

**WHEN THE REINDEER LIVED AT MENTONE.**<sup>1</sup>

OF all Quaternary sites associated with the remains of man none is more important than that constituted by the grottoes of Grimaldi. The deposits are of great depth and rich in archaeological and anthropological remains. They exhibit, moreover, a perfect continuity, and enable us to review in definite order the events of a remote and extended period. It is fortunate that the explorations were undertaken by such savants as Villeneuve, Boule, and Verneau, and that the results of their labour have been enshrined in so noble a work as that under notice. The book is in three folios; the first furnishes us with a full topographical description and historical account of the locality, which takes its name from Charles Grimaldi, Prince of Monaco, in

Prince and two other caves of minor importance. The caves all open by high, narrow ogee mouths towards the Mediterranean (Fig. 1). They are filled with deposit to the height, in some cases, of 40 metres. In this deposit foyers can be recognised; a foyer is defined as a surface which, from the presence of cinders or products of industry, may be regarded as affording evidence of man's presence.

So far back as the middle of last century the caves were known to contain deposits of scientific value. "Some time before 1848" Prince Florestan I. of Monaco had dispatched a box of earth from one of the caves to Paris for examination. From that time onward numerous workers directed their attention to the caves, particularly Prof. Forel in 1858, and M. Rivière from 1871-1895. In 1882 Prince

