

It consists of (1) a short statement of the principles of classification; (2) a systematic synopsis containing diagnoses both of the divisions of higher rank than generic, and of all new genera and species; and (3) figures of the new species.

To the general reader by far the most interesting section is the two pages devoted to the principles of classification; though the actual systematic scheme carries much that is of interest to the worker of Polyzoa, particularly to the specialist of Tertiary forms. And it is satisfactory to note, in this connection, that the fundamental divisions of the Cheilostomata adopted by Levinsen have been accepted here. The plates, too, call for congratulation, being, apparently, photographic reproductions of the originals, and, as such, are comparable with the excellent microphotographs of Cretaceous Polyzoa published by Brydone in the *GEOLOGICAL MAGAZINE*.

It is a pity that, with the need of establishing many new genera, more accuracy was not obtained in putting together the names. Here, especially indeed, the reviewer, having experienced the difficulties involved, would temper his criticism with sympathy. If the Latin ending *-ella* be permitted to Greek stems, the names *Otionella*, *Dacryonella*, *Aechmella* and others are both pleasant to hear and easy to pronounce; but not so *Stomachetosella*, which is also incorrectly formed, as are *Stamenocella* and *Trematoichos*. But *Metroperiella* is impossible, for *μερι* is followed by nothing but a diminutive ending. *Metracolpota* and *Schizaropsis* would be more correct if, in the former, the first *a* were *o* and the final *a* dropped, and, in the latter, the second syllable omitted. *Velumella*, though sounding well, is an impossible form (*Velella* is, of course, preoccupied). What Lewis Carroll would have called the 'portmanteau' words *Membrendæcium* for "Membranipora with endozoöcial avicularia", *Cribrendæcium* for "Cribrilina with endozoöcial ovicells", *Schizemiella*—" 'schizos,' slit" (there is no such word as 'schizos'), " 'emi,' abbreviation for peristomie" (not very obvious!)—, and *Schizomavella*—" 'mav,' abbreviation for median avicularium," whether pleasing or not, are ingenious. To take one more case—*Metradolium* should have *o* instead of *a*, and even then should mean "a thing that deceives its mother—(or ovicell)", and not "a deceptive ovicell", as intended.

It is impossible in a short notice to discuss adequately the principles of classification adopted. Possibly a better opportunity for this will arise when the larger monograph is published. Meanwhile we would offer our best wishes to the authors for their coming work, and our congratulations on its little forerunner.

W. D. L.

#### IV.—BRIEF NOTICES.

1. (1) *BIBLIOGRAPHIE PRIMITIVE RELATIVE AUX BRYOZOAIRES*. By F. CANU. Bull. Soc. Géol. France, ser. 4, vol. xv, pp. 287–292. 1916.
- (2) *BIBLIOGRAPHIE PALÉONTOLOGIQUE RELATIVE AUX BRYOZOAIRES DU BASSIN DE PARIS*. By F. CANU. Bull. Soc. Géol. France, ser. 4, vol. xv, pp. 293–305. 1916.

(3) **LES BRYOZOAIRES FOSSILES DES TERRAINS DU SUD-EST DE LA FRANCE. IX. AQUITANIEN.** By F. CANU. Bull. Soc. Géol. France, ser. 4, vol. xv, pp. 320-334, pls. iii, iv. 1916.

(1) In the first of these papers, M. Canu gives a list of works dealing with Polyzoa from the years 1555-1792 inclusive, thus rendering available for students primitive works that otherwise may escape their notice.

(2) The second is a bibliography of the Eocene Polyzoa of the Paris basin, with lists of the species mentioned; for the sake of completeness, works dealing with Belgian and British Eocene forms also are included.

(3) In the third, M. Canu produces his ninth contribution to the Tertiary Polyzoa of S.W. France, namely those of Aquitanian age. Nine new species, illustrated in the plates by photographs of the originals, and one new genus are described.

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2. **THE PHYSICAL CONDITIONS INDICATED BY THE FLORA OF THE CALVERT FORMATION.** By E. W. BERRY. U.S.A. Geological Survey, Prof. Paper 98-F, pp. 61-70, pls. xi-xii. 1916.

