These gravels are more or less sandy and often well stratified, and the author distinguishes from them some examples of a much more argillaceous type of deposit, which he suggests may be of the nature of a mud-flow, generated by rapid thawing of frozen soil at or about the time of maximum glaciation of the country further to the north.

In the chapter on the valley gravel the author records several finds of implements at different places. The celebrated Knowle Farm pit is situated near Savernake in the south-west corner of the district. The implements from it are distinguished by a very peculiar varnish-like glaze, and Mr. Clement Reid, who described the locality, considered it to be contemporaneous with the Palæolithic deposits of Southampton Water, Bournemouth, and the Avon Valley. (Summary of Progress of the Geol. Survey for 1902, p. 208, 1903.)

The Alluvium of the River Kennet, with its deposit of fossiliferous fresh-water marl, is of great interest, and a good account of it is given with lists of the fossils. It is further dealt with in a valuable note by Messrs. A. S. Kennard and B. B. Woodward, which is printed as an appendix to the memoir.

Dr. W. Pollard and Mr. H. H. Thomas contribute another appendix on insoluble matter in samples of Upper Chalk, and the memoir concludes with a bibliography and an index.

REPORTS AND PROCEEDINGS.

GEOLOGICAL SOCIETY OF LONDON.

November 6th, 1907.—Sir Archibald Geikie, K.C.B., D.C.L., Sc.D., Sec. R. S., President, in the Chair.

The following communications were read :—

1. "On a Collection of Fossil Plants from South Africa." By Professor Albert Charles Seward, M.A., F.R.S., F.G.S.

The material on which this paper is based was, for the most part, collected by members of the Geological Survey in Cape Colony from the Molteno and Burghersdorp Beds. The Molteno Beds are placed at the base of the Upper Karroo, or Stormberg Series; the Burghersdorp Beds constitute the uppermost strata of the Middle Karroo, or Beaufort Series. Mr. A. L. Du Toit, who has contributed accounts of the stratigraphy of the plant-bearing and associated rocks, describes the occurrence of a transitional zone between the Molteno and the Burghersdorp Beds. The following species are described :—

(A) MOLTEÑO BEDS.

Schizoneura Carrerei, Zeill.

Schizoneura sp.

Thinnfeldia odontopteroides (Morr.).

Thinnfeldia sp.

Thinnfeldia, sp. nov.

Teniopteris Carruthersi, Ten.-Woods.

Cladophlebis (Todites) Roesserti (Presl).

Pterophyllum sp.

Baiera, sp. nov.

(B) BURGHERSDORP BEDS.

Schizoneura sp.

Thinnfeldia, sp. nov.

Teniopteris Carruthersi, Ten.-Woods.

Danaopsis Hughesii, Feist.

Odontopteris, sp. nov.

Strobilites, sp. nov.

Pterophyllum sp., cf. *Pt. Tietsii*, Schenk.

Stigmatodendron, sp. nov.

A description is also given of *Schizoneura africana*, Feistmantel, a species originally figured by Hooker in an appendix to Bain's paper, published in 1845.

The additional plants recorded from the Molteno Beds afford further evidence in favour of assigning this member of the Stormberg Series to the Rhætic Period. While possessing certain Rhætic species, the Burghersdorp flora as a whole indicates a somewhat lower horizon.

2. "Permo-Carboniferous Plants from Vereeniging (South Africa)." By Professor Albert Charles Seward, M.A., F.R.S., F.G.S., and Thomas Nicholas Leslie, F.G.S.

The majority of the specimens described in this paper were obtained by Mr. Leslie from a sandstone quarry $1\frac{1}{2}$ miles from Vereeniging, on the banks of the Klip River; the sandstones are associated with shales, coal-seams, and glacial conglomerates. In the opinion of the authors, the plant-beds should be included in the Ecca Series (Lower Karroo). While recognizing certain well-marked differences between the *Glossopteris* floras and the Upper Carboniferous and Permian floras of the Northern hemisphere, they are inclined to think that there are more types common to the two botanical provinces than is generally supposed.

