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BULLETIN

OF THE

PUBLIC MUSEUM OF THE CITY OF MILWAUKEE

VOLUME I

WITH 25 PLATES AND 3 TEXT FIGURES

MILWAUKEE, WIS., U. S. A.
Published by order of the Trustees
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BULLETIN

OF THE

PUBLIC MUSEUM OF THE CITY OF MILWAUKEE

VOL. I ARTICLE I

CATALOGUE OF THE ODONATA OF NORTH AMERICA

BY RICHARD A. MUTTKOWSKI

MILWAUKEE, WIS., U. S. A.
Published by order of the Trustees
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FOREWORD

The publication of a Bulletin by the museum is not to be considered an innovation in its policy, but rather as a more complete fulfillment of its agreement with the Wisconsin Natural History Society made when the city took over its collections in 1882, that they should be used for "public instruction, and the provision of materials and helps for Scientific Investigation." For some years the desirability of a publication of this nature has been recognized by the Trustees, and during the last calendar year the Museum assumed part of the expense of publishing the Bulletin of the Wisconsin Natural History Society which it has used for several years as a medium of exchange.

The long delay in assuming the responsibilities of a Bulletin has been due to the small number of our scientific staff; and even now it is recognized that the burden of publication would weigh heavily were an attempt made to issue these at stated periods. It is therefore for the present the intention to publish fascicules of volumes as they are ready, with no obligation implied that a volume will be completed within a definite period.

Primarily the Bulletin is intended to supply a suitable means of presenting the results of investigations made by members of the Museum's staff or of others based upon the Museum's collections; but in order to be of the greatest value for the objects enumerated in the above quoted stipulation of gift it will probably not be advisable to entirely confine it to articles emanating from these sources.

Publication by the Museum does not imply responsibility by it for the author's work.

The following paper by Mr. Muttkowski has been prepared with the direction and advice of Mr. Chas. T. Brues, while he was curator of invertebrate zoology, and to a considerable extent the work has been done during museum hours. It is presumed that it will be of value to students of the Odonata in that it presents in convenient form what purports to be a complete list of these insects from the North American region, assigns, as far as possible, each species to its biological area within the region and cities the more important bibliographical references for each species. The author has been favored with the co-operation of the leading students of this order, and it is therefore presumed that the classification and nomenclature employed represents the more approved and advanced ideas of odonatologists.

HENRY L. WARD,
Director.

CATALOGUE OF THE ODONATA OF NORTH AMERICA

By Richard A. Muttkowski.

INTRODUCTION.

A series of bibliographical notes made in the preparation of my paper on the Wisconsin Dragonflies fostered the idea of a catalogue of the Order for North America. When the matter of compilation was laid before the various workers in Odonatology they, one and all, agreed as to the need of a catalogue, especially since Dr. Banks had excluded the *Odonata* from his catalogue of Neuropteroid Insects of North America (Am. Ent. Soc., 1907, pp. 53). This work is intended to fill the gap.

Early in the work of compilation a number of points, such as area, scope, and method, presented themselves for consideration, and which each had to be carefully weighed for its influence on the final form of the catalogue.

AREA.—To limit the catalogue within any given political boundary was entirely out of question. To observe the artificial boundary of the United States and Mexico as a natural Southern faunal limit would have been arbitrary; especially so in the case of the *Odonata.* Equally inconsistent would be the inclusion of entire North America. The wide distribution of the majority of *Odonata* demands that a different criterion be applied. As such the Nearctic zoogeographical region with certain modifications was selected. These modifications grew out of the difficulty of co-ordinating the range of Neotropic species into the U. S. with the region in question. This is especially evident when one observes the overlapping and intermingling of the two great regions of the Western Hemisphere in Mexico and Central America. The Nearctic region in its widest sense may be assumed to extend as far south as the mountains of Ecuador, though frequently interrupted and isolated in Central America; while the Neotropical extends uninterruptedly into Texas and California, and overlaps the Nearctic in Florida.

For this reason it became necessary to draw an artificial line somewhere. And after careful study it was found that of species captured in zones 1-3 (see Calvert, Biologia, map; or Proc. Acad. Phila., 1908, pl. 26) below 20° north latitude in Mexico a very small percentage extends into the United States. Again, of species captured north of this limit by far the larger portion have been taken in the United States. As a result I believe that with 20° north latitude an artificial boundary is set which closely approximates the natural zoogeographical limit. This division has been fairly well adhered to in the catalogue and results in the inclusion of all Cuban and many Mexican species. Yet to further preclude artificialty I have added all species taken in zones 4-6 south of the line, but within the limits of Mexico.

SCOPE.—I have tried to include all references of taxonomic value; in addition to these there are a large number of ethological and morphological papers which occasionally have been referred to. But usually ethology has been combined with taxonomy, which obviates the need of citing all purely ethological references. Similarly, Kirby's Synonymic Catalogue (London, 1890) is quoted only when the nomenclatural changes of that estimable work necessitate a citation.

Counting subspecies as well as distinct species, 494 are treated in this catalogue, fossils (27 species) not included. This is 18.77 per cent. of the total number of known Odonata (2,631).

CLASSIFICATION.—With Kirby, Calvert, Needham, Williamson, Ris, and others, the Odonata are treated as a separate order.

Of the various systems of general insect classification proposed since Linné that of Handlirsch (Die Fossilen Insecten, pp. 1227-1293, 1908) appears perhaps the most acceptable. Each of the many other systems has been based on either morphological, and in such cases more often than not founded on a single detail, or larval characters, or upon the metamorphosis. Handlirsch's system possesses the merit of considering all of these, and phylogenetical, factors and is therefore probably more consistent with the general systematic developments of modern times.

In most systems the *Neuroptera* (sensu Linné) have been the stumbling block. Handlirsch is practically the first to give this heterogeneous assemblage his full attention. As a result but three

families remain in the *Neuropteroidea:* the *Megaloptera, Raphidoidea,* and *Neuroptera s.s.* All the rest have been distributed in 5 sub-classes, four separately. These are the *Odonata* (*Libelluloidea* Handlirsch), *Perloidea, Embiaria,* and *Ephemeroidea.* Except for the assignation of the *Lepidoptera, Panorpidae, Phryganeidae,* and *Diptera* to the *Panorpatae* for phylogenetical reasons no other result of Handlirsch's studious work is of greater significance than the isolation of the *Odonata* in a sub-class, co-ordinate in rank with the ten other sub-classes.

Handlirsch's addition of a third suborder to recent *Odonata* is of interest. With the erection of the *Anisozygoptera,* one may say, the *Zygoptera* and *Anisoptera* have been more definitely linked than heretofore.

Though some authors recognize as many as ten families of *Odonata,* I have used but four in this catalogue. I do not subscribe to the habit of a few recent writers of raising any well-definable group to family rank; especially when this is done on a purely negative character. The same is true of subfamilies.

The general status of Odonate classification is very unsatisfactory; markedly so in the two largest subfamilies, the *Coenagrioninae* and the *Libellulinae.* Drs. Calvert, Needham, and Ris, have shown the urgent need of a different and improved system for the *Coenagrioninae.* For the *Libellulinae* several systems have been proposed in recent years, but as yet all have been found wanting. Quite recently Dr. Ris has published the summary of a new classification of the *Libellulinae* in the Catalogue of the De Selys Collections, fascicle 9, pp. 18-39, 1909. Previous to the publication of this summary Dr. Ris had acquainted me of the disposition and sequence of the genera from his manuscript. Even at first glance, while not familiar with the reasons for the grouping, the offered arrangement presented many points correcting and modifying the harshnesses (which necessarily result in a purely mechanical dichotomy) of earlier systems. While it is hardly likely that this "natural" system will be accepted without discussion and even criticism, this will probably not occur until Dr. Ris has developed his arrangement fully and completed his monograph, which, according to his publishers,

will not be for some months. Nevertheless I do not hesitate to accept Ris' classification for this catalogue, as it is the first based on a study of the entire subfamily.

METHOD.—In some respects this catalogue is modeled after Aldrich's Catalogue of the Diptera. Yet I have thought it advantageous to separate the references into four divisions: true descriptions (not captioned, indicated by heavier type), syn(onyms), nymph (larval stages and morphology), and distr(ibution). The genera I have tried to arrange into natural sequence. Under these the species are cited in alphabetical succession, while the references are in chronological order. This arrangement is extended to the synonyms also.

References—true and synonymic.—Of the former I have commented upon all those references seen by me. These will need little explanation, except for the abbreviations of which I give a list farther on. Synonymic references have been treated as true references, with comments. As far as I was able, I have cited the authority for the relegation of a species to the synonymy in brackets, together with the date; e. g., [Hagen, 1861].

Nymph.—This caption does not alone include larval stages, but also a number of morphological references which I thought it advisable to enter. Unhappily, I could select but a small percentage of such, as space, and, more often, the very minor mention, precluded others from the catalogue. Attention should be called to the following: "adult" cited with a nymph reference means a figure of the nymph, not of the imago.

Distribution.—In citing the distribution I have made use of the various life zones as defined by Dr. Merriam. I believe that with modifications they will serve better and more accurately in giving the area of distribution than the political boundaries. In most cases I have been conservative in assigning a specific zone to any one species, although I am aware that in a few instances the opposite will appear. In fixing the zones such factors have been considered, as: the general distribution, the ethology of the species and the localities, the sexes, etc. Concession has been made to political geography by citing the States also. In addition, an excellent map of the temperature zones of Mexico and Central America by Dr. Calvert,

published in the Biologia Centrali Americana and the Proc. Acad. Phila., 1908, pl. 26, has been consulted for the territory concerned, and reference is made to the zones by number; e. g., (Calvert z. 2-4).

Quotation of generic names.—The generic name is cited only in the case that the reference has placed the species under another name. Furthermore, if such a change is quoted, it is implied that the references following in chronological order have similarly placed the species, unless otherwise stated. The following example will illustrate my point:

Sympetrum corruptum Hagen.

1861.	Hagen	Mesothemis	Quoted
1873.	"	"	Implied
1874.	"	"	"
1875.	"	"	"
1884.	Selys.	Diplax	Quoted
1893.	Calvert.	"	Implied
1895.	"	"	"
1906.	"	Sympetrum	Quoted
1899.	Kellicott	Diplax	"
1900.	Williamson	Sympetrum	"
1901.	Needham	"	Implied
1905.	Osburn	"	"
1908.	Muttkowski.	"	"

Types and their custody.—In recent years the demand for more knowledge of the types of insects and their custody has become quite marked. The necessity of having one type specimen or more preserved in some collection accessible to the student for study and comparison is obvious; moreso, in view of the fact that the original description does not always state everything that should be said, but is more frequently deficient in some important diagnostic character. It follows, then, that knowledge of the types will be of use to the student. And, as I had for my own use noted the custody of the majority of types of *Odonata,* I thought it well to include such reference with the citation of the original description. I am aware, that these references are not always correct. Doubt arose in many cases, chiefly in connection with descriptions by Hagen, De Selys, MacLachlan, and others, who have made use of the expression "communicated by M. ———," from which the type custody does

not appear. In such cases I have usually referred the type to the collection of the describer, unless I was subsequently able to discover the true location. The location of the types of species described by Calvert in the Biologia Centrali Americana is very uncertain, since Calvert does not specify. He has, however, devised a method of computing the type custody from the locality of the figured specimen and the collector at that place; this has proved unsatisfactory and such method cannot replace the simpler and more convenient direct citation.

In many instances, when but one sex was originally described, I have cited the custody of the other sex, when later discovered. My reason for doing so is that I consider it necessary or at least advisable to have a type for each sex among *Odonata* because of the usually pronounced sexual dissimilarity. In the *Coenagrioninae,* where the females are dimorphic, three types are none too many for one species. In this spirit the following suggestions to designate the types properly are made:

Allotype—(ἄλλος—other) for the sex not designated by the holotype. The allotype need not be described by the protologist (first describer); it can be contained in the original as well as in any subsequent description by other authors. Thus, if the protolog describes only a holotype male, the first female subsequently described is to be called the allotype. (**A.T.**)

Morphotype—(μορφή—form) for the second form of a dimorphic sex. Here also the date when and the author by whom described are immaterial. (**M.T.**)

Note.—Morphotype—suggested by Charles T. Brues.

To illustrate: *Ischnura kellicotti* Williamson; ♂ orange, ♀ dimorphic—orange or black. A male is selected as holotype; the two forms of the female are then to be designated as the allotype (as the other sex) and morphotype (for the second form).

In selection of a holotype among *Odonata* the male is usually given precedence if both sexes are represented. On the other hand, if the female alone is described in the protolog, the female will, of course, be the holotype; and the male when later described is the allotype. Let us suppose, that *Ischnura kellicotti* were described as follows:

Williamson 1899	orange	♀	= holotype
Calvert 1900	black	♀	= morphotype
Needham 1901		♂	= allotype

The first would then be the holotype (proterotype)—**H.T.**, the second the morphotype—**M.T.**, and the last the allotype—**A.T.**

Upon the nomenclature of types I have consulted the very excellent diagnosis on types by Messrs. Chas. Schuchert and S. S. Buckmann in Science, Vol. 21, pp. 900-903, 1905. Their designations have been partially adopted.

Explanatory abbreviations—

abd. abdomen. abdominal.
ad. adult (of imago or nymph).
add. additions.
ads. adults, imagoes.
ant. antennae.
app. appendages (anal).
bibl. bibliography.
char. characters.
col. color.
coll. collection.
comp. comparative.
compl. complete.
desc. description, descriptive.
det. and dets. detail, details, detailed.
diag. diagnosis.
disc. discussed, discussion.
dist. distinguished.
distr. distribution.
ecol. ecological.
ethol. ethological.
f., ff., and fig. figure, figures.
gen. genitalia (appendages of second abdominal segment of the ♂, vulvar lamina or ovipositor of the ♀).
hom. homonymn.
lab. labium.
lam. lamina.
M.C.Z. Museum of Comparative Zoology at Cambridge, Mass.
mon. and monogr. monograph.
n.n. nomen novum = new name.
nom. nud. nomen nudum = nude name.
orig. original.

occ. occiput.
p. and pp. page, pages.
patt. pattern.
pl. plate.
sp. and spp. species.
str. structural.
subf. subfamily.
subsp. subspecies.
syn. synonymn, synonymous, synonymy.
t.f. text figure.
tars. tarsus, tarsal.
thor. thorax, thoracic.
var. variety.
varr. variation.
ven. venation.
vulv. vulvar.
z. zone (in reference to the temperature zones of Calvert's map).

It will be noticed that the comments throughout the catalogue are gradated, chiefly in connection with description comments; thus from "full desc." to "desc. notes." In explaining I would first say that "desc.," if at all used, is cited only when the *known sex* has been cited in a previous reference. Accordingly, "desc." alone implies that the known sex or sexes are redescribed in the paper mentioned.

A "full desc." is equal to a "detailed description." A comparative description ("comp. desc.") implies that the author contrasted the species he described with another of the same genus. This is instanced by Calvert in the Biologia Centrali Americana, in which nearly all the descriptions are comparative, owing to the analytical method adopted by the author.

"Desc. notes" are usually of an ethological character, but the author in passing mentions some feature of identificational value. "Dist." (distinguished) has been used to designate the occurrence of a species in a synoptic identification table, which, by the contrast given to the species, is often of considerable value.

The use of the terms "char."—in varying connection—and "gen." will need explanation. The meaning of the former in connection with the genus is, as usual, characters distinguishing the genus. When used with a species reference, however, the meaning is, that

sexual differences are shown, at least in part. Attention should be called to the fact that the term has always been used, with the species, after a reference to figures. While "gen." (genitalia) refers to a figure of the appendages of the second abdominal segment of the male *or* of the vulvar lamina of the female, in cases where both are figured for one species, "char." (characters) has been used to note that fact. When but a single anatomical detail has been figured, this has been recorded by the proper abbreviation, as given above. If the respective illustration shows a detail additional to the sexual character, this is signified by "char." It will then be seen that the scope of the term is varying. A few examples will serve to indicate the general extent.

1. Hagenius brevistylus.

Selys, Mon. Gomph., p. 241, 1858; pl. 12, f. 2, ♂ ♀ char.—In this the anal appendages and genitalia of the male and female are figured in a detailed series of 20 separable drawings. The occiput of the female is also figured.

2. Gomphus externus.

Calvert, Ent. News, 12, p. 65, 1901; pl. 3, ff. 2, 10, 17; ♂ ♀ char.—Shows the vulvar lamina and occiput of the female, the anal appendages of the male; of the superior appendage there are several figures. The vertex of the head with the ocelli and antennæ is figured on the same plate.

3. Gomphus fraternus.

Williamson, Drag. Ind., p. 289, 1900; pl. 6, ff. 8, 9, 30; ♀ ♂ char.—Male anal appendages figured from superior and lateral view, and the female occiput.

4. Sympetrum obtrusum.

Needham, Bull. 47 N. Y. State Mus., p. 525, 1901; t. f. 30, ♂ ♀ char.—Anal appendages of the male and genitalia of male and female.

The sex concerned has always been stated. In the case of the male alone "char." usually denotes that both the anal appendages and those of the second abdominal segment—the genitalia—are figured; for the female, that the genitalia and some other diagnostic detail are shown. In Gomphines this is usually the occiput, in Coenagrionines the thorax or prothorax, etc.

The term "char." has been applied only when either the anal appendages or the genitalia of the male or female constituted part of the figure or figures cited. If the figures include none of the sexual

differences, the term "str. dets." (structural details) signifies that a plurality of details have been shown.

NOMENCLATURE.—The authorities for the few changes made in this catalogue are: The International Code of Zoological Nomenclature, and The American Ornithologists' Union Code of Nomenclature. The rules governing the changes have usually been referred to, except such changes resulting from page-precedence. The two codes cited interpret this rule differently, the A. O. U. Code advising sexual precedence, while the International Code demands strict page precedence. The latter interpretation has been followed in this catalogue.

Personal inclinations to the contrary, the trinomial system is adopted upon the advice of all consulted, with the distinction that varieties and races of older authors are all referred to under subspecies. Like Kirby I have refused all nude names. There are too many of them in Odonatology.

Selys and Hagen.—A question involving nomenclature is the collaboration of Hagen and Selys. In his Synonymic Catalogue (London, 1890), Kirby attributed all the species resulting from the collaborations to Selys; which summary dealing, though correct according to existing codes, has not met with general approval. Were it not for the various synopses that Selys published prior to the issuance of the monographs, disposition of credit would be a simple matter. In this catalogue Hagen is given the benefit of the doubt, it being assumed that in his synopses Selys only reproduced Hagen's descriptions, the now customary "n.sp." being then not in use. Accordingly, all species credited to Hagen by Selys are cited thus. Unfortunately, Selys himself has not always adhered to the original citation; for species credited to Hagen in the original paper have frequently been referred to his own sponsorship by Selys, in subsequent additions.

Agrion vs. Calopteryx.—By far the most important matter connected with nomenclature: whether Kirby's reversion of *Agrion* to *Calopteryx* and the renaming of the former (=*Coenagrion*) were to be adopted? After some correspondence on the subject Mr. Kirby kindly furnished the full data upon which his change was

based. This included extracts from Fabricius, Latreille, and Leach. This material, together with a few general remarks regarding the results of the change, was forwarded to Dr. C. Wardell Stiles, secretary of the Commission for the International Code of Zoological Nomenclature. Conforming to the decision of the Commission (9 votes sustaining Kirby, 1 against the change; total 10 of 15 votes), I have adopted *Agrion* and *Coenagrion* in Kirby's sense. The reader will find the full text of the citations that bear upon the change embodied in the catalogue.

Authorship of species.—A cursory glance into the pages of the catalogue will show that in many instances the name of an author following the species is placed in parentheses. This is merely in accordance with recent cataloguers, to show that the described species was not placed in its present genus by the original author. In such cases it will be noticed that the original genus is cited with the reference.

This was as far as I cared to go in the matter of authorship. A few Odonatologists have recently tried to introduce the double credit system practised by botanists, i. e., crediting the species to that author who has referred it to the genus it at present occupies, while the original authority is placed in parentheses. An example of this method is *Enallagma antennatum* (Say) Williamson. Say described the species under *Agrion,* and Williamson has referred it to *Enallagma.*

This method, while distributing responsibility, is at best but a mere recognition of the work of a recent author, an acknowledgement of his discernment. But we can equally well assume that the original author and others following him have spent considerable time in studying the respective species; and these could claim credit with equal right to that of the more recent systematist. A case to the point is *Telebasis macrogastra,* described by Selys as *Agrion* and subsequently referred by him to *Leptobasis,* with a doubt. Carpenter referred the same species to *Telebasis* in 1896, and to *Erythragrion* in 1897, while Calvert relegated *Erythragrion* to the synonymy of *Telebasis* in 1902, thereby rereferring the species to *Telebasis.* Obviously, in this case the placing of second credit is difficult; for the claim of Carpenter is fully as strong as that of Calvert. Can we solve it by citing *Telebasis macrogastra* (Selys), Carpenter, Calvert?

Still more interesting is *Libellula minuscula* Rambur. Successively this species was placed in *Diplax* by Hagen, in *Diplacodes* by Kirby, *Sympetrum* by Williamson, *Trithemis* by Needham, and *Erythrodiplax* by Calvert. The vicissitudes of this species are a striking proof of the fact, that second credit, given to any of these students, would work an injustice upon the others, since each in turn presented reasons for his action, which were considered valid at the time they were published.

BIBLIOGRAPHY.—Originally it was my intention to include a complete bibliography of North American *Odonata* with this catalogue. But here the same difficulty was experienced as with the selection of the species; namely, that of drawing a dividing line. To facilitate handling the literature was arranged in six subdivided classes: Bibliographical, Taxonomy, Ontogeny, Morphology, Ethology, and Phylogeny, Under Taxonomy much of the literature treating of an entirely different fauna contains some noteworthy reference which would be of great use to the student of the North American fauna, and the respective paper would therefore necessarily deserve to be included. Accepting important mention as a criterion for the choice of literature, it was found that over 70 per cent. of the taxonomic literature was eligible. Of the other divisions, as, for example, Morphology, practically all the literature deserved entry. In Morphology alone it would be difficult to say where a line should be drawn. Though the experiments, researches, and their results published in these papers are based on representative local species, the results, as such, apply to the order as a whole; consequently these contributions are of the same intrinsic value to the American as to the European student.

As a result, the percentage of the entire literature that should be included in a complete bibliography of the N. Am. fauna was found to be out of all proportion to the percentage of species included, namely, 80 per cent. of the literature against 19 per cent. of the species. In view of this disparity it was decided to exclude the bibliography from the catalogue and to publish a complete bibliography for the entire order separately. This work is now in progress and will be published, it is hoped, within a year.

