

Portland Sand.	{	Stiff blue marl without fossils, 12 to 14 feet.
		Liver-colored marl and sand with nodules and bands of cement stone— 26 feet: <i>Mytilus autissiodorensis</i> , <i>Pecten solidus</i> , <i>Cyprina implicata</i> , <i>Ammonites biplex</i> , etc.
		Oyster-bed, 7 feet, composed of <i>Exogyra bruntrutama</i> .
		Yellow sandy beds—10 feet: <i>Cyprina implicata</i> , <i>Arca</i> .
		Sandy marl, at least 30 feet, passing down into Kimeridge Clay: <i>Ammonites biplex</i> , <i>Lima boloniensis</i> , <i>Pecten Morini</i> , <i>Avicula octavia</i> , <i>Trigonia incurva</i> , <i>T. muricata</i> , <i>T. Pellati</i> , <i>Rhynchonella portlandica</i> , <i>Discina humphriesiana</i> .

Among Portlandian fossils a single species of coral (*Isastræa oblonga*) occurs; echinoderms are scarce (*Acrosalenia Königi*, etc.), there are also few brachiopods. The most abundant fossils are lamellibranchs, the best represented genera being *Trigonia* (*T. gibbosa*, *T. incurva*), *Astarte*, *Mytilus*, *Pecten*, *Lima*, *Perna*, *Ostrea*, *Cyprina*, *Lucina* (*L. portlandica*), *Cardium* (*C. dissimile*), *Pleuromya*. The most frequent gasteropod is *Cerithium portlandicum*. The ammonites include *A. giganteus*, *pseudogigas*, *boloniensis*, *gravesianus*, *pectinatus*. Fish are represented by *Gyrodus*, *Hybodus*, *Ischyodus*, and *Pycnodus*, and some of the older Jurassic reptilian genera (*Steneosaurus*, *Plesiosaurus*, *Pliosaurus*, *Cetiosaurus*, *Megalosaurus*) still appear, together with the crocodile *Goniopholis*.⁷⁴

(3) *Purbeckian*.—This group, so named from the Isle of Purbeck, where best developed, is usually connected with the foregoing formations, as the highest zone of the Jurassic series of England. But it is certainly separated from the rest of that series by many peculiarities, which show that it was accumulated at a time when the physical geography and the animal and vegetable life of the region were undergoing a remarkable change. The Portland beds were upraised before the lowest Purbeckian strata were deposited. Hence, a considerable stratigraphical and palæontological break is to be remarked at this line. The sea-floor was converted partly into land, partly into shallow estuaries. The characteristic marine fauna of the Jurassic seas nearly disappeared from the area. Fresh-water and brackish-water forms characterize the great series of strata which reaches up to the Neocomian stage, and might be termed the Purbeck-Wealden series.

The Purbeckian group has been divided into three sub-

⁷⁴ J. F. Blake, *op. cit.* and Etheridge, *op. cit.* Damon's "Geology of Weymouth," 1884.