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CONTENTS:

<i>Alpheus Spring Packard</i> : PROFESSOR J. S. KINGSLEY, PROFESSOR CARL BARUS.....	401
<i>The Astronomical and Astrophysical Society of America</i> : DR. FRANK B. LITTELL.....	406
<i>Scientific Books</i> :—	
<i>Die Moore der Schweiz</i> : PROFESSOR W. F. GANONG	424
<i>Scientific Journals and Articles</i>	425
<i>Societies and Academies</i> :—	
<i>The New York Academy of Sciences, Section of Geology and Mineralogy</i> : PROFESSOR A. W. GRABAU. <i>The Philosophical Society of Washington</i> : CHARLES K. WEAD.....	425
<i>Discussion and Correspondence</i> :—	
<i>Recent Washington Rhizobia Experiments</i> : PROFESSOR ALBERT SCHNEIDER.....	428
<i>Special Articles</i> :—	
<i>A New Code of Nomenclature</i> : DR. J. A. ALLEN	428
<i>Current Notes on Meteorology</i> :—	
<i>Meteorological Results of the Blue Hill Kite Work</i> : PROFESSOR R. DE C. WARD....	433
<i>Meeting of the British Association in South Africa</i>	435
<i>Joint Announcement of Summer Field Courses in Geology</i>	437
<i>Scientific Notes and News</i>	437
<i>University and Educational News</i>	440

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ALPHEUS SPRING PACKARD.

ALPHEUS SPRING PACKARD, for twenty-six years professor of zoology and geology in Brown University, died at Providence, February 14, 1905. He was born at Brunswick, Maine, February 19, 1831. His father, for whom he was named, was for over sixty years connected with the Bowdoin College faculty, and his grandfather, the Rev. Dr. Appleton, was one of the early presidents of the college.

At the age of eighteen he entered Bowdoin and there came under the influence and instruction of the late Paul Ansel Chadbourne, who fostered and encouraged his natural inclination towards zoological work. Dr. Chadbourne at this time was also connected with Williams College and it was through him that Packard became a member of the Williams College expedition of 1860 to Greenland and Labrador, with which he went only as far as Labrador, where he spent two months collecting, getting back to college in time for the studies of senior year. In the senior vacation he, with several other Bowdoin students, went on a dredging trip to the Bay of Fundy.

Immediately after graduation in 1861 he accepted the position of entomologist to the newly established scientific survey of Maine and in this capacity he traveled through a large part of the northern wilderness of the state. On this expedition he made the first discovery of Silurian fossils in the northern part of Maine and obtained material for several articles which were published in the first two reports of the survey.

He had now decided on his life work and after the season in the field, went to Cambridge to study with Agassiz. Here he devoted himself largely to the study of insects for the three years that he retained his connection with the Museum of Comparative Zoology, but in his spare time he read medicine and each winter he attended the lectures in the Maine Medical School connected with Bowdoin, from which he was graduated with the degree of doctor of medicine in 1864.

In the summer of that year he made a second trip to Labrador, where, with his enlarged experience, he was able to add greatly to the knowledge acquired on his former trip. As a result, besides several smaller papers, he published a large memoir on the geology and zoology of that region. Later this material was worked over and formed the basis of his book on 'The Labrador Coast.'

On his return from this second trip to Labrador he enlisted for three years as assistant surgeon and accompanied the first regiment of Maine Veteran Volunteers to Virginia, where he served until the end of the war. These ten months included the whole of his medical practise. After being mustered out he acted for a time as librarian and custodian of the Boston Society of Natural History, remaining there until 1866 when with several of his former fellow students—Hyatt, Morse, Putnam and Cooke—he accepted a position in the museum of the Essex Institute at Salem, at that time one of the most active scientific societies in the country.

Then came the founding of the Peabody Academy of Science in Salem. To it the Essex Institute transferred its collections and the scientific corps went with them, Packard being appointed curator of invertebrates and in 1876 director of the academy. Here he remained until 1878, when he accepted the position at Brown which he held

for the rest of his life. While at Salem he held various other positions. He was for three years state entomologist of Massachusetts, lecturer for several years in entomology at the Amherst and Orono Agricultural Colleges, and for two or three years upon zoology and comparative anatomy at Bowdoin College. He also worked for two summers on the *Bache* and *Blue Light*, dredging for the U. S. Fish Commission in the Gulf of Maine. He was connected for a time with the Kentucky Geological Survey, when he made a zoological exploration of Mammoth Cave and laid the foundation of his later work on cave life. From 1875 to 1877 he was one of the zoologists of the U. S. Geological Survey under Hayden.

In 1873 Agassiz inaugurated the Anderson School of Natural History on the island of Penekese, the first summer school of biology in America. Here for two years Packard gave the instruction in insects and crustacea, and when with Agassiz's death the school was given up, Packard started a similar but smaller summer laboratory at Salem under the auspices of the Peabody Academy of Science which he conducted until his removal to Providence. This work was later taken up by the late Professor Hyatt at Annisquam, Mass., and continued until the establishment of the Marine Biological Laboratory at Woods Hole. In 1876 he was appointed by the President a member of the U. S. Entomological Commission which was to devise ways and means of checking the ravages of the Rocky Mountain locusts in the trans-Mississippi country. Later the scope of the commission, which lasted for five years, was enlarged so that it might deal with other insect pests. On this service he made two trips to the west, one taking him to the Pacific coast.

