the tailings, awaiting more perfect methods of treatment.

Much may be learned from the systematic habits of the astronomer, dividing his work among the several observatories in a spirit of helpful coöperation, and assigning the labor of computation to those who are fitted thus to follow the lead of others. What better service can we do for the University student than to set before him some of the problems in mathematical or physical chemistry that require patient toil, and give him the pleasure of assisting in their solution by the use of logarithms and squares? What is more practical than to utilize any service he can render?

In conclusion, I beg leave to suggest the appointment of a joint committee (representing Sections A, B and C of the American Association) to consider the feasibility of striving towards the following ends:

1. The compilation of all reliable data of physical chemistry in convenient form for reference, distinguishing those determined directly from those calculated indirectly.

2. The calculation of empirical formulas, to combine any series of data, when some better form of generalization is not already at hand.

3. The preparation and use of rational formulas, wherever possible, to deduce the natural constants from series of observations, and to express the conditions that may be expected to hold between observations of different kinds.

4. The organization of a band of volunteer compilers and computers from among advanced students, who (with the counsel and aid of their instructors) may assist in the work of compiling data and computing formulas.

☞ While the time did not seem ripe for the appointment of such committee at the late meeting of the A. A. A. S., the writer would be pleased to receive any further suggestions from those interested, regarding the points noted above.

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REMARKS ON SOME RECENT FUNGI EXSICCATI.

It is still a favorite mode among mycologists to distribute exsiccati, or series of specimens of fungi collected from time to time by various persons and in different localities. In times past these exsiccati have served a very useful end in enabling collectors to acquaint students with any new discoveries, and it has not been unusual to find many new species described in them. Even at the present day this habit prevails to a greater or less extent, and diagnoses of new species frequently occur in these collections. In the writer's mind, however, the custom, although sanctioned by long usage, is reprehensible,especially in those cases in which the species are not also described in some botanical journal. At a period when such journals were few, and when their circulation was limited, the distribution of exsiccati with these new species was justifiable; but now, with the great increase in means of publication and the facilities for illustration, the necessity for this has passed away. It is, indeed, questionable whether such species can be regarded as published in the strict sense of the word. Exsiccati are from their very nature ephemeral. They are easily destroyed by insects and other pests. They have no place on the shelves of the library. They are very limited in their circulation, and their limited numbers and relatively high price practically place them beyond the reach of the majority of students. Only a small number of persons, therefore, have access to them, and they must be sought for in the larger herbaria of the country. The majority of botanists are therefore seldom cognizant of the new species described in

these exsiccati. In many cases the specimens are distributed in the general herbarium as fast as they are received, and unless some record be kept of the new species they are soon lost to view in the great mass of specimens in the herbarium. The duplication of names has been a frequent result of this practice, and it is greatly to be desired that it cease. Let new species be described in regular standard publications, so that the majority rather than the minority of students will know of them.

Among the older distributions is that of Sydow, *Uredineæ*. This has now reached Fascicle XIX., Nos. 901–950. In this the genus Puccinia is the best represented, no less than 25 out of the 50 specimens belonging to it. Among them we note *P. simplex* (Körn.) Eriks. & Hen., which is a duplication of *P. simplex* Peck, 1881. (34th Ann. Rept. N. Y. State Mus. Nat. Hist., p. 45.) The old plan of writing the labels instead of printing them is pursued, to the great detriment of the appearance of the specimens and to the annoyance of those who attempt to decipher the names. We would recommend that a change be made in this regard.

The newer distribution of Jaczewski, Komarov and Tranzschel, *Fungi Rossiæ*, has reached its second fascicle, Nos. 51–100. It is interesting in that it contains many specimens from little known or explored regions of eastern Russia and of Siberia. The specimens are neatly put up and have well printed labels.

Fascicle No. IX. of Seymour & Earle's Economic Fungi bears date of July 1, 1895, and consists of Nos. 401 to 450. It is made up of parasites on garden vegetables and fruit trees, and does not contain any special novelties unless it be the new hosts of *Plasmodiophora brassicæ* lately recorded by Halsted (Bull. Torr. Bot. Club, XXI., 76, 1894).

The latest arrivals are Fascicles IX. and X. of *Fungi Parasitici Scandinavici*, by Eriksson. These come from the interesting region of northern Europe. They are accompanied by an index to the ten fascicles, in which are given the names, numbers and hosts of all the specimens distributed. Fascicle IX. (Nos. 401–450) is devoted entirely to the Uredineæ, all but two being species of Puccinia. *P. graminis* is represented by 19 specimens, several being given 'form' names. Two new species are described, viz., *P. pygmæa* and *P. milii*. Fascicle X. (Nos. 451–500) is also largely devoted to Uredineæ, although some other orders are represented. Three new species are described. As it is believed that a useful purpose will be served by the publication of these descriptions they are given below from the original labels.

449. PUCCINIA PYGMÆA Eriksson, n. sp.

Uredosporæ in soris minutis, oblongis, lineariter ordinatis, interdum confluentibus, aurantiacis, cum paraphysibus apice globoso-inflatis. Sporæ globosæ, 17–28 μ, aculeatæ. Paraphyses 48–80x11–16 μ. Teleutosporæ in soris minutis, oblongis, linearibus, tectis, atrofuscis, hypophyllis. Teleutosporæ clavatæ, apice explanatæ vel lateraliter apiculatæ, medio vix constrictæ, 35–42x11–14 μ.

Sueciæ in foliis Calamagrostis epigeii ad Borgholm, in portu, July 20, 1894.

450. PUCCINIA MILII Eriksson, n. sp.

Uredosporæ in soris oblongis solitariis vel lineariter ordinatis in maculis flavis foliorum, aurantiacis, cum paraphysibus apice globoso-inflatis. Sporæ globosæ, 19–24 μ aculeatæ. Parphyses usque ad 64 μ. Teleutosporæ in soris aggregatis, oblongis, tectis, atrofuscis, hypophyllis. Teleutosporæ clavatæ, apice explanatæ, 27–41 μ longæ, cellula basalis 13–14 μ, terminalis 12–19 μ lata.

Sueciæ in foliis Milii effusi ad Experimentalfältet, (Sjöstugan), Stockholm, September 23, October 8, 1894.

494. ASCOCHYTA PUCCINIOPHILA Starback, n. sp.

Perithecia solitaria vel sæpissime 3–7 gregaria, hypophylla, maculis elevatis, pallide fuscidulis insidentia, epidermide elevato cincta, 100–120 μ diam. Sporulæ fusoideo-lanceolatæ vel interdum oblongæ, diu continuæ, demum medioseptatæ, vix constrictæ utrinsque appendiculis brevibus acutiusculis præditæ, 8–12x2–3 μ.

Intime intermixta crescit *Puccinia polygoni.*

Sueciæ in foliis Polygoni amphibii in insulis lacus Glottern, par Qrillinge Östergötland, August, 1891.

488. DIDYMARIA AQUATICA Starback, n. sp.

Maculæ varia forma, sæpissime suborbiculares, confluentes, amphigenæ e fusco griseæ, fuscomarginatæ. Hyphæ non manifestæ. Sporulæ rectæ, fusoideæ, utrinque obtusiusculæ, 10–19x4–5 μ.

Sueciæ in foliis Alismatis plantaginis in lacu Glottern, Qvillinge, Östergötland, August, 1891.

500. HETEROSPORIUM PROTEUS Starback, n. sp.

Cæspitulæ hypophyllæ, laxe gregariæ in maculis aridis foliorum insidentes, hyphis fasciculatis, interdum ad basin conglutinatis stipitemque formantibus, compositæ. Hyphæ 95–100 μ long, 4.5 μ, 6.5 μ crassæ. Conidiæ e nodulis hypharum oriunda, et forman et magnitude nem valde varia, cylindracea vel cylindracea-ellipsoidea, 3-septata 16–24x4.5–8 μ, 2-septata 14–15x6–7 μ, 1-septata 9–15x3–7.5 μ vel globosa, quæ rarissime adsunt, 5–6 diam., autem conspicue et densissime echinulata.

Heterosporio echinulato (Berk) Cooke affinis modis sporidiorum aliis notis exceptis, hæc species dignoscenda.

Sueciæ in foliis Querci sp. in Upsala, October, 1891.

JOSEPH F. JAMES.

THE BIBLIOGRAPHICA ZOOLOGICA AND ANATOMICA.

AT the Baltimore meeting of the American Society of Naturalists (Dec. 1894) a committee was appointed to consider Dr. H. H. Field's plans for bibliographical reform, the committee to report in print. That committee would report as follows:

Dr. H. H. Field, in view of the well-known imperfections and shortcomings of all existing records of zoölogical literature, has formulated plans which will give the zoölogical world an approximately complete index of all current literature as promptly as possible. This record will be issued in the form of bulletins, each number of which will be distributed as soon as sufficient material has been accumulated to make a 'signature.' The same bulletin will also be issued printed only on one side of the page, to allow for cutting up for special bibliographies. Lastly, the separate titles will be issued upon cards of the standard 'index' size. Each title will be followed by a few words giving the subject and scope of the article, when this is not sufficiently indicated by the title, while the cards will have, in addition, catch numbers, so that any library assistant can readily incorporate them in the card catalogue.

The plan contemplates a union of existing bibliographies with this one. In the case of the 'Naples Jahresbericht' this will be brought about by coöperation, the Naples series continuing practically as the yearly morphological analysis of the Bibliography. It is to be hoped that the 'Zoölogical Record' will consent to coöperate in a similar way, devoting itself to the systematic side, and by aid of the new facilities of coöperation increase its present usefulness to students. Arrangements have now progressed so far that it seems probable that the records of literature in the Zoologischer and Anatomischer Anzeigers will be merged in the new scheme, and it is hoped that the one in Archiv für Naturgeschichte will take the same course. If sufficient encouragement be given, it is proposed to include physiology in the scope of the new plan. The net gain will be fewer bibliographies, wider scope, nearer approximation to completeness, and more prompt publication.

The central office of the work will be established at Zürich, Switzerland, and it may be said that the cantonal government has already appropriated 2000 francs annually to its support, and will supply suitable quarters for its work. France has promised a similar sum, and aid is expected from Germany, from the International Congress of Zoölogists and from the British Association for the Advancement of Science. Committees have been appointed in France, Germany and Russia to coöperate in making the record as complete as possible. Lastly, publishers stand ready to undertake the publication of the bulletins, cards, etc.,