

153c. BRAIN CASE OF GLOBIOCEPHALUS, EUROPEAN SEAS (Dittmar).

	P.	P. E.	
Phosphoric acid, . . . . .	22.45	0.9485	} 1.1008
Carbonic acid, . . . . .	3.18	0.1446	
Chlorine 0.085 = (Cl <sub>2</sub> - O) or muriatic acid, . . . . .	0.066	0.0024	
Sulphuric acid, . . . . .	0.21	0.0053	
Fluorine, . . . . .	0.004		
Lime, . . . . .	30.04	1.0727	} 1.1440
Magnesia, . . . . .	0.38	0.0190	
Potash, . . . . .	trace		
Soda, . . . . .	1.62	0.0523	
Phosphates of iron and alumina, . . . . .	1.25		
Moisture, . . . . .	8.03		
Organic matter, . . . . .	31.79		
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	99.92		

The fluorine was determined in 8 grms. of the ash of the substance, and found to amount to 0.57 mgrms., that is to 0.007 per cent. of the ash, or 0.004 per cent. of the original substance.

From these analyses it would appear that the percentage of fluorine in recent marine bones is very minute. For the sake of comparison I determined the fluorine in a sample of ordinary bone ash, and found it 0.004 per cent., *i.e.*, almost *nil*. As it is stated that teeth contain more fluorine than ordinary bones, I procured a quantity of horses' teeth, ignited them, and determined the fluorine in the ash. It was found equal to 0.084 per cent., which, though decidedly higher than the number obtained with the bones, is still very minute. I have no doubt that the 1 or 2 per cent. of fluoride of calcium, which we find reported in the older analyses of bones, is based on utterly erroneous determinations. This, however, only confirms what Nicklès gave some years ago as the result of an extensive investigation on the subject.

For the number of equivalents of carbonate present per equivalent of phosphate, we have in :—

No. 153A.	No. 153B.	No. 153C.
0.162	0.197	0.153
or, $\frac{1}{6.2}$	$\frac{1}{5.1}$	$\frac{1}{6.6}$

153D. PORTION OF ZIPHIUS BEAK FROM RED CRAG, SUFFOLK (Dittmar).

A thin plate cut out of the beak, highly polished on one side; it was wholly petrified and homogeneous, and was completely soluble in hydrochloric acid.

	P.	P. E.	
Moisture, . . . . .	1.67		
Combined water, . . . . .	2.31	0.2566	} 1.8647
Phosphoric acid, . . . . .	33.83	1.4294	
Carbonic acid, . . . . .	7.50	0.3409	
Fluorine 1.50 = (F <sub>2</sub> - O), . . . . .	0.87	0.0789	
Sulphuric acid, . . . . .	0.62	0.0155	
Chlorine and silica, . . . . .	<i>nil</i> .		
Lime, . . . . .	48.81	1.7491	} 1.9399
Magnesia, . . . . .	1.08	0.0540	
Ferric oxide, . . . . .	2.00	0.0577	
Alumina, . . . . .	0.18	0.0105	
Potash, . . . . .	0.52	0.0111	
Soda, . . . . .	1.97	0.0635	
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	101.36		

Ratio of equivalents—

$(\frac{1}{3}P_2O_5)$	(CO <sub>2</sub> )	(F <sub>2</sub> )
1	0.239	0.055

In recent *Ziphius* bone (153B.) they were—

1	:	0.197	:	<i>nil</i> .
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