

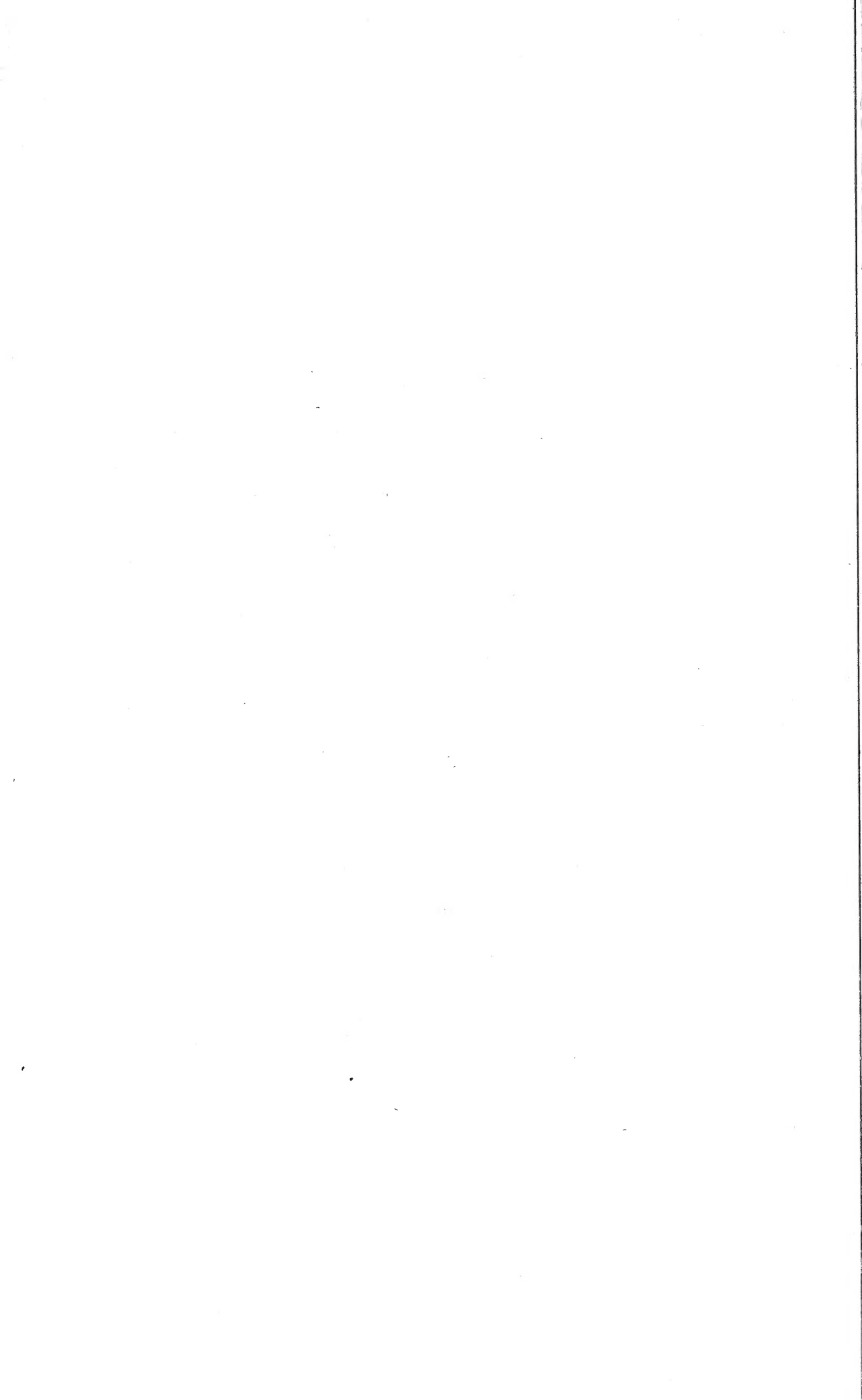
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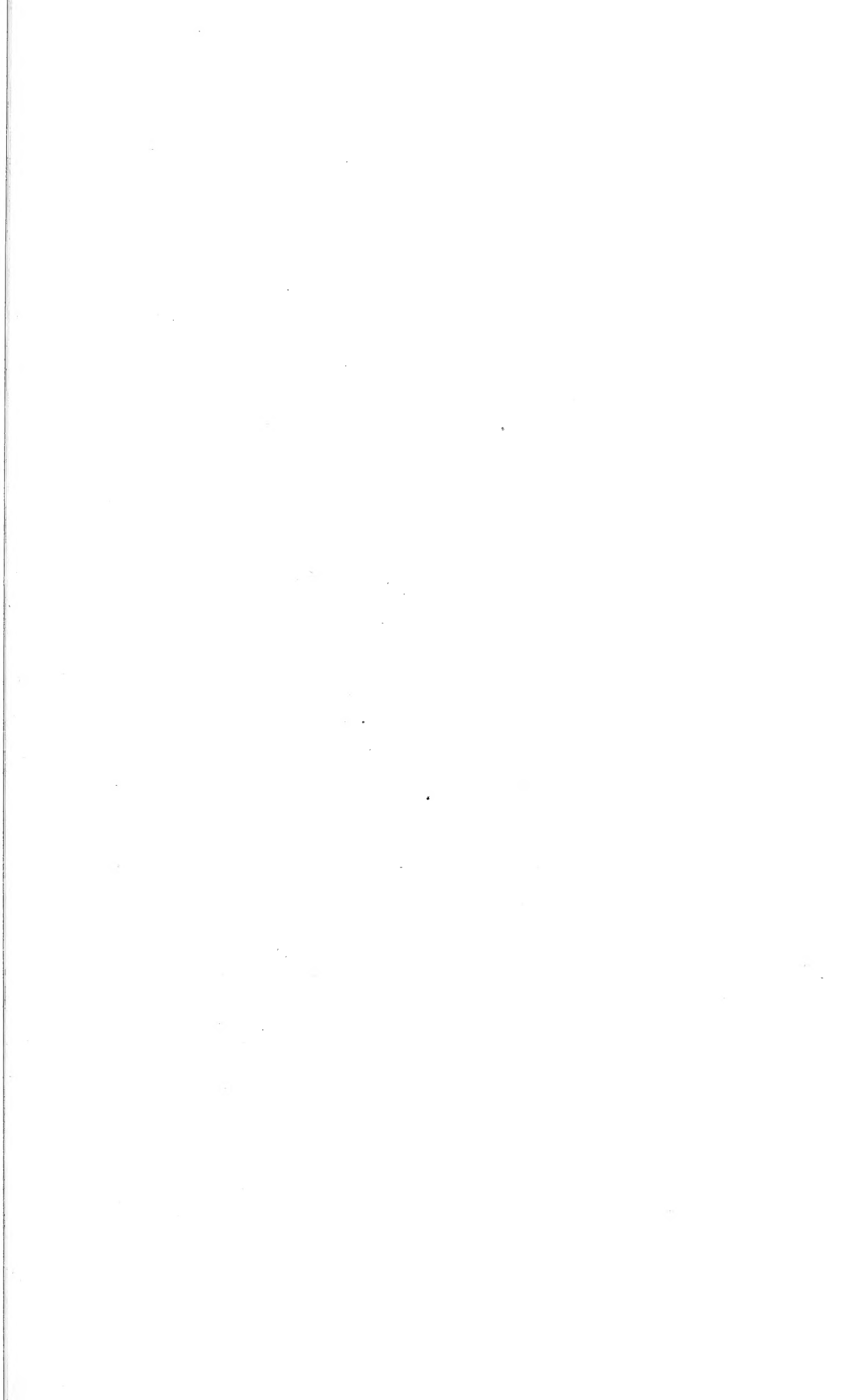
HARVARD UNIVERSITY



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*ANNUAL REPORT*  
OF THE DIRECTOR  
OF THE  
MUSEUM OF COMPARATIVE  
ZOOLOGY

TO THE  
PROVOST OF HARVARD UNIVERSITY

1946-1947

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JOHNSONIA (quarto) 1942 — A publication of the Department of Mollusks.  
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These publications issued at irregular intervals in numbers which may  
be purchased separately. Prices and lists of BULLETIN and MEMOIR articles  
may be obtained on application to the Director of the Museum of Com-  
parative Zoölogy, Cambridge 38, Massachusetts.



# Museum of Comparative Zoölogy

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- \* Died July 31, 1947
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- WILLIAM CHARLES SCHROEDER, *Associate Curator of Fishes*
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MUSEUM OF COMPARATIVE ZOÖLOGY

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## *Museum of Comparative Zoölogy*

TO THE PROVOST OF THE UNIVERSITY:

SIR, — Following the death of Dr. Barbour in January 1946 Dr. Henry B. Bigelow took over the administration of Museum affairs until the writer took office on September first. I wish to express here the appreciation of the staff and of myself for the constructive fashion in which he performed this duty, undesired and uncongenial to him, at a time of deep personal sorrow. He now resumes the role of "elder statesman," a wise and kindly counsellor and friend.

The past year has seen a reorganization of the botanical institutions of the University and the establishment of a Biological Council (of which the Museum director is a member) for the better integration of the activities of the varied biological enterprises of the University. It is appropriate to consider at this time of reorganization and self-examination the proper role of the Museum in the future of Harvard biology. In doing so we shall consider only the strictly zoölogical aspects of the institution, although not forgetting our interests in oceanography, paleontology and certain aspects of geology.

Many natural history museums, particularly those supported by the public, have developed elaborate (and costly) series of exhibits and extensive programs of elementary popular instruction. These are worthy activities, but activities for which we have no funds and which do not lie within the present scope of our museum. For their development in this region we must rely upon our friends of the Boston Society of Natural History; it is to be hoped that they may find the support necessary to create a popular museum worthy of New England.

We are a university museum. Teaching and research are the aims of a university. In its earliest days the Museum was the center of both teaching and research in zoölogy. After the death of Louis Agassiz, however, Museum teaching activities soon ceased for a variety of reasons. The increasing scope of zoölogical instruction put this function beyond the financial means of the institution. New techniques demanded laboratories which the Museum could not supply. And, in addition, Alexander Agassiz, unlike his father, was uninterested in instruction. As a consequence zoölogical teaching was soon transferred to the Faculty of Arts and Sciences, and although for decades the teaching department was housed in the Museum building, the two groups were completely separated — to their mutual disadvantage.

Under Dr. Barbour the first steps were made to rebridge this gap. Currently five members of the Museum staff are members of the Faculty and half a dozen others have been authorized to supervise graduate work. It is to be hoped that whenever and wherever it may be deemed wise, this coöperation may be increased so that the advanced student, at least, may have available to him the full spread of the University's zoölogical resources and so that Museum staff members may benefit from closer contact with their biological colleagues.

Research has been and should continue to be the major interest of the Museum. It was so in the days of the Agassiz; the policy has been reaffirmed by recent vote of the Museum Faculty; and emphasis is added to this objective by the fact that funds which are to come to us under the will of Alexander Agassiz are specifically for research purposes.

What form should this research take? What research activities are pertinent to the structure and purposes of a university museum?

In the days of its founding zoölogical research was limited in nature. Systematics, certain aspects of morphology and embryology, and ecological observation made up almost the entire field. Microscopic technique was little developed; many modern physical and chemical methods and aids were unknown; physiology, born of the medical schools, had hardly touched zoölogical thought or work. During the past century there has been a constant, major expansion of zoölogical activity. The wave of research and new discoveries swept through the fields of morphology, classical physiology, and an array of experimental sub-sciences until today the crest of the wave has actually surged beyond the limits of biology and into the area of biochemistry, leaving zoölogy in a rather chaotic and disorganized condition.

The advance of research into these new areas does not, however, imply that zoölogy in general should be abandoned, any more than recent spectacular discoveries in atomic structure mean that other fields of physics and chemistry in toto should be abolished as outmoded. These advances, rather, shed new light on old problems and stimulate fruitful reinvestigation from new points of view. Harvard has always rightly prided herself on her breadth of coverage in biology. It is the duty of the Museum, as far as it is in its power, to coöperate with its friends and colleagues of the Biological Laboratories in a continued broad development of the field of zoölogy.

What our part should be in this enterprise is suggested, in rough fashion, by a consideration of the potentialities and interests of the two institutions lodging Harvard zoölogists. On the east side of Divinity

Avenue are the Biological Laboratories, well equipped for experimental and other laboratory techniques; whose inhabitants are, by and large, relatively little interested in animals as such, but vitally interested in the properties of living matter in general. To the west lies the Museum; its stock-in-trade is animals, and the interests of its staff are in the animal as such rather than in the discrete functions which serve its being. Between these two extremes of interests lies a broad area which tends to be a desert barrier but which should be instead a fruitful field for common — and coöperative — development.

Much of this area lies within the proper scope of Museum activities. Systematics is a useful and honorable field of work in which our institution has been and should continue to be a major center of activity. Our interests, however, can be much broader in scope and should be expanded as our resources permit. Morphology is a proper field of museum work. Zoögeography and many aspects of ecology are definitely within the scope of museum interests. Recent major advances in evolutionary theory originated in the laboratory development of genetics but owe much to the contributions of systematists and students of geographical distribution. Again it is a fact, although seemingly paradoxical, that museum workers, supposedly dealers in dead bones and stuffed skins, are, in their field work, almost the only zoölogists today who have any familiarity with the lives and functions of animals in a state of nature. Field study raises a variety of interesting problems, generally unknown to the laboratory biologists, but worthy of coöperative pursuit into the laboratory.