ACKNOWLEDGMENTS.—Primarily these are due to Mr. Charles T. Brues, now of Harvard University, and to Mr. Edward B. Williamson, of Bluffton, Ind. To Mr. Brues I am indebted for his continual advice and help in the compilation and arrangement of the catalogue, while he was connected with this museum. More recently he has aided me by looking up a large number of references in old entomological works in the Cambridge library and sending comments upon their contents, which have been incorporated in the catalogue.

Mr. Williamson very kindly placed his entire library on Odontology, containing about 95 per cent. of the systematic literature, at my disposal, thereby aiding me immeasurably, as hardly more than 50 per cent. of the literature was otherwise available. Through this kindness I was able to avoid much trouble in handling the many periodicals in which the Odonate literature is distributed, and had little difficulty in obtaining, examining, and listing the references. Further, Mr. Williamson has advised me on the subgenera of *Gomphus,* and on the identity of a number of species of all families; he has also looked over the manuscript of the *Cordulinae* and made several corrections.

Prof. E. M. Walker, of Toronto, Ontario, Canada, has revised the genus *Aeshna* for me and it stands practically as he left it. Dr. Philip P. Calvert, of Philadelphia, Dr. James G. Needham, of Cornell University, and Prof. Charles Hart, of the University of Illinois, have advised me on the identity of various species. Dr. F. Ris, of Rheinau, Switzerland, has written to me on the *Libellulinae* and a number of changes which will appear in the Libelluline parts of the Catalogue of the De Selys Collections have been made use of with his permission.

To Dr. C. Wardell Stiles, of Washington, D. C., and through him to the Commission on Nomenclature of the International Zoological Congress, I am indebted for their decision on *Agrion* versus *Calopteryx.* Dr. Stiles has also decided several minor points of nomenclature.

To Mr. W. F. Kirby, of the British Museum, I am indebted for a number of citations from rare editions. Owing to his kindness I was able to lay the *Calopteryx* matter before Dr. Stiles.

Mr. Henry L. Ward, the director of the Milwaukee Public Museum, very kindly secured several important volumes for me from the Crerar Library in Chicago, Ill. The Neuropteroid part of the Biologia Centrali Americana and a missing fascicle of Handlirch's Fossilen Insecten, deserve special mention.

Prof. T. D. A. Cockerell advised me on the Hagen-De Selys credit puzzle, and also on a number of minor nomenclatural matters. Part 2 of this catalogue containing the fossils, has been corrected by him.

Dr. Skinner, of the Entomological News, Philadelphia, and Mr. C. W. Johnson, of the Boston Society of Natural History, have informed me on the location of various types of dragonflies.

Dr. C. Hart Merriam, of the Biological Survey, Washington, D. C., Dr. S. Graenicher, Mr. Alfred C. Burrill, Mr. Carl Thal, the last three from the Milwaukee Public Museum, have aided me in diverse ways.

Finally, I am indebted to the following gentlemen for lists of dragonflies in various collections, sent in response to a circular letter at the end of the year 1908:

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C. S. Brimley—Raleigh, N. C., for lists of North Carolina.
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T. D. A. Cockerell—Boulder, Colo., lists of Colorado, New Mexico, Arizona.
Fordyce Grinnell, Jr.—Pasadena, Cal., for lists and specimens from N. Am.
C. P. Gillette—Fort Collins, Colo., for list of Colorado.
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Raymond C. Osburn—Columbia University, for lists of Dakota, Minnesota, etc.

R. H. Pettit—Agr. College, Mich., for list of Michigan.

L. Raynor Reed—Victoria, B. C., for list of British Columbia.

William Reiff—Bussey Institution, Forest Hills, Boston, Mass., for specimens.

P. A. Schroers—St. Louis, Mo., for specimens from Missouri.

E. H. Sellards—Gainesville, Fla., for notes on fossils.

H. E. Summers—Ames, Ia., for list of Iowa.

E. G. Titus—Logan, Utah, for specimens from Utah.

E. S. Tucker—Dallas, Tex., for lists of Kansas and Texas.

E. M. Walker—Toronto, Ont., for lists from Canada.

E. B. Williamson—Bluffton, Ind., lists from N. Am.

Francis Huntington Snow Collections (per M. H. Withington), Lawrence, Kansas, for lists of the entire Neuropteroid collections.

To the gentlemen named above and to all others who have in any way aided me in the compilation of this catalogue I desire to express my sincere appreciation of their unfailing courtesy and the help that they extended to me throughout the work. Further, I would express my appreciation to the editors of the Entomological News for the series of lists, taxonomic, morphological, and other papers on *Odonata* they have placed before the scientific world since the inception of their valuable periodical. Were it not for these lists, the distribution by life zones as shown in this catalogue would have been impossible to determine.

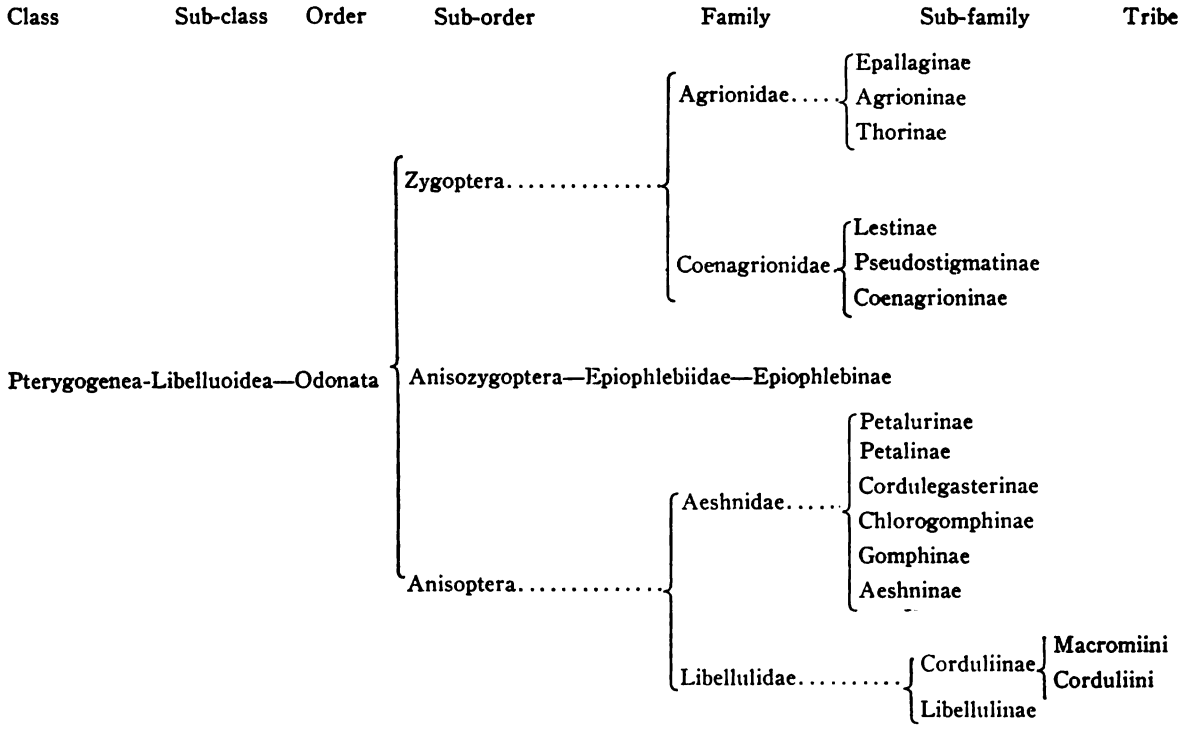
Finally, if errors and omissions be noted in this catalogue, I would ask as a favor of the student to inform me so that the needed corrections can be made.

This catalogue closes November 1, 1909.

MILWAUKEE PUBLIC MUSEUM.

November 13, 1909.

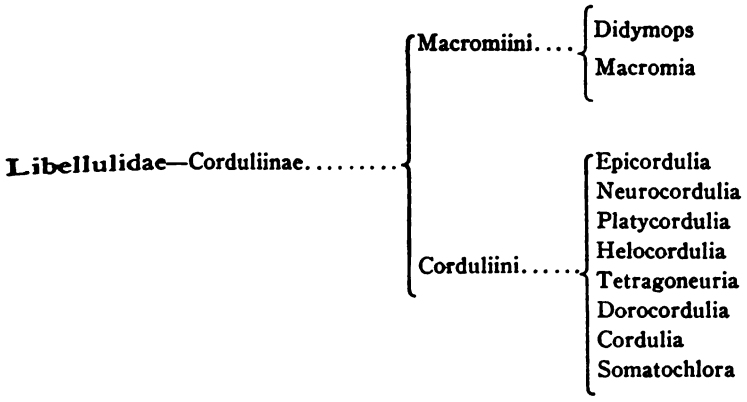
CLASSIFICATION OF THE ORDER ODONATA.

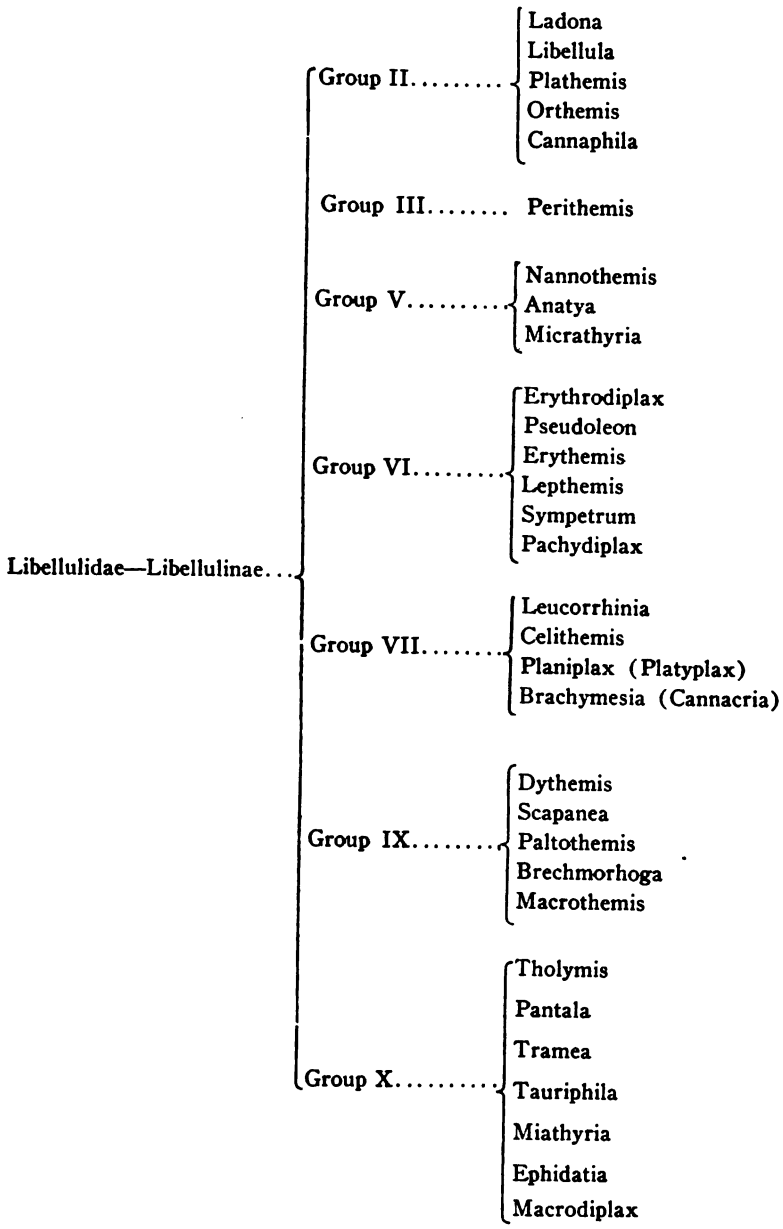


SEQUENCE OF GENERA.

- Agrionidae
  - Agrioninæ
    - Agrion (Calopteryx)
    - Hetaerina
- Coenagrionidae
  - Lestinae
    - Ortholestes
    - Archilestes
    - Lestes
  - Pseudostigmatinae
    - Pseudostigma
    - Mecistogaster
  - Coenagrioninae
    - Paraphlebia
    - Hyponeura
    - Argia
    - Argiallagma
    - Hesperagrion
    - Oxyagrion
    - Anisagrion
    - Enallagma
    - Telebasis
    - Telagrion
    - Leptobasis
    - Nehalennia
    - Coenagrion (Agrion)
    - Amphiagrion
    - Chromagrion
    - Ischnura
    - Anomalagrion
    - Ceratura
    - Neoneura
    - Microneura
    - Protoneura

- Aeshnidae
  - Petalurinae—Tachopteryx
  - Cordulegasterinae—Cordulegaster
  - Gomphinae
    - Gomphoides (Progomphus)
    - Aphylla
    - Cyclophylla
    - Negomphoides (Gomphoides)
    - Hagenius
    - Ophiogomphus
    - Erpetogomphus
    - Cyanogomphus
    - Lanthus
    - Gomphus
    - Dromogomphus
    - Octogomphus
  - Aeshninae
    - Boyeria
    - Basiaeschna
    - Gomphaeschna
    - Oplonaeschna
    - Anax
    - Gynacantha
    - Aeshna
    - Coryphaeschna
    - Nasiaeschna
    - Epiaeschna





PART 1. RECENT.

ORDER **ODONATA** FABRICIUS.

Ent. Syst., Suppl., pp. 280, ff., 1793; name applied as family.
LEACH, Edin. Encycl., 9, pp. 136-140, 1815; article *Libellula.*
BURMEISTER, Handb. Ent., 2, pp. 805-862, 1839.
RAMBUR, Ins. Neur., pp. 1-291, 1842; pls. 1-7.
HAGEN, Syn. Neur. N. Am., pp. 55-187, 1861.
BRAUER, Verh. Ges. Wien, 18, pp. 29-57, 1868; tables of genera.
CALVERT, Trans. Am. Ent. Soc., 20, pp. 152-272, 1893; 3 pls.—Proc. Cal. Acad., (2) 4, pp. 463-558, 1895; pls. 15-17.—L. c., (3) 1, pp. 361-410, 1899; pl. 25.—Trans. Am. Ent. Soc., 25, pp. 26-104, 1898; on Burmeister's types.—Biol. C. Am., pp. 26-416, 1901-1908; 10 pls.; 1 map.
KOLBE, Arch. f. Naturg., 1, pp. 154-178, 1888; distr. of Neur. in Antilles, tables with results, 1 map.
KIRBY, Syn. Cat., pp. 9 and 202, 1890.
CARPENTER, Proc. Dublin Soc., 8, pp. 439-468, 1897; zoogeograph. distr.
KELLICOTT, Odon. Ohio, p. 114, 1899; 3 pls.
WILLIAMSON, Drag. Ind., (Ind. Rep. Geol. for 1899), pp. 229-333, 1900; 7 pls.
NEEDHAM, Proc. U. S. Nat. Mus., 26, pp. 703-764, 1903; genealogic study of wing venation; 24 pls., many text figures.
HANDLIRSCH, Foss. Ins., pp. 35-37, 1906; pp. 1229-1231, 1908; classification.
WALKER, Ottawa Nat., 22, pp. 1-9, 49-64, 1908; 2 pls.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, pp. 57-127, 1908; 2 pls., 1 map.

Syn. Libellulidae AUCTORUM.
Paraneuroptera SHIPLEY, Zool. Anz., 27, pp. 259-262, 1903.

SUBORDER **ZYGOPTERA** SELYS.

Syn. Cal., p. 6, 1853; cited as tribus.
NEEDHAM, Bull. 68 N. Y. State Mus., pp. 218-279, 1903; life-histories, illustrated by many plates (some colored) and text figures.

Agrioninae

FAMILY **AGRIONIDAE** LEACH.

Edin. Encycl., 9, p. 137, 1815; for all *Zygoptera.*

SELYS, Syn. Cal., p. 6, 1853; emended, (*Calopteryginae*).

NEEDHAM, Bull. 68 N. Y. State Mus., p. 118, 1903; given family rank.—Proc. U. S. Nat. Mus., 26, pp. 742-743, 1903; divided into four subfamilies.

SUBFAMILY **AGRIONINAE** KIRBY.

Type genus—*Agrion* FABRICIUS. Distribution—Cosmopolitan.

Syn. Cat., p. 96, 1890.

NEEDHAM, Proc. U. S. Nat. Mus., 26, pp. 744-746, 1903; (*Vestalinae*).

SELYS, Mon. Cal., p. 16, 1854; (Legion *Calopteryx*).

SELYS & HAGEN, Mon. Cal., pp. 9 + 291, 1854; 14 pls.

SELYS, Syn. Cal., Bull. Acad. Belg., pp. 3-52, 1853.—Addition 1: l. c., (2) 7, pp. 437-451, 1859.—Add. 2: l. c., (2) 27, pp. 645-680, 1869.—Add. 3: l. c., (2) 35, pp. 469-518; (2) 36, pp. 610-619, 1873. —Add. 4: (2) 47, pp. 349-409, 1879.

AGRION FABRICIUS.

Type—*virgo* (LINNE). Distribution—Cosmopolitan.

Syst. Ent., p. 425, 1775; ("Labium quadrifidum").

LATREILLE, Hist. Nat. Crust. Ins., 3, p. 287, 1803; (Genre *Agrion.* Antennes à troisième article alongé, que la tête, sous articles distincts. Lèvre inferieure a trois pièces assez grandes, les laterales ayant une pièce palpiforme et un angle saillant; celle du milieu fortenant ecranchée.

Tête et corselet ne faisant que le tiers de la longuer totale du corps; tête courte, large. Yeux gras, écartes. Véssie frontale petite. Petits yeux lisses, tres-apparens, sans élévation vesiculaire du milieu d'eux. Ailes élévées. Abdomen trés-long, même, cylindrico-lineaire. Exemple *Agrion virgo* L.")

KIRBY, Syn. Cat., p. 96, 1890.

Syn. Calepteryx LEACH, Edin Encycl., 9, p. 137, 1815; ("Wings coriaceo-membraneous, without a real stigma, in place of which is sometimes an irregular opaque spot. Abdomen of the male furnished with a forceps-like appendage. Obs. This genus comprehends those *Agrionida* with colored wings.")—[Kirby 1890.]

STEPHENS, Ill. Brit. Ent., p. 78, 1836.

SELYS, Mon. Lib. Eur., p. 126, 1840.

Callepteryx HAGEN, Syn. Lib. Eur., p. 61, 1840. [Rambur 1842.]

Calopteryx BURMEISTER, Handb. Ent., 2, p. 825, 1839.

CHARPENTIER, Lib. Eur., p. 16, 1840.

SELYS, Rev. Odon., p. 133, 1850.—Syn. Cal., p. 9, 1853.—Mon. Cal., p. 22, 1854.—Ann. Soc. Ent. Belg., 42, p. 337, 1898; applicability, *Calopteryx* versus *Agrion;* prefers former.

HAGEN, Psyche, 5, pp. 241-250, 1890; monograph of N. Am. spp., synonymy.

NEEDHAM, Proc. U. S. Nat. Mus., 26, pp. 715, 745, 1903; venation.

Calopteryx AUCTORUM.

Sylphis SELYS, Syn. Cal., p. 8, 1853.—Mon. Cal., p. 19, 1854.—[Hagen 1890.]

Euphaea SELYS, Mon. Lib. Eur., p. 200, 1840.—[Kirby 1890.]

aequabile (SAY), Jn. Acad. Phila., 8, p. 33, 1839; ♂ ♀, (*Calopteryx*), types Mus. Bost. Soc.

HAGEN, Proc. Boston Soc., 15, p. 274, 1873; on disposition of types. L. c., 18, p. 21, 1875; distribution and synonymy.—Psyche, 5, p. 246, 1890; full desc.

KELLICOTT, Odon. Ohio, p. 9, 1899; good desc.

WILLIAMSON, Drag. Ind., p. 252, 1900; good desc.

HOWARD, Ins. Book, 1902; pl. 46, f. 14; ♂ ad. col.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 222, 1903; distinguished, ethol. notes.

WALKER, Ottawa Nat., 22, p. 3, 1908; desc. notes.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 66, 1908; desc.

Syn. virginiana SELYS, Syn. Cal., p. 11, 1853; ♂ only, holotype Coll. Selys.—Mon. Cal., p. 29, 1854.—[Hagen 1875.]

Nymph. NEEDHAM, l. c., p. 223, 1903; dist. & notes.

Distr. Alleghanian & Carolinian, Ontario & Iowa to Me. & N. Y.

Subsp. **hudsonicum** (HAGEN), Proc. Boston Soc., 18, p. 22, 1875; (*Calopteryx*), synonymy.—Psyche, 5, p. 247, 1890; ♂, type M. C. Z.; with a doubt (=*aequabilis*).

Syn. virginica SELYS, Syn. Cal., p. 11, 1853; ♀ only, (*Calopteryx*).—Mon. Cal., p. 29, 1854.—[Hagen 1875.]

Distr. Canadian, Lake Superior to Hudson Bay.

Subsp. **yakima** (HAGEN), Psyche, 5, p. 248, 1890; ♂ ♀, (*Calopteryx*), types M. C. Z.

Distr. Washington, Yakima River.

