

## I. THE RECENT BONES.

No. 8. *Portion of Recent Earbone, Balæna mysticetus.*

	P.	E.	$\frac{P.}{E.}$	
Phosphoric acid ( $P_2O_5$ ), . . . . .	31.66	: 23.67	= 1.3377	} 1.5612
Carbonic acid ( $CO_2$ ), . . . . .	4.77	: 22	= 0.2168	
Chlorine 0.038 = ( $Cl_2 - O$ ), . . . . .	0.029	: 27.5	= 0.0011	
Sulphuric acid ( $SO_3$ ), . . . . .	0.21	: 40	= 0.0053	
Fluorine ( $F_2$ ),* . . . . .	0.005	: 19	= 0.0003	} 1.5758
Lime ( $CaO$ ), . . . . .	41.52	: 28	= 1.4828	
Magnesia ( $MgO$ ), . . . . .	0.86	: 20	= 0.0430	
Potash ( $K_2O$ ), . . . . .	0.14	: 47	= 0.0030	
Soda ( $Na_2O$ ), . . . . .	1.46	: 31	= 0.0470	
Phosphates of iron and alumina, . . . . .	0.20			
Moisture, . . . . .	7.31			
Organic matter, . . . . .	11.14			
	<u>99.30</u>			

No. 11. *Portion of Recent Mesorostral Bone of Ziphius, Cape of Good Hope.*

Partly decayed. The undecayed portion was analysed.

	P.	$\frac{P.}{E.}$	
Phosphoric acid ( $P_2O_5$ ), . . . . .	34.64	1.4635	} 1.7685
Carbonic acid ( $CO_2$ ), . . . . .	6.35	0.2886	
Chlorine 0.14 = ( $Cl_2 - O$ ), . . . . .	0.11	0.0039	
Sulphuric acid ( $SO_3$ ), . . . . .	0.05	0.0125	
Fluorine ( $F_2$ ), . . . . .	0.032		} 1.6949
Lime ( $CaO$ ), . . . . .	40.51	1.4467	
Magnesia ( $MgO$ ), . . . . .	3.59	0.1795	
Potash ( $K_2O$ ), . . . . .	trace		
Soda ( $Na_2O$ ), . . . . .	2.13	0.0687	
Phosphates of iron and alumina, . . . . .	0.36		
Moisture, . . . . .	3.51		
Organic matter, . . . . .	7.49		
	<u>98.77</u>		

\* Having found by preliminary experiments that the deep-sea specimens contained appreciable quantities of fluorine, I devoted particular attention to the exact determination of this element. The method adopted was as follows:—A sufficient quantity of ignited material (5 to 20 grms.) was heated with a large excess of pure quartz sand and pure oil of vitriol (previously charged with sulphate of silver to retain the bulk of the chlorine), and the fluoride of silicon formed, after having been filtered through dry asbestos to retain any sulphuric acid that might have come over, passed into water and determined titrimetrically by means of pure standard caustic soda. In the resulting mixture, the chlorine, if present, was determined and allowed for.