

ANNUAL REPORT

OF THE

TRUSTEES

OF THE

MUSEUM OF COMPARATIVE ZOÖLOGY,

TOGETHER WITH

THE REPORT OF THE DIRECTOR,

1863.

BOSTON:

WRIGHT & POTTER, STATE PRINTERS,

NO. 4 SPRING LANE.

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Commonwealth of Massachusetts.

BOSTON, January 27th, 1864.

To the Honorable the Senate and the House of Representatives :

The Trustees of the Museum of Comparative Zoölogy, on the 28th day of October last, passed this vote :

“ *Voted*, That the Secretary communicate to the legislature the Annual Report of Professor Agassiz, with a statement of the proceedings of this Board, for the year past.”

On the 18th day of April, 1863, a Resolve was passed by the legislature, giving to the Trustees of the Museum the sum of ten thousand dollars, to be applied to the preparation and publication of catalogues, under their direction.

This Board has appropriated one-fourth part of this grant in accordance with its terms, and the balance has been placed on interest, and will be applied in like manner as the work is advanced.

There has been received from the sales of the Back Bay lands, since the last Annual Report, the sum of sixty-seven thousand one hundred and thirty-five and thirty-three one hundredths dollars.

From the report of the Committee on the Museum, I make some extracts in regard to the progress and present condition of the Museum.

“ The collections in the Museum have, since the last Annual Report, greatly increased, chiefly by a well-organized, economical system of exchanges, which is going into more thorough operation every month. Any one who went with care through the institution a year ago, and compares its condition then with its condition now, will not fail to observe

how much it has grown in the interval, not only by the crowded state of the shelves and cases in the halls open to the public, but by the encumbered state of the laboratories, where many hundred boxes full of specimens, already examined, arranged and labelled, are waiting for space in which properly to display them as means of instruction, while as many more specimens preserved in alcohol are packed away in barrels, carefully arranged and labelled, put in the cellar instead of being exhibited in transparent jars as they would be, if there were room in which to do it. The Committee, however, are happy to believe that all these important collections are at least safe both from loss by fire, to which they were long exposed, and from any injury by decay against which skill and forecast can protect them.

“Equally obvious with the increase of the specimens in the Museum is the proof that a great amount of work has been done during the past year, so as to bring them into exact order, and render them instructive to all who are interested in natural science, or wish to make a study of it. For this purpose, the greater part of the duplicates have been separated from the specimens reserved for teaching;—those that are to be permanently retained have all been identified as to their character and origin, and are marked accordingly;—each specimen of the whole vast number has been so far cared for that it can immediately be found, whether wanted for the purposes of study or for exchange,—and in every division active work is going on for the final catalogue, some portions of which, by means of the liberal appropriations of the Commonwealth, are in course of publication;—many hundred wood-cuts having been finished with their explanations, and many hundreds more being now in the hands of artists. It may reasonably be hoped, therefore, that without any delay, except such as may arise from the nature of the work itself, the contents of the Museum may soon be made interesting and useful to many persons in the State who cannot visit it; while at the same time such a catalogue will do honor to the institution among scientific men everywhere, and gain accessions to its collections, both by the contributions of the friends of progress in knowledge, and by more and more valuable exchanges from the museums of other countries.

“But besides the great increase of the collections of the Museum, and the important progress made in the catalogue, which are to render these collections accessible and instructive, the institution itself has during the past year been more active than it ever was before as a place of direct, effective teaching. For not only have the usual courses of lectures to undergraduates, to graduates and to school teachers, been continued with their accustomed good results; but courses of lectures open to all, whether connected with the university or not, and delivered by persons not always among its regular officers or instructors, have been

established under academic authority, and begun with excellent promise of success;—three of these courses having been appropriately delivered in the Museum, namely, one by Professor Agassiz, on the natural history of the Cretaceous Period; one by Mr. Samuel Hubbard Scudder, on Entomology; and one by Mr. Alexander Agassiz, upon the Embryology of the Echinoderms,—all depending for their illustrations and success upon the resources to be found in the collections of the Museum. It is believed that this institution could not have effected more during the past year for the progress of sound, exact knowledge in the Commonwealth, than by thus entering earnestly as it has done into this liberal system for teaching all who wish to learn, without injuring what has been their previous training, or what is their present position in society from their intellectual culture.”

The Fifth Annual Report of the Director, which is annexed, marked [A.], gives a statement in detail of the operations at the Museum during the year.

The annexed paper marked [B.], has a list of the names of trustees, officers and standing committees, for the year 1864.

On behalf and in the name of the Trustees,

WM. GRAY, *Secretary.*

[A.]

FIFTH ANNUAL REPORT

Of the Director of the Museum of Comparative Zoölogy, by
LOUIS AGASSIZ.

Before I proceed to give a special account of the operations of the Museum during the past year, permit me to submit to you the plan I adopted for the instruction regularly given in the establishment to the special students of the Lawrence Scientific School in the department of Zoölogy, and to other persons admitted to the lectures delivered in the regular course of our University programme. With reference to the latter, I have nothing particular to add beyond what has already been noticed in former Reports. As usual these lectures have been attended by a large number of public teachers, besides the regular students of the College and of the Scientific School. But during the past year, with the introduction of the system of University courses of lectures, the Museum has received a new accession to its means of usefulness. Mr. Scudder has delivered a special course upon Entomology in the lecture room of the Museum, Mr. A. Agassiz one upon the Embryology of Echinoderms, and I one upon the Natural History of the Cretaceous epoch. I may also mention that on two occasions large delegations of the public teachers from Rhode Island and New Hampshire, numbering upwards of four hundred individuals, have visited the Museum, spending the day in its examination under my guidance and that of the assistants of the establishment. Thus the importance of this kind of instruction is gradually better appreciated in a wider circle; and a knowledge of what is practicable in this direction will, I hope, contribute to disseminating a love for the study of nature, and lead to the introduction of that branch of instruction in those schools and colleges where it is still neglected.

The instruction which is given at the Museum to the special students of the Zoölogical department of the Lawrence Scientific

School, forms such an important part in the active operations of our institution, that I think it proper to devote this year a part of my Report to the consideration of this subject. You know that it is one of the most praiseworthy features of our organization that while the Museum, as a great exhibition of the products of nature in the animal kingdom is entirely disconnected from the University, the educational interests of the establishment are entirely left to the wise direction of the President and Fellows of the College. Thus the University is relieved of a trust involving great responsibility, without losing any of the educational advantages of the institution, and the public enjoys the unlimited access to it, secured by the powers of this board.

The object of the special instruction given at the Museum is mainly to educate professional naturalists. This being the case, the primary consideration in their education should be to teach them how to observe. The progress of our science is too rapid to allow the use of text-books to any advantage. Most of them, even the best, are already antiquated by the time they leave the press. A student of nature should, therefore, be at once trained in the difficult art of reading for himself in the great book of nature. To this end specimens are from the beginning placed in the hands of the students instead of books, and during the first weeks I watch their ways of dealing with these objects, without assisting them, until I have ascertained, in a measure, what are their ability of seeing for themselves, and their aptitude for this kind of studies. To prevent imitation among the new comers, I give each different objects. If they have already paid some attention to the study of natural history, I make them work up some description, or prepare some specimen. If I notice a special aptitude in them or indications of sufficient devotion to their studies to enable them to overcome the difficulties inherent to the work of the naturalist, I at once set them to work out a special problem in connection with specimens. I have satisfied myself long ago, that the general and most elementary principles of our science are better understood when illustrated from nature, than when explained in a mere abstract manner. In this way, each student is, as it were, led to go for himself over the road through which science itself has passed in its onward progress, and far from protracting his

course, he soon finds that he is brought without preamble into the very sanctuary of science, and he may from time to time be astonished to find that he has been prosecuting an investigation the solution of which may not yet have been reached by professional naturalists themselves. This is particularly the case with the examination of American animals of the lower classes, a large number of which have not yet even received names. While the young naturalists are thus tracing facts for themselves, and trying to understand them, I watch carefully their course, bringing them back to the right path if they are imperceptibly led from it, warning them from the many mistakes they may make, pointing out the objects they should steadily keep in view, and in this way I generally succeed in making tolerable observers of them in the course of one or two years. From this time forward they are advised to select a special branch of natural history, to make it their speciality, the field being too wide for any man to attempt to master the whole. This course leads to a rapid advance in one direction; but I contrive to remedy what might easily become one-sidedness by advising them to pursue as collateral study some other investigation in a different class, and faithfully to attend the lectures in which general instruction is given upon natural history as a whole, and its separate branches in particular.

I take special care to have them attend courses of lectures upon other branches of science delivered in the University, and to cultivate at the same time some literary, historical and philosophical studies. I am more constantly made to feel the importance of pressing these collateral studies, owing to the very circumstance that with the method thus described the students make generally such rapid progress as to mislead them to the belief that they know much more than they really do know. After a few years' study they are generally as far advanced in one special department of Zoölogy as the most eminent naturalists, and they easily forget how much they do not know, and still more do they overlook to what circumstance they owe their rapid advancement. In the beginning they are never made to feel the constant guidance under which they have been kept, in order not to discourage them. Their familiarity with the special objects of their study naturally leads them to comparisons with the knowledge recorded in the special published works

which they are now advised to read, in order to study the history of their science. They frequently may find the masters of our science at fault, and think themselves more learned than men who have stood at the head of their respective departments. The conceit of the most successful ones is often exalted by the admiration paid to them by their fellow-students. There is thus an unavoidable disposition to over-confidence and presumption fostered among them by their very success. And now begins for me the most difficult part of my task, which is also the most difficult stage of the final scientific emancipation of the students, when they are to be made to understand to what extent they have been working with borrowed means, which honesty requires they should pay back. The difficulty is the greater on account of the fact that the intellectual capital to be restituted belongs to him whose duty it is now to claim it back himself, and at the same time make the student understand that it is for his own good that he must settle his intellectual accounts. The subtlety of all intellectual property is no doubt a source of great perplexity in any attempt at the most impartial appreciation. I may add, however, that I have made my students participants of all my investigations to an extent which I have never found any other teacher to allow them. I know that this course has its dangers, and I have already experienced it on several occasions. Some of my colleagues have perceived it and warned me. One of them, many years ago, told me that he thought me imprudent in thus laying before my pupils every thing I was doing, and speaking freely before them of my scientific plans and aims. But I have only one object in life, which is the advancement of science, and I shall not change my course for the sake of self-protection merely. Through all I have done in science, since I first begun to publish my investigations, there runs a connecting train of thought, which nobody can appropriate to himself.

During the past years a large amount of contributions have been received from every quarter of the globe, thanks to the liberality of our merchants and the continued interest shown to the Museum by the people at large. These contributions consist, as in former years, of every kind of object attracting the attention or exciting the curiosity of the donors. Unfortunately a great deal of what is thus indiscriminately gathered at

random has less value than collections made systematically. I have therefore drawn up short instructions for collectors, which I have caused to be printed and circulated very extensively; and I have no doubt the result will be felt in the course of the present year in the improved condition of the specimens received. The Superintendent of the U. S. Coast Survey, Dr. A. D. Bache, is conferring a permanent benefit upon the Museum, by directing the light-house keepers, stationed in favorable localities, to devote their leisure to the picking up of specimens in conformity with the instructions sent to them. Among these directions is a request to pay particular attention to young animals, as the study of the young has been thus far too much, if not altogether neglected. During the present year the collection of young animals has been very largely increased, chiefly through the exertions of the gentlemen directly connected with the Museum; but in proportion as the importance of such collections begins to be more extensively understood, we may look for additions of this kind from other parts of the world. The scientific returns for these efforts are near at hand, as improvements in the classification of adult animals are daily suggested in consequence of comparisons with young of other families. I have myself been richly rewarded for my attention to this subject, by the discovery, at once verified in the principal families of the class, that fishes undergo as varied and as extensive metamorphoses, after hatching from the egg, as the Batrachians do. The types in which these facts have been ascertained are the Lophioids, the Labroids, the Cyprinodonts, the Atherinoids, the Cottoids, the Blennioids, the Percoids, the Cyprinoids, the Siluroids, the Esocids, &c.

Another interesting result incidentally arrived at, during these investigations, was the possibility of determining at once, under certain circumstances, the age of slow-growing animals which could not otherwise be ascertained.

Every-body is forcibly impressed with the longevity of the trees of our forest, when he sees how little the oak, or the maple, or the elm in his father's garden has been enlarged since his childhood. But when we see chickens growing to their full size in a few months and our largest animals attain their imposing dimensions in a few years, the impression must naturally be general, that animals rapidly complete their growth, to

continue stationary afterwards for an indefinite period of time. But this is not the case with a very large number of them, the growth of which is slow and long continued, and I have succeeded in devising a very simple method of ascertaining their age at once, provided it be known that they breed at a fixed period in the year. This being known, all that is necessary to determine the age of any individual of the species, is to gather a very large number of specimens of every size, from the smallest to the largest, and to arrange them in sets, according to their size. As all were born at the same season, the difference of size between the smallest and those of the next set is of course one year, and so on for every set. So the ordinal number of every set gives the age of all the specimens belonging to it. The large collections of specimens of our common species of marine animals, amounting frequently to many thousand specimens of the same species, have been gathered for this purpose. I have thus ascertained that the medium size of an adult *Natica Heros* is reached in about thirty years; that of most of our *Unio* and *Anodontas* reach their full size in from twelve to fifteen years; that our common *Pinna* is full grown in six or seven years, &c. Once upon this track, it will be easy to ascertain the rate of growth of most animals. I may already mention that specimens of our common Starfish of ordinary size are at least ten or eleven years old; while our largest Jellyfish, measuring over six feet in diameter, attain their full size in a few months.

These collections of numerous specimens of the same species have led to another unexpected result, which may be expressed in these words: The differences noticed among animals of the same species do not constitute varieties, but are individual differences, similar to those which may be noticed among the different individuals of the same family among ourselves. Any attempt to group them under a few heads as varieties fails, as soon as large numbers of specimens are considered. What have been generally described as varieties by naturalists are extreme individual differences occurring more frequently in certain species than in others, but like all others presenting the same indefinite peculiarities which forbid considering them as in any way typical. This shows that individuality consti-

tutes the most prominent feature of the organic kingdom, and is by no means confined to the human family.

Among the most valuable additions to the collections, I may mention the new series of microscopic sections made by Mr. Glen during the past year; as those prepared by him in former years they are unsurpassed for minuteness and exquisite finish. Of late he has been chiefly engaged in making sections of the shells of Gasteropods, no longer mainly with a view to ascertaining the mode of growth of shells in general, but rather to trace the generic differences which characterize the more recent subdivisions introduced in the classification of shells by the latest writers upon the subject. I may already state that unexpected generic characters have thus been found even among the seemingly most similar genera of terrestrial Gasteropods.

The collection of ethnographical illustrations, begun by the efforts of Mr. Theodore Lyman, a few years ago, has been largely increased by his own liberality during the past year. He has lately presented a large series of casts, one hundred in number, representing the face of the principal tribes of men inhabiting the East Indies, obtained from the originals secured by the brothers Schlagintweit, during their memorable exploration of that region. To these were added, also by Mr. Lyman, several hundred photograph portraits of men of all the different races of the human family, individuals of which could be found in the various embassies to the European Courts and elsewhere. I had expected great help from him on his return; but his devotion to the country has outweighed his love for science. I can hardly grudge the services of any man to his country in a time like this, and yet I feel that the Museum has lost its most active friend. Mr. T. G. Cary has also contributed his share to this collection in the shape of photographs of the miscellaneous population of California.

Notwithstanding the large amount of duplicates for years accumulated in the Museum, it has been very difficult for me to bring about the system of exchanges which is now carried on. In some quarters, whence original specimens would have been particularly desirable, I found an inability to relinquish any thing from want of duplicates; in other quarters pretensions were raised to which I would not agree. But these were not the most forbidding difficulties I had to meet. Our own stock

of duplicates, large as it is, consists chiefly of undigested materials, frequently even of undescribed species; and it was desirable that whatever was sent forth from our establishment should have a special scientific value, and be particularly acceptable to other establishments; nay, if possible, so desirable for them that they should be induced to make continued effort to keep up the intercourse. To attain this end I directed all the assistants in charge of special departments to pay particular attention to the identification of the specimens to be exchanged, and to label them in such a way that no mistake could occur. In cases where it appeared especially important, I had even the labels signed, in testimony of the trustworthiness of the identification. And to add to the authenticity of all these precautions, I caused a bulletin to be printed, in which the species so identified should be enumerated, and the new ones so far characterized as to prevent confusion for the future. I submit the first parts of this bulletin, which embrace the Fishes, Echinoderms and Corals, selected from the duplicates for distribution by Mr. F. W. Putnam, A. Agassiz, and A. E. Verrill. Without expressing an opinion upon the merits of this scheme, I may be permitted to add, that I would gladly accept a large reduction in the amount of returns made to us, if I could induce the owners of original specimens to send to our Museum specimens identified with the same care as ours are. From the Jardin des Plantes in Paris I met with the most friendly response to my proposition for exchanges of original specimens, and I have already received several invoices from Professors Milne-Edwards and Valenciennes. The same good-will and readiness have also been shown by the directors of the museums in Montpellier, Stuttgart, Darmstadt, Copenhagen, and Vienna. Other arrangements are now pending, or in progress of execution with the museums of Leyden, Strasburg, and others.

Exchanges with private individuals are also carried on very extensively, as the special Reports concerning the different departments of the Museum will show.

Among the collections received and acknowledged in the special Reports herewith submitted, there are some which deserve a special mention; such are the invoices of Rev. J. C. Fletcher, Mr. Bourget, Dr. Brunet, Dr. Wucherer, Mr. A. de

Lacerda, from Brazil, the collections made at San Francisco by Mr. T. G. Cary, those of Mr. D. B. Van Brunt, of Acapulco, of Mr. C. F. Davis and Dr. Sternberg, of Panama, of Capt. W. H. A. Putnam, in Chili, of Mr. Gulich, in Japan. Dr. W. Stimpson, Mr. J. G. Rich, the Aquarial Gardens, Mr. G. A. Boardman, A. E. Verrill, Mr. J. A. Allen, and Capt. N. E. Atwood have contributed valuable collections. Mr. H. A. Pierce has presented to the Museum the collections made in Russian Asia by Mr. A. A. Smith. Major J. G. Shute and A. S. Bickmore have presented their collections made in North Carolina. Capt. Anderson, of the Cunard service, has continued to assist in facilitating the exchanges between the Free Public Museum of Liverpool and our Museum.

The Smithsonian Institution has forwarded to the Museum extensive collections. In the way of exchanges, valuable invoices have been received from the Jardin des Plantes, from Professors Milne-Edwards and Valenciennes, Professor Kaup, Professor Krauss, Professor Jan, from the Marquis de Folin, Professor Poey, Señor de Elizalde, Mr. Parreys, and Mr. R. Howell, of Nichols, N. Y. Special thanks are due to many gentlemen who have forwarded many of these packages free of charges for the Museum, more particularly to Mr. James M. Barnard, to the agents of the Panama Railroad Company, of the Pacific Mail Steamship Company, and of Messrs. Wells, Fargo & Co.

There have been received in all during the past year two hundred and fifty boxes and packages from one hundred and sixty different persons.

It is my pleasant duty to remember, in this connection, the grant of \$10,000 by the legislature for the publication of an illustrative catalogue, and to state also that the Gray Fund has been partially applied to paying an instalment of the collection of Dr. Konnink, and partly to defraying the expenses incident to the reception and preservation of the specimens received during the year.

For many years past I have caused diagrams to be drawn to illustrate more fully those specimens in the Museum, the characteristics of which are not easily preserved in the usual mode of exhibiting objects of natural history. Many animals are so very small, that unless they are magnified, their peculiar-

ities are not readily perceived ; others contract so much when preserved in alcohol, or lose their natural form and color to such an extent, that they appear like shapeless masses in the jars in which they are put up ; still others are so delicate in their structure that they can hardly be preserved at all. It appeared nevertheless desirable that all these objects should be exhibited to the eye of the student as fully as the largest animals which from their very nature may easily be preserved either whole or in parts. The simplest way to attain this end was to have enlarged drawings made of all these objects, either from living specimens or copied from works not readily accessible to the students of natural history, in which satisfactory illustrations may have been published. Many hundreds of these diagrams have already been made by my friend Mr. Bourkhardt, some of which are now on exhibition in the Museum, and in a few weeks every available space in our public rooms will be occupied by those which thus far have remained in portfolios. This will greatly add to the interest of our collections and form a novel feature in the Museum, which I have no doubt will soon be imitated by others.

Thus far I have limited myself, in the preparation of these illustrations, to the least known species of animals and to the representation of their intimate microscopic structure and their mode of growth ; but of late, I have turned my attention also to such illustrations as may contribute to give correct ideas of the character of the local fauna of the present period as well as of past geological ages. To this end I have collected the best views of the characteristic vegetation of different regions, either published in works of travel, or which I could obtain in photographs from friends residing in distant lands.

The amount of work done in the Museum, during the past year, has been very great. It consisted chiefly in the separation of the duplicates from the specimens to be retained for the collection, and in identifying and systematically arranging those retained. The special Reports here annexed, prepared by those who have been intrusted with the care of distinct portions of the collection, will give a more complete idea of what has been done, and of what remains to be done, than is necessary to notice in this General Report. I may, however, be permitted to say that the arrangement of the Radiates is almost complete,

and that it will be possible hereafter to devote a larger part of our working force to other departments, which thus far have received an inadequate share of attention. The Mammalia and Birds need especially to be cared for, and great additions to these classes will be required before they are brought to the same footing as the lower classes. The Insects also demand greater attention, not so much to increase the number of specimens, as to identify and systematically arrange the materials already stored up in our magazines. The Mollusks are now rapidly arranging. It has been my good fortune to secure the co-operation of Mr. J. G. Anthony, who has been for nearly forty years one of the leading conchologists of America, and his zeal and activity, as well as exquisite neatness in putting up specimens, will soon change the whole aspect of that department of the Museum. I take this opportunity to bear also witness to the devotion of the other gentlemen engaged upon the work of the Museum. Prof. Marcou has been chiefly engaged with the library and the arrangement of the fossils. Mr. Scudder, after a protracted absence, is about resuming his work upon Insects, in which Mr. Packard is now taking a regular part. Dr. Stimpson has arranged a part of the Crustacea. Mr. Verrill has completed the arrangement and identification of the living Polyps, and is now proceeding to the fossils. Mr. A. Agassiz has also completed the arrangement of the Echinoids and will now proceed to the Asterioids and other Echinoderms. The task assigned to Mr. Putnam is almost hopeless. Our collection of fishes is now so extensive that it would require the attention of several assistants to be completed in a reasonable time. What Mr. Putnam has done thus far, to put it in order, is all that I could have expected. It gives me special pleasure to state that both Mr. Hyatt and Mr. Bickmore, after serving for nine months in the army, have now returned to their study in the Museum, where Mr. Hyatt has resumed his monographic investigation of the Cephalopods, and Mr. Bickmore is arranging the very fine collections he had an opportunity of making upon the coast of North Carolina while detached upon special hospital duty near the sea shore. We owe special thanks to Colonel Francis Lee, for the facilities afforded on that occasion to Mr. Bickmore. It is my painful duty to add that Mr. Craigin, who had also entered the service,

has lately died of fever in one of our military hospitals. He was a young man of excellent moral character and good abilities, promising to do full justice to the liberality to which he had been indebted for a situation at the Museum. Mr. Hartt has been successfully working at the fossil Brachiopods, and is about to resume his studies of those remaining, after a protracted absence. I regret that Mr. Shaler, who also left the Museum for the army, has not yet returned; but I hope to see him back next spring. Ill health has also taken away Mr. Allen from his field of labors. I regret it the more since he had made excellent progress in Ornithology and promised to become a valuable assistant in the arrangement of the specimens of birds. He has left unfinished a very interesting investigation upon the structure and arrangement of the feathers of birds. Mr. Niles is now progressing rapidly with the systematic and faunal arrangement of the Crinoids, and Mr. Horace Mann with that of the tertiary shells. Mr. Guggenheim continues to be occupied with the preparation of the skeletons, a large number of which have been added in this way to the collection during the past year.

The scientific value of all this work consists not only in the accuracy of the identification of the specimens, and the careful labelling of those selected for exhibition, but more particularly in the separation of the systematic and faunal collections. As I have already noticed on another occasion, I propose to make the work now going on in the Museum subservient to a thorough revision of the faunal distribution of the whole animal kingdom. As far as the Echinoids are concerned, this survey is already complete, and much has been done, besides, to determine the faunal limits of the Corals, the Fishes, and some families of Insects, Crustacea and Mollusks.

The liberality of the legislature in granting \$10,000 for the publication of an Illustrated Catalogue of the Museum, will enable us to lay the results of these investigations before the scientific world in an appropriate form, and thus extend the usefulness of our institution beyond the limits of those who have immediate access to its overcrowded rooms. It gives me particular pleasure to state that the first part of this Catalogue is already in the press, and I now submit to you proofs of some of the plates and woodcuts already finished. I hope to have

the first volume ready for distribution in the course of the coming winter.

Notwithstanding the activity infused in every department of the Museum, and the satisfactory condition of the institution as a whole, I trust I shall be permitted to add that the regular resources at our command are now utterly inadequate to carry on its regular operations. Had my task from the beginning been restricted to the putting up of a Museum that should answer the wants of the University within the limits of our present means, I might be blamed for extending its sphere of action; but I understood the object of this organization to be the founding of a great Museum, and I am happy to be able to say that the general frame of such a Museum is not only fairly laid out, but already so far advanced in some of its most important features as to challenge competition. And all that is now wanting to bring every department to the same degree of perfection, is an addition to our regular income, and a well-digested system of regulations, concerning the work to be done in the Museum and the use of its treasures for scientific purposes.

Report on the Collection of Mammalia, by A. E. VERRILL.

During the present year the work necessary for putting the collection into a condition of perfect safety, and arranging the specimens so that they may be always available for scientific study, has been continued until it is now so far completed as the limited space, allotted to this department in the cellar, will allow. The alcoholic specimens have all been numbered and a careful catalogue made of the species, with their localities and origin. The specimens remain stored in barrels and kegs, but are arranged according to their families and genera, so that they are readily accessible for examination. The embryos have been catalogued and arranged in jars by Professor H. J. Clark. Most of the Bats (309 specimens) have been sent to Dr. H. Allen, who is preparing a monograph of those found in North America, for the Smithsonian Institution. The Shrews (*Soricidæ*, 54 specimens,) and *Spermophili* (8 specimens) have been sent to Prof. S. F. Baird, who is engaged in the study of these

groups, and the *Weasels* (*Putorius*, 20 specimens,) have been forwarded to Mr. R. Kennicott, for monographic work.

To the collection of mounted specimens, now arranged in the exhibition rooms of the Museum, valuable additions have been made. Among these may be mentioned a series of the wild animals of Maine, collected by Mr. J. G. Rich, and mounted from the fresh specimens by Mr. S. R. Jillson. Fine specimens of the Beaver, Otter, Fisher, and Caribou, are included among these. Another collection, embracing some of the most interesting animals of Europe, has been received from Dr. Kaup.

To the collection of skeletons, considerable additions have been made, chiefly those prepared at the Museum, by Mr. Guggenheim, from fresh specimens. A very valuable skull of a young Sperm Whale has been presented by G. HOWLAND, Jr., H. TABER, and TABER & Co., of New Bedford.

The whole number of additions to the collection, during the year is 53 lots, including 206 specimens, and 117 species. One of the most interesting and valuable collections received, consists of a number of embryos of the Moose, Caribou, and Red Deer, collected in northern Maine by Mr. Rich, and an embryo of the Balænoptera, presented by Mr. Lyman.

The following is a list of the additions received from all sources:—

Donations.

AGASSIZ, Prof. L. 2 Arvicolæ in alcohol, from Yarmouth, Mass.

ALLEN, J. A., Student in the Zoölogical Department of the Scientific School, 4 Mammals, 3 species, in alcohol, from Springfield, Mass.

AQUARIAL GARDENS, Boston, Mass. 5 Mammals, 5 species, in alcohol, from various localities.

BICKMORE, A. S., Student in the Zoölogical Department of the Scientific School, 3 Mammals, 3 species, in alcohol, from Beaufort, N. C.

BOARDMAN, GEO. A., Milltown, Me. 2 skins, 1 species, from Calais, Maine.