The following species have been recognized at Vereeniging:—

<i>Schizoneura</i> sp.	<i>Neuropteridium validum</i> , Feist.
* <i>Glossopteris angustifolia</i> , Brongn., var. nov.	<i>Bothrodendron Lesliei</i> , Sew.
<i>Glossopteris angustifolia</i> , Brongn.	* <i>Lepidodendron</i> , sp. nov.
<i>Glossopteris Browniana</i> , Brongn.	* <i>Lepidodendron Pedroanum</i> (Carr.).
<i>Glossopteris indica</i> , Schimp.	<i>Sigillaria Brardi</i> , Brongn.
<i>Glossopteris</i> sp., cf. <i>G. retifera</i> , Feist.	<i>Pygmophyllum Kidstoni</i> , Sew.
<i>Gangamopteris cyclopteroidea</i> , Feist.	<i>Cordaites (Naggethropsis) Hislopi</i> (Bunb.).
* <i>Callipteridium</i> sp.	<i>Conites</i> , sp.

Those marked with an asterisk are recorded for the first time.

3. "On the Structure and Relations of the Laurentian System of Canada." By Professor Frank Dawson Adams, D.Sc., F.R.S., F.G.S.¹

This paper contains an outline of the results of the examination by Dr. Barlow and the author of an area of 4,200 square miles, comprised within the Haliburton and Bancroft sheets of the Ontario and Quebec series of maps. The paper opens with a short account of Logan's work in the original Laurentian area. The main conclusions reached by the author may be thus summarized:—(1) The Laurentian System of Sir William Logan consists of a very ancient series of sedimentary strata, largely limestones, invaded by great volumes of granite in the form of bathyliths; (2) this sedimentary series is one of the most important developments of the pre-Cambrian rocks in North America, it presents the greatest body of pre-Cambrian limestones on the continent, and it is best designated as the Grenville Series; (3) the invading masses of granite are of enormous extent; they possess a more or less distinct gneissose structure, due to the movements of the magma, which developed a fluidal and, in the later stages of intrusion, a protoelastic structure in the rock; (4) the granite gneiss of the bathyliths not only arched up the invaded strata into

¹ Communicated by permission of the Director of the Geological Survey of Canada.

a series of domes, but 'stoped' out portions of the sides and lower surface of the arches, the fragments torn off from walls and roof by the invading granite being found scattered throughout the mass of the invading rock; this 'stopping,' however, probably developed only a small part of the space which the granite now occupies; (5) the invading granite not only exerted a mechanical action upon the invaded strata, but also gave rise to a variety of metamorphic products, among others amphibolite produced by its action in the limestone, which accounts for the fact that while the invaded strata are chiefly limestone, the fragments of the latter, where found in the granite, consist of amphibolite; (6) the invading bathyliths and allied intrusions of granite occupy the greater part of the great Northern Protaxis of Canada, which has an area of approximately 2,000,000 square miles. It has, therefore, been considered advisable to restrict the name Laurentian to this great development of the 'Fundamental Gneiss,' which, although intrusive into the Grenville Series, nevertheless underlies and supports it; (7) the relation of the Grenville Series, which forms the base of the sedimentary portion of the geological column in Eastern Canada, to the Huronian and Keewatin Series, which are the oldest stratified rocks in the western part of the Protaxis, has yet to be determined, the two not having so far been found in contact; nowhere, moreover, either east or west, has the original basement on which the first sediments were laid down been discovered; these are everywhere torn to pieces by the granite intrusions of the Laurentian.

At 8 p.m. on Wednesday, November 13th, the actual anniversary of the foundation of the Society in 1807, the Fellows met informally, to the number of about 100, at the Society's Rooms in Burlington House, where the various addresses presented on September 26th were on view.

"The History of the Geological Society of London," by Horace B. Woodward, F.R.S., illustrated with twenty-eight portraits and reproductions of medals, is now obtainable at the Society's Apartments, price 7s. 6d. nett; and at the reduced price of 6s. by Fellows only.

CORRESPONDENCE.

RE CONE-IN-CONE.

SIR,—Touching the origin and age of this formation or structure, would such of your readers as have made observations in this connection kindly tell us at *what depths* below the present surface they have discovered or noted this rock-structure? We know that the Coal-measures contain it, but at what depth in pits (shafts, boreholes, or underground workings) has it been found? Reports state that it occurs in the Cambrian, Lower Silurian, Devonian, as well as in comparatively recent epochs, but the point is: is it as *old* as the strata enclosing it? (See vol. 188, 1894, etc.) W. S. GRESLEY.

DUFFIELD, DERBY.

13th Nov., 1907.