

The Students' Association of Natural Science. Upsala.

Geological and Physico-Geographical Section.

Meeting on Jan. 31st, 1896.

The following Officers were appointed; namely,
for the term: P. J. HOLMQUIST, Secretary.
J. G. ANDERSSON, Reporter.
O. FR. ANDERSSON, »
for the year: C. WIMAN, Redactor.

Meeting on Feb. 14th, 1896.

1. Herr J. G. ANDERSSON showed some geological pictures by means of a magic lantern, the same that have been employed at the lectures at the »Workmen's Institute» of Upsala.

2. Herr BENEDICKS discussed some papers by HELLOISAN and MOISSAN on the qualities of natural and artificial Graphite.

3. Herr C. WIMAN reported JOH. WALTHER: »Die Korallenriffe der Sinaihalbinsel».

4. Herr J. G. ANDERSSON gave an abstract of his paper: »Till frågan om de baltiska post-arkæiska eruptivens ålder». Geolog. Föreningens i Stockholm förhandlingar N:o 170, 1896. Bd 18, H. 2.

5. Herr P. J. HOLMQUIST gave a short account of the experiments made in order to produce crystallized calcite from fusions. The reporter had obtained crystallized calcite from fused carbonate of soda, in which calcite is easily dissolved without effervescence into a clear mass which does not turn opaque, until a greater quantity of calcite is added to it, than that which corresponds to $1\text{CaCO}_3 : 3\text{NaCO}_3$.

Meeting on Feb. 28th, 1896.

1. Herr O. FR. ANDERSSON reported JESSEN's exposition of the geological observations of »Opmaalings-expeditionen til Julianehaabs distrikt 1894».

2. Herr O. APPELBERG lectured on »Ancient and Recent Opinions regarding the Causes of the Variations in the Height of the Water in the Swedish Streams and Lakes».

3. Herr P. J. HOLMQUIST showed and described the mineral Boléite, of which some fine crystals together with a collection of shells had been presented to the Geological Institution of Upsala by Professor CH. BEAUGRAND of Havre. The interpreter pointed out, that, by supposing the plane (053) as (075), one could get the symbol $1 : 1 : 0,70711$, the same figures that BAUMHAUER has found for Boracite and Perowskite.

Meeting on March 13th, 1896.

1. Herr MUNTHE gave a lecture on: »Recent Attempts to Subdivide the Quaternary Age». After an account of the different conceptions of this question among the glacialists of Switzerland, England, America and Scandinavia, as well as of the historical development of these different conceptions, the lecturer gave a resumé of the observations, in consequence whereof the Swiss and Scandinavian glacialists assume three different glaciations and two interglacial periods during the Quaternary Age.

1. Herr G. HELLSING showed some crystals of Saccharine and reported on W. J. POPE's observations on the enormous phosphorescence of these crystals, when crumbled.

Meeting on March 27th, 1896.

1. Herr J. G. ANDERSSON gave an account of his paper: »Über cambrische und silurische phosphoritführende Gesteine aus Schweden. (This Bulletin 1895.)

Meeting on April 17th, 1896.

1. Herr O. FR. ANDERSSON read his paper: »Über die quartäre Lagerserie des Ristinge Klint auf Langeland». (This number of the Bulletin.)

2. Herr C. WIMAN reported RUEDEMANN's »Note on the Discovery of a Sessile *Conularia*», and S. L. TÖRNQUIST's »On the Appendages of Trilobites», and also showed a richly illustrated work: »The Great Barrier Reef of Australia», by W. SAVILLE-KENT.

3. Herr P. J. HOLMQUIST reviewed JOH. CHR. MOBERG: »Untersuchungen über die Grünsteine des westlichen Blekinge».

Meeting on May 7th, 1896.

1. Herr P. J. HOLMQUIST reported W. C. BRÖGGER: »Die Eruptionsfolge der triadischen Eruptivgesteine bei Predazzo in Südtirol».

2. Herr J. G. ANDERSSON reported W. RAMSAY's »Till frågan om det senglaciala hafvets utbredning i södra Finland». (Fennia, 12, 1896.)