Agrioninae

amatum (HAGEN), Psyche, 5, p. 244, 1890; ♂ ♀, (*Calopteryx*), types M. C. Z.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 222, 1903; dist.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 66, 1908; dist.
Distr. Alleghanian, Atlantic States, N. H. to N. C.

angustipenne (SELYS), Syn. Cal., p. 9, 1853; ♂, (*Sylphis*), holotype British Museum.—Mon. Cal., p. 20, 1854; desc. amplified.
WALKER, List. Neur. B. M., 4, p. 590, 1854; (*Calopteryx*).
HAGEN, Syn. Neur. N. Am., p. 56, 1861; ♂ ♀, M. C. Z.—Proc. Boston Soc, 18, p. 21, 1875; correction to Selys desc.—Bull. Acad. Belg., (2) 47, p. 552, 1879.—Psyche, 5, p. 242, 1890; full desc.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 222, 1903; distinguished.
HOWARD, Ins. Book, 1902; pl. 46, f. 10; ♂ ad. col.
WILLIAMSON, Ent. News, 10, p. 199, 1899; 11, p. 464, 1900; desc. notes.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 66, 1908; distinguished.
Syn. elegans HAGEN, Syn. Cal., p. 9, 1853; ♀, (*Sylphis*), holotype M. C. Z. Mon. Cal., p. 21, 1854; desc. amplified; pl. 2, f. 1, wing of ♀.—[Hagen 1890.]
SELYS, Bull. Acad. Belg., (2) 47, p. 552, 1879.
WALKER, List Neur. B. M., 4, p. 590, 1854.
Distr. Carolinian, Ga. to Penn.

apicale (BURMEISTER), subsp. sub *dimidiatum*.

dimidiatum (BURMEISTER), Handb. Ent., 2, p. 829, 1839; ♀, (*Calopteryx*), holotype M. C. Z.
WALKER, List Neur. B. M., 4, p. 593, 1853.
SELYS, Syn. Cal., p. 10, 1853; ♂ ♀, Coll. Selys.—Mon. Cal., p. 24, 1854; amplified.
HAGEN, Syn. Neur. N. Am., p. 57, 1861; desc.—Psyche, 5, p. 245, 1890; good desc.
CALVERT, Trans. Am. Ent. Soc., 25, p. 50, 1898; on Burm. type.—Biol. C. Am., p. 41, 1901; synonymy, occurrence in Honduras.
WILLIAMSON, Drag. Ind., p. 252, 1900; desc.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 67, 1908; desc.
Syn. cognata RAMBUR, Ins. Neur., p. 222, 1842; ♀, type Coll. Selys.—[Selys 1854.]
syriaca RAMBUR, l. c., p. 224, 1842; ♂, type Coll. Selys.—[Selys 1854.]
Distr. Austroriparian, Ky. to Fla.; Honduras.

Subsp. **apicale** BURMEISTER, Handb. Ent., 2, p. 827, 1839; ♂ ♀, (*Calopteryx*), types M. C. Z.

SELYS, Syn. Cal., p. 23, 1853; short desc.—Mon. Cal., p. 23, 1854; desc. amplified.

WALKER, List. Neur. B. M., 4, p. 591, 1853.

HAGEN, Syn. Neur. N. Am., p. 56, 1861; desc.—Proc. Boston Soc., 18, p. 21, 1875.—Psyche, 5, p. 246, 1890; extended desc.

CALVERT, Trans. Am. Ent. Soc., 20, p. 228, 1893; desc. (race of *dimidiata*).—L. c., 25, p. 48, 1898; on Burmeister's types.

WILLIAMSON, Drag. Ind., p. 253, 1900; desc.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 222, 1903; distinguished; ethol. notes.

Distr. Carolinian, Mass. & Del. to Mich.

elegans (HAGEN), syn. ad *angustipenne*.

hudsonicum (HAGEN), subsp. sub *aequabile*.

maculatum BEAUVAIS, Ins. Afr. Amer., p. 85, 1805; pl. 7, f. 3, ♂ adult (*Agrion*), type British Museum.

BURMEISTER, Handb. Ent., 2, p. 829, 1839; (*Calopteryx*) ♂.

RAMBUR, Ins. Neur., p. 221, 1842; ♂.

WALKER, List Neur. B. M., 4, p. 592, 1853.

SELYS, Syn. Cal., p. 10, 1853.—Mon. Cal., p. 56, 1854; desc. amplified.

HAGEN, Syn. Neur. N. Am., p. 56, 1861.—Proc. Bost. Soc., 15, p. 273, 1873.—Psyche, 5, p. 249, 1890; detailed descr. and full synonymy.

CALVERT, Trans. Am. Ent. Soc., 20, p. 227, 1893.

KELLICOTT, Odon. Ohio, p. 8, 1899.

WILLIAMSON, Drag. Ind., p. 251, 1900.

HOWARD, Ins. Book, 1902; pl. 46, ff. 12, 15; ♂ ♀ ads. col.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 222, 1903; distinguished; pl. 11, adults.—Proc. U. S. Nat. Mus., 26, p. 709, 1903; t. f. 4*x*, pterostigma.

HANDLIRSCH, Foss. Ins., 1906; pl. 4, f. 10, wing, after Needham.

MUTTKOWSKI, Bull. Wis. Soc. N. H., 6, p. 66, 1908.

Syn. virgo (gamma) (DRURY), Ill. Exot. Ent., 1, pl. 48, f. 2, 1773; ♀, (*Libellula*). [Hagen 1890.]

virginica (WESTWOOD), Edit. Drury, 1, p. 118, 1837; ♀, (*Agrion*). [Hagen 1890.]

SELYS, Syn Cal., p. 11, 1853.—Mon. Cal., p. 29, 1854; ♀, (*Calopteryx*).

Agrioninae

WALKER, List Neur. B. M., 4, p. 599, 1853.

dimidiata RAMBUR, Ins. Neur., p. 222, 1842; ♀, desc. after Burm. [Hagen 1890.]

materna (♀) et *opaca* (♂) SAY, Jn. Acad. Phila., 8, p. 32, 1839; types in Mus. Boston Soc. [Hagen 1890.]

holosericea BURMEISTER, Handb. Ent., 2, p. 828, 1839; ♂ ♀, types M. C. Z. [Selys 1854.]

CALVERT, Trans. Am. Ent. Soc., 25, p. 49, 1898; disposition of types.

papilionaria RAMBUR, Ins. Neur., p. 222, 1842; ♂ ♀, types Coll. Selys? [Selys 1854.]

Nymph NEEDHAM, Bull. 68 N. Y. State Mus., p. 224, 1903; full desc., p. 221, t. f. 3, adult.

Distr. Canadian to Austroriparian, Ont. & Me. to Fla. & Tex.; Calif.

yakima (HAGEN), subsp. sub *aequabile*.

HETAERINA HAGEN.

Type—*caja* (Drury). Distribution—Nearctic & Neotropical.

Syn. Cal., p. 30, 1853.—Mon. Cal., p. 96, 1854.

WALKER, List Neur. B. M., 4, p. 616, 1853.

BRAUER, Verh. Ges. Wien., 18, p. 378, 1868.

CALVERT, Trans. Am. Ent. Soc., 20, p. 220, 1893.—Proc. Cal. Acad., (2) 4, p. 469, 1895.—Biol. C. Am., p. 19, 1901; synopsis of C. Am. species.

KELLICOTT, Odon. Ohio, p. 7, 1899.

WILLIAMSON, Drag. Ind., p. 247, 1900.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 221, 1903.—Proc. U. S. Nat. Mus., 26, pp. 717, 745, 754, 1903; venation; pl. 61, f. 4, wing of *Het. sp.*

americana (FABRICIUS), Ent. Syst., Suppl., p. 287, 1798; ♂ (*Agrion*), type?

BURMEISTER, Handb. Ent., 2, p. 826, 1839; ♂, (*Calopteryx*).

SELYS, Syn. Cal., p. 41, 1853; (*Hetaerina*).—Mon. Cal., p. 131, 1854; detailed description; ♂ app. on pl. 12, f. 3.—Bull. Acad. Belg., (2) 27, p. 657, 1869.—L. c., p. 483, 1873; additions.

WALKER, List Neur. B. M., 4, p. 627, 1853.

HAGEN, Syn. Neur. N. Am., p. 60, 1861; desc.

WALSH, Proc. Ent. Soc. Phila., 2, p. 223, 1863; noted.

CALVERT, Trans. Am. Ent. Soc., 20, p. 228, 1893.—Proc. Cal. Acad., (3) 1, p. 372, 1899.—Biol. C. Am., pp. 20, 26, 1901; pl. 2, f. 1-17,

showing variation of ♂ sup. app.; p. 344, 1907, tabulation of venational variation.

KELLICOTT, Odon. Ohio, p. 4, 1899; desc. & ecol. notes.

WILLIAMSON, Drag. Ind., p. 254, 1900; desc.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 226, 1903; distinguished, bibliography; pl. 12; ♂ ♀ adults.

HOWARD, Insect Book, 1901; pl. 46, ff. 9, 11; ♂ ♀ adults col.

MUTTKOWSKI, Bull. Wis. N. H. Soc., 6, p. 67, 1908; pl. 5, ♀ wgs.

Syn. basalis (SAY), Jn. Acad. Phila., 8, p. 35, 1839; ♂ ♀, (*Lestes*), types Mus. Boston Soc.

SELYS, Bull. Acad. Belg., (2) 17, p. 441, 1859; (*Hetaerina*).

basalis HAGEN, Syn. Neur. N. Am., p. 60, 1861.

SELYS, Bull. Acad. Belg., (2) 27, p. 657, 1869.

FLINT, in Harris: Ins. Inj. Veget., ed. 3, 1862; pl. 1. ♂ ad. col. (*Agrion*).

texana, et *sceleratа* WALSH, Proc. Ent. Soc. Phila., 2, pp. 227, 267, 1863; ♂ ♂ ♀ ♀, types destroyed. [Selys 1869.]

?pseudamericana WALSH, l. c. p. 223, 1862, ♂ ♀. (Calvert, Biol. 1901, with a doubt.)

californica HAGEN, Bull. Acad. Belg., (2) 7, p. 440, 1859; ♂, type M. C. Z.—L. c. (2) 35, p. 480, 1873.—Syn. Neur. N. Am., p. 59, 1861. [Calvert, 1901.]

CALVERT, Proc. Cal. Acad., (2) 4, p. 673, 1895; desc. notes, doubt of validity.

Distr. Canadian to Lower Austral (Calvert zone 2-4), Canada to Guatemala.

asticta SELYS, syn. ad *macropus.*

bipartita SELYS, syn. ad *titia.*

californica HAGEN, syn. ad *americana.*

cruentata (RAMBUR), syn. ad *luteola.*

heterosticta Selys, syn. ad *macropus.*

infecta CALVERT, Biol. C. Am., p. 38, 1901; ♂ ♀, types in Coll. H. H. Smith & Schumann; pl. 2, ff. 18, 24, ♂ app.—L. c., p. 348, 1907; corrections.

Distr. Tropic (Calvert zone 3-4), Mex., Atl. Coast to C. Rica.

limbata SELYS, subsp. sub *tricolor.*

Agrioninae

luteola (RAMBUR), Ins. Neur., p. 223, 1842; ♀ (*Calopteryx*), type Coll. Selys.

KIRBY, Syn. Cat., p. 105, 1890; (*Hetaerina*).

Syn. cruentata (RAMBUR), L. c. p. 228, 1842; ♂, (*Calopteryx*), type Selys Coll.

SELYS, Syn. Cal., p. 39, 1853; ♂ ♀.—Mon. Cal. p. 127, 1854; desc. amplified, places cruentata as governing species, *luteola* as synonymn; pl. 4, f. 3, wing; pl. 12, f. 1, ♂ app.—In Sagra: Hist. Cuba, Ins., p. 461, 1857.

WALKER, List Neur. B. M., 4, p. 625, 1853.

HAGEN, Syn. Neur. N. Am., p. 59; 1861; desc.

CALVERT, Biol. C. Am., p. 23, 1901; ♂ ♀ and full syn.; p. 343, 1907, notes.

Distr. Lower Sonoran (Calvert zone 3-4), Mex., C. Am., to Venezuela, Brazil.

macropus SELYS, Syn. Cal. p. 44, 1853.—Mon. Cal., p. 141, 1854; ♂ ♀, detailed desc.—Bull. Acad. Belg., (2) 35, p. 481, 1873. Types Coll. Selys.

WALKER, List Neur. B. M., 4, p. 631, 1853.

HAGEN, Syn. Neur. N. Am., p. 62, 1861; desc.

CALVERT, Biol. C. Am., p. 20-34, 1901; full desc.; p. 346, 1907, notes, synonymy

Syn. asticta SELYS, Bull. Acad. Belg., (2) 35, p. 481, 1873; as variety of *macropus.*

heterosticta SELYS, Bull. Acad. Belg., (2) 35, p. 481, 1873; as variety of *macropus.* [Calvert 1901.]

occisa SELYS, Syn. Cal., p. 44, 1853.—Mon. Cal., p. 143, 1854; ♂ ♀, types in Coll. Selys: pl. 12, f. 6, ♂ app.—Bull. Acad. Belg., (2) 35, p. 481, 1873.—L. c., (2) 36, p. 613, 1873.

WALKER, List Neur., B. M., 4, p. 631, 1873. [Calvert, Biol. 1901.]

sublimbata SELYS, l. c., (2) 36, p. 613, 1873; as variety of *occisa.* [Calvert 1901.]

Distr. Tropic (Calvert zone 2-4), Mex. to Panama, Col., Venez.

occisa SELYS, syn. ad *macropus.*

sempronia HAGEN, Syn. Cal., p. 45, 1853.—Mon. Cal., p. 144, 1854; ♂, holotype in Mus. Berlin; pl. 12, f. 7, app.—Syn. Neur. N. Am., p. 62, 1861.

WALKER, List Neur. B. M., 4, p. 632, 1853.

SELYS, Bull. Acad. Belg., (2) 35, p. 482, 1873.

CALVERT, Biol. C. Am., p. 29, 1901; exact desc.

Distr. Tropical (Calvert zone 2), Atl. Coast, Tex., Mex., Panama, Columbia.

septentrionalis SELYS, Syn. Cal., p. 36, 1853.—Mon. Cal., p. 119, 1854; ♂, holotype in British Museum; pl. 11, f. 6, ♂ app.
WALKER, List Neur B. M., 4, p. 622, 1853.
HAGEN, Syn. Neur. N. Am., p. 59, 1861; digest of Selys' Mon. desc.
Distr. Austroriparian ?, Georgia.

sublimbata SELYS, syn. ad *macropus*.

titia (DRURY), Ill. Exot. Ent., 2, 1773; ♂, (*Libellula*).
WESTWOOD, Edit. Drury, 2, p. 94, 1837; pl. 45, f. 5.
BURMEISTER, Handb. Ent., 2, p. 826, 1839; ♀ (*Calopteryx*).
RAMBUR, Ins. Neur., p. 227, 1842.
SELYS, Syn. Cal., p. 43, 1853.—Mon. Cal., p. 158, 1854; ♂ ♀, (*Hetaerina*); ♀ types Coll. Selys, ♂ plesiotypes in Coll. Selys and British Museum.—Bull. Acad. Belg., (2) 36, p. 613, 1873.
WALKER, List Neur. B. M., 4, p. 630, 1853.
HAGEN, Syn. Neur. N. Am., p. 61, 1861; desc.
CALVERT, Biol. C. Am., p. 31, 1901; detailed desc.; pl. 3, f. 2-15, variation in colored area of wings; p. 345, 1907; notes.—Ent. News, 13, p. 192, 1902; on variation in venation.
Syn. bipartita SELYS, Bull. Acad. Belg., (2) 35, p. 481, 1873; ♂, as (race (?) of *titia*); holotype in Coll. MacLachlan. [Calvert 1901.]
Distr. Gulf Strip & Tropic, Tex. & Fla. to C. Am., Jamaica. (Calvert zone 2-3).

tolteca CALVERT, Biol. C. Am., p. 40, 1901; ♂, holotype Coll. Trujillo; pl. 2, ff. 19, 25, ♂ app.; p. 348, 1907, additional notes.
Distr. Lower Austral. (Calvert zone 4), Jalapa, Mex.

tricolor (BURMEISTER), Handb. Ent., 2, p. 827, 1839; ♂, holotype in M. Z. C. (*Calopt.*)—
SELYS, Syn. Cal., p. 42, 1853, (*Hetaerina*).—Mon. Cal., p. 136, 1854; ♂ ♀; desc. from holotype ♂ and plesiotype in Mus. Vienna; ♀ cotype Mus. Vienna; pl. 12, f. 5, ♂ app.
WALKER, List Neur. B. M., 4, p. 629, 1853.
HAGEN, Syn. Neur. N. Am., p. 61, 1861; desc.
CALVERT, Trans. Am. Ent. Soc., 20, p. 229, 1893; desc.—L. c., 25, p. 48, 1898; on Burm. type, ("tampered with, abd. of *H. carnifex* substituted").—Biol. C. Am., p. 29, 1901; detailed desc.; pl. 3, f. 1,

wings; f. 20, thor. col. pattern; p. 345, 1907, notes and additions to distr.

KELLICOTT, Odon. Ohio, p. 13, 1899; desc.

WILLIAMSON, Drag. Ind., p. 255, 1900; desc.

HOWARD, Insect Book, 1901; pl. 46, f. 19, ♂ adult col.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 228, 1903; ethol. notes; t. f. 5*b*, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 67, 1908; distinguished.

Syn. *?rupinsulensis* Walsh, Proc. Acad. Phila., p. 383, 1862; ♂, holotype destroyed.

?rupamnensis Walsh, Proc. Ent. Soc. Phila., 2, p. 230, 1863; ♂ ♀, types destroyed.—[Selys 1869 to *limbata;* Calvert, Biol. 1901 places both under *tricolor,* with a doubt.]

Distr. Austral & Tropic, (Calvert zone 2-4), Ill. & Pa. to Ga. & Tex., Mex. to C. Rica.

Subsp. **limbata** SELYS, Syn. Cal., p. 43, 1853.—Mon. Cal., p. 137, 1854; ♂, holotype Coll. Selys, paratypes in British Museum.—Bull. Acad. Belg., (2) 27, p. 657, 1869; ♀ type Coll. Selys; synonymy. [Vide *tricolor,* supra.]

HAGEN, Syn. Neur. N. Am., 9, 61, 1861; note under *tricolor.*

CALVERT, Biol. C. Am., p. 30, note, 1901; synonymy, remarks.

Distr. Austroriparian, Tex. & Ga.

vulnerata HAGEN, Syn. Cal., p. 40, 1853.—Mon. Cal., p. 130, 1854; ♂ ♀, types M. C. Z.; pl. 12, f. 2, ♂ app.—Syn. Neur. N. Am., p. 60, 1861.

WALKER, List Neur. B. M., 4, p. 626, 1853.

CALVERT, Biol. C. Am., p. 24, 1901; detailed desc.; pl. 2, f. 30, ♂ app.; pl. 3, f. 18, thoracic color pattern.

Distr. Lower Sonoran, Ariz., Mex., Guatem., Col., Brazil. (Calvert zone 3-4.)

FAMILY **COENAGRIONIDAE** KIRBY.

Syn. Cat., p. 119, 1890; a new name.

LEACH, Edinb. Encycl., 9, p. 137, 1815; (Family *Agrionida*).

RAMBUR, Ins. Neur., p. 216, 1842; family defined (*Agrionidae*).

SELYS, Bull. Acad. Belg., (2) 10, p. 5, 1860; limited.

SUBFAMILY **LESTINAE** NEEDHAM.

Type genus—*Lestes*. Distribution—Cosmopolitan.

Bull. 68 N. Y. State Mus., p. 216, 1903; subfamily first defined.—Proc. U. S. Nat. Mus., 26, pp. 713, 748, 1903; additional characters.

CALVERT, Biol. C. Am., p. 40, 1901.

WILLIAMSON, Proc. U. S. Nat. Mus., 28, p. 167, 1904; place the subf. with the *Calopterygidae*.

SELYS, Bull. Acad. Belg., (2) 13, pp. 288-338, 1862; (Legion *Lestes*).

KIRBY, Syn. Cat., pp. 159-164, 1890; genera of Selys' legion sub *Normostigmatina*. (See Selys, Mem. Cour., 38, p. 3, 1886, for subdivision.)

ORTHOLESTES CALVERT.

Type—*clara* CALVERT. Distribution—Neotropical.

Ent. News, 2, p. 199, 1891; char.—Proc. Acad. Phila., p. 377, 1893; add.

MACLACHLAN, Ann. Mag. N. H., (6) 16, p. 20, 1895; notes on genus and spp.

abbotti CALVERT, Proc. Acad. Phila., p. 382, 1893; ♂, type Coll. Am. Ent. Soc.; t. f. 3, ♂ app.

Distr. Tropical; Hayti, Cuba.

clara CALVERT, Ent. News, 2, p. 199, 1891; ♂ ♀, types Coll. Calvert.—Proc. Acad. Phila., p. 380, 1893; desc.; t. f. 1, wing; f. 2, ♂ app.

Distr. Tropic; Jamaica, Hayti.

ARCHILESTES SELYS.

Type—*grandis* (RAMBUR). Distribution—Nearctic & Neotropic.

Bull. Acad. Belg., (2) 13, p. 294, 1862; characterized as subgenus.

BRAUER, Verh. Ges. Wien, 18, p. 379, 1868.

CALVERT, Proc. Cal. Acad., (2) 4, p. 469, 1895.—Biol. C. Am., p. 45, 1901.

NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 727, 1903; venation.

californica MACLACHLAN, Ann. Mag. N. Hist., (6) 16, p. 20, 1895; ♂, holotype Coll. MacLach.

Lestinae

CALVERT, Proc. Cal. Acad., (3) 1, p. 374, 1899; desc. after MacL., (race of *grandis*).—Biol. C. Am., p. 46, 1901; notes.

Distr. A single ♂ from California. Lower Sonoran?

grandis (RAMBUR), Ins. Neur., p. 244, 1842; ♂ ♀, types Coll. Selys; (*Lestes*).

HAGEN, Syn. Neur. N. Am., p. 66, 1861; desc.

SELYS, Bull. Acad. Belg., (2) 13, p. 294, 1862; desc. (*Archilestes*).

CALVERT, Proc. Cal. Acad., (2) 4, p. 469, 1895; distr.; pl. 15, ff. 10, 11, ♂ ♀ char.—L. c., (3) 1, p. 374, 1899; notes.—Biol. C. Am., p. 46, 1901; complete desc.; p. 350, 1907; notes.

NEEDHAM, Proc. U. S. Nat. Mus., 26, 1903; pl. 51, f. 6, wing.

Nymph. NEEDHAM, l. c., 27, p. 712, 1904; desc.; pl. 42, f. 3, adult.

Distr. Lower Sonoran, Wash. to Baja Cal., Tex., Mex. to Venez. (Calvert z. 2-4.)

LESTES LEACH.

Type—*sponsa* (Hansemann) = (*nympha* Leach), nom. nud.—Distribution—Cosmopolitan.

Edin. Encycl., 9, p. 136, 1815.

STEPHENS, Ill. Brit. Ent., 6, p. 76, 1836.

RAMBUR, Ins. Neur., p. 243, 1842.

SELYS, Mon. Lib. Eur., p. 135, 1840.—Rev. Odon., p. 146, 1850.—Bull. Acad. Belg., (2) 13, p. 295, 1862; monograph of the species.

BRAUER, Verh. Ges. Wien., 18, p. 379, 1868.

CALVERT, Trans. Am. Ent. Soc., 20, p. 220, 1893.—Biol. C. Am., pp. 45-47, 1901.—Ann. Carnegie Mus., 6, p. 92, 1909; tables of Neotropical spp.

WALLENGREN, Ent. Tidsk., 15, p. 260, 1894.

KELLICOTT, Odon. Ohio, p. 14, 1899.

WILLIAMSON, Drag. Ind., p. 247, 1900.

SJOSTEDT, Ent. Tidsk., 23, p. 19, 1902.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 229, 1903.—Proc. U. S. Nat. Mus., 26, pp. 710, 717, 1903.

FROHLICH, Ver. Aschaff., p. 32, 1903.

FOERSTER, JB. Ver. Wiesbaden, 59, p. 341, 1906.

MUTTKOWSKI, Bull. Wis. Soc. N. H., (2) 6, p. 68, 1908.

Syn. Puella BRULLE, Expl. Moree, 2 (1) p. 104, 1832.

Anapates CHARPENTIER, Lib. Eur., p. 18, 1840.

alacer HAGEN, Syn. Neur. N. Am., p. 67, 1861; ♂ ♀, types in M. C. Z.

SELYS, Bull. Acad. Belg., (2) 13, p. 304, 1862; full desc.

CALVERT, Biol. C. Am., p. 48, 1901; ♂ ♀; pl. 3, f. 26, ♂ app.; p. 350, 1907, notes.

Distr. Lower Sonoran (Calvert zone 3-5), Tex., N. M., Ariz., Mex., Guatemala.

congener HAGEN, Syn. Neur. N. Am., p. 67, 1861; ♂, types M. C. Z.
SELYS, Bull. Acad. Belg., (2) 13, p. 316, 1862; ♂ ♀, ♀ type M.C.Z.
CALVERT, Trans. Am. Ent. Soc., 20, p. 229, 1893; good desc.
KELLICOTT, Odon. Ohio, p. 15, 1899; good desc.; f. 15, ♂ app.
WILLIAMSON, Drag. Ind., p. 256, 1900; clear desc.
HOWARD, Ins. Book, 1902; pl. 48, f. 6; ♂ adult.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 232, 1903; distinguished.

Distr. Canadian and Transition into Upp. Austral, B. C. & Colo. to Ont., Del., N. Y.

disjunctus SELYS, Bull. Acad. Belg., (2) 13, p. 302, 1862; ♂ ♀, types British Museum, Coll. Selys, and M. C. Z.
CALVERT, Trans. Am. Ent. Soc., 20, p. 231, 1893; full desc.; pl. 3, f. 19, ♂ app.
KELLICOTT, Odon. Ohio, p. 18, 1899; desc.
WILLIAMSON, Drag. Ind., p. 258, 1900; desc.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 234, 1903; dist.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 70, 1908; desc.

Syn. Lestes sp. CURRIE, Proc. Wash. Acad., 3, p. 217, 1901; ♀, U. S. N. Mus.

Distr. Alleghanian, Carolinian, N. Scot. & N. C. to Mo. & Wis.

eurinus SAY, Jn. Acad. Phila., 8, p. 36, 1839; ♂ holotype in Mus. Boston Soc.
HAGEN, Syn. Neur. N. Am., p. 70, 1861; from Say's desc.
SELYS, Bull. Acad. Belg., (2) 13, p. 316, 1862; from Say's desc.
WALSH, Proc. Acad. Phila., p. 385, 1862; ♂, detailed desc.
SCUDDER, Psyche, 6, p. 66, 1891.
CALVERT, Trans. Am. Ent. Soc., 20, p. 229, 1893; short desc.; pl. 3, f. 14, ♂ app.
WILLIAMSON, Drag. Ind., p. 256, 1900; good desc.
HOWARD, Ins. Book, 1902; pl. 47, f. 11; ♂ adult.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 232, 1903; dist.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 68, 1908; desc.

Nymph. NEEDHAM, l. c., p. 233, 1903; characters.

Distr. Carolinian into Alleghanian, Mass. & Pa. to Ill. & Wis.

forcipatus RAMBUR, Ins. Neur., p. 246, 1842; ♂ ♀, types Coll. Selys.
SELYS, Bull. Acad. Belg., (2) 13, p. 303, 1862; from Rambur's types.

Lestinae

CALVERT, Trans. Am. Ent. Soc., 20, p. 231, 1893; short desc.; pl. 3, f. 20, ♂ app.

KELLICOTT, Odon. Ohio, p. 19, 1899; good desc.; f. 19, ♂ app.

WILLIAMSON, Drag. Ind., p. 258, 1900, good desc., pl. 7, f. 3, ♂ app.

HOWARD, Ins. Book, 1902; pl. 46, ff. 1, 5; ♂ ♀ ads. col.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 235, 1903; dist., ethol. notes.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 70, 1908; desc.

WALKER, Ottawa Nat., 22, p. 4, 1908; desc. notes.

Syn. hamatus HAGEN, Syn. Neur. N. Am., p. 70, 1861; ♂. [Selys 1862.]

Nymph. Needham, l. c., p. 233, 1903; desc.

Distr. Carolinian & Transitional, N. Dak., B. C. to Me. & Ga.

forficula RAMBUR, Ins. Neur., p. 246, 1842; ♂, holotype Coll. Selys?

HAGEN, Syn. Neur. N. Am., p. 68, 1861; ♂ desc.

SELYS, Bull. Acad. Belg., (2) 13, p. 308, 1862; ♂ ♀; ♀ types in Coll. Hagen, Selys, Museum Vienna.

CALVERT, Biol. C. Am., p. 48, 1901; detailed desc.; pl. 3, f. 25, ♂ app.; p. 352, 1907, additional notes.

Distr. Tropic (Calvert z. 2-3) Tex., Cuba, Mex., Guiana, Brazil.

inaequalis WALSH, Proc. Acad. Phila., p. 385, 1862; ♂ ♀; types destroyed.

CALVERT, Trans. Am. Ent. Soc., 20, p. 232, 1893; short desc.; pl. 3, f. 24, ♂ app.

KELLICOTT, Odon. Ohio, p. 21, 1899; good desc.; f. 22, ♂ app.

WILLIAMSON, Drag. Ind., p. 260, 1900; good desc.; pl. 7, f. 6, ♂ app.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 235, 1903; dist., ethol. notes.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 69, 1908; dist.

Distr. Carolinian, Me. & Ill. to Tenn. & N. C.

rectangularis SAY, Jn. Acad. Phila., 8, p. 34, 1839; ♂ ♀, ♂ cotype in Mus. Boston Soc., ♀ ?.

HAGEN, Syn. Neur. N. Am., p. 66, 1861; desc.

SELYS, Bull. Acad. Belg., (2) 13, p. 306, 1862.

CALVERT, Trans. Am. Ent. Soc., 20, p. 231, 1893; short desc.; pl. 3, f. 21, ♂ app.

KELLICOTT, Odon. Ohio, p. 20, 1899; good desc.; f. 18, ♂ app.

WILLIAMSON, Drag. Ind., p. 259, 1900; good desc.; pl. 7, f. 5, ♂ app.

HOWARD, Ins. Book, 1902; pl. 47, f. 9; ♂ adult.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 235, 1903; dist.

WALKER, Ottawa Nat., 22, p. 4, 1908; desc. notes; pl. 2, f. 2, ♂ app.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 70, 1908; desc.; pl. 5, wings.

Nymph. NEEDHAM, l. c., p. 233, 1903; dist.—Outdoor Studies, pp. 62, 68, 1898; desc.; f. 63, adult.—Proc. U. S. Nat. Mus., 26, 1903; pl. 31, f. 2, wing.

Distr. Carolinian & Alleghanian, Me. & N. C. to N. Dak.

scalaris CALVERT, Ann. Carnegie Museum, 6, p. 96, 1909; ♂, type M. C. Z.; pl. 1, ff. 6, 17, 18, thor. col. patt., ♂ app.

Distr. Tropic, Cuba, Porto Rico.

sigma CALVERT, Biol. C. Am., p. 49, 1901; ♂, holotype Coll. Calvert; pl. 3, f. 33, ♂ app.; p. 351, 1907; ♀, type ?

Distr. Tropic, (Calvert z. 2-3), N. M., Tex., Mex.: Northern portions.

simplex HAGEN, Syn. Neur. N. Am., p. 68, 1861; ♂, holotype M. C. Z.
SELYS, Bull. Acad. Belg., (2) 13, p. 298, 1862; desc.
CALVERT, Biol. C. Am., p. 48, 1901; ♂ ♀, ♀ holotype ?; pl. 3, f. 25, ♂ app.

Distr. Lower Sonoran, (Calvert z. 3-4), Tex., Mex.

spumarius HAGEN, Bull. Acad. Belg., (2) 13, p. 309, 1862; ♂ ♀, types Mus. Berlin.

Distr. Tropic, Greater Antilles; Cuba, Porto Rico.

stultus HAGEN, Syn. Neur. N. Am., p. 67, 1861; type M. C. Z., abd. lost.
SELYS, Bull. Acad. Belg., (2) 13, p. 304, 1862; after Hagen.

Distr. San Francisco.

tenuatus RAMBUR, Ins. Neur., p. 245, 1842; ♂, types Coll. Selys.
SELYS, in Sagra: Hist. Cuba, Ins., p. 463, 1857.—Bull. Acad. Belg., (2) 13, p. 315, 1862; ♂ ♀.
HAGEN, Syn. Neur. N. Am., p. 69, 1861; desc.
CALVERT, Proc. Cal. Acad., (3) 1, p. 376, 1899; desc. of tenerals; pl. 25, f. 3, ♂ app.—Biol. C. Am., p. 48, 1901; desc.—Ann. Carnegie Mus., 6, p. 102, 1909; noted; pl. 1, f. 12, thor. col. patt.

Distr. Tropic, West Indies, Greater & Lesser Antilles, Mexico.

uncatus KIRBY, Syn. Cat., p. 160, 1890; nom. nov. for *hamata* Selys, preoccupied. [Vide *hamata* Hagen, sub *forcipata.*]
CALVERT, Trans. Am. Ent. Soc., 20, p. 230, 1893; short desc.; pl. 3, f. 18, ♂ app.

Lestinae

KELLICOTT, Odon. Ohio, p. 17, 1899; good desc.; f. 20, ♂ app.

WILLIAMSON, Drag. Ind., p. 257, 1900; good desc.; pl. 7, f. 2, ♂ app.

HOWARD, Ins. Book, 1902; pl. 48, f. 3; ♂ adult.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 234, 1903; dist., ethol. notes.

WALKER, Ottawa Nat., 22, p. 4, 1908; desc. notes; pl. 1, f. *D*, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 70, 1908; desc.

Syn. hamata SELYS, Bull. Acad. Belg., (2) 13, p. 300, 1862; ♂ ♀.—[Kirby 1890.]

forcipata HAGEN, Syn. Neur. N. Am., p. 71, 1861.—[Selys 1862.]

Nymph. NEEDHAM, l. c., p. 233, 1903; desc.; p. 230, t. f. 6, egg.

Distr. Canadian & Transition into Upp. Austral, N. Scot. & Pa. to Calif. & B. C.

unguiculatus HAGEN, Syn. Neur. N. Am., p. 7, 1861; ♂ ♀, types M. C. Z.

SELYS, Bull. Acad. Belg., (2) 13, p. 299, 1862; full desc.

CALVERT, Trans. Am. Ent. Soc., 20, p. 230, 1893; short desc.; pl. 3, f. 16, ♂ app.

KELLICOTT, Odon. Ohio, p. 16, 1899; good description; f. 23, ♂ app.

WILLIAMSON, Drag. Ind., p. 257, 1900; good desc.; pl. 7, f. 1, ♂ app.

HOWARD, Ins. Book, 1902; pl. 47, f. 15; ♂ adult.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 234, 1903; dist.

WALKER, Ottawa Nat., 22, p. 4, 1908; desc. notes; pl. 1, f. *C*, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 69, 1908.

Nymph. NEEDHAM, Bull. 68 N. Y. State Mus., p. 234, 1903; desc.; t. f. 7, adult.

Distr. Transition & Upper Austral, N. Scot. & N. J. to Wyo. & N. Dak., Cala.

vidua HAGEN, Syn. Neur. N. Am., p. 69, 1861; ♂ ?, holotype Mus. Vienna.

SELYS, Bull. Acad. Belg., (2) 13, p. 317, 1862; desc. after Hagen.

Distribution. New Orleans.

vigilax HAGEN, Bull. Acad. Belg., (2) 13, p. 306, 1862; ♂, types M. C. Z., Mus. Vienna, Coll. Selys

CALVERT, Trans. Am. Ent. Soc., 20, p. 232, 1893; ♂ ♀, short desc.; pl. 3, f. 17, ♂ app.

KELLICOTT, Odon. Ohio, p. 20, 1899; good desc.; f. 18, ♂ app.

WILLIAMSON, Drag. Ind., p. 259, 1900; exact desc.; pl. 7, f. 4, ♂ app.

HOWARD, Ins. Book, 1902; pl. 47, f. 8; ♂ adult.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 71, 1908; desc.

Distr. Alleghanian & Carolinian, Mass. & Pa. to N. Dak. (Fla.?)

SUBFAMILY **PSEUDOSTIGMATINAE** SELYS.

Type genus—*Pseudostigma* Selys. Distribution—Neotropical.

Mem. Cour., 38, p. 4-30, 1886; as Legion *Pseudostigma;* monograph of the legion.

KIRBY, Syn. Cat., pp. 119-121, 1890; Div. *Pseudostigmatina.*

NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 748, 1903; *Anormostigmatini;* a foot note states *Thaumatoneura* MacLachlan belongs here.

PSEUDOSTIGMA SELYS.

Type—*aberrans* Selys. Distribution—Tropic Central America.

SELYS, Bull. Acad. Belg., (2) 10, p. 18, 1860.—Mem. Cour., 38, p. 27, 1886.

BRAUER, Verh. Ges. Wien, 18, p. 379, 1868.

CALVERT, Biol. C. Am., p. 51, 1901; char. and table of species.

aberrans SELYS, Bull. Acad. Belg., (2) 10, p. 18, 1860; ♀, type Coll. Selys. Mem. Cour. 38, p. 28, 1886; ♂ ♀, types Coll. Selys.

HAGEN, Syn. Neur. N. Am., p. 64, 1861; ♀.

CALVERT, Biol. C. Am., p. 54, 1901; full desc.; pl. 3, f. 17, ♂ app.; p. 352, 1907, notes.

Distr. Tropic, (Calvert z. 2-3) Mex.—Panama.

accedens SELYS, Bull. Acad. Belg., (2) 10, p. 19, 1860; ♂ ♀, types coll. Selys.—Mem. Cour., 38, p. 29, 1886.

HAGEN, Syn. Neur. N. Am., p. 64, 1861; desc.

CALVERT, Biol. C. Am., p. 54, 1901; full desc.; pl. 3, f. 22, ♂ app.; p. 352, 1907, notes.

Distr. Tropic (Calvert z. 3), Vera Cruz to Panama.

MECISTOGASTER RAMBUR.

Type—*lucretia* (Drury). Distribution—Neotropical.

Ins. Neur. p. 281, 1842.

Coenagrioninae

SELYS, Bull. Acad. Belg., (2) 10, p. 19, 1860; char. and monogr. of genus.—Mem. Cour., 38, p. 15, 1886.

BRAUER, Verh. Ges. Wien, 18, p. 379, 1868.

CALVERT, Biol. C. Am., p. 51, 1901; char.; p. 55, table of C. Am. spp.

NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 748, 1903; venation.

modestus SELYS, Bull. Acad. Belg., (2) 10, p.23, 1860; ♂ ♀, types Coll. Selys, Mus. Paris.—Mem. Cour., 38, p. 22, 1886; additions.

HAGEN, Syn. Neur. N. Am., p. 64, 1861; desc.

CALVERT, Biol. C. Am., p. 56, 1901; detailed desc.; p. 354, 1907; additional notes.

Distr. Tropic (Calvert z. 2-3) Vera Cruz, Mex., to C. Am., to Brazil & Peru.

ornatus RAMBUR, Ins. Neur., p. 288, 1842; ♂ ?, broken, type Mus. Paris.

SELYS, Bull. Acad. Belg., (2) 10, p. 20, 1860; ♂ ♀; Selys' types in Muss. Paris, Vienna, Comp. Zool., and Coll. Selys.—Mem. Cour., 38, p. 17, 1886.

HAGEN, Syn. Neur. N. Am., p. 64, 1861; desc.

CALVERT, Proc. Cal. Acad., (3) 1, p. 377, 1899; notes.—Biol. C. Am., p. 56, 1901; desc.; p. 353, 1907; ethological notes.

Syn. luctuosus SELYS, Bull. Acad., (2) 10, p. 20, 1860; ♂, holotype M. C. Z.; desc. as race?

Distr. Tropic (Calvert z. 2-4) Mex., C. Am., to Brazil & Peru.

SUBFAMILY **COENAGRIONINAE** KIRBY.*

Type genus—*Coenagrion* KIRBY. Distribution—Cosmopolitan.

Syn. Cat., p. 119, 1890.

SELYS, Bull. Acad. Belg., (2) 10, p. 11, 1860; subfamily defined (*Agrioninae*). Following are the parts of the monorgaphs; (excl. Legion *Pseudostigma*).

Derniere legion: *Protoneura;* Bull. Acad. Belg., (2) 10, pp. 431-462, 1860.

Seconde legion: *Lestes;* l. c., (2) 13, pp. 288-338, 1862.

Troisieme legion: *Podagrion;* l. c., (2) 12, pp. 5-44, 1862.

Quatrieme legion: *Platycnemis;* l. c., (2) 16, pp. 147-176, 1863.

Cinquieme legion: *Agrion:*—Genre *Argia;* l. c., (2) 20, pp. 375-417, 1865.

NOTE—Pending the rearrangement of the Coenagrioninae into a more modern classification, the legions of De Selys have not been adopted to designate the various groups, but the genera are arranged in natural order along the lines pointed out by Calvert, Needham, Williamson, and others.

Coenagrioninae

Genre *Agrion;* l. c., (2) 41, pp. 247-322, 496-539, 1233-1309; (2) 42, pp. 490-531, 953-991, 1876.

Genres *Telebasis, Argiocnemis* et *Hemiphlebia;* l. c., (2) 43, pp. 97-159, 1877.

Revision du Synopsis des *Agrionines.* Premiere partie comprenant les legions *Pseudostigma, Podagrion, Platycnemis* et *Protoneura:* Mem. Cour. Acad. Belg., 28, pp. 1-233, 1886.

KIRBY, Syn. Cat., pp. 122-164, 1890; *Normostigmatinae.*

NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 749, 1903; limited.

PARAPHLEBIA SELYS.

Type—*soe* Hagen. Distribution—Neotropical.

SELYS, in HAGEN, Syn. Neur. N. Am., p. 71, 1861.—Bull. Acad. Belg., (2) 14, p. 8, 1862.—Mem. Cour., 38, p. 32, 1886.

BRAUER, Verh. Ges. Wien., 18, p. 380, 1868.

CALVERT, Biol. C. Am., p. 59, 1901.

hyalina BRAUER, Verh. Ges. Wien., 18, p. 105, 1871; ♂ ♀, types Mus. Vienna.

SELYS, Mem. Cour., 38, p. 34, 1886; after Brauer.

CALVERT, Biol. C. Am., p. 61, 1901; desc.

Distr. Lower Sonoran, (Calvert z. 3-4) Mex: Jalapa, Cuernavaca.

zoe SELYS, in Hagen, Syn. Neur. N. Am., p. 72, 1861; ♂, holotype in Coll. Selys; a short note.—Bull. Acad. Belg., (2) 12, p. 9, 1862; ♂, with good desc.—Mem. Cour., 38, p. 33, 1886; note.

CALVERT, Biol. C. Am., p. 60, 1901; ♂ ♀ described.

Distr. Lower Sonoran, (Calvert z. 3-4) State Vera Cruz, Mex.

HYPONEURA SELYS.

Type—*funcki* Selys. Distribution—Central America.

Mon. Cal., p. 275, 1854; in the additions & corrections to the Mon.—Bull. Acad. Belg., (2) 20, p. 381, 1865.

HAGEN, Syn. Neur. N. Am., p. 95, 1861; in note to *H.lugens*

HAGEN & CALVERT, Bull. M. C. Z. 29, p. 105, 1902; ff. by Hagen, text by Calvert.

CALVERT, Biol. C. Am., p. 65, 1901.

BRAUER, Verh. Ges. Wien., 18, p. 385, 1868.

funcki SELYS, Mon. Cal., p. 275, 1854; ♂ ♀ shortly noted; types Coll. Selys. Bull. Acad. Belg., (2) 20, p. 381, 1865; detailed desc.

Coenagrioninae

CALVERT, Biol. C. Am., p. 67, 1901; comparative desc.

Distr. Lower Sonoran & Tropic (Calvert z. 2-4) Mex. to Venez.

lugens HAGEN, Syn. Neur. N. Am., p. 95, 1861; ♀, (*Agrion*), holotype M. C. Z.; in note—"belongs to (*Hyponeura*)."

SELYS, Bull. Acad. Belg., (2) 20, p. 382, 1865; desc., (*Hyponeura*).

CALVERT, Biol. C. Am., p. 66, 1901; ♂ ♀, comp. desc.

HAGEN & CALVERT, Bull. M. C. Z. 29, p. 104, 1902; bibl.; pl. 2, f. 22, ♀ char.

Nymph. NEEDHAM & COCKERELL, Psyche, 10, p. 135, 1903; desc.; ethol. notes.

NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 715, 1904; desc.; pl. 42, f. 5, adult; pl. 43, f. 8, structural details.

Distr. Lower Sonoran, (Calvert z. 3-4), New Mex., Ariz., Northern Mexico.

ARGIA RAMBUR.

Type—*fumipennis* (BURMEISTER). Distribution—Nearctic & Neotropic.*

Ins. Neur., p. 254, 1842.

SELYS, Bull. Acad. Belg, (2) 20, p. 382, 1865; monograph of genus.

BRAUER, Verh. Ges. Wien, 18, p. 385, 1868; characters.

CALVERT, Trans. Am. Ent. Soc., 20, p. 220, 1893; char.—Proc. Cal. Acad., (2) 4, p. 470, 1895; Calif. spp.—Biol. C. Am., pp. 69-72, 1901; separate tables for C. Am. ♂ ♂ ♀ ♀; p. 358, 1907; additions—Ann. Carnegie Mus., 6, pp. 118-123, 1909; tables of S. Am. spp.

CALVERT & HAGEN, Bull. M. C. Z. 29, pp. 105-118, 1902; 2 pls. by Hagen; Calvert cites bibliography, distribution & custody of types.

KELLICOTT, Odon Ohio, p. 22, 1899, char.; p. 29, table of Ohio spp.

WILLIAMSON, Drag. Ind., p. 246, 1900; char.; p. 261, table of Ind. spp.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 236, 1903; table of N. Y. spp.—Proc. U. S. Nat. Mus., 26, p. 727, 1903; venation.

KENNEDY, Proc. Ind. Acad., pp. 164-169, 1902; 1 plate; a new diagnostic character for the spp. of *Argia* (mesepisternum).

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 71, 1908; tables of Austral spp.

Nymph. NEEDHAM, Bull. 68 N. Y. State Mus., p. 238, 1903; table of nymphs; pl. 14, ff. e, f.; pl. 15, f. a., structural details of *Argia* sp.

*NOTE—Under this designation I do not include A. concinnum, kurilis, and optata, known respectively from the Cape (of Good Hope), Kurile Is. of Japan, and the Moluccas. In view of the compact distribution of the other 88 species these three localities must be considered anomalous. It is questionable whether they belong to Argia. (See Calvert M. C. Z. 1902.)

agrioides CALVERT, Proc. Cal. Acad., (2) 4, p. 476, 1895; ♂ ♀, types Coll. Calvert & Calif. Acad.; pl. 15, f. 14, ♂ app.—Biol. C. Am., pp. 72, 98, 1901, comp. desc.; pl. 4, f. 26, ♀ char.; ff. 62, 62*s*, ♂ app.
Distr. Lower Sonoran (Calvert z. 3-4), Calif., Ariz., Tex., Mex.: Nuevo Leon.

*Subsp.***nahuana** CALVERT, Biol. C. Am., pp. 72, 99, 1901; ♂ ♀, types in Coll. Calvert, MacLachlan, Adams, etc.; pl. 4, f. 62*ss*, ♂ app.
Distr. Lower Sonoran (Calvert z. 3-4), Mex.: Tepic, Guadalajara, & Dist. Federal.

apicalis (SAY), Jn. Acad. Phila., 8, p. 40, 1839; ♂ ♀, types?; (*Agrion*).
HAGEN, Syn. Neur. N. Am., p. 91, 1861; good desc.; ♂ ♀, M. C. Z.
SELYS, Bull. Acad. Belg., (2) 20, p. 414, 1865; (*Argia*).
CALVERT, Trans. Am. Ent. Soc., 20, p. 233, 1893; short desc.
CALVERT & HAGEN, Bull. M. C. Z. 29, p. 106, 1902; bibl.; pl. 2, ff. 21, *a*, *b*, ♂ app.
KELLICOTT, Odon. Ohio, p. 26, 1899; good desc.
WILLIAMSON, Drag. Ind., p. 264, 1900; good desc.; pl. 7, f. 9, ♂ app.
HOWARD, Ins. Book, 1902; pl. 47, ff. 6, 7; ♂ ♀ ads.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 240, 1903, dist.; pl. 17, f. 1, ♂ adult.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 72, 1908, desc.
Nymph. NEEDHAM, l. c., p. 242, 1903; detailed desc.
Distr. Alleghanian & Carolinian, Me. & N. C. to Ark. & N. Dak.

barretti CALVERT, Biol. C. Am., p. 87, 1901; ♂, holotype in Coll. Calvert; pl. 4, f. 46, *s*, ♂ app.
Distr. Lower Sonoran (Calvert z. 3) Mex.: Linares in Nuevo Leon.

binotata (WALSH), syn. ad *tibialis*.

bipunctulata (HAGEN), Syn. Neur. N. Am., p. 90, 1861; ♂, types M. C. Z.; (*Agrion*).
SELYS, Bull. Acad. Belg., (2) 20, p. 415, 1865; ♂ ♀, Coll. Seyls; (*Argia*).
CALVERT, Trans. Am. Ent. Soc., 20, p. 234, 1893; good desc.
CALVERT & HAGEN, Bull. M. C. Z. 29, p. 106, 1902; bibl.; pl. 2, ff. 19, *a*, ♂ app.
HOWARD, Ins. Book, 1902; pl. 47, f. 16; ♂ adult.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 72, 1908; distinguished.

Coenagrioninae

Syn. bipustulata Kirby, Syn. Cat., p. 139, 1890; probably misprint.

Distr. Atl. coast div. of Carolinian & Austroriparian, N. Y. to Fla .

calida (HAGEN), Syn. Neur. N. Am., p. 93, 1861; ♂ only, types M. C. Z.; (*Agrion*); ♀, see *extranea*.
SELYS, Bull. Acad. Belg., (2) 20, p. 390, 1865; ♂, (*Argia*).
CALVERT, Biol. C. Am., p. 75, 1902; comp. desc.
CALVERT & HAGEN, Bull. M. C. Z. 29, p. 106, 1902; bibl.; pl. 1, f. 13, ♂ app.

Distr. Tropic, (Calvert z. 3), Mex.: Tampico.

cuprea (HAGEN), Syn. Neur. N. Am., p. 96, 1861; ♀ ♂, types M. C. Z.; (A*grion*).
SELYS, Bull. Acad. Belg., (2) 20, p. 407, 1865; ♂ ♀, (*Argia*).
CALVERT, Biol. C. Am., p. 84, 1901; comp. desc.; pl. 4, f. 22, ♀ char.; ff. 41, *s*, ♂ app.
CALVERT & HAGEN, Bull. M. C. Z. 29, p. 108, 1902; bibl.; pl. 1, ff. 8, *a*, ♂ app.

Distr. Lower Sonoran & Tropic (Calvert z. 2-4), Mex., Guat., Honduras.

deami CALVERT, Biol. C. Am., pp. 71, 90, 1901; ♂ ♀, types Coll. Adams, Deam; pl. 4, f. 13, ♀ char.; ff. 52, s, ♂ app.

Distr. Lower Sonoran (Calvert z. 3-4), Mex.: Hidalgo, Oaxaca.

extranea (HAGEN), Syn. Neur. N. Am., p. 92, 1861; ♂, holotype in M. C. Z. (*Agrion*).
SELYS, Bull. Acad. Belg., (2) 20, p. 399, 1865; ♀ ♂, (*Argia*).
CALVERT, Proc. Cal. Acad., (3) 1, p. 380, 1899; desc. of ♂; pl. 25, f. 8, ♂ app.—Biol. A. Am., p. 92, 1901; comp. desc.; pl. 4, ff. 3, 4, ♀ char.; ff. 56, *s*, 56*i*, *ii*, ♂ app.; p. 375, 1907, note.
CALVERT & HAGEN, Bull. M. C. Z. 29, p. 108, 1902, bibl.; pl. 1, ff. 6, *a*, ♂ app.

Syn. calidum HAGEN, Syn. Neur. N. Am., p. 93, 1861; ♀ only (*Agrion*).—[Selys 1865.]
?variabilis SELYS, Bull. Acad., (2) 20, p. 406, 1865; ♀ only, (*Argia*). [Calvert 1901.]

Distr. Lower Sonoran, (Calvert z. 2-4) Mex., Guatem. to Guiana.

fissa SELYS, Bull. Acad. Belg., (2) 20, p. 401, 1865; ♂ ♀, Coll. Selys.
CALVERT, Proc. Cal. Acad., (3) 1, p. 381, 1899; good desc.; pl. 25, f. 11, ♂ app.—Biol. C. Am., p. 89, 1901; comp. desc.; pl. 4, f. 12, ♀ char.; ff. 50, *s*, ♂ app.; p. 374, 1907, notes on ♂.

Coenagrioninae

CALVERT & HAGEN, Bull. M. C. Z. 29, p. 109, 1902; bibl.; pl. 2, ff. 13, *a*, ♂ app.

Distr. Lower Sonoran (Calvert z. 3-4) Mex., Guatemala, C. Rica, Columbia.

frequentula CALVERT, Biol. C. Am., p. 365, 1907; ♂ ♀, types Coll. Williamson; pl. 4, f. 33*s*, under *A. pulla*, ♂ app.; pl. 10, ff. 9-11, ♂ app., mesothorax.

Distr. Tropic, (Calvert z. 2-3), Mexico: Vera Cruz, to Panama.

fumipennis (BURMEISTER), Handb. Ent., 2, p. 819, 1839; ♀, holotype M. C. Z.; (*Agrion*).

HAGEN, Syn. Neur. N. Am., p. 97, 1861, ♂.

SELYS, Bull. Acad. Belg., (2) 20, p. 403, 1865; ♂ ♀ (*Argia*), Coll. Selys.

CALVERT, Trans. Am. Ent. Soc., 25, p. 38, 1898; on Burm. type.

CALVERT & HAGEN, Bull. M. C. Z. 29, p. 109, 1902; bibl.; pl. 1, ff. 18, *a*, *b*, *c*, ♂ app.

WILLIAMSON, Drag. Ind., p. 262, 1900; notes.

NEEDHAM, Proc. U. S. Nat. Mus., 26, 1903; pl. 53, f. 5, wing.

MUTTKOWSKI, Bull. Wis. N. H. Soc. (2) 6, p. 72, 1908; dist.

Syn. obscura RAMBUR, Ins. Neur., p. 256, 1842; type Coll. Selys, broken; pl. 8, f. 1, adult colored. [Selys 1865.]

Nymph. NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 714, 1904; desc.; pl. 38, ff. 9, 10, str. dets.

Distr. Austroriparian, Ga. Ky., N. C., S. C., & Fla.

harknessi CALVERT, Proc. Cal. Acad., (3) 1, p. 378, 1899; ♂ ♀, types in Calif. Acad.; pl. 25, f. 6, ♂ app.—Biol. C. Am., p. 87, 1901; comp. desc.; pl. 4, f. 21, ♀ char.; ff. 45, *i*, ♂ app.; p. 372, 1907; ♀ desc. corrected.

Distr. Tropic, (Calvert z. 1-3), Mexico: Tepic, Guerrero.

herberti CALVERT, Biol. C. Am., pp. 70, 82, 1902; ♂, holotype Coll. Godman; pl. 4, ff. 37, *s*, ♂ app.

Distr. Lower Sonoran, (Calvert z. 4) Mexico: Guerrero; (6,000 ft.).

immunda (HAGEN), Syn. Neur. N. Am., p. 93, 1861; ♂ ♀, (*Agrion*), types in M. C. Z.

SELYS, Bull. Acad. Belg., (2) 20, p. 401, 1865; desc., (*Argia*).

CALVERT, Biol. C. Am., p. 97, 1901; comp. desc.; pl. 4, ff. 60, *s*, ♂ app.

CALVERT & HAGEN, Bull. M. C. Z. 29, p. 110, 1902; bibl.; pl. 2, ff. 12, *a*, ♂ app.

Coenagrioninae

Syn. ?vivida HAGEN, Bull. Acad., Belg., (2) 20, p. 406, 1865; ♀ only. [Calvert 1901.]

Distr. Lower Sonoran, (Calvert z. 2-3), Texas, Mex.: Nuevo Leon, Tamaulipas, Guerr.

impura RAMBUR, Ins. Neur., p. 255, 1842; ♂, ("venant, je crois, de l'Amerique septentrionale"), holotype in Coll. Selys.

SELYS, Bull. Acad. Belg., (2) 20, p. 401, 1865; ♂ (♀?), Coll. Selys; identity of ♀ doubtful.

Distr. Tropic, N. America (?) ♂, Amazon ♀. Orig. locality very doubtful.

lacrymans (HAGEN), Syn. Neur. N. Am., p. 95, 1861; ♀, types in M. C. Z. (*Agrion*).

SELYS, Bull. Acad. Belg., (2) 20, p. 386, 1865; ♂ ♀, (*Argia*), Coll. Selys, ♂ broken.

CALVERT, Biol. C. Am., p. 88, 1901; comp. desc.; pl. 4, f. 16, ♀ char.; ff. 49, *s*, ♂ app.

Distr. Lower Sonoran, (Calvert z. 3-4), Mex.: Chihuahua, Cuernavaca, Guerrero.

moesta (HAGEN), Syn. Neur. N. Am., p. 94, 1861; ♂ ♀, types M. C. Z. (*Agrion*).

SELYS, Bull. Acad. Belg., (2) 20, p. 382, 1865; desc. (*Argia*).

CALVERT, Biol. C. Am., p. 76, 1901; comp. desc.; pl. 4, f. 20, ♀ char.; ff. 29, *s*, ♂ app.; p. 361, 1907; variation of venation.

Nymph. ?NEEDHAM & COCKERELL, Psyche, 10, p. 136, 1903; desc. by Needham, ethol. notes by Cockerell; described as (*Argia sp.*).

Distr. Lower Sonoran, (Calvert z. 3-4), Tex., Ariz., Northern Mexico.

Subsp. **putrida** (HAGEN), Syn. Neur. N. Am., p. 96, 1861; ♂ ♀, types M. C. Z. (*Agrion*).

SELYS, Bull. Acad. Belg., (2) 20, p. 385, 1865; desc. (*Argia*).

CALVERT, Trans. Am. Ent. Soc., 20, p. 232, 1893; short desc.

CALVERT & HAGEN, Bull. M. C. Z. 29, p. 112, 1902; bibl.; pl. 2, ff. 15, *a*, ♂ app.

KELLICOTT, Odon. Ohio, p. 23, 1899; good desc.

WILLIAMSON, Drag. Ind., p. 261, 1900; desc.; pl. 4, f. 2, leg.; pl. 7, f. 7, ♂ app.

HOWARD, Ins. Book, 1902; pl. 46, f. 13; pl. 47, ff. 10, 13; ♂ ♀ ads.

MUTTKOWSKI, Bull. Wis. N. H. Soc. (2) 6, p. 72, 1908; desc., pl. 5, wings.

WALKER, Ottawa Nat., 22, p. 5, 1908; desc. notes.

Nymph. WILLIAMSON, Ent. News, 13, p. 67, 1902; text fig. of eggs.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 240, 1903; full desc.

Distr. Transition to Austroriparian, N. Y., Quebec & N. Dak., south to Tex. & Fla.

munda CALVERT, subsp. sub *vivida.*

nahuana CALVERT, subsp. sub *agrioides.*

oculata HAGEN, Bull. Acad. Belg., (2) 20, p. 409, 1865; ♂, holotype M. C. Z.
CALVERT, Biol. C. Am., p. 81, 1901; ♀ ♂, comp. desc.; pl. 4, f. 11, ♀ char.; ff. 36, *s, i, ii,* ♂ app.; p. 367, 1907, notes on ♀.—Ann. Carnegie Museum, 6, p. 134, 1909; add.
CALVERT & HAGEN, Bull. M. C. Z. 29, p. 112, 1902; bibl.; pl. 1, ff. 12, *a,* ♂ app.

Distr. Tropic, (Calvert z. 2-4) Mex., C. Am., Venezuela, Brazil.

oenea HAGEN, Bull. Acad. Belg., (2) 20, p. 407, 1865; ♂, holotype M. C. Z.
CALVERT, Proc. Calif. Acad., (2) 4, p. 481, 1895; good desc.; pl. 15, ff. 21, 22, ♂ app.—Biol. C. Am., p. 85, 1901; ♀ ♂, comp. desc.; pl. 4, f. 10, ♀ char.; ff. 43, 44, *s,* ♂ app.; p. 372, 1907, additional notes on ♀.

Distr. Lower Sonoran, (Calvert z. 2-4), Baja Cal, Mex., Guat., Col., Nic.

pallens CALVERT, subsp. sub *violacea.*

percellulata CALVERT, Biol. C. Am., p. 74, 1901; ♂ ♀, types in Coll. Godman; pl. 4, f. 5, ♀ char.; f. 27, ♂ app.

Distr. Tropic, (Calvert z. 3), Atoyac in Vera Cruz.

plana CALVERT, subsp. sub *vivida.*

pulla HAGEN, Bull. Acad. Belg., (2) 20, p. 410, 1865; ♂, types in M. C. Z., Coll. Selys.
CALVERT, Proc. Cal. Acad., (3) 1, p. 383, 1899; detailed desc. of ♂ ♀; pl. 25, f. 4, ♂ app.—Biol. C. Am., p. 79, 1901; comp. desc.; pl. 4, ff. 33, *s, ss,* ♂ app.; p. 364, 1907; variation tabulated; pl. 10, ff. 6, 7, ♂ app.; f. 8, mesothorax.
CALVERT & HAGEN, Bull. M. C. Z. 29, p. 113, 1902; bibl.; pl. 11, ff. 16, *a,* ♂ app.

Coenagrioninae

KIRBY, Ann. Mag. N. Hist., (7) 3, p. 371, 1899; notes.

Distr. Tropic, (Calvert z. 2-4), Mex. to Venezuela.

putrida (HAGEN), subsp. sub *moesta*.

rhoadsi CALVERT, Biol. C. Am., p. 92, 1901; ♂, type Coll. Godman; pl. 4, ff. 55, *s*, ♂ app.

Distr. Lower Sonoran (Calvert z. 3), Nuevo Leon, Mex.

sedula (HAGEN), Syn. Neur. N. Am., p. 94, 1861; ♂, types in M. C. Z. (*Agrion*).

SELYS, Bull. Acad. Belg., (2) 20, p. 411, 1865; ♂ desc. (*Argia*).

KELLICOTT, Odon. Ohio, p. 78, 1899; good desc.

WILLIAMSON, Drag. Ind., p. 263, 1900; ♂ ♀, good desc.

CALVERT, Biol. C. Am., p. 78, 1901; comp. desc.; pl. 4, f. 7, ♀ char.; f. 32, ♂ app.; p. 363, 1907; notes on ♀.

CALVERT & HAGEN, Bull. M. C. Z. 29, p. 114, 1902; bibl.; pl. 1, ff. 10, *a*, ♂ app.

HOWARD, Ins. Book, 1902; pl. 45, ff. 2, 3; ♂ ♀ adults.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 72, 1908; distinguished.

Distr. Upper & Lower Austral, (Calvert z. 3-4), C. & S. States, Ariz., Mex.

tarascana CALVERT, Biol. C. Am., p. 90, 1901; ♂ ♀, types Coll. Godman, Adams, Calvert & U. S. N. Mus.; pl. 4, f. 14, ♀ char.; ff. 51, *s*, ♂ app.

Distr. Lower Sonoran, (Calvert z. 3-4), Elevated Mexico.

tezpi CALVERT, Biol. C. Am., p. 77, 1901; ♂ ♀, types Coll. Godman, MacLachlan, Calvert, and Calif. Acad.; pl. 4, f. 19, ♀ char.; f. 31, *s*, ♂ app.; p. 362, 1907; notes.

Syn. cupraea CALVERT, Proc. Cal. Acad., (2) 4, p. 479, 1895; ♂ ♀; pl. 15, f. 2, ♂ app. [Calv. 1901.]

Distr. Tropic, (Calvert z. 2-3) B. Calif., Mex. to Venez.

tibialis (RAMBUR), Ins. Neur., p. 241, 1842; ♀, holotype Coll. Selys. (*Platycnemis*).

HAGEN, Syn. Neur. N. Am., p. 72, 1861; desc. (*Trichocnemis*).

SELYS, in Sagra: Hist. Cuba, Ins., p. 164, 1857.—Bull. Acad. Belg., (2) 20, p. 413, 1865; (*Argia*).

CALVERT, Trans. Am. Ent. Soc., 20, p. 233, 1893; good desc.

CALVERT & HAGEN, Bull. M. C. Z. 29, p. 115, 1902; bibl.; pl. 2, ff. 7, *a*, 8, *a*, ♂ app.

KELLICOTT, Odon. Ohio. p. 26, 1899; desc.

WILLIAMSON, Drag. Ind., p. 263, 1900; good desc.; pl. 7, f. 8, ♂ app.

HOWARD, Ins. Book, p. 902; pl. 48, ff. 1, 2; ♂ ♀ ads.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 244, 1903; dist.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 72, 1908; dist.

Syn. binotatum (WALSH), Proc. Acad. Phila., p. 387, 1862; ♂ ♀ (*Agrion*), types lost.

SELYS, Bull. Acad. Belg., (2) 20, p. 414, 1865; (*Argia*). [Selys 1865.]

fontium (HAGEN), Syn. Neur. N. Am., p. 91, 1861; ♂ ♀, types M. C. Z.; (*Agrion*). [Selys 1865.]

Nymph. NEEDHAM, Bull. 68 N. Y. State Mus., p. 244, 1903; full desc.; pl. 15, f. a, struct. details.

Distr. Upper & Lower Austral, Central & Middle to Southern States.

tonto CALVERT, Biol. C. Am., p. 89, note, 1901; ♂ ♀, types Coll. Calvert; pl. 4, f. 17, ♀ char.; ff. 48, *s*, ♂ app.; p. 373, 1907; notes on ♂.

Distr. Lower Sonoran (Calvert z. 4) Ariz., Mex.: Cuernavaca (8,000 ft.).

translata HAGEN, Bull. Acad. Belg., (2) 20, p. 410, 1865; ♂ ♀, types M. C. Z.

WILLIAMSON, Proc. Ind. Acad., p. 120, 1900; desc. notes; pl. 1, f. 1, ♂ app.

CALVERT, Biol. C. Am., p. 76, 1901; comp. desc.; pl. 4, f. 18, ♀ char.; ff. 30, *s*, ♂ app.; p. 361, 1907; notes.

CALVERT & HAGEN, Bull. M. C. Z. 29, p. 120, 1902; bibl.; pl. 1, ff. 9, *a*, ♂ app.

GRAF, Ent. News, 13, p. 113, 1902; desc. notes.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 72, 1908; dist.

Distr. Austral to Tropic (Calvert z. 2-4) Central & Southern States, C. Am.

ulmeca CALVERT, Biol. C. Am., p. 80, 1901; ♂ ♀, types Coll. Godman, Calvert; pl. 4, f. 9, ♀ char.; ff. 34, *s*, *i*, ♂ app,; p. 366, 1907, notes.

Distr. Tropic (Calvert z. 2-4), Mex., Honduras.

violacea (HAGEN), Syn. Neur. N. Am., p. 90, 1861; ♂ ♀, types M. C. Z. (*Agrion*).

SELYS, Bull. Acad. Belg., (2) 20, p. 404, 1865; (*Argia*).

CALVERT, Trans. Am. Ent. Soc., 20, p. 233, 1893; short desc.

Coenagrioninae

CALVERT & HAGEN, Bull. M. C. Z. 29, p. 116, 1902; bibl.; pl. 1, ff. 17, *a*, ♂ app.

KELLICOTT, Odon., Ohio, p. 25, 1899; good desc.

WILLIAMSON, Drag. Ind., p. 264, 1900; good desc.