BOURGET, D., Rio Janeiro, Brazil. 8 Mammals, 6 species, in alcohol, including an embryo of Armadillo, and a skin of Ant-Eater, from Brazil.

DALL, W. H., Medford, Mass. 1 Bat in alcohol, from Japan.

DECKEN, Baron von der. 1 skin from Madagascar.

ELA, G. W., Concord, N. H. 1 Condylura, fresh.

FITCH, Miss CAROLINE M., Bedford, Mass. 1 Bat, in alcohol, from Westchester Co., N. Y.; 1 young Arctomys, in alcohol, from Bedford.

FLETCHER, Rev. J. C. 3 Mammals, 3 species, in alcohol, from Monaos, Brazil.

GREEN, S. A., M. D., U. S. A. 2 Mammals, 2 species in alcohol, Seabrook Island, S. C.

HARTT, C. F., Student in the Zoölogical Department of the Scientific School, 2 young of *Fiber zibethicus*, in alcohol, from Cambridge.

Messrs. HOWLAND, G. J., H. TABER and TABER & Co., New Bedford, Mass. Skull of Whale, taken off the coast of New Jersey.

HITCH, H. F., of the firm, Swift & Co., New York. 1 living Armadillo, from South America; 1 Armadillo in alcohol, from Brazil.

LACERDA, DON ANTONIO DE. 1 Monkey, in alcohol, from Bahia, Brazil.

LYMAN, THEODORE, Assistant at the Museum. 1 embryo of *Balænoptera*, from Bergen, Norway, collected by Mr. Hoeg.

NILES, W. H., Student in the Zoölogical Department of the Lawrence Scientific School. 1 Shrew, in alcohol, from Worthington, Mass.; 14 embryos, in alcohol, from Cambridge.

PUTNAM, Capt. W. H. A., Salem, Mass. 1 living Fox, from Caldera, Chili.

PUTNAM, F. W., Student in the Zoölogical Department of the Lawrence Scientific School. 27 Mammals, 4 species, in alcohol, Bridport, Vt.

ROCKWOOD, D. T., Bridport, Vt. 1 skull of Calf, five weeks old.

ROCKWOOD, Capt. E., Bridport, Vt. 2 skulls of Sheep.

SCUDDER, Mrs. D. C. 2 skins from Magera, East Indies.

SCUDDER, S. H., Graduate of the Zoölogical Department of the Lawrence Scientific School. 1 *Leucopus*, from Mt. Washington, N. H.

SWASEY, CHAS. E., Sandwich, Mass. 1 Opossum, fresh, from Sandwich.

UNKNOWN DONORS. 1 *Cynocephalus*, fresh, from Africa; 1 *Condylura*, from Cambridge.

VERRILL, A. E., Graduate of the Scientific School. 2 Mammals, 2 species, in alcohol, from Eastport, Me.

WHEELER, S., Berlin, Mass. 1 *Hesperomys*, fresh, from Berlin.

By Exchange.

HAMLIN, Prof. CHAS. E., Waterville, Me. 8 Mammals, 3 species, in alcohol, from Waterville.

KAUP, Dr., Darmstadt. 6 Mammals, 5 species, mounted, from Europe.

SHUTE, J. G., Woburn, Mass. 7 Mammals, 3 species, in alcohol, including embryos of Opossum, from Newbern, N. C.

SLACK, J. H., M. D. 1 Cast of Fossil Skull, from New Jersey.

TENNEY, S., Cambridge, Mass. 1 Condylura, in alcohol, from Cambridge.

Secured with the Gray Fund.

COOKE, C., Student in the Zoölogical Department of the Scientific School. 5 Mammals, 4 species, in alcohol; 8 Mammals, 5 species, in alcohol, including two Antilocarpa Ruetea; 5 Mammals, 4 species, in alcohol; 1 skull of Camel; 4 skins, 3 species; 2 skeletons, 2 species, from Zanzibar.

GRIFFIN, W. H., Somerville, Mass. 3 Mammals, 2 species, in alcohol, from Somerville.

GULICH, J. T., Kanagawa, Japan. 4 Mammals, 3 species, in alcohol, from Japan.

RICH, J. G., Upton, Me. 4 Mammals, 4 species, fresh, including Otter and Sable; 15 Mammals, 5 species, in alcohol; 1 Otter and 1 Beaver, fresh; 1 Wolf, fresh; 1 Beaver, 1 Fisher, and 1 Sable, fresh; 6 carcasses for skeletons, 4 species; 4 Caribou, fresh; 2 young Bears, fresh; 7 Mammals, 5 species, including embryos of Caribou, Moose and Deer, in alcohol; 1 Canada Lynx, with 3 embryos, fresh; 6 skins of Muskrats (Fiber), prepared for exchange, all from northern Maine.

SEARS, Mr., Boston, Mass. 1 Chimpanzee, fresh, from Africa.

Report on the Collection of Birds, by A. E. VERRILL.

The work of numbering, cataloguing, and arranging the specimens in this department, commenced before the last report, has been continued by Mr. J. A. ALLEN and myself, until it is now nearly completed, so far as the alcoholic collections received during previous years are concerned. Much labor of this kind remains still to be done, however, before the collection can be put into as perfect order as is desirable, even for scientific use. In addition to the regular serial catalogue, Mr. ALLEN has commenced to make catalogues of the specimens belonging to each family, in order to remedy in some measure the inconvenience of the present method of packing them away in large kegs and barrels, made necessary by the crowded condition of the Museum. Mr. ALLEN has also made a large num-

ber of preparations illustrating the arrangement and structure of the feathers in different families. It is to be hoped that his health will soon permit him to resume these studies. Prof. H. J. CLARK has rearranged the collection of embryos, and made a number of preparations. A part of a collection of about 200 specimens, sent to Mons. AUGUSTE VOUGA to be mounted, has been returned in good order. Mr. S. R. JILLSON has also mounted quite a number of specimens. A collection of Laridæ in alcohol has been sent to ELLIOTT COUES, M. D., for study, while preparing a monograph of the family.

There have been received during the year 1,676 specimens, representing 820 species, in 64 lots. Among the most interesting and valuable additions are a collection of skins from the East Indies, presented by J. M. BARNARD, Esq., a collection of mounted European birds from Dr. KAUP; a collection of skins from Brazil, from Mons. BOURLEMAQUE, Director of the Museum at Rio Janeiro; a large number of birds in alcohol, from Zanzibar, collected by Mr. C. COOKE; a very valuable lot from the Amoor river, presented by H. A. PIERCE, Esq.; a collection of skins collected in Arctic America by R. KENNICOTT, from the Smithsonian Institution; a large number of specimens in alcohol, from Springfield, Mass., embracing some species never before found in New England, presented by Mr. J. A. ALLEN, with careful measurements of many of them, made while fresh; eggs and birds in alcohol, from Beaufort, N. C., from Mr. A. S. BICKMORE; a collection in alcohol from Norway, Me., from Mr. S. I. SMITH; a large number from Waterville, Me., collected by Prof. CHAS. E. HAMLIN.

The following is a complete list of the invoices received during the year:—

Donations.

AGASSIZ, A. Assistant at the Museum, 9 eggs of *Tringoides*, in alcohol, from Nahant, Mass.

ALLEN, J. A. Student in the Zoölogical Department of the Scientific School, 3 birds, mounted, from Cambridge; 5 birds, 3 species, fresh, from Cambridge; 183 birds, 80 species, 50 eggs, 9 species, in alcohol, from Springfield, Mass.

AQUARIAL GARDENS, Boston, Mass. 1 Heron, in alcohol, from Massachusetts.

BARNARD, J. M., Boston. 6 skins of Pheasants, 4 species, from China; 144 birds, 74 species, skins, from Malacca.

BICKMORE, A. S. Student in the Zoölogical Department of the Scientific School, 69 birds, 34 species; 184 eggs, 9 species, in alcohol; 6 bird skins, 6 species; 6 nests with eggs, 4 species, from Beaufort, N. C.

BOARDMAN, G. A., Milltown, Me. 8 birds, 4 species, in alcohol; 22 eggs, 7 species, dry, from Calais, Me., and vicinity; 2 skins, 2 species, (Curassow) from Brazil; 13 birds, 8 species, in alcohol, from New Brunswick.

BOURGET, D., Rio Janeiro. 54 skins, 51 species.

BOURLEMAQUE. 4 birds, 2 species, and 12 eggs, 5 species, in alcohol, from Brazil.

DALL, W. H., Medford, Mass. 13 specimens, 4 species, in alcohol, from Medford.

DECKEN, BARON VON DER. 5 skins, 5 species, mostly from Madagascar.

EAMES, W. H., Cambridge, Mass. 4 birds, 2 species, fresh from Cambridge.

EDMANDS, Miss A. M., Cambridge, Mass. 1 bird, fresh, from Cambridge.

FITCH, Miss CAROLINE M., Bedford, Mass. 1 Owl, fresh; 1 Wood Duck (*Aix sponsa*) fresh, from Bedford.

FLETCHER, Rev. J. C. 1 bird, in alcohol, and a remarkable nest, from Bahia, Brazil; 1 Parrot, in alcohol, from Monaos, and 1 Boat Bill (*Cancroma*) in alcohol, from Obidos, Brazil; 1 Secretary Vulture, in alcohol, from Cometa, Brazil.

HALL, W. F., South Boston. 10 birds' eggs, 5 species, dry, from various localities.

JILLSON, S. R., Feltonville, Mass. 9 specimens, 2 species, fresh, from Feltonville.

MANN, HORACE. Student in the Zoölogical Department of the Scientific School, 6 Crossbills, fresh, from Cambridge; 3 birds, 3 species, fresh, from Concord, Mass.

MARCUS, Dr., Villa Bella, Brazil. 1 bird, in alcohol, from Brazil.

MERRILL, Mrs. J. W., Cambridgeport, Mass. 1 Humming bird, in alcohol, from Cambridgeport.

OTIS, Dr. JENKS, U. S. N. 2 specimens, 2 species, skins, from West Indies.

PEIRCE, H. A., Boston, Mass. 22 birds, 13 species, in alcohol, from the Amoor river, collected by A. A. Smith.

PUTNAM, Capt. W. S., Salem, Mass. 9 birds, 7 species, in alcohol, from west coast of Africa.

PUTNAM, Capt. W. H. A., Salem. 1 Parrot, living, from Guyaquil, Peru.

PUTNAM, Mrs. W. H. A. 1 egg of Tinamus, from Caldera, Chili.

PUTNAM, F. W. Student in the Zoölogical Department of the Scientific School, 13 birds, 9 species, in alcohol, from Bridport, Vt.

ROCKWOOD, HENRY, New York. 1 bird, in alcohol, from Bridport, Vt.

SMITH, S. I., Norway Me. 2 birds, 1 species, fresh; 118 birds, 45 species, in alcohol, from Norway.

TREAT, U. S., Jr., Eastport, Me. 1 Podilymbus Podiceps, in alcohol, from Eastport.

TROUVELOT, L., East Medford, Mass. 6 birds' nests and eggs, dry, from Medford.

UNKNOWN DONORS. 2 Whip-poor-wills (antrostomous), fresh, from Cambridge.

VERRILL, A. E. Graduate of the Zoölogical Department of the Scientific School, 10 skins, 8 species, with measurements, from Norway, Me.; 11 birds, 7 species, fresh, from Cambridge; 3 birds, 3 species, in alcohol, from Norway, Me.

WHEELER, E. S., Berlin, Mass. 1 Heron, living, from Berlin.

By Exchange.

HAMBLIN, Prof. CHAS. E., Waterville, Me. 1 Colymbus torquatus, fresh; 75 birds, 34 species, in alcohol; 123 birds, 54 species, in alcohol, from Waterville.

KAUP, Dr., Darmstadt. 44 mounted birds, 29 species, from Europe.

LYCEUM OF NATURAL HISTORY, Williamstown, Mass. 80 eggs, 6 species, in alcohol, from Labrador.

NEWELL, K. B., Cambridge, Mass. 71 birds' eggs, fresh, with nests, 12 species, from Cambridge.

SMITHSONIAN INSTITUTION. 106 skins, 57 species, collected in Arctic America, by R. Kennicott.

TENNEY, Prof. S., Cambridge, Mass. 7 birds, 5 species, in alcohol, from Cambridge.

VOUGA, Mons. Le Capt., Neufchatel, Switzerland. 5 mounted birds, 5 species, from Neufchatel.

Secured with the Gray Fund.

ALLEN, J. A. Student in the Zoölogical Department of the Scientific School, 18 birds, 8 species, fresh, including a Snowy Owl, White-fronted Goose, and a remarkable specimen of domestic Turkey, which had run wild and reverted to its original appearance, taken in Pennsylvania; all bought in the Boston market.

COOKE, CALEB. Student in the Zoölogical Department of the Scientific School, 8 birds, 7 species, in alcohol; 52 birds, 18 species, in alcohol; 3 skeletons and 1 nest, from Zanzibar; 22 birds, 18 species, in alcohol, from Mozambique; 8 nests, 1 species, from Zanzibar.

GULICH, J. T., Kanagawa, Japan. 2 birds, 2 species, in alcohol; 5 skins, 5 species, from Japan.

RICH, J. T., Upton, Me. 1 Snowy Owl, fresh, from Upton.

STIMPSON, WM., M. D., Washington, D. C. 4 birds, 4 species, in alcohol, from Oban, Scotland.

During the year the following collections have been sent away in exchange:—

BOARDMAN, GEO. A., Milltown, Me. 35 eggs, 11 species, dry, miscellaneous.

NEWELL, K. B., Cambridge, Mass. 13 eggs, 13 species, dry, chiefly Natatores.

PARKER, B. G., Cambridge, Mass. 2 skins, 2 species, from Massachusetts.

Report on the Collection of Reptiles, by F. W. PUTNAM.

A full series of the Ophidians belonging to the Museum was sent last year to Professor Jan, of Milan, for comparison; these have been returned with Professor Jan's identification of the species; thus increasing very much the scientific value of our collection of Ophidians, as we have now, in respect to North American species, the identification of one of the leading Herpetologists of Europe, added to those of Professor Baird and Mr. Kennicott.

During the year, nineteen hundred and eighty-four specimens, representing one hundred and eighty-three species new to the collection, have been received from sixty-five donors. Several hundred specimens have been collected especially for exchange. A number of fossil reptiles have also been received, but from want of room still remain in their original packages.

