Z.S. &c. London: Van Voorst, 1870.

A GROUP of islands in the Atlantic Ocean, about a thousand miles west of Europe and separated from it by a channel nearly 15,000 feet deep, has especial interest for the naturalist since Mr. Darwin has shown how valuable is the evidence such islands afford for the derivative origin of species. Mr. Godman has, therefore, done good service in visiting so remote and, as far as novelties are concerned, unproductive a locality; and in publishing the results of his researches in so compact and convenient a form. The book may be looked upon as, in many respects, a model of what such a work should be. The narrative part only occupies fifteen pages. Then follow lists of all the chief classes of animals and plants, exhibiting, not the author's collections only, but all that is yet known of the fauna and flora of the islands. The indigenous and introduced species are carefully distinguished, and their relations to other islands or to Europe pointed out; and to all the more important groups there is an introductory essay, on the relations, affinities, and distribution of the Azorean species. The Coleoptera have been worked out by Mr. Crotch, the land-shells by Mr. Tristram, the flowering plants and ferns by Mr. H. C. Watson, and the mosses and Hepaticæ by Mr. Mitten. At the conclusion Mr. Godman gives a summary of the whole, and points out the bearing of the evidence on the probable mode by which the islands have been peopled.

The most striking fact brought out by this work, is the wonderful amount of similarity between the productions of these remote islands and those of Europe; from 80 to 90 per cent. of the birds, butterflies, beetles, and plants, being absolutely identical with common European species, while from 1 to 4 per cent. only are American. This is the more remarkable when we turn to physical maps for information, and find that both the oceanic and aerial currents are from the westward, so that we should naturally expect the American element of the fauna and flora to be much better represented. The difficulty, however, is to a great extent cleared up by Mr. Godman's observation that the Azores lie in a region of storms from all points of the compass; and that every year these storms bring numbers of birds from Europe, and no doubt also numbers of insects, although these are not so easily observed. We can thus account for the enormous preponderance of the European species; and this, taken in conjunction with the entire absence of indigenous Mammalia and Reptiles, causes our author to reject the theory of a former continental extension uniting these islands to Europe as the origin of their fauna and flora. Had this been so, and taking into consideration the vast time implied by the descent of a thousand miles of country to the depth of 15,000 feet, we should certainly have found the productions of the Azores to be far more endemic and peculiar than those of Madeira and the Canaries, instead of far less so.

The most curious and difficult problem is presented by the existence of a considerable number of wingless beetles, of genera peculiar to the Atlantic islands (Azores, Madeira, Canaries). These could not possibly, in their present condition, have been transported over the 600 miles of ocean that now intervene between these groups. Mr. Wollaston has, however, discovered that beetles have a tendency to become apterous in these islands; many which are winged in Europe, or belong to winged genera, being altogether wingless in Madeira and the Canaries. Some of these wing-

less species differ in no other respect from their European allies, so that we may be sure the change has been effected in a comparatively limited time; and the fact that some European species possess both winged and wingless individuals shows that the character is an unstable one, and therefore easily abolished or retained as one or the other state becomes advantageous to the species. We are thus at liberty to suppose that these wingless Atlantic groups are the descendants of very remote winged ancestors, who were among the earliest immigrants to all these islands; and these, being subjected to similar conditions, all became apterous. Another strange phenomenon is presented by the *Elastrus dolosus*, a beetle of the family Elateridæ, which belongs to a genus peculiar to Madagascar. A single plant, *Myrsine africana*, a native of tropical Africa and the Cape of Good Hope, is found in no other group but the Azores, where it seems to be common. As another beetle of the same family (Elateridæ) is allied to a Brazilian species, and is therefore probably the descendant of an ancestor who came over in a floating log, we are led to speculate on the possibility of this anomalous Madagascar beetle and S. African plant having been introduced by a similar process; since the currents round the southern extremity of Africa partially merge into the great equatorial current of the Atlantic which gives rise to the Gulf Stream, and this undoubtedly reaches the Azores.

Mr. Godman had previously visited the Galapagos Islands, which are only half as far from S. America as the Azores are from Europe; yet they contain hardly any identical species of birds, plants, or insects. This is well explained by the fact that these islands are situated in a region of calms instead of one of storms; and chance introductions being therefore a far rarer occurrence, the early immigrants have all become modified, and have so stocked the country with their peculiar and well adapted forms that new comers (if any do come) have little chance of establishing themselves.

