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the author what number of copies will be required for this country. The price will be £1.

This monograph will be executed in the best style, and we hope that a liberal subscription may be made, to diminish for the author the cost of publication. — J. L. LÉCONTE, *Philadelphia, Pa.*

INSECTS INJURIOUS TO FOREST TREES. — Prof. Ratzburg has published a new edition of the "Waldverderber und ihre Feinde" (Insects, etc., injurious to Forests, and their Enemies. Berlin, 1869. pp. 457, with plates, \$4.50 gold).*

He has also published a new work of great value: "Die Waldverderbniss," etc. Berlin, 1868-'69. 4to, two vols., \$17.00 gold, with many plates, both zoölogical and anatomical, representing forest insects.

It is an interesting fact that in the German forests, since 1867, the Ichneumon enemies (before regularly 10 per cent. in number of the injurious insects they prey upon), suddenly became 0 per cent., while the injurious insects have increased from 40 to 50 per cent. He thus accounts by this great decrease in the number of the insect parasites for the very great loss of forest trees observed in Germany within the last fifteen years. — H. HAGEN.

REVIEW OF THE SCANDINAVIAN CONTRIBUTIONS TO NATURAL HISTORY IN 1867-8. (Continued.) Sweden and Finland. By Dr. C. F. Lütken. — Many of the scientific men of Sweden have of late years been occupied by the examination of the zoölogical, botanical and geological collections brought home to Stockholm by the various exploring expeditions to Spitzberg, executed with admirable skill, energy and endurance, by several of the youngest Swedish and Finnish naturalists, under the superintendence of the Royal Swedish Academy, and the special leading and patronage of S. Lovén, and with liberal grants from the State funds. Sweden has generously taken upon itself the task of enriching science with a thorough knowledge of this most Arctic country, of its mathematical and physical geography, geology, terrestrial and marine flora and fauna, with the purpose of obtaining in this way a solid base for all the important investigations and discussions dependent on a complete knowledge of Arctic nature. In Malmgren's appendix to the "Report of the Swedish expedition to Spitzbergen in 1864," you will find a complete list of all the publications relating to the scientific investigations of this country. Many of these papers are inserted in the "Proceedings of the Swedish Academy," for 1866-68. Among the most important, I must first name Dr. Malmgren's *Annulata polycheta Spitsbergiæ, Grönlandiæ, Islandiæ et Scandinaviæ usque cognita*, a most important work, giving (with the author's previous work, "Northern Marine Annulata," published in the same periodical) a complete synopsis of all the chætopodous worms of our northern seas, with numerous descriptions of new genera and species, and many plates. Of like importance is Dr. Smitt's voluminous synopsis of the Arctic and boreal Bryozoa, which contains an enormous

* These works will be imported by the Naturalist's Book Agency at the above prices in gold.

