

# THE BOTTOM FAUNA OF GREAT WEST BAY

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(Text-fig. 1)

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## INTRODUCTION

At the end of the last century extensive investigations were made of the trawling grounds in the bay between Start Point and Portland, sometimes known as Great West Bay (see Stead, 1896; Holt, 1898; Garstang, 1903; Kyle, 1903; and Todd, 1903). Although these deal mainly with the food-fish of the area, Todd gives an account of invertebrates brought up in the trawl. Since the trawl mainly samples the 'epifauna' of the sea-bottom, no comparison will be made of Todd's results with those obtained in the grab surveys to be described.

In November 1923, Mr E. Ford made a survey of the bottom fauna of the Bay, using a  $\frac{1}{10}$  m.<sup>2</sup> Petersen grab. With the exception of a number of stations in Start Bay (see Ford, 1925), the results were not published. Mr Ford has kindly lent me the notes on his collections, some of which are included in this paper.

In the summer of 1948 a cruise was made in the western side of the Bay, samples being taken at thirty-seven stations with the bottom-sampler described by Holme (1949). At each station between one and five hauls were made, each covering an area of  $\frac{1}{20}$  m.<sup>2</sup>. The results are in the main very similar to those of Ford, showing that it is possible to make a reasonably reliable qualitative survey of a fairly large area using these methods. They also show that the bottom-fauna has not changed to any extent in the past 25 years.

The survey was made during the term of a D.S.I.R. research grant at the

Plymouth Laboratory. I am grateful to the Director and staff for facilities afforded during this period.

I am indebted to Captain C. A. Hoodless and the crew of R.V. *Sabella* for their assistance in taking the samples, and to Miss U. M. Grigg for help in sorting and preserving specimens during the cruise.

The following have kindly identified certain species: Miss S. M. Davies (*Eone*), Mr G. M. Spooner (Amphipoda), Miss U. M. Grigg (some of the Mollusca), Mr H. G. Vevers (Echinodermata). The author is responsible for the other identifications.

#### METHODS

Except for a few dredge hauls, collections were made with the 'scoop-sampler', covering a nominal area of  $\frac{1}{20}$  m.<sup>2</sup>, and digging to a maximum depth of 15 cm. Many of the grounds are muddy and therefore fairly suitable for working with either the Petersen grab or the new sampler. Quantitative differences may be due either to changes in the density of the fauna over 25 years or to the relative efficiency of the two samplers.

On most grounds the scoop-sampler took a fairly adequate sample, but seldom came up full, the volume obtained corresponding to a 'bite' of depth 6-8 cm. It is unlikely that much soil was lost during hauling as all stations were worked in perfectly calm weather.

Positions were fixed by compass bearings on to the shore, which was in sight at all but one station. Station lists are given in Tables XI and XII (pp. 182-3). The writer's soundings have been reduced to chart datum.

Since tidal streams are weak the hauls at each station could be taken without the ship drifting more than perhaps 100 m., usually much less.

Collections at each station were put together and sieved through a mesh of 1, 2, or 3 mm., depending on the grade of soil. Smaller Crustacea and worms may have been lost when the larger-meshed sieves were employed. A soil sample from each station has been kept.

At certain stations, where the bulk of the sievings was great, only a proportion was kept for examination. To this was added any large or conspicuous animals seen in the rest of the sample. The numbers recorded at these stations are, therefore, not strictly quantitative, and can only be taken to represent the minimum numbers present in the sample. Owing to rather hasty preservation, inevitable when working through large quantities of material at sea, some of the smaller animals have not been identified further than the genus. Other specimens may, however, have been sufficiently well preserved to enable specific identification. Thus the recording of *Pectinaria koreni* and *Pectinaria* sp. from one station does not necessarily mean that more than one species was present.

Nomenclature usually follows the *Plymouth Marine Fauna* (Mar. Biol. Assoc., 1931).

## GREAT WEST BAY

Great West Bay is 48 miles across from Start Point to Portland, and extends 20 miles inwards. Its area is about 650 square miles. The western side is sheltered from westerly winds by the coastline; this and the absence of Atlantic swell make the sea rather less rough than off Plymouth.

Tidal currents in the Bay are weaker than in the main English Channel, but reach over 2 knots (3.7 km./hr.) at Start Point and Portland Bill. Off Berry Head the current reaches only  $\frac{3}{4}$  knot, while in Teignmouth Bay it is scarcely felt.

The bottom is variable, but coarse deposits are rare and localized. The most significant feature is the large amount of mud deposited, particularly off Berry Head and in Torbay. In parts of Start Bay and on 'the Corner', however, the soil is fairly clean, consisting of coarse sand or fine gravel.

The rivers Exe, Teign and Dart empty into the Bay, but do not affect the salinity outside their estuaries.

The area investigated will be considered under five headings: Teignmouth Bay, Torbay (worked only by Mr Ford), grounds off Berry Head, 'the Corner' fishing grounds, and Start Bay.

## TEIGNMOUTH BAY

Teignmouth Bay extends from the Orestone to Straight Point, and has a maximum depth of *c.* 22 m. Over much of the bay the depth is about 20 m. The bay is exposed to the south and east, but sheltered from the north and west by the coastline.

Three fairly distinct types of bottom are found: clean sand; mixed grounds of sand, mud and gravel; and mud.

*Clean Sand*

This occurs in a belt parallel to the shore off Dawlish and Exmouth. Farther offshore the sand gives way to gravel deposits. The depth is less than 11 m. Towards Dawlish the sand is finer and slightly muddy.

In 1948 the following stations were worked in this area: 1, 2, 12 and 14-16 (Table I). The fauna off Exmouth (Stations 1 and 2) is poor, but becomes richer towards Dawlish.

Species characteristic of the area are: *Sigalion mathildae*, *Nephtys* sp., *Magelona papillicornis*, *Iphinoë trispinosa*, *Bathyporeia* spp., *Tellina fabula*, *Donax vittatus*, ? *Spisula subtruncata* and *Ensis* sp.<sup>1</sup> *Echinocardium cordatum* is quite common at Station 16, but is rare or absent elsewhere.

Ford did not work this area.

<sup>1</sup> A note on the species of *Ensis* to be found in the area will be published shortly.

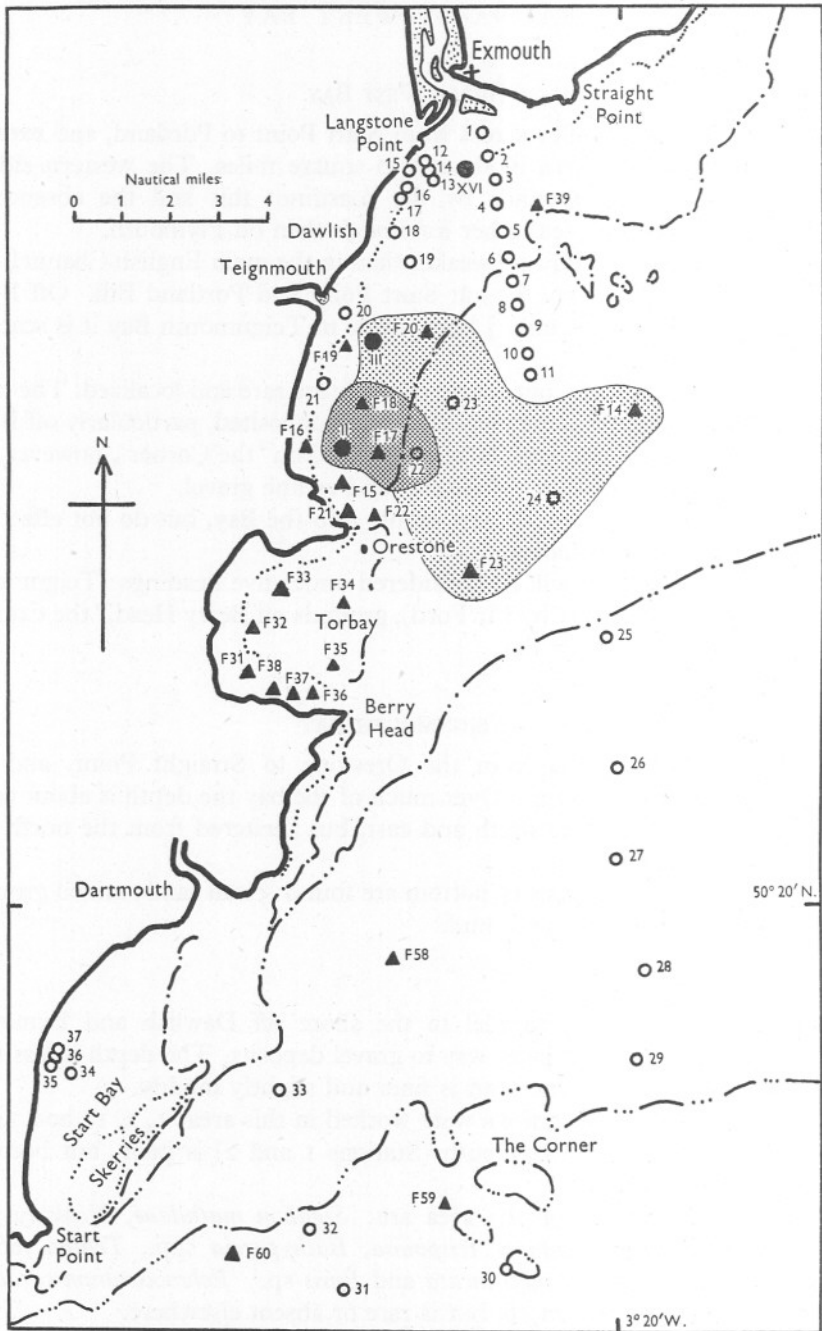


Fig. 1. Map of the western side of Great West Bay, showing stations worked by Mr Ford in 1923 and by the author in 1948. ▲, 1923 stations (Petersen grab); ○, 1948 stations (scoop-sampler); ●, 1948 dredge-hauls. ····, 5-fathom line; ---, 10-fathom line; - · - ·, 20-fathom line; - - - -, 30-fathom line. ▨, area occupied by living *Turritella*; ▩, area where dead *Turritella* shells are abundant.

TABLE I. FAUNA OF FINE CLEAN SAND IN TEIGNMOUTH BAY

Notes on Stations

Station 1. 29. vii. 48. Exmouth Church, 349°, 1.2'. Clean sand.  
 Station 2. 29. vii. 48. Exmouth Church, 349°, 1.7'. Gravel and sand.  
 Station 12. 30. vii. 48. Langstone Point, 334°, 0.35'. Clean sand.  
 Station 14. 30. vii. 48. Langstone Point, 334°, 0.55'. Clean fine sand overlying gravel.  
 Station 15. 30. vii. 48. Langstone Point, 022°, 0.55'. Clean fine sand and some gravel.  
*Donax* picked out, and fauna sorted from two-thirds of total gravel.  
 Station 16. 30. vii. 48. Langstone Point, 013°, 0.9'. Sand.  
 The nominal area of each haul is 0.05 m.

Station	..	..	1	2	12	14	15	16
Depth (m.)	..	..	5.5	10.5	5.5	7.5	5	10.5
Area (m. <sup>2</sup> )	..	..	0.15	0.05	0.1	0.05	0.05	0.2
Sieve (mm.)	..	..	1	3	1	1	1	1
COELENTERATA								
? <i>Peachia hastata</i>	..	..	..	..	..	..	..	3j.
? <i>Sagartia</i> sp.	..	..	..	..	..	..	..	1
NEMERTINI								
Nemertine sp.	..	..	..	..	1	..	..	..
POLYCHAETA								
<i>Sigalion mathildae</i>	..	..	..	..	2	..	..	c. 4
<i>Sthenelais boa</i>	..	..	..	..	..	..	..	1
<i>Phyllodoce</i> sp.	1	..	..	..	..	..	..	3
<i>Nereis</i> sp.	..	..	..	..	..	..	..	1
<i>Nephtys</i> sp.	c. 13	..	..	c. 3	..	..	..	4
<i>Scoloplos armiger</i>	..	..	..	..	..	..	..	1
<i>Nerine</i> sp.	..	..	..	..	..	..	..	1
<i>Magelona papillicornis</i>	c. 40	..	..	64	5	..	10	10
? <i>Owenia</i> tubes	..	..	..	..	..	..	..	3
<i>Pectinaria koreni</i>	?1	2	..	..	..	..	..	..
? <i>Lamice</i> tubes	..	1	..	..	..	..	..	6
Terebellid	..	1j.	..	..	..	..	..	..
Polychaeta indet.	1	1	3	..	..	1	..	1
CRUSTACEA								
<i>Iphinoë trispinosa</i>	20	1	3	1	..	..	..	..
<i>Diastylis laevis</i>	2	..	..	..	..	..	..	1
<i>Diastylis</i> sp.	..	..	1	..	..	..	..	..
<i>Pseudocuma cercaria</i>	1	..	..	..	..	..	..	..
<i>Ampelisca brevicornis</i>	..	..	..	..	..	..	..	3
<i>Bathyporeia guilliamsoniana</i>	4	..	3	..	1	..	..	..
<i>Bathyporeia elegans</i>	..	..	3	..	..	?3	..	?1
<i>Urothoë grimaldii</i>	..	..	3	..	..	..	..	..
<i>Leucothoë lilljeborgi</i>	..	..	..	..	..	..	..	4
<i>Nototropis swammerdami</i>	1	..	..	..	..	..	..	..
<i>Gammarus locusta</i>	1	..	..	..	..	..	..	..
Amphipoda indet.	..	..	5	..	..	..	..	..
Prawn	..	1	..	..	..	..	..	..
<i>Corystes cassivelaunus</i>	..	..	..	..	..	..	..	1j.
MOLLUSCA								
<i>Nucula nitida</i>	..	..	..	..	..	..	..	1
? <i>Pecten maximus</i>	1j.	..	..	..	..	..	..	..
<i>Chlamys opercularis</i>	1j.	..	..	..	..	..	..	..
<i>Montacuta ferruginosa</i>	..	..	..	..	..	..	..	2
<i>Tellina fabula</i>	2j.	..	1j.	..	..	..	..	2j.
<i>Abra alba</i>	..	..	..	..	..	..	..	1
<i>Abra</i> sp.	4j.	..	..	..	..	..	..	..
<i>Donax vittatus</i>	..	..	2j.	..	..	1	..	..
? <i>Spisula subtruncata</i>	6j.	..	..	..	..	..	..	1j.
<i>Lutraria</i> sp. (siphons)	..	..	..	..	..	..	..	2
<i>Mysia undata</i>	..	..	..	..	..	..	..	1
<i>Chione striatula</i>	..	..	..	..	..	..	..	1
? <i>Cardium aculeatum</i>	1j.	..	..	..	..	..	..	..
? <i>Cardium tuberculatum</i>	1j.	..	..	..	..	..	..	..
<i>Ensis</i> sp.	4j.	..	2	..	..	..	..	2
Lamellibranchs indet.	8	..	4j.	..	..	..	..	1
<i>Philine aperta</i>	..	..	1	..	..	..	..	1
POLYZOA								
<i>Cellaria</i> sp.	+	..	..	..	..	..	..	..
ECHINODERMATA								
<i>Acrocnida brachiata</i>	..	..	..	..	..	..	..	2
<i>Echinocardium cordatum</i>	..	..	1j.	..	..	..	..	3
<i>Labidoplax digitata</i>	..	..	..	..	..	..	..	5

?, identity doubtful; j., small specimens; +, present, but numbers uncertain; ++, abundant.

### Mixed Grounds

These occur off-shore in Teignmouth Bay in a depth of 10–23 m. Stations 3–11, 13 and 23 were worked in this area (Tables II and III). Deposits are of sand, fine shell fragments, and mud, sometimes mixed with fine gravel.

Characteristic species are: *Cerianthus lloydi*, *Melinna palmata*, *Phascolion strombi* (often in empty *Turritella* shells), *Eupagurus* spp., *Aloidis gibba*, *Cultellus pellucidus* and *Amphiura filiformis*.

Egg-clusters of *Turritella communis* were common at this time, and when trawling the meshes of the net came up covered with them. The presence of the Salcombe commensal, *Lepidasthenia argus*, at Station 3 is of interest. Although not taken in the grab hauls, *Gibbula magus* was found to be abundant off Langstone Point (dredge-haul XVI). A number of dredgings in the area showed that it was common only at this one station, where the bottom was of gravel.

Ford's Station 39, in this area, was evidently near a rocky ledge running southward from Straight Point. This is indicated by the presence of *Psammechinus miliaris* in the sample.

### Muddy Grounds

These occur between Dawlish and the Orestone. Between Dawlish and Teignmouth the ground becomes progressively muddier, and north of the Orestone there is a deposit of mud in which *Turritella communis* is very abundant. The depth is between 10 and 22 m., and Stations 17–22 were worked in this area (Table IV).

Where living *Turritella* is abundant, only two or three other species are found. These include *Eupagurus bernhardus* which inhabits the empty shells. The estimated extent of the *Turritella* bed is shown in Fig. 1. At some stations living *Turritella* were abundant, at others large numbers of dead and worn shells were taken. In dredge-haul II living shells formed such a large proportion of the catch that they half-filled a galvanized iron bath. In dredge-haul III many white and dead shells were taken, but very few living ones occurred.

Mr Ford worked a number of stations in this bed, and the area shown on Fig. 1 is based on collections made on both cruises. There seems to be an area north of the Orestone where the animals live in abundance, from which dead shells are swept to the north and east by waves or currents.

It is of interest to note that Kyle (1903) records oysters (*Ostrea edulis*) from this area:

'From Hope's Nose to off Teignmouth there is a stretch of hard ground on which oysters are fairly abundant. As showing the trend of the currents in Teignmouth Bay, it may be mentioned that the empty shells congregate in masses behind the Orestone on the Torbay side.' (Hope's Nose is the headland opposite the Orestone).

Oyster shells are now rare or absent in Teignmouth Bay.

TABLE II. FAUNA OF MIXED MUDDY AND GRAVEL GROUNDS IN TEIGNMOUTH BAY

Note. With most samples large animals were picked out, and a fraction of the sievings sorted (see p. 164). Numbers are those picked out, together with the subsample, which has not been multiplied by a factor.

- Station 3. 29. vii. 48. Exmouth Church, 348°, 2.2'. Muddy sand and pebbles, overlying grey clay. One-quarter sorted.  
 Station 4. 29. vii. 48. Exmouth Church, 349°, 2.7'. Mud and a few pebbles. One-half sorted.  
 Station 5. 29. vii. 48. Exmouth Church, 349°, 3.3'. Fine shell fragments and sand. All sorted.  
 Station 6. 29. vii. 48. Exmouth Church, 349°, 3.8'. Muddy sand, gravel, and few shell fragments. Three-quarters sorted.  
 Station 7. 29. vii. 48. Exmouth Church, 349°, 4.3'. Fairly fine muddy sand. Small piece of red sandstone. One-quarter sorted.  
 Station 8. 29. vii. 48. Exmouth Church, 349°, 4.8'. Fairly fine muddy sand, with sandstone fragments. All sorted.

Station	3	4	5	6	7	8
Depth (m.)	14	17.5	19	19	20.5	21.5
Area (m. <sup>2</sup> )	0.15	0.1	0.1	0.15	0.1	0.15
Sieve (mm.)	3	3	3	3	3	3
<b>COELENTERATA</b>						
Hydroid	..	..	..	+	..	..
<i>Cerianthus lloydi</i>	I	2	..	..	4	2
? <i>Peachia hastata</i>	Ij.	..	..	..	..	..
<b>PORIFERA</b>						
Sponge	..	..	..	..	..	I
<b>POLYCHAETA</b>						
<i>Lepidasthenia argus</i>	I	..	..	..	..	..
<i>Sthenelais boa</i>	I	..	..	..	..	..
? <i>Glycera convoluta</i>	..	..	..	3	..	2
<i>Glycera</i> sp.	..	I	..	..	..	..
<i>Nematoneis unicornis</i>	I	..	I	I	..	..
<i>Lumbriconereis</i> sp.	..	..	..	I	..	I
<i>Staurocephalus</i> sp.	..	..	..	I	..	..
<i>Stylaroides eruca</i>	I	..	..	..	..	..
<i>Scalibregma inflatum</i>	..	..	I	..	..	..
? <i>Owenia tubes</i>	..	I	I	..	..	..
<i>Pectinaria koreni</i>	..	..	..	..	..	I
<i>Pectinaria auricoma</i>	..	..	I	..	..	..
<i>Melinna palmata</i>	2	16	4	6	..	I
Terebellid	..	..	Ij.	..	..	..
Polychaeta	..	5	I	2	..	I
<b>GEPHYREA</b>						
<i>Phascolosoma elongatum</i>	2	..	..	..	..	..
<i>Phascolosoma vulgare</i>	..	3	..	..	..	..
<i>Phascolion strombi</i>	..	..	I	3	..	..
<b>CRUSTACEA</b>						
Amphipoda indet.	..	..	I	I	..	..
<i>Eupagurus cuanensis</i>	..	..	..	..	Ij.	..
<i>Gonoplax rhomboides</i>	..	..	Ij.	..	..	..
<b>MOLLUSCA</b>						
<i>Abra alba</i>	..	..	I	..	..	..
<i>Lutraria lutraria</i>	..	..	..	Ij.	..	..
<i>Chione fasciata</i>	..	..	..	..	I	..
<i>Cardium ovale</i>	..	..	..	..	..	I
<i>Aloidis gibba</i>	..	I	..	2	..	..
<i>Cultellus pellucidus</i>	..	..	..	..	..	I
<i>Turritella communis</i>	4	+*	I	..	..	I
<i>Aporrhais pes-pellicani</i>	..	..	..	..	..	2
<i>Philine aperta</i>	I	..	..	..	..	..
<b>POLYZOA</b>						
<i>Cellaria</i> sp.	..	..	I	..	+	I
<b>ECHINODERMATA</b>						
<i>Amphiura filiformis</i>	..	..	..	I	?I	2
<i>Cucumaria elongata</i>	..	..	..	..	..	I

\* One egg-cluster of *Turritella*.

For abbreviations, see Table I.

TABLE III. FAUNA OF MIXED MUDDY AND GRAVEL GROUNDS  
IN TEIGNMOUTH BAY (CONTINUED)

## Note

Station 9. 29. vii. 48. Exmouth Church, 349°, 5.3'. Coarse muddy sand and a few shell fragments. All sorted.

Station 10. 29. vii. 48. Exmouth Church, 349°, 5.8'. Soil as at Station 9. One-tenth sorted.

Station 11. 29. vii. 48. Exmouth Church, 349°, 6.2'. Soil as at Stations 9 and 10. All sorted.

Station 13. 30. vii. 48. Langstone Point, 334°, 0.75'. Gravel and muddy sand. One-tenth sorted.

Station 23. 30. vii. 48. Orestone, 222°, 3.5'. Muddy sand with *Turritella* shells. All sorted.

Station	..	..	9	10	11	13	23
Depth (m.)	..	..	22	21.5	22	10.5	23
Area (m. <sup>2</sup> )	..	..	0.2	0.25	0.1	0.1	0.1
Sieve (mm.)	..	..	3	3	3	3	1
COELENTERATA							
<i>Cerianthus lloydi</i>			2	1	..	..	..
? <i>Peachia hastata</i>			..	..	..	1j.	..
PORIFERA							
Sponge			..	..	..	..	2*
NEMERTINI							
Nemertine sp.			1	..	..	..	..
POLYCHAETA							
<i>Phyllodoce</i> sp.			1	..	..	..	..
<i>Nereis longissima</i>			..	..	..	..	1
<i>Nephtys</i> sp.			1	2	2	1	2
<i>Hyalinoecia bilineata</i>			..	1	..	..	..
? <i>Spiophanes bombyx</i>			..	..	..	..	2
? <i>Owenia</i> tubes			4	5	1	..	..
<i>Pallasia murata</i>			..	1	..	..	..
<i>Melinna palmata</i>			5	10	1	4	..
? <i>Lanice</i> tubes			1	..	..	..	..
Polychaeta indet.			10	6	c. 8	2	..
GEPHYREA							
<i>Phascolosoma vulgare</i>			..	1	..	..	..
<i>Phascolion strombi</i>			..	1	2	..	11
CRUSTACEA							
<i>Coremapus versiculatus</i>			..	..	..	..	1
Amphipoda indet.			..	..	1	..	..
<i>Eupagurus bernhardus</i>			..	1	..	..	..
<i>Eupagurus cuanensis</i>			..	1	..	..	..
<i>Eupagurus</i> sp.			..	..	..	..	1j.
MOLLUSCA							
<i>Nucula radiata</i>			..	1	..	..	..
<i>Nucula nitida</i>			..	1	..	..	..
<i>Abra alba</i>			..	..	1	..	3
<i>Abra nitida</i>			..	..	3	..	..
<i>Abra</i> sp.			..	3	..	..	..
<i>Spisula subtruncata</i>			..	1	..	..	..
<i>Lutraria</i> sp. (siphons)			..	..	1	..	..
<i>Dosinia lupinus</i>			2	..	..	..	..
<i>Aloidis gibba</i>			1	1	..	..	..
<i>Cultellus pellucidus</i>			1	7	3	..	..
<i>Turritella communis</i>			..	..	1	..	1†
Nudibranch			1	..	..	..	..
POLYZOA							
<i>Cellaria</i> sp.			1	..	1	..	1
ECHINODERMATA							
<i>Ophiothrix fragilis</i>			4	1	..	..	..
<i>Amphiura filiformis</i>			..	1	..	..	..
<i>Thyone roscovita</i>			2	..	..	..	..
<i>Labidoplax digitata</i>			3	2	..	..	..

