

parasitical shells and zoöphytes — proof that the creature having attained its full size, has ceased to cast its plated covering. Crustaceans of the smaller varieties abound. Hermit crabs traverse the pools, or creep among the weed; the dark green and the dingy, hump-backed crabs occur nearly as frequently; the radiata cover the banks by thousands. We find occasionally the remains of dead fish left by the retreating tide; but the living are much more numerous than the dead; for the sand-eel has suffered the water to retire, and yet remained behind in its burrow; and the viviparous blenny and common gunnel still shelter beside their fuci-covered masses of rock. Imagine the bottom of this little bay covered up by thick beds of sand and gravel, and the whole consolidated into stone, and we have in it all the conditions of the deposit of Balruddery — a mud-colored, arenaceous deposit, abounding in vegetable impressions, and enclosing numerous remains of crustaceans, fish, and radiata, as its characteristic organisms of the animal kingdom. There would be but one circumstance of difference: the little bay abounds in shells; whereas no shells have yet been found in the mudstones of Balruddery, or the gray sandstones of the same formation, which in Forfar, Fife, and Moray shires represent the Cornstone division of the system.

Ages and centuries passed, but who can sum up their number? In England, the depth of this middle formation greatly exceeds that of any of the other two; in Scotland, it is much less amply developed; but in either country it must represent periods of scarce conceivable extent. I have listened to the controversies of opposite schools of geologists, who, from the earth's strata, extract registers of the earth's age of an amount amazingly different. One class, regarding the geological field as if under the influence of those principles