tions, the water from Gastein, for instance, being nearly a hundred times as active as that from Vichy. The activity of a water is greater at a spring than that of the same water after keeping for some time. The gas from a spring is often strong enough to blacken a photographic plate after several hours' exposure, though the intensity of action is very small in comparison with that of radium itself. The authors raise the question as to whether it is possible that the therapeutic action of certain waters can be connected with their radioactivity.

Bouchard, Curie and Balthazard have experimented upon the physiological effect of the emanation, and find that it has a marked toxic action on inhalation, producing intense congestion of the lungs. The tissues after death show a decided radioactivity.

Veneziani has tested the action of radium rays upon the protozoon *Opalina ranarum* from the intestinal canal of the frog. While the organism dies very soon after removal from its normal habitat, under the influence of a radium preparation of 10,000 units it lives much longer and preserves its activity. From this the author concludes that while radium often has a destructive influence upon the living cell, this action is by no means uniform, and the radium may sometimes have the opposite effect.

The great sensitiveness of recent methods of detecting minute quantities of emanations and infinitesimal radioactivity is compared by Berthelot with the sensitiveness of the nerves of smell for certain odors. For example, he cites the odor of iodoform, which can be recognized in quantities as small as one hundred billionth of a gram. In such a case a distinct odor could be perceived even though a gram of the substance would not lose a thousandth part of its weight in hundreds of years. He calls attention to the risk of inferring from spectroscopic methods the change of one element into another, inasmuch as the sensitiveness of the spectroscope belongs to the same order of delicacy. It is well possible that the indication of spectral lines of one element might appear in the spectrum of another, owing to the presence of an infinitesimal amount of the element as an impurity.

J. L. H.

ANCIENT NATURAL HISTORY LORE.

AN interesting article is contributed to *Nature* (Vol. LXX., p. 207) by Dr. R. Lydekker on portraits of mammals preserved in ancient Egyptian inscriptions. The amount of research which has been carried on in this line of late years is considerable, the most elaborate contribution being the recently published memoir of Lartet and Gaillard on the mummified animals of Egypt.* To the zoologist these investigations are valuable chiefly for their bearing upon questions of geographical distribution and minor variation, but to the archeologist their interest is much greater and more general.

In calling attention to the fact that no mean harvest of information may be gleaned from this ancient field, it goes almost without saying that a rich reward awaits him who will critically reexamine and collate the mass of fact contained in classic writings on natural history, though it is clear the task of eliminating fancy, fable and rank superstition is not an easy one. That a good beginning has already been made, so far as relates to the more familiar animals, will not be disputed by any one who has examined Otto Keller's 'Thiere des classischen Alterthums' (Innsbruck, 1887), a work of great interest alike to the naturalist and antiquarian. This book, however, falls short of completeness, the omissions including even such important creatures as the lion, elephant and rhinoceros.

Regarding the lion in particular, it must be confessed that the grossest ignorance and misconceptions prevailed not only in classic times, but until well along in the middle ages. One of the most surprising fallacies entertained concerning both the lion and panther was that parturition occurred but once during lifetime, each pair producing a single cub, and each generation consequently being not more than half as numerous as the preceding. The theory of spontaneous generation came in

* *Archives Muséum d'Hist. Nat. de Lyon*, Vol. VIII., No. 2, 1903.

handily to explain the non-extinction of species. On this point the second century writer, Aulus Gellius, in his highly prized 'Attic Nights' (xiii, 7), has left on record the following interesting observations:

"Herodotus has related in his third book that the lioness produces but once in its life, and at that birth never more than one whelp. But Homer says that lions produce and bring up many whelps, these being the lines in which he plainly asserts this:

> Thus in the center of some gloomy wood,
> With many a step, the lioness surrounds
> Her tawny young, beset by men and hounds.
> * * * * * * * *

"When this difference and opposition of sentiments between the most celebrated poet and most eminent historian greatly perplexed me, I thought proper to consult Aristotle's exquisite 'Historia Animalium,' and whatever he has there written upon this subject, I have put down in these commentaries. His statements are found in book VI. [as follows]:

"That the lion copulates backwards and is retromingent, has been mentioned before. But it copulates and produces not at all seasons, though in every year. It produces in the spring, and generally has two offspring. When its produce is most numerous it has six, but sometimes it has only one. It is an idle story which tells us of the lioness, that when she brings forth her young, she loses the future power of generating, and it arises from the scarcity of the lion's race, for the kind is rare, not known in many places and nowhere in Europe except in that country which is between the river Achelous and the Nessus. * * * The Syrian lions produce five times in their life, at first five cubs, then one less every time, after which they become barren."

In that mystical early Christian bestiary, whose unknown author is called the 'Physiologus,' and whose authority was widely accepted throughout Europe during the middle ages, three peculiarities are claimed for the lion. First, to throw hunters off his tracks he rubs out his footmarks with his tail. Secondly, when the lion sleeps, his eyes never close. Thirdly, the lioness bears her cub dead, but on the third day his sire comes, breathes into his face, and thus brings him to life. These attributes were all supposed to have a deep religious significance, the meaning of which has been explained by the commentators of 'Physiologus.' Dante's idea of the lion forms the subject of a special chapter in R. T. Holbrook's 'Dante and the Animal Kingdom' (1902).

C. R. Eastman.
Harvard University.

THE BRITISH ASSOCIATION.

The Cambridge meeting of the British Association adjourned on August 24 to meet at Cape Town, South Africa on August 15, 1905. The attendance at the Cambridge meeting was 2,789, the largest except on five previous occasions—at Manchester in 1861, at Newcastle in 1863, at Bath in 1864, at Manchester in 1887 (the largest meeting ever held), and at Liverpool in 1896.

Scientific grants to the value of £1,000 were made, as follows: Mathematical and Physical Science.—Electrical standards, £40; Seismological observations, £40; investigations of the upper atmosphere (kites), £40; magnetic observations, £50. Chemistry.—Aromatic nitramines, £25; dynamic isomerism, £20; wavelength tables of spectra, £5; study of hydroaromatic substances, £25. Geology.—Movements of underground waters, balance in hand; life zones in British carboniferous rocks, balance in hand; fossiliferous drift deposits, balance in hand; erratic blocks, £10 and unexpended balance; fauna and flora of British trias, £10. Zoology.—Index animalium, £75; table at zoological station at Naples, £100; development of frog, £10 and unexpended balance; higher crustacea, £15 and unexpended balance. Geography.—Investigations in the Indian Ocean, £150. Economic science and statistics.—Trade statistics, £20. Anthropology.—Age of Stone Circles, £40; anthropometric investigations, £10; excavations on Roman sites in Britain, £10; excavations in Crete, £75 and unexpended balance; anthropometry of native Egyptian troops, £10; Glastonbury Lake Village, balance in hand; anthropological teaching, balance in hand. Physiology.—Metabolism of individual tissues, £30 and unexpended balance; state of solution