frequent appearance in the tattoo marks and religious customs of the Haida and other Indians of the north-west coast of America.

The author, not confining himself to the group of the Samoan islands in his forty years' experience, made notes upon the cults and customs of twenty-three other islands in the Pacific Ocean, which are published in this volume. Among these, with reference to the island Nukufetau, is found a singular reversal of the premium on families given by Roman law, and the merit generally attributed, in communities untaught by Malthus, to the production of numerous offspring. Infanticide there was the law of the land. Only one child was allowed to a family. Under special circumstances, and by paying a fine, a second might be allowed to live.

On the whole, and in general terms, without further attempt at quotation, the volume can be strongly recommended as being illustrative of the stage of ethnic life comprehended in it, and as almost above criticism.

THE HOME RAMBLES OF AN AMERICAN NATURALIST.

A naturalist's rambles about home. By C. C. Abbott. New York, *Appleton*, 1884. 485 p. 12°.

It is not often that one can sit down and become so absorbed in a book that he ceases to be critical. It is in this condition that we lay down Dr. Abbott's charming volume. We do not know whether some of his statements need qualifying or not. We do know, however, that the author is an accurate observer, and, furthermore, that he lives amid the scenes and experiences so graphically described. The three beeches, woodshed, fences, etc., do exist, and belong to Dr. Abbott's homestead. The author has been known to the reading public for many years by his articles in the *Popular science monthly*, *American naturalist*, and *Science*. He is more widely known by his being the first to discover paleolithic implements in North America, and as the author of the work entitled 'Primitive industry.'

The present book is, as the title indicates, the rambles of a naturalist about home. The sights and scenes are so well depicted with pen that illustrations are not needed, and the author has had the good sense not to attempt them. Nothing but a sensitive-plate, timed to the fraction of a second, would be of any use in such service. Speaking of a white weasel, he says, 'It fell into the hands of a taxidermist, and was lost to science.' Such a fate often awaits the exploits he describes when they fall into the hands of an artist.

Many new and interesting facts are given concerning the habits of wild animals, and at the same time he corrects a host of erroneous observations that have gone unchallenged for many years, because no one competent for the work has given the time and patience necessary to the study. His glimpses of wildcats, and the fight between a turtle and mink, are curious experiences, and his observations of the skunk are extremely interesting. He alludes to the peculiar power of the skunk as causing an 'atmospheric disturbance'! The rapidity with which a skunk burrows in the ground is quite a new fact. He shows how untrustworthy most weather-lore is, as based on the habits of animals, though he admits that chipmunks appear to foresee the occurrence of a cold rain twenty-four hours in advance. He also shows — it seems to us conclusively — that the opossum does not 'play possum,' and that its supposed power of feigning death is the result of paralysis from fear.

He believes that the gambols and antics and various curious behaviors of animals are evidences of play and fun, as in children, and that in no other way can such behavior be explained. Even among fishes has he observed movements that must be referable to the same desire. We can commend the book most heartily to all lovers of nature. It is a book to be put into the hands of every boy, and we should like to see it adopted in our schools as an occasional reading-book.

THE LIFE OF ELLEN WATSON.

A record of Ellen Watson. Arranged and edited by Anna Buckland. London, *Macmillan*, 1884. 6+279 p. 8°.

Ellen Watson's claim to remembrance does not rest upon what she did, but upon the promise she gave of what she might have done had her life been longer. At the age of twenty she entered University college as the first woman-student in mathematics and physics. Professor Clifford soon formed a very high opinion of her mathematical ability, and believed that she possessed a rare faculty for original work. In the examination which was held at the end of the year, he was careful not to allow his judgment to be influenced by the fact of her youth and sex; and the most strict examination of her papers gave her the highest number of marks gained by any of the class, and placed her in the position of first