We have now touched upon some of the more interesting questions which this work assists us in answering. It is a book which should form a part of every naturalist's library, and we are glad to notice the useful innovation of issuing it with cut edges.

ALFRED R. WALLACE.

**History and Literature of Lichenology.** [*Geschichte und Litteratur der Lichenologie von den ältesten Zeiten bis zum Schlusse des Jahres 1865.* Zum ersten Male bearbeitet von A. v. Krempelhuber, Mitgliede mehrerer gelehrten Gesellschaften.] München: 1867-1869. (Im Selbstverlage des Verfassers.)

THIS is certainly one of the most marvellous examples of German industry which has ever issued from the press. We have here two volumes containing no less than 1392 pages on a subject which is of very limited interest even to botanists, and one which we should scarcely think would repay the author, at whose sole risk it seems to be published, for what must have been the labour of years. The literature of every country where information might be obtained has been thoroughly ransacked, and what is not always the case with continental writers, English sources, and those occasionally of less general circulation abroad, have been carefully explored and registered, and it must be allowed that a general measure of fairness exists throughout in the tone of criticism.\* The important paper of Famintzin and Boranetzky to which we

\* It is curious that the one which has met with the least justice is that which is due to the author of this notice. Happily it is not necessary to make any comment here, as it has already been done in the *Botanische Zeitung*, 1868, p. 288: "das Urtheil über Berkeley, welcher gar nicht beansprucht Lichenologie zu sein, viel zu hart erscheint."

shall have to allude presently was not presented to the Academy of St. Petersburg till the 6th of June, 1867, and therefore did not come within our author's prescribed limits. Up to the end of 1865 it would be difficult to point out any paper of importance which has not passed under review.

Our author seems to lean more than is just to the minute details on which genera have been founded by more recent lichenologists. Tulasnes and Lindsay's memoirs, following the single observation of Itzigsohn, opened out quite a new field, and both entertained, as I believe, a just appreciation of the importance which is to be given to the contents of the asci, and the same may be said of Nylander, who has by no means neglected microscopical details. For my own part I do not think that lichenology has profited much by the excessive multiplication of genera resting often on mere modifications of the sporidia and sometimes even embracing chemical composition. These undoubtedly will often give good specific characters where proper attention is paid to the changes which the same sporidium may undergo in the course of its development, and assuredly the great Swedish fungologist and lichenologist Fries has sometimes allowed too little to such considerations. Attempts have been made to form generic distinctions amongst Fungi on characters derived mainly from the sporidia, amongst those which are most nearly related to Lichens, and which seem to me after years of consideration to be one great branch of an alliance comprising both; some genera indeed being so intimately allied that either in whole or in part it is impossible to find a single distinctive character. In the great genus *Sphaeria*, some good genera or at least subgenera have been formed on consideration of their vegetative characters, but the moment it has been attempted to make further divisions from characters derived from the asci and their contents, we fall into illimitable confusion, and arrive at mere artificial arrangements. Take for example the naked or more simple *Sphaeria*, and we shall find instances almost without number in which we can give no external distinctive character whatever, while their specific distinction rests almost entirely on the nature of the sporidia. For these reasons I cannot think that Massalongo, who on a large scale set the example of attributing so much importance to the sporidia, has deserved well of lichenologists, and I cannot help expressing a hope that Mr. Leighton will exercise in his promised work on British Lichens a due caution in this matter. Excessive subdivision is one of the greatest evils which can befall any branch of natural history, and indisposes many to the study who might otherwise be useful labourers, especially as it has a tendency to draw off attention from those general views which are after all of main importance.

The following observations of Nylander are well worthy of attention:—

"We reject the admission *à priori* of a single principle or a single character prevailing in the systematic arrangement, and we think that we may attach an identical value to the salient characters of all parts in Lichens; only in the different groups it is sometimes one, sometimes another character to which we ought to give the preference, whether we regard the classification properly so called of these vegetables or simply their specific distinction. The group of Phyllodeæ, for example, is distinguished from that of Placodeæ especially by a difference in the structure and form of the thallus, but these last differ only from the Pyrenodeæ in that of the fruit."

It would be unjust to our author to omit what he says towards the end of his second volume on this subject, where he allows that subdivision may go too far:—

"The results of the present tendency in this direction" (of comprehension) "give reason to fear that we shall very soon pass from the one extreme, which manifests itself by the proposition of too many imperfectly grounded genera and species, to the other extreme, which is characterised by a too widely extended comprehension of generic or specific forms; and we know not whether science will not run greater risk from the latter than from the former."