It was probably to the action of these and other organisms in eliminating the silica held in solution in the sea-water, and afterwards to chemical action, whereby further precipitation of silica on and around that which had been previously secreted by the organisms, that these nodular masses had their origin.

IV.—ANALYSIS OF THE FULLERS EARTH OF VRONGOCH.

By P. GERALD SANFORD, F.I.C., F.C.S.

SOME four years ago I published in this MAGAZINE¹ an analysis of the Fullers Earth of Nutfield, Surrey. The Nutfield samples were given to me by A. Sheridan, Esq., C.E. I now wish to record the analysis of a large bed of this clay at Rhiwlas, Vrongoch, near Bala, N. Wales. The beds are about 60 feet thick, and are upon the property of R. J. Lloyd Price, Esq. In this case also, the samples were sent to me by Mr. Sheridan. The two samples A and B are of somewhat different composition. B contains considerably more silicate of alumina and less alumina than A. A would of course, from a fuller's point of view, be the better earth of the two. Although the Nutfield and Vrongoch earths are so similar in composition, their appearance is very different: the Surrey earth has a greasy feel, a hard smooth surface, that can only just be scratched with the finger nail; the Vrongoch earth is soft and friable, dark grey in colour, and very earthy, and dissolves in water to the extent of about 4 per cent. of its weight. As regards the grease absorbing properties, the Vrongoch earth appears to be even better than the Nutfield samples. Fullers Earth appears to be an excellent material for cleaning chemical apparatus that is greasy, or soiled with fats and oils.

ANALYSIS No. 1.—SAMPLE A.

Matter insoluble in acid	= 78.27 per cent. consisting of	{ Silica = 63.25 p.c.
Alumina (Al ₂ O ₃)	= 12.95 "	{ Fe ₂ O ₃ = 8.72 "
Peroxide of iron (Fe ₂ O ₃)	= 0.42 "	{ Al ₂ O ₃ = 6.30 "
Lime (CaO)	= 0.82 "	
Manganese oxide	= trace	78.27
Magnesia (MgO)	= 1.65 "	
Sulphuric acid (SO ₃)	= 0.31 "	
Alkalies (K ₂ O, Na ₂ O)	= 2.02 "	
Combined water	= 3.56 "	
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100.00		

ANALYSIS No. 2.—SAMPLE B.

Matter insoluble in acid	= 78.53 p. c. consisting of	{ Silica = 57.01 p.c.
Alumina	= 2.84 "	{ Fe ₂ O ₃ = trace
Peroxide of iron ...	= 8.50 "	{ Al ₂ O ₃ = 21.52 p.c.
Lime	= 0.90 "	
Manganese oxide ...	= trace	78.53
Magnesia	= 2.30 "	
Sulphuric acid ...	= 0.05 "	
Alkalies	= 2.12 "	
Combined water ...	= 4.76 "	
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100.00		

¹ GEOL. MAG. Decade III. Vol. VI, No. 304, p. 455.