Hook, O. (1957). Grey Seals (*H. grypus*) at Lundy. *Rep. Lundy Fld. Soc.*, **8.**
Lockley, R. M. (1954). *The Seals and the Curragh.* London: J. M. Dent & Sons.
Matthews, L. H. *British Mammals.* London: Collins.

A Post-script to last year's report is that on September 27th 1973 a seal pup was sighted at the north-east from an aeroplane, by members of the Seals Research Unit to whom we are grateful for helpful correspondence.

BRIEF VISITS TO THE SEA-LEVEL CAVES ON THE EAST SIDE OF LUNDY

By C. C. Baillie and N. A. Clark

During our study of the Seals of Lundy this year we found some apparently unknown caves between Kittiwake Gully and Half-way Wall. Between these points there are at least 18 caves ranging from a few feet in depth to 200+. Only one of these was mentioned by Mills in the 1968 L.F.S. Report. Unfortunately all the notes taken have been mislaid. These were, in fact, brief, apart from the notes on Puffin Gully cave.

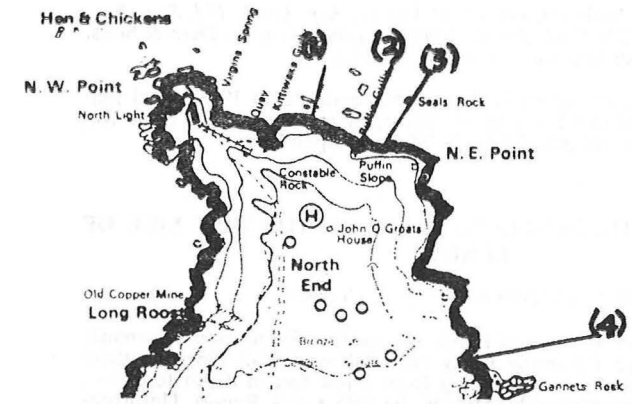
The bracketed numbers below refer to those on the map of the North of the Island.

(1) This is a short cave 30-40 yards to the east of Kittiwake Gully. It is approximately 60 ft. long with a bolder floor which is only dry at low water. It is 10-15 ft, wide and 20-30 ft. high, the roof being made up mainly of boulders wedged into the walls, formed by an eroded dyke.

(2) This is probably one of the largest caves on the Island with the possible exception of Virgin Springs. This was the first cave that we found and stimulated our interest. Its entrance is at the base of Puffin Gully and is about 15 feet wide and 30+ ft. high.

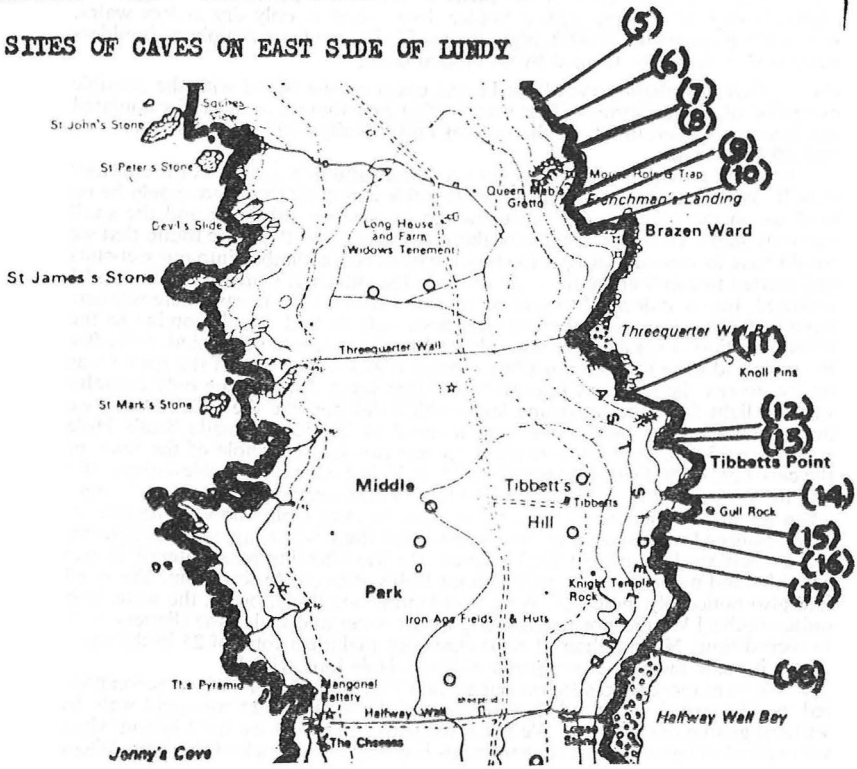
Our first attempt at entry was not very successful. We arrived at the entrance with R. W. Britton half-an-hour before low tide expecting that there would be no swell as on the previous day when the storm was just subsiding and the swell was only slight. However, there was about two feet of swell and we found that we would have to swim about 10 ft to enter the cave, so we climbed into our wet-suits and started to climb along the edge towards the entrance. Chris. went first and I followed. Bob had decided to stay on dry land with a rope in case there was any trouble. Chris. swam into the entrance first, only to find 4 seals coming in the other direction! Luckily there was a large boulder he could get behind. Just after the seals had gone the tide must have changed as I was swept off the rock I was on by, to say the least, an unexpectedly large wave. Luckily the only casualty was the light from the hurricane lamp which did not like the swim. When we penetrated the cave further we were amazed at its size—it made Seal's Hole look insignificant. It is fairly straight so one can see the whole of the floor of the cave (200—250 feet). It varies from 15 to 30 feet wide and is widest about 100 feet in. We arrived at a pool about 60 feet in and were just about to go round when we heard shouts from Bob. These aroused some seals who were further in, so we returned to the entrance only to find that there was a large bull seal swimming a few yards out from the entrance. He was showing great interest in our activities and was not very worried about Bob's attempts to scare him. The swell had also noticeably increased. A seal on land is one thing, but in the water it is quite another! We did not remain long in the water and scaled the slippery rock in record time. No less than 21 seals came out making a total of 25 in the cave. Again it made the 4 or 5 occupants of Seal's Hole look trivial.

