

calcareous deposit, the solution converts the calcareous rock into calcium phosphate, which goes also by the name of guano. Isolated excrements in rocks are called *coprolites*.

Analyses of bones: 1, 2, human bones, according to Frerichs; 3, fish (Haddock), according to Duménil; 4, Shark (*Squalus cornubicus*), according to Marchand; 5, fossil bear, id.:—

	1.	2.	3.	4.	5.
Calcium phosphate.....	50.24	59.50	55.26	32.46	62.11
Calcium carbonate.....	11.70	9.46	6.16	4.44	13.24
Calcium sulphate.....	—	—	—		12.25
Organic substance....	38.22	30.94	37.63	58.07	4.20
Traces of soda, etc.....	—	—	1.22	3.80	—
Calcium fluoride.....	—	—	—	1.20	2.12
Magnesium phosphate.....	—	—	—	1.03	0.50

In No. 4, a little silica and alumina are included with the fluoride. No. 5 contains also silica 2.12, and oxides of iron and manganese, etc., 3.46.

The *enamel of teeth* contains 85 to 90 per cent of calcium phosphate, 2 to 5 of calcium carbonate, and 5 to 10 of organic matters. *Fish-scales* from a *Lepidosteus* afforded Frémy 40 per cent of organic substance, 51.8 of phosphate of lime, 7.6 of magnesium phosphate, and 4.0 of calcium carbonate. Other fish-scales contained but a trace of the magnesium phosphate and more of organic matters.

T. S. Hunt obtained for the composition of the shell of *Lingula ovalis*, Calcium phosphate 85.79, calcium carbonate 11.75, magnesium phosphate 2.80 = 100.34. The shells of a fossil *Obolus* afforded Kupffer the composition nearly of a fluor-apatite (*Amer. Jour. Sci.*, III. vi. 146); and the phosphatic shells are thin, somewhat horny in appearance, and usually become black on fossilization.

The shell of a Lobster (*Palinurus*) afforded Frémy, calcium carbonate 49.0, calcium phosphate 6.7, organic substance 44.3.

*Phosphatic nodules*, possibly coprolitic, in the Lower Silurian rocks of Canada (on River Ouelle), afforded T. S. Hunt (see *Amer. Jour. Sci.*, II. xv. and xvii.), in one case, calcium phosphate 40.34, calcium carbonate with fluoride 5.14, magnesium carbonate 9.70, iron peroxide with a little alumina 12.62, sand 25.44, moisture 2.13 = 95.37. In a hollow cylindrical body from the same region, there were 67.53 per cent of phosphate.

*Analyses of coprolites*. — Nos. 1 and 2 by Gregory and Walker; 3 and 4 by Connell; 5 by Quadrat; 6 by Rochleder (a coprolite from the Permian):—

	1.	2.	3.	4.	5.	6.
	Burdie-house.	Fife-shire.	Burdie-house.	Burdie-house.	Kosch-titz.	Oberlan-genau.
Calcium phosphate.....	9.58	63.60	85.08	83.31	50.89	15.25
Calcium carbonate.....	61.00	24.25	10.78	15.11	32.22	4.57
Silica.....	4.13	trace	0.34	0.29	0.14	—
Organic material.....		3.38	3.95	1.47	7.38	74.03
Magnesium carbonate....	13.57	2.89	—	—	—	2.75
Iron sesquioxide.....	6.40	trace	—	—	2.08	—
Alumina.....	—	—	—	—	6.42	—
Water.....	5.33	3.33	—	—	—	—
Lime of organic part....	—	—	—	—	—	1.44
Sodium chloride.....	—	—	—	—	—	1.96
	100.01	97.45	100.15	100.18	99.13	100.00

The ashes of grass, straw, clover, amounting to 5 to 8 per cent of the dried plant, afford usually 5 to 15 per cent of phosphoric acid; and those of the seed in wheat,