and astonishing mass of learning and research, and has established, I believe, this part of zoögraphy on quite a new base. A profound study of the monograph is indispensable to every one who may in the future devote himself to this group; but whether all the peculiar views and conclusions advocated by Dr. Smitt will be finally adopted, is a question I am not qualified to discuss. Prof. Andersson has described a new grass (*Colpodium Malmgreni*). Dr. Cleve has reviewed the Diatomaceæ, and Dr. Lindberg the mosses of Spitzberg, while Prof. Heer* has examined the fossil (miocene) plants of Spitzberg and Walrussia, and Dr. Lindström has analyzed some of the rocks of Spitzberg. But besides these efforts of a more special character have been made the unceasing endeavors characteristic of the pupils of Linnæus, to clear up the fauna, flora, and mineral wealth of Sweden itself. I cannot here enumerate all the papers relating to this subject, but will only state that you will find several local faunas and floras, as well as special or local lists of peculiar classes of plants or animals, *i. e.*, of the fishes of Finmarken, with many critical notes by Malmgren; of the lichens of various provinces; of the Diatomaceæ of Sweden and Norway; of the birds of Sweden by Meves; various faunal, entomological and chemical researches on rare or little known Swedish minerals, etc. Among papers of a wider scope I must cite the continuation of Prof. Kinberg's "Characteristics of Annulata" collected during the voyage of the "Eugenie," a sort of prodromus of the elaborate descriptions to be given in the report of that voyage, published by the Academy; many new genera and species are established among the Amphiuomeæ (the other higher groups were treated in previous volumes); and among the limivorous and sanguivorous divisions. To this series of papers also belongs Kinberg's curious observations of an annelid (*Lycaretus*), reproducing its head and anterior body segments. Prof. Kinberg has also published a paper on the "Origin of the second cervical Vertebra (*epistrophæus*) in Mammals, through the fusion together of two Vertebrae." In Mammalia, generally, the odontoid process is separated during a longer or shorter period, from the true *corpus epistrophæi* by two intervertebral epiphyses in the same manner as in all other ordinary distinct vertebræ; the odontoid process has parts answering to the arms, which are, however, not developed into true arches, but analogous to that of certain caudal-vertebræ; the epistrophæus has of course two corpora fused together like the sacral vertebræ, and consequently draws its origin from the connection of two primordial vertebræ. Prof. Staal's (the Entomological Curator of the State Museum, in Stockholm) critical and diagnostic review of the Hemiptera (Reduviadæ, Hydratidæ, Saldæ, etc.) will, I do not doubt, add to the author's high reputation for accuracy and acumen, and might the more be recommended to the attention of American entomologists, since many American bugs are reviewed in these papers, which, written in Latin, are quite accessible to men of all

* A more detailed account is to be found in Prof. Heer's great work, "Flora fossilis Arctica," dependent principally on materials brought together by Scandinavian travellers and naturalists, and deposited in the museums of Copenhagen and Stockholm.

nations. Dr. Ijungman's descriptions of new Ophiuridæ, and his useful synopsis of all the known genera and species, with several new forms of both categories should next be noticed. Also Prof. Lovén's description of a new genus (or subgenus?) of Crinoids of the Antedon tribe (*Phanogeniu typica*) from India. His description of *Leskia mirabilis*, confirming the presence of the valvulate peristome and periproct ascribed to this curious genus of Spatangidæ (*Paleostomata* Lovén) by Gray, and suggesting an interesting analogy with the Cystidæ, elucidated by some very valuable observations upon the structure of this ancient type (*vide* the Geological Magazine* for a more detailed account of this paper), and lastly but not least, the same celebrated author's ingenious memoir on the little stalked pyriform deep-sea sponge, from Finmarken, termed *Hyalonema boreale* Lovén, by means of which he demonstrated that the Lusitanian and Japanese Glass-ropes had hitherto been erroneously represented as if turned upside down.† (The paper is translated fully in the Annals and Magazine of Natural History.) Dr. Lindström has described a new species of the brachiopodous genus Trimerella, from the Silurian limestone of Gotland, and added some important features to the knowledge of this singular genus. He has also continued his valuable observations on the Silurian "corals" of that island, with the description of a new and supposed true coral (*Calocystis cribraria*), of the tribe *Eupsammidæ* (?), from that remote epoch, and a new operculated species of Cystiphyllum. Dr. Lindström's previous discovery of true operculata in several Cyathophylloid corals had apparently widened the gap between these ancient "Pseudo-corals" (*Anthozoa rugosa* and *tabulata*), and the true corals of later epochs, but the recent discoveries by Dr. Duncan of some presumed transitional forms between both types, and the striking analogy pointed out by Lindström between the structure of Zaphrentis and that of Ceri-anthus and Sphenopus, have made him change his opinions on the subject somewhat, and "operculated corals" are now, according to the opinion of Lindström, a less strange and illogical combination of characters than he formerly supposed. Finally I shall cite Dr. Thorell's interesting note on *Aranea lobata* Pallas, demonstrating its identity with *Argiope sericea* Oliv. (translated in the "Annals"); also Prof. Elias Fries' *Symbolæ ad synonymiam Hieraciorum*. Mr. Raupach's notes on the earthquake at St. Thomas, November 18, and December 11, 1867; Dr. Lindquist's interesting observations confirming the popular belief (already advocated by Aristotle as regards the stag and horse) that cows and sheep (also antelopes) have the singular custom of devouring their own after-birth.‡ Prof. Steenberg's suggestions on the applicability of lichens to the fabrication of grape-sugar and alcohol, might perhaps also be of im-

