tent of alkalies. The magnesia preponderates over the lime as before. No. VI. lost 1·92 per cent on ignition before analysis, and these figures do not therefore appear in the analysis as given above.

Analysis of sedimentary gneisses.

	I. Gneiss. St. Jean de M.	II. Gneiss. Trembling Lake.	III. Slate. Wales.	IV. Slate. Melbourne.	V. Gneiss. Rawdon.	VI. Slate. Tinzen.	VII. Gneiss. Rawdon.
Silica	61·96	57·66	60·50	64·20	74·70	79·97	54·89
Titanic oxide	1·66	.....	.....	.....	.....	.....	1·66
Alumina	19·73	22·83	19·70	16·80	8·88	8·62	13·67
Ferric oxide	.....	.....	.....	.....	9·64	6·63	1·35
Ferrous oxide	4·60	7·74	7·83	4·23	.....	.....	.....
Ferric sulphide	4·33	.....	.....	.....	.....	.....	4·43
Manganous oxide	trace.	trace.	trace.	.....	·50	.....	·62
Lime	·35	1·16	1·12	·73	1·07	·76	5·63
Magnesia	1·81	3·56	2·20	3·94	1·87	1·52	4·70
Soda	·79	·60	2·20	3·07	·42	·64	1·95
Potassa	2·50	5·72	3·18	3·26	·95	2·30	8·34
Loss on ignit.	1·82*	1·50	3·30	3·42	1·05	.....	(2·76†)
	99·55	100·77	100·03	99·65	99·08	100·44	100·00
Total alkalies	3·29	6·32	5·38	6.33	1·37	2·94	10·29

The fourth of these gneisses, No. VII., differs entirely from the others. The low content of alumina, combined with low silica, the high alkalies and the preponderance of lime over magnesia mark it off as quite distinct from the slates and gneisses just considered. If it be an altered sediment it is one which has suffered very little leaching during deposition, and must have been of the nature of a tuffaceous deposit, or one formed from the rapid disintegration of an igneous rock having the composition of a basic trachyte or syenite. It is, therefore, a rock which, so far as its composition is concerned, might be either an altered sediment or an altered igneous rock ; and it is impossible, consequently, to draw from its chemical composition any definite conclusions as to its origin.

In the case of those gneisses, then (Nos. I., II., V. and VII.,) whose stratigraphical relations and microscopical character suggest a sedimentary origin, the first three have the composition of slates, that is to say, of clay ; in the case of No. V., of clay mixed with sand, while in the case of No. VII., no definite conclusion can be drawn. To sum up, therefore, it may be said concerning the gneisses of this class, that : (1) their association with numerous and heavy beds of limestone and quartzite ; (2) their prevailing banded character, accompanied by a

*Water.
†Water and graphite (by difference.)