Besides these trips he spent the winter of 1869-70 in Florida, stopping on his re-

turn at Beaufort, N. C., from which place he brought back large collections of invertebrates. The next winter he spent at Charleston, S. C., where he studied the development of numerous marine invertebrates and especially of the crustacea, and where he collected the tertiary molluscs made known by F. S. Holmes. In 1872 he visited Europe, studying the collections of insects in the large museums and paying especial attention to Walker's types of lepidoptera in the British Museum. In 1885 he visited Mexico and in 1898 again spent a year in Europe and northern Africa.

Dr. Packard was a most indefatigable worker, the list of papers which came from his pen being numbered by hundreds. Only a few of these can be mentioned here. His first article was upon the army worm and was published by the Maine Scientific Survey. The years at Cambridge were chiefly spent in study, but some of the notes then made were incorporated in numerous later works, although large numbers of observations made in these early years remained unpublished at his death. His first large work was the monograph of the geometrid moths published by Hayden's Survey, and scarcely less imposing was his account of the Bombycidae issued by the National Academy. His embryological work, which included studies on the development of the lower insects, appeared in the 'Memoirs' of the Peabody Academy of Science and in minor papers elsewhere, while his memoir on the development of the horseshoe crab remained for years the chief source of our knowledge of that interesting animal. This work was all done before the days of sections and was based entirely upon surface views and optical sections, a fact for which allowance should be made when his mistakes are recalled. His papers on the geology and natural history of Labrador and on the cave animals have

already been alluded to. Possibly his best article was the 'Monograph of the Phyllopod Crustacea' published in the last report of Hayden's Survey.

Packard was possibly best known for his text-books. The earliest of these was his 'Guide to the Study of Insects,' which for years served as the *vade mecum* of hundreds of budding entomologists. Then came his 'Life Histories of Animals,' which was the first attempt since the day of Agassiz's Lowell Institute lectures to summarize the facts of embryology, a work which was early superseded by Balfour's admirable treatise. Then came his 'Zoology,' the first attempt to give American students a truly scientific text-book in which morphology and classification were given equal prominence. This was followed by several smaller and more elementary works for lower schools, some of which have had a large sale. Later came a second work on entomology, in which the morphological side of the subject was strongly emphasized.

Packard, along with his friends Cope and Hyatt, must be regarded as one of the founders and chief supporters of the so-called Neo-Lamarckian school of evolution, and his writings in advocacy of these views are numerous. His studies in this direction led him to study deeply the writings of Lamarck and later to bring together all the known facts in the life of this early apostle of evolution. In fact his second trip to Europe was largely for the purpose of ascertaining everything possible concerning the man.

In speaking of Dr. Packard one should not forget the services he rendered to science as one of the founders and for twenty years as editor of the *American Naturalist*. Almost as soon as he reached Salem the magazine was launched and while one by one the other editors dropped out Packard remained in charge. In these days of numerous natural history magazines one can

hardly realize the boon the establishment of this journal was to the naturalists of the country, and few know its financial vicissitudes and the sacrifices of its editor during its early days.

Personally, Dr. Packard was one of the most companionable of men. He was always ready to aid and assist the young in their natural history studies to the extent of his powers. He was critical of the language in which they clothed their facts and the pages of the *Naturalist* have profited by his revision. He rarely indulged in controversy, and although he could say sharp and cutting things, one may look in vain in his published works for any traces of polemics.

Dr. Packard was married in 1867 to Elizabeth Derby, the daughter of the late Samuel B. Walcott, of Salem, who, with four children, one a rising naval architect, survives him.

J. S. KINGSLEY.

TUFTS COLLEGE, MASS.

ALPHEUS SPRING PACKARD.*

I have not known Professor Packard as long, nor as intimately, as many of my colleagues; and where they have spoken I should remain silent. Neither am I qualified to discuss his more immediate scientific work. I can, however, in response to the President's suggestions, speak of him in the light in which one scientific man sees another, older and wiser than himself; but I do so with diffidence. I have, therefore, written down with some care the things which I would not otherwise venture to express.

It seems an ungracious confession to make, but it is nevertheless true, that it was through Professor Packard that many of us in Washington, twenty or thirty years

* Address given at the memorial exercises at Brown University. Printed in *SCIENCE* at the request of the editor.

ago, became aware of the existence of scientific activity at Brown University. For age had wearied the enthusiasm of Alexis Caswell twenty years earlier. Yet it was not by his presence that Packard represented her; at least in the years in which I knew him, he was not a frequent attendant at scientific meetings remote from Providence. It was his untiring and remarkably pervasive industry that confronted us. The president of the National Academy, the director of the Geological Survey and others in authority all felt the force of it; and at one time there were dismal mutterings in the high places of legislation asking why the public printer's time should be spent in bringing out the elaborate researches of one who stood remote from public office. How did this come about? Certainly a man of Professor Packard's singular modesty, of his almost morbid habit of self-depreciation, was the last to find his way through the mazes of a government lobby. His transparent sincerity would have been infinitely removed from all this. And yet there was no mystery about it. It was a mere force from within breaking its way. The power of Professor Packard's intellect bearing on subjects of natural history, the scope and accuracy of his learning and the purity of his scientific ideals were his only resources; and wherever institutions needed the fruits of ripe scholarship to dignify their own scientific activities, these were the first to feel the influence of Professor Packard's productive zeal, as they were compelled to guide its progress. And so our unobtrusive colleague taxed the people of the whole United States to publish his magnificent memoirs—because he was genuine.

The same facts appear in a different way, in the further story of Professor Packard's life. I am the last man to speak lightly of the young vigor and the promise of our American institutions, or of our