Caves of Derbyshire and Yorkshire.

By H. C. GRIGG.

Cave formation in regions of limestone is due mainly to two factors ; firstly, the limestone is traversed by well defined joints and bedding planes ; secondly, water charged with carbon di-oxide or with grit has a very powerful wearing action. The joints and bedding planes are thus widened into passages, tunnels and caves.

In Derbyshire, where the Carboniferous Limestone forms hilly moorlands intersected by deep dells, many famous caves are known. Most of these have been thoroughly explored and the remains of pre-historic life in Britain, as revealed in these caves, has provided material for the most fascinating books.

The Dream Cave of Wirksworth was revealed when workmen were following a lead vein. It turned out to be a small cave, the original entrance to which had been from above. This entrance was blocked by loose debris. Remains of horse, reindeer and rhinoceros were found. Evidently these animals had fallen into this cave and were thus entrapped.

The Peak Cavern is probably the most famous cavern of the district. This wonderful series of chambers and passages runs into the hillside in Castleton Vale, and the stream which doubtless made the cave is still issuing from the mouth.

Dove Holes and Cave Dale Cave under Peveril Castle are noteworthy as caves due to water action.

Speedwell Cave was discovered during lead boring operations. It is a huge cave with a great fissure of unknown dimensions leading on into the mountain.

Robin Hood Cave is of great interest because it was worked scientifically by Professor Boyd Dawkins. A trench was dug right through the cave earth on to the rock floor, and then by digging forwards each layer in the cave earth was properly examined and the contents noted. A good idea of the successive habitations was gained by this method.

Windy Knoll Fissure was a deep fissure in the limestone, probably of the swallet type, which was revealed by quarrying operations from the side. The bottom of the fissure contained a

most amazing jumble of bones of wolf, bear, bison, fox, reindeer, etc. It seems that this old swallet was a favourite drinking place for the bison and reindeer during migrations north and south for summer and winter quarters respectively. Stragglers would fall easy victims to packs of wolves and other beasts of prey.

The Yorkshire Caves of main interest are those situated in the Ingleboro district. Ingleboro mountain is capped by the Millstone Grit with the Yoredale grits lying below.

Underneath again is the main mountain limestone series. All these beds lie practically horizontally. The streams all run off the impervious Millstone Grit and Yoredale series, but disappear into swallets directly they come down to the mountain limestone. The well jointed character of these limestones is responsible for the amazing " Pots " or swallets of the district. Some of these pots, Gaping Gill and Helln Pot for instance, are very wide, and anything up to 300 feet deep. In heavy rainfall huge volumes of water may be seen pouring down into these yawning chasms, illustrating plainly how they originated.

Helln Pot itself has been the scene of many exciting explorations, ladies as well as gentlemen being lowered into its profound depths by winch and bucket.

Gaping Gill, the other famous Pot, is really the upper entrance to Ingleboro Cave, which runs far into the side of Ingleboro mountain. Ingleboro cave itself has been explored for a distance of over seven hundred yards ; some portions of it being occupied by deep pools had to be crossed by swimming. Some small pools were discovered, so saturated with lime that a solid crust, resembling ice, covered the surface of the water, and beautiful crystals had formed at the bottom.

Victoria Cave, Settle, is famous for offering some evidence in the question of the antiquity of man in Britain. Passing through layers of boulders and fine earth containing remains of Neolithic and later peoples, a thin bed was found deep down containing the remains of hyena, elephant, rhinoceros, and other of the older cave mammals, together with a human fibula. As this bed was considered to be of pre-glacial origin, it points to the fact that man was a contemporary of the older cave mammals of Britain.

Other fascinating caves are known in Yorkshire, many of which have thrown light on the ever fresh question of the advent of man in these islands. That he lived and hunted and fought here in Pleistocene days there can now be no doubt, for the remains of his fires and feasts and weapons are found everywhere mixed up with the bones of those old cave mammals long since extinct in this country.

Cave Hunting in Somerset.

By Hon. Professor Sir William Boyd Dawkins, F.R.S.

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Sir William Boyd Dawkins had special pleasure in speaking on Cave Hunting in a county in which he had his first experience of caves, as an undergraduate from Oxford, and before a Society formed to carry on the investigation which he then began.

Caves have been explored in various parts of Britain from the first quarter of the 19th century by Widbey, Buckland, and others, but the first scientific exploration in Somerset was begun in the region of the Mendips and carried on by Beard and Williams in 1857 and the following years. In this year also the Wookey Hole hyena den was partly explored by Williamson, and the work was carried on by Boyd Dawkins and others, with the net result that the presence of man was established in the wonderful association of wild beasts living in the county during the concluding phase of the pleistocene age.

The hyena den was inhabited by the hyenas, who dragged in the remains of the beasts upon which they preyed, and from time to time it was occupied by man, consequently the remains of both occupations were intermingled in the debris filling the cave. Other caves in the Mendips—Bleadon, Banwell and Sandford Hill —were occupied by the hyenas, but presented no traces of man.

The animals found in these caves, and evidently living at the same period, consist of species now widely distributed over the world in warm and in cold regions. The hyenas, for example, are now only found in Africa, and the lions are restricted to the