The want of glass jars still obliges us to retain in the cellar most of the specimens of this department. The work done during the year amounts to but little more than attending to the preservation of specimens, cataloguing the additions, and taking care of the Ophidians returned by Professor Jan.

But little has been done in the way of exchanges, the only specimens sent out, being twelve, comprising ten species, to the Essex Institute, of Salem.

The most important collections received are the following :

From Brazil, by the Rev. Mr. FLETCHER, Doctors WUCHERER, COUTINHO, MARCUS and JEFFRYS, DON ANTONIO DE LACERDA and Mr. BOURGET, consisting of 80 species and 170 specimens.

From Zanzibar, Mozambique, and Madagascar, by Messrs. COOKE, SOARES and GOODHUE, and BARON VON DER DECKEN.

From Japan, by Mr. GULICK.

From North Carolina, by Messrs. SHUTE and BICKMORE.

List of the Additions to the Collections of Reptiles.

ANTHONY, J. G., assistant M. C. Z. Skeleton of Turtle from Natchez, Miss.

ATWOOD, Capt. N. E., Provincetown. Eggs of a Turtle, from Provincetown.

BARNARD, JAMES M., Boston. 2 specimens, 2 species, from Africa, new to the collection; 14 specimens, 9 species, from Hong Kong (?) —2 species new to the collection.

BICKMORE, A. S., student M. C. Z. 92 specimens, 11 species, from Beaufort, N. C.; 2 specimens, 1 species, from Shackelfort, N. C.; 1 specimen, 1 species, from Wind Hill Island, N. C.; 35 specimens, 4 species from Newbern, N. C.

BOURGET, D., Brazil. 24 specimens, 16 species, from Rio Janeiro, Brazil,—13 species new to the collection.

BRIDGHAM, Mrs. S. W., New York. 3 specimens, 2 species, from East Providence, R. I.

CARTER, S. R., Paris, Me. 50 eggs and 9 young of *Desmognathus fuscus*, from Paris, Me.,—eggs new to the collection.

COUTINHO, Dr., Brazil. 1 *Amphisbaena*, from Manaos, Brazil—new to the collection.

CUTTING, J. A., Boston Aquarial Gardens. 1 Python, from Africa; 1 Turtle, from West Indies.

DALL, W. H., Medford. 29 specimens, 9 species from Medford, Mass.; 16 specimens, 2 species, from Exeter, N. H.; 2 specimens, 1 species, from Illinois; 6 specimens, 4 species, from Nagasaki, Japan; new to the collection.

DEWEY, Prof. C., Rochester, N. Y. 3 *Menobanchus*, from Rochester, New York.

DEWITT, Capt. F., U. S. A. Young Turtle from Beaufort, N. C.

DECKEN, BARON VON DER, Zanzibar, Africa. Saurian, from Madagascar,—new to the collection.

EAMES, H. H., Cambridge, 20 specimens, 3 species, from Cambridge.

FILIPPI, Prof. Ph. De, Turin. 3 specimens, from the Alps; 2 specimens from near Caspian Sea.

FITCH, Miss, Bedford. Eggs of Turtle, from Bedford, Mass.

FLETCHER, Rev. J. C., Newburyport. 19 specimens, 4 species, from Monaos, Brazil,—new to the collection; 5 specimens, 4 species, from Rio Janeiro, Brazil,—3 species new to the collection; 13 specimens, 9 species, from Para, Brazil,—8 species new to the collection; 22 specimens, 10 species, from Villa Bella, Brazil,—new to the collection; 8 specimens, 5 species, from Obidos, Brazil,—new to the collection; 1 *Chelys Matamata* (young), from River Tunantins, Brazil,—new to the collection; 1 *Chelys Matamata* (young), from Upper Amazon, Brazil.

FOWLER, S. P., Danvers. 12 specimens of a supposed new species of *Bufo*, from Danvers,—new to the collection.

GREEN, Dr. S. A., U. S. A. 9 specimens, 4 species, from Seabrook Island, S. C.; 16 specimens, 12 species, from Hilton Head, S. C.

GULICK, J. T., Japan. 89 specimens, 13 species, from Kanagawa, Japan,—new to the collection; 9 specimens, 2 species, from San Francisco, Cal.

HAMLIN, Prof. C. E., Waterville College. 6 specimens, 3 species, from Waterville, Me.

HARTT, C. F., student M. C. Z. 150 specimens, 7 species, from Cambridge.

HEARD, A., Boston. 3 Turtles, from Hong Kong, China.

JAN, Prof. G., Milan. 4 *Rhinophis Tiedemanni* JAN, from Ceylon,—new to the collection; 1 *Pseudopus*, from Dalmatia,—new to the collection; 1 *Vipera*, from Lago de Coma, Italy.

JEFFRYS, Dr., Brazil. 33 specimens, 25 species, from Obidos, Brazil,—20 species new to the collection.

KAUP, Dr. J. J., Darmstadt. 3 specimens, 2 species, from Darmstadt, Germany.

KNIGHT, E. F., Boston, (for a lady in Florence.) Saurian, from Florence, Italy.

LACERDA, Don ANTONIO DE, Brazil. 2 specimens, 2 species, from Bahia, Brazil,—new to the collection.

LYMAN, T., assistant M. C. Z. 2 young Turtles, from Venice,—new to the collection.

MARCUS, Dr., Brazil. 7 specimens, 5 species, from Villa Bella, Brazil,—new to the collection.

MAYBURY, Dr. E. 1 Saurian from Australia,—new to the collection.

MERRILL, J. C., Cambridge. 1 *Hyla*, from Cambridge.

NEWELL, K. B., Cambridge. 1 Snake, from Cambridge.

OTIS, Dr. JENKS. 39 specimens, 6 species, from St. Thomas,—4 species new to the collection.

ORDWAY, Lt. A., Twenty-Fourth Massachusetts Volunteers. 5 specimens, 5 species, from Newbern, N. C.

PEIRCE, H. A., Boston. Collected by A. A. SMITH. 1 Snake, from Nicolaefsk, Amour River,—new to the collection.

POTTEAU, P. 1 young Turtle, from China.

PUTNAM, F. W., student M. C. Z. Eggs of 6 species of *Batrachians*, from Cambridge.

PUTNAM, Capt. W. H. A., Salem. 4 specimens, 2 species, from Caldera, Chili,—new to the collection.

RUSSELL, ROBT. 1 Saurian, from Lausanne, Switzerland.

SCUDDER, Rev. D. C., Madras, India. 16 specimens, 10 species, from Periaculam, Southern India,—new to the collection.

SCUDDER, S. H., graduate M. C. Z. 6 specimens, 4 species, from Glen House, White Mountains.

SHURTLEFF, C. A., student M. C. Z. 4 specimens, 2 species, from Treat's Island, Coast of Maine.

SHUTE, J. G., Woburn. 156 specimens, 29 species, from Beaufort, N. C.

SMITH, S. I., Norway, Maine. Eggs of *Salamander sp.?* and a snake, from Norway, Me.—eggs new to the collection.

STERNBERGH, Dr., Panama. 3 specimens, 3 species, from Panama, N. G.—new to the collection.

TORRY, R. 2 Saurians, from the Pelew Islands.

TROUVELOT, L., Medford. 5 specimens, 4 species, from Medford.

TUCKER, J., Norway, Me. Very large specimen of *Chelydra serpentina*, from Norway, Me.

VERRILL, A. E., graduate M. C. Z. 24 specimens, 6 species, from Cambridge; 40 eggs and 3 adults, of *Desmognathus fuscus*, from Norway, Me.

VERRILL, C. F., Norway, Me. Snake from Norway, Me.

WARREN, Dr. MASON. Living specimen of the so-called "Hairy Turtle," from China,—new to the collection.

WUCHERER, Dr. O., Brazil. 34 specimens, 18 species, from Bahia, Brazil,—10 species new to the collection.

WYMAN, Prof. J., Cambridge. 2 Turtles, from Surinam,—new to the collection.

Left at the Museum by Persons unknown.

———— A snake from the cabin of the Ship "Eloisa," during a voyage from Bankok to China,—new to the collection.

———— 3 Snakes, from (?)

- Skin of a Rattlesnake, from (?)
 —— Living Turtle, from the Gulf of Mexico (?)

In Exchange.

NORMAL SCHOOL, Salem, Prof. CROSBY, Principal. 17 specimens, 12 species, from Madagascar,—5 species new to the collection. Collected by W. W. Goodhue, of Zanzibar.

SALMIN, C. L., Hamburg. 1 specimen, 1 species, from Cape of Good Hope,—new to the collection; 2 specimens, 2 species, from Java.

From the Gray Fund.

COOKE, C., student M. C. Z. 119 specimens, 38 species, from Zanzibar, Africa,—29 species new to the collection.

COOKE, C., and SOARES, J. C., Zanzibar. 37 specimens, 15 species, from Mozambique, Africa,—new to the collection.

NILES, W. H., student M. C. Z. 583 specimens, 15 species, from Worthington.

PUTNAM, F. W., student M. C. Z. 116 specimens, 10 species, from Bridport, Vt.

STIMPSON, Dr. WM., Washington, D. C. 5 specimens, 4 species, from near Liverpool, England.

BOUGHT. Young Python, from Africa.

Report on the Collection of Fishes, by F. W. PUTNAM.

A large number of duplicate specimens have been sent from the Museum, not only in exchange for other specimens, but also for the purpose of distributing authenticated specimens. Four thousand seven hundred and sixty-six alcoholic specimens, comprising one hundred and eighty-nine species, have thus been sent to twenty-one different persons and institutions.

The greatest possible pains have been bestowed upon the identification of these specimens. Nineteen hundred labels were written to accompany the specimens, and to make them authentic, every one was signed on the back.

The care of older specimens, and the cataloguing of those more recently received, and their distribution to their proper places in the Museum, consumed much time. The systematic

and several of the faunal collections, have also been advanced during the year.

The want of glass jars delays the arrangement very much, as now, with few exceptions, it has to be carried on by using large earthen jars, kegs and barrels of all sizes. This occasions a large amount of extra labor in tying parchment numbers to the specimens that are to be kept in these vessels, which would be avoided by the use of glass jars, containing only one species from a single locality. There is also much time wasted in finding any particular specimen, when needed for comparison. In a collection of between six and seven thousand species, this becomes quite a serious matter. An idea may be formed of the amount of labor required to keep this collection in order, by the fact that there are now in use, one hundred and ninety-nine barrels, kegs, and earthen jars, of sizes varying from five to forty gallons, besides one large tank and over ten thousand glass jars of all sizes.

During the year, the additions to this department have been quite large, amounting to 4,537 specimens, comprising 630 species. Of these, 353 were new to our collection, and many of them are representatives of undescribed species and genera. These specimens were received from sixty-two different sources, and with one or two exceptions, they are preserved in alcohol. Many fossil fishes have been received during the year, but owing to want of room for their arrangement, they have not yet been separated from other fossils received at the same time.

Special large collections of our native species have been made for the purpose of having an ample supply to send to such persons or institutions as may apply for them for scientific use. For this purpose, Professor Agassiz has collected many specimens at Nahant, and the valuable services of Captain Atwood, of Provincetown, have been secured. During my vacation, which was spent on Lake Champlain, I collected largely for the same purpose, the expenses being borne by the Gray Fund.

Much has also been done in forming a collection of young fishes, to illustrate their mode of growth.

There has seldom been a year when so many valuable collections have been received, as during the present, and I would call special attention to the following:

The large collection from the Amazon and Rio Negro, Brazil, made by the Rev. Mr. FLETCHER and friends whom he interested in our labors, while in Brazil. This collection was very rich in interesting and hitherto unknown species. For the special localities and number of specimens, I would refer to the list of additions annexed.

The collection from the Amour River, secured to the Museum by the kind interest of H. A. PEIRCE, Esq.

The collection from Kanagawa, Japan, made by Mr. GULICH. Among other valuable specimens contained in this collection, are those of the genus *Ditrema* Tem. et Schl., affording me the opportunity of personal examination of this genus, which, from the figure given in the "Fauna Japonica," I thought might prove to be congeneric with *Tæniotoca* A. Ag. The comparison of these specimens with the different genera of the family of *Holconoti*, convinces me that *Ditrema* is a distinct genus from all others in the family, though closely allied to *Tæniotoca* and *Hyperprosopon*. I therefore take this means to correct the mistake made in the "Museum Bulletin."

The large collection from the east coast of Africa, made by Mr. COOKE, is rich in species new to the Museum.

The collections from China, made by Messrs. HURD and CHAMBERLIN.

The European collections received from Don JUAN DE ELIZALDE, Capt. DE BROCA, Capt. A. VOUGA and Dr. KAUP, Messrs. LYMAN and STIMPSON, and the FREE PUBLIC MUSEUM of Liverpool.

The collection of authentic specimens from Professor POEY, of Cuban species, and that from the SMITHSONIAN INSTITUTE, of a few species from California, described by Mr. Gill.

The small but valuable collection from the coast of Chili, made by Capt. PUTNAM.

The collection received in exchange, from Mr. SALMIN.

The collection made by myself, at Lake Champlain.

Perhaps the most valuable single specimen received during the year is the *Branchiostoma* found by Mr. BICKMORE in the sand on Bird Shoal off Beaufort, N. C. With the exception of a single specimen in the collection of the Smithsonian Institution, from near the same locality, this is the only specimen of the genus ever found on our coast.

List of the Additions to the Ichthyological Department.

AGASSIZ, A., assistant M. C. Z. 62 specimens, 7 species of young, from Nahant.

AGASSIZ, Professor L. 2 *Grystes fasciatus*, from Big Sandy Lake, Wareham; 200 *Alausa tyrannus*, from Agawam River; embryos of *Acanthias americanus*, from Yarmouth; 774 specimens, 12 species, from Yarmouth; 361 specimens, 16 species, from Nahant.

ASPINWALL, Colonel. 1 *Cyclopterus*, from Nahant.

BARNARD, JAMES M., Boston. 1 *Toxotes jaculator*, from China; new to the collection.

BARTLETT, JOHN. 11 specimens, 10 species, from Florida Keys.

BARTLETT, Dr. 1 *Chironectes*, from Naushon.

BEAL, W. J., student M. C. Z. 8 specimens, 2 species, from Eastport, Me.

BICKMORE, A. S., student M. C. Z. 1 *Branchiostoma*, found in the sand on Bird Shoal, off Beaufort, N. C. New to the collection. 41 specimens, 7 species, from Beaufort, N. C. 1 species new to the collection.

BIRD, J. A. & Co., Boston. 1 large Eel, (stuffed,) from the Andros-coggin River.

BOARDMAN, GEO. A., Milltown, Me. 7 *Salmo* sp., from Schoodic Lakes, Me. New to the collection.

BOURGET, D., Rio Janeiro. 1 Eel, from Rio Janeiro, Brazil. New to the collection.

BROCA, Capt. DE. 47 specimens, 26 species, from Havre, France. 8 species new to the collection.

CABOT, Dr. S., Boston. 1 *Salmo* species, from Thompson's Pond, Me.; 3 eggs of Skate, from Fort Macon, N. C.

CHAMBERLAIN, A. P., Boston. 22 specimens, 17 species, from Shanghai, China. 6 species new to the collection.

CUTTING, J. A., Boston, Aquarial Gardens. 2 Embryos of *Acanthias*, from Massachusetts Bay.

ELIZALDE, DON JUAN J. DE, Cadiz. 85 specimens, 25 species, from Cadiz, Spain. 18 species new to the collection.

FILIPPI, Prof. PH. DE, Turin. 3 *Gobius*, from the Caspian Sea. New to the collection.

FLETCHER, Rev. J. C., Newburyport. 163 specimens, 76 species from Rio Janeiro, Brazil. 30 species new to the collection. 68 specimens, 28 species, from Para, Amazon River, Brazil. 28 species new to the collection. 123 specimens, 24 species, from Monaos, Rio Negro, Brazil. 24 species new to the collection. 18 specimens, 13 species, from Fonte Boa, 2,000 miles up the Amazon River. 13 species new to the collection. 47 specimens, 16 species, from Santarem, 600 miles up the Amazon River. 16 species new to the collection. 4 specimens, 2 species, from

Villa Bella, Amazon River; 2 species new to the collection. 3 specimens, 2 species, from Tunantins, 2,000 miles up the Amazon River; 2 species new to the collection.

GULICK, J. T., Japan. 88 specimens, 34 species, from Kanagawa, Japan; 30 species new to the collection.

GUNNING, W. D. 14 Uranidea, from Grand Rapids, Michigan.

HAMLIN, Professor C. E., Waterville College. 2 specimens, 1 species, from Waterville, Me.

HUNNEWELL, J. S., Boston. 11 Callichthys, from Surinam, S. A.

HEARD, AUG., Boston. 107 specimens, 26 species, from Hong Kong, China; 13 new to the collection.

HUTCHINS, Dr., U. S. A. 11 specimens, 3 species, fossil Shark's teeth, from Aquia Creek, Va.

JEFFREYS, Dr., Brazil. 4 specimens, 3 species, from Obidos, Brazil; new to the collection.

JOHNSON, W. C., Newburyport. 7 specimens, 4 species, from Newburyport.

KAUP, Professor J. J., Darmstadt. 5 Alansa, from Darmstadt, Germany; new to the collection.

LYMAN, TH., M. C. Z. 1 specimen, 1 species, from Ischl, Austria; new to the collection. 19 specimens, 4 species, from Salzburg; 1 species new to the collection. 70 specimens, 28 species, from Venice; 8 species new to the collection.

MARCUS, Dr., Brazil. 6 specimens, 2 species, from Villa Bella, on the Amazon, Brazil; new to the collection.

MAYBURY, Dr., Edgartown. 10 specimens, 2 species, from Edgartown.

OTIS, Dr. JENKS. 4 specimens, 3 species, St. Thomas.

PATERSON, Dr., Brazil. 3 Serrasalmo, from Rio San Francisco, Brazil; new to the collection.

PEIRCE, H. A., Boston. Collected by A. A. SMITH. 27 specimens, 10 species, from Amour River, near Nicolajefsk; new to the collection.

PUTNAM, Capt. W. H. A., Salem. 66 specimens, 11 species, from Caldera, Chili; new to the collection.

SANBORN, F. G., Boston. 5 specimens, 3 species, from Newport-News, Virginia.

SCHIFF, ——. Salmo species, from Lake St. John, Canada East.

SCUDDER, Mrs. D. C., Boston. Skin of a Skate from Madras, India; new to the collection.

SHUTE, J. G., Woburn. 16 specimens, 10 species, from Beaufort, N. C.

SIBLEY, Capt. U. S. A. 13 specimens, 4 species fossil Shark's teeth; 1 Vertebra of a fish, from Falmouth, Va.; new to the collection.

SMITH, C. M., Norway, Me. 29 Pomotis appendix, from Ponds in Norway, Me.

STEVENS, Rev. D. W., Mansfield. 26 Alausa tyrannus, from Taunton River.

STORY, A. W., Rockport. 1 Prionotus, from Pigeon Cove.

TENNEY, Professor S., Cambridge. 6 specimens, 1 species, from Milford, N. H.

THAYER, N., Boston. 1 Salmon, from Boston Market.

THOMSON, J. H., New Bedford. 2 specimens, 2 species, from Clark's Cove, New Bedford. 1 species new to the collection.

TORREY, R., Boston. 49 specimens, 22 species, from Pelew Islands. 6 species new to the collection.

VOUGA, Capt. A., Neufchatel. 8 specimens, Salmo, from Lake of Neufchatel, Switzerland.

WHITE and HOW, Messrs. A Fossil fish, from the Albert Mine, N. B. New to the collection.

WILLIAMS, B., Boston. 7 Osmerus viridescens, from Jamaica Pond.

UNKNOWN. 76 specimens, 23 species, from (East Indies.) (?) 4 specimens new to the collection.

Received in Exchange.

FREE PUBLIC MUSEUM OF LIVERPOOL, ENGLAND. 21 specimens, 5 species, from the River Nile; new to the collection. 1 Cyclopterus, from mouth of the Mersey; new to the collection. 1 Gymnotus, from Guiana, S. A.

C. L. SALMIN, Hamburg. 56 specimens, 40 species, from Java; 23 species new to the collection. 42 specimens, 25 species, from Singapore; species new to the collection. 17 specimens, 12 species, from Zanzibar; 10 specimens, 6 species, from Canton; 3 species new to the collection. 4 specimens, 2 species, from Japan; 8 specimens, 5 species from Manilla; 4 species new to the collection. 2 specimens, 2 species, from East Africa; 2 specimens, 2 species, from Cochin-China; 1 species new to the collection. 4 specimens, 2 species, from Kattegat, and 2 specimens, 1 species, from Jutland; 2 species new to the collection. 1 specimen, 1 species, from Elbe; 1 species new to the collection. 3 specimens, 3 species, no locality.

SMITHSONIAN INSTITUTION, Washington, D. C. 6 specimens, 6 species, (Types,) from Coast of California; 3 species new to the collection.

Received from the Gray Fund.

ATWOOD, Capt. N. E., Provincetown. 159 specimens, 26 species, from Cape Cod.

COOKE, C., M. C. Z. 52 specimens, 15 species, from Zanzibar, Africa; 10 species new to the collection. 20 specimens, 12 species, from Mozambique; 10 species new to the collection.

GUGGENHEIM, M., M. C. Z. 92 specimens, 5 species, from Yarmouth.

JOHNSON, B., Nahant. 9 specimens, 5 species, from Nahant.

POEY, Professor F., Havana. 26 specimens, 26 species, from Cuba; 6 species new to the collection. 2 specimens, 2 species, from St. Domingo.

PUTNAM, F. W., M. C. Z. 2,000 specimens, 39 species; young of 20 species; 18 preparations of the brains and internal organs, from Lake Champlain; 4 species new to the collection.

RICH, J. G., Upton, Me. 43 specimens, 7 species, from Richardson and Umbagog Lakes, Me.; 4 species new to the collection.

STIMPSON, WM., Washington, D. C. 27 specimens, 14 species, from Oban, Scotland; 7 species new to the collection. 48 specimens, 18 species, from Milford Haven, S. Wales; 5 species new to the collection. 118 specimens, 25 species, from the mouths of the Mersey and Dee; 8 species new to the collection.

BOUGHT. 1 Diodon, from Port-au-Prince, Hayti; 10 Temnodon, from Yarmouth.

Statement in regard to Specimens sent from the Museum.

South African Museum, Cape Town, Africa, L. LAYARD, Esq., Director. 360 specimens, 161 species.

Zoölogical Museum of Leyden, Holland, Professor SCHLEGEL, Director. 412 specimens, 177 species.

Zoölogical Museum of Strassburg, France, Professor SCHIMPER, Director. 319 specimens, 159 species.

Zoölogical Museum of Stuttgart, Wurtemberg, Professor KRAUSS, Director. 276 specimens, 134 species.

Zoölogical Museum of Christiania, Norway, Professor SARS, Director. 324 specimens, 136 species.

Zoölogical Museum of University in Vienna, Austria, Professor KNERR, Director. 196 specimens, 82 species.

Zoölogical Museum of Darmstadt, Germany, Professor KAUP, Director. 361 specimens, 148 species.

Museum of the Academy of Geneva, Switzerland, Professor PICTET, Director. 204 specimens, 77 species.

Anatomical Museum of Vienna, Austria, Professor HYRTT, Director. 303 specimens, 109 species.

Free Public Museum of Liverpool, England, T. J. MOORE, Esq., Director. 236 specimens, 104 species.

Museum of the University of Montpellier, France, Professor MARTINS, Director. 242 specimens, 111 species.

J. G. A. SALMIN, *Hamburg.* 780 specimens, 94 species.

Professor GEGENBAUR, *Jena, Germany.* 40 specimens, 19 species.

Professor VON SIEBOLD, *Munich, Bavaria.* 39 specimens, 18 species.

Professor R. WAGNER, *Göttingen.* 7 specimens, 4 species.

Lyceum of Natural History, of Williams College, Mass., S. M. BUCK, Curator. 70 specimens, 37 species.

Boston Society of Natural History, Boston, Mass., F. W. PUTNAM, Curator. 344 specimens, 108 species.

State Collection of Natural History, Boston, Mass., C. L. FLINT, Secretary. 68 specimens, 30 species.

State Normal School, Salem, Mass., Professor CROSBY, Principal. 133 specimens, 64 species.

Professor WYMAN, *Cambridge, Mass.* 1 specimen, 1 species.

Professor HAMLIN, *Waterville College, Maine.* 1 specimen, 1 species.

Total number of specimens, 4,766, of 189 different species.

Report on the Collection of Insects, by A. S. PACKARD, JR.

Good progress has been made during the past year in the final arrangement of the Insects. Mr. SCUDDER has placed on exhibition in the cases all the Orthoptera in the collection, having completed their arrangement, begun last year. He has also completed a temporary arrangement of several families of diurnal Lepidoptera, illustrating the European and Brazilian faunæ. Moreover, by removing from the cases boxes of unarranged insects, he has made more room for exhibiting other families. I have spent considerable study upon the hymenopterous families, Crabronidæ, Larridæ, Pompilidæ, and Sphegidæ, arranging them by faunal and systematic collections, which are placed in boxes, ready to be carried up stairs. Besides, all the Vespidæ in the collection are arranged in the same way; and there is a small typical collection representing the different families of Hymenoptera, which has been set aside to be placed in the room illustrating the principal types of animals.

There has been a steady increase in the number of specimens brought in during the year; the number amounting to nearly

17,000, and comprising between 2,000 and 3,000 species. By the Gray Fund has been secured 346 species, 1,516 specimens of different sub-orders, from Europe, labelled by Dr. IMHOFF, Basle, Switzerland. Also from Mr. COOKE, a very large collection, embracing 324 species, 2,577 specimens, from Zanzibar, Mozambique, and Cabasira, Africa. Mr. S. I. SMITH has continued to send valuable collections from Norway, Me.

By donation, a very large collection of insects from the Western States, and various localities in New England, with miscellaneous collections from China, Africa, South America and Hayti, altogether numbering 876 species, 2,476 specimens, have been received from Miss A. M. EDMANDS. Next in importance is a lot of insects from Cambridge and Norway, Me., presented by Mr. A. E. VERRILL, and amounting to 308 species, 1,298 specimens.

A collection sent from Kanagawa, Japan, by Mr. J. T. GULICK, of insects of all orders, with a large number of duplicates, both dry and alcoholic, is a most valuable addition. They are at once to be properly mounted, spread, and arranged in boxes for exhibition.

Of very special interest is a large series of the nests and young of several species of Humble Bees (*Bombus*) and Carpenter's Bees (*Megachile*) collected mostly by Mr. F. W. PUTNAM at Warwick, Mass., and Bridport, Vt. There are over a thousand specimens, either dry and pinned, or in alcohol, with their cells. Mr. Putnam has made some observations on the habits of these species, which will prove of great interest to entomologists. These colonies of bees and wasps, with many of their parasites, both in all stages of development, and in such abundance, afford excellent material, not only for ascertaining the amount of variation in the larvæ and pupæ of the different species and genera of bees, but also the mode of development of the pupa from the larva. In this connection should be urged the great importance of collecting at different seasons of the year whole colonies of our social and solitary bees and wasps, our ants and other hymenoptera. They can be easily collected in alcohol, and should be accompanied with the date of capture and other notes of interest. Already do such collections as these, and of larvæ and pupæ of other insects, obtained in great numbers, often by whole

broods, constitute an important feature in the entomological collections of the Museum. It is intended to place very soon upon the shelves of the Insect room a large number of bottles containing specimens, illustrating the early stages of the different orders of insects.

In exchange, there have been sent to the Lyceum of Natural History of Williams College, 81 species, 99 specimens of diurnal Lepidoptera, from North America and Europe. Of American Lepidoptera sent to Henry Edwards, Melbourne, Australia, there are 101 species, 165 specimens. Also to J. Akhurst, 3 species, 4 specimens of Coleoptera from Africa.

There have been sent for examination to P. R. Uhler, Baltimore, all the collection of pinned Hemiptera, comprising 230 specimens from New England and the Middle States, and those collected on the Saskatchewan River and Lake Winnepeg, by Mr. Scudder. 89 species, 153 specimens of Chilognaths have been sent to H. C. Wood, Jr.; and there have been received from the Smithsonian Institution, the types of species of Chilopoda described by the same gentleman.

I subjoin a table, giving the names of all those persons who have increased the collection of Insects, with the localities and number of specimens, and approximate number of species. Other details, as to the date of capture, the date of reception, and the condition of the specimens themselves, are entered at length in the Museum book.

