layers often differ from those of the Atlantic. Seismic surveys, confirmed by numerous drillings of the Deep Sea Drilling Project, show that a broad belt of sediments extending from east to west along the equator is often about 500 meters (1,600 feet) thick in the eastern and central Pacific,[20] and up to 1,000 meters in the open ocean in the western part.[21] (These amounts are of course much less than the thicknesses found in the deep-sea trenches adjacent to land masses.) The sedimentary covering on the sides of the above mentioned east-west equatorial belt thins out both north and south of the equatorial region, becoming as little as 100 meters or less at some of the higher latitudes.[22]

We have previously referred to the thick layers of calcium carbonate ooze which accumulate on the ocean floors due to the slow fallout of the microscopic shells and discs of the Foraminifera, the coccolithophores, and other carbonate-producing organisms living in the water. Exposed carbonate sediments (sometimes called "chalk oozes" or "foraminiferal muds") are found mainly in, and north and south of, the equatorial region of the oceans. In the Pacific and Indian Oceans these are from approximately 12° north latitude to 50° south latitude. In the Atlantic the carbonate sediment covering of the sea floor extends over a similar range, except that due to the warm Gulf Stream current it extends much farther north than in the other oceans. There are also major areas of the oceans, both north and south of the latitudes we have here named, where no appreciable amount of carbonate sediment is exposed on the ocean floor, but where lithified and partially lithified chalks are found as the drill penetrates to the deeper layers.[23] These chalk layers were formed in earlier times when the water conditions and (or) depths were more favorable for the growth and preservation of the carbonate-producing organisms. Since that time layers of very fine pelagic clay particles and siliceous shells from diatoms, radiolarians, and silicoflagellates have accumulated in varying thicknesses (often several tens of meters) over the chalk.

## Growth Rates and Deposition Rates

The growth of the carbonate-producing organisms which inhabit the equatorial waters is much more rapid than at higher latitudes (except along the western shores of continents). It has been learned during the last two decades that the main reason for this more rapid growth in the equatorial oceans is the strong and continuous upwelling of nutrient-bearing water, due to the meeting of ocean currents from the northern and southern hemispheres.[24] The carbonate-producing organisms live mainly in the upper 200 feet of ocean water, so they stand to benefit greatly from nutrients being brought up from the deeper waters. In fact, this benefit is so great that it, plus the warmer temperatures which encourage growth, result in a deposition rate of from 10 to 20 millimeters of chalk ooze per 1,000 years. In contrast, in latitudes away from the equator the carbonate deposition rate drops to as low as 1 millimeter per 1,000 years.[25]

On the parts of the deep-ocean floor which do not accumulate carbonate oozes, the primary sediments formed are siliceous oozes