Expansion of museum interests along such lines and closer integration of its research activities with those of laboratory biologists should be stimulating and advantageous to both groups and of benefit to the future development of Harvard biology. Such expansion, however, must be left for the most part to the future when, it is hoped, the Museum's financial position will be a better one than is now the case. At the moment major expansion would be unwise and unwarranted. Our duty currently is, rather, to consolidate our position and to demonstrate by a high quality of work in a relatively limited field our worthiness to play a larger role in the future development of biology at Harvard.

### *Staff*

We record with sorrow the death of Dr. Hubert Lyman Clark on July 31, 1947. At his retirement in 1946 he was the senior member, in years of service, of the curatorial staff. Following undergraduate work

at Amherst and graduate study at Johns Hopkins, he had become Professor of Zoölogy at Olivet College (from which he later received an honorary doctorate). In 1905, his growing reputation as an expert on echinoderms led to a call to the Museum to study the echinoderm collections resulting from the expeditions of Alexander Agassiz. During the more than four decades he spent with us, his scientific interests were almost entirely devoted to the collection and study of the Echinodermata, on which he became a world authority. A signal tribute to his work on Australian echinoderms was the award made to him this past winter of the Clarke Memorial Medal of the Royal Society of New South Wales. His last year was a happy one. During the autumn he remained at the Museum; the winter and spring were spent, by invitation, at the Hancock Institution of the University of Southern California in the study of their echinoderm collections.

There have been relatively few changes in the scientific staff during the year. Mr. Harold Jefferson Coolidge, Jr., has resigned as Assistant Curator of Mammals to become Executive Secretary of the Pacific Science Board, National Research Council, in which his administrative ability and knowledge of the field should enable him to render valuable service in the cause of research in that area. In recognition, however, of his many years of valuable service to the Museum, he is continued on our rolls as Research Fellow.

Mr. William E. Schevill is still engaged in part-time work of a confidential nature at the Woods Hole Oceanographic Institution. Dr. Theodore E. White is on leave to engage, under government auspices, in a survey of paleontological sites which may be covered by artificial lakes in the Missouri Valley and other regions.

The writer has received the additional—and honored—title of Alexander Agassiz Professor of Zoölogy.

Several scientists who are, or have been, our guests for extended periods of time have received temporary appointments. These include Dr. Luis Rene Rivas y Diaz of Havana and Dr. Gordon Enoch Gates of Rangoon as Research Fellows, and Dr. Isabelle Perez Farfante as Research Assistant.

At her repeated request, the resignation of Mrs. Margaret A. Frazier as Librarian has been accepted; she assumes instead the post of Assistant Librarian in charge of circulation and reference, thus exchanging uncongenial administrative routine for work closer to her personal interests. Mr. Robert L. Work, of the Harvard College Library staff, has been appointed Librarian. Miss Jessie B. MacKenzie and Mrs. Gloria C. Marengo have resigned from the library staff, and Mrs. Jane Steven-

son, formerly of the Law School Library, comes to us as an assistant librarian.

With the retirement of Mr. George Nelson, Mr. F. Russell Olsen has been given the title of Preparator.

Mrs. Edith Oliver has returned to the Museum as Staff Secretary. Due to ill health, Miss Dorothea Slater has resigned as Secretary to the Mollusk Department, and Mrs. Katherine Tsouprakakis has taken her place.

### *Research Activities*

Dr. Lyman has continued with his main research interests — his work on the difficult problem of hibernation, conducted at the Medical School. Much of his work has been concerned with the establishment of proper physiological criteria for the hibernating and wakened states.

It is pleasant to report the completion of volume VI of Mr. Peters' important Check-list of Birds of the World.

Mr. Greenway has continued work on a book on extinct birds, eventually to be published by the International Committee on Bird Protection, and is continuing his studies of Asiatic birds.

Although Mr. Griscom has continued his usual publication of short articles summarizing the ornithological seasons in New England and population trends, most of his time has been devoted to larger and long-range projects. The final draft of volume I of the Mexican Check-list, mentioned last year, has been distributed to specialists for criticism. A volume on the birds of Nantucket has been completed with the assistance of Miss Edith V. Folger and is in course of publication by the Harvard University Press; this is one of a proposed series of four volumes dealing with the avifaunas of significant New England areas.

Mr. Loveridge has completed a report on all the New Guinea herpetological specimens in the National Museum and the M.C.Z.; a parallel report on the Indian reptiles by Mr. John Constable is nearing completion. Mr. Shreve has identified, and published on the Schultes Colombian Collection and is now collaborating with Dr. A. F. Carr, Jr. in a report on the latter's extensive Honduran material.

Curator Emeritus Banks continues his work in the entomological collections, studying particularly Nearctic *Cerceris* and free-living mites. Dr. Bequaert has devoted such time as could be given to entomological research to the field of South American Tabanidae and North American Hippoboscidae; some progress was made on the planned revision of the latter group. Dr. Darlington has made progress with the Carabidae he collected in New Guinea and the Orient; he has continued his

studies of animal distribution and completed a paper on the geographical distribution of cold-blooded vertebrates for the *Quarterly Review of Biology*. Mr. Nabokov has continued his detailed studies on Holarctic Lycaenidae, one completed paper now being in course of publication. Miss Bryant has completed her studies of Haitian and Puerto Rican spiders.

In the Department of Mollusks, Mr. Clench has devoted most of his time to Western Atlantic marine shells; his studies on this subject are appearing in *Johnsonia*. Mr. Foster has continued his work of revision of marine bivalves and has initiated a long-term project concerned with a bibliography of all mollusk literature. Dr. Bequaert has completed a study of the South American land shells of the family Strophocheilidae and plans to pursue his studies, interrupted by the war, on African mollusks. Dr. Champion continues his studies of North American land shells. Miss Turner is continuing her work on marine boring mollusks and is also working with Mr. Clench on his current studies. Dr. Isabelle Perez Farfante, a guest of the department, has completed for publication studies of the genera *Emarginula* and *Rimula*. Mr. Richard Johnson is preparing a series of papers on the Unionidae of the eastern region of the continent; two of these studies are already completed.

During the winter Dr. Deichmann made a three-months' trip to Denmark and Sweden. She gathered much data of value for her research on echinoderms as well as renewing valuable and stimulating scientific contacts in the zoölogical museums of Copenhagen, Stockholm, and Lund.

Miss Wright and Dr. Edinger have continued active work on the Bibliography of Fossil Vertebrates, including a number of trips to out-of-state libraries, and the writer has contributed such time as could be spared to the project. Dr. Edinger's important monograph on the evolution of the horse brain has, after long delay, reached the galley proof stage, and publication by the Geological Society of America may be looked for shortly. She is now engaged in a study of the frontal sinus of mammals. My own research time has been mainly devoted to a statistical study of horse evolution.

Dr. Cloud has continued work on the Lower Ordovician invertebrate fossils of central Texas, and has completed three short papers on his collections, two in joint authorship with Dr. Josiah Bridge of the U. S. Geological Survey.