HOWARD, Ins. Book, 1902; pl. 45, ff. 1, 14; ♂ ♀ ads.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 242, 1903; dist.; pl. 13, ff. 4, 5, ♂ adult.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 72, 1908; desc.

WALKER, Ottawa Nat., 22, p. 5, 1908; desc. notes.

Nymph. NEEDHAM, l. c. p. 243, 1903; full desc.; pl. 13, f. 5; adult nymph.

Distr. Me., Ont., & Minn., to N. C. and New Mexico.

Subsp. **pallens** CALVERT, Biol. C. Am., p. 98, 1901; ♂ ♀, types Coll. Godman, Adams, Deam; pl. 4, f. 25, ♀ char.; ff. 61, *s*, ♂ app.

Distr. Lower Sonoran, (Calvert z. 2-4), Arizona, Mexico.

vivida HAGEN, Bull. Acad. Belg., (2) 20, p. 406, 1865; ♂ only, type M. C. Z. [♀, vide *immunda*.]

CALVERT, Proc. Cal. Acad., (2) 4, p. 478, 1895; ♂ ♀ comp. desc.; pl. 15, f. 13, ♂ app.—Biol. C. Am., p. 94, 1901; comp. desc.; pl. 4, ff. 1, 2, ♀ char.; ff. 57, *s*, *ss*, ♂ app.

CALVERT & HAGEN, Bull. M. C. Z. 29, p. 117, 1902; bibl.; pl. 1, ff. 5, *a*, ♂ app.

Distr. Upper & Lower Sonoran, (Calvert z. 3-4), Mont. & B. Col. to Mex. & Tex.

Subsp. **munda** CALVERT, Biol. C. Am., p. 96, 1901; ♂ ♀, types M. C. Z.; comp. desc.

Distr. Lower Sonoran, (Calvert z. 3), Arizona, Mexico.

Subsp. **plana** CALVERT, Biol. C. Am., p. 96, 1901; ♂ ♀, types M. C. Z.; pl. 4, f. 58, ♂ app.

Distr. Lower Sonoran, (Calvert z. 3-4), Arizona, Mexico.

ARGIALLAGMA SELYS.

Type—*minutum* SELYS. Distribution—Neotropical.

Bull. Acad. Belg., (2) 41, p. 498, 1876; sub "incertae sedis," group 3me.

CALVERT, Biol. C. Am., p. 376, 1907; characters detailed.

minutum (SELYS), in Sagra: Hist. Cuba, Ins., p. 464, 1857; (*Trichocnemis*); Coll. Selys?

HAGEN, Syn. Neur. N. Am., p. 72, 1861; after Selys.

CALVERT, Biol. C. Am., p. 376, 1907; ♂ ♀ full desc.; (*Argiallagma*); pl. 10, f. 35, ♂ app.

Syn. aduncum (HAGEN), Syn. Neur. N. Am., p. 79, 1861; ♂ ♀, types M. C. Z. (*Agrion*).

SELYS, Bull. Acad. Belg., (2) 41, p. 499, 1876; (*Enallagma?*).—[Selys 1876.]

Distr. Tropic, (Calvert z. 2), Cuba, Guatemala.

HESPERAGRION CALVERT.

Type—*heterodoxum*. Distribution—Sonoran.

Biol. C. Am., p. 103, 1902; separated from *Amphiagrion*.

heterodoxum (SELYS), C. R. Soc. Ent. Belg., 11, p. 69, 1868; ♂ ♀ (*Agrion*), types Coll. Selys.—Bull. Acad. Belg., (2) 41, p. 288, 1876; (*Amphiagrion*).

CALVERT, Biol. C. Am., p. 103, 1902; (*Hesperagrion*); pl. 5, ff. 11, 12, ♂ app.; pl. 6, ff. 1-6, col., showing varr. in abd. col.; p. 377, 1907; varr.

NEEDHAM, Proc. U. S. Nat. Mus., 26, 1903; pl. 54, f. 5, wing.

Syn. flavescens SELYS, C. R. Soc. Ent. Belg., 11, p. 70, 1868; ♀ (*Agrion*), type Coll. Selys; as (*heterodoxum, var.?*).—Bull. Acad. Belg., (2) 41, p. 289, 1876; (*Amphiagrion flavescens*). [Calvert 1902.]

Distr. Lower Sonoran, (Calvert z. 3-4) Arizona, No. Mexico.

OXYAGRION SELYS.

Type—*rubidum* (RAMBUR). Distribution—Neotropical.

Bull. Acad. Belg., (2) 41, p. 290, 1876.

rufulum (HAGEN), Syn. Neur. N. Am., p. 86, 1861; ♂ (*Agrion*), holotype M. C. Z.

SELYS, Bull. Acad. Belg., (2) 41, p. 302, 1876; ♂ ♀ (*Oxyagrion*), ♀ Coll. MacLachlan; with a doubt of type locality.

CALVERT, Ann. Carnegie Mus., 6, p. 183, 1909; ♀ ♂; pl. 3, ff. 49, 50, ♂ app.

Distr. Chilian. Northern California (Hagen), Chili (Selys), Argentine (Calvert).

ANISAGRION SELYS.

Type—*allopterum* SELYS. Distribution—Central America.

Bull. Acad. Belg., (2) 42, p. 952, 1876.

Coenagrioninae

CALVERT, Biol. C. Am., p. 104, 1902; char. & tables of ♂ ♀ s.; p. 378, 1907; ♀ ♀ s.

lais (SELYS), Bull. Acad. Belg., (2) 42, 1876; ♂ ♀ (*Nehallennia*), types Mus. Vienna.

CALVERT, Biol. C. Am., p. 106, 1902; comp. desc.; (*Anisagrion*); pl. 5, f. 15, ♂ app.; f. 19, venation.

Distr. Lower Sonoran (Calvert z. 3-4), Mex.: higher portions, Honduras.

ENALLAGMA CHARPENTIER.

Type—*cyathigerum* (CHARPENTIER). Distribution—Cosmopolitan.

Lib. Eur., p. 21, 1840; as an alternative name, (*Agrion* subgenus).

SELYS, Bull. Acad. Belg., (2) 41, p. 496, 1876; given full generic rank.

CALVERT, Trans. Am. Ent. Soc., 20, p. 221, 1893.—Proc. Cal. Acad., (2) 4, p. 470, 1895.—Biol. C. Am., p. 103, 1902; extensive tables of ♂ ♀ s; p. 379, 1907; add.

KELLICOTT, Odon. Ohio, p. 15, 1899; table of Ohio spp.

WILLIAMSON, Drag. Ind., p. 268, 1900; Ind. spp.

NEEDHAM, Bull. 68 N. Y. State Mus., 1903; pl. 19, ♂ app. of 16 spp.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 74, 1908; tables.

RIS, in Schultze: Forschungsreise, p. 311, 1908; discussion of applicability and priority of name. "Selys to be credited, nec Charpentier."

anna WILLIAMSON, Ent. News, 11, p. 455, 1900; ♂ ♀, types Coll. Will.; pl. 9, ff. 1, 2, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 74, 1908; ♂ dist.

Distr. Transition, Wyo. & Ariz.

annexum (HAGEN), syn. ad *cyathigerum*.

antennatum (SAY), Jn. Acad. Phila., 8, p. 39, 1839; ♂, type ?, (*Agrion*).

HAGEN, Syn. Neur. N. Am., p. 73, 1861; ♂, after Say; (*Protoneura*).

WILLIAMSON, Drag. Ind., p. 274, 1900; ♂ ♀ (*Enallagma*), Coll. Williamson.

HOWARD, Ins. Book, 1902; pl. 48, ff. 10, 11; ♂ ♀ ads.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 257, 1903; bibl.; pl. 19, f. *l*, ♂ app.

Coenagrioninae

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 77, 1908; desc.

Syn. fischeri KELLICOTT, Jn. Cincin. Soc. N. H., 17, p. 206, 1895. [Williamson 1900.]

Nymph. NEEDHAM, l. c., p. 257, 1903; full desc.; pl. 16, f. 4, adult.

Distr. Alleghanian & Carolinian, N. Y. & Pa. to Iowa.

aspersum (HAGEN), Syn. Neur. N. Am., p. 97, 1861; ♂, types M. C. Z. (*Agrion*).

SELYS, Bull. Acad. Belg., (2) 41, p. 518, 1876; ♂ (*Enallagma*).

CALVERT, Trans. Am. Ent. Soc., 20, p. 237, 1893; ♂ ♀; pl. 3, f. 30, ♂ app.

BANKS, Can. Ent., 26, p. 77, 1894; suggests identity with *E. traviatum.*

MORSE, Psyche, 7, p. 211, 1895; reply to Banks; species valid.

KELLICOTT, Odon. Ohio, p. 25, 1899; good desc.; f. 2, ♂ app.

WILLIAMSON, Drag. Ind., p. 271, 1900; good desc.—Proc. Ind. Acad., 1901; pl. 1, ff. 10, 11, ♂ app.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 256, 1903; bibl.; pl. 19, f. *j*, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 7, 1908; desc.

Distr. Carolinian, N. Y. & N. C. to Mo. & Wis.

basidens CALVERT, Biol. C. Am., p. 114, 1902; ♂ ♀, types ♂ ♀ Acad. Phila., ♂ Coll. Banks, ♀ Coll. Calvert; pl. 5, f. 16, ♂ app.

Distr. Gulf Strip into Austroriparian, Texas: Austin, San Antonio, Corpus Christi.

boreale SELYS, Ent. M. Mag., 11, p. 242, 1875; ♂ ♀ (*Aenallagma*), types Coll. MacLachlan, & Selys.—Bull. Acad. Belg., (2) 41, p. 509, 1876; (*Enallagma*), race?

WILLIAMSON, Proc. Acad. Ind., p. 173, 1900; suggests identity with *calverti.*

Distr. Hudsonian, Newfoundland, White Bay.

calverti MORSE, Psyche, 7, p. 208, 1895; ♂, type M. C. Z.

WILLIAMSON, Ent. News., 11, p. 455, 1900; ♀ desc., Coll. Will.; pl. 9, ff. 5, 9, 10, ♂ app.—Proc. Ind. Acad., p. 173, 1900; suggests identity with *boreale;* pl. 1, ff. 12, 13, ♂ app.

CURRIE, Proc. Wash. Acad., 3, p. 218, 1901; good desc.

HARVEY, Ent. News, 12, p. 197, 1901; ♀ desc.

CALVERT, Biol. C. Am., p. 109, 1901; comp. desc.

HOWARD, Ins. Book, 1902; pl. 48, f. 9; ♂ adult.

Coenagrioninae

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 76, 1908; desc.

Distr. Boreal & Transition, Alaska & Wash. to Nev. to Maine.

cardenium SELYS, Bull. Acad. Belg., (2) 41, p. 530, 1876; ♂ ♀, types Coll. Selys, M. C. Z.; desc. as (race ? of *coecum*).

Distr. Tropic, Miami, Fla.; Cuba, Trinidad.

carunculatum MORSE, Psyche, 7, p. 208, 1895; ♂, type M. C. Z.

NEEDHAM, Outdoor Studies, p. 62, 1898.—Bull. 68 N. Y. State Mus., p. 255, 1903; bibl.; pl. 19, f. *h*, ♂ app.

KELLICOTT, Odon. Ohio, p. 38, 1899; good desc.; f. 14, ♂ app.

WILLIAMSON, Drag. Ind., p. 270, 1900; good desc.; pl. 5, ff. 7, 8; ♂ app.

HOWARD, Ins. Book, 1902; pl. 48, ff. 4, 5; ♂ ♀ ads.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 75, 1908; desc.

Nymph. NEEDHAM, l. c., p. 256, 1903; full desc.; pl. 17, ff. 3, *a*, nymph.

Distr. Canadian & Alleghanian, B. C. & Nev. to N. Y. & Pa.

civile (HAGEN), Syn. Neur. N. Am., p. 88, 1861; ♂ ♀, types M. C. Z. (*Agrion*).

SELYS, Bull. Acad. Belg., (2) 41, p. 514, 1876; desc. (*Enallagma*).

KOLBE, Arch. f. Naturg., 54, p. 170, 1888; good desc.

CALVERT, Trans. Am. Ent. Soc., 20, p. 236, 1893; short desc.; pl. 3, f. 31, ♂ app.—Biol. C. Am., p. 110, 1902; comp. desc.; p. 389, 1907; notes.

KELLICOTT, Odon. Ohio, p. 37, 1899; good desc.; f. 15, ♂ app.

WILLIAMSON, Drag. Ind., p. 270, 1900; good desc.; pl. 5, ff. 5, 6, ♂ app.

HOWARD, Ins. Book, 1902; pl. 47, ff. 12, 14; ♂ ♀ ads.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 256, 1903; bibl.; pl. 19, f. *i*, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 77, 1908, desc.

Syn. canadense PROVANCHER, Nat. Canad., 8, p. 325, 1876; (*Agrion*). [Kirby 1890.]

Nymph. NEEDHAM & COCKERELL, Psyche, 10, p. 137, 1903; desc. by Needh., notes by Ckll.

Distr. Transition to Tropic, N. Am., south of 45° lat., W. Indies.

clausum MORSE, Psyche, 7, p. 209, 1895; ♂, types M. C. Z.

Distr. Lower Sonoran ?, Franktown, Nevada.

coecum (HAGEN), Syn. Neur. N. Am., p. 84, 1861; ♂, type M. C. Z.; (*Agrion*).

SELYS, Bull. Acad. Belg., (2) 41, p. 528, 1876; ♂ ♀ (*Enallagma*).
CALVERT, Biol. C. Am., p. 112, 1902; ♂ comp. desc.
Distr. Lower Sonoran, (Calvert z. 2-3), B. Cal., Mex. to C. Rica, West Indies.

Subsp. **novae-hispaniae** CALVERT, Biol. C. Am., p. 381, 1907; ♂ ♀, new name.
Syn. coecum CALVERT, Proc. Cal. Acad., (2) 4, p. 485, 1895; comp. desc.; pl. 15, f. 8, ♂ app.—[Calvert 1902.]
Distr. As above for *coecum*, except W. Ind.; Colombia.

cultellatum HAGEN, Bull. Acad. Belg., (2) 41, p. 524, 1876; ♂, type M. C. Z.?
CALVERT, Biol. C. Am., p. 381, 1907; ♂ ♀, comp. desc.; pl. 10, ff. 36, 37, ♂ app.
Distr. Tropic, (Calvert z. 2-4), Cuba, Jamaica, Haiti, C. Am.

cyathigerum (CHARPENTIER), Lib. Eur., p. 163, 1840; ♂ ♀, types ?; (*Agrion*); pl. 42, f. 1, ♂ ♀ adults colored.
SELYS, Rev. Odon., p. 205-212, 1850; very detailed desc.; pl. 10, f. 2, ♂ app.—Bull. Acad. Belg., (2) 41, p. 505, 1876; (*Enallagma*).
RIS, Fauna Helv., p. 39, 1885; desc.; pl. 1, f. 3, abd. col. pattern.
ROSTOCK, Ver. Zwickau, p. 136, 1888; (*Agrion*).
WALLENGREN, Ent. Tidsk., 15, p. 205, 1894; (*Enallagma*).
GARBINI, Bull. Soc. Ent. Ital., 27, p. 130, 1895; desc.
MACLACHLAN, Ent. M. Mag., (2) 10, p. 207, 1899; submergence. —L. c., (2) 11, p. 110, 1900; on melanic variety, text fig. showing mel. abd.
TUMPEL, Geradfl. Mitteleur., p. 59, 1900; pl. 2, ♂ ♀ adults col.
LUCAS, Brit. Drag., p. 297, 1900; pl. 27, ♂ ♀ adults.
WILLIAMSON, Proc. Ind. Acad., 1900; pl. 1, ff. 14, 15; ♂ app.
CALVERT, Biol. C. Am., p. 108, 1902; comp. desc.
FROHLICH, Ver. Aschaff., p. 38, 1903; desc. (*Agrion*).
Syn. annexum (HAGEN), Syn. Neur. N. Am., p. 87, 1861; ♂ ♀, types Mus. Berlin; (*Agrion*).
SELYS, Bull. Acad. Belg., (2) 41, p. 506, 1876; (*Enallagma*) as (race ? of *cyath.*)
WILLIAMSON, Ent. News., 11, p. 454, 1900; pl. 9, ff. 5, 9, 10 and text fig., ♂ app.—Proc. Acad. Ind., p. 121, 1902; identity with *cyathigerum.*
NEEDHAM, Bull. N. Y. State Mus., p. 253, 1903; bibl.; pl. 19, f. *a*, ♂ app.—Proc. U. S. Nat. Mus., 26, 1903; pl. 54, f. 6, wing.
HANDLIRSCH, Foss. Ins., 1906; pl. 4, f. 15, wing, after Needham.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 74, 1908; dist.

Coenagrioninae

brunnea EVANS, Brit. Lib., p. 15, 1845; (*Agrion*); pl. 4, f. 8. [Selys 1850.]

charpentieri SELYS, Rev. Zool. p. 214, 1840; ♂ ♀, types Coll. Selys; pl. 11, f. 1, ♂ app.—Bull. Acad. Belg., 7 (2), p. 95, 1840. [Selys 1876.]

hastulatum STEPHENS, Ill. Brit. Ent., 6, p. 74, 1836; (*Agrion*). RAMBUR, Ins. Neur., p. 273, 1842; pl. 7, ff. 3, c, ♂ ad. col.—[Selys 1850.]

pulchrum HAGEN, Syn. Lib. Eur., p. 80, 1840.—[Selys 1850.]

Nymph. LUCAS, Brit. Drag., pp. 297-307, 1900; complete life history.

Distr. Holarctic, entire Northern Hemisphere, exclusive of Tropics. N. Am., Alaska & Newfoundland, south to Mexico.

divagans SELYS, Bull. Acad. Belg., (2) 41, p. 52, 1876; ♂ ♀, types Coll. Selys, MacLachl.

CALVERT, Trans. Am. Ent. Soc., 20, p. 238, 1893; desc.; pl. 3, ff. 25, 26, ♂ app.

KELLICOTT, Odon. Ohio, p. 43, 1899; desc.; f. 12, ♂ app. [♀ see *geminatum*.]

WILLIAMSON, Drag. Ind., p. 273, 1900; desc.; pl. 5, ff. 15, 16, ♂ app.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 254, 1903; bibl.; pl. 19, f. *e*, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 75, 1908; ♂ dist.

Distr. Alleghanian into Carolinian, Mass. & N. Car. to Ind.

doubledayi SELYS, Rev. Odon., p. 209, 1850; ♂ ♀, types Coll. Selys; (*Agrion*); in note to *E. cyathigerum*.—In Sagra: Hist. Cuba, Ins., p. 469, 1857.—Bull. Acad. Belg., (2) 41, p. 502, 1876; desc. (*Enallagma*).

HAGEN, Syn. Neur. N. Am., p. 89, 1861; desc.

KELLICOTT, Odon. Ohio, p. 41, 1899; good desc.; f. 6, ♂ app.

WILLIAMSON, Drag. Ind., p. 268, 1900; good desc.—Proc. Acad. Ind., 1901; pl. 1, ff. 8, 9; ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 74, 1908; ♂ dist.

Distr. Carolinian to Tropic, Atl. Coast, Mass. & Ohio to Fla., Cuba.

durum (HAGEN), Syn. Neur. N. Am., p. 87, 1861; ♂ ♀, types M. C. Z. (*Agrion*).

SELYS, Bull. Acad. Belg., (2) 41, p. 499, 1876; desc. (*Enallagma*).

CALVERT, Trans. Am. Ent. Soc., 20, p. 236, 1893; good desc.; pl. 3, f. 22, ♂ app.

HOWARD, Ins. Book, 1902; pl. 48, f. 13; ♂ adult.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 253, 1903; bibl.; t. f. 11, ♂ app.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 74, 1908; ♂ dist.
Distr. Carolinian to Gulf Strip, Md. & Tenn. to Fla. & La.

ebrium (HAGEN), Syn. Neur. N. Am., p. 89, 1861; ♂, types M. C. Z. (*Agrion*).
SELYS, Bull. Acad. Belg., (2) 41, p. 513, 1876; ♂ ♀, Coll. Selys, (*Enallagma*).
KELLICOTT, Odon. Ohio, p. 34, 1899; good desc.; f. 5, ♂ app.
WILLIAMSON, Drag. Ind., p. 270, 1900; good desc.; pl. 5, ff. 3, 4, ♂ app.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 255, 1903; bibl.; pl. 19, f. *g*, ♂ app.
WALKER, Ottawa Nat.. 22, p. 7, 1908; desc. notes; pl. 1, f. *H*, ♂ app.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 76, 1908; desc.
Distr. Canadian to Carolinian, N. Scotia & Md. to N. Dak.

eiseni CALVERT, Proc. Cal. Acad., (2) 4, p. 486, 1895; ♂, type Cal. Acad.; pl. 15, f. 7, ♂ app.—Biol. C. Am., p. 113, 1901; comp. desc.
Distr. Lower Sonoran, Baja California.

exsulans (HAGEN), Syn. Neur. N. Am., p. 82, 1861; ♂ ♀, types M. C. Z. (*Agrion*).
SELYS, Bull. Acad. Belg., (2) 41, p. 522, 1876; desc. (*Enallagma*).
CALVERT, Trans. Am. Ent. Soc., 20, p. 238, 1893; good desc.; pl. 3, f. 29, ♂ app.
KELLICOTT, Odon. Ohio, p. 42, 1899; good desc.; f. 1, ♂ app.
WILLIAMSON, Drag. Ind., p. 274, 1900; good desc.; pl. 5, f. 17, 18, ♂ app.
HOWARD, Ins. Book, 1902; pl. 46, ff. 4, 8; ♂ ♀ ads. col.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 255, 1903; bibl.; pl. 19, f. *f*, ♂ app.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 77, 1908; desc.
WALKER, Ottawa Nat., 22, p. 9, 1908; desc. notes; pl. 1, f. *K*, ♂ app.
Nymph. NEEDHAM, l. c., p. 255, 1903; full desc.
Distr. Alleghanian & Carolinian, N. Y., Ont., & N. Dak., to N. C. & Tex.

fischeri KELLICOTT, syn. ad *antennatum*.

geminatum KELLICOTT, Ent. News, 6, p. 239, 1895; ♂ ♀, types Ohio Univ.—Odon. Ohio, p. 40, 1899; good desc.; f. 11, ♂ app.

Coenagrioninae

WILLIAMSON, Drag. Ind., p. 272, 1900; good desc.; pl. 5, ff. 11, 12, ♂ app.