Meeting on Sept. 18th, 1896.

The following Officers were appointed; namely,
for the term: P. J. HOLMQUIST, Secretary.
J. G. ANDERSSON, Reporter.
C. BENEDICKS, »

Meeting on Oct. 2nd, 1896.

Herr J. G. ANDERSSON reported J. F. POMPECKJ's »Die Fauna des Cambrium von Tejrovič und Skrej in Böhmen» and RAUF: »Über angebliche Organismenresten in præcambrischen Schichten von Bretagne».

Meeting on Oct. 24th, 1896.

1. Herr J. G. ANDERSSON gave an account of his researches of the downs of Gotska Sandön, Fårön and the North of Öland. Within these three regions a simular series of older and younger downs occur, between the formation-time of which there have been periods, during which the quicksand was fixed by vegetation. This circumstance was explained by BLYTT's wellknown theory of alternating periods of dry and damp climate.

Further the reporter had studied on Gotska Sandön the phenomena, that stand in connection with the sand-blast wearing, and by this means had won quite certain proofs of the theory of the formation of faceted blocks through sand-blast wearing, and herewith the objections to this theory, raised by the Dane STEENSTRUP, could be considered as disproved.

Finally the reporter mentioned the strange mixture of remains of land animals and fresh-water animals, on the one hand, and marine animals on the other hand, which are found in the downs, a circumstance of importance to the interpretation of the formation of sandstones poor in fossils.

2. Herr C. WIMAN gave an account of the Cambrium of the Gulf of Bothnia, which was divided into:

Slates with *Shumardia*,
Strata with *Obolus*,
Sand-stone without fossils,?
Strata with *Olenellus*.

3. Herr P. J. HOLMQUIST gave an account of the geology and the mineralogical and petrographical features of the Ruotivara-ore and of the so-called Ruotivarite.

4. Herr K. KJELLMARK reported his paper: »Une trouvaille archéologique faite dans une tourbière au nord de la Néricie. (This number of the Bulletin.)

Meeting on Oct. 30th, 1896.

1. Herr C. WIMAN gave an account of his paper: »Über *Dictyonema cavernosum* n. sp. (This number of the Bulletin).
2. Herr H. MUNTHE reviewed H. BERGHELL: »Bidrag till kännedom af södra Finlands quartära nivåförändringar». (Fennia 13, 1896.)
3. Herr P. J. HOLMQUIST gave a short account of J. W. RETGERS: »Versuche zur Darstellung neuer schwerer Flüssigkeiten zur Mineraltrennung». (Neues Jahrbuch 1896, II, Heft. 2.)

Meeting on Nov. 13th, 1896.

1. Herr O. P. DAMM reviewed L. V. PIRSSON: »The Monchiquites or Analcite Group of Igneous Rocks».
2. Herr J. G. ANDERSSON opened a discussion: »On a Rational Bathymetrical Terminology».

The numerous attempts to make a division of the sea into bathymetrical regions, that have been made by different authors, could be divided into two groups, partly such as tend to a division, founded on the bathymetrical extension of the marine flora and fauna, into a great number of zones of rather local importance, partly those which aim at a distinction of a few more general bathymetrical main types. The opener wished to confine the discussion to the last group of divisions.

The bathymetrical nomenclature, that has hitherto been prevailing among the geologists, indicates only two main types, the littoral and the deep-water regions. These two regions have been limited in highly different ways by different authors and, partly from this reason, partly on account of the circumstance that the same sediment has often been numbered by different authors now to one, now to another of these two main types, there had arisen a confusion in the literature, which for the time being almost makes a general view of the bathymetrical nature of the sedimentary beds impossible.

Already this circumstance seems to give to understand that between the two extremities above mentioned a third bathymetrical region might be found in nature, whose sediments have been counted now to the littoral, now to the deep-water region, when the artificial bipartition was made.

As a beginning to a more natural nomenclature the opener also considered the division proposed by WALTHER into three head-groups, the littoral, the shallow-water, and the deep-water regions.

The *littoral* region includes, according to WALTHER, the sea-shore between high und low water marks. As, however, certain coasts are quite

destitute of tide, the lower limit of the region might in a more general way be fixed as the level, where the water ceases to corrade.

For fixing the lower limit of the shallow-water region there are several ways. Either it may be assumed to be situated at the »continental line» (200 m.) or at the limit of assimilation (400 m).

The proper thing would be to consider the region below 2—900 m. as a zone of transition between the shallow-water and the deep-water regions.

The *deep-water* region includes the oceans outside the continental line or the aphotic part of the ocean below the limit of assimilation.

After the opening-discourse an animated discussion ensued, in which Herr HEDSTRÖM, MUNTHE, WINGE and the opener took part.

Herr HEDSTRÖM gave an exposé of bathymetrical terms of different writers, as GÜMBEL, FUCHS, STUXBERG, MURRAY and WALTHER. He held forth, that the bipartition of the deposits was the geological division, but the division into three, on the contrary, inapplicable to geology, being founded on points of view that had no geological importance.

Herr MUNTHE wanted to divide the deep-water in to two parts: 1) the shallower deep-water next below the continental plateau, of whose deposits the foraminiferæ-mud is characteristic, and 2) the abyssal part, where the red clay is deposited.

Further he pointed out that, as ripplemarks sometimes are found at a depth of 200 m., one might draw the boundary of the littoral region as far as that depth.

Herr WINGE was of opinion that one could start from either of two points of view: one physico-geographical and the other geological, and considered that one ought to be content with the simpler division.

Herr J. G. ANDERSSON pointed out that it certainly was true, that conglomerates *might* be found in great depths, and that the sea, for instance on banks in the ocean at a depth of 180 m, *might* be corradng. But these phenomena, as well as deposits of coarse sediment in deep water beside the coral-reefs were exceptions, and had nothing to do with the true littoral formation.

Against Herr MUNTHE's proposal the opener held forth that the division of the deep-water was outside the question, in as much as abyssal sediments certainly do not occur in any quantity worth mentioning among the geological formations. So-called »ripple-marks» might have played too great a part in the literature, as similar marks are found on the surface of the downs.

The opener further accentuated, that the proposed division into three

also could be considered practical, seeing it was a more natural one, than the old bipartition. Surely application thereof on the geological deposits meets with difficulties; a better order would be gained by the adaption of the new terminology, where such a thing were possible.

Herr WINGE warned against introducing too many new terms; and proposed to complete the old bipartition by subdivisions.

Herr HEDSTRÖM wanted to know which deposits the opener considered littoral.

Herr J. G. ANDERSSON answered that he considered as littoral such deposits as showed traces of corrasion by the waves or of being formed between high and low water marks, or contained footprints of land animals. — As an example of the uncertainty in the terminology still in use, the opener mentioned that NEUMAYR counts the orthoceratite limestone as a deep-water sediment, while NATHORST designates it as a littoral formation.

Herr HEDSTRÖM was of opinion, that these authors only differed regarding the formation of the orthoceratite limestone, not regarding the sense of the different terms.

Herr ANDERSSON held the want of a rational bathymetrical terminology to be the true cause of this uncertainty, too.

Meeting on Nov. 27th, 1896.

1. Herr MUNTHE reported F. W. HARMER: »On the Pliocene Deposits of Holland and their Relation to the English and Belgian Crags (Quarterly Journal of Geol. Soc. 1896).

2. Herr WINGE reported TURTON: »Über das Wesen der Einheit der Krystallstruktur».

Meeting on Dec. 11th, 1896.

1. Herr G. HELLSING reviewed some papers by JANNASCH on the employment of boracic acid for making silicates and rocks soluble.

2. Herr C. SÖDERSTRÖM reviewed RAMMELSBURG: »Zur Theorie der Plagioklasmischung».

3. Herr P. J. HOLMQUIST reported HERMANN TRAUBE: »Beiträge zur Kenntniss des Rutils, Cassiterits und Zirkons», and in connection herewith RETGERS' utterances on the same minerals and on the occurrence of so-called solid solutions in the mineral kingdom.

