

28. Examine mud brought up by dredge from different depths for living Diatoms; examine also for the same purpose the stomachs of *Salpæ* and other marine animals.

29. Note algæ on ships, etc., with the submerged parts in a foul condition; also preserve scrapings of colored crusts or slimy matter, green, brown, etc.

30. Observe algæ *floating*, collect specimens, noting latitude and longitude, currents, etc.

31. Examine loose floating objects, drift-wood, etc., for algæ. If no prominent species presents itself, preserve scrapings of any colored crusts. Note as above.

32. It might be useful to have a few moderate-sized pieces of wood, oak, etc., quite clean at first, attached to some part of the vessel under water to be examined, say, monthly. The larger or shorter prominent algæ should be kept and noted, and crusts on such examined and preserved, with notes of the vessel's course.

33. Various instances have been mentioned by travelers of the coloration of the sea by minute algæ, as in the Straits of Malacca by Harvey: any case of this kind would be worth especial attention.

34. The calcareous algæ (*Melobesia*, etc.) are comparatively little known, and are apt to be overlooked.

35. Fresh-water algæ should be collected as occasion presents. Professor Dickie states that they may be either dried like the marine kinds, or preserved in a fluid composed of three parts alcohol, two parts water, one part glycerine, well mixed.

36. Cases are recorded of the presence of algæ in hot springs. If such are met with, the temperature should be noted and specimens preserved.

#### IV. ZOOLOGICAL OBSERVATIONS.

As the Scientific Director of the expedition is an accomplished zoologist, and has already had much experience in marine exploration, it will suffice to offer a few suggestions under this head.

The quadrant-like zone of the Pacific, which separates the northern and eastern boundaries of the Polynesian Archipelago (using "Polynesia" in its broadest sense as inclusive of "Micronesia") from the coasts of N. Asia and America, is as little explored from the point of view of the physical geographer as from that of the biologist. It would be a matter of great importance to examine the depth, and the nature of the