Dr. Carpenter's studies during the year have centered on the Permian insects of Kansas and Oklahoma and the Carboniferous of Illinois and France. Close to completion is a tenth paper of the series on the Kansas



fossils and a revision of the Megasecoptera of Commeny. A second paper on the Oklahoma fauna has been begun. In addition he has written several taxonomic papers on Recent Mecoptera and Neuroptera.

Dr. Bigelow reports that about half of the manuscript of the monograph of the skates and rays of the Western North Atlantic has been prepared. However, much of his time and that of Mr. Schroeder has been taken up by the proofs of the preceding monograph in this series covering the lancelets, cyclostomes, and sharks, and of the book on waves noted in the last report.

Mr. Stetson has resumed his work on the sediments of the Atlantic continental slope, which was interrupted by the war, and a report will shortly be forthcoming.

### *Collections*

Collections are part of any museum program. The Museum is justly proud of its collections. But collections (like libraries) may be a source of danger as well as of pride. If they are allowed to grow luxuriantly and indiscriminately, the point may be reached where the entire resources of an institution will be devoted to their maintenance — to no good end. Usefulness, for research and reference, alone justifies the existence of collections, and potential usefulness must be balanced against the expense and effort made in acquisition and maintenance. We believe that the situation is well in hand in our Museum. There are constant additions of valuable materials to our collections; but there is, in every department, a realization of the dangers of profitless expansion and a constant effort to eliminate specimens of little value and to work toward the reduction of the load of curatorial routine.

It is to be hoped that in the future increased curatorial assistance may be available so that the time of at least the senior staff members may be, in great measure, freed for research work. At the present time, however, much of this burden necessarily falls on the scientific staff. The various departments report a considerable amount of necessary and useful work of this sort.

In the Mammal Department, Mrs. Schevill and Dr. Lyman, with the assistance of Mrs. Jordan, have spent considerable time identifying and cataloguing the accumulated collections of the past eight or ten years and preparing part of the backlog of uncleaned skulls and skeletons.

In the extensive, valuable, and much neglected fish collection, Mr. Schroeder reports that Mrs. Dick, with the help of Mr. Harold Hopkins, has made steady progress during the year to the point where the

entire type collection has been catalogued and arranged and two-thirds of the general collection catalogued and indexed.

In Entomology, much of Dr. Bequaert's time, as well as that of other members of the department, had to be spent on routine curatorial duties.

As usual, Mr. Clench's Department of Mollusks is a hive of industry in curatorial work as well as in research. The molluscan collection currently includes 167,528 catalogue entries, representing more than 28,000 species. Much of the department's attention has been devoted to methods of preparation and storage leading to future savings in storage space and curatorial time.

In the Department of Marine Invertebrates, much of Dr. Deichmann's time has been spent in caring for the varied collections for which she is responsible. Mrs. Pattee has practically completed the large catalogue of the asteroids on which she has worked for some time.

In vertebrate paleontology, Preparator F. Russell Olsen, assisted by Mr. Stanley Olsen, has devoted most of his time to the material collected in the Geraldine bonebed of the Texas Permian in 1939 and later years. In addition, a considerable number of mammal specimens from the Thomas Farm quarry have been prepared.

In invertebrate paleontology, Dr. Cloud, with the aid of a number of volunteer workers, and the assistance of Mr. Wilburn H. Akers, has spent much time in reorganizing the synoptic stratigraphic collections and the study collection, and in starting a biological arrangement of Brachiopoda.

In Dr. Carpenter's department, Miss Dunn has brought nearly to completion the catalogue of Paleozoic insects and has mounted many of the Canadian amber insects on microscopic slides.

Due to financial stringencies, no appointment has been made to replace Mr. Nelson as general Museum preparator. The lack of such services is constantly felt, and a replacement here should be made at the earliest possible time.

An outstanding event of the year was the arrival of Monsieur G. Grandidier's excellent collection of Madagascar mammals, donated to the Museum by Mr. Robert Barbour in memory of his brother. The rarities which it includes are too numerous to mention here. There are a number of types and cotypes; nine of the genera are new to our collection, and many others were previously represented by only one or two specimens. Some of the material is suitable for dissection, and there is a very welcome number of rare skeletons.

A major accession in the Department of Mollusks was the presenta-

tion by Mr. D. Thaanum of Honolulu of his non-Hawaiian land and freshwater shells. The collection of over 3,000 lots is exceedingly rich in Japanese shells, many collected in localities that are now depleted of their fauna. Large numbers are from the type series of Pilsbry and Hirase.

A notable example of worthy inter-museum coöperation is the arrangement made between the Department of Mollusks and the American Museum of Natural History. That institution had, over the years, gathered a large amount of molluscan material, but in the absence there of a specialist in mollusks, this was merely a bulky, disorganized, and scientifically valueless space-filler — the worst possible type of museum collection. By agreement, this material has been placed at Mr. Clench's disposal. Much of the non-valuable material was eliminated in short order, and when the work of our department members is completed, the American Museum will own a "streamlined" reference collection, carefully selected and properly identified, while we will profit from the availability of this material for current departmental studies and by the acquisition of duplicate materials which will fill lacunae in our own study collection. This procedure is one which we hope will become more and more common in museum circles in the future.

A welcome visitor to the coral collections was Miss Elizabeth A. Putnam of New York, daughter of the late Captain W. H. A. Putnam of Salem, to whom the Museum owes almost all its valuable collection of stony corals from the East Indies. His material, collected in the 1860's, was divided between our Museum and the Peabody Museum in Salem. When that institution was reorganized a few years ago, Dr. Barbour saw to it that these collections of corals, stored away there in barrels, were transferred to Cambridge, where they would be of infinitely more value to the students of these forms and where they have now become incorporated with the other material collected by Captain Putnam.

Further gifts of note include a fine collection of mammals, as well as insects and reptiles, from the highlands of Peru given by Dr. and Mrs. O. P. Pearson; a series of beautifully preserved reptiles and amphibians from New Guinea, presented by Mr. W. H. Stickel; numerous very rare land and marine shells, including a remarkable series of the western Pacific tree snail *Papuina*, donated by Mrs. Fiske Warren; a suite of Middle Triassic invertebrate fossils from Nevada given by Dr. J. Lee Adams; and a number of donations to the entomological collection, which include Professor C. T. Brues' large collection of parasitic Hymenoptera, upon which his life-long studies were based, an extensive and carefully prepared collection of fossorial wasps from Dr. Richard

P. Dow, a series of exotic Tabanidae sent by Professor P. A. Buxton; and many thousands of beetles collected by the late Professor Roland Thaxter. The names of a host of further donors are given in a later section of this report.

### *Expeditions*

This spring Dr. Bequaert's vacation took the form of a collecting trip to the Great Smoky Mountains, the Big Bend National Park and intermediate areas; a considerable amount of material was gathered, particularly of the Diptera and Hymenoptera.

In July and August, 1946, the writer and Mr. Stanley Olsen explored various Permian regions in New Mexico in search of a new area which might prove profitable for future work in vertebrate paleontology; the results were, unfortunately, negative. During the winter Dr. White spent several months in Florida in continuation of work on the Thomas Farm site.

