THE MAMMALS OF THE ADIRONDACKS.

The mammals of the Adirondack region, north-eastern New York. By CLINTON HART MERRIAM, M.D. New York, *Foster pr.*, 1884. 10+316 p. 8°.

FEW recent works on our native animals will be perused with keener interest by the general reader than Dr. Merriam's 'Mammals of the Adirondack region;' it being a popular narrative of the habits of the mammals of the great Adirondack wilderness, and 'in no sense,' as our author states, 'a technical treatise.' Based almost wholly on original observation, in the main the author's own, it differs widely from the ordinary works on such subjects, every page bearing strong evidence of long-continued, intelligently and patiently conducted field-work.

The region under consideration occupies portions of twelve counties, and has an area about one hundred and twenty miles square. It is made up of mountains and short ranges of high hills, which, conforming to no regular axis, constitute irregular groups of isolated peaks, nearly thirty of which attain a height of three thousand feet, while five exceed five thousand. The region is everywhere studded with beautiful lakes, two of which are more than four thousand feet above sea-level. The western border of the area has an altitude of about a thousand feet; the land rises thence eastwardly to its highest part, along the eastern border, where the elevation falls abruptly to the level of Lake George, three hundred and forty-three feet above the sea. The region is mainly covered with evergreen forests, composed very largely of a single genus (Abies) of coniferous trees.

Owing to the elevation and northern position, the fauna of the Adirondacks is distinctly and almost purely 'Canadian.' Snow covers the ground for nearly half the year, with a mid-winter average of over four feet in depth. During this season the temperature often falls to −25° F., and sometimes to −40° F.; while "variations of forty, fifty, and sixty degrees Fahrenheit are by no means uncommon," and a fall of over seventy degrees in fifteen hours has been observed.

With its isolation, its almost unbroken forests, and its peculiar topographic and climatic features, no region of equal extent east of the Rocky Mountains, doubtless, offers so great attractions to the naturalist.

Dr. Merriam, in his 'General introduction,' devotes some sixteen pages to the topographic, climatic, floral, and faunal features of the region, and then treats in detail the forty-six species enumerated, in systematic order. Two of the species (harbor-seal and fox-squirrel) are given as accidental stragglers; and it is presumed that one or two shrews, and two or three bats, are still to be added to the list. The wolverine, moose, and elk are recorded as extirpated, the last moose having been killed about 1861, while the elk and the wolverine have not been seen there for nearly half a century.

Dr. Merriam writes, in the main, tersely and in good taste; although his impatience with popular fallacies leads him here and there to almost undue positiveness of expression, even though his position may be unassailable. His pages are replete with information gathered from personal observation and from trustworthy hunters and guides, and show a familiarity with the region and its natural productions which only long experience could give. Particularly noteworthy is his account of the panther (Felis concolor), which, owing to the bounty placed upon it by the 'state' in 1871, is now approaching extirpation. Contrary to current opinion and the authority of respectable authors, this animal is represented as "one of the most cowardly of beasts, never attacking man unless wounded and cornered." The wolf, common twelve years ago, is now comparatively rare, the special cause of the decrease not being obvious.

Nineteen very interesting and entertaining pages are devoted to the skunk, — apparently a special favorite of our author, — in which a number of popular fallacies are exposed, among them the belief that the bite of the skunk is usually fatal through giving rise to a peculiar kind of hydrophobia, which has been named 'rabies mephitica.' Dr. Merriam claims that a bite from a healthy skunk is in no way dangerous, as he has found by personal experience, but that skunks, like other animals, are subject to rabies, and, when thus afflicted, are of course dangerous.

There are thirty pages which relate to the common Virginia deer, the only existing ungulate of the region, in which the matter of 'spike-horn bucks' very naturally receives special attention. In 1869 a writer in the *American naturalist* stated that he had hunted deer in the Adirondacks for twenty-one years, but not till within the last fourteen years had he begun to hear of spike-horn bucks. "The stories about them multiplied, and they evidently became more and more common from year to year. . . . These spike-horn bucks are now [1869] frequently shot in all that portion

of the Adirondacks south of Raquette Lake." The spike-horn was described as differing greatly from the common antler of the species, it consisting of a single spike, more slender, and about half as long as the antler, projecting forward from the brow, and giving "a considerable advantage to its possessor over the common buck." In consequence of this advantage, the 'spike-horns' were said to be 'gaining upon the common bucks,' with the prospect that in time they might 'entirely supersede them in the Adirondacks.' The descendants of the original spike-horn — 'merely an accidental freak of nature' — are supposed by this writer to have propagated the peculiarity "in a constantly increasing ratio, till they are slowly crowding the antlered deer from the region they inhabit."

