ANALYSIS OF WATER FROM RED LODGE, BASSETT.

TAKEN DECEMBER 29th, 1887.

By J. Brierley.

The water in the well was very clear, enabling us to see the bottom distinctly, and to distinguish the forms of the gelatinous masses growing there. The water emitted a very unpleasant odour, somewhat similar to that of sulphuretted hydrogen, but the samples examined in the Laboratory failed to give the reactions for that gas, although they retained the unpleasant smell. The temperature of the water in the well was $48\frac{1}{3}$ ° F., that of the air being $29\frac{8}{10}$ ° F. It rapidly absorbed oxygen, the amount taken up being about equal to 0.12 part per 100,000, or 0.08 grains per gallon. Seen in a deep vessel standing on a white tile, the water had a distinctly yellow colour, and the taste was not determined.

The preliminary examination at the well, and the accompanying chemical analysis, show the water to contain a large amount of oxidisable matter, especially in proportion to the quantity of solids it contains. It may be described as a weak solution of Pasteur's fluid, with an excess of Chlorides and Nitrates, the Oxygen absorbed being taken up by Nitrites, produced from the reduction of the Nitrates by the action of the organisms producing the gelatinous masses.

The nitrites had all disappeared in the time elapsing between the sample being collected and analysed. There was a large quantity of more slowly oxidisable organic matter remaining.

CHEMICAL ANALYSIS :—

	Parts per 100,000.	Grains per Gallon.
Free Ammonia	0.008 ..	0.0056
Albumenoid do.	0.0148 ..	0.0103
Nitrogen as nitrates and nitrites	0.701 ..	0.4907
Total nitrogen	0.7197 ..	0.5038
Chlorine in chlorides	5.2 ..	3.64
Equal to common salt	8.576 ..	6.0032
Oxygen absorbed in 15 min. at 80° F. ..	0.0000 ..	0.0000
Oxygen absorbed in 4 hrs. at 80° F. ..	0.0800 ..	0.056
Volatile solids	7.2 ..	5.04
Fixed do.	10.0 ..	7.0
Total do, by evaporation	17.2 ..	12.04
Phosphoric acid	very heavy traces	
Iron	traces	
Total hardness	4°.15	Clarke's scale.
Fixed do.	3°.0	" "
Removeable do. by boiling	1°.15	" "

ANALYSES OF SAMPLES OF HAMPSHIRE IRON ORE.

By J. Brierley.

No. 1, from Wolmer Forest. Specific gravity 2.863 :—

Sand and Soluble Silica	71.42
Ferric Oxide	26.20
Organic matter and moisture	2.38
	100.00

The organic matter was decayed vegetable substance or humus.

The sample was remarkably free from other impurities.

The per cent. of iron is 18.34.

No. 2, from large block of Iron Sandstone on the beach at Whitecliff Bay, Isle of Wight, taken on the visit of the Field Club on Wednesday, July 27th, 1887. Specific gravity 2.498 :—

Sand	81.51
Ferric Oxide	14.90
Moisture	3.59
	100.0

This sample was free from organic matter, and remarkably free from other substances.

The iron amounts to 10.43 %.

RESULT OF ANALYSES OF CHALK SPECIMENS.

By J. T. Hewitt,

Scholar of St. John's College, Cambridge.

A Sample of Chalk Rock.

From the Railway Cutting a quarter of a mile north of Lichfield Station.

Ferric Oxide (Fe_2O_3)	67
Manganese Oxide (Mn_3O_4)	trace
Calcium Oxide (CaO)	51.56
Magnesium Oxide (MgO)	trace
Carbon Dioxide (CO_2)	41.64
Phosphorus Pentoxide (P_2O_5)	1.32
Silicon Dioxide (SiO_2)	4.69
	99.88

A Sample of Melbourne Rock,

From the Railway Cutting one mile south of Burghclere Railway Station.

Ferric Oxide	33
Calcium Oxide	49.07
Magnesium Oxide	trace
Carbon Dioxide	38.53
Phosphorus Pentoxide	4.15
Silicon Dioxide	7.99
	100.07

These samples were specially taken for analysis by Mr. T. W. Shore, F.G.S., on the occasion of the visit of the Geologists' Association to these cuttings on March 31st, 1888.