LUNDY — A MESOLITHIC PENINSULA?

By K. S. GARDNER

One problem which is often raised is that of early settlers making the (now) hazardous crossing from the mainland. There is of course ample evidence of the marine prowess of migrating peoples ever since Britain itself became an island, but the apparent presence of Mesolithic hunter-nomads on Lundy, whilst not precluding the use of boats*, is perhaps sufficient excuse to quickly consider the question of land elevation and marine transgressions as they affect the lower reaches of the Bristol Channel.

Fluctuations in sea-level can be caused by three basic phenomena:

(i) Tectonic—basic movements of geological mass.
(ii) Isostatic—local depression of land by the weight of overlying ice-sheets.
(iii) Eustatic—where the world total of available free water fluctuates with the amount "locked up" in ice and snow.

The first of these should not concern us in the present case, and how far the second acts in sympathy with the third, whilst not always easy to assess is, on the available data, probably minimal in the Pre Boreal Bristol Channel.

Of the generally accepted world wide fluctuations relevant to man's environment, i.e. Penultimate Glaciation onwards, we are here concerned with a detailed and localized assessment of the maximum Last Glaciation III regression and the rate of the subsequent Flandrian transgression.

Of the estimated LGIII level of −100 ft., Zeuner having suggested −330 ft. for LGI continues . . . "there is no conclusive evidence that the sea level was less low during the later two phases of the Last Glaciation but there are slight suggestions of a halt at −230′ to −100′ or less. It is conceivable that these are the low levels of LGII and LGIII."(1).

Elsewhere however there are indications of a lower LGIII level, a possible — 165′ across the Straits of Gibraltar(2) and at least — 175′ in the North Sea(3). Evidence from the Dogger Bank suggests that the — 130′ level was not submerged until c. 7000 B.C. and this is accepted as the terminus ante quem for the final submergence of the Kent-Artois valley, with a probable date nearer 6000 B.C.(4). Further peat/pollen samples from the Fenland and North Sea bed show that in the Pre Boreal Zone IV land conditions prevailed where there is now up to 174 ft of water, and that peat from — 115 ft, which incidentally yielded a Maglemosian harpoon, dates from the early Boreal-Zone V/VIa. These Post Glacial low sea levels were followed by (i) a rapid transgression to slightly above present O.D., (ii) a subsequent withdrawal and (iii) two further high cycles before the present sea level was attained(5).

So much for world sea levels in general and those of Post Glacial Eastern Britain in particular. How far can we apply North Sea data to the Bristol Channel?

If Dogger Bank data is purely eustatic it should have parallels in the Bristol Channel as well as the English Channel.

The coasts of S. Wales and N. Devon are rich in both "raised beaches" and "submerged forests", but whilst the one is an actual tide mark, the other although not lacking in cultural and other datable remains, is merely an indication that once this was land. How far from the sea these "submerged forests" once lay is not so obvious.

The evidence for glaciation in the Bristol Channel is more positive on the northern shores than elsewhere. Nevertheless Zeuner has confirmed the presence of boulder clay with striated erratics at Fremington in the Taw Valley, identifying it as a bottom-moraine of a glacier travelling from Scotland via Ireland and presumably via Lundy.(6)

The late Monastirian raised beaches in Bideford Bay show no signs of glacial transgression so one must assume that the Fremington moraine is derived from the Penultimate glaciation at the latest. On the other hand the 25′ beaches of S. Wales do show evidence of glacial transgression in the form of "Older Drift" (LG.I?) on a wide front from St. David's to Gower, and it is further agreed

that the "Newer Drift" (L.G.I?) did not reach these areas except for one glacier emptying into the Channel via the Swansea Valley.

It would thus appear that L.G.III would have had little if any isostatic effect on the Bristol Channel coastal deposits.

These deposits have not yet proved so informative as those of the North Sea but such evidence as we have suggests a parallel course of events, at least through the critical Mesolithic/Neolithic phase.

A rapid transgression is indicated by a Section at Swansea where a Mesolithic peat level is separated from a Neolithic phase by some 50 feet of deposits.(7) Alternating bands of late, or Post, Boreal peats and marine clays at Barry, (8) (including a fragment of a polished flint axe at — 4 ft OD) suggest fluctuations comparable with the peaks shown in the Fens. Similar trends are seen at other sites in Somerset (9), Cornwall(10), and in Devon (11) where at Yelland in the Taw/Torridge estuary a Bronze Age stone row, now 10 ft below H.W.M.S.T. was constructed on transgressional blue clay which sealed in a Mesolithic flint working floor.

Unfortunately no deep samples are yet available from the Bristol Channel sea bed so we must look to other sources for parallels to the North Sea Pre Boreal low.

The deepest of the Welsh sections at Swansea indicates a total river valley depth approaching 200 ft, whilst study of Admiralty Charts(12) around Lundy shows in plan a flooded river valley system at — 150 ft. Random sections between Lundy and the N. Devon Coast shows indications of eroded platforms at similar depths.(1)

Confirming evidence comes from Seismic Surveys around the Taw/Torridge estuary which indicate "flat bottomed rock channels which suggest by their nature and position a sea level change of the order of 150 feet and that the shoreline was about eight miles further seawards in Barnstaple Bay than it is now."(13) Such a level would lay bare an isthmus from Morte Hoe to the Stanley Bank and Lundy would become a peninsular bastion at the mouth of the Severn.

Such an isthmus based on present submarine contours, at a mean sea level of — 150 ft would be 10 miles wide and 12 feet high. Present low spring tides would increase this to only 11 miles and 24 feet while highest tides would flood it!

Seismic surveys yield no dates but there appears to be no logical reason why the trends of local Post Boreal fluctuations, so similar to those of the North Sea, should not be extrapolated in parallel with them back into the Pre-Boreal.(2)

It is suggested that a post glacial sea level of at least — 150 ft existed in the Bristol Channel until early Mesolithic times and that Lundy last became an island circa 7000 B.C.

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*A Mesolithic dug out canoe is known from beneath the clay of the River Tay at Perth.

References

(1) Zeuner:: The Pleistocene Period, p. 306.
(2) Zeuner: Dating the Past, p. 424.
(3) Godwin: *Phil. Trans. Roy. Soc.* (B), **230:** (1940).
(4) As (2).
(5) Godwin: *Phil. Trans. Roy. Soc.* (B), **230:** (1940).
(6) As (1).
(7) Godwin: *New Phytologist*, Vol. 39, p. 308-321.
(8) Q.J.G.S. 52 (1896), p. 474.
(9) Steers: *Coastline of England and Wales*, 1964, p. 600.
(10) Q.J.G.S. 7 (1851), p. 118.
(11) Proc. D.A.E.S. 3, p. 109.
(12) Bristol Channel Chart 1179. Admiralty 1954.
(13) Steers: *Coastline of England and Wales*, 1964, p. 611.

A Mesolithic Coastline

At -150 ft. O.D.

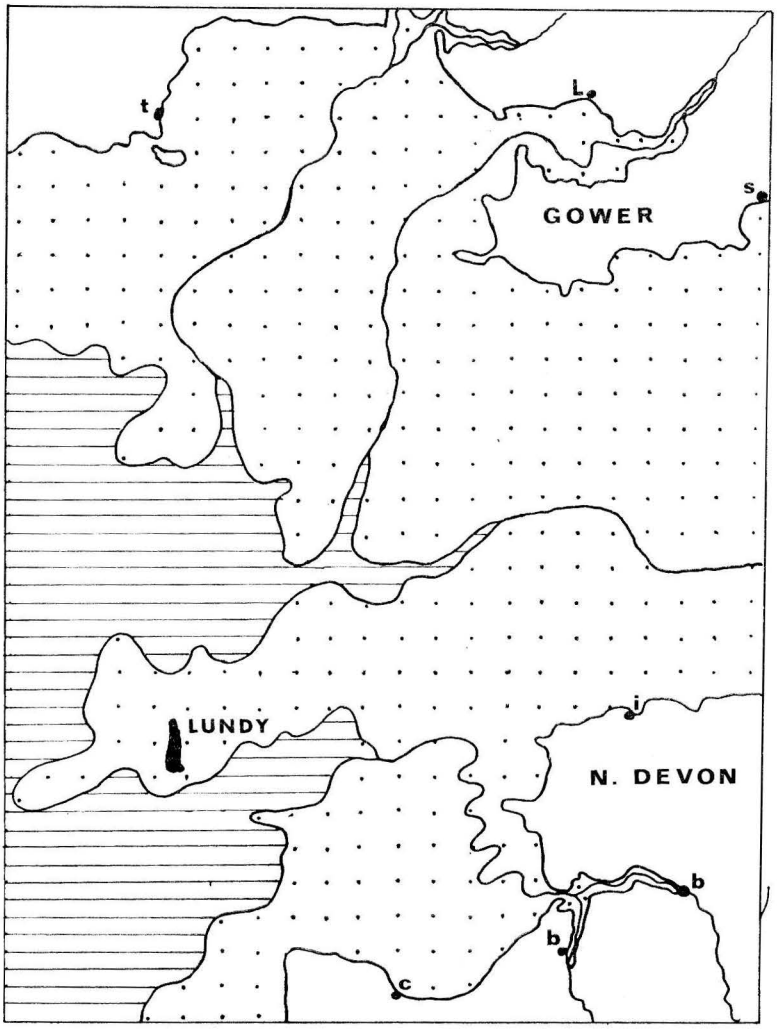

fig.1

THE RISE OF SEA LEVEL.

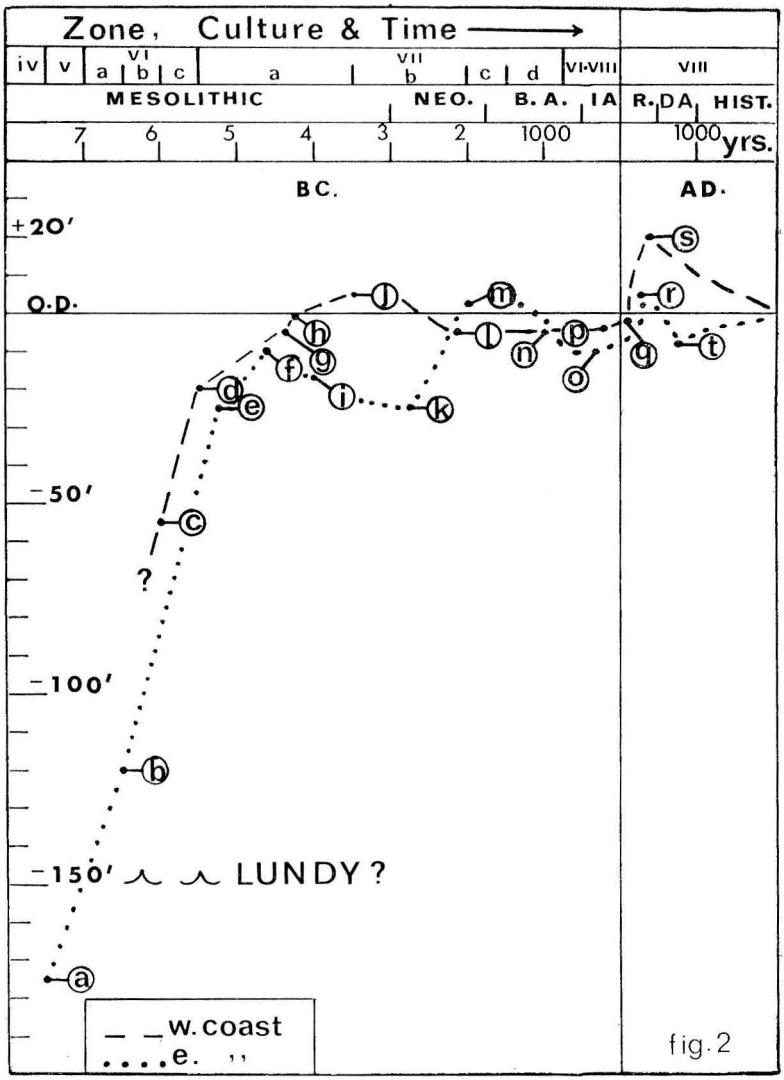

fig. 2

Postscript

The Pleistocene deposits on Lundy have yet to be studied in detail. There is extensive evidence of higher sea levels than present in the form of rock shelves, cliff notches, sea caves, etc. and it is understood that Dr. A. J. Dollar is currently examining certain aspects of the problem.

There is a report that glacial striations may exist on the surface of some granite boulders on the plate although these have yet to be studied. Also under examination are samples of clay deposits from the plateau.

One of the best areas for recommended study is around the Brazen Ward (SS/139. 468). where the 25 ft. rock shelf forms a natural quay-side. There are raised sea caves (e.g. "Queen Mabs Grotto") and good examples of Head deposits, providing a potentially rewarding field for future students.

KEY TO FIG. 2.

Ref.	Site	Vide	Approx. S.L.
A.	NORTH SEA	*Proc. Prehistoric Society*, Vol. 2, p. 239	— 175′
B.	,, ,,	,, ,, ,, ,,	— 120′
C.	SWANSEA DOCK	*Quarterly Journal Geological Soc.*, Vol. 12, p. 169	— 55′
D.	,, ,,	,, ,, ,, ,,	— 20′
E.	FENS	*Phil. Trans. Roy Soc.* (B) 230, p. 239	— 24′
F.	,,	,, ,, ,, ,,	— 10′
G.	YELLAND	*Devon Arch. Exp. Soc.* Vol. 3, p.121	— 5′
H.	SOMERSET COAST	*Coast Line of England Wales*: Steers, p. 600	— 2′
I.	FENS	As F.	— 17′
J.	SOMERSET LEVELS	As H., p. 601	+ 6′
K.	FENS	As I.	— 24′
L.	BARRY DOCK	*Q.J.G.S.*, Vol. 52, p. 474	— 4′
M.	FENS	As K.	+ 2′
N.	YELLAND	As G.	— 5′
O.	FENS	As M.	— 10′
P.	BREAN	*University of Bristol Spelaeological Soc.*, Vol. 9, No. 2	— 4′
Q.	BARRY DOCK	As L.	— 2′
R.	FENS	As O.	+ 5′
S.	SOMERSET LEVELS	*Memoirs Geological Survey—Wells* p. 121	+ 20′
T.	FENS	As R.	— 8′