Reviews.

S. W. Brujewicz und **N. P. Karpova.** "Abhängigkeit des pH von der Temperatur in Pufferlösungen.". Biochem. Zeitschr. Bd. 251, Heft 1—3, S. 60—69. Berlin, 1932.

The investigations consist of electrometrical determinations of pH in some of the most important buffer solutions, viz., P a l i t z s c h's borax-boric acid, S ö r e n s e n's phosphate and M c I l v a i n e's citrate phosphate solutions, the determinations being carried out at different temperatures, 0°, 18°, 25° C. This fulfils a long felt want with regard to determinations of pH with indicators mainly at low temperatures. However, in their work the authors have met with the same difficulties as earlier investigators, in that the standard value for the potential of a $n/_{10}$ calomel-electrode against the normal hydrogen-electrode, which is requisite for the determinations, has hitherto not been reliably determined. They have in consequence had to content themselves with an extrapolated value, which, however, may be regarded as sufficient for the requirements of sea water research, for example. For the solutions of most importance as regards sea water research, viz., Palitzsch's borax-boric acid solutions, the authors have drawn up a table covering the temperatures 0—30° C. and pH 7.7—9.0 and showing the changes of pH with temperature (starting from 18°). A comparison with W a l b u m's earlier investigations of S ö r e n s e n's borate buffers between 10—30°, which have been accepted by B u c h for the P a l i t s c h solutions also, shows an agreement of 0.01 pH units.

Kurt Buch.

K. Kalle. "Phosphat und Gesamtphosphor in Beziehung zu Temperatur, Salzgehalt und Plankton an der Oberfläche der isländischen Küstengewässer." Ber. d. deutschen wiss. Komm. f. Meeresforschung. N. F., Bd. VI, Heft 4. Leipzig, 1933.

Since the coast of Iceland is bathed by the waters of the Gulf Stream on the south and west and by the cold, less saline waters of the East Greenland Current on the north and east, it provides a convenient place for the study of the effect of varied oceanographical conditions on the growth of plankton. With this object in view the German fisheries protection vessel «Weser" worked about thirty stations around Iceland in August and September 1932. Unfortunately owing to the absence of a suitable winch on board it was only possible to work surface stations. In the experience of the reviewer and others surface waters often contain much more phosphate, due apparently to decomposing floating matter, than does the water beneath. On such occasions surface figures taken alone are very misleading.

Inorganic phosphate commonly rose where glacier water entered the sea. Off the northeast corner of Iceland, in water of Arctic origin, a very close parallel was found between the rise and fall in inorganic and total phosphorus and the figures for total plankton obtained by Prof. H e n t s c h e l at the same time. To explain this unexpected result, K a l l e suggests that very rich plankton populations contain many old individuals and as these die off they fall to the deeper waters and thus deplete the surface stock of total phosphorus. His results certainly support his contention that phosphorus in organic combination may afford a large reserve of nutrient material which is not taken into account when inorganic phosphate alone is determined. The amount of total phosphorus found around the coast of Iceland in water of oceanic character varied between 25 and 70 mg. P per cubic metre . In the summer of 1931 I b a ñ e z (unpublished work) found a similar range in the surface water of the English Channel — between 25 and 55 mg. P per cubic metre. Any arsenite present will be recorded in the total phosphorus since after oxidation arsenate gives a similar colour reaction.

In the determination of total phosphorus the sample of water is first treated on the steam bath with acidified persulphate in order to oxidise organic matter. The excess of persulphate and free chlorine is then removed by sodium sulphite and the total phosphate set free determined by the usual molybdate reaction. At present this determination must be made spectrophotometrically. Owing to the effect on colour development of the added salts the test solution has to be divided into two parts, to one of which 10 mg. per cubic metre of phosphate-phosphorus is added. The amount of phosphorus originally present is then calculated from the colour increment. Work on this method is still in progress at Hamburg and when completed the oceanographer should have yet another valuable aid in his study of nutrition in the sea.

L. H. N. C.

K. Buch. "Hydrografisk-kemiska studier uti Petsamo-fjorden jämte angränsande delar av Barentshavet". Mit deutscher Zusammenfassung. Fennia 57, No. 4. Helsingfors, 1933.

In der vorliegenden Arbeit wird zum ersten Male die hydrographisch-chemische Aufnahme eines Fjordes des Nördlichen Eismeeres beschrieben. Zunächst wurden die morphologischen Verhältnisse des Fjordes erforscht; sie werden durch eine gemeinsam mit S. E. S t e n i j entworfene Tiefenkarte dargestellt. Die hydrographischen Ergebnisse werden an Hand eines Längsschnittes diskutiert, in den ausser Salzgehalt und Temperatur auch die Verteilung der Gesamtkohlensäure und des pH aufgenommen sind. Besondere Aufmerksamkeit wurde der Kohlensäure und den Plankton-Nährstoffen zugewendet. Wie im Sommer zu erwarten, war die Oberflächenschicht an Phosphaten und Nitraten verarmt, zumal da ein Austausch mit dem nährstoffreichen Tiefenwasser durch die starke Schichtung in Salzgehalt und Temperatur unterbunden wurde. Aus denselben Gründen besitzt das Oberflächenwasser ein recht hohes pH (8.2—8.3), dem ein Kohlensäuredruck von etwa $2.2 \cdot 10^{-4}$ atm. entspricht. Da der gleichzeitig bestimmte Kohlensäuredruck der Luft im Mittel $3.3 \cdot 10^{-4}$ atm. betrug, so muss während dieser Zeit starke Absorption von CO_2 durch das Wasser stattgefunden haben. Es sei angemerkt, dass B u c h in den kontinentalen Luftmassen etwas höhere CO_2-Gehalte fand als in Luftmassen atlantisch-maritimer Herkunft.

Die Kieselsäure war im Fjord offenbar durch Landeinfluss angereichert: