

crowds of people that gather from 7 in the morning until late in the evening every day to await their turn for examination, diagnosis and treatment, he thinks that he has come to the shrine of a saint.—William Howard Taft in the *Philadelphia Public Ledger*.

THE JOURNAL OF MAMMALOGY

ON April 3, 1919, the American Society of Mammalogists was founded at Washington, D. C. One of the principal objects of this society was the publication of a journal of mammalogy and on November 28 the first number of this journal appeared, from the press of Williams and Wilkins Company, Baltimore.

The arrival of the journal must have been a matter of gratification to the many students, scientific workers and others who are interested in the subject of mammalian life, for the need of such a publication has long been felt. In its aims this journal is broad, including within its scope morphology, evolution, paleontology, taxonomy, life histories and habits, in fact "every phase of technical and popular mammalogy." It is the announced purpose to make the journal indispensable to all active workers in mammalogy and of value "to every person interested in mammals, be he systematist, paleontologist, anatomist, museum or zoological garden man, big game hunter, or just plain naturalist."

In its make-up the journal seems in the opinion of the reviewer to be both substantial and attractive. The type is well chosen, the paper of good quality and the photographic reproductions contained give evidence that the illustrative features will be well handled. The front of its gray-green cover presents as decoration a pen drawing by Ernest Thompson Seton of the prong-horn antelope—symbol of something distinctively American. Below this is the table of contents and a glance at the list of contributors reveals the names of many well-known authorities in the field of mammalogy.

The first number consists of 51 pages, of which about 37 are devoted to major articles,

5 to general notes and about the same number to recent literature and 2 pages to editorial comment. On the closing pages are found the by-laws and rules of the society adopted at the time of its founding. The second number, which appeared promptly, includes pages 53 to 110.

An idea of the contents of the journal may best be conveyed by mention of a few representative titles. Among the major articles, of technical character are "Criteria for the recognition of species and genera," "Preliminary notes on African Carnivora," "Notes on the fox squirrels of the southeastern United States," "Names of some South American mammals," "A new fossil rodent from the Oligocene of South Dakota," "Identity of the bean mouse of Lewis and Clark." Among articles dealing with distribution, habits and other phases of life-history may be mentioned "Bats from Mt. Whitney, California," "The mammals of Southeastern Washington," "Migrations of the gray-squirrel," "An apparent effect of winter inactivity upon the distribution of mammals," "For a methodic study of life-histories."

Under General Notes, a department of the journal which promises to be one of unusual interest, are found among others, "An easy method of cleaning skulls," "Red bat and spotted porpoise off the Carolinas," "The Florida spotted skunk as an acrobat," "Rodent mountaineers," "Does the cuterebra ever emasculate its host?" "The coyote not afraid of water," "The flying squirrel as a bird killer," "Technical names of two *Colobus* monkeys."

In addition to reviews of recent literature each number contains a long list of titles of recent mammalogical publications, domestic and foreign, while in the correspondence and editorial departments appear some very readable letters and comments on topics of current interest to mammalogists.

In a magazine of the scope of the *Journal of Mammalogy* it seems inevitable that articles of certain types will at times predominate over other kinds and it is perhaps too much to expect that every number shall

have equal interest for all of its readers. It is a matter beyond the control of the management but one of which it is fully mindful and the editor very properly points out that if the magazine is to be a well-balanced one those members who are particularly interested in certain special phases of mammalian life must be largely responsible for furnishing the materials relating to their respective fields. In the opinion of the reviewer the management is to be congratulated upon the manner in which the journal has been launched. That the magazine will be indispensable to the active worker in the domain of mammalogy is a matter of course, but it seems also eminently worthy of a place in the libraries of all our schools and colleges where biological subjects are taught, for a sufficient number of articles of non-technical nature are assured to furnish highly profitable reading of a kind that can not help but be an incentive to a wider and more intelligent interest in mammalian life.

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SPECIAL ARTICLES

FLUORESCENCE, DISSOCIATION AND IONIZATION IN IODINE VAPOR

I. FLUORESCENCE AND IONIZATION

EARLY attempts to account for fluorescence as due to radiation produced by the return to the parent molecules of electrons which were photoelectrically emitted by the exciting light have been unsuccessful, since the fluorescence of gases and vapors is not generally accompanied by ionization. Consequently, the recent viewpoint is that the primary effect of the exciting light is to cause one or more electrons of a molecule to take positions or conditions of abnormally large potential energy, without being necessarily removed from the parent molecule. This additional energy is absorbed from the exciting light, and is reemitted as radiation when the electrons return to their initial stable configurations. This fluorescent radiation may be of the same, of longer, or of shorter wave-length than the exciting light according as the return is accomplished in a single step,

in several steps, or in a single step following the absorption of additional radiant energy.

We have obtained experimental evidence of the correctness of this viewpoint from measurements of the minimum energy required to ionize an iodine molecule in the normal state as compared with that required to ionize a fluorescing molecule. This energy is expressed, as usual, in terms of the minimum ionizing potential, which is found to be close to 10 volts for the normal molecule and 7.5 volts for the fluorescing molecule, excited by the green mercury line (whose wave-length is the same as that of the green absorption band of iodine, and which excites strong fluorescence). The difference, 2.5 volts, corresponds to the quantum of energy of the frequency of the exciting light by the quantum relation $eV = h\nu$. This offers direct evidence, therefore, of the existence of molecules whose electrons possess abnormal potential energy as a result of the exciting light. The existence of such unstable, and therefore active, molecules has particular bearing on the explanation of photochemical reactions, and suggests the process of chemical action recently proposed by Perrin.

II. DISSOCIATION AND IONIZATION

Two types of ionization were discovered in iodine vapour, a very weak ionization at 8.5 volts, attributed to the ionization of atoms present because of the hot filament which served as the source of the bombarding electrons, and a very intense ionization at 10 volts, attributed to the ionization of the molecules. This was tested by carrying out ionization experiments in a pyrex glass tube which could be highly heated in an electric furnace so that various degrees of dissociation of the iodine vapor could be obtained. The results thus obtained were consistent with the above assumptions that the ionizing potential of the iodine atom is 8.5 volts and that of the iodine molecule is 10 volts.

The interesting feature of this result is that the difference, 1.5 volts, corresponds exactly to V in the relation $eV = W$, where W is the heat of dissociation of iodine reckoned for a single molecule. In other words, the ioniza-