The base united with the olivine or enstatite gives the structures which have been taken by Drs. Hahn and Weinland as of organic origin. I should expect to find the chondritic structure in terrestrial peridotites, if any can be found in which the crystallization had been arrested and subsequent alteration has not taken place.

The difference in structure between the rapidly solidified, or chondritic, and the crystalline peridotites is not any greater than that between the tachylitic, basaltic, doleritic, or diabasic state of the basalts.

All serpentines not veinstones, which have been carefully studied, appear to belong to peridotite, as a variety produced by alteration.

4. *Basalt.* — To the basalts I should assign such meteorites as those of Jonzac, Stannern, Constantinople, Petersburg, Juvenas, Shergotty, Charkow, Frankfort, Shalka, Massing, Busti, Manegaum, Ibbenbüren, etc., so far as their characters are at present known. These have a lower specific gravity than the preceding, a higher percentage of silica, less iron and magnesia, but more lime, and usually more aluminia.

Some of these meteorites, like the Shergotty and Manegaum ones, are apparently allied to the gabbro variety of basalt.

Beyond the basalts are a few imperfectly investigated forms, which, in the majority of cases, are regarded as doubtful meteorites, which appear to belong to the trachytes and rhyolites, but which require to be studied microscopically before definite statements can be made. Of these forms are some described by Shepard, Silliman, and Grewingk. The carbonaceous meteorites have been too little studied to be given a definite position yet; but, excepting the carbonaceous matter, they chemically appear to belong to the peridotites, although it is not improbable that they belong to a distinct species.

So far as studied, I would class the meteorites, the original and eruptive rocks, under the following species: 1°, siderolite; 2°, pallasite; 3°, peridotite; 4°, basalt; 5°, andesite; 6°, trachyte; 7°, rhyolite; 8°, jaspilite.

If further study shows that other species are needed, then the signification of any of the groups from which the new species are taken can easily be narrowed. As many varietal names can be employed under each species as the needs of the science may demand; but they should be as few as possible, and should hold the same relation to the species that the varietal names of quartz hold to the mineralogical species quartz.

This classification is intended to indicate the probable arrangement of materials in the earth from the interior outwards, beneath the sedimentary formations, as well as to connect, as far as possible, the sedimentary rocks with those from which they were derived.

Meteorites show, to my mind, characters indicating that they have been derived from a hot, liquid mass, and not from any gaseous or solid body, so far as concerns the portion they come from. Of all suggested sources, the most probable one is the sun, provided the eruptive activity now observed on his surface is sufficient to hurl such materials into space; if not now, in past times, when such action was more powerful; or else bodies of similar nature. Meteorites, as far as I have studied them, show no fragmental or tufaceous character beyond such as would be formed by hot, plastic drops falling into a liquid mass of the same material.

They also show that they have not been formed in a locality where life could have existed; for, in that case, the readily alterable materials of which they were composed would have suffered change. M. E. Wadsworth.

MOLLUSKS OF THE FAMILY COCCULINIDAE.

Examination of specimens of a Cocculina or an allied genus of that family, from the north Atlantic, shows some remarkable features. These mollusks, recently discovered by the U. S. fish-commission in the deep sea, are most nearly related to the keyhole limpets (Fissurellidae). The specimens obtained by Prof. Verrill, and examined by me, were, however, all females. A number of specimens, of another species, sent me by Dr. Jeffreys for examination, contained individuals of both sexes; and the males were found to possess a verge, permanently exserted from the inner side of the right tentacle. This is a feature hitherto entirely unknown in the order to which they belong, none of the littoral forms of any of the families possessing any such organ; though, like other limpets, dioecious. It is of course probable that the species of Cocculina found by the fish-commission and Prof. A. Agassiz agree in this character with the form from the north Atlantic, about to be described by Dr. Jeffreys; but the latter shows other differences which may require it to be subgenerically separated from Cocculina proper, though evidently a member of the same family. Wm. H. Dall.