* Reprinted, with a note by Mr. E. Billings, in the "Canadian Naturalist and Geologist," December, 1868.

† Some further knowledge of the "Hyalonema," from Santa Cruz, mentioned some years ago by Prof. Leidy, as existing in the Museum of Philadelphia, would just now be very desirable. (See Proceedings of Biological Section of Acad. Nat. Science, Phila., Oct. 5, 1868.—EDS.)

‡ We have noticed the same habit in the cat.—EDS.

portance to other northern countries, where lichens are abundant; and Mr. v. Post's observations on the so-termed "giant-kettles" (kettle-shaped excavations in rocks, with whorl-like or spiral striations, evidently produced by water-whorls turning stones around along with them) as drawing their origin from the waters rushing vertically down through local cracks in glaciers (the so-termed "moulines") throw farther light on the great glacial epoch and the monuments it left behind; no doubt also North America will furnish numerous instances of the phenomena interpreted so successfully by Mr. v. Post.

Though we are now connected by railways with the Swedish capital, I must confess that the last volume of the "Transactions of the Royal Swedish Academy of Science" which has reached us, is the sixth of the new series, or that for 1865-66; it would therefore strictly fall behind the limits of this review; but as it bears the year 1867 on the foot of the title page, I presume that some of its parts have been published so late as 1867, and I therefore shall briefly state that this volume encloses the excellent *Monographia Salicum*, by Prof. Andersson (with nine plates). One hundred and five species are described in this work by the learned author, who through many years made this genus his favorite study, and whose well deserved reputation will recommend his work to the attention of all botanists, as being that of the first authority on the subject. Mr. Zetterstedt has examined the flora of Smaland (a province of Sweden). To Durir and Nordenskjöld we owe contributions to the geography of Spitzbergen (with a large and excellent chart), and a discussion on the possibility of executing a triangulation of this Arctic country, while Nordenskjöld has published a geological description of it (with charts and profiles), and Lindström has described its Triassic and Jurassic fossils. Of the contents of the later volumes, if such have appeared, I am only acquainted with Dr. Paykull's (author of *Travels in Iceland*) geological description of Iceland (with a beautiful chart), and a paper by Mr. Malm on the structure and transformations of the *Pleuronectidae* (flounders), wherein the author has established some facts that appear to be at variance with the explanation proposed by Steenstrup, of the migration of the eye from the lower to the upper side of the head; but as this question must yet be regarded as a partially open one, and farther contributions to its elucidation may be anticipated, I shall defer what might possibly be said on the subject to another occasion. Of the "Voyage of the Eugenie," published under the patronage of the Academy (*Annulata*, by Kinberg; *Insecta*, by Bohemann and Staal), I am not aware that anything has been published during the biennium, and the same must be said of Sundevall's unfinished "Birds of Sweden." You will find in it Prof. W. Lilljeborg's description of two subfossil whales discovered in Sweden (*Eschrichtius robustus* and *Hunterius Swedenborgii*, with eleven plates), containing also an elaborate synopsis of all known genera (or subgenera?) of "Whalebone Whales," among which the author distinguishes not less than ten generic subdivisions. As the memoir is written in English, a farther review of its contents may be unnecessary here.