In the summer of 1946 Dr. Cloud was enabled, through a grant from the Milton Fund, to spend seven weeks in the field in search of invertebrate fossils, accompanying Dr. G. A. Cooper of the U. S. National Museum. Much material of fundamental research value was obtained on this trip, from localities in Arkansas, west Texas, Nevada, and intermediate points. He also made a brief collecting trip in western New York, accompanied and guided by Mr. Irving G. Reimann, during which many fine fossils were collected from the Devonian clay-shales of this area.

During the winter Mr. Stetson, jointly with Drs. Fred B. Phleger and Parker D. Trask, engaged in an expedition to the western Gulf of Mexico on the Atlantis, the trip financed by the Geological Society of America and the Woods Hole Oceanographic Institution. In the course of a voyage of about 2,500 miles, 550 bottom samples and over 100 long cores were collected and about 60 serial plankton tows and complete hydrographic stations were made.

Among the numerous animals introduced into New Zealand in past decades were wapiti ("elk") from our continent, which have become established in a restricted area of the south island. During the past winter, Mr. John K. Howard and Mr. H. Wendell Endicott, under Museum auspices, visited this region at the invitation of members of the New Zealand government. Owing to the difficulties of the terrain, the results obtained were limited, but suggest that further study of the ecology of these transplanted cervids would be profitable.

*Academic and Other Activities*

As usual, a number of members of the Museum Staff were engaged in teaching biology in the Faculty of Arts and Sciences. Dr. Bigelow, as noted in last year's report, took part in instruction in Biology 2b (General Survey of the Invertebrates) during the summer of 1946. Dr. Carpenter gave two courses in entomology during the year, principally to graduate students, and the writer offered his usual courses in comparative anatomy and in paleontology. By vote of the Department of Biology, Curators Bequaert, Clench, Darlington, Deichmann, Love-ridge, and Peters, in addition to those already named, were empowered to offer research work to graduate students, and Dr. Darlington is offering a course in zoögeography during the current summer term.

In the Department of Geology and Geography, Dr. Cloud gave two courses in invertebrate paleontology, and Mr. Stetson offered for the first time a course in the principles of sedimentation.

Mr. Griscom continues to serve on the Board of Freshman Advisers and as an Associate of Kirkland House.

Apart from curatorial and research activities, the staff members of a museum have definite responsibilities toward individuals, groups, and organizations interested in the various fields concerned. As is evident from the curators' reports, such demands were numerous, varied, and time-consuming.

Public inquiries regarding various animals have, as ever, been a constant if relatively minor factor in time expenditure by the staff. Looming much larger in the total picture is the fact that the importance of our collections forces upon us the welcome burden of rendering these materials readily available to scientific colleagues from other institutions. We have had the pleasure, the departmental reports indicate, of visits for various periods of time from some scores of scientists. In addition, numerous loans of material are constantly being made. The Department of Insects, for example, notes that during the year some 43 collections of specimens were sent out on loan and an almost equal number of previous loans returned. It is pleasant to be able to perform such services, but with the restricted amount of curatorial assistance available, the strain upon the time of the scientific staff is not inconsiderable.

Editorial duties consume a fair proportion of staff time. Within the Museum, editing of the large amount of Bulletin material has occupied much of Mr. Griscom's time; in the Mollusk Department Dr. Champion is concerned with editorial matters and Miss Turner with the

management of *Johnsonia* and the Department's *Occasional Papers*; and the entomologists are concerned with the publication of *Psyche*. Mr. Batchelder has continued his valuable services as Editor of the *Proceedings of the New England Zoölogical Club*, in which most of the papers are the product of the Museum staff. It is with regret that we report his determination to close the long and honorable history of this publication with the current volume. Mr. Peters has continued as Editor of *Bird Banding*. Dr. Edinger is in charge of foreign news and correspondence for the *Bulletin of the Society of Vertebrate Paleontology*, and Miss Wright has assumed the responsibility of seeing that publication through the hands of the printers.

As usual, staff members have contributed to the work of various scientific organizations. We may note, for example, Mr. Peters' services to the International Committee on Zoölogical Nomenclature, and the Committee on Classification and Nomenclature of North American Birds of the American Ornithologists' Union, and Mr. Griscom's active leadership in the National Audubon Society and the Boston Society of Natural History.

#### *Exhibits, Building, and Equipment*

No changes of any note were made in the public exhibits during the year. Except for gradual additions to the fossil materials, the exhibition halls remain in essentially the shape they assumed after the major changes and improvements made by Dr. Barbour two decades ago. When judged by modern museum standards and as compared with some of the exhibits of our neighbors in the University Museum, they currently seem somewhat dowdy in appearance. There is, however, no immediate prospect of an opportunity for any radical revision of our halls, and their teaching value is unimpaired.

During the year a number of rooms have been redecorated. Through the generosity of Mr. George R. Agassiz, fluorescent lights have been installed in about a dozen of the most-used work rooms in the building, and the Director's office and adjacent rooms have been refurnished. With the consent of the University, a second floor room, named the Agassiz Room, has been designated as a common room where smoking is permitted, so that no longer do the nicotine addicts need to huddle on or beneath the court steps in cold or stormy weather. Mrs. George R. Agassiz and Mrs. Henry Lyman have contributed a number of chairs toward the furnishings.

A chemical sink and hood have been installed to further the acid preparation of invertebrate fossils. The optical equipment of the various

departments was in general antiquated and ineffective by modern standards. Again through the generosity of Mr. Agassiz we have been enabled to buy new equipment and satisfy almost all major research needs in this regard.

University purchases of War Surplus materials have enabled us to acquire many badly needed items of equipment at a price suited to our pocketbook. Urgent needs which, however, must be postponed for the time include, among others, storage cases in several departments and particularly proper housing of the Barbour Memorial Collection of Madagascar Mammals.

### *Library*

The yearly count of additions to the Library gives net increases of 2,324 volumes and 757 pamphlets, bringing the totals in these categories to 90,873 and 115,098. Some 282 volumes were bound. Among gifts may be noted numerous needed reprints from the library of Professor P. E. Raymond, a number of old and rare books from that of the late Dr. Barbour, and foreign journals published during the war years from Professor R. A. Daly. By purchase some hundreds of volumes were acquired from the Boston Society of Natural History. As indicated by the number of loans, use of the Library was about one-third greater than in the previous year.

For the better functioning of staff and services, the delivery room has been rearranged, with the removal of the last of the grill work once believed necessary in keeping the would-be reader from access to our books, and the work-room activities have been moved to another area.

It is my regret that the restricted budget upon which it is at present necessary to operate the Library makes it impossible for the limited staff to cope adequately with their large backlog of work in accessioning, desirable reshelving, and preparation of material for binding.

### *Publications*

In contrast to 1945-46, when printing bottlenecks considerably reduced the usual output of Museum publications, 1946-47 was a banner year. Volume 96 of the Bulletin was completed, volumes 97 and 98 issued complete, and nearly all of volume 99 — a total of 1,714 pages. In addition, a number of papers in *Psyche* and in the *Proceedings of the New England Zoölogical Club* were subsidized by the Museum. That we were able, despite rising costs in general throughout the publishing world, to publish this amount of material has been due in great measure to the continued financial assistance of Mr. George R. Agassiz

and to the coöperation and friendly spirit of the Cosmos Press, printers of the Bulletin. The Mollusk Department has successfully continued the publication of *Johnsonia* and of *Occasional Papers*, two numbers of each having been issued during the year.

### *Acknowledgements*

Like any institution which must attempt to live on a fixed income in a cycle of rising prices, the Museum's current financial situation has been far from an easy one. The difficulties of our position have, however, been much lightened by considerate treatment of our problems by the University authorities on the one hand, and on the other by the continued financial aid of our friends. As ever, Mr. George R. Agassiz has donated generously to our needs, as noted in a number of other places in this report, and Mr. Richard W. Foster has continued his assistance to the activities of the Department of Mollusks.

As ever, the Museum has benefited by the services of staff members and friends who have worked actively for us without financial reward. In addition to staff members who have continued full-time work without thought of remuneration, the following volunteers are noted in the curators' reports:

*Mammals:* Richardson White, Jr.

*Insects:* K. A. Christiansen, H. Clench, E. I. Coher, E. V. Enzmann, John Rehn, and M. W. Wing.

*Mollusks:* C. Clench, R. Johnson, Miss Barbara Kinne.

*Invertebrate Paleontology:* Mrs. Mildred P. Cloud, Arthur Boucot, Miss Toni Handler, Miss Roberta Pierce, A. B. Shaw, Keith Yenne.

In our discussion of the collections, the names of a number of donors were noted. We wish, in addition, to extend to the following the hearty thanks of the Museum for donations of specimens:

*Mammals:* A. F. Carr, Jr., Mrs. Marjorie Carr, P. E. Glover, C. T. Parsons, Ralph S. Palmer.

*Birds:* Douglas Byers, Roland C. Clement, S. K. Harris, Ralph S. Palmer, O. P. Pearson, W. H. Phelps.

*Reptiles and Amphibians:* Robert Barbour, R. E. Best, J. C. Bequaert, W. C. Brown, G. S. Cansdale, F. M. Carpenter, P. E. Glover, B. L. Huntington, L. W. Jarcho, H. G. Kugler, G. S. Lansdale, N. Moren, C. T. Parsons, C. L. Remington, J. R. Slevin, W. F. Walker, Jr., F. Werner.

*Fishes:* H. B. Bigelow, Paul Hansen, William T. Reid, Jr., C. W. Thomas.

*Insects, Spiders, and their allies:* American Museum of Natural History, Carnegie Museum, Rocky Mountain Laboratory, U. S. National Museum, P. Anduze, N. S. Bailey, N. Banks, M. Barro, H. A. Beatty, W. T. Beebe, A. E. Brookes, A. R. Brooks, A. E. Brower, S. C. Bruner, G. S. Cansdale, F. M. Carpenter, H. Clench, T. D. A. Cockerell, V. Dethier, L. H. Dunn, H. E. Evans, G. B. Fairchild, D. S.



Farner, R. C. Fennah, J. Forbes, C. A. Frost, H. S. Fuller, P. E. Glover, H. Henrot, H. Hoogstraal, G. H. E. Hopkins, F. M. Hull, P. D. Hurd, Jr., C. Jacot-Guillarmod, Miss Sarah Jones, L. Kartman, E. L. Kessel, G. M. Kohls, R. Latham, M. Leclercq, H. B. Leech, A. Loveridge, R. Mattheson, J. F. May, Mrs. Edith D. Oliver, E. D. Parmer, V. S. Pate, L. L. Pechuman, H. B. Peirson, C. B. Philip, H. D. Pratt, R. W. Pyle, P. Rau, J. A. G. Rehn, C. L. Remington, J. Sandground, O. Scott, M. R. Smith, R. W. Strandtmann, G. B. Thompson, R. Traub, K. Tsuneki, R. L. Usinger, F. van Emden, M. W. Wing, W. W. Wirth, P. Wygodzinsky, F. Young.

*Mollusks*: M. E. Champion, Carl Dumbauld, Mrs. Elizabeth Howard, R. A. Howard.

*Marine Invertebrates other than Mollusks*: Museum of Copenhagen, Guido Bacci, J. Hedgpeth, W. G. Hewatt, H. H. Hobbs, Max de Laubenfels, A. R. Moore, Th. Mortensen, Sir William Murphy, Miss Maria Pope, E. F. Ricketts, A. Hyatt Verrill, F. Ziesenhenné.

*Invertebrate Fossils*: U. S. National Museum, R. S. Allan, Virgil E. Barnes, Arthur Boucot, J. Bouska, C. E. Decker, S. Holliday, M. J. Kopf, Stanley Olsen, I. G. Reimann, A. B. Shaw, R. R. Schrock, Charles Southworth, John Tolleson.

ALFRED S. ROMER, *Director*

*Publications for the year 1946-1947*

The following have been printed under Museum auspices during the year from July 31, 1946 to July 1, 1947.

*Bulletin*

## Vol. 96

No. 4. Studies of South American Psammocharidae. By Nathan Banks. Pt. 1. pp. 308-525, 3 pls. December, 1946.

## Vol. 97

The Salticidae (spiders) of Panama. By Arthur M. Chickering. pp. 474. September, 1946.

## Vol. 98

No. 1. Revision of the African lizards of the family Gekkonidae. By Arthur Loveridge. pp. 469, 7 pls. January, 1947.

No. 2. The species of the Pseudoscorpion genus *Chelanops* described by Banks. By C. Clayton Hoff. pp. 80, 4 pls. April, 1947.

## Vol. 99

No. 1. Review of the Labyrinthodontia. By Alfred S. Romer. pp. 368. May, 1947.

No. 2. Studies of South American Psammocharidae. By Nathan Banks. Pt. 2. pp. 107, 1 pl. June, 1947.

*Proceedings of the New England Zoological Club.*

## Vol. 24

Bibliography of publications by Glover Morrill Allen. By Barbara Lawrence. pp. 1-81. February, 1947.

The *Fusus*-like *Thyone* from the West Indian waters. By Elisabeth Deichmann. pp. 83-90. February, 1947.

Chinese Forms of the Pied Woodpecker. By James C. Greenway, Jr. pp. 91-100. April, 1947.

A new race of *Oryzomys* from Tamaulipas. By Barbara Lawrence. pp. 101-103. May, 1947.

*Psyche*

## Vol. 53, nos. 1-2 (March-June). December, 1946.

Descriptions of three new Neotropical species of *Chrysops* (Diptera, Tabanidae). By Joseph C. Bequaert. pp. 6-11, 1 pl.