HARVEY, Ent. News, 12, p. 196, 1901; desc. notes.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 75, 1908; ♂ dist.

Syn. divagans KELLICOTT, Jn. Cincin. Soc., p. 205, 1895; ♀ only.—[Kellicott 1895.]

Nymph. NEEDHAM, Bull. 68 N. Y. State Mus., p. 254, 1903; full desc.

Distr. Carolinian, N. Y. & Pa. to Mich., Ill. & Tenn.

hageni (WALSH), Proc. Ent. Soc. Phila., 2, p. 234, 1863; (*Agrion*); named.—Proc. Acad. Phila., p. 386, 1862; desc. as *n. sp.*; ♂ ♀, types ?

SELYS, Bull. Acad. Belg., (2) 41, p. 512, 1876; desc. (*Enallagma*).

CALVERT, Trans. Am. Ent. Soc., 20, p. 237, 1893; good desc.; pl. 3, ff. 22, 23, ♂ app.

KELLICOTT, Odon. Ohio, p. 39, 1899; good desc.; f. 10, ♂ app.

WILLIAMSON, Drag. Ind., p. 39, 1900; good desc.; pl. 5, ff. 1, 2, ♂ app.

HARVEY, Ent. News, 12, p. 179, 1901; varr. in color.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 253, 1903; bibl.; pl. 19, f. *b*, ♂ app.

WALKER, Ottawa Nat., 22, p. 7, 1908; desc. notes; pl. 1, ff. *A, G*; ♂ app. & wing.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 76, 1908; desc.

Nymph. NEEDHAM, l. c. p. 254, 1903; full desc.

Distr. Alleghanian, Me. & Pa. to N. Dak.

krugii KOLBE, Arch. Naturg. 54, p. 171, 1888; ♂ ♀.

Distr. Tropic, Cuba, Porto Rico.

laterale MORSE, Psyche, 7, p. 274, 1895; ♂, type M. C. Z.

Distr. Alleghanian ?; Mass. & Ind.

minusculum MORSE, Psyche, 7, p. 207, 1895; ♂, type M. C. Z.

Distr. Alleghanian ?; Mass.

minutum (SELYS), vide *Argiallagma*, antea.

novae-hispaniae CALVERT, subsp. sub *coecum*.

pictum MORSE, Psyche, 7, p. 307, 1895; ♂ ♀, types M. C. Z.

Distr. Alleghanian ?; Mass.

Coenagrioninae

piscinarium WILLIAMSON, Drag. Ind., p. 273, 1900; ♂ ♀, types in Coll. Will.; pl. 5, ff. 13, 14, ♂ app.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 255, 1903; bibl.; pl. 19, f. *d*, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 75, 1908; ♂ dist.

Distr. Carolinian, Ind., N. Y. & Pa.

pollutum (HAGEN), Syn. Neur. N. Am., p. 83, 1861; ♂ ♀, types M. C. Z. (*Agrion*).

SELYS, Bull. Acad. Belg., (2) 41, p. 527, 1876; ♂ ♀ (*Enallagma*).

CALVERT, Trans. Am. Ent. Soc., 20, p. 239, 1893; good desc.; pl. 3, f. 27, ♂ app.

KELLICOTT, Odon. Ohio, p. 45, 1899; desc.; f. 13, ♂ app.

WILLIAMSON, Drag. Ind., p. 276, 1900; pl. 5, ff. 23, 24, ♂ app.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 258, 1903; bibl.; pl. 19, f. *n*, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 78, 1908; desc.

Distr. Alleghanian to Austroriparian, Me. & Wis. to Fla. & Tenn.

praevarum (HAGEN), Syn. Neur. N. Am., p. 88, 1861; ♂ ♀, types M. C. Z. (*Agrion*).

SELYS, Bull. Acad. Belg., (2) 41, p. 516, 1876; desc. (*Enallagma*).

WILLIAMSON, Ent. News, 11, pp. 456-458, 1900; detailed desc.; pl. 9, ff. 4, 6, ♂ app.

CALVERT, Biol. C. Am., p. 111, 1902; comp. desc.; p. 380, 1907; notes.

Distr. Lower Austral, Kans. & La., west to Calif., Mexico.

robustum SELYS, Ent. M. Mag., 11, p. 243, 1875; ♀, holotype Coll. MacLachlan.—Bull. Acad. Belg., (2) 41, p. 507, 1876; desc. as (race ? of *cyathigerum*).

Distr. Lower Sonoran ?; California. (= *cyathigerum ?*)

semicirculare SELYS, Bull. Acad. Belg., (2) 41, p. 517, 1876; ♂, type Coll. Selys.

CALVERT, Biol. C. Am., p. 112, 1902; ♂, comp. desc.; pl. 5, f. 13, ♂ app.; p. 381, 1907.

Distr. Tropic, (Calvert z. 2-4), Mex.: Vera Cruz, Putla, Pac. Coast.

signatum (HAGEN), Syn. Neur. N. Am., p. 84, 1861; ♂, type M. C. Z. (*Agrion*).

Coenagrioninae

SELYS, Bull. Acad. Belg., (2) 41, p. 525, 1876; ♂ ♀ (*Enallagma*), Coll. Selys.

CALVERT, Trans. Am. Ent. Soc., 20, p. 238, 1893; good desc.; pl. 3, f. 28, ♂ app.

KELLICOTT, Odon. Ohio, p. 45, 1899; good desc.; f. 4, ♂ app.

WILLIAMSON, Drag. Ind., p. 275, 1900; desc.; pl. 5, ff. 21, 22, ♂ app.

HOWARD, Ins. Book, 1902; pl. 47, ff. 1, 3, ♂ ♀ ads.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 258, 1903; bibl.; pl. 19, f. *m*, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 77, 1908; desc.

Syn. dentiferum (WALSH), Proc. Ent. Soc. Phila., 2, p. 236, 1863; ♂ ♀ (*Agrion*), types destroyed; desc. as (*n. sp.? = signatum ?*)—[Selys 1876.]

Nymph. NEEDHAM, l. c., p. 258, 1903; full desc.; p. 252, t. f. 10, adult.

Distr. Alleghanian to Austroriparian, Me. & Wis. to Ga. & La.

traviatum SELYS, Bull. Acad. Belg., (2) 41, p. 521, 1876; ♂ ♀, types Coll. Selys.

BANKS, Can. Ent., 26, p. 77, 1894; (= *aspersum*).

MORSE, Psyche, 7, p. 211, 1895; reply to Banks; species valid.

KELLICOTT, Odon. Ohio, p. 36, 1899; good desc.; ff. 8, 9, ♂ app.

WILLIAMSON, Drag. Ind., p. 271, 1900; good desc.; pl. 5, ff. 9, 10, ♂ app.

HOWARD, Ins. Book, 1902; pl. 48, ff. 7, 8; ♂ ♀ ads.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 257, 1903; bibl.; pl. 19, f. *k*, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 75, 1908; ♂ dist.

Distr. Carolinian, into Alleghanian, Mass., N. Y. & Ind., to N. C.

TELEBASIS SELYS.

Type—*salva* (HAGEN). Distribution—Neotropical, one sp. into Nearctic.*

Bull. Acad., (2) 20, p. 378, 1865.—C. R. Soc. Ent. Belg., 11, p. 71, 1869.

BRAUER, Verh. Ges. Wien, 18, p. 386, 1868.

MACLACHLAN, Ann. Mag. N. Hist., p. 35, 1873; note.

CALVERT, Biol. C. Am., p. 115, 1902; char. & tables of C. Am. spp.

Syn. Erythragrion SELYS, Bull. Acad. Belg., (2) 42, p. 955, 1876.—[Calvert 1902.]

dominiciana (SELYS), in Sagra: Hist. Cuba, Ins., p. 466, 1857; ♂ (*Agrion*), type ?—Bull. Acad. Belg., (2) 42, p. 958, 1876; ♂ ♀ (*Erythragrion*), ♀ desc. from Hagen MS.

*NOTE—I use Neotropical for Telebasis in Kirby's sense, placing the other described species from the Eastern Hemisphere in Teinobasis Kirby.

Coenagrioninae

HAGEN, Syn. Neur. N. Am., p. 86, 1861; (*Agrion*), desc. after Selys.
Distr. Tropic, W. Indies, Cuba, Haiti, Porto Rico, Guiana.

filiola (PERTY), Del. Anim. Art., p. 125, 1834; ♂, type ?; desc. vague; pl. 25, f. 4, col. fig. of adult, very poor; (*Agrion*).—[teste Calvert 1902.]
SELYS, Bull. Acad. Belg., (2) 42, p. 956, 1876; ♂ ♀ (*Erythragrion*), ♀ from Hagen, MS.
CALVERT, Biol. C. Am., p. 118, 1902; ♂ ♀ (*Telebasis*); pl. 5, ff. 33, 34, ♂ app.; p. 383, 1907; notes.
Distr. Tropic, (Calvert z. 2-3), Mex.; Tamaulipas, C. Am. to Brazil.

macrogastra (SELYS), in Sagra: Hist. Cuba, Ins. p. 465, 1857; (*Agrion*) ♂, holotype Coll. Selys.—Bull. Acad. Belg., (2) 43, p. 107, 1877; ♂ (*Leptobasis* ?).
HAGEN, Syn. Neur. N. Am., p. 74, 1861; (*Agrion*), after Seyls.
CARPENTER, Jn. Inst. Jamaica, 2, p. 262, 1896; ♂ ♀ (*Telebasis*).—Proc. Dublin Soc., 8, p. 436, 1897; complete desc.; pl. 16, ff. 10-16, ♂ ♀ char.; (*Erythr.*)
Distr. Tropic, Cuba, Jamaica.

salva (HAGEN), Syn. Neur. N. Am., p. 85, 1861; ♂ ♀ (*Agrion*), types M. C. Z.
SELYS, Bull. Acad. Belg., (2) 42, p. 962, 1876; desc. (*Erythragrion*).
CALVERT, Proc. Cal. Acad., (2) 4, p. 483, 1895; desc. notes; pl. 15, f. 9, ♂ app.—Biol. C. Am., p. 119, 1902; comp. desc.; (*Telebasis*); p. 385, 1907; notes.
NEEDHAM, Proc. U. S. Nat. Mus., 26, 1903; pl. 54, f. 7, wing.
Syn. boucardi SELYS, C. R. Soc. Ent. Belg., 11, p. 70, 1868; ♂ ♀, types Coll. Selys; (*Telebasis*).—[Selys 1876.]
Nymph. NEEDHAM, l. c., 27, p. 716, 1904; full desc.; t. f. 8, struct. dets.
Distr. Lower Sonoran, (Calvert z. 2-4), Calif., Ariz., Tex., B. Calif., Mex. to Guat.

vulnerata (HAGEN), Syn. Neur. N. Am., p. 86, 1861; ♂ ♀, (*Agrion*), types M. C. Z.
SELYS, Bull. Acad. Belg., (2) 42, p. 960, 1876; desc. (*Erythragrion*).
Distr. Tropic, Cuba, Porto Rico.

Coenagrioninae

TELAGRION SELYS.

Type—*longum* SELYS. Distribution—Neotropical & Nearctic.
Bull. Acad. Belg., (2) 42, p. 966, 1876.
CALVERT, Ent. News, 14, p. 37, 1903; char. & affinities of genus.

daeckii CALVERT, Ent. News, 14, p. 36, 1903; ♂, types M. C. Z., Coll. Daecke; pl. 3, ff. 1, 3-5, ♂ adult & char.
Nymph. ?NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 715, 1904; desc.; pl. 43, f. 13; t. f. 7, str. dets.
Distr. Carolinian to Gulf Strip, Atl. Coast, N. J., N. C., Fla.

LEPTOBASIS SELYS.

Type—*vacillans* HAGEN. Distribution—Neotropical.
Bull. Acad. Belg., (2) 43, p. 99, 1877.
CALVERT, Biol. C. Am., p. 120, 1902.

vacillans HAGEN, Bull. Acad. Belg., (2) 43, p. 101, 1877; ♂ ♀, types British Museum.
KOLBE, Arch. f. Naturg., 54, p. 172, 1888; desc. notes.
CALVERT, Biol. C. Am., p. 121, 1902; detailed desc.; pl. 5, ff. 22-25, ♂ ♀ char., tarsi; p. 385, 1907, notes.—Ann. Carnegie Mus., 6, p. 200, 1909; desc.
Nymph. ?NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 718, 1904; desc.; t. f. 11, structural details; desc. as (*Leptobasis sp.* from Porto Rico).
Distr. Tropic; W. Ind., Cuba; Mex., Nic., Guat.

Subsp. **atrodorsum** CALVERT, Biol. C. Am., p. 121, 1902; ♂ ♀.
Distr. Tropic, (Calvert z. 2-3), Mex.: Vera Cruz, Jalisco; Panama.

NEHALENNIA SELYS.

Type—*speciosa* (CHARPENTIER). Distribution—Holarctic, into Neotropical.
Rev. Odon., p. 172, 1850.—Bull. Acad. Belg., (2) 46, p. 1235, 1876.
BRAUER, Verh. Ges. Wien., 18, p. 385, 1868.
NEEDHAM, Proc. U. S. Nat. Mus., 26, pp. 710, 727, 1903; venation.

denticollis (BURMEISTER), vide *Ischnura,* postea.

gracilis MORSE, Psyche, 7, p. 274, 1895; ♂ ♀, types M. C. Z.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 249, 1903; desc. notes.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 73, 1908; dist.
Distr. Carolinian; Mass., N. Y., N. J.

irene HAGEN, Syn. Neur. N. Am., p. 74, 1861; ♂ ♀, types M. C. Z. (*Agrion*) (*Nehallennia*).
SELYS, Bull. Acad. Belg., (2) 41, p. 1240, 1876; ♂ ♀ (*Nehallennia*).
CALVERT, Trans. Am. Ent. Soc., 20, p. 234, 1893; desc.
KELLICOTT, Odon. Ohio, p. 29, 1899; good desc.
WILLIAMSON, Drag. Ind., p. 265, 1900; good desc.
HOWARD, Ins. Book, 1902; pl. 46, f. 3; ♂ ad. col.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 249, 1903; desc. notes; pl. 18, ff. 3, 4, ♂ ♀ adults.—Proc. U. S. Nat. Mus., 26, 1903; pl. 54, f. 8, wing.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 73, 1908; desc.
Nymph. NEEDHAM Bull. 68 N. Y. State Mus., p. 249, 1903; desc.; pl. 14, f. *i*, str. dets.
Distr. Carolinian to Gulf Strip; Me. & N. Dak. to Fla.

lais (SELYS), vide *Anisagrion*, antea.

posita (HAGEN), vide *Ischnura*, postea.

COENAGRION KIRBY.

Type—*puella* (LINNE). Distribution—Cosmopolitan.
Syn. Cat., p. 148, 1890; new name for *Agrion*, preoccupied.
SELYS, Ann. Soc. Ent. Belg., 42, p. 338, 1898; on applicability of name, *Agrion* versus *Coenagrion*, the former to be preferred.
Syn. Agrion FABRICIUS, Syst. Ent., p. 425, 1775; in part.
LEACH, Edinb. Encycl., 9, p. 137, 1815; ("Wings membraneous, with a rhomboidal stigma. Abdomen of the male armed with a forceps-like appendage. *Obs.* We have of this genus several species, not accurately determined.")
STEPHENS, Ill. Brit. Ent., 6, p. 71, 1836.
CHARPENTIER, Lib. Eur., p. 21, 1840.
SELYS, Mon. Lib. Eur., p. 146, 1840.—Rev. Odon., p. 171, 1850.—Bull. Acad. Belg., (2) 41, p. 1246, 1876.
Agrion AUCTORUM.

exclamationis (SELYS), Bull. Acad. Belg., (2) 41, p. 1251, 1876; ♂, (*Agrion*), holotype Coll. MacLachlan.
Distr. Lower Sonoran ?; California.

Coenagrioninae

interrogatum (SELYS), Bull. Acad. Belg., (2) 41, p. 1254, 1876; ♀, (*Agrion*), type M. C. Z.; desc. translated from Hagen MS.; (race ? of *concinnum*).

Distr. Canadian ?; Saskatchewan.

resolutum (HAGEN), Bull. Acad. Belg., (2) 41, p. 1263, 1876; ♂ ♀, (*Agrion*), types M. C. Z.

WILLIAMSON, Ent. News, 13, p. 145, 1902; dist.

Distr. Canadian into Transition, Magdalen Is., Gr. Slave Lake, Hudson Bay to S. Dak.

AMPHIAGRION SELYS.

Type—*saucium* (BURMEISTER). Distribution—Nearctic.

Bull. Acad. Belg., (2) 41, p. 284, 1876.
CALVERT, Trans. Am. Ent. Soc., 20, p. 235, 1893.
KELLICOTT, Odon. Ohio, p. 15, 1899.
WILLIAMSON, Drag. Ind., p. 247, 1900.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 236, 1903.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 68, 1908.

amphion SELYS, Bull. Acad. Belg., (2) 41, p. 287, 1876; ♀, type Coll. Selys.

Distr. Zone ? North America (Selys).

flavescens SELYS, syn. ad *Hesperagrion heterodoxum*, antea.

saucium (BURMEISTER), Handb. Ent., 2, p. 819, 1839; ♂, types M. C. Z. & Halle; (*Agrion*).

HAGEN, Syn. Neur. N. Am., p. 85, 1861; ♂ ♀.
PACKARD, Amer. Nat., 1, p. 308, 1867; desc.; pl. 9, f. 7, adult.
SELYS, Bull. Acad. Belg., (2) 41, p. 285, 1876; (*Amphiagrion*).
CALVERT, Trans. Am. Ent. Soc., 20, p. 235, 1893; desc.—L. c., 25, p. 39, 1898; on Burm. types.—Biol. C. Am., p. 121, 1902; desc.
KELLICOTT, Odon. Ohio, p. 31, 1899; desc.
WILLIAMSON, Drag. Ind., p. 267, 1900; good desc.
HOWARD, Ins. Book, 1902; pl. 46, ff. 2, 6; ♂ ♀ ads. col.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 248, 1903; bibl.; pl. 18, ff. 1, 2, adults.
WALKER, Ottawa Nat., 22, p. 6, 1908; desc. notes.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 73, 1908; desc.

Syn. abbreviatum SELYS, Bull. Acad. Belg., (2) 41, p. 1299, 1876; ♂, type Coll. Selys; (*Pyrrhosma*).—[Williamson 1900.]

discolor BURMEISTER, Handb. Ent., 2, p. 819, 1839: ♀, type at Halle; (*Agrion*).
SELYS, Sagra: Hist. Cuba, Ins., p. 467, 1857.
HAGEN, Syn. Neur. N. Am., p. 79, 1861.
CALVERT, Trans. Am. Ent. Soc., 25, p. 38, 1898; on Burm. types & desc.; ("made from 3 different species").—[Selys 1876.]
Nymph. NEEDHAM, l. c., p. 248, 1903; desc.; pl. 14, f. *c.* 15, f. *h*, struct. detls.
Distr. Austral, into Transition; Wash. & Calif. to Mass. & S. C., Cuba?

CHROMAGRION NEEDHAM.

Type—*conditum* (HAGEN). Distribution—Nearctic.
Bull. 48 N. Y. State Mus., p. 246, 1903; char. discussed & compared to *Erythromma* & *Pyrrhosoma.*

conditum (HAGEN), Bull. Acad. Belg., (2) 41, p. 1305, 1876; ♂ ♀, (*Erythromma ?*), types M. C. Z., Coll. Selys.
CALVERT, Trans. Am. Ent. Soc., 20, p. 234, 1893; desc.
MORSE, Psyche, 7, p. 211, 1895; on venation.
KELLICOTT, Odon. Ohio, p. 28, 1899; good desc.
WILLIAMSON, Drag. Ind., p. 265, 1900; good desc.
HARVEY, Ent. News, 12, p. 179, 1901; desc. notes.
HOWARD, Ins. Book, 1902; pl. 48, ff. 14, 15; ♂ ♀ ads.
NEEDHAM, Bull. 68 N. Y. State Mus., 246, 1903; (*Chromagrion*); desc. notes; pl. 13, ff. 1, 2, ♂ ♀ adults.
WALKER, Ottawa Nat., 22, p. 6, 1908; desc. notes; pl. 1, f. *F*, ♂ app.
Nymph. NEEDHAM, l. c., p. 247, 1903; desc.; pl. 13, f. 3, adult nymph.
Distr. Alleghanian & Carolinian Me. & N. J. to Ind. & Quebec.

ISCHNURA CHARPENTIER.

Type—*pumilio* (CHARPENTIER). Distribution—Cosmopolitan.
Lib. Eur., p. 20, 1840.
SELYS, Bull. Acad. Belg., (2) 41, p. 259, 1876.
BRAUER, Verh. Ges. Wien., 18, p. 385, 1868.
CALVERT, Trans. Am. Ent. Soc., 20, p. 221, 1893.—Proc. Cal. Acad. (2) 4, p. 470, 1895.—Biol. C. Am., p. 122, 1902; char. & tables of C. Am. spp.
KELLICOTT, Odon. Ohio, p. 15, 1899.
WILLIAMSON, Drag. Ind., pp. 247, 277, 1900; char. & applicability of name.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 269, 1903; table of N. Y. spp.

Coenagrioninae

FOERSTER, JB. Ver. Nassau, 59, p. 334, 1906; systematic.

Syn. Ischnosoma WALLENGREN, Ent. Tidsk., 15, p. 270, 1894.—[Calvert 1902.]

Micronympha KIRBY, Syn. Cat., p. 140, 1890.—[Williamson 1900.]

barberi CURRIE, Proc. Wash. Ent. Soc., 5, p. 302, 1903; ♂, holotype U. S. N. Mus.; t. f. 7, ♂ app.

Distr. Lower Sonoran, Colo., New Mexico.

cervula SELYS, Bull. Acad. Belg., (2) 41, p. 262, 1876; ♂ ♀, types Coll. MacLachlan ?.

CALVERT, Proc. Acad. Cal., (2) 4, p. 497, 1895; good desc.; pl. 15, f. 3, ♂ app.—Biol. C. Am., p. 128, 1902; comp. desc.

Distr. Upper & Lower Sonoran; Pac. Coast, B. C. to Baja Calif., Ariz., N. M.

credula HAGEN, subsp. sub *ramburi.*

damula CALVERT, Biol. C. Am., p. 126, 1902; ♂, holotype M. C. Z.

CURRIE, Proc. Wash. Ent. Soc., p. 302, 1903; noted; t. f. 6, ♂ app.

