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**The Macrofauna of an Excellently Sorted Isolated Beach at  
Kaikoura: And Certain Tidal Observations**

By J. F. C. MORGANS

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*Abstract*

JIMMY Armer's Beach is isolated from other beaches and its deposits are presumably recruited from the infratidal: though normally well sheltered it may be strongly disturbed on occasion by heavy north-easterly seas. Beach profile, texture and macrofaunal distribution were investigated at three transects in relation to a common bench-mark. Observation of certain spring tides suggests that the special datum proposed in this work corresponds with tidal datum to an inch or two; that the mean Kaikoura tide level corrections were more applicable than the Spring tide corrections during the spring tides concerned, and that tides usually occur 20 minutes later than at Lyttelton. Beach texture is almost uniform, 80% being fine sand. The macrofauna divided sharply into that of the supralittoral fringe and that of the lower intertidal zone with a barren region between. The lower intertidal fauna was dominated by polychaetes and extended upwards to varying degree from the infratidal. Although differing in detail, the supralittoral fringe and lower intertidal faunas are basically similar to those of Gooch's Beach. The more sheltered the beach the more abundant and varied the species present, probably due to lack of beach disturbance, but no obvious climax community can be defined and a patchiness in distribution of species is evident. Distribution of the species of the lower littoral macrofauna appears to be less dependent on details of substratum texture than on opportunity for colonisation and on subsequent substratum stability.

INTRODUCTION

JIMMY Armer's Beach, on the northern side of the Kaikoura Peninsula by the Old Wharf, is a small sandy beach favoured for bathing. It lies at the head of an inlet (used as a fishing boat anchorage) among extensive siltstone reefs and is isolated from all other sandy beaches. Armer's Beach is separated from Gooch's Beach by  $1\frac{1}{2}$  miles of rough, mostly limestone coastline impassable to any southerly movement of greywacke beach deposits that may contribute to Gooch's Beach (Morgans, 1967). There is no significant sandy beach east of Armer's Beach on the peninsula. The deposits of Armer's Beach are continuous with those of the bed of the Old Wharf anchorage but the beach is considerably restricted by siltstone outcrops in the lower half of the intertidal zone, and undoubtedly much of the lower beach is a shallow deposit of sand upon siltstone. The supralittoral consists of a narrow and rather flat Marram grass sand-dune community abutting a narrow grassy picnic area with small, planted trees struggling for survival. The Wai-o-puka

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