African Bees of the Genus *Anthophora*. By T. D. A. Cockerell. pp. 22-26.

Description of *Habrocestum parvulum* (Banks). By Sarah E. Jones. pp. 27-29. 4 figs.

## Vol. 53, nos. 3-4 (Sept.-Dec.), February, 1947.

The Tabanidae of Colombia (Diptera). By Joseph C. Bequaert and Santiago Renjifo-Salcedo. pp. 52-88.

## Vol. 54, no. 1 (March). April, 1947.

Synopsis of West Coast *Cerceris* (Hymenoptera, Cerceridae). By Nathan Banks. pp. 1-35, 1 pl.

New species of Diplosphyronid Pseudoscorpions from Australia. By C. Clayton Hoff. pp. 36-56, 2 pls.

The Genus *Callictita* (Lepidoptera, Lycaenidae). By Robert G. Wind and Harry K. Clench. pp. 57-61.

Vol. 54, no. 2. June, 1947.

Early Insect Life. By Frank M. Carpenter. pp. 65-85, 9 figs. A List of Spiders from Mona Island, with descriptions of new and little known species. By Elizabeth B. Bryant. pp. 86-99, 1 pl.

Taxonomic notes on the Dilaridae (Neuroptera). By F. M. Carpenter. pp. 100-109, 5 figs.

On some Acarina from North Carolina. By Nathan Banks. pp. 110-141, 6 pls.

*Publications by the Museum Staff*

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Synopsis of west coast Cerceridae (Hymenoptera, Cerceridae). Psyche, 54, no. 1, pp. 1-35, 1 pl. April, 1947.

Some neuropterous insects from Szechwan, China. Fieldiana-Zoölogy, 31, no. 12, pp. 97-107. April, 1947.

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A new Agelanius from Colombia. Psyche, 53 (1946), pp. 86-88. February, 1947.

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The Genotype of *Mimetus* Lentz. Psyche, 53, p. 48. February, 1947.

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Lower Permian Insects from Oklahoma. Pt. I. Introduction and the Orders Megasecoptera, Protodonata, and Odonata. Proc. Amer. Acad. Arts Sci., 76, pp. 25-54, 28 figs., 2 pls. April, 1947.