Insects received from October 20, 1862, to October 20, 1863.

ACKERMAN, Professor. 2 species, 2 specimens Arachnida, from Port-au-Prince, Hayti.

AGASSIZ, Professor L. 1 species, 2 specimens, Diptera; 1 species, 3 specimens, Neuroptera, from Wareham, Mass. Total, 2 species, five specimens.

ALLEN, J. A., Springfield, Mass., Student in the Zoölogical Department of the Scientific School. 7 species, 96 specimens Arachnida, from Springfield, Mass.; 1 species, 1 specimen Diptera; 1 species, 15 specimens Arachnida, from Cambridge, Mass.; 1 species, 20 specimens Hemiptera, (Lice,) no locality. Total, 10 species, 132 specimens.

BARNARD, J. M., Esq., Boston. 3 species, 3 specimens Coleoptera; 2 species, 2 specimens Orthoptera; 1 species, 1 specimen Myriapoda, from China. Total, 6 species, 6 specimens.

BICKMORE, A. S., Cambridge, Student in the Zoölogical Department of the Scientific School. 5 species, 5 specimens Lepidoptera; 2 species, 2 specimens Diptera; 16 species, 243 specimens Coleoptera; 2 species, 60 specimens Hemiptera; 2 species, 12 specimens Orthoptera; 7 species, 64 specimens Neuroptera, from Newbern, N. C.; 1 species, 1 specimen Hymenoptera; 3 species, 3 specimens Lepidoptera; 16 species, 57 specimens Coleoptera; 1 species, 1 specimen Hemiptera, from Beaufort, N. C. Total, 55 species, 449 specimens.

BOARDMAN, Mrs., Roxbury. 15 species, 30 specimens Lepidoptera; 5 species, 10 specimens Coleoptera, from Roxbury. Total, 20 species, 40 specimens.

BRIDGHAM, Mrs. S. W., New York City. 3 species, 186 specimens Hymenoptera; 74 species, 264 specimens Lepidoptera; 1 species, 1 specimen, Diptera; 4 species, 7 specimens Coleoptera; 1 species, 1 specimen, Hemiptera; 2 species, 2 specimens Neuroptera; 2 species, 2 specimens Arachnida, from Seekonk, Mass. Total, 87 species, 453 specimens.

CARNEY, O., Cambridge. 1 species, 12 specimens, and nest of *Polistes*, from Cambridge.

DALL, W. H., Medford, Mass. 1 species, 1 specimen Scolopendra, from Nagasaki, Japan; 1 species, 1 specimen Scorpion, from Calcutta; 1 species, 1 specimen Hymenoptera; 2 species, 200 specimens Lepidoptera; 17 species, 32 specimens Coleoptera; 1 species, 1 specimen of Myriapoda, from Medford; 1 species, 200 specimens *Clisiocampa*; 2 species, 36 specimens of Ants and their young; 3 species, 3 specimens Lepidoptera; 1 species, 1 specimen Coleoptera; 1 species, 1 specimen Orthoptera; 1 species, 1 specimen Arachnida, from Exeter, N. H.; 12 species, 112 specimens Ants, &c.; 21 species, 28 specimens Lepidoptera; 8 species, 108 specimens Diptera; 15 species, 19 specimens Coleoptera; 1 species, 5 specimens Hemiptera; 1 species, 2 specimens Orthoptera; 9 species, 12 specimens Neuroptera; 3 species, 5 specimens Arachnida; 1 species, 1 specimen of Myriapoda, from Medford. Total, 97 species, 727 specimens.

DAVIS, G. N., Esq. 8 species, 8 specimens of Lepidoptera; 3 species, 3 specimens Coleoptera.

EDMANDS, Miss A. M., Salem. 16 species, 28 specimens Hymenoptera; 50 species, 90 specimens Lepidoptera; 22 species, 69 specimens Diptera; 128 species, 254 specimens Coleoptera; 17 species, 44 specimens Hemiptera; 8 species, 19 specimens Orthoptera; 24 species, 63 specimens Neuroptera, from Cambridge; 4 species, 32 specimens of Ants; 35 species, 74 specimens Lepidoptera; 14 species, 15 specimens Diptera; 34 species, 79 specimens Coleoptera; 1 species, 1 specimen Hemiptera; 5 species, 58 specimens Orthoptera; 8 species, 53 specimens

Neuroptera ; 9 species, 95 specimens Arachnida ; 1 species, 1 specimen Myriapods, from Bridport, Vt. ; 25 species, 75 specimens Lepidoptera ; 20 species, 220 specimens Arachnida, from Warwick ; 9 species, 110 specimens Coleoptera, from Williamstown ; 12 species, 16 specimens Hymenoptera ; 16 species, 75 specimens Lepidoptera ; 16 species, 25 specimens Diptera ; 28 species, 40 specimens Coleoptera ; 16 species, 37 specimens Hemiptera ; 6 species, 12 specimens Orthoptera, from West Beach, Mass. ; 2 specimens of *Cicoda septemdecim*, from Virginia ; 15 species, 15 specimens Lepidoptera ; 14 species, 16 specimens Coleoptera, from Para, S. A. ; 4 species, 20 specimens Hymenoptera ; 7 species, 22 specimens Lepidoptera ; 16 species, 100 specimens Coleoptera ; 8 species, 50 specimens Hemiptera ; 1 species, 2 specimens, Orthoptera ; 1 species, 2 specimens Neuroptera, from China ; 14 species, 27 specimens Hymenoptera ; 5 species, 15 specimens Lepidoptera ; 17 species, 20 specimens Diptera ; 30 species, 50 specimens Coleoptera ; 3 species, 6 specimens Hemiptera ; 4 species, 12 specimens Orthoptera ; 3 species, 3 specimens Neuroptera ; 1 species, 1 specimen Arachnida, from Bethel, Me. ; 15 species, 16 specimens Coleoptera ; 10 species, 10 specimens Hemiptera ; 4 species, 6 specimens Orthoptera ; 2 species, 2 specimens Myriapoda, from West Northfield, Cook Co., Ill. ; 2 species, 2 specimens Coleoptera, from Africa ; 90 species, 400 specimens Coleoptera ; 2 species, 2 specimens Hemiptera, from Nebraska ; 30 species, 235 specimens Coleoptera, from Kansas ; 1 species, 16 specimens Coleoptera, from Slave Lake ; 4 species, 20 specimens Coleoptera, from Melrose, Mass ; 6 species, 10 specimens Coleoptera from Hayti ; 20 species, 30 specimens Lepidoptera, from Compton, N. H. ; 1 species, 1 specimen Hymenoptera ; 1 species, 1 specimen Diptera ; 4 species, 4 specimens Coleoptera ; 1 species, 1 specimen Hemiptera ; 3 species, 3 specimens Orthoptera, from Danville, Ky. ; 12 species 14 specimens Coleoptera, from Burlington, Vt. Total, 876 species, 2,476 specimens.

EDWARDS, W. H., Esq., Newburg, N. Y. 19 species, 22 specimens Lepidoptera, from Manilla, E. I.

ELLIS, P. P. 18 species, 119 specimens Lepidoptera ; 21 species, 184 specimens Coleoptera ; 3 species, 37 specimens Hemiptera ; 1 species, 9 specimens Neuroptera, from Hong-Kong, China.

GREENE, S. A. 1 species, 1 specimen Lepidoptera ; 2 species, 2 specimens Coleoptera ; 1 species, 1 specimen Myriapoda, from Seabrook Island, S. C. Total, 4 species, 4 specimens.

FITCH, Miss C. M., Mount Vernon, Westchester Co., New York. 1 species, 1 specimen Hymenoptera ; 2 species, 2 specimens Lepidoptera ; 2 species, 2 specimens Diptera ; 1 species, 1 specimen Coleoptera ; 1 species, 1 specimen Hemiptera ; 5 species, 5 specimens Orthoptera ; 1 species, 1 specimen Neuroptera ; 1 species, 1 specimen Arachnida,

from Mount Vernon, Westchester Co., N. Y.; 1 nest of Hymenoptera; 1 cocoon of *Samia Cecropia*; 1 nest of Arachnida from New Bedford. Total, 15 species, 20 specimens.

FLETCHER, Rev. J. C. 2 species, 3 specimens Hymenoptera; 15 species, 20 specimens Coleoptera; 1 species, 1 specimen Lepidoptera; 4 species, 4 specimens Hemiptera; 6 species, 7 specimens Orthoptera; 2 species, 40 specimens Neuroptera; 2 species, 2 specimens Myriapoda, from Manaos, Rio Negro, Brazil; 2 species, 6 specimens Coleoptera; 3 species, 3 specimens Lepidoptera; 4 species, 12 specimens Arachnida, from Para, S. A.; 2 species, 10 specimens Arachnida, from Villa Bella, S. A. Total, 42 species, 106 specimens.

GULICK, J. T., Esq. Many species, and a large number of specimens of Hymenoptera, Lepidoptera, Diptera, Coleoptera, Hemiptera, Orthoptera, Neuroptera, Arachnida, and Myriapoda, from Kanagawa, Japan, not yet counted.

HARTT, C. F., St. John, N. B., Student in the Zoölogical Department of the Scientific School. 3 species, 14 specimens Hymenoptera; 7 species, 7 specimens Diptera; 6 species, 10 specimens Coleoptera; 1 species, 30 specimens Hemiptera; 1 species, 8 specimens Orthoptera; 7 species, 45 specimens Neuroptera; 2 species, 3 specimens Arachnida, from Cambridge. Total, 27 species, 117 specimens.

JEFFRYS, D., Obidos, Brazil. 1 species, 1 specimen Coleoptera; 1 species, 1 specimen Orthoptera; 1 species, 2 specimens Arachnida, from Brazil. Total, 3 species, 4 specimens.

LACERDA, Don ANTONIO DE. 80 species, 113 specimens Coleoptera, and 1 species, 1 specimen Myriapoda, from Bahia, Brazil. Total, 81 species, 114 specimens.

LYMAN, THEODORE, Esq., Assistant in the Museum of Comparative Zoölogy. 7 species, 26 specimens Lepidoptera, and eggs of *Bombyces*; 5 species, 26 specimens Diptera; 2 species, 10 specimens Coleoptera; 1 species, 10 specimens Arachnida, from Brookline. Total, 4 species, 50 specimens.

MARCUS, M. D., Brazil. 1 species, 1 specimen Lepidoptera; 5 species, 15 specimens Orthoptera; 1 species, 1 specimen Myriapoda, from Villa Bella, River Amazon. Total, 7 species, 17 specimens.

NILES, W. H., Student in the Zoölogical Department of the Scientific School. 1 species, 11 specimens Diptera; 1 species, 8 specimens of Fleas from Hare; 22 species, 30 specimens Lepidoptera; 1 species, 1 specimen Diptera; 4 species, 50 specimens Orthoptera; 5 species, 19 specimens Neuroptera, from Worthington, Mass. Total, 34 species, 119 specimens.

PACKARD, A. S., Jr., Student in the Zoölogical Department of the Lawrence Scientific School. 60 species, 200 specimens Lepidoptera; 24 species, 205 specimens Hymenoptera; 10 species, 20 specimens Diptera; 4 species, 4 specimens Coleoptera; 11 species, 31 specimens Neuroptera, from Brunswick, Me.; 3 species, 3 specimens Hemiptera; 3 species, 6 specimens Neuroptera, from Fresh Pond, Cambridge; 15 species, 50 specimens Lepidoptera; 8 species, 15 specimens Coleoptera; 2 species, 25 specimens Arachnida, (nests and eggs,) from Cambridge; 12 species, 100 specimens Lepidoptera, from Maryland. Total, 152 species, 650 specimens.

PRINCE, F. A., Esq., Winchester. 1 species, 1 specimen Lepidoptera.

PŪTNAM, F. W., Student in the Zoölogical Department of the Scientific School. 3 species, with nests and young, of *Bombus*; 2 species do. of *Megachile*; 1 species, 10 specimens Lepidopterous parasites; 3 species, 54 specimens Hymenopterous parasites; 1 species, 6 specimens Acaria, from Bridport, Vt.; 3 species *Bombus*; 1 species, 4 specimens Lepidopterous parasites; 1 species, 6 specimens Coleopterous parasites; 1 species, 6 specimens *Acarus*, from Warwick, Mass. Total, 14 species, 1,105 specimens.

RUSSELL, ROBERT, Esq. 1 species, 2 specimens Coleoptera, from Lausanne, Switzerland.

SALISBURY, STEPHEN. 1 specimen Coleoptera, from Yucatan.

SCUDDER, Mrs. D. C., Periaculum, Southern India. 3 species, 4 specimens Hymenoptera; 9 species, 10 specimens Lepidoptera; 13 species, 29 specimens Coleoptera; 21 species, 24 specimens Orthoptera; 1 species, 1 specimen Neuroptera; 6 species, 31 specimens Arachnids; 5 species, 5 specimens Myriapoda, from Periaculum, S. India. Total, 58 species, 104 specimens.

SCUDDER, S. H., Graduate of the Zoölogical Department of the Scientific School. 8 species, 16 specimens diurnal Lepidoptera, from England.

SHURTLEFF, C. A., Brookline. 7 species, 8 specimens Hymenoptera; 9 species, 16 specimens Lepidoptera; 12 species, 17 specimens Diptera; 8 species, 11 specimens Coleoptera; 10 species, 14 specimens Hemiptera; 10 species, 47 specimens Orthoptera; 6 species, 16 specimens Neuroptera, from the White Mountains, N. H.; 1 species, 1 specimen Hymenoptera; 2 species, 2 specimens Lepidoptera; 1 species, 6 specimens Diptera; 7 species, 33 specimens Coleoptera; 1 species, 1 specimen Hemiptera; 2 species, 75 specimens Orthoptera; 1 species, 1 specimen Arachnida; from Brookline. Total, 77 species, 248 specimens.

SHUTE, J. G., Woburn. 3 species, 4 specimens Hymenoptera; 4 species, 4 specimens Lepidoptera; 3 species, 3 specimens Diptera; 44 species, 332 specimens Coleoptera; 8 species, 83 specimens Hemiptera;

5 species, 31 specimens Orthoptera; 1 species, 1 specimen Neuroptera; 3 species, 14 specimens Arachnida; 4 species, 6 specimens Myriapoda, from Beaufort, N. C. Total, 75 species, 480 specimens.

THAXTER, Mrs. L. L., Newton. 1 specimen Coleoptera, from Newton.

TORREY, R., Esq. 2 species, 6 specimens Orthoptera; 3 species, 4 specimens Arachnida; 1 species, 2 specimens Myriapoda, from the Pelew Islands. Total, 6 species, 12 specimens.

VERRILL, A. E., Graduate in the Zoölogical Department of the Scientific School. 1 species of *Bombus*, with the nest and young, 100 specimens; 1 species of *Vespa*, with the nest and young, about 350 specimens; 1 species of *Polistes*, with the nest and young, 37 specimens; 8 species, 14 specimens Hymenoptera; 32 species, 60 specimens Lepidoptera; 4 species, 5 specimens Diptera; 25 species, 36 specimens Coleoptera; 16 species, 323 specimens Hemiptera; 8 species, 54 specimens Orthoptera; 12 species, 45 specimens Neuroptera; 1 species, 14 specimens Myriapoda, from Cambridge; 3 species, 16 specimens Hymenoptera; 80 species, 91 specimens Lepidoptera; 14 species, 17 specimens, Diptera; 61 species, 75 specimens Coleoptera; 10 species, 18 specimens Hemiptera; 2 species, 7 specimens Orthoptera; 16 species, 27 specimens Neuroptera; 1 species, 5 specimens Arachnida, from Norway, Me. Total, 308 species, 1,298 specimens.

MISCELLANEOUS. Insects of all orders, with no localities given—24 species, 264 specimens.

By Exchange.

AKHURST, J., Esq. 5 species, 9 specimens, Hemiptera, from Manilla and Africa; 1 species, 1 specimen Arachnida, from New York.

SALEM NORMAL SCHOOL. Duplicates of the collection of W. W. Goodhue, Madagascar. 2 species, 11 specimens Lepidoptera; 3 species, 3 specimens Orthoptera; 1 species, 1 specimen Arachnida; 1 species, 1 specimen Myriapoda. Total, 7 species, 16 specimens.

Purchased with the Gray Fund.

COOKE, CALEB. 39 species, 160 specimens Hymenoptera; 98 species, 267 specimens Lepidoptera; 9 species, 65 specimens Diptera; 88 species, 543 specimens Coleoptera; 19 species, 209 specimens Hemiptera; 24 species, 332 specimens Orthoptera; 18 species, 106 specimens Neuroptera; 150 specimens Arachnida; 150 specimens Myriapoda, from Zanzibar, Africa. 1 species, 1 specimen Hymenoptera; 23 species, 36 specimens Lepidoptera; 13 species, 31 specimens Coleoptera; 2 species, 2 specimens Hemiptera; 6 species, 25 specimens

Orthoptera; 1 species, 1 specimen Neuroptera; 3 species, 7 specimens Arachnida; 5 species, 20 specimens from Mozambique. Also, from the same locality, in gum copal: 47 specimens Hymenoptera; 4 specimens Diptera; 7 specimens Coleoptera; 3 specimens Hemiptera; 11 specimens Orthoptera; 15 specimens Neuroptera; 3 specimens Arachnida. 7 species, 27 specimens Coleoptera; 4 species, 4 specimens Hemiptera; 8 species, 59 specimens Orthoptera; 1 specimen Arachnida; 2 species, 2 specimens Myriapoda, from Cabasira, Africa. Total, 324 species, 2,577 specimens.

IMHOFF, Dr., Basle, Switzerland. 23 species, 189 specimens Hymenoptera; 47 species, 117 specimens Lepidoptera; 17 species, 86 specimens Diptera; 244 species, 1,061 specimens Coleoptera; 15 species, 63 specimens Neuroptera, from Switzerland. Total, 346 species, 1,516 specimens.

SMITH, S. I., Norway, Me. 6 species, 7 specimens Hymenoptera; 100 species, 205 specimens Lepidoptera; 8 species, 14 specimens Diptera; 80 species, 131 specimens Coleoptera; 18 species, 73 specimens Hemiptera; 9 species, 65 specimens Orthoptera; 18 species, 31 specimens Neuroptera, from Norway, Me. Total, 240 species, 524 specimens.

OCTOBER 20, 1863.

Report on the Crustacea, by A. AGASSIZ.

The principal additions which have been made to this class, are those of Captain PUTNAM, who has sent valuable collections from the west coast of South America. The collection of Dr. STIMPSON, made on the coasts of Great Britain, has added a large number of the common English species to our Museum. Mr. C. COOKE, of Salem, has sent a large number of specimens from Zanzibar, and Mr. BICKMORE has added a number of species from Beaufort, N. C. Dr. W. STIMPSON, of the Smithsonian, has been engaged for a few months during the past year, in cataloguing the Crustacea. He has arranged the species from the west coast of North America, from China and the East Indies. The duplicates from these localities are now available for exchange. The specimens have been catalogued and put into glass jars, and are now on exhibition in the gallery of the northeast

room. The following are the additions to the Museum from different sources :—

THEODORE LYMAN, of Brookline. 6 species, 54 specimens. Collected at Venice and in Tyrol.

ROLLINS TORREY, of Manilla. 6 species, 14 specimens, from Manilla and the Pelew Islands.

AUGUSTINE HEARD, Esq., Boston. One specimen, from Shanghae.

A. P. CHAMBERLIN, of Boston. 4 species, 5 specimens, from Shanghae.

Captain W. H. A. PUTNAM, of Salem. 7 species and about 120 specimens from Mejillones; 10 species, 91 specimens from Caldera, Chili.

Dr. MARCUS, of Villa Bella. 2 species, from the Amazon.

Rev. J. C. FLETCHER, of Newburyport. 2 species, 4 specimens, from Para, S. A.

A. S. BICKMORE, Cambridge. 21 species, 237 specimens, Beaufort, N. C.

A. E. VERRILL, Cambridge. 2 species, from Chelséa Beach.

Dr. STERNBERGH, Panama. 10 species, 152 specimens, from Panama.

Dr. JENKS OTIS, U. S. N. 1 species, from Port-au-Prince.

C. F. HARTT, St. John. 6 species, 380 specimens, from Cambridge.

Dr. J. W. PAIGE, U. S. A. 4 species, from Stono River, S. C.

JOHN BARTLETT, Cambridge. 1 species, from the Florida reefs.

J. L. GULICK. 10 species, 30 specimens, from Kanagawa, Japan.

Professor C. DEWEY, Rochester, N. Y. 1 specimen, 20 specimens, from Rochester.

Dr. S. A. GREENE, U. S. A. 2 species, 7 specimens, Seabrook Island, S. C.

J. G. SHUTE, Woburn. 4 species, 7 specimens, Beaufort, N. C.

A. AGASSIZ, Cambridge. 8 species, 152 specimens, Nahant; 3 species, 47 specimens, Yarmouth.

With the Gray Fund there have been obtained from—

Dr. WM. STIMPSON, of Cambridge. 39 species, 164 specimens, from Oban; 14 species, 175 specimens, from Liverpool; 27 species, 98 specimens, from Milford.

C. COOKE, Salem. 39 species, 245 specimens, from Zanzibar.

In Exchange.

From the SMITHSONIAN INSTITUTION. 38 species, about 500 specimens, principally from Lower California, collected by Mr. Xanthus. The species are mostly named by Dr. Stimpson.

This makes a total of 273 species, 3,042 specimens. There has been sent only one collection of Duplicates to Professor H. Milne-Edwards, of the Jardin des Plantes, containing 45 species, a few from Hong Kong, the remainder from the west coast of North America.

Report on the Annulata, by A. AGASSIZ.

Two very important additions have been made during the past year to this class—the collections of Dr. Stimpson of English Annelids, and the Worms of the German Ocean, which have been received in exchange from Mr. C. L. Salmin, of Hamburg. These additions have not yet been catalogued.

Additions during 1862–63.

- Dr. W. STIMPSON, Smithsonian. 28 species, 105 specimens, Oban ;
 10 species, 67 specimens, Liverpool ; 15 species, 26 specimens, Milford.
 THOS. J. MOORE, Liverpool Free Museum. 2 species, from Irish Sea.
 A. E. VERRILL, Cambridge. 1 species.
 Dr. STERNBERGH, Panama. 3 species.
 Miss TALLANT, Nantucket. 1 species.
 C. L. SALMIN, Hamburg. 13 species, 17 specimens.
 Dr. JENKS OTIS, U. S. N. 1 species, 3 specimens, Port-au-Prince.
 C. F. HARTT, Cambridge. 3 species, 310 specimens.
 W. H. NILES, Cambridge. 1 species, Worthington.
 JOHN BARTLETT, Cambridge. 3 species, 5 specimens, Florida.
 F. W. PUTNAM, Cambridge. 3 species.
 A. S. BICKMORE, Cambridge. 2 species, Beaufort, N. C.
 W. GLEN, Cambridge. 1 species, Nahant.
 A. AGASSIZ, Cambridge. 5 species, 45 specimens, Nahant.

Report on Mollusca, by ALBERT S. BICKMORE.

More than twice as many specimens have been added to the collection of Mollusca during the past year, than were received the year previous. Although a large portion of the specimens are dry, yet full series of nearly every species have been received in alcohol. The dry specimens have been unpacked, and are arranged in drawers fully labelled, in the

attic and laboratories, and the work of identifying the species and selecting full series for the faunal and systematic collections, that the great number of duplicates may be made available for exchange, is now going on.

The alcoholic specimens have been transferred to kegs and jars, like all those received during the previous years; but the work of identifying and separating them in the same manner as the dry specimens is at present deferred for the want of alcohol and bottles.

Nearly all the finest collections of shells, *e. g.*, that made by Mr. Cooke at Zanzibar, and those made by Mr. Garrett at the Sandwich Islands, Kingsmills Islands, and Feejee group, are not on exhibition in the cases, because their final arrangement is not yet complete, and the whole work would be lost in any attempt to place them on the few shelves now empty.

Mr. Bickmore's Beaufort collection will soon be worked up, and will then be temporarily put up in the northeast room, in the case now partly filled with land shells. Among the Bryofoa received, a splendid cluster of Eschara, presented by Mr. Dabney, deserves special mention.

Mollusca received at the Museum of Comparative Zoölogy during the year 1863.

AGASSIZ, A. Nahant, 2 species, 96 specimens.

AGASSIZ, Professor L. Nahant, 7 species, 4,037 specimens.

ANTHONY, J. G. Australia, 7 species, 14 specimens; New Zealand, 1 species, 3 specimens; New Hebrides, 1 species, 3 specimens; Monterey, Cal., 1 species, 1 specimen; Bolivia, 1 species, 21 specimens. Total, 11 species, 42 specimens.

BICKMORE, ALBERT S. Beaufort, N. C., 117 species, 14,484 specimens; Newbern, N. C., 8 species, 209 specimens; Plymouth, N. C., 4 species, 4 specimens; St. George, Me., 5 species, 3,215 specimens. Total, 134 species, 17,913 specimens.

CABOT, Dr. S., Boston. Fort Macon, N. C., 4 species, 58 specimens.

CHAMBERLIN, A. P. Shanghae, 1 species, 1 specimen.

COUTINHO, M. Brazil, 1 species, 4 specimens.

DABNEY, W. H. A magnificent cluster of Eschara.

DALL, C. H., Medford. New Zealand, collected by Mr. J. Whitridge, of Baltimore, 14 species, 628 specimens.

DOW, Capt. P. P. Muscat, 10 species, 150 specimens.

DROWNE, Rev. T. STAFFORD, Brooklyn, N. Y., (through Mr. Bickmore,) 1 specimen, 1 species.

EATON, W., Boston. Mollucca Islands. 8 species, 9 specimens.

FIVAZ, Rev. M., Lausanne, Switzerland. Several species and many specimens.

FOLIN, MARQUIS DE. Pouillac, Gironde. 10 species, 100 specimens.

FLETCHER, Rev. J. C., Rio Janeiro. 4 species, 63 specimens; Para, South America, 5 species, 5 specimens.

GLEN, W., Nahant. Nidus of Natica.

GULICK, Mr. Kanagawa, Japan, 4 species, 7 specimens.

GUNNING, Mr. W. D., Chicago. Alabama and Michigan, 26 species, 44 specimens.

HARTT, C. F., Lynn Beach. 1 species, 100 specimens; Cambridge, 1 species, 100 specimens; Massachusetts Bay, 8 species, 52 specimens, Total, 10 species, 252 specimens.

LYMAN, TH., Boston. Venice and Tyrol, 15 species, 81 specimens.

NICHOLS, C. B., Brooklyn, N. Y., (through Mr. Bickmore.) Various localities, 17 species, 59 specimens.

OTIS, Dr. JENKS, Port-au-Prince. 8 species, 14 specimens.

PACKARD, A. S., Jr., Brunswick, Me. Fossils. 6 species, 53 specimens.

PUTNAM, Captain W. H. A., Salem. Mexillones, 3 species, 14 specimens; Caldera, Chili, 24 species, 1,229 specimens.

PUTNAM, FR. W. Lake Champlain, 30 species, 306 specimens.

THOMPSON, J. H., New Bedford. 1 species, 10 specimens.

SHOVE, Dr. GEORGE, Yarmouth. 1 species, 32 specimens.

SHUTE, JAMES G., Woburn. Newbern battle-field, N. C., 46 species, 130 specimens.

STERNBERGH, Dr. J. H. Panama, 19 species, 77 specimens.

VERRILL, A. E., B. S. Kingsmills Islands, 4 species, 16 specimens.

By Exchange.

SALMIN, C. S. Azores, 2 species, 2 specimens.

SMITHSONIAN INSTITUTION. Various localities, 24 species, 100 specimens.

Secured with the Gray Fund.

COOKE, CALEB W. Zanzibar, 147 species, 1,432 specimens; Mozambique; 38 species, 1,130 specimens; Cabosira, 4 species, 11 specimens.

PARREYS, LUDWIG, Vienna. Various localities, 228 species, 1,607 specimens.

STIMPSON, Dr. WILLIAM. Oban, 112 species, 1,201 specimens; Liverpool, 26 species, 220 specimens; Milford, 66 species, 361 speci-

mens; East Coast of North America, 269 species, 1,646 specimens; Hong Kong, 1 species, 2 specimens. Total, 473 species, 3,428 specimens. Grand total, 1,443 species, 33,594 specimens.

Report on the Echinoderms, by A. AGASSIZ.

