

abundantly in the deep deposits of the Central South Pacific than elsewhere, a fact which appears to be associated with the larger quantity of volcanic débris belonging to the basic series of rocks, which is in this region spread out on the floor of the ocean, and

Explanation of Plate O.

- Fig. 1. Crystals of philipsite seen by reflected light ($\frac{20}{1}$). These spherules are the most frequent form in which zeolites are formed in the deep-sea clays of the Central Pacific. The crystals are irregularly grouped, and have a fibro-radiate arrangement. At the periphery the four faces of the octahedron surmounting the prism are seen; this is more clearly shown in fig. 3. South Pacific, 2350 fathoms.
- Fig. 2. Section of pumice showing the infiltration of manganese in all the pores of the rock; at the lower part of the figure sections of augite and plagioclase are seen. South Pacific, 1350 fathoms.
- Fig. 3. Twinned crystal of philipsite ($\frac{20}{1}$), frequently found in the deposits, and characteristic of this species of zeolite, as seen by reflected light. South Pacific, 2350 fathoms.
- Fig. 4. Volcanic ashes, composed of fragments of hornblende, plagioclase, grains of magnetite, vitreous particles, cemented by infiltration of manganese ($\frac{220}{1}$). The mass formed the centre of a manganese nodule. South Pacific, 2385 fathoms.
- Fig. 5. Nodule of manganese formed on the tooth of a Shark (*Carcharodon*), half natural size. South Pacific, 2750 fathoms.
- Fig. 6. Section of a zeolitic spherule resembling that represented in fig. 1, showing the fibro-radiate disposition and termination of the heads of the crystals, as well as the zones of increase ($\frac{112}{1}$). The reddish matter which colours the spherule at the periphery is due to the oxides of iron and manganese. The spherule is surrounded by argillaceous matter.
- Fig. 7. Section of a lapillus of sideromelan ($\frac{112}{1}$). The brown portion is a volcanic glass with numerous crystals of felspar, augite, and hornblende, which is not yet decomposed. The reddish brown portions which contain the same crystals as the brown glass are decomposed and present the resinous characters of palagonite. The sideromelan is perfectly isotropic, while the palagonite affects the light between crossed Nicols. South Indian Ocean, 2600 fathoms.
- Fig. 8. Microscopic section of a nodule of manganese ($\frac{21}{1}$). The figure shows several concretionary centres; in the upper part the iron-manganiferous matter is seen disposed in irregular zones around a fish tooth; a second centre is a decomposed fragment of basaltic rock. The figure also shows the usual concretionary zones present in the nodules. South Pacific, 2375 fathoms.
- Fig. 9. Fragment of rounded pumice such as is usually present in the deposits, cut so as to show the zone of decomposition which surrounds the specimen; the vitreous matter at the periphery becomes very friable and impregnated with peroxide of manganese. South Pacific, 2050 fathoms.
- Fig. 10. Section of a lapilli of augite-andesite, composed of lamellæ of plagioclase, augite, and magnetic iron ($\frac{20}{1}$). The external zone is covered with a coating of manganese. South Pacific, 2350 fathoms.
- Fig. 11. Nodule of manganese formed round a Shark's tooth; the upper part is removed to show the situation of the tooth, one-half natural size. South Pacific, 2385 fathoms.
- Fig. 12. Section of palagonitic lapilli cemented by bands of crystals of philipsite and manganese-iron infiltration ($\frac{112}{1}$). South Pacific, 2350 fathoms.
- Fig. 13. The figure shows the two halves of a manganese nodule. The one to the right has been treated with hydrochloric acid to eliminate the oxides of iron and manganese, and shows the framework of the nodule, consisting chiefly of clayey matter; the one to the left shows the ordinary appearance of the nodule in section. South Pacific, 2900 fathoms.