at the time of its discovery by Europeans. Although it is only twenty years since they began to make collections of the stone age in South Africa, so many specimens have been found, that an older and a younger stone age may be recognized. As yet have been found no objects of polished stone. For a few years past an English railroad-engineer residing at Natal, who had made many finds, has undertaken to examine all South Africa. From his researches, it appears that there are large quantities of stone implements, both in the sea near the Cape, in the alluvial layers at Natal, and in the mountains. It is impossible to fix the time of these stone objects. Kjökkenmöddings have also been found in many places, near Simonstown and Capetown, and masses where the Hottentots had burned lime from oyster-shells: these do not belong to the present natives, as the Kaffirs never eat shell-fish, and rarely fish. A find has also been made in the caverns, but nothing is known about it yet. In Basuto-land have been found arrow-heads of flint. From the older iron age the above-named engineer had found, in the layers of gravel near the rivers, and in large hills covered with forest, and in the diamond diggings at Kimberley, implements and chips at a depth of forty feet, where the diamonds occur. It may be concluded that the stone age dates very far back. This shows that the prehistoric ages are not periods of time, but states of development, — in the case of Africa there was a sudden rise from the stone to the iron age, without any intervening bronze period, — the result, not of development from within, but of commercial intercourse from without.

PARADISE FOUND.

The title of this book will attract attention, and find for it a wide sale. The mode of treatment, and the style too, are such as are most pleasing to the popular mind. The book is very ingenious and learned, but, as it seems to us, conceived and written in the spirit of advocacy rather than in the true scientific spirit. It is true, scientific, as well as every other kind of literature, is laid under contribution; but authorities are used — now a Huxley, and now a Winslow — with little discrimination; and thus conclusions are reached which a cautious science would not accept. Yet we believe the book may be read with profit, even by the scientific anthropologist.

There are few questions connected with man more deeply interesting than the place of his origin; for that he did originate in one place, and not in many places, is now generally admitted. After giving (we think at too great length) the various baseless speculations on this subject, the author states his own thesis; viz., that the cradle of the human race was a north-polar continent, now submerged; the submergence being coincident with what science calls the glacial epoch, and what universal tradition calls the deluge. This view, he contends, consistently explains and reconciles all traditions and all scientific facts.

He proceeds, first, to remove some obvious objections. The climate of polar regions is now unfavorable for human life, as witnesses the melancholy history of polar expeditions; but in miocene times, as shown by its luxuriant forests of temperate and subtropic species, it was wonderfully mild and equable. During this time, too, one or more large bodies of polar land, or perhaps a polar continent, existed where now only the ocean reigns. Good scientific authorities are cited for this belief.

The long polar night may be thought an objection: but he shows that this has been greatly exaggerated; that there is more day and less night at the pole than anywhere else, viz., six months full day, nearly four months twilight, and only two months full night. Add to this the full moon (which would be above the horizon during the polar night) and the auroras, and the polar man would have no reason to complain.

But the most important scientific contribution to his view is the probable polar origin of many existing species. From miocene times until now, there has been apparently a gradual though not uniform refrigeration of climate; and as a consequence a streaming southward, along all longitudes, of species successively originated by change of climate at the pole. This view, first brought forward by Professor Asa Gray, has been most distinctly formulated by Marquis de Saporta. Among the number thus originating and migrating, the author includes man; and he gives much good scientific authority showing that he is not alone in this belief. But the author, we think, overstates the facts. He seems to think all species originated in polar regions; but this is far from true. It is probably true that there has been from miocene times a streaming southward of species originating there, but undoubtedly many species and genera have been formed by modification in the course of migration. It is not impossible that man, too, if derivative in origin, may have been thus formed in the course of migration. This depends much on the time of his southward migration. If, as the author thinks, this took place in the quaternary, then he probably left his home as *man*, and the modifications have since gone only so far as to form races. This point requires more

Paradise found; the cradle of the human race at the north pole. By William F. Warren. Boston, *Houghton, Mifflin, & Co.*, 1885. 24+505 p., illustr. 8°.

investigation. If the existence of man in miocene time in France and Portugal be confirmed, then our author is wrong. For ourselves, we do not yet accept the miocene man.

All traditions, too, the author thinks, when rightly interpreted, confirm his conclusion. They all point to a golden age and an original home to the north; they all speak of this home as the centre, — the navel of the earth; they all speak of the revolution of the heavenly bodies about a fixed zenithal pole, the abode of the gods; they all speak of a migration enforced by a deluge. To confirm his interpretation, he quotes from traditions of Chaldeans, Persians, Hindoos, Chinese, Japanese, Egyptians, Greeks, and Scandinavians. Classical scholars will doubtless be interested in his view of Homeric cosmology and geography as represented in his frontispiece. To them we leave the question. The author's view certainly seems plausible.

For the author, then, the place of origin was the north pole; the time of origin, the miocene period. The third question is, What was the character of primeval man? On this question the author takes a somewhat middle ground between extreme opinions. He thinks that primeval man of paradise was wholly destitute of all, even the simplest arts, and therefore, we suppose (although he does not say so explicitly), of language. Nevertheless, he thinks he was endowed with simple, and comparatively noble, religious ideas; and that the revolting bestialities of savage life are the result of retrogression. A cautious science will have little to say on this question; but retrogression is certainly as much a law of evolution as is progression. The author's view is therefore not improbable. Childhood, with its simple faith and reverential love, is certainly a nobler thing than a degraded manhood. For obvious reasons we do not think that traditions of a golden age amount to much as argument.

But when the author sustains the traditional idea of gigantic stature and millennial longevity of primeval man, science will, we think, demur. The popular belief that animals of early times, in comparison with existing species, were gigantic, will hardly bear examination. The true view seems to be this: in the history of the earth, there have been periods peculiarly favorable for the development of different orders and families of animals, during which they increased, culminated, and then declined. The mesozoic was such a period for reptiles, the tertiary for mammals. The time of culmination, however, is never at the beginning, but in the middle or near the end. Is it not possible that the present is such a period for man? All the scientific evidence we have is in favor of increasing rather than decreasing size. Also we would remind the author that the decreasing size of which he speaks was in successive species, and even genera. Will he admit that the Edenic man was a different species, or even genus? He may, indeed, well do so, if he carries man back to the miocene. Again: if he likes analogies of this kind, we would remind him of the very notable increase of brain-size in all families of animals since miocene times. Is he prepared to admit the very small brains of Edenic man?

The millennial longevity we dismiss with the remark that we do not believe it can be sustained on natural grounds.

We are sure the author will thank us for calling his attention to some scientific mistakes. 1. On p. 66, in speaking of polar twilight, he says in substance, that, if twilight continues until the sun is 20° below the horizon, it would make a full polar night of sixty days; but, if until 24° (which he thinks probable), it would make it only fifty days. Now, the inclination of the ecliptic is only 23° 28′: therefore the sun would never get so far below the horizon, and therefore in the case supposed there would be no night at all. 2. On p. 194, speaking of the aspect of the heavens on Pamir plateau, he says that the pole of the heavens is tilted about one-third from its zenithal position towards the horizon. It is nearer two-thirds, for its latitude is about 35°. 3. On p. 412, as an example of degradation instead of progression, the author quotes from *Science* to the effect that the recently discovered Silurian scorpion is a more perfect specimen than any found in later formations; but the writer obviously meant more perfectly preserved specimen, not more perfectly organized animal.

THE LENÂPÉ AND THEIR LEGENDS.

THE *Walam olum* (or 'picture record') of the Delawares has long been known to scholars, though imperfectly, as one of the most remarkable productions of the Indian intellect. It was discovered about the year 1820, somewhere in the west (exactly how or where is uncertain), by that eccentric naturalist and antiquarian, C. S. Rafinesque, who held for some years the very comprehensive professorship of the 'historical and natural sciences' in Tran-

The Lenâpé and their legends; with the complete text and symbols of the Walam olum. By DANIEL G. BRINTON, A.M., M.D. Philadelphia, *Brinton*, 1885. (Brinton's library of aboriginal American literature, No. 5.) 6+262 p., illustr. 8°.