Dr. Cleve has contributed a monograph of the Swedish *Zygnemaceæ* (a tribe of confervoid Algæ), illustrated by ten beautiful plates; seven genera and twenty-five species are described, and they appear (I am of course not competent to judge) to be treated of with that care and ability that one is accustomed to find in the countrymen of Linnæus. As all descriptions are translated into Latin, the paper will easily be available to all. The University of Lund has published two volumes of "*Acta Universitatis Lundensis*," for 1866 and '67. Dr. Olsson describes in full detail the *Cestoidea* and *Trematoda*, observed by himself in Scandinavian fishes; he scrutinized no less than 860 specimens of fishes, belonging to seventy-six species, and found fifty-six species of fully-developed parasitic *Platyelmintha*. Diagnoses of all the species are given in Latin, and five plates illustrate the text. Two parts are published of this work that will be indispensable to any who in America should be disposed to pursue similar studies. Dr. Quennerstedt pursues his investigations of the Swedish Infusoria, a line of research in which little or nothing has been done in Scandinavia since the time of O. Fr. Müller. Dr. Lyttkens has described the muscles, the integument and its internal portions in the *Homarus* (Lobster), with two plates, and in future parts will treat of the integument, etc., of *Lithodes*, *Cancer* and *Pagurus*. Prof. Wahlgrën has described and figured a specimen of the great Sun-fish (*Mola nasus*), and made some valuable additions to the knowledge of its anatomy. This species is the greater one of the species commonly confounded under the collective name of "*Orthogoriscus mola*," and the only one hitherto observed on the American shores of the Atlantic; while the smaller species (*M. Retzii*) is only found on the European side of the ocean, where *M. nasus*, however, is by no means uncommon; the distinctive characters were pointed out by Prof. Steenstrup and myself in 1863. Prof. Agardh has contributed a detailed monograph (in Latin) of the Laminarian Algæ, and Prof. Areschoug an anatomical investigation of the leaf (with two plates). His principal conclusion is the anatomical demonstration of the fact, that the leaf is, indeed, only a metamorphosed stem (why not that the stem is, in fact, only the metamorphosed leaf); also some interesting researches on the history of the Scandinavian flora, based principally on its geographical distribution (with two charts). He points out the vestiges of three migrations, *i. e.*, that of the Arctic flora, which towards the close of the glacial epoch, migrated from Northern Siberia; the eastern and north-eastern (Altaic) element, which at a later time, after the glacial epoch and before the appearance of the *Fagus sylvestris*, wandered into Europe from Siberia (Altai); and lastly, a southern (south-eastern Caucasian) element (our common beech among the number), which at a still more recent epoch made its way into Northern Europe from the circumference of the Mediterranean, of the Black and of the Caspian Seas. Dr. Berggrën has continued his studies of the Mosses, especially on the structure and evolution of *Andreaea*. Dr. Holmström has published his researches on the glacial phenomena in Southern Sweden, illustrated by a very instructive chart, showing the direction of the ice-tracks. Dr. Lundgrën

has undertaken the critical determination and description of the petrifications of the recently discovered Faxe-limestone in Scandinavia, while Dr. Törnkrist has studied the geological structure and chronology of the older Silurian beds in Dalarna; and Prof. Torell's description of the Scandinavian "Sparagmitis-formation,"—the oldest (Cambrian) fossiliferous layer in Scandinavia, and of its rare and highly enigmatical fossil remains, closes this very creditable series of scientific contributions published by our sister University.

Among the papers published in the "Botaniske Notiser," 1867 and '68 (edited by Prof. Th. Fries, at Upsala), I must cite Prof. Andersson's, on the genus *Salix*, and especially its northern species; Dr. Goës' description of the flora of the West Indian island, St. Barthélemy; Mr. Moë's valuable observations on the influence of the different mineralogical constituents of the soil upon the variation of plants; several papers on the Scandinavian species of *Callitriche*, *Junci* and *Charea*, *Notula-lichenologica*, and other geodesical contributions, among which some observations on the variation of the parts of the cone in the common *Pinus abies* should be particularly noticed by botanists and palæophytologists. In every volume of this highly esteemed journal, a complete annual list is given of all botanical papers published in Sweden, Norway and Denmark.