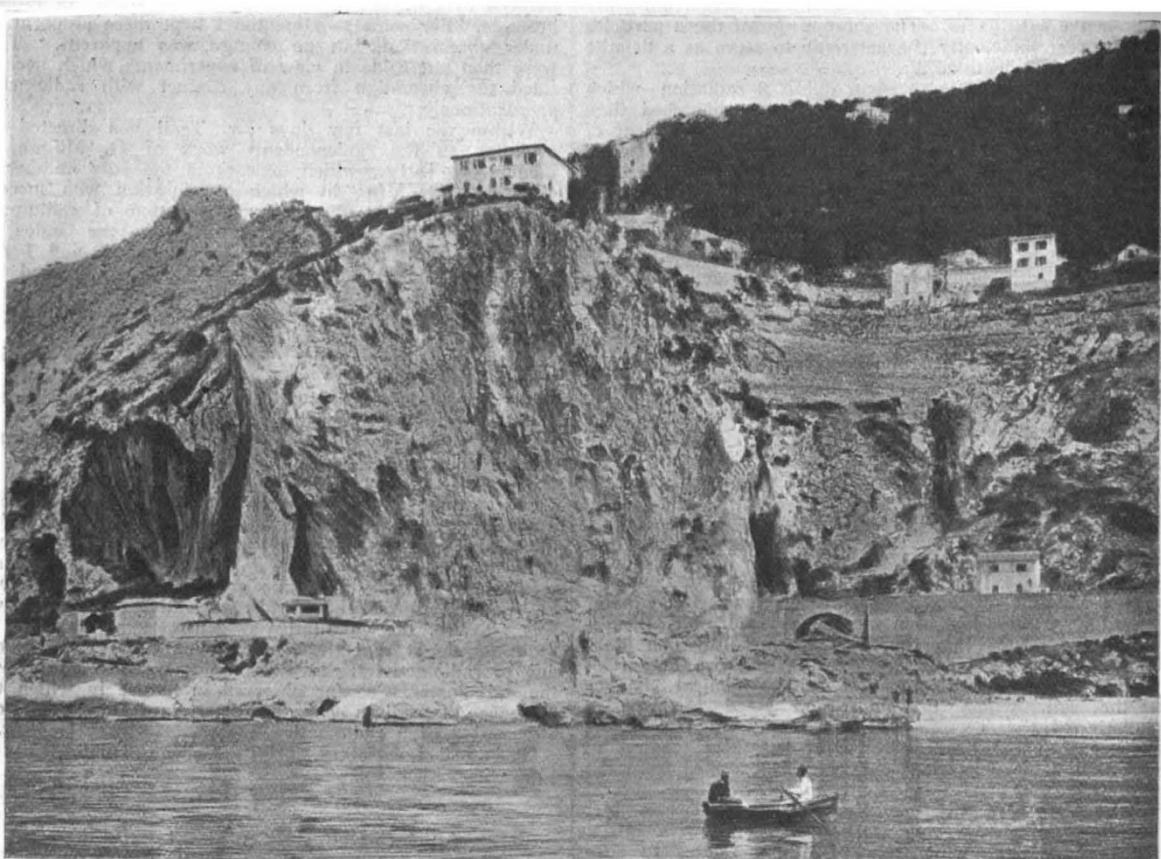


FIG. 1.—General view of the grottoes of Grimaldi. Seen from the sea.

the fourteenth century. The rocks which contain the caves are of superior Jurassic formation, and from their rose-red colour have been denominated the Baoussé Roussé, or Balzi Rossi. They originally projected as a V-shaped mass into the Mediterranean, the apex of the V being the Baoussé de Torre, at the foot of which are two caves, the Barma Grande and the Barma della Cippia di Ponte. On the western side of the projection, passing from the Baoussé de Torre, we meet in order La Grotte du Cavillon, La Grotte de Florestan, L'Abri Lorenzi, and La Grotte des Enfants. On the eastern side are La Grotte du

Albert of Monaco carried on investigations, and issued explicit instructions as to the methods to be employed, instructions which left nothing to be desired on the score of precision. During these excavations human skeletons were found, the first on March 26, 1872, by M. Rivière, in La Grotte du Cavillon, at a depth of 6'55 metres below a layer of stalagmite. The year following three skeletons were found in the Barma della Cippia di Ponte; in 1874 and 1875 two young skeletons were found in La Grotte des Enfants, and no less than seven were obtained from La Barma Grande.

Meanwhile, much discussion had arisen as to the age of the deposits. M. Rivière attributed them to the Quaternary period. M. Mortillet, on the other hand, regarded them as Neolithic, largely, however,

<sup>1</sup> "Les Grottes de Grimaldi (Baoussé-Roussé). Tome i. Fasc. 1, Historique et Description. By M. L. de Villeneuve. Pp. 70. Tome i. Fasc. 2, Géologie et Paléontologie. By Prof. Marcellin Boule. Pp. 71-156+plates. Tome ii. Fasc. 1, Anthropologie. By Dr. René Verneau. Pp. 212+plates. (Imprimerie de Monaco, 1906.)

on the unsubstantial ground that the dead had been designedly interred. Three polished stone axes in the Genoa Museum from the collection of Prof. Pérès were believed to be derived from these caves. Rivière himself had obtained from this site a polished axe-head and a ring or disc *en jayet*. During the discussion it was shown that the axes in the Genoa Museum came from Nice, and there was strong probability that the axe and ring found by Rivière lay on the deposit rather than in it. All went to prove that further and more precise excavations were necessary before the age of the deposit could be definitely fixed. It is with these later investigations that the second and third folios are concerned.

The second folio is divided into three sections. In the first the various cave-beds are described with their petrographical characters; a list of the fossils found in each bed is given. The second section is concerned with the marine formations observed at the entrance and in the interior of the caves, and with the geographical changes which have taken place in the bed of the Mediterranean during Quaternary time. An interesting attempt is made to correlate the movements of the level of the Mediterranean with the movements of the ice, and to show that great glacial invasions are coincident with great positive movements of the sea, while interglacial periods correspond to negative movements. It is suggested that the negative movement of the Inferior Pleistocene was possibly able to re-establish relations between the large Mediterranean islands and the neighbouring continents, and that in this way may be explained the similarity in the contemporary fauna and palaeolithic tools of south Europe and Africa. The third section of the folio is devoted to the study of the fossil animals which have been discovered during the excavations. It throws light on the fauna during successive periods, and discloses the danger of dating deposits from implements alone, for in these caves Moustierian implements are found in association with a Chelléen fauna.

The illustrations, which form a very marked feature of the work, show sections of the caves, and clearly demonstrate the positions of the foyers and skeletons. The bathymetric charts of the Mediterranean are deserving of special mention.

The third folio is largely devoted to anthropology, but to some extent partakes of a *résumé*. The human skeletons are described in great detail, and are compared with each other, with Cro-Magnon Man, with the Negro, and with the European of to-day.

All the skeletons save two conform, with but slight variation, to the Cro-Magnon type. They resemble that type in stature, which is high, and in the shape of the skulls, which latter are dysharmonic, the crania being long while the faces are low and wide. The nose is leptorrhine, depressed at the root, yet projecting sharply from the face. The orbits are rectangular and microsome; the supraciliary eminences are faintly developed; the mandible is robust, possessing a prominent chin. Certain negroid traits are noticeable in the skeletons; the proportions of forearm to arm, of leg to thigh, of lower limb to upper limb, resemble those found in the

Negro and differ from those in the European. The two skeletons above referred to as not conforming to this type were discovered on June 3, 1901, in La Grotte des Enfants (Fig. 2). They were found at a depth of 8·5 metres, and are the most ancient human remains from these caves, although it should be remarked that a skeleton of the Cro-Magnon type was found in the same cave at a depth of 7·8 metres. The two skeletons were those of an old woman and a boy. The skulls are of the usual type in being dysharmonic, the cranium long, the face low and wide. The orbits are microsome, the forearm and leg relatively long. They differ from the type in



FIG. 2.—Skeletons of an old woman and a boy, from La Grotte des Enfants.

stature, which is not high, in the nose being platyrhine, in the face being prognathous, with the chin *fuyant*. On these grounds the two skeletons are separated from the rest and regarded as constituting a special type—the Grimaldi type. Before accepting such a separation, it should be remarked that little importance can be attached to stature when one of the examples is a boy, the other an old woman. Again, the skulls were obtained in a more or less fragmentary state, and the platyrhinity and prognathism might quite easily be in part due to the reconstruction. Sex, age, and individual variation might also account for some of the difference. It is unfortunate that more examples—and those examples of adults—are not forthcoming.

One of the most remarkable features of the boy's jaws are the teeth, which form the subject of a special report by Prof. Gaudry.

It will be seen that the work is to an unusual degree exhaustive, and has been performed with an attention to scientific accuracy for which palaeontologists cannot be too grateful. The observations are beyond dispute, and the theories advanced are suggestive and worthy of careful consideration. The work furnishes us with the most important collection of data as to the nature and habits of Quaternary Man, since the discoveries in the caverns at Spy. We know that Man, even in the Pleistocene, buried his dead, sometimes on intact foyers, sometimes in holes dug in the floor of the cave, sometimes in rude cists consisting of upright stones supporting horizontal flagstones. Frequently he buried them in beds of ologist iron. In the Barma Grande there is evidence of disposal of the dead by incineration. With the dead were buried such trinkets as necklaces, bracelets and anklets made of perforated teeth, shells, and vertebrae of fish.

As to the people who lived in these caves, we can with considerable confidence correlate them with the Quaternary hunters in the valley of La Vézère, with those whose remains have been found at Laugerie-Basse, Gourdan, Chancelade, and Cro-Magnon. It is probable, however, that the hunters of the Grimaldi Mountains were the earlier.

In conclusion, we can unhesitatingly state that the Grimaldi caves have furnished us with the most complete picture we yet possess of Man's life in Europe during Mid-Quaternary time. WILLIAM WRIGHT.

#### *MEDICAL EDUCATION AND SOME OF ITS PROBLEMS.*

BY a time-honoured ordinance, the opening of the medical session at the beginning of October is made the occasion for the delivery of inaugural addresses at the various schools of medicine. In London, medical education is in a somewhat transitional stage, and it may be interesting to inquire whether the addresses delivered shed any light on the problems that have to be solved. At the present time in London there is a need for concentration of the preliminary and intermediate studies, chemistry, biology, anatomy, and physiology, taken during the first two years of the curriculum, and until recently taught in every medical school. Now these are scientific subjects, and could more efficiently and less expensively be conducted in fewer centres with better equipped laboratories than has hitherto been the case. In this way it would be possible for some, at least, of the medical schools to devote all their energies and funds to the professional training of the last three years of the curriculum. Various plans have been suggested for effecting this. Some years ago, a scheme for a central institute at South Kensington for teaching the preliminary and intermediate subjects was inaugurated. It was an ambitious scheme requiring some 200,000*l.* for its realisation, and though in theory a good one, is probably not the best practical one for London. London is too large to have a single centre; and University and King's Colleges, and one or two of the medical schools, have definitely decided to continue teaching the preliminary subjects. Moreover, by a recent vote of the Faculty of Medicine of the University of London, the scheme of a Central Institute at South Kensington has been negatived, and the former policy reversed.

Another scheme is actually in being and seems to be working well, and might be extended; this is the drafting of the Westminster Hospital students to King's College, and of the St. George's Hospital

students to University and King's Colleges, for the preliminary and intermediate studies. Speaking of this departure, Dr. Allchin, of Westminster Hospital, in his opening address at King's College, said:—

"When in 1899, after the report of Lord Selborne's Commission on a University for London, the medical demand for a re-constitution of the University took organised and coherent shape, the urgent need that there was for some concentration in medical teaching was always placed among the foremost arguments. The feeling generally among the medical schools at that time—or certainly of the great majority of them—was in favour of some scheme by which certainly the elementary subjects of the curriculum, and to some extent also the intermediate, should be taught at fewer centres, thus leaving the smaller schools at least, on whom the pressure of expenditure was relatively the greatest, free to devote their energies entirely to teaching the later subjects. But so far the University of London has utterly failed to bring about any concentration whatever during the seven years of its re-constituted existence, and, what is almost as serious, it has by the course it has followed converted what was seven years ago a widespread feeling among the metropolitan medical teachers of welcome towards the principle of concentration into one of very considerable hostility towards the principle, and has led to many of the schools resolutely opposing any coalescence. In 1905 a coalescence with regard to preliminary studies was arranged between the Westminster Hospital School and King's College, and has worked satisfactorily. I believe that if the University six or seven years ago, when the medical schools would, for the most part, have welcomed the principle of concentration, had exercised upon the different schools a wise and judicious pressure towards giving effect to this principle, much might have been done in this direction."

Certainly this scheme has much to commend it, and with some financial aid from the University it is difficult to see that an arrangement of this kind would be less efficient than a central institute; it would be far less costly than the latter, and, therefore, more likely to be in working within a reasonable time. The last is an element of some moment, for there can be no doubt that London has suffered by contrast with the splendid laboratories and facilities of the new provincial schools, and students in the London schools have diminished in numbers. Long as the five years' curriculum is for the pockets of those who have to pay the fees, it is none too long for the acquirement of the knowledge required for the pass examinations; in fact, it is the exception for a student to obtain a qualification under about six years. It has therefore been suggested that the curriculum might be lightened by relegating to the school science studies the physics, chemistry, and biology required. This plan commended itself to Sir Douglas Powell in his address at University College. He said:—

"I am myself decidedly of opinion that most, if not all, of the chemistry, biology, and physics required for the ordinary pass examination might, and should be, and in time will be, included in the public-school science studies, and be cleared off before the student enters upon the medical curriculum at all; so that the first two years of the student's time may be given up almost entirely to anatomy and physiology, including some comparative anatomy, so far as it may be illustrative of human anatomy, and some physiological chemistry."

Intimately associated with the question of medical education is that of qualifying examinations. In England, Scotland, and Ireland, there are no fewer than twenty-one bodies which have the power of granting degrees or diplomas qualifying to practise medicine and surgery, and there must of necessity be considerable variations in the standard of, and in the conditions of admission to, these examinations. To bring order out of chaos, the only practicable plan