**T**HE Calvert formation consists of diatomaceous earth, sandy clays, and marls, typically developed in Maryland. Owing to the quantities of diatoms present, there appears to have been assumptions in some quarters that a cold climate was indicated for the region at the time of their deposition. The most abundant plant remains are these diatoms, which have been much studied by experts, who have identified a large number of species indicating a habitat of relatively warm or sub-tropical temperature. The land plant species number twenty-six, of which twenty-three are Dicotyledons. Dr. Berry gives tables comparing these species both with the most similar fossil forms and the nearest living species, and concludes that they indicate "warm-temperate affinities comparable with the existing coastal floras of South Carolina and Georgia". The age of the flora is Middle Miocene or Tortonian.

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3. **THE GEOLOGICAL FACTORS AFFECTING THE STRATEGY OF THE WAR AND THE GEOLOGY OF THE POTASH SALTS.** By Professor J. W. GREGORY. Trans. Geol. Soc. Glas., xvi, pp. 1-33, 1916.

**T**HE importance of coalfields in war strategy has been severely demonstrated by the occupation by Germany of the French, Belgian, and Polish fields, and to this topic Professor Gregory gives first place. He points out that "when the Peace Congress assembles, its meeting room might be appropriately provided with a geological map of Europe and Western Asia, since the resettlement of the frontiers will be largely dependent on geological influences, of which the diplomatists may have no conscious knowledge". The distribution of oilfields and of copper and iron ores is also discussed in relation to the War, but the most valuable part of the paper from the point of view of geologists is that which deals with the great German potash deposits. Their origin is dealt with and illustrated by many useful sketch-maps and sections, and much information

published in a large paper by Everding in 1907 becomes available in English for the first time.

4. **THE BANKET.** By ROBERT B. YOUNG. Gurney & Jackson, 1917. 8s. 6d. net.

**A**S the formation, or rather the series of formations, responsible for the world's greatest goldfield, the banket of the Rand has naturally received much attention from geologists as well as from the miner, whose interest is purely economic. Professor Young's book is essentially a petrographic account of the banket and of the associated rocks, concluding with a discussion of the origin of the gold. Allogenic (including pebbles and matrix) and authigenic constituents are separately dealt with, gold being regarded as primarily a member of the former, though afterwards subject to solution and reprecipitation. A noteworthy feature of the book is the profusion and beauty of the plates with which it is illustrated.

5. **CORRELATION AND CHRONOLOGY IN GEOLOGY ON THE BASIS OF PALÆOGEOGRAPHY.** By C. SCHUCHERT. Bull. Geol. Soc. Am., vol. xxvii, p. 491, 1916.

**I**N the first section of the paper the rise of geological chronology is described, and present views regarding the permanency of continents and oceans, and the bearing of diastrophism on chronology, are discussed. It is stated that crustal unrest is recorded in North America by at least fourteen epochs of mountain-making. Of these eight are "disturbances" of lesser import, while six are "revolutions" belonging to the more critical periods of the earth's history. The methods in use for the determination of stratigraphical sequence and correlation form the subject of the second section, and those dealt with are the sedimentary, the palæontological, the palæogeographical, and the diastrophic methods. The third section is devoted to the palæogeography of western North America during the Mesozoic Era, and nine maps illustrating the general conclusions are given.

6. **ON SYNANTETIC MINERALS AND RELATED PHENOMENA.** By J. J. SEDERHOLM. Bull. Comm. Géol. Finlande, No. 48, 1916.

**B**Y the term *synantetic*, Sederholm proposes to designate those minerals that occur only where two definite minerals would otherwise meet. Such are the reaction rims, kelyphitic borders, and coronas occurring between various femic and salic minerals in basic rocks, and the intergrowth of plagioclase and vermicular quartz (to which the author gave the name *myrmekite* some years ago) that occurs in acid rocks between the boundaries of potash and soda-lime feldspars. With regard to the former, which are described in great detail and with very full abstracts of the literature, Sederholm comes to the conclusion that they are referable to metamorphic processes. In the case of myrmekite and other analogous structures, the literature is again quoted at great length and a large number of new observations are placed on record. The various theories are

critically discussed as to whether the structure is primary or secondary, due to volatile fluxes and solutions, to recrystallization in the solid state or to corrosion, whether it is more recent or older than the dynamo-metamorphism of the rocks in which it is displayed, and finally whether it is produced during the waning phase of plutonic activity, or during the beginning of a new phase which brings about the metamorphism of the rocks generated by the earlier phase. The author points out that no theory is wholly satisfactory, but he decides that in many granitic rocks the structure is connected with the consolidation of the magma of the rock in which it occurs. Since, however, myrmekite has crystallized within the borders of another mineral, replacing its substance, it cannot be regarded as primary in the strictest sense of the word. Where it has formed during the later stages of consolidation it is proposed to call the change *deuteric* (the term *paulopost* already used in teaching by Dr. J. W. Evans would serve equally well), as distinct from a *secondary* formation of myrmekite due to processes accompanying a later period of metamorphism.

7. THE RELATION OF THE TITANIFEROUS MAGNETITE ORES OF GLAMORGAN, ONTARIO, TO THE ASSOCIATED SCAPOLITE GABBROS. By W. G. FOYE. *Econ. Geol.*, xi, p. 662, 1916.

THE gabbro laccolith of Glamorgan was intruded into the Grenville Series before the period of granite and nepheline-syenite intrusions described by Adams and Barlow. The latter intrusions gave off pneumatolytic gases which, according to the author, collected beneath the gabbro and slowly penetrated it. The iron and titanium carried by the gases were oxidized to titaniferous magnetite which was deposited beneath the gabbro, while the chlorine and other gases thus liberated passed on and scapolitized the overlying gabbro. The evidence put forward seems to justify the conclusion that the ores were derived from the later intrusions, and not from the gabbro itself.

8. ARE THE "BATHOLITHS" OF THE HALIBURTON-BANCROFT AREA, ONTARIO, CORRECTLY NAMED? By W. G. FOYE. *Journ. of Geol.*, xxiv, p. 783, 1916.

THE following are the conclusions to which the author arrives:—

1. That the so-called "batholiths" were formed by the concordant injection of granite into a fissile limestone terrane.

2. That this fissility was produced by the pressure of the overlying sediments.

3. That the layers of limestones, lying between layers of molten granite, were permeated by pneumatolytic gases and fluids given off by the granite, and transformed to amphibolites or grey gneisses.

4. That the concordant injection of the granite, accompanied by the upward flow of magma at centres of intrusion, produced the dome-like character of the gneissic areas.

5. That since the term "batholithic" does not describe the true character of these areas, the term "stromatolithic" (*στρωμα* "a layer", *λιθος* "a stone") is suggested in its place.

9. ON PRIMARY ANALCITE AND ANALCITIZATION. By A. SCOTT.  
Trans. Geol. Soc. Glas., xvi, p. 34, 1916.

IN this paper Dr. Scott traces the history of the controversy that since 1890 has centred about the origin of analcite in igneous rocks. He summarizes first the arguments against the primary nature of the mineral and secondly the evidence in favour of that view. It is pointed out that there are three ways in which rocks may be modified by the action of alkali material:—

1. During an early stage in the cooling history of a magma, the liquid residuum becomes enriched in sodium-bearing molecules, so that the later portions of the pyroxenes and amphiboles are relatively enriched in that element.

2. At a late stage in the cooling history, phenocrysts already formed may be corroded by the soda residuum; feldspars and nepheline are analcitized and any residual analcite that remains crystallizes out as a primary mineral.

3. At a period subsequent to consolidation the rock may be acted on by juvenile soda-silicate solutions in such a way that felsic minerals are analcitized, while mafic minerals may be recrystallized as soda pyroxene.

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REPORTS AND PROCEEDINGS.

GEOLOGICAL SOCIETY OF LONDON.

1. *May 2, 1917.*—Dr. Alfred Harker, F.R.S., President, in the Chair.

The following communications were read:—

1. "Supplementary Notes on *Aclisina*, De Koninck, and *Aclisoides*, Donald, with Descriptions of New Species." By Jane Longstaff (*née* Donald), F.L.S. (Communicated by Dr. G. B. Longstaff, M.A., F.G.S.)

Since the publication of a paper by the Geological Society on *Aclisina*, in 1898, a much larger amount of material has come to hand, which has not only added to the knowledge of the species there described, but has also led to the discovery of six others new to science. The diagnoses of these are now given, and a species named by Mr. H. Bolton *Loxonema ashtonensis* is referred to this genus, as several specimens show the characteristic lines of growth.

The total number of species of *Aclisina* is now brought up to twenty-two, and there are besides several varieties. The genus is best represented in Scotland, where the specimens are generally remarkably well preserved, no less than thirteen having the protoconch intact, drawings of which show its somewhat irregular character. A table is appended giving, so far as known, the range and localities in the British Isles and Belgium. A small variety of *Aclisina pulchra*, De Koninck, appears to have continued for the greatest length of time, commencing in the Calcareous Sandstone Series, existing throughout the Lower and Upper Limestone Series and on into the Millstone Grit of Scotland.

Additional observations are also made on *Aclisoides striatula*, De Koninck, showing its variation in size and ornamentation,