Distr. Lower Sonoran; New Mexico, Colorado.

defixa HAGEN, syn. ad *credula.*

defixa SELYS, syn. ad *perparva.*

demorsa (HAGEN), Syn. Neur. N. Am., p. 81, 1861; ♂ ♀, (*Agrion*), types M. C. Z.; ♀ broken.

SELYS, Bull. Acad. Belg., (2) 41, p. 261, 1876; (*Ischnura*).

CALVERT, Biol. C. Am., p. 128, 1902; comp. desc.; p. 390, 1907, on varr.

Distr. Upper Sonoran into Trans. & L. Son., Mont. to Mexico City.

denticollis (BURMEISTER), Handb. Ent., 2, p. 819, 1839; ♀ (*Agrion*), holotype Halle.

HAGEN, Syn. Neur. N. Am., p. 81, 1861; ♂ ♀; ♂ type M. C. Z.

SELYS, Bull. Acad. Belg., (2) 41, p. 1244, 1876; (*Nehalennia ?*).—L. c., (2) 42, p. 990, 1876; notes.

CALVERT, Trans. Am. Ent. Soc., 25, p. 38, 1898; on Burm. type; pl. 1, ff. 13, 14, thor. col. pattern; (*Ischnura*).—Biol. C. Am., p. 126, 1902; comp. desc.; p. 387, 1907; notes on varr.

Syn. exstriata CALVERT, Proc. Cal. Acad., (2) 4, p. 493, 1895; full desc.; ♂ ♀, types Cal. Acad.; pl. 15, f. 2, ♂ app.—[Calvert 1898.]

Coenagrioninae

Distr. Upper & Lower Sonoran, (Calvert z. 2-5), Calif., Baja Calif., Ariz., Mex.

erratica CALVERT, Proc. Cal. Acad., (2) 4, p. 491, 1895; ♂ ♀, types Cal. Acad.; pl. 15, f. 1, ♂ app.
OSBORN, Ent. News, 16, p. 188, 1895; desc. notes.
Distr. Upp. Sonoran ?; British Columbia to California.

exstriata CALVERT, syn. ad *denticollis.*

kellicotti WILLIAMSON, Ent. News, 9, p. 209, 1898; ♂ ♀, types Coll. Williamson.—Drag. Ind., p. 279, 1900; detailed desc.—Proc. Ind. Acad., p. 174, 1900; notes.
CALVERT, Ent. News, 9, p. 211, 1898; add. to Wills. desc.; pl. 11, ff. 5-13, showing abd. color pattern & ♂ app.
Distr. Carolinian; R. I., N. Y. to Ind.

perparva SELYS, Bull. Acad. Belg., (2) 41, p. 263, 1876; ♂ ♀, types Coll. Selys, MacL.
CALVERT, Proc. Cal. Acad., (2) 4, p. 494, 1895; good desc.; pl. 15, f. 4, ♂ app.—Biol. C. Am., p. 130, 1903; comp. desc.
Syn. defixa SELYS, Bull. Acad. Belg., (2) 41, p. 261, 1876.—[Calvert 1903.]
Nymph. NEEDHAM & COCKERELL, Psyche, 10, p. 139, 1903; desc. & notes.
Distr. Upper & Lower Sonoran; Rockies, B. C. & Mont. to Calif. & Texas.

posita (HAGEN) Syn. Neur. N. Am., p. 77, 1861; ♂ ♀, types M. C. Z.; (*Agrion*).
SELYS, Bull. Acad. Belg., (2) 41, p. 1242, 1876; desc. (*Nehalennia*).
CALVERT, Trans. Am. Ent. Soc., 20, p. 235, 1895; desc.
KELLICOTT, Odon. Ohio, p. 30, 1899; good desc.
WILLIAMSON, Drag. Ind., p. 266, 1900; good desc.
HOWARD, Ins. Book, 1902; pl. 46, f. 7; ♂ ad. col.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 261, 1903; bibl.; (*Ischnura*).
WALKER, Ottawa Nat., p. 50, 1908; desc. notes.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 73, 1908; dist. (*Nehalennia*)
Nymph. NEEDHAM, l. c., p. 260, 1903; short diag.
Distr. Alleghanian to Austroriparian,—Me. & N. Dak. to Ga. & Mo.

prognatha (HAGEN), Syn. Neur. N. Am., p. 83, 1861; ♂, type M. C. Z.; (*Agrion*).

Coenagrioninae

SELYS, Bull. Acad. Belg., (2) 41, p. 259, 1876; desc.; (*Ischnura*).

WILLIAMSON, Ent. News, 14, p. 225, 1903; ♀ desc.; Coll. Williamson.

Distr. Carolinian, Va. to Tenn.

ramburii SELYS, Rev. Odon., p. 186, 1850; (*Agrion*); name only.—Sagra: Hist. Cuba, Ins., p. 468, 1857.—Bull. Acad. Belg., (2) 41, p. 272, 1876; ♂ ♀, (*Ischnura*), types Coll. Selys, Hagen, MacLachlan.

KOLBE, Arch. f. Naturg., 54, 1888; pl. 13, f. 3, fore wing.

CALVERT, Trans. Am. Ent. Soc., 20, p. 240, 1893; desc.—Biol. C. Am., p. 125, 1902; comp. desc.; in note, abnormality; p. 388, 1907, varr. tabulated.

NEEDHAM, Bull. 68 N. Y. State Mus., p. 261, 1903; dist.

Syn. iners HAGEN, Syn. Neur. N. Am., p. 75, 1861; ♂ ♀ (*Agrion*), types M. C. Z.

PROVANCHER, Nat. Canad., 8, p. 324, 1876.—[Selys 1876.]

senegalense (*var.*) RAMBUR, Ins. Neur., p. 277, 1842.—[Selys 1876.]

tuberculatum SELYS, in Sagra: Hist. Cuba, Ins., p. 467, 1857.

HAGEN, Syn. Neur. N. Am., p. 76, 1861.—[Selys 1876.]

Distr. Carolinian to Tropic; Atl. Coast, R. I. to Fla.; Tex. to Paraguay, W. Ind.

Subsp **credula** (HAGEN), Syn. Neur. N. Am., p. 80, 1861; ♂ ♀, (*Agrion*), types M. C. Z.

CALVERT, Proc. Cal. Acad., (2) 4, p. 489, 1895; desc. notes, (*Ischnura*); pl. 15, ff. 5, 6, ♂ app.—Biol. C. Am., p. 125, 1902; comp. desc.; p. 388, 1907; varr. tabulated.

Syn. defixa HAGEN, Syn. Neur. N. Am., p. 80, 1861; ♂ (*Agrion*), type M. C. Z.—[Calv. 1902.]

ramburii CARPENTER, Jn. Inst. Jamaica, 2, p. 261, 1896; (*Ischnura*).—[Calv. 1902.]

Distr. Lower Austral into Tropic, (Calvert z. 2-5) Cal., Fla., W. Ind. C. Am., B. Cal.

verticalis (SAY), Jn. Acad. Phila., 8, p. 37, 1839; ♂ ♀, (*Agrion*), types Mus. Boston.

SELYS, Bull. Acad. Belg., (2) 41, p. 265, 1876; (*Ischnura*).

CALVERT, Trans. Am. Ent. Soc., 20, p. 239, 1893; good desc.—Ent. News, 9, p. 213, 1898; dist.; pl. 11, ff. 1-4, ♂ char. & abd. col. pattern.

NEEDHAM, Outdoor Studies, p. 61, 1898; desc.; t. f. 1, ad.—Bull. 68 N. Y. State Mus., p. 260, 1903; desc. notes; pl. 17, ff. 4, 5; adults.

KELLICOTT, Odon. Ohio, p. 48, 1899; good desc.
WILLIAMSON, Drag. Ind., p. 278, 1900; good desc.
HOWARD, Ins. Book, 1902; pl. 47, ff. 2, 4, 5; ♂ ♀ ads.
WALKER, Ottawa Nat., 22, p. 50, 1908; desc. notes.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 78, 1908; desc.

Syn. ramburii HAGEN, Syn. Neur. N. Am., p. 76, 1861; (*Agrion*).—[Selys 1876.]

discolor (pars) BURMEISTER, Handb. Ent., 2, p. 819, 1839.—[Calvert 1898.]

Nymph. NEEDHAM, l. c., p. 261, 1903; desc.; pl. 16, f. 5, adult.

Distr. Alleghanian to Austroriparian, Me., Ont., & N. Dak. to Ga. & Tex.

ANOMALAGRION SELYS.

Type—*hastatum* (SAY). Distribution—Nearctic into Neotropical.

Sagra: Hist. Cuba, Ins., p. 469, 1857.—Bull. Acad. Belg., (2) 41, p. 254, 1876.
CALVERT, Trans. Am. Ent. Soc., 20, p. 221, 1893.—Biol. C. Am., p. 130, 1903.
KELLICOTT, Odon. Ohio, p. 15, 1899.
WILLIAMSON, Drag. Ind., p. 247, 1900.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 236, 1903.

hastatum (SAY), Jn. Acad. Phila., 8, p. 38, 1839; ♂ ♀ (*Agrion*), types Mus. Boston.
SELYS, in Sagra: Hist. Cuba, Ins., p. 470, 1857.—Bull. Acad. Belg., (2) 41, p. 255, 1876; desc. (*Anomalagrion*).
HAGEN, Syn. Neur. N. Am., p. 77, 1861; (*Agrion*).
CALVERT, Trans. Am. Ent. Soc., 20, p. 240, 1895; good desc. (*Anomalagrion*).—Biol. C. Am., p. 130, 1903; detailed desc.
KELLICOTT, Odon. Ohio, p. 49, 1899; good desc.
WILLIAMSON, Drag. Ind., p. 279, 1900; good desc.
HOWARD, Ins. Book, 1902; pl. 46, ff. 16-18; ♂ ♀ ads. col.
NEEDHAM, Bull. 68 N. Y. State Mus., p. 262, 1903; desc. notes.—Proc. U. S. Nat. Mus., 26, p. 709, 1903; t. f. 4 *u*, stigma.

Syn. anomalum RAMBUR, Ins. Neur., p. 281, 1842; ♂ (*Agrion*), type Coll. Selys.—[Selys 1876.]

veneriotata HALDEMANN, Proc. Acad. Phil., 2, p. 55, 1844.—[Selys 1876.]

Nymph NEEDHAM, Bull. 68 N. Y. State Mus., p. 263, 1903; desc.; pls. 15, f. *e*, 14, f. *j*, structural dets.; pl. 18, f. 7, adult.

Distr. Carolinian to Tropic; Me. & N. Dak. south to Panama & West Indies.

Coenagrioninae

CERATURA SELYS.

Type—*capreola* (HAGEN). Distribution—Neotropical.
Bull. Acad. Belg., (2) 41, p. 251, 1876.
CALVERT, Biol. C. Am., p. 131, 1903.

capreola (HAGEN), Syn. Neur. N. Am., p. 78, 1861; ♂, (*Agrion*), types M. C. Z.
SELYS, Bull. Acad. Belg., (2) 41, p. 252, 1876; ♂ ♀ (*Ceratura*), Coll. Selys.
CALVERT, Biol. C. Am., p. 131, 1903; detailed desc.; pl. 5, f. 26, tars.; p. 391, 1907; variation of ♂ ♀s tabulated.
Distr. Tropic (Calvert z. 2-4); Mex., C. Am. to Brazil, W. Ind., Cuba, Porto Rico.

NEONEURA SELYS.

Type—*bilinearis* SELYS. Distribution—Neotropical.
Bull. Acad. Belg., (2) 10, p. 459, 1860.—Mem. Cour., 38, p. 198, 1886.
BRAUER, Verh. Ges. Wien., 18, p. 387, 1868.
CALVERT, Biol. C. Am., p. 137, 1903; char.; p. 392, 1907; tabulations.
Syn. Caenoneura KIRBY, Syn. Cat., p. 136, 1890; new name.

aaroni CALVERT, Biol. C. Am., p. 139, 1903; ♂ ♀, types Acad. Phila.; p. 5, f. 37, ♂ app.; pl. 10, ff. 28, 29, lobe of prothorax.
Distr. Tropic; Texas—(Corpus Christi ?)

amelia CALVERT, Biol. C. Am., p. 138, 1903; ♂ ♀; ♂ Coll. Champion, ♀ M. C. Z.; pl. 5, f. 36, ♂ app.; pl. 6, f. 8, ♂ adult col.; p. 393, 1907; notes; pl. 10, ff. 25, 26, lobe.
Distr. Tropic, (Calvert z. 2-3), Mexico to Nicaragua.

carnatica SELYS, Mem. Cour., 38, p. 200, 1886; ♂ ♀, types Colls. Selys, MacLachlan.
NEEDHAM, Proc. U. S. Nat. Mus., 26, 1903; pl. 54, f. 4, wing.
Distr. Tropic; Cuba.

maria (SCUDDER), Proc. Bost. Soc., 10, p. 188, 1866; ♀, types Coll. Scudder; (*Agrion*).
SELYS, Mem. Cour., 38, p. 199, 1886; ♂ ♀, (*Neoneura*).
Syn. palustris HAGEN, Proc. Bost., 11, p. 190, 1867.—[Hagen 1873.]
Distr. Tropic; Cuba, Isle of Pines.

MICRONEURA SELYS.

Type—*caligata* SELYS. Distribution—Neotropical.
Mem. Cour., 38, p. 206, 1886.

caligata SELYS, Mem. Cour., 38, p. 206, 1886; ♂, types Coll. Poey.
Distr. Tropic; Cuba.

PROTONEURA SELYS.

Type—*capillaris* (RAMBUR). Distribution—Neotropical.
Sagra: Hist. Cuba, Ins., p. 470, 1857.—Bull. Acad. Belg., (2) 10, p. 461, 1860.—Mem. Cour., 38, p. 207, 1886.
HAGEN, Syn. Neur. N. Am., p. 73, 1861.
BRAUER, Verh. Ges. Wien., 18, p. 387, 1868.
CALVERT, Biol. C. Am., p. 133, 1903; char. & tables.

capillaris (RAMBUR), Ins. Neur., p. 280, 1842; ♂ (*Agrion*), type Coll. Selys.
SELYS, in Sagra: Hist. Cuba, Ins., p. 471, 1857; (*Protoneura*).—Bull. Acad. Belg., (2) 10, p. 461, 1860.—Mem. Cour., 38, p. 212, 1886; ♂ ♀.
HAGEN, Syn. Neur. N. Am., p. 73, 1861; ♂ desc. after Selys.
Distr. Tropic; Cuba.

Petalurinae

SUBORDER **ANISOPTERA** SELYS.

Mon. Cal., p. 1, 1858; defined as tribus of the suborder *Odonata*.
CALVERT, Trans. Am. Ent. Soc., 20, p. 219, 1893; as suborder.
NEEDHAM, Bull. 47 N. Y. State Mus., pp. 429-540, 1901; life-histories of *Anisoptera*, illustrated by plates and text-figures; many good diagnostic tables.—Ibid., Bull. 68, pp. 264-279, 1903, additions.

FAMILY **AESHNIDAE** SELYS.

Mon. Gomph. p. 5, 1858; defined.
NEEDHAM, Proc. U. S. Nat. Mus., 26, pp. 711, 727, 732-739, 1903; places five subfamilies under this heading.
CALVERT, Biol. C. Am., pp. 145-196, 1905; C. Am. subf., genera & spp.

SUBFAMILY **PETALURINAE** NEEDHAM.*

Type genus—*Petalura* LEACH. Distribution—Cosmopolitan.
Bull. 47 N. Y. State Mus., p. 434, 1901; as subfamily.
SELYS, Mon. Gomph., p. 365, 1858; (Legion *Petalura*).

TACHOPTERYX SELYS

Type—*thoreyi* (HAGEN). Distribution—Nearctic & Manchurian (*pryeri*).
Bull. Acad. Belg., (2) 7, p. 551, 1859.
BRAUER, Verh. Ges. Wien., 18, p. 375, 1868.
CALVERT, Trans. Am. Ent. Soc., 20, p. 221, 1893.
WILLIAMSON, Drag. Ind., p. 248, 1900.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 472, 1901.—Proc. U. S. Nat. Mus., 26, p. 739, 1903; venation.

hageni SELYS, C. R. Soc. Ent. Belg., 22, p. 68, 1879; ♀, type Coll. Selys ?
NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 739, 1903; venation; t. ff. 28, 29, wings & details of venation.
Distr. Lower Sonoran?; Nevada.

*NOTE—I do not include the Group Petalia in this subfamily. As has been suggested by Williamson (Proc. U. S. Nat. Mus., 33, p. 271, 1907) in his excellent diagnosis, based upon characters of at least equal value to those upon which Needham based the Petalurinae, Petalia and its composites (except Allopetalia) are fully worthy of subfamily rank.

thoreyi (HAGEN), Mon. Gomph., p. 373, 1857; ♂ (*Uropetala*), holotype M. C. Z.—Syn. Neur. N. Am., p. 117, 1861; desc. (*Petalura*); pl. 19, f. 3, ♂ app.; pl. 23, f. 14, ven.

SELYS, Bull. Acad., (2) 7, p. 551, 1859; desc. (*Tachopteryx*).—L. c., (2) 46, p. 696, 1878; ♀ desc.; Coll. Selys ?

CALVERT, Trans. Am. Ent. Soc., 20, p. 241, 1893; ♂ desc.

WILLIAMSON, Ent. News, 11, p. 398, 1900; desc. notes.—Drag. Ind., p. 281, 1900.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 472, 1901; desc. notes.—Proc. U. S. Nat. Mus., 26, 1903; pl. 36, f. 1, wings.

Nymph. WILLIAMSON, Ent. News, 12, pp. 1-3, 1901; desc.; pl. 1, ff. 1-4, adult & details.

NEEDHAM, Bull, 47 N. Y. State Mus., p. 472, 1901; desc.; t. f. 15, lab. & ant.

TILLYARD, Proc. Linn. Soc. N. S. W., 34, p. 265, 1909; comp. notes; t. f. 1, struct. dets. after Williamson.

Distr. Carolinian & Austroriparian, N. Y. & Ky. to Fla. & Tex.

SUBFAMILY **CORDULEGASTERINAE** CALVERT

Type genus—*Cordulegaster* LEACH. Distribution—Cosmopolitan.

Trans. Am. Ent. Soc., 20, p. 221, 1893; subf. first defined.

SELYS, Mon. Gomph., p. 323, 1858; (Legion *Cordulegaster*—pars). See note to *Petalurinae*.

CORDULEGASTER LEACH.

Type—*annulatus* (LATREILLE). Distribution—Holarctic.

Edin. Encycl., 9, p. 136, 1815.

STEPHENS, Ill. Brit. Ent., 6, p. 86, 1836.

SELYS, Mon. Gomph., p. 327, 1858.

KIRBY, Syn. Cat., p. 80, 1890; complete bibliography.

CALVERT, Trans. Am. Ent. Soc., p. 221, 1893.—Biol. C. Am., p. 172, 1905.

KELLICOTT, Odon. Ohio, p. 74, 1899.

WILLIAMSON, Drag. Ind., pp. 248, 299, 1901; char. & tables.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 474, 1901; subgenera, char., table N. Am. spp.—Proc. U. S. Nat. Mus., 26, pp. 719, 733, 750, 1903; ven.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 79, 1908; table after Needham.

Syn. Thecaphora CHARPENTIER, Lib. Eur., p. 14, 1840.

Cordulegasterinae

SELYS, Bull. Acad. Belg., 21 (2), p. 100, 1854.—Mon. Gomph., p. 319, 1858.

BRAUER, Verh. Ges. Wien., 18, p. 375, 1868.

Taeniogaster SELYS, Bull. Acad. Belg., 21 (2), p. 107, 1854.

Zoraena KIRBY, Syn. Cat., p. 79, 1890.

diadema SELYS, C. R. Soc. Ent. Belg., 11, p. 68, 1868; ♂ ♀, types Coll. Selys.—Bull. Acad. Belg., (2) 28, p. 203, 1869; desc.

CALVERT, Biol. C. Am., p. 173, 1905; comp. desc.

Nymph. ? NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 697, 1904; desc.; t. f. 1, struct. dets.

Distr. Lower Sonoran; Mexico, Arizona.

diastatops (SELYS), Bull. Acad. Belg., 21 (2), p. 101, 1854; ♂ ♀, (*Thecaphora*), types: ♂ Coll. Dale, ♀ "Mus. Hunterién Glasgow."—Mon. Gomph., p. 320, 1858, detailed desc.; pl. 16, f. 4, ♂ ♀ char.—Bull. Acad. Belg., (2) 46, p. 685, 1878; notes on affinities.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 477, 1901; dist. (*Cordulegaster*).

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 79, 1908; dist.

Syn. lateralis SCUDDER, Proc. Bost. Soc., 10, p. 211, 1866; ♂, Mus. Boston Soc.—L. c., 11, p. 300, 1867; notes.—[Selys 1878.]

Nymph. CABOT, Mem. Mus. Comp. Zool., 5, p. 13, 1872; desc. pl. 13, f. 2, adult (*C. sayi*).

HAGEN, Trans. Am. Ent. Soc., 12, p. 290, 1885; desc.

NEEDHAM, l. c., p. 478, 1901; desc. notes.

Distr. Alleghanian into Carolinian; Atl. Coast, Me. to N. C.

dorsalis HAGEN, Mon. Gomph., p. 347, 1858; ♀, holotype Mus. St. Petersburg.—Syn. Neur. N. Am., p. 116, 1861; desc.

SELYS, Bull. Acad. Belg., (2) 7, p. 549, 1859; desc.—L. c., (2) 35, p. 772, 1873; desc. of ♂ ♀ : ♂ Coll. Selys.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 79, 1908; dist.

Nymph. ?NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 696, 1904; desc.; pl. 39, f. 3, adult.

Distr. Canadian; Pacific Coast, Sitka, Alaska, to Northern California.

erroneus HAGEN, Bull. Acad. Belg., (2) 46, p. 688, 1878; ♂ ♀, types M. C. Z., Coll. Selys.

CALVERT, Trans. Am. Ent. Soc., 20, p. 246, 1893; good desc.

KELLICOTT, Odon. Ohio, p. 74, 1899; desc.

WILLIAMSON, Drag. Ind., p. 299, 1900; desc.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 474, 1901; dist.

Cordulegasterinae

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 79, 1908; dist.

Distr. Carolinian; N. C. to Ky., Pa.

fasciatus RAMBUR, Ins. Neur. p. 178, 1842; ♀, type Coll. Selys.
SELYS, Bull. Acad. Belg., (2) 46, p. 692, 1878; ♂ ♀; comp. desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 474, 1901, dist.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 79, 1908; dