muds it seems to be the rule that the upper portion should be thin and watery and reddish-brown in colour, in striking contrast with the stiff compact blue lower portion, and this is apparently due to the ferric oxide or ferric hydrate being transformed into sulphide and ferrous oxide in the deeper layers. Among our records there are seven cases of Red clay overlying Globigerina ooze, eight cases of Globigerina ooze overlying Red clay, three cases of Globigerina ooze overlying Blue mud, two cases of Globigerina ooze overlying Diatom ooze, and four cases of Diatom ooze overlying Blue mud; in twenty other cases the percentage of calcium carbonate was considerably higher in the upper portion of the deposit-samples than in the lower portion, while in six cases the lower portion was richer in calcareous remains than the upper portion.

Subsidence in oceanic areas.

The examples of Red clay overlying Globigerina ooze point to subsidence in the region where they occur, and, indeed, there are many reasons for believing that the great earth-blocks in the oceanic areas for the most part undergo subsidence, while similar earth-blocks on the continents are, on the whole, subject to elevation.

Elevation in continental areas.

3. Some Chemical Reactions in the Deep Sea

In Dittmar's well-known analysis of ocean-water[1] the acids and bases are arbitrarily combined, but it is now known that the dissolved substances in sea-water are not accurately represented by that table, inasmuch as they are present mainly as ions. The aggregate degree of ionic dissociation may be calculated from the freezing and boiling points of sea-water to be about 90 per cent. That is, only one-tenth of the total solids are present as salts pure and simple; but these must comprise not only those named by Dittmar but all the possible combinations of bases with acids, among which calcium and magnesium sulphates will be relatively in largest proportion. The bulk of the solutes, however, consists of ions, and it would be more rational to write the composition of sea-water thus:—

[1]

Sodium chloride	27.213	grams per litre.
Magnesium chloride	3.807	,, ,,
Magnesium sulphate	1.658	,, ,,
Calcium sulphate	1.260	,, ,,
Potassium sulphate	0.863	,, ,,
Calcium carbonate	0.123	,, ,,
Magnesium bromide	0.076	,, ,,
	35.000	