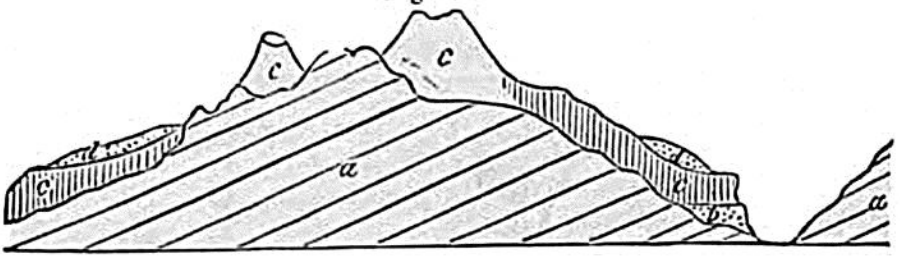
of a single house, was cast down by an earthquake; one of those shocks which, at distant intervals during the last five centuries, have shaken the Pyrenees, and particularly the country between Perpignan and Olot, where the movements, at the period alluded to, were most violent.

The annihilation of the town may, perhaps, have been due to the cavernous nature of the subjacent rocks; for Catalonia is beyond the line of those European earthquakes which have, within the period of history, destroyed towns throughout extensive areas.

As we have no historical records, then, to guide us in regard to the extinct volcanos, we must appeal to geological monuments. The annexed diagram, fig. 671, will present to the reader, in a synoptical form, the results obtained from numerous sections.

The more modern alluvium (*d*) is partial, and has been formed by

Fig. 671.



Superposition of rocks in the volcanic district of Catalonia.

a. Sandstone and nummulitic limestone.
b. Older alluvium without volcanic pebbles.
c. Cones of scoriæ and lava. *d*. Newer alluvium.

the action of rivers and floods upon the lava; whereas the older gravel (*b*) was strewed over the country before the volcanic eruptions. In neither have any organic remains been discovered; so that we can merely affirm, as yet, that the volcanos broke out after the elevation of some of the newest rocks of the nummulitic (Eocene) series of Catalonia, and before the formation of an alluvium (*d*) of unknown date. The integrity of the cones merely shows that the country has not been agitated by violent earthquakes, or subjected to the action of any great flood since their origin.

East of Olot, on the Catalonian coast, marine tertiary strata occur, which, near Barcelona, attain the height of about 500 feet. From the shells which I collected, these strata appear to correspond in age with the Subapennine beds; and it is not improbable that their upheaval from beneath the sea took place during the period of volcanic eruption round Olot. In that case these eruptions may have occurred at the close of the Older Pliocene era, but perhaps subsequently, for their age is at present quite uncertain.

Volcanic rocks of the Eifel.—The chronological relations of the volcanic rocks of the lower Rhine and the Eifel are also involved in a considerable degree of ambiguity; but we know that some portion of them were coeval with certain tertiary deposits called "Brown-Coal" by the