This is true also of the evidence of Dr. Thomson in reference to the herbarium of the British Museum. I am not aware that Dr. Thomson has once visited the herbarium during the 14 years in which I have been officially connected with it, and he cannot possibly from his personal knowledge declare that "Kew *is at present* the more available for "scientific research of the two." (Qu. 7242.)

WILLIAM CARRUTHERS.

British Museum, May 14, 1873.

F.—MEMORIAL presented to the FIRST LORD of the TREASURY, respecting the NATIONAL HERBARIA.

[See p. 7.]

To the Right Hon. W. E. Gladstone, First Lord of the Treasury.

SIR,

THE undersigned persons engaged in the pursuit of botany, or in instruction therein, desire to call your serious attention to a subject that deeply concerns the progress of Natural Science, and that of those branches of agriculture, horticulture, forestry, and manufactures that largely depend on Botanical Research.

The First Commissioner of Works, in a Memorandum presented to Parliament before the close of last Session, clearly raised the question whether it is desirable to transfer to the branch of the British Museum about to be constructed at South Kensington, the Scientific Collections and Library now existing at Kew, and further stated that, pending the decision on that subject, he considers it his duty to take care that no new expense shall be incurred at Kew which will embarrass the Ministers of the Crown or the House of Commons in arriving at a decision.

The Lords of the Treasury, in their Minute of the 24th July, decline to refer to that portion of the abovementioned Memorandum, and no statement on that subject has since been made by any Minister of the Crown which shows whether it has received the attention of the Government.

Being strongly of opinion that the proposed measure would be highly detrimental to the progress of Science, and injurious to all those interests that depend upon it, we beg to urge upon you that the subject is not one merely of Departmental Interest, and that it would not be unfitting your position, as First Minister of the Crown, to give your consideration to the following reasons, which we beg to urge in opposition to the proposed measure:—

1. That it appears to us that it is absolutely necessary that a great Botanical Garden like that at Kew, which is confessedly far the most important in the world, should be in close connexion with as perfect an Herbarium and Botanical Library as possible; and that these conditions are now fulfilled as far as circumstances and the present state of science will admit.

2. That such a combination of living and dead specimens is requisite for the complete study of plants, as regards their technical, physiological, and economic characters; and that the removal of the Herbarium would be a retrograde step in a scientific point of view.

3. That the records of the Colonial and India Offices will show of what immense importance the Establishment at Kew has been to the welfare of the entire British Empire, and that weighty questions are constantly submitted to the Director which require immediate attention, and which could not, in many cases, be satisfactorily answered without reference to the Library or Herbarium.

4. That every facility for the investigation of the intimate structure and general habit of plants, and the study of them in every point of view, which can reasonably be considered within the scope of pure Botany, is afforded by the Herbarium and Museum of Botany in connexion with the Garden, and that it would be easy to point out important labours in that direction which have been instituted at Kew, while the systematic treatment has always regarded the more minute characters as well as those which are superficial.

5. It has been remarked, indeed, that important works, such as the *Hortus Kewensis*, have been prepared without the aid of an Herbarium at Kew. We would, however, remark that the statement is not correct, as there was an Herbarium, which was dispersed before Sir W. J. Hooker became Director; and the conditions of Natural Science are at the present time so completely altered, that it is impossible to institute any fair comparison, the number of known species being enormously increased since the date of the publication in question.

6. That the Museums of Structural and Economic Botany, which owe their existence and importance to the late Sir W. J. Hooker, are often found of great value in the decision of critical points in the study of species, and that the severance of them from the Herbarium and Library would be a serious loss.

7. That in the principal Botanic Gardens on the Continent, where effective work is done, there is in every case a large Herbarium connected with them.

8. That, in the interest of Botanical Science, we think it highly desirable that, besides the collections now existing at Kew, an Herbarium, or collection of dried plants, as complete as possible, should be maintained in connexion with the Natural History Museum which it is proposed to place at South Kensington, and that the two Herbariums should be in intimate relation with each other.

9. That from the delicate and perishable nature of its contents, and the necessity of referring to numerous specimens, an Herbarium cannot be made use of by many persons at the same time; and while it is desirable that students should have ready means of access at the National Museum in London to collections which may enable them to identify the plants of any particular country, it is still more essential that the authors of important works in Botanical Science should be enabled, as at present, to pursue their labours at Kew without interruption from casual visitors.

10. That an Herbarium is the least costly of all Collections in Natural History, and that which requires the least amount of space for its proper maintenance, in proportion to the number of objects which it contains.

11. That the arrangements of the Herbarium at Kew are so perfect, and the facilities for study so great, that it is resorted to from all parts of the world; and it would, therefore, be unwise to make a change which in the result is almost certain to be detrimental, and which, we are assured, would be especially distasteful to the leading Foreign Botanists.

M. J. Berkeley, Botanical Director to the Royal Horticultural Society of London.
Charles C. Babington, Professor of Botany, Cambridge.
M. A. Lawson, Professor of Botany, Oxford.
J. H. Balfour, Professor of Botany, Edinburgh.
Alexander Dickson, Professor of Botany, Glasgow.
G. Dickie, Professor of Botany, Aberdeen.
Ed. Perceval Wright, Professor of Botany, Dublin.
Robert Bentley, F.L.S., Professor of Botany, King's College, and to the Pharmaceutical Society of London.
W. T. Thiselton Dyer, Professor of Botany, Royal Horticultural Society, London.
R. O. Cunningham, Professor of Botany and Zoology, Belfast.
W. R. McNab, Professor of Botany, Royal College of Science, Dublin.
George Henslow, M.A., F.L.S., Lecturer at St. Bartholomew's Hospital (London), and at the Royal Agricultural College, Cirencester.
John Ball, F.R.S.
Maxwell T. Masters, M.D., F.R.S.
James Bateman, F.R.S.
R. Trevor-Clarke, F.R.H.S.
W. Wilson Saunders, F.R.S.
Geo. F. Wilson, F.R.S.
Robert Hogg, LL.D., F.L.S.
W. Sowerby, F.L.S..
D. Moore, Ph.D., F.L.S., M.R.I.A.
Andrew Murray, F.L.S.
William Munro, Major-General, C.B., F.L.S.
M. Pakenham Edgworth, F.L.S.
John Miers, F.R.S., V.P.L.S.
Frederick Currey, M.A., F.R.S., Sec. L.S.
Daniel Hanbury, F.R.S., F.L.S.
C. E. Broome, M.A., F.L.S.
Leonard Blomefield, M.A., F.L.S.
J. T. Boswell Syme, LL.D., F.L.S.
Hugh Cleghorn, M.D., F.L.S.
Clements Markham, C.B., F.L.S.
R. C. A. Prior, M.D., F.L.S.
Edward J. Waring, M.D., F.L.S.
George C. M. Birdwood, M.D.
Walter Elliot, K.C.S.I., F.L.S.
J. Forbes Watson, M.A., M.D., F.L.S.
Richard Strachey, Maj-Gen., C.S.I., F.R.S.
E. W. Cooke, R.A., F.R.S., F.L.S.
Robert Braithwaite, M.D., F.L.S.
William Mitten, A.L.S.
W. Allport Leighton, B.A., F.L.S.
William Phillips.
John Goucher, F.L.S.

J. Leicester Warren, M.A.
Worthington G. Smith, F.L.S.
M. C. Cooke, M.A.
James M. Crombie, M.A., F.L.S.
Alfred W. Bennett, M.A., B.Sc., F.L.S.
A. G. More, M.R.I.A., F.L.S.

Thomas Moore, F.L.S., Floricultural Director to the Royal Horticultural Society of London.
Thomas Thomson, M.D., F.R.S., late Superintendent of the Royal Botanic Garden, Calcutta.
Charles Darwin, M.A., F.R.S.
George Bentham, F.R.S.

APPENDIX III.

Extract from Mr. Lockyer's Report on the Aid given by the State to Science in France. [See p. 21.]

The General Collections illustrating the Sciences of Observation and Experiment in France.

In England the student of natural history finds in the British Museum the most perfect and complete collection in the world, by the study of which he is enabled to increase his knowledge and to carry on his investigation. If, however, a student of mechanics, physics, chemistry, or astronomy, or of the applications of these Sciences to the various Industries, wishes to study a collection of instruments which shall help him in his studies as the British Museum helps his Natural History confrère, he finds absolutely nothing to supply his want.

This is not the case in France. Side by side with the Museum of Natural History, which may be likened roughly to our British Museum, there is the Conservatoire des Arts et Métiers which does for the students of the sciences I have named what the Muséum d'Histoire Naturelle does for the students of Natural History. I was extremely struck at the even-handed justice of this arrangement in France, and was not surprised to find that in many points in which we are behind the French, the French themselves ascribe that backwardness to the fact that we are less fortunate than they in not having such an establishment.

The relationship between these institutions from this point of view is so intimate that I have put them under the same heading, in order that a more general coup d'œil of the help given all round to Students and to appliers of Science in France may be obtained.

