

distinctly conglomerated rock containing large rounded fragments of quartz, to the finely granular form: of which latter variety, the quarries of Blackdown in Devonshire, which principally supply England with whetstones, afford the best examples, and secondly, from the greater or less quantity of the green particles; these often prevail to such a degree, as to impart to the rock its predominating aspect; often they are so few, as to permit it to assume a grey or even buff colour. In some beds also, the sand is deeply coloured by brown oxide of iron; a circumstance which gives weight to the opinion, that the green particles owe their colour to the same metal. In the latter case, it is difficult if not impossible to distinguish the individual beds from those of the subjacent formation of iron sand; but if the formation be regarded as a whole, and the tract occupied by it traced continuously to some distance, all such partial difficulties will always be found to vanish, and the general truth will be elicited with the clearest evidence. Here, as throughout this science, extended and combined observation is the only safe guide.

It does not appear that any certain order of superposition can be traced to any distance in the varieties above described, but that they continually pass into one another, and are irregularly blended together; a constant uniformity of character can hardly, from the circumstances of the case, be expected in extensive depositions, so obviously mechanical in their origin. The Fuller's earth beds of Nutfield in Surrey form another variety subordinate to this formation.

(b) *Mineral contents.* Iron pyrites has been found in this rock at Folkstone in Kent and Caistor in Lincolnshire, and hæmatitic and stalactitic iron have been seen in the ferruginous beds. Near Nutfield in Surrey, it contains crystallized sulphate of barytes of a yellow colour, of which the interstices are often filled with opaque quartz. The cherty nodules already mentioned, often afford chalcedonies and quartz crystals of great beauty. It is scarcely necessary to add that the calcareous matter dispersed through this formation, often yields crystallized varieties: the occurrence of spangles of mica has been already mentioned.

(c) *Organic remains.* The organic remains of this formation are extremely numerous; and often when, as at Blackdown, imbedded in the more siliceous varieties of its rocks, occur in a state of preservation equally singular and beautiful, the original calcareous matter of the fossil being entirely replaced by an infiltration of chalcedony. In this state, it is often easy to detach them completely from the loose sandy matrix; and they then appear, although having undergone a