mathematical student for that year in University college. She was awarded the principal prize in applied mathematics and mechanics, and the Mayer de Rothschild exhibition; and Professor Clifford said, at the meeting for the distribution of prizes, that a few more students like Miss Watson would certainly raise University college to a status surpassing that of institutions twenty times as rich, and which had been two hundred years longer in existence. Praise like this from Professor Clifford would have been remarkable if it had followed years of preparation under such skilful training as English tutors know how to give. Ellen Watson had not only carried on her studies by herself, but she had been from the age of sixteen the governess, the playfellow, the nurse, of a large family of younger brothers and sisters. In order to get a little uninterrupted time for the study of quaternions and the calculus of variations, she had been obliged to form the plan of going to bed with the children, and getting up at four o'clock in the morning to begin her day's work. Such success, under such circumstances, gives reason to believe, that, if she had lived, she would have been one of the most remarkable women of her time. Her disease was consumption; and it does not appear that her death, at the age of twenty-four, was hastened by overwork. No less remarkable than her intellectual ability were the sweetness and elevation of her character. Her later correspondence shows a lofty aspiration, a passion for some high undertaking for the good of the world which her early death prevented her from entering upon. Great minds of either sex are not so common that one can feel less than profound regret that one more has been extinguished without great work accomplished.

NOTES AND NEWS.

THE parental relation of the large cyclonic areas of low pressure that frequently pass over our country, and which might well be called simply *cyclones*, to the tornadoes that are formed in them, has lately been discussed by W. M. Davis in the *American meteorological journal* for August; and by H. A. Hazen in the same, and in the *American journal of science* for September. The former gives a graphic illustration of about one hundred tornadoes that occurred last spring, according to Lieut. Finley's maps; the latter gives a tabular statement of a number of tornadoes of earlier years. The results agree in showing the close limitation of tornadoes to a district south-south-east of cyclone centres, as has already been pointed out in these notes; but the authors differ as to the theoretical meaning of this limitation.

— Professor Simon Newcomb, LL.D., superintendent of the U. S. nautical almanac, has been appointed professor of mathematics and astronomy in the Johns Hopkins university.

— The comet discovered by Wolf at Heidelberg, on Sept. 17, proves to belong to the interesting family of periodical comets, according to the calculations made at the Harvard college observatory by Mr. S. C. Chandler, jun., and Mr. Wendell. An attempt was made to compute an orbit from observations, Sept. 20, Oct. 1, and Oct. 11; but it was found that they could not be represented within several minutes of arc on the assumption of parabolic motion. The parabola obtained was, perihelion passage, 1884, Nov. 14, 23,309, Greenwich mean time; perihelion from node, 170° 40′ 36″.0, 1884.0; node, 197° 16′ 24″.3, 1884.0; inclination, 34° 0′ 46″.8, 1884.0; log. perihelion distance, 0.273507; which gave the deviation of the middle place ($C - O$), $\Delta\lambda \cos\beta = +7'\ 35''.8$, $\Delta\beta = +4'\ 40''.5$. These residuals could not be sensibly reduced by varying the ratio of the extreme curtate distances. Accordingly an orbit was computed without any assumption as to the form, with the following result: perihelion passage, 1884, Nov. 17, 71,070, Greenwich mean time; perihelion from node, 172° 36′ 40″.5; node, 206° 27′ 36″.5; inclination, 25° 10′ 54″.3; log. perihelion distance, 0.196049; mean distance, 3.53638; eccentricity, 0.555885. The corresponding period is 2,429 days, or about 6.65 years.

This comet accordingly appears to belong to the group of the Faye-Möller comet, 1857, iv., and 1874, iv., all of which have general features of resemblance. There is no evidence of any known previous appearance of this comet. If, indeed, the period above given is not considerably in error, it would be visible from the earth only at every third return to perihelion, or once in twenty years.

— Dr. Charles Rau, curator of antiquities in the U. S. national museum, Washington, D.C., is about to publish, under the auspices of the Smithsonian institution, a most valuable and interesting work entitled 'Prehistoric fishing in Europe and North America.' This work will form No. 509 of 'Smithsonian contributions to knowledge,' and consists of about 350 pages quarto. The book is illustrated with four hundred and five cuts from drawings by Mr. Trill, being either copies of already published designs, or correct representations of objects specially drawn for this work, the majority of the latter being specimens belonging to the U. S. national museum. As regards America, objects termed 'prehistoric' include such as are found in mounds and other ancient burial-places, on and below the ground, or in caves, shell-heaps, etc.; in fact, to use Dr. Rau's words, "all articles of aboriginal workmanship, that cannot with certainty be ascribed to any of the tribes which are still in existence, or have become extinct within historical times, or, to speak more distinctly, within the recollection of the white successors of the Indians."

This book is divided into two parts: part i. Europe; part ii. North America. Part i. is divided into three sections: 1°. Paleolithic age, 2°. Neolithic age, 3°. Bronze age. In part i., Europe, a short characteri-