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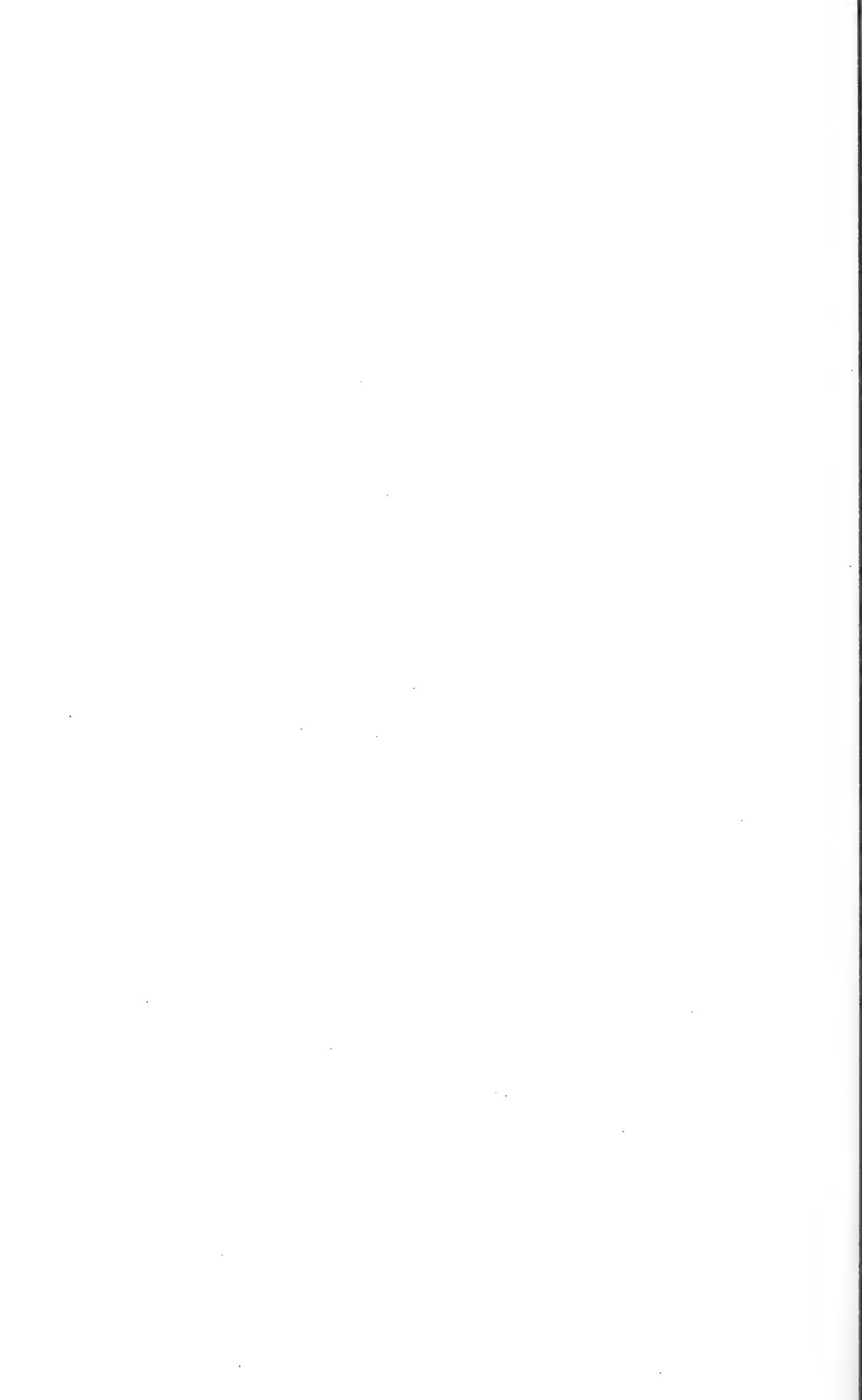
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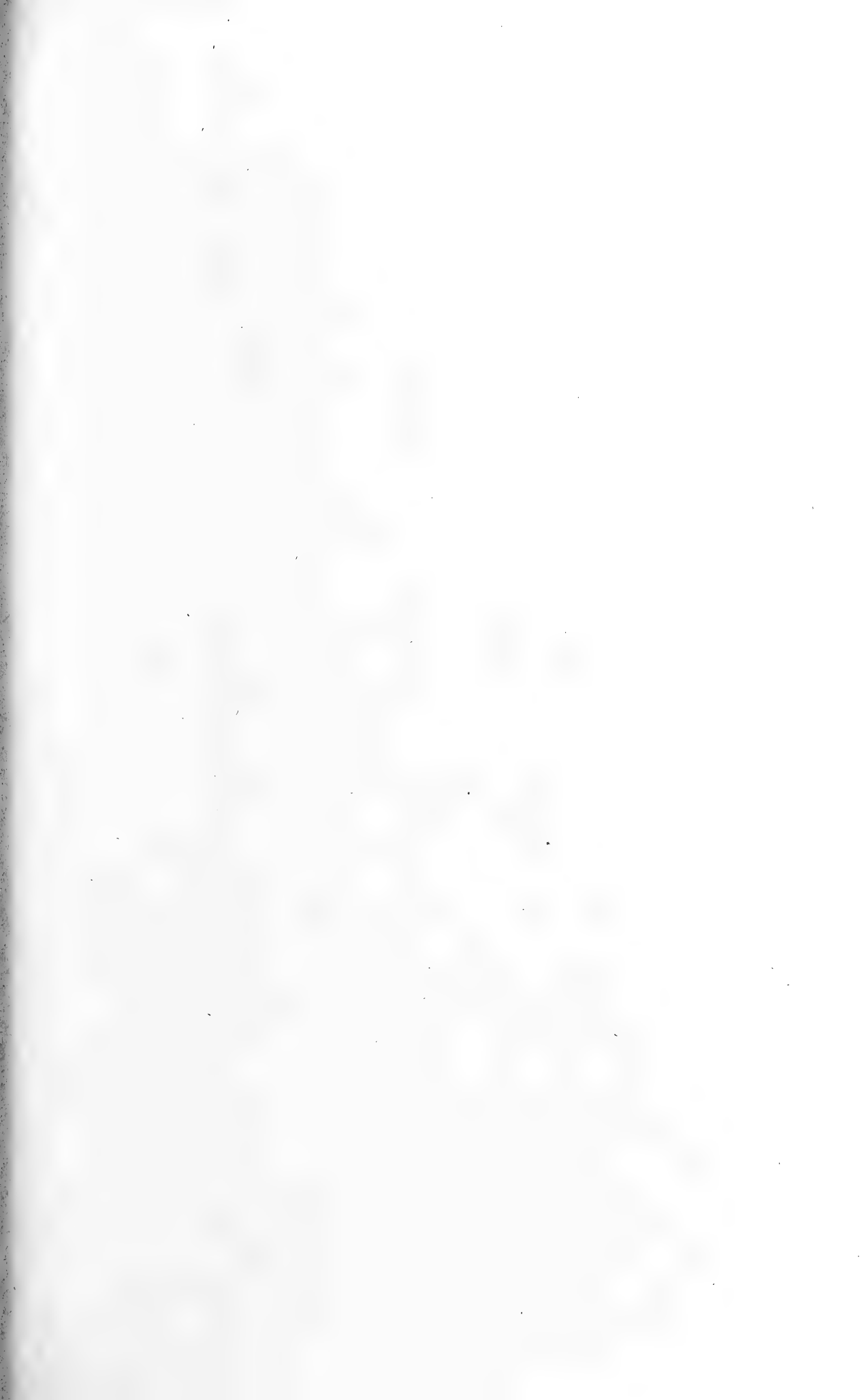
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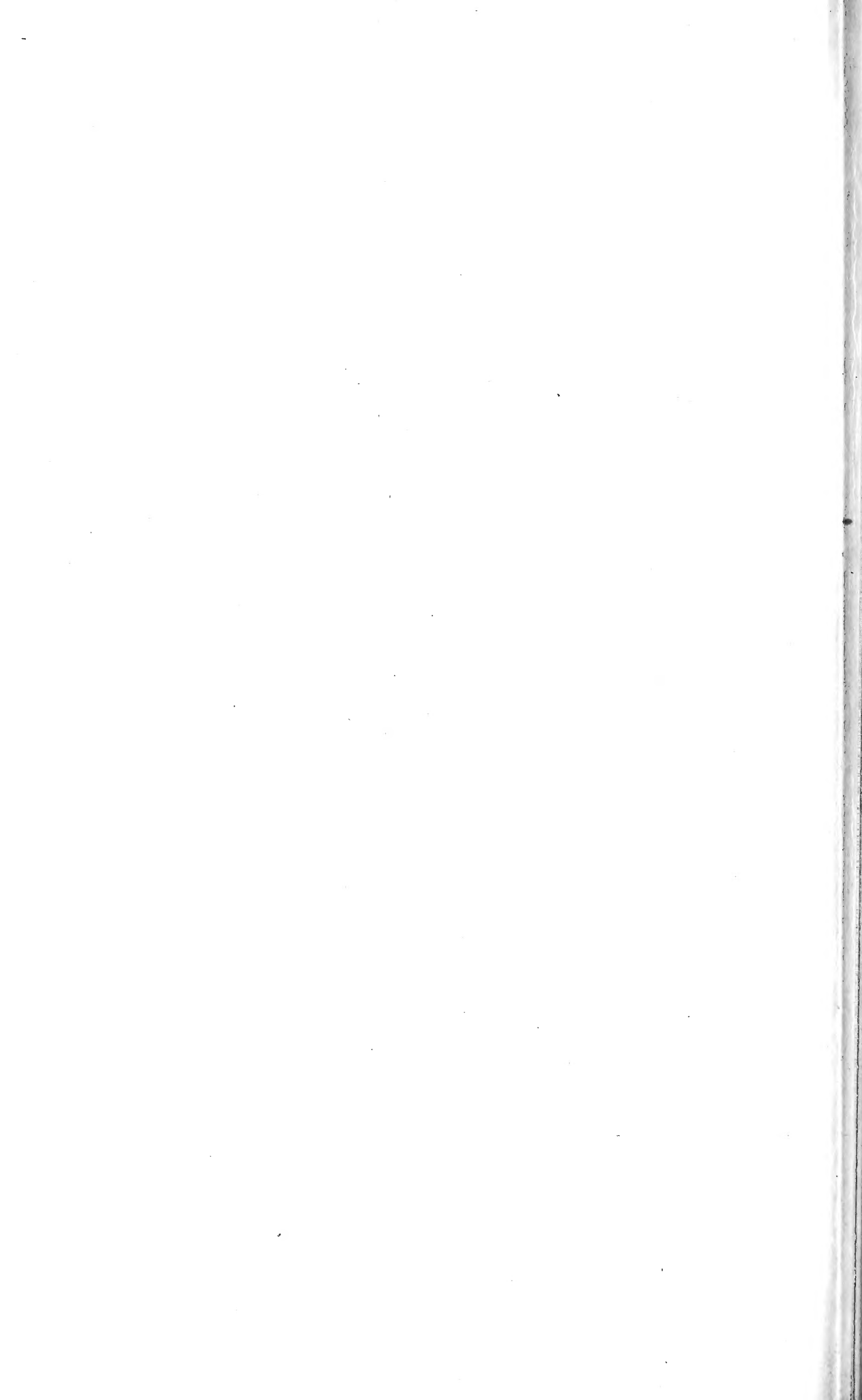












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