and Sicily where the date of its origin is very distinct, may be explained if we consider that it may represent the deltas of rivers and torrents, which gained upon the bed of the sea where blue marl had previously been deposited. The latter, being composed of the finer and more transportable mud, would be conveyed to a distance, and first occupy the bottom, over which sand and pebbles would afterwards be spread, in proportion as rivers pushed their deltas farther outwards. In some large tracts of yellow sand it is impossible to detect a single fossil, while in other places they occur in profusion. Occasionally the shells are silicified, as at San Vitale, near Parma, from whence I saw two individuals of recent species, one freshwater and the other marine (*Lymnea palustris*, and *Cytherea concentrica*, Lam.), both perfectly converted into flint.

Rome.—The seven hills of Rome are composed partly of marine tertiary strata, those of Monte Mario, for example, of the Older Pliocene period, and partly of superimposed volcanic tuff, on the top of which are usually cappings of a fluviatile and lacustrine deposit. Thus, on Mount Aventine, the Vatican, and the Capitol, we find beds of calcareous tufa with incrusted reeds, and recent terrestrial shells, at the height of about 200 feet above the alluvial plain of the Tiber. The tusk of the mammoth has been procured from this formation, but the shells appear to be all of living species, and must have been imbedded when the summit of the Capitol was a marsh, and constituted one of the lowest hollows of the country as it then existed. It is not without interest that we thus discover the extremely recent date of a geological event which preceded an historical era so remote as the building of Rome.

Aralo-Caspian formations.—This name has been given by Sir R. Murchison and M. de Verneuil to the limestone and associated sandy beds, of brackish-water origin, which have been traced over a very extensive area surrounding the Caspian, Azoff, and Aral Seas, and parts of the northern and western coasts of the Black Sea. The fossil shells are partly freshwater, as *Paludina*, *Neritina*, &c., and partly marine, of the family *Cardiaciæ* and *Mytili*. The species are identical, in great part, with those now inhabiting the Caspian; and when not living, they are analogous to forms now found in the inland seas of Asia, rather than to oceanic types. The limestone rises occasionally to the height of several hundred feet above the sea, and is supposed to indicate the former existence of a vast inland sheet of brackish water as large as the Mediterranean, or larger.

The proportion of recent species agreeing with the fauna of the Caspian is so considerable as to leave no doubt in the minds of the geologists above cited, that this rock, also called by them the "Steppe Limestone," belongs to the Pliocene period.*

MIOCENE FORMATIONS.

Faluns of Touraine.—The strata which we meet with next in the descending order are those called by many geologists "Middle Tertiary,"

* Geol. of Russia, p. 279, &c.