We were more successful on our second visit when Nigel Scriven accompanied us. On arrival we found that because of the Spring tides we could walk in without getting our feet wet. We got three seals out before we went in and when we reached the pool we saw an enormous bull-seal at the back of the cave. When



LUNDY

SITES OF CAVES ON EAST SIDE OF LUNDY



it started to move we did not wait around, but on looking back we saw that it was gaining on us (normally we can easily outwalk, let alone outrun, seals on land). We were extremely relieved when we reached the safety of the rocks outside. We waited to see what type of seal this was, as it surely could not be a grey seal at that size but when it emerged we realised that we had been the victims of an optical illusion. The seal was in fact one we had identified last year and was a very ordinary adult male.

When we re-entered the cave we found that the boulders got smaller towards the back, thus giving the impression of distance.

We found a freshly dead seal about 100 feet in (See Article on Seals), but no pups. When we reached the back we found that the cave was obviously getting deeper all the time as the back wall was made up of a clay-like substance with pieces of the rock from the dyke. This is continually moving down and it was obvious that two or three feet had been washed away by the recent storms. This was not the back of the cave as this wall was at about 70 degrees for about fifty feet, and then it levelled off somewhat and we could not find a back wall even with our torches. Inbedded in this slope was a rock about 30 feet up which was about 15 feet high and appeared like a wedge with its edge in the vertical plane. The roof was at the very least 60 feet high but was probably considerably more. We would not be surprised if it was twice this height. There was some white algal growth on the walls and some spider eggs were found.

(3) This cave has a very small entrance at high tide and is about 40 yards east of Puffin Gully. The entrance is about 4 feet wide at its widest point and resembles a thin triangle. At low tide a cavern can be seen approximately 60 feet long, twenty to thirty feet high, and 10-15 feet wide. At the end it turns inland and by the sound of the waves we estimated that it might be as long again. We noticed that there appeared to be less water coming out than going in—this could indicate a second entrance.

(4) Although this is not a cave it is a natural bridge over a gully in much the same way as that forming the Devil's Lime Kiln. The gully is about 80 feet long and twenty feet wide, opening out to form a square open-air 'chamber'. The bridge covers about 40 feet of the gully. There is also a rock wedged into the gully. This feature is formed by the erosion of a dyke.

(5) The entrance to this is below the high tide mark. It is roughly circular with a diameter of about 10 feet. It is doubtful whether it goes any further than 15 feet in, although we were not absolutely certain.

(6) This is a rift about 3 feet wide and 15-20 feet high. It extends about 15 feet into the island.