The work of the celebrated mycologist, Elias Fries, on the edible and poisonous mushrooms of Sweden, has been finished, and a new work on the rarer species of this class is in course of publication. Of the great geological chart of Sweden, published by the State Geological Survey, under the direction of Prof. Erdmann, twenty-five sheets have appeared. The editor has also published a volume on "The Quarternary Beds of Sweden" (with fourteen charts, profiles, etc.), giving a detailed account of the glacial, post-glacial, etc., formations of this country, where these layers have, I believe, been more fully studied than elsewhere; and though I am no competent judge in this matter either, I cannot but believe that Prof. Erdmann's synopsis of the results arrived at, and the researches carried out in Sweden, must be of great importance to the geologists of all northern countries where similar formations occur. The topic of "The Glacial Epoch in Northern Europe" has also been treated of in a more popular manner by Dr. Paykull, in a special pamphlet. Dr. Lindström has published a careful and critical list of the recent and subfossil mollusca of the isle of Gotland, and discussed at length their geographical distribution beyond the narrow limits of his island; three plates with figures of teeth, jaws, etc., are added. Mr. Malm, the Curator of the Museum at Göteborg, has published the fourth and fifth parts of his "Zoölogical Observations" (reprinted from the Transactions of the Royal Society of Göteborg). Though the fourth part had been printed as early as 1863, it was not, I believe, circulated before the last year, and I shall therefore give a review of the different chapters: "a List of Marine Mollusca observed in the brackish water of Göteborg, and in the estuary of the Göta-elf;" "a Monograph of the Syrphici (a family of

Diptera) of Scandinavia and Finland"; "a Review of the Scandinavian *Petromyzontidæ*," in which the author proposes a new terminology of the teeth of these fishes, divides the old genus *Petromyzon* into *Lampetra* (*marina* Linn.) and *Petromyzon* (*fluviatilis*, *Omalii* and *Planeri*), and cites for the first time *P. Omalii* B., as found in Scandinavia. The *P. Planeri* of Hæckel and Kner, he holds to be distinct from that of Northern Europe; a list of Fishes, Crustacea and Mollusca, new to the Scandinavian fauna, *i. e.*, *Scomber grex* Mitchell?, *Scopelus Krøyeri* (n. sp.), *Accipenser sturioides* (n. sp.), *Eurynome tenuicornis* (n. sp.), *Vanbenedenia Krøyeri* (a new genus and species, with figures of a crustacean parasitic on Chimaera, being found attached to the apex of the dorsal spine), *Nucula tumidula* (n. sp.), *Turbonilla umbilicaris* (n. sp.), *Trophon Morchii* (n. sp.); a Note on *Limnæa limosa*, under which name the author unites a series of forms, hitherto commonly regarded as distinct species (*L. Bathica*, *L. limosa*, *Bennetti*, *succinea*, *vulgaris*, *ovata*, *peregra*), but forming in fact an uninterrupted series of varieties, no doubt derived from the different external agencies and local circumstances that have affected their life and external form; some Remarks on Monstrosities occasioned by a *Syngnathus typhle*, with a double caudal fin; a Monograph of the *Hirudineæ* of Sweden, with beautiful figures from life. In an Appendix several Arctic species are described, and farther additions may be found in the Report of the Association of Scandinavian naturalists, for 1863; a Monograph of the *Limacidæ*, also with handsome illustrations drawn from the living animals. The same active zoölogist has also published, in French, a *Monographie illustrée d'une Ballinoptère frondée le 2^e Oct., 1866, sur la cote occidentale de Suède*. It is well printed and illustrated by a series of photographs, but not of that scientific importance which might have been anticipated. On the other hand it may be argued that the author's energetical endeavors to secure not only the skeleton, but also the stuffed skin, in such a state that it gives a faithful representation of the animal's appearance, deserves to be fully acknowledged, the more as his health suffered by this gigantic work, and the expense was not repaid by the exhibition of a "Malmo Whale," at Stockholm and elsewhere. The species Malm describes as new (*M. Carolina*), but it has been noticed by Messrs. Flower and Reinhardt to be most likely the *Balanoptera Sibbaldii* Gray. The same author has also contributed some notes on the skeleton of *B. musculus*, to the "Proceedings of the Royal Swedish Academy."