\* Attached to *Turritella* shells.

† Also c. 250 dead worn shells.

For abbreviations, see Table I.



TABLE IV. FAUNA OF MUDDY GROUNDS IN TEIGNMOUTH BAY

Note

Station 17. 30. vii. 48. Langstone Point, 017°, 1·15'. Fine slightly muddy sand, and some gravel. Sampler not digging deeply.  
 Station 18. 30. vii. 48. Teignmouth Pier, 229°, 1·7'. Fine muddy sand, overlying gravel. Large animals picked out, and half the sieved gravel examined.  
 Station 19. 30. vii. 48. Teignmouth Pier, 251°, 1·7'. Gravel and sand in first two hauls, last three of sand. Large animals picked out, and one-fifth of gravel examined.  
 Station 20. 30. vii. 48. Teignmouth Pier, 324°, 0·6'. Fine sand with little mud.  
 Station 21. 30. vii. 48. Teignmouth Pier, 004°, 1·9'. Very fine muddy sand.  
 Station 22. 30. vii. 48. Orestone, 210°, 2·2'. Mud, with old *Turritella* shells.

Station	17	18	19	20	21	22
Depth (m.)	10·5	12·5	16·5	9·5	10·5	21·5
Area (m. <sup>2</sup> )	0·2	0·1	0·25	0·1	0·15	0·1
Sieve (mm.)	I	I	I	I	I	I
<b>COELENTERATA</b>						
<i>Cerianthus lloydii</i>	..	..	3	..	..	..
? <i>Peachia hastata</i>	I	..	..	..	..	..
<i>Anemone</i>	..	..	..	..	I	..
<b>POLYCHAETA</b>						
<i>Aphroditidae</i> (mainly polynoids)	I	..	I	..	I j.	..
<i>Sigalion mathildae</i>	I	..	I	2	..	..
<i>Sthenelais boa</i>	..	..	..	..	I	..
<i>Phyllodoce</i> sp.	I	..	..	..	..	..
? <i>Eteane</i> sp.	..	..	..	..	..	..
<i>Nereis longissima</i>	..	..	..	..	..	1 j.
<i>Nereid</i>	..	..	1 j.	..	..	..
<i>Nephtys</i> sp.	6	..	2	..	c. 5	..
<i>Glycera</i> sp.	..	..	I	..	..	..
<i>Eone nordmanni</i>	..	I	I	..	? I	..
<i>Nematonereis unicornis</i>	..	..	I	..	..	..
<i>Lumbriconereis</i> sp.	I	..	I	..	..	..
Spionid	..	..	I	I	..	..
<i>Spiophanes bombyx</i>	..	..	..	..	c. 10	..
<i>Magelona papillicornis</i>	17	..	2	2	I	..
<i>Notomastus latericeus</i>	..	..	..	..	..	2 j.
? <i>Owenia tubes</i>	2	..	2	2	..	..
<i>Pallasia murata</i>	..	..	+*	..	..	..
<i>Pectinaria</i> sp.	..	I	..	..	..	..
<i>Melinna palmata</i>	3	..	12	I	c. 25	..
<i>Amphitrite edwardsi</i>	1 j.	..	..	..	..	..
<i>Lanice tubes</i>	..	..	..	3	..	..
Polychaeta indet.	18	5	7	I	c. 20	..
<b>GEPHYREA</b>						
<i>Phascolion strombi</i>	..	I	..	..	..	..
<b>CRUSTACEA</b>						
<i>Iphinoë trispinosa</i>	..	..	..	..	2	..
<i>Diastylis laevis</i>	..	..	..	..	I	..
<i>Ampelisca brevicornis</i>	..	..	..	..	3	..
<i>Ampelisca tenuicornis</i>	..	..	I	..	..	..
<i>Bathyporeia</i> sp.	..	..	..	..	2	..
<i>Urothoe grimaldii</i>	..	..	..	..	2	..
Amphipoda indet.	..	..	..	2	..	..
<i>Eupagurus bernhardus</i>	1 j.	..	..	..	..	1 j.
<b>MOLLUSCA</b>						
<i>Nucula mitida</i>	..	..	..	2 j.	..	..
<i>Thyasira flexuosa</i>	..	..	..	..	3	..
<i>Montacuta ferruginosa</i>	I	..	..	..	..	..
<i>Tellina fabula</i>	8	..	..	..	5	..
<i>Abra alba</i>	..	..	..	..	7	..
<i>Abra</i> sp.	..	..	..	I	..	..
<i>Spisula subtruncata</i>	..	..	..	..	I	..
<i>Lutraria</i> sp. (siphons)	2	..	I	..	I	..
<i>Mysia undata</i>	..	..	1 j.	..	..	..
<i>Chione striatula</i>	1 j.	..	..	1 j.	..	..
? <i>Mya truncata</i>	..	..	..	..	..	..
<i>Ensis</i> sp.	1 j.	..	..	..	..	..
<i>Cultellus pellucidus</i>	1 j.	..	..	..	..	..
Lamellibranch indet.	..	..	..	..	1 j.	..
<i>Gibbula magus</i>	..	2	..	..	..	..
<i>Turritella communis</i>	10	I	..	..	I	50†
<i>Retusa</i> sp.	..	..	..	..	I	..
<i>Philine aperta</i>	..	..	..	..	2	..
<b>ECHINODERMATA</b>						
<i>Amphiura filiformis</i>	I	I	7	I	2	..
<i>Echinocardium cordatum</i>	I	..	..	..	..	..
<i>Cucumaria elongata</i>	..	..	..	..	I	..
<i>Leptosynapta inhaerens</i>	I	..	I	..	..	..
<i>Labidoplax digitata</i>	I	..	..	..	..	..

\* Piece of tube. † c. 2300 worn old shells.  
 For abbreviations, see Table I.

Outside the *Turritella* bed characteristic species are: *Sigalion mathildae*, *Melinna palmata*, *Lutraria* sp., *Chione striatula*, *Ensis* sp., *Turritella communis* and *Amphiura filiformis*.

Siphons of large specimens of *Lutraria* sp., probably *L. lutraria*, were taken at a number of stations. This mollusc digs to a considerable depth and the shell is out of reach of the 'bite' of the sampler.

#### TORBAY

Torbay was worked by Ford in 1923, but was not visited in 1948. Stations F31-38 (Table V) were worked, in a depth of 11-16 m. Torbay is sheltered on three sides, being open only to the eastward. The bottom is mostly fine muddy sand, and the fauna is rather similar to that off Teignmouth.

The main features are the presence of large numbers of *Nucula nitida* and *Lutraria lutraria* (?), the siphons only of the latter being taken in the Petersen grab. Ford notes that *Echinocardium* was more in evidence here than elsewhere in the Great West Bay.

Other typical species are: *Nephtys* sp., *Melinna* sp., *Ampelisca* sp., *Thyasira flexuosa*, *Abra alba*, *Cultellus pellucidus* and *Amphiura filiformis*.

#### GROUNDS OFF BERRY HEAD

Off Berry Head there is a deposit of very fine sand and mud. Stations 24-27 (Table VI) were worked about 6 miles from shore, in a depth increasing from 30 to 51 m. The soil is similar at all stations except 27, where it is rather coarser.

Characteristic species are: *Nephtys* sp., *Lumbriconereis* sp., *Notomastus latericeus*, *Pectinaria koreni*, *Callianassa subterranea*, ?*Abra alba*, *Chione striatula*, *Cultellus pellucidus*, *Turritella communis* (in small numbers), *Amphiura filiformis*, and *Leptosynapta inhaerens*. *Callianassa* occurs at all stations from 25 to 29, and evidently forms a bed of considerable density in this area. The average density is 13 per m.<sup>2</sup>

#### 'THE CORNER'

South of Station 27 the bottom becomes coarser and less muddy. Several species seem to reach a larger size than at previous stations. The area is trawled by Brixham fishing vessels, but is not very productive.

Stations 28-33 were worked in this area in a depth of 51-60 m. (Table VII). The bottom is of coarse slightly muddy sand, characteristic species being: hydroids, *Pectinaria koreni*, *Nucula nitida*, *Amphiura filiformis* and *Echinocyamus pusillus*.

*Echinocyamus* appears for the first time at Station 28, not having been taken at previous stations. Station 33 has a bottom of finer sand with a fauna similar to that found on similar soils in Teignmouth Bay.

TABLE V. FAUNA OF TORBAY. SAMPLED BY MR FORD IN 1923 WITH TWO HAULS OF THE  $\frac{1}{10}$  M.<sup>2</sup> PETERSEN GRAB AT EACH STATION

Note

- Station F 31. 15. xi. 23. Saltern Cavern NW, Churston Point, SW by W $\frac{1}{2}$ W. Sand.  
 Station F 32. 15. xi. 23. Red Cliff Hotel NW by N; Roundham Head NW by W $\frac{1}{2}$ W. Silty sand.  
 Station F 33. 15. xi. 23. Orestone E by N; Torquay Pier N by W. Muddy sand.  
 Station F 34. 15. xi. 23. Orestone NE by N; Thatcher Rock N. Mud and sand.  
 Station F 35. 15. xi. 23. Berry Head S; Brixham Breakwater Light SW by W. Mud and sand.  
 Station F 36. 15. xi. 23. Berry Head SE; Brixham Breakwater Light WSW. Sand harder and cleaner than at Station 35.  
 Station F 37. 15. xi. 23. Old Battery SW; Brixham Breakwater Light SE by E. Sandy mud.  
 Station F 38. 15. xi. 23. Quarries WNW; Fishcombe Point S $\frac{1}{2}$ E. Mud, with some *Zostera*.

Station .. ..	F31	F32	F33	F34	F35	F36	F37	F38
Sounding (m.) ..	11	15	14	16	15	12	12	?
<b>COELENTERATA</b>								
Anemone	..	..	..	..	..	..	I	..
<b>PLATYHELMINTHES</b>								
Polyclad sp.	..	..	..	..	..	..	..	I
<b>NEMERTINI</b>								
Nemertine sp.	..	I	I	..	I	..	..	..
<b>POLYCHAETA</b>								
<i>Sigalion</i> sp.	..	..	..	..	..	..	I	..
<i>Sthenelais limicola</i>	..	I	..	..	..	..	I	2
<i>Phyllodoce maculata</i>	..	..	..	..	I	..	..	..
<i>Nereis</i> sp.	..	I	..	..	..	..	..	..
<i>Nephtys</i> sp.	6	10	8	6	8	7	7	9
<i>Ammotrypane</i> sp.	..	I	..	..	..	..	I	..
<i>Scalibregma</i> sp.	..	..	..	..	..	..	..	I
<i>Notomastus latericeus</i>	..	I	..	..	..	..	..	..
<i>Pectinaria auricoma</i>	..	I	..	..	..	..	..	..
<i>Melinna</i> sp.	+	5	3	2	..	..	+	+
<i>Lamice conchilega</i> tubes	3	..	I	..	..	6	..	2
Polychaeta indet.	+	+	+	6	+	..	+	+
<b>CRUSTACEA</b>								
<i>Diastylis</i> sp.	..	2	I	..	..	..	..	..
<i>Ampelisca</i> sp.	6	I	3	4	..	..	2	I
? <i>Maera</i> sp.	I	..	..	..	..	..	..	..
Amphipoda indet.	..	..	..	..	..	..	I j.	..
Caprellid	..	..	..	..	..	..	..	I
<i>Porcellana longicornis</i>	I	..	..	..	..	..	..	..
<i>Macropodia</i> sp.	..	..	..	..	..	..	..	2 j.
<b>MOLLUSCA</b>								
<i>Nucula nitida</i>	7	25	9	12	2	3	4	22
<i>Thyasira flexuosa</i>	..	6	I	..	..	..	I	5
<i>Mysella bidentata</i>	..	3	..	..	..	I	..	2
<i>Montacuta ferruginosa</i>	..	..	..	..	4	..	..	..
<i>Tellina fabula</i>	5	3	..	I	..	..	..	6
<i>Abra alba</i>	..	..	3 j.	4 j.	29	..	I	6 j.
<i>Abra</i> sp.	..	7 j.	..	..	..	..	..	..
<i>Mactra corallina</i>	I j.	..	..	..	..	..	..	..
? <i>Spisula elliptica</i>	..	..	..	I j.	..	..	..	..
? <i>Lutraria lutraria</i> (siphons)	..	I	..	..	25*	I	..	..
<i>Chione striatula</i>	..	I	..	2	..	..	2	..
<i>Cardium echinatum</i>	..	..	..	..	2	..	..	..
<i>Aloidis gibba</i>	..	..	..	..	..	..	I j.	..
<i>Cultellus pellucidus</i>	I	I	..	9	..	..	..	2
<i>Philine</i> sp.	..	5 j.	..	I	..	..	..	4 j.
<b>ECHINODERMATA</b>								
<i>Astropecten</i> sp.	..	..	..	..	I	..	..	..
<i>Amphiura filiformis</i>	I	13	+	..	7	..	..	..
Ophiuroid	I	..	..	2	..	..	I j.	..
<i>Echinocardium cordatum</i>	..	I	I	..	13 j.	..	..	..

\* In all but four specimens siphons only were taken.  
 For abbreviations, see Table I.

TABLE VI. FAUNA OF GROUNDS OFF BERRY HEAD. SOIL: FINE SAND AND MUD AT ALL STATIONS

Note						
Station 24.	4. viii. 48.	Berry Head,	225°,	6.2'.		
Station 25.	4. viii. 48.	Berry Head,	254°,	5.7'.		
Station 26.	4. viii. 48.	Berry Head,	280°,	5.8'.		
Station 27.	4. viii. 48.	Berry Head,	297°,	6.4'.		
Station	.. ..	24	25	26	27	
Depth (m.)	.. ..	30.5	40.5	48	51	
Area (m. <sup>2</sup> )	.. ..	0.1	0.1	0.15	0.25	
Sieve (mm.)	.. ..	1	1	11	1	
<b>COELENTERATA</b>						
Hydroids	.. ..	..	..	+	+	
? <i>Sagartia</i> sp.	.. ..	9	..	..	1	
<b>NEMERTINEA</b>						
Nemertine sp.	.. ..	..	1	13	2	
<b>POLYCHAETA</b>						
Aphroditidae	.. ..	..	..	1	1	
? <i>Harmothoe lunulata</i>	.. ..	..	..	1	..	
<i>Phyllodoce</i> sp.	.. ..	..	1	1	..	
<i>Nephtys</i> sp.	.. ..	..	3	6	c. 3	
<i>Glycera convoluta</i>	.. ..	..	..	..	3	
<i>Glycera</i> sp.	.. ..	..	..	1 j.	..	
? <i>Eone</i> sp.	.. ..	..	1	1	..	
<i>Lumbriconereis</i> sp.	.. ..	1	..	2	2	
<i>Scoloplos armiger</i>	.. ..	..	1	2	..	
<i>Spiophanes bombyx</i>	.. ..	1	..	?2	..	
Cirratulid	.. ..	..	2	6	..	
? <i>Stylaroides flabellata</i>	.. ..	..	..	2	..	
<i>Scalibregma inflatum</i>	.. ..	1	..	..	..	
<i>Scalibregma</i> sp.	.. ..	..	..	..	1	
<i>Notomastus latericeus</i>	.. ..	3	10	3	1	
? <i>Owenia</i> tubes	.. ..	..	..	..	2	
<i>Pectinaria koreni</i>	.. ..	1	..	4	22	
<i>Terebellid</i>	.. ..	..	?3 j.	..	1	
Polychaeta indet.	.. ..	..	11	7	4	
<b>CRUSTACEA</b>						
<i>Diastylis</i> sp.	.. ..	..	..	..	1	
Cumacean	.. ..	..	..	1	..	
<i>Ampelisca tenuicornis</i>	.. ..	1	1	1	..	
<i>Harpinia antennaria</i>	.. ..	..	..	2	..	
<i>Callianassa subterranea</i>	.. ..	..	2	2+4 j.	2 j.	
Decapoda	.. ..	..	..	2	..	
<b>MOLLUSCA</b>						
<i>Mysella bidentata</i>	.. ..	..	..	..	5	
? <i>Abra alba</i>	.. ..	..	10 j.	4 j.	27 j.	
? <i>Dosimia exoleta</i>	.. ..	..	..	..	1	
? <i>Dosimia lupinus</i>	.. ..	..	..	..	1 j.	
<i>Chione striatula</i>	.. ..	..	..	3 j.	1+6 j.	
? <i>Cardium aculeatum</i>	.. ..	..	..	..	1 j.	
<i>Aloidis gibba</i>	.. ..	..	..	3 j.	..	
<i>Cultellus pellucidus</i>	.. ..	1 j.	1 j.	..	1+24 j.	
<i>Psammosolen chamasolen</i>	.. ..	..	..	1	..	
Lamellibranch indet.	.. ..	..	..	1	..	
<i>Turritella communis</i>	.. ..	12*	+†	+†	..	
<i>Retusa</i> sp.	.. ..	..	1	..	..	
<b>ECHINODERMATA</b>						
<i>Amphiura filiformis</i>	.. ..	..	..	10 j.	51	
<i>Echinocardium cordatum</i>	.. ..	..	..	..	2	
<i>Leptosynapta inhaerens</i>	.. ..	..	..	1	12	

\* Also two egg-clusters. † One egg-cluster only.  
For abbreviations, see Table I.

TABLE VII. FAUNA OF 'THE CORNER' REGION

Note

- Station 28. 4. viii. 48. Berry Head, 310°, 8.2'. Muddy sand with shell fragments. Soil coarser and less muddy than at Station 27.  
 Station 29. 4. viii. 48. Berry Head, 319°, 9.4'. Coarse slightly muddy sand. One-quarter sorted after picking out large animals.  
 Station 30. 4. viii. 48. Start Point, 275°, 9.6'. Coarse slightly muddy sand, and shell fragments. Sampler not bringing up much soil.  
 Station 31. 4. viii. 48. Start Point, 282°, 6.3'. Coarse slightly muddy sand. One-quarter sorted.  
 Station 32. 4. viii. 48. Start Point, 270°, 5.4'. Coarse slightly muddy sand. One-quarter sorted.  
 Station 33. 4. viii. 48. Start Point, 240°, 5.6'. Slightly muddy sand.

Station	28	29	30	31	32	33
Depth (m.)	51	54.5	60	59.5	58.5	49
Area (m. <sup>2</sup> )	0.25	0.15	0.1	0.1	0.15	0.2
Sieve (mm.)	2	2	1	1	2	?
<b>COELENTERATA</b>						
Hydroids	1	1	+	..	++	..
<i>Cerianthus lloydi</i>	..	..	..	..	4	..
<b>NEMERTINEA</b>						
Nemertine	..	2	..	..	..	..
<b>POLYCHAETA</b>						
Aphroditidae	..	1	..	..	..	1
<i>Sigalion mathildae</i>	..	..	..	..	..	1
<i>Sthenelais limicola</i>	..	..	..	..	..	1
Phyllodocidae	..	..	..	..	..	1
Nereidae	..	..	..	..	Ij.	..
<i>Nephtys</i> sp.	c. 3	..	..	..	..	c. 6
<i>Glycera convoluta</i>	..	1	1	..	..	..
<i>Glycera</i> sp.	..	..	..	..	..	3
Eunicidae	1	..	..	..	..	..
<i>Lumbriconereis</i> sp.	..	2	1	..	..	5
<i>Magelona papillicornis</i>	..	..	1	..	..	160
<i>Scalibregma inflatum</i>	..	..	..	..	..	1
? <i>Owenia</i> tubes	c. 3	2	1	..	1	..
<i>Pallasia murata</i>	1	..	..	..	..	..
<i>Pectinaria koreni</i>	10	4	..	1	1	13
<i>Pectinaria auricoma</i>	1	..	..	..	..	..
? <i>Lanice</i> tubes	..	4	..	..	1	..
<i>Dasychone bombyx</i>	..	..	..	..	1	..
Terebellid	..	1	1	..	..	..
Polychaeta indet.	10	6	2	4	..	c. 20
<b>CRUSTACEA</b>						
<i>Ampelisca spinipes</i>	..	..	..	1	..	..
Caprellid	..	..	..	..	1	..
<i>Callianassa subterranea</i>	1	I j.	..	..	..	..
<i>Upogebia stellata</i>	..	..	..	1	..	..
<i>Corystes cassivelaunus</i>	1	..	..	..	..	2
<b>MOLLUSCA</b>						
Chiton	..	..	..	..	1	..
<i>Nucula nitida</i>	1	1	Ij.	..	..	4
<i>Diplodonta rotundata</i>	..	..	..	1	..	..
<i>Tellina donacina</i>	..	..	..	1	..	..
<i>Abra alba</i>	..	..	..	..	10	15
? <i>Abra nitida</i>	2	2	..	..	..	..
<i>Abra</i> sp.	..	..	1	..	..	..
<i>Gari ferroensis</i>	1	..	..	..	..	..
<i>Dosinia lupinus</i>	1	1	..	..	..	..
<i>Chione striatula</i>	2	..	..	..	..	1
<i>Cardium</i> sp.	..	..	..	..	..	Ij.
<i>Aloidis gibba</i>	..	1	..	..	..	..
<i>Ensis</i> sp.	..	..	..	..	..	Ij.
<i>Cultellus pellucidus</i>	3	..	..	..	1	3j.
Lamellibranch indet.	..	..	..	..	..	1
<i>Dentalium</i> sp.	..	..	..	1	..	..
<i>Turritella communis</i>	..	..	..	..	..	+†
<b>ECHINODERMATA</b>						
<i>Amphiura filiformis</i>	33	7	..	1	3	6
<i>Ophiura texturata</i>	..	..	..	..	..	1
<i>Echinocyamus pusillus</i>	+*	+*	+*	+*	4*	..

\* Empty tests of *Echinocyamus* common.

† One egg-cluster.

For abbreviations, see Table I.

## START BAY

A mile or so off Slapton the bottom is of fine muddy sand, with the following fauna:

Station 34. 5. viii. 48. Start Point 188°, 3'2". Fine slightly muddy sand. Depth 18 m. 0.1 m.<sup>2</sup> sampled. Sieve: 1 mm.

Phyllodocidae	1	? <i>Mysella bidentata</i>	2
<i>Magelona papillicornis</i>	1	<i>Montacuta ferruginosa</i>	1
Polychaeta indet.	13	<i>Ensis</i> sp.	1
<i>Nucula nitida</i>	3	<i>Cultellus pellucidus</i>	2
<i>Abra alba</i>	9	<i>Natica catena</i>	1

Closer in-shore a gravel bottom occurs, with *Spisula solida* as the main inhabitant. This ground has already been described by Ford (1925), who found that the bed of *Spisula* extended for about 4 miles along the coast, in a depth of about 10 m. The density exceeded 1000 per m.<sup>2</sup> in six out of nine stations. In 1948 Stations 35-37 were worked on the *Spisula* bed. The results may be summarized thus:

Station 35	0.1 m. <sup>2</sup> sampled	Empty <i>Spisula</i> shells only
Station 36	0.15 m. <sup>2</sup> sampled	<i>Spisula solida</i> 58 <i>Chione fasciata</i> 1
Station 37	0.05 m. <sup>2</sup> sampled	Empty <i>Spisula</i> shells only

Bearings and distances from Start Point were:

35: 181°, 3'3"; 36: 181°, 3'5"; 37: 182°, 3'7".

Dredge hauls confirmed the abundance of *Spisula*, although it may be noted that the density recorded, 387 per m.<sup>2</sup>, is considerably less than all but one (no. 50) of the nine stations sampled by Ford.

## COMPARISON WITH FORD'S SURVEY

The results of Ford's survey are given in Tables V, VIII, IX and X. From these it is clear that no major qualitative changes have occurred in the fauna. For example, the following were found in both surveys:

- (1) The *Turritella* ground in Teignmouth Bay.
- (2) The *Spisula* bed in Start Bay.
- (3) A fauna with *Nephtys* sp., *Notomastus latericeus*, *Melinna palmata*, *Nucula nitida*, *Lutraria* sp., *Cultellus pellucidus* and *Amphiura filiformis* among the most abundant or widely distributed species.

Owing to the different types of sampler used and to the fact that the same stations were not revisited, a quantitative comparison of the fauna at the two different times is not possible. The *Spisula* bed may have declined in numbers, as shown above, and certain species, *Abra alba* for example, seem to have decreased in density. On the whole, however, there is no evidence of any overall change in the abundance of the fauna.

TABLE VIII. SAMPLES TAKEN BY MR FORD IN THE *TURRITELLA* BED IN TEIGNMOUTH BAY. TWO HAULS OF  $\frac{1}{10}$  M.<sup>2</sup> PETERSEN GRAB AT EACH STATION

Note

- Station F 14. 13. xi. 23. Hope Nose W $\frac{1}{2}$ S, The Ness NW by W. Mud and *Turritella* shells. Sample with over 700 dead and worn *Turritella* shells.  
 Station F 17. 13. xi. 23. Orestone S $\frac{1}{2}$ W, Babbacombe Point W by S $\frac{1}{2}$ S. Black mud and brownish sand. Ten empty *Turritella* shells taken.  
 Station F 18. 13. xi. 23. Babbacombe Point SW $\frac{1}{2}$ S, The Ness N $\frac{1}{2}$ E. Dark sand and mud. Thirty empty shells of *Turritella*, but these were fresh and pink in colour.  
 Station F 20. 13. xi. 23. Orestone S by W, The Ness NW. Muddy shell gravel with *Turritella* shells. Over 600 dead and worn shells taken.  
 Station F 23. 14. xi. 23. Orestone NW by W $\frac{1}{2}$ W, The Ness N by W $\frac{1}{4}$ W. Dark sandy mud and *Turritella* shells. Over 1200 white empty shells taken, but these were not badly worn.

Station Sounding (m.)	F14 30	F17 19	F18 17	F20 21	F23 32
<b>COELENTERATA</b>					
Hydroid	I	..	..	..	..
Anemone	I	I	..	..	2
<b>PLATYHELMINTHES</b>					
<i>Cryptocoelis</i> sp.	I	..	..	..	..
<b>POLYCHAETA</b>					
<i>Aphrodite</i> sp.	..	..	..	I	..
Aphroditidae	I	..	..	..	..
<i>Sthenelais</i> sp.	I	..	..	..	..
<i>Nephtys</i> sp.	3	22	2	2	4
<i>Goniada maculata</i>	..	I	..	..	..
<i>Scalibregma</i> sp.	..	..	..	I	..
<i>Ammotrypane</i> sp.	..	..	I	..	..
<i>Notomastus</i> sp.	+	+	..	..	..
<i>Owenia fusiformis</i>	..	I	..	10	..
<i>Melinna</i> sp.	..	+	4	13	5
<i>Lanice</i> sp.	..	..	..	I	..
Terebellid	..	I	..	..	..
Sabellid	..	..	..	I	..
Polychaeta indet.	I	+	..	+	+
<b>GEPHYREA</b>					
<i>Phascolion strombi</i>	+	..	9	..	+
<b>CRUSTACEA</b>					
<i>Ampelisca</i> sp.	I	I	..	3	..
Amphipoda indet.	I	..	..	I	..
Shrimp	..	I	..	..	..
<i>Eupagurus</i> sp.	7 j.	..	..	6	..
<i>Nika edulis</i>	..	I	..	..	..
<i>Gonoplax rhomboides</i>	..	..	..	..	I
<i>Porcellana longicornis</i>	8	..	..	I	..
<b>MOLLUSCA</b>					
<i>Thyasira flexuosa</i>	I	3	..	3	..
<i>Abra alba</i>	25	2 j.	..	7	..
<i>Mactra corallina</i>	..	I j.	..	..	..
<i>Aloidis gibba</i>	..	..	..	I	..
<i>Cultellus pellucidus</i>	..	..	..	I	..
<i>Bullinella cylindracea</i>	..	..	I	..	..
<i>Nassa reticulata</i>	..	..	I	..	..
<i>Turritella communis</i>	58	..	70	..	38
<b>ECHINODERMATA</b>					
Ophiuroid	..	I j.	..	..	..

For abbreviations, see Table I.

TABLE IX. SAMPLES TAKEN BY MR FORD ON VARIOUS GROUNDS IN TEIGNMOUTH BAY. TWO HAULS OF THE  $\frac{1}{10}$  M.<sup>2</sup> PETERSEN GRAB AT EACH STATION

Note

Station F 15. 13. xi. 23. Hope Nose S, Babbacombe Point W by S. Dark mud and sand.  
 Station F 16. 13. xi. 23. Babbacombe Point S, Petit Tor NW. Fine red sand.  
 Station F 19. 13. xi. 23. Hope Nose S by W, The Ness N. Fine red sand.  
 Station F 21. 13. xi. 23. Black Head SW, Babbacombe NW by W. Very fine reddish sand.  
 Station F 22. 13. xi. 23. Flat Rock SW $\frac{1}{2}$ W, Black Head NW $\frac{1}{4}$ W. Coarse muddy shale (unsuitable for grab work).  
 Station F 39. 16. xi. 23. Clerk Point W by N, Straight Pt. N by E. Coarse muddy gravel.

Station .. .. .	F 15	F 16	F 19	F 21	F 22	F 39
Sounding (m.) .. .. .	15	10	10	14	22	22
COELENTERATA						
Hydroid	..	..	..	..	..	+
POLYCHAETA						
Aphroditidae	..	..	..	..	..	I
? <i>Sigalion</i> sp.	..	I	..	..	..	..
<i>Sthenelais boa</i>	..	..	..	..	..	I
<i>Phyllodoce maculata</i>	..	..	..	..	..	I
<i>Nereis</i> sp.	..	..	..	..	I	..
<i>Nephtys</i> sp.	7	I	6	10	I	I
<i>Glycera</i> sp.	..	..	..	..	I	6
<i>Magelona</i> sp.	..	..	..	..	..	I
<i>Scalibregma</i> sp.	..	..	..	..	2	8
<i>Ammotrypane</i> sp.	I	..	..	..	..	..
<i>Notomastus</i> sp.	..	..	..	+	+	..
<i>Owenia fusiformis</i>	5	..	16	I	5	..
<i>Amphiteis</i> sp.	..	I	..	..	..	..
<i>Melinna palmata</i>	++	..	..	c. 9	2	+
<i>Amphitrite</i> sp.	..	..	..	..	..	I
<i>Lanice conchilega</i>	c. 10	..	16	48	..	..
Terebellid	..	..	..	I	..	..
Polychaeta indet.	+	+	..	+	..	3
GEPHYREA						
<i>Phascolosoma</i> sp.	..	..	..	..	4	..
<i>Phascolion strombi</i>	..	..	..	..	..	2
CRUSTACEA						
<i>Ampelisca</i> sp.	9	..	..	8	..	6
<i>Bathyporeia</i> sp.	..	..	2	..	..	..
? <i>Hippomedon</i> sp.	I	..	..	..	..	..
<i>Eupagurus</i> sp.	..	..	..	..	..	I
<i>Nika edulis</i>	..	..	..	I	..	..
<i>Portunus</i> sp.	..	..	..	..	..	I j.
MOLLUSCA						
<i>Nucula nitida</i>	4	I	..	7	I	..
<i>Thyasira flexuosa</i>	6	..	..	I	I	I
<i>Diplodonta rotundata</i>	..	..	..	..	..	I
<i>Mysella bidentata</i>	2	..	..	..	..	..
<i>Tellina fabula</i>	..	I	..	I	..	..
<i>Abra alba</i>	3 j.	2 j.	..	7 j.	2 j.	..
<i>Abra nitida</i>	2	..	..	..	..	..
<i>Donax vittatus</i>	..	..	I	..	..	..
<i>Spisula</i> sp.	..	I j.	..	..	..	..
<i>Lutraria lutraria</i> (siphons)	..	4	..	..	..	..
<i>Chione striatula</i>	I	..	..	..	..	..
<i>Aloidis gibba</i>	..	I j.	..	..	..	..
<i>Ensis</i> sp.	..	I j.	..	..	..	..
<i>Cultellus pellucidus</i>	3	..	..	2	..	..
<i>Turritella communis</i>	..	..	..	..	..	I
ECHINODERMATA						
<i>Amphiura filiformis</i>	4	..	..	I	..	3
<i>Psammechinus miliaris</i>	..	..	..	..	..	I
<i>Echinocardium cordatum</i>	..	I	..	..	..	..
<i>Cucumaria elongata</i>	..	..	..	..	..	2
<i>Synapta</i> sp.	I	..	..	..	..	..

For abbreviations, see Table I.



TABLE X. SAMPLES TAKEN BY MR FORD IN THE 'CORNER' REGION.  
TWO HAULS OF  $\frac{1}{10}$  M.<sup>2</sup> PETERSEN GRAB AT EACH STATION

## Note

Station F58. 20. xi. 23. Berry Head N 5 miles. Fine sandy mud.

Station F59. 20. xi. 23. Berry Head N 10 miles. Silty sand, gravel, and shells.

Station F60. 20. xi. 23. Start Point W by N $\frac{1}{4}$ N, Downend Beacon N by E $\frac{1}{4}$ E. Silty sand, gravel, and shells.