(7) The entrance to this cave is at the high water mark and at low water a large cube-like rock fills the lower portion of the eroded dyke. It is 5-10 feet wide and 15-20 feet high at the entrance and is about 100-150 feet long. It is fairly straight, apart from a north bend and then a westward bend 20 feet before the end. There are several shallow pools towards the back of the cave.

(8, 9 and 10). One of these caves appears in Mills's report and it is surprising that the other two were not noticed. We suspect that the cave mapped is the one in the middle of the Frenchman's Landing (9). This now has a large log well and truly wedged into the entrance of it. The other two are wider than (9) and probably a little longer (60 feet +).

(11) Although this was not seen when we went up the coast in the divers' inflatable we later climbed down the cliffs to the promontory in Three-Quarter Wall Bay and on the south side there was an arch. By the seals' movements we thought that there was probably a cave behind it.

(12, 13 and 14). These were observed from the inflatable at half tide. A bull was patrolling (12) and (13) and another was patrolling (14). As the swell was getting up they were not looked at closely but the presence of the bulls in an area where there is little hauling out space suggests that there could be a beach inside the caves.

(15, 16 and 17). These were approached in the inflatable almost to our cost. (15) and (16) are at least 30 feet long and probably, by the way the waves were going in, a lot longer. (17) is at least 50 feet long and again probably longer. I

returned to the bay at low tide and there was still about 3 feet of water at the entrance to (15) and (16) but only a foot in the entrance to (17). We were only prevented from entering by a 10 feet drop to the entrance on the south side. This would be simple with a rope, but we were unable to return this year.

(18) This cave has two parallel off-shoots; the northern one is about 60 feet long and 15 feet high and the other is about 120 feet long and 15-20 feet high. Both are about 10 feet wide.

It would be useful if these caves could be properly mapped and indeed the west coast closely looked at, as we are sure that there are several more unknown caves quite possibly even larger than those on the east side. We would be grateful if in future the caves were not entered from August to November as our second visit to Puffin Gully disturbed the Seals greatly and this could have a detrimental effect on any pups present in the caves. Two dead pups found floating around the North-west point after the first September storm almost certainly came from Virgin Springs or Caves (2) or (3).

SOME ASPECTS OF THE SOCIAL BEHAVIOUR OF LUNDY GOATS

(Abstracts from '*The Social Behaviour of Lundy Goats*' by KEITH ALLEN, Dept of Psychology, University of Exeter, 1972)

35, Winterslow Drive, Havant, Hants.

Introduction

The goats of Lundy are 'feral', that is, their ancestors were, at one time, in private ownership. However, as their owners found employment off the island with the decline of the quarries, the goats were left to fend for themselves.

The coat colours of Lundy goats indicate a complete mixture of the Alpine breeds Saaren and Toggenberg, and the Nubian goat of the Middle East. This mixture is generally known as the 'English' goat, *Capra hircus hircus*.

There were, in 1971/1972, approximately 60 goats on the island, roughly divided into 4 equal groups, with 'home ranges' approximating to the North-East, South-East, South-West and North-West, cliff faces.

I visited Lundy first in the early Spring of 1971 as part of my university course in 'Animal Behaviour'. I returned in the Spring of 1972 on a Lundy Field Society grant to continue my studies of communication and hierarchy in the goats.

Startle

I orlginally set out to study the phenomenon of 'Startle'. On a previous visit to the island, my tutor had been interested in the communication of danger among the goats. On that occasion he heard a total of three 'baa's', all apparently from one animal, before a group began to move off. He suspected that a summation of warning signals was necessery to cause the flock to move off.

I found that there are two types of danger signal. The 'baa' for approaching danger, and the snort for imminent danger. The 'baa' involves the vocal cords, while the snort is the expulsion of air quickly via the nose. I witnessed several animals snorting, at close quarters, and saw that there is a one or two second delay while air is drawn in, before the snort can occur. This air may be drawn in as the animal 'sniffs' the air to smell the possible intrusion, or just very quickly. As the animal begins to draw in air, however, whether it is sniffing or not, it 'attends', i.e. it adopts the 'startle stance' of straight legs, straight neck, head erect—almost horizontal in fact, while nose, ears, and eyes are brought to play on the danger. Also, the tail may go up. How far it goes up, if at all, varies between animals. Sometimes it rises to the vertical, other times only to the horizontal, perhaps rising farther with subsequent snorts. The animals also 'attend', adopting the startle stance, when the warning signal is given as a 'baa' or even without any sound at all.