Although this view of the case was criticised by subsequent writers in the *Naturalist*, the original account attracted the attention of Mr. Darwin, who cites it, and generalizes from it in his 'Descent of man.' It has since been affirmed by high authorities that the 'spike-bucks' of the Adirondacks are all nothing more than yearling bucks with their first antlers.

Dr. Merriam scouts the idea (and we think with good reason) that the 'spike-bucks' (which have obtained no little celebrity, and been the basis of much speculation with somewhat visionary writers on evolution) are a distinct race of deer, and is able to cite but a single exception to the rule that 'spike-horn bucks are always yearlings,' — that of a maimed, very aged, ill-conditioned animal. This exception he views as an illustration of the tendency in extreme age for certain parts to revert to a condition resembling that of early life, and of the fact that ill-nourished bucks bear stunted and more or less imperfect antlers. All yearlings, however, do not have true spike-horns; and, if the term be made to include all unbranched antlers, Dr. Merriam inclines to the belief that two-year old bucks may sometimes grow them. The myth of the spike-horn, like many other myths in science, will doubtless still live on, with the characteristic persistency of fanciful errors.

Dr. Merriam's observations respecting the bats, the moles, and the shrews, throw much light upon their obscure ways of life, in confinement as well as in a state of nature. His biographies of the rodents are also full of fresh material. Attention may be especially directed to the accounts of the gray and red squirrels, not less for their grace of diction than for their fulness of detail, and vividness of portrayal.

THE MOSSES OF NORTH AMERICA.

Manual of the mosses of North America. By LEO LESQUEREUX and THOMAS P. JAMES. With six plates illustrating the genera. Boston, *S. E. Cassino & Co.*, 1884. 447 p. 8°.

THANKS to our sole surviving bryologist, the venerable Lesquereux, we have at length a comprehensive manual of North-American mosses. In connection, first with Sullivant until his death, and more recently with James, who devoted himself unweariedly to the necessary microscopical investigation up to the very day almost of his passing away, Mr. Lesquereux has for years been more or less actively engaged in this work, and now happily sees its completion. Those who have been attracted to this most interesting family of plants, but have been deterred from their study by the dearth of accessible books upon the subject, will here find their chief wants supplied. It throws open to our younger botanists a broad field, where much can be done, and needs to be done, and where enviable reputations may be won by patient, skilled, and judicious workers.

The history of our mosses begins with Dillenius, who had received about a score of species from John Bartram, *colonus curiosus* of Philadelphia, and from Mitchell and Clayton of Virginia, describing and figuring them in his 'Historia muscorum,' in 1741. Some others of Clayton's collection were described later by Gronovius, but only seven of these species were recognized as from America by Linné, in his works.[1] The first edition of Sullivant's 'Mosses of the United States' (originally published in the first edition of Gray's Manual, in 1848) included 205 species, of which 51 were exclusively American. In the second edition (1856) the number was increased to 402, the American species being 143. In the present work, with a wider range, there are described 883 species, 363 confined to North America, and 21 others found only in tropical America. Of these American species, one-half (180) were detected and described by our own Sullivant, Lesquereux, James, and Austin; the remainder by Europeans; there having been scarcely a bryologist, from Hedwig and Schwaegrichen to the present generation, that has not been concerned with them. A considerable number of these species have been made on scanty material

[1] One of these Linnean species is not referred to in the manual; viz., Phascum caulescens, based upon the 'Sphagnum foliis teneribus, graminis, pellucidis,' of Dillenius, which is Tetraplodon australis, Sulliv. and Lesq.; to which must now be added the needless synonyme, Tetraplodon caulescens, Lindberg.