There is also another very striking characteristic to which I must next draw attention. Both in the Museum of Natural History, and in the Conservatoire des Arts et Métiers free lectures are given by the men most distinguished in their special branches in France on the various subjects which are illustrated by the collections of either establishment; our own small efforts in this direction—the lectures, namely, at the School of Mines—are the only representatives we have of this kind of teaching, which it is universally acknowledged has been accompanied by the happiest results. If this be so, then the enormous amount of benefit which must be derived from the courses of lectures given in these establishments in France must be obvious. Last year, for instance, the courses of lectures at the Conservatoire were attended by more than a quarter of a million of anxious students,—students who not only come to hear, but who instantly, in a great majority of cases, went to enlarge their knowledge by studying the collections themselves.

The Museum of Natural History.

The Museum of Natural History is administered by a Director chosen from amongst the Professors of the Establishment; the professors, every five years, sending up the names of three candidates to the Minister of Public Instruction, by whom the choice is made.

All scientific administrative questions connected with the Museum are regulated by a Committee of Professors, which the Director calls together once a month at least, and over which he presides. One of the Professors, who is called the Directeur Suppléant, fills the place of the Director during his absence. This Directeur Suppléant is chosen by the Minister from amongst the names presented by the Committee for the functions of Director, and, like the Director, he is named for five years. The Committee of Professors names annually one of its members as Secretary. The Professors are the Keepers of the collections and are responsible for their order and arrangement. Each Professor presents annually to the Committee of Professors a Report on the state and requirements of the laboratories and collections under his charge. These Reports are transmitted to the Minister with the opinion of the Committee and of the Director. The *matériel* is inspected once a year.

The present *personnel* is as follows:—

Director, M. Chevreul.

Directeur Suppléant, M. Milne-Edwards.

The professors (who are also Administrators of these Departments) are, of—

General Physiology, M. Claude Bernard.
Comparative Anatomy, M. Paul Gervais.
Anatomy and Natural History of Man, M. de Quatrefages de Bréau.
Zoology, Mammals and Birds, M. Milne-Edwards.
Zoology, Reptiles and Fish, M. Dareste.
Zoology, Insects, Crustacea, and Arachnidæ, M. Blanchard.
Zoology, Annelids, Molluscs, and Zoophytes, M. Deshayes.
Botany and Vegetable Physiology, M. Brongniart.
Culture, M. Decaisne.
Geology, M. Daubrée.
Mineralogy, M. Delafosse.
Palæontology, M. Albert Gaudry.
Physics, applied to Natural History, M. Becquerel.
Vegetable Physics, M. Georges Ville.
Organic Chemistry, M. Chevreul.
Inorganic Chemistry, M. Frémy.

All lectures are public and free; the time of the commencement of the course and the programme being settled each September, and submitted to the Minister of Public Instruction for his approval. Each professor gives 40 lectures annually. The lectures are followed by two classes, first, the general public (*auditeurs benevolés*), and, secondly, the students of the École Normale Supérieure of the third year who must attend at least two lectures a week.

The collections are enriched by exchanges, and there is an elaborate system of distributing duplicates from the collections not only to the local museums in France and her colonies, but also even to foreign countries. Thus from the mineralogical collection 1,800 duplicates were distributed between 1860 and 1865, 3,000 being still retained.

I annex the budget for the Natural History Museum for the present year:—

		fr.	fr.
	Personnel.		
Traitements de 16 professeurs, à 7,500fr.		120,000	
,, de 2 maîtres de dessin, à 2,500fr.		5,000	
,, d'un bibliothécaire et d'un sous-bibliothécaire		8,000	
,, d'un secrétaire, agent comptable		5,000	
,, de 19 aides naturalistes, de 2,000 à 4,000fr.		57,000	
,, de 5 gardes des galeries, de 3,500fr. à 4,000fr.		11,500	
,, d'un jardinier-en-chef		4,000	
,, de 21 préparateurs, de 1,500 à 2,500fr.		42,800	
,, de 20 employés, controleur, chef d'atelier, jardiniers, inspecteurs, de 750 à 3,000fr.		38,400	
Gages des gens de service		31,680	
			323,380
Indemnités aux voyageurs naturalistes			25,000
	Matériel.		
Galeries, laboratoires, cours, etc.		83,700	
Jardin et serres		65,100	
Ménagerie		75,000	
Ateliers et entretien		32,800	
Chauffage, éclairage, et frais divers		30,500	
Bibliothèque, frais de bureau, et de service intérieur		42,700	
			329,800
			fr. 678,180