During the past year the arrangement of the collection of Echinoids has been finished by Mr. A. Agassiz. The systematic, generic, and faunal collections, as far as it was possible, have been completed. The collection, owing to want of room, is stored in drawers ready for exhibition. The alcoholic portion has been put into glass jars, and is at present arranged systematically in the northeast room. Mr. Theodore Lyman has catalogued all the Ophiurans which had been added to the collection of the Museum during his absence from the United States. Mr. A. Agassiz has also commenced the final arrangement of the Starfishes, and continued the catalogue of the Holothurians.

The additions to the Echinoderms have been numerous and valuable. Among the most interesting should be mentioned a large collection obtained in exchange from the Smithsonian, containing many species collected by Dr. Stimpson in the North Pacific Exploring Expedition; quite a complete collection of British Echinoderms obtained from Dr. Stimpson; an important collection of living and fossil Echinoderms from the Chevalier Verany, of Nice. The collections of Mr. Cooke, at Zanzibar; of Captain Putnam, on the West Coast of South America; of Mr. Moore, from the Irish Sea; of Mr. Bickmore, from Beaufort, N. C.; and the collection of Mr. Salmin, from Japan; Dr. Sternbergh, from Panama. Of special value for a faunal collection is the large series of dry Echinoderms sent to the Museum by Mr. Van Brunt, from Acapulco. Professor Valenciennes, of the Jardin des Plantes, has sent a small but invaluable collection of Echini, which having been carefully compared with the original specimens of Lamarck in the Jardin des Plantes, may be considered as types of the species described in the *Hist. Nat. des Anim. sans Vertèbres*. A large number of duplicates have been sent to different institutions; three large collections are

still awaiting to be exchanged. The following institutions and persons have received duplicate collections :—

Professor HAMLIN, Waterville, Me., 8 species.

NORMAL SCHOOL, Salem, 36 species.

Professor KRAUSS, for the Royal Museum at Stuttgart, 122 species.

Professor SCHIMPER, for the Museum of Strassbourg, 108 species.

Professor SARRS, for the University Museum, Christiania, 68 species.

Professor SCHLEGEL, for the University Museum, Leyden, 68 species.

Professor KNERR, for the Imperial Museum, Vienna, 68 species.

SMITHSONIAN INSTITUTION, Washington, 42 species.

Mr. A. M. EDWARDS, New York, 15 species.

WILLIAMS COLLEGE, 24 species.

Mr. LAPHAM, Milwaukie, Wis. Fossil, 17 species.

Making a total of about 2,400 specimens.

Additions from October 30, 1862, to October 30, 1863.

Captain W. H. A. PUTNAM, Salem. 5 species, 60 specimens, Mexico; 4 species, 975 specimens, Caldera, Chili.

THEODORE LYMAN, 2 species, 5 specimens, Venice.

LIVEPOOL FREE MUSEUM, 4 species, 31 specimens, from Irish Sea, through Mr. THOMAS J. MOORE.

Captain J. ANDERSON, 2 species, about 300 specimens, Havre.

M. LE MARQUIS DE FOLIN, Pouillac, 2 species, 9 specimens.

J. B. VERANY, Nice, 12 species, 131 specimens.

SMITHSONIAN INSTITUTION, 68 species, 74 specimens.

Dr. W. STIMPSON, Smithsonian. 17 species, 78 specimens, Oban; 5 species, 17 specimens, Liverpool; 12 species, 39 specimens, Milford.

Captain N. E. ATWOOD, Provincetown, 8 specimens of *Astrophyton*.

CAILLAUD, M., Nantes. Specimens of *Echinus* boring in rock.

A. S. BICKMORE, Beaufort, N. C., 18 species, 479 specimens.

Dr. STERNBERGH, Panama, 3 species, 4 specimens.

Dr. S. CABOT, 7 specimens *Anaperus*, Fort Macon, N. C.

A. E. VERRILL, 2 species, 5 specimens.

C. L. SALMIN, 13 species, 24 specimens.

Miss TENANT, 1 species, Jarvis Island.

C. COOKE, 3 species, 8 specimens, from Island of Cabosira; 10 species, 36 specimens, Zanzibar; Mozambique, 9 species, 90 specimens.

Dr. JENKS OTIS, U. S. N. 5 species, 18 specimens, from Port-au-Prince.

W. S. BEALE, 2 specimens *Astrophyton*, Eastport.

D. B. VAN BRUNT, Acapulco, 10 species, 243 specimens.

JARDIN DES PLANTES, Professor VALENCIENNES, 9 species

C. F. HARTT, 2 species, 25 specimens, Massachusetts Bay.
 Dr. J. W. PAIGE, 2 species, Seabrook Island, S. C.
 A. AGASSIZ, Yarmouth, 1 species; Nahant, 6 species.
 Making a total of 240 species, 1,912 specimens.

Report on the Acalephs, by A. AGASSIZ.

The only large collection which has been added to this class, is the valuable series of Hydroids collected by Dr. Stimpson on the coasts of Great Britain, which contains nearly all the more common species of those shores. The specimens which have been added have all been catalogued by Mr. A. Agassiz. Mr. Burckhart has made a magnificent series of diagrams of Acalephs, for exhibition above the glass cases. The following are the additions made in this class:—

Dr. W. STIMPSON, Smithsonian; 21 species, from Oban; 5 species from Liverpool; 5 species, from Milford.

Dr. STERNBERGH, Panama, 1 species, from Panama.

C. COOKE, Salem, 30 specimens of Physalia, from Mozambique Channel.

C. F. HARTT, St. John, 2 Lucernariæ, Chelsea Beach.

A. S. BICKMORE, 2 Physaliæ, from Beaufort, N. C.

Professor F. POEY, Havana, 1 species, Havana.

A. AGASSIZ, Cambridge, 4 species, 63 specimens, Nahant.

Making a total of 40 species.

A small collection of seven species of Hydroids has been sent to the Lyceum of Natural History at Williamstown.

Report on the Collection of Corals and Polyps, by A. E. VERRILL.

The collection in this department is now in excellent order, and, with the exception of a large number of fossils and alcoholic specimens, is on exhibition in the show cases. Nearly all the recent specimens, both dry and in alcohol, have now been identified, catalogued, and temporarily labelled. The work of cataloguing the fossils remains, however, still to

be done, but most of them have already received labels. The duplicates have also been separated, labelled and catalogued. During the year, fifteen collections, including 575 specimens, have been sent away for exchange, and twelve other collections are now ready for packing. In these collections, each specimen has a parchment number attached permanently to it, while authentic labels, correspondingly numbered and endorsed with the name of the person by whom they are named, are sent with them. In order to make the necessary corrections in the nomenclature of the described species, of which there are duplicates, and to make the new materials available for exchanges, Part III. of the Bulletin of the Museum of Comparative Zoölogy has been prepared, and is now printing. A preliminary report on the Halcyonoid Polyps collected by William Stimpson, M. D., on the North Pacific Exploring Expedition, under Captains Ringgold and Rodgers, has also been prepared. When the report is completed, a suite of the specimens will be presented to the Museum. The specimens in the Museum from the eastern coast of the United States, have been used in the preparation of a paper entitled "A Revision of the Polyps of the Eastern Coast of the United States, by A. E. Verrill," which is now printing.

The additions to this department during the year have been 24 lots, containing 1,006 specimens and 125 species. Among those that deserve special notice, either for their interest or extent, are the following: A large alcoholic collection of the British Polyps, made by Dr. Stimpson at Oban, Scotland, at the mouths of the Mersey and Dee, and at Milford Haven, South Wales; a valuable collection of Corals, from Mr. C. Cooke, Zanzibar; one from Dr. G. H. Otis, U. S. N., collected at St. Thomas; an alcoholic collection of great interest, from Mr. J. H. Sternbergh, Panama; a beautiful lot of *Gorgonidæ*, from Mr. D. B. Van Brunt, Acapulco, Mexico; a very valuable collection, embracing some species of great rarity, from Dr. J. W. Paige, U. S. N., collected at Stono Inlet, S. C.; a large and interesting collection from John Russell, Esq., from Manilla; a large collection of New England Polyps, in alcohol, from A. E. Verrill, collected at Eastport, Me.

The following is a complete list of the collections received:—

Donations.

AGASSIZ, A., Assistant at the Museum. 13 specimens, 2 species Actinidæ, in alcohol, from Nahant, Mass.

BICKMORE, A. S., Student in the Zoölogical Department of the Scientific School. 2 specimens Astrangia, dry; 25 specimens Zoantharia, 2 species, and 60 Alcyonaria, 1 species, dry; 15 Zoantharia, 3 species, and 4 Alcyonaria, in alcohol, from Beaufort, N. C.

CABOT, SAMUEL, M. D. 24 specimens Actinidæ, in alcohol, from Fort Macon, N. C.

DALL, W. H., Medford, Mass. 1 Stylaster, from New Zealand.

NICHOLS, C. B., New York. 2 specimens Stylaster, from the Pacific.

OTIS, JENKS, M. D., U. S. N. 166 Corals, (Zoantharia,) 22 species; 4 Alcyonaria, 2 species, dry, from St. Thomas.

PAIGE, J. W., M. D., U. S. A. 19 specimens Alcyonaria, 3 species, dry, including the rare species, *Telesto fruticulosa* and *Titanideum suberosum*, from Stono Inlet, S. C.

PUTNAM, Captain W. H. A., Salem, Mass. 4 Actinidæ, 2 species in alcohol, from Caldera, Chili.

RUSSELL, JONATHAN, Manilla. 90 Corals, (Zoantharia,) 5 species; 2 Tabulata, 2 species, dry, from Manilla.

STERNBERGH, J. H., Panama. 71 Gorgonidæ, 7 species, in alcohol, from Panama.

VAN BRUNT, D. B., Acapulco, Mexico. 15 Gorgonidæ, 5 species, dry, from Acapulco.

VERRILL, A. E., Graduate of the Zoölogical Department of the Scientific School. 250 specimens Actinidæ, 5 species in alcohol; 70 Alcyonium carneum, in alcohol, from Eastport, Me.; 2 Actinidæ, 1 species in alcohol, from Swampscott, Mass.

By Exchange.

BOWDOIN COLLEGE, Brunswick, Maine. 12 Corals, 8 species, dry, from the West Indies.

CARTER, S. A., Paris Hill, Me. 3 Corals, 3 species, dry, from Cape de Verde Islands.

COOKE, Mrs. M., Cambridge, Mass. 1 Madrepora flabellum, from the West Indies.

ESSEX INSTITUTE, Salem, Mass. 14 Corals, 7 species, dry, mostly from Zanzibar.

FREE PUBLIC MUSEUM OF LIVERPOOL, T. J. MOORE, Curator. 4 Corals, 1 species, from Singapore; 12 Actinidæ, 3 species, living, from England, forwarded through Captain J. Anderson.

Secured with the Gray Fund.

COOKE, C., Student in the Zoölogical Department of the Scientific School. 31 Actinidæ, 2 species, in alcohol; 2 Astræidæ, 2 species, dry; 155 Fungidæ, 15 species, dry, from Zanzibar.

STIMPSON, WILLIAM, M. D., Washington, D. C. 21 Actinidæ, 10 species, and 6 specimens Funiculina, in alcohol, from Oban, Scotland; 12 Actinidæ, 2 species and 26 Alcyonium digitatum, from the mouths of the Mersey and Dee; 12 Actinidæ, 6 species, in alcohol, from Milford Haven, South Wales.

The following collections have been sent away in exchange during the year:—

BOWDOIN COLLEGE, Brunswick, Maine. 21 Corals, 21 species, dry.

CARTER, S. A., Paris Hill, Maine. 3 Corals, 3 species, dry.

COOKE, Mrs. M., Cambridge, Mass. 1 Pocillopora, from Singapore.

CROSBY, Prof. A., Normal School, Salem, Mass. 13 Alcyonaria, 8 species, 18 Zoantharia, 18 species; 3 Tabulata, 3 species.

HAMLIN, Prof. CHARLES E., Waterville College, Maine. 7 Corals, 7 species.

KAUP, Dr., Darmstadt. 13 Alcyonaria, 12 species; 43 Zoantharia, 42 species; 6 Tabulata, 6 species.

KRAUSS, Prof., Stuttgart. 21 Alcyonaria, 16 species; 51 Zoantharia 41 species; 5 Tabulata, 5 species; and a second collection, containing 13 Alcyonaria, 13 species; 29 Zoantharia, 29 species; 3 Tabulata, 3 species.

MCGILL COLLEGE, Montreal, Canada, Dr. DAWSON, Principal. 14 Alcyonaria, 9 species; 27 Zoantharia, 26 species; 2 Tabulata, 2 species.

MILNE-EDWARDS, Prof. H., Jardin des Plantes, Paris. 28 Madreporæ, 23 species; 10 Pocilloporæ, 10 species; a second collection, containing 21 Fungidæ, 21 species.

SCHIMPER, Prof. WM., Strasbourg. 12 Alcyonaria, 10 species; 36 Zoantharia, 35 species; 6 Tabulata, 6 species.

TENNEY, Prof. S., Cambridge, Mass. 12 Alcyonaria, 11 species; 34 Zoantharia, 34 species; 7 Tabulata, 7 species.

VALENCIENNES, Prof., Jardin des Plantes, Paris. 25 Alcyonaria, 19 species, dry; 31 Alcyonaria, 20 species, in alcohol.

Report on the Library, by A. AGASSIZ.

Professor Marcou has been engaged during the past year in arranging the books according to their subjects, and in making catalogues of the different alcoves. Mr. A. Agassiz has made an

alphabetical catalogue of the library. A number of pamphlets on special subjects of natural history have been presented by Messrs. Scudder, Professor J. Hall, A. Agassiz, Thomas Bland, Professor Martins, Academy of St. Louis. Hon. S. Hooper, and Governor Andrew have presented to the library reports published by the government; Professor Agassiz has presented a few volumes. But the most valuable addition is the gift of Mr. James M. Barnard, who has presented a complete series of the Transactions of the Geological Society of London, and the Voyage de la Venus; Mr. W. G. Binney has presented a copy of Binney's Terrestrial Mollusks of the United States. The library is also indebted to the Essex Institute for a copy of its Journal and Proceedings; and to Professor Marcou for many pamphlets on geological subjects. The number of volumes added is forty-one, and thirty-one pamphlets.

[B.]

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1864.

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