From Finland — that last outpost of Scandinavian civilization towards the East, as is now, alas, another part towards the South — I have not much to report, though natural history was ever cultivated with zeal and success by the people, half Swedish, half Finnish, inhabiting this little favored country, as you will learn from a paper by Prof. Fljelt, "On the Study of Natural History in Finland before the time of Linnæus," in the Contributions to the Knowledge of the Nature and People of Finland, No. 12, published by the Society of Science at Helsingfors. In another number you will find "Geological Observations on the South-western part of Finland." In the *Acta Societatis Scientiarum Fennicæ* (vol. viii), Prof.

Mäklin has published an elaborate monograph of the Strongylium-tribe (heteromorous Coleoptera), with four plates. An interesting biography of the late Prof. Nordenskjöld, the celebrated mineralogist and geologist, is also given in the same volume. In the "Proceedings of the Finnish Society of Science" Prof. Lindberg has published several smaller botanical papers, *i. e.*, "On a New Species of *Pimelia* (*P. vividula*) and *Musschea* (*M. pallescens*)"; and "On an abnormal fructification in *Passiflora*," etc.

NATURAL HISTORY MISCELLANY.

BOTANY.

A NEW FRAGARIA.—The *Fragaria* which I venture, after a careful examination of all the authors within my reach, to pronounce a new one, was brought from Jalapa, Mexico, in the fall of 1858, to Michigan, by Mr. F. Mack. Only one plant survived the journey. From that originated the extensive plantation of J. P. Whiting & Co., of Detroit, who are in vain endeavoring to supply the Western demand for plants, at \$3 a dozen. It is known in Michigan as the Mexican Ever-bearing Strawberry, and, according to most reliable testimony, it richly deserves its name. From early June into October—indeed so long as sunlight has strength to ripen berries—it is busy in putting forth fresh flowers and maturing fruit. It is hardy and exceedingly prolific. Its fruit is large, firm, fragrant, sweet, and exquisitely flavored. It belongs to that section of the genus which bears its achenes, or carpels, superficially on the receptacle, and is distinguished from all its congeners by its dichotomous stem and racemose flowers.

In justice to Henry Gillman, Esq., the active and meritorious botanist who first indicated its claims to specific rank, as well as in token of my warm regard for him, I propose for it the name of *Fragaria Gillmani*; and I characterize it thus:

Fragaria Gillmani.—*Caule dichotomo, foliis ternatis, foliolis petiolatis, floribus hermaphroditis racemosis, carpellibus superficialibus.*

I annex a detailed description furnished by Mr. Gillman:

Stem erect, longer than the leaves, dichotomous, racemose, many-flowered, bearing a perfect trifoliate leaf variously situated from below the middle to the summit of the peduncle, which is clothed with a spreading or deflexed pubescence, more silky, and ascending or appressed on the pedicles and calyx. Leaves coriaceous, coarsely serrate, the serratures ovate-mucronate, rugose, silky villous, the hairs closely appressed, particularly beneath, leaflets petiolate, the two lateral leaflets unequal towards the base, borne on long channelled footstalks, which are clothed with spreading or deflexed hairs. Flower perfect, eight lines in diameter; calyx segments not longer than the roundish spreading petals, the exterior segments or bractlets often cleft or parted, much smaller than the interior segments, which are ovate-lanceolate. Fruit drooping, but always raised far above the ground on the erect stem; bright scarlet, of an irregular conical form, gratefully sweet, sub-acid, singularly fragrant; achenia numerous,