Station	..	..	F58	F59	F60
Sounding (m.)	..	..	48	59	57
COELENTERATA					
Hydroid	..	..	..	..	+
NEMERTINI					
Nemertine sp.	..	..	1	..	..
POLYCHAETA					
<i>Sthenelais limicola</i>	..	..	..	1	..
<i>Sthenelais</i> sp.	..	..	3	..	..
<i>Ophiodromus flexuosus</i>	..	..	1	..	..
<i>Nephtys</i> sp.	..	..	3	1	2
<i>Phyllochaetopterus</i> sp.	..	..	..	..	+
Chlorhaemid	..	..	1	2	..
<i>Notomastus</i> sp.	..	..	2	..	..
<i>Owenia fusiformis</i>	..	..	..	..	1
Maldanid	..	..	..	1	..
<i>Lanice</i> sp.	..	..	..	c.5	..
Polychaeta indet.	..	..	+	+	2
CRUSTACEA					
<i>Ampelisca</i> sp.	..	..	..	1	2
Palaemonid	..	..	..	..	1
<i>Portunus</i> sp.	..	..	..	1 j.	..
<i>Gonoplax rhomboides</i>	..	..	2	..	..
<i>Ebalia</i> sp.	..	..	..	..	1
<i>Macropodia</i> sp.	..	..	..	1 j.	..
MOLLUSCA					
<i>Nucula nitida</i>	..	..	..	1	..
<i>Thyasira flexuosa</i>	..	..	1	..	..
<i>Tellina donacina</i>	..	..	..	1	2
<i>Abra alba</i>	..	..	..	4	..
? <i>Abra nitida</i>	..	..	2 j.	..	..
<i>Chione striatula</i>	..	..	..	1	..
<i>Cultellus pellucidus</i>	..	..	4	2	..
<i>Turritella communis</i>	..	..	..	1	..
ECHINODERMATA					
<i>Amphiura filiformis</i>	..	..	..	1	..
Ophiuroid	..	..	..	..	1
<i>Echinocardium cordatum</i>	..	..	1	..	..

For abbreviations, see Table I.

## COMPARISON WITH THE PLYMOUTH FAUNA

Ford (1923) has outlined the communities to be found on the level sea bottom at Plymouth; he found that the main communities represented were *Venus* communities with Spatangidae. These were subdivided into two series: Series A, found in finer deposits and characterized by *Chione (Venus) striatula* and *Echinocardium cordatum*; and Series B, found in coarse deposits and characterized by *Chione (Venus) fasciata* and *Spatangus purpureus*.

Of forty species listed in Series A, thirty are recorded from Great West Bay; whereas of eighteen in Series B, only two have been taken (*Nucula radiata* and *Chione fasciata*), each occurring at only one station. (*Glycimeris glycimeris* and *Laevicardium crassum*, both from Series B, have, however, been taken in dredgings about 3 miles south of Straight Point.)

In general, the 'SpVf' communities of Series B are poorly represented and very localized, while the 'EcVg' communities of Series A are characteristic of the area. Ford has divided the 'EcVg' communities into subcommunities, but this has not been attempted for this area.

A number of species which are scarce or localized at Plymouth but common in the Bay may be noted: *Spisula solida*, *Turritella communis*, *Lutraria lutraria*, *Tellina fabula*, *Pectinaria* spp. and *Cerianthus lloydi*. Differences in the fauna of the two areas may be due to the greater shelter, deposition of large quantities of mud, or to the presence of a different type of bottom in the Bay.

With regard to the last, it seems possible that certain members of the fauna may prefer the type of sand found in the Bay to that off Plymouth. In the Bay much of the sand is derived from erosion of Permo-triassic red sandstone, of desert origin, which produces sand grains which, although angular, are more or less isodiametric (see, for example, Wilson, 1948, pl. XVI, fig. 3). Off Plymouth, however, one may assume that the sand is mainly derived from the marine-eroded Palaeozoic rocks, and the grains can be seen to present a more irregular outline, rather like the 'gritty sand' described by Wilson (1948, pl. XVII, fig. 3). It is possible that the distribution of *Pectinaria* spp., for example, is controlled by its preference for the type of sand found in Great West Bay, since it constructs its tube of sand grains.

Of species present at Plymouth but absent from the Bay one may merely list species of the 'SpVf' association. Their absence is due to the lack of coarse deposits which are associated with a strong tidal scour.

#### NOTE ON *CREPIDULA FORNICATA*

Although not taken in the bottom-sampler hauls, the spread of *Crepidula fornicata* (L.) to the area may be noted. Its occurrence in the Torquay-Paignton-Brixham area is mentioned by Cole (1950). In August 1948 a single specimen was found on a whelk shell taken south of Straight Point, and since then the species seems to have increased in numbers. Although the shores of Dawlish Warren and Exmouth have been frequently visited in the past few years, no shells of *Crepidula* were found until January 1950, when a number of empty whelk shells washed up on Dawlish Warren were found to have living *Crepidula* attached. Most were quite small, a centimetre or two in length, and several chains of three or four individuals were taken.

## SUMMARY

An account is given of the bottom-fauna of Great West Bay from samples taken in 1948 with a new sampler. Comparison is made with a similar survey made by Mr E. Ford with the Petersen grab in 1923.

The deposits contain a fair proportion of mud, and the 'EcVg' communities defined by Ford dominate the area. Within the Bay are found fairly dense beds of *Turritella communis*, *Lutraria* sp., *Callianassa subterranea* and *Spisula solida*.

No marked changes in the fauna seem to have occurred since the earlier survey. The fauna is briefly compared with that of the Plymouth area.

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## APPENDIX

TABLE XI. MR FORD'S STATIONS (1923). S.S. SALPA

			$\frac{1}{10}$ m. <sup>2</sup> Petersen grab.
F 14	13. xi. 23		Hope Nose $W\frac{1}{2}S$ , The Ness NW by W
15	"		Hope Nose S, Babbacombe Pt. W by S
16	"		Babbacombe Pt. S, Petit Tor NW
17	"		Orestone $S\frac{1}{2}W$ , Babbacombe Pt. W by $S\frac{1}{2}S$ (Berry Head over Flat Rock)
18	"		Babbacombe Pt. $SW\frac{1}{2}S$ , The Ness $N\frac{1}{2}E$
19	"		The Ness N, Hope Nose S by W
20	"		The Ness NW, Orestone S by W
21	"		Black Hd. SW, Babbacombe Pt. NW by W
22	"		Flat Rock $SW\frac{1}{2}W$ , Black Hd. $NW\frac{1}{4}W$
23	14. xi. 23		Orestone NW by $W\frac{1}{2}W$ , The Ness N by $W\frac{1}{4}W$
31	15. xi. 23		Saltern Cove NW, Churstone Pt. SW by $W\frac{1}{2}W$
32	"		Red Cliff Hotel NW by N, Roundham Hd. NW by $W\frac{1}{2}W$
33	"		Orestone E by N, Torquay Pier N by W
34	"		Thatcher Rock N, Orestone NE by N
35	"		Berry Hd. S, Brixham Breakwater Light SW by W
36	"		Brixham Breakwater Light WSW, Berry Hd. SE
37	"		Brixham Breakwater Light SE by E, Old Battery SW
38	"		Quarries WNW, Fishcombe Pt. $S\frac{1}{2}E$
39	16. xi. 23		Clerk Pt. W by N, Straight Pt. N by E
58	20. xi. 23		Berry Hd. N, 5 miles (log)
59	"		Berry Hd. N, 10 miles (log)
60	"		Start Pt. W by $N\frac{3}{4}N$ , Downend Beacon N by $E\frac{3}{4}E$

N.B. Ford's positions are compass bearings, magnetic variation in 1923 being 15' 05" W.

TABLE XII. 1948 STATIONS. R.V. *SABELLA*

$\frac{1}{10}$ m. <sup>2</sup> Scoop-sampler			
I	29. vii. 48	Exmouth Church	349°, 1·2'
2	"	"	349°, 1·7'
3	"	"	348°, 2·2'
4	"	"	349°, 2·7'
5	"	"	349°, 3·3'
6	"	"	349°, 3·8'
7	"	"	349°, 4·3'
8	"	"	349°, 4·8'
9	"	"	349°, 5·3'
10	"	"	349°, 5·8'
11	"	"	349°, 6·2'
12	30. vii. 48	Langstone Point	334°, 0·35'
13	"	"	334°, 0·75'
14	"	"	334°, 0·55'
15	"	"	022°, 0·55'
16	"	"	013°, 0·9'
17	"	"	017°, 1·15'
18	"	Teignmouth Pier	229°, 1·7'
19	"	"	251°, 1·7'
20	"	"	324°, 0·6'
21	30. vii. 48	"	004°, 1·9'
22	"	Orestone	210°, 2·2'
23	"	"	222°, 3·5'
24	4. viii. 48	Berry Head	225°, 6·2'
25	"	"	254°, 5·7'
26	"	"	280°, 5·8'
27	"	"	297°, 6·4'
28	"	"	310°, 8·2'
29	"	"	319°, 9·4'
30	"	Start Point	275°, 9·6'
31	"	"	282°, 6·3'
32	"	"	270°, 5·4'
33	"	"	240°, 5·6'
34	"	"	188°, 3·2'
35	"	"	181°, 3·3'
36	"	"	181°, 3·5'
37	"	"	182°, 3·7'
<i>Dredge hauls</i>			
II	31. vii. 48	Hope Nose	177°, 1·6'
III	31. vii. 48	Teignmouth Pier	319°, 1·4'
XVI	3. viii. 48	Langstone Point	298°, 1·12'

*N.B.* The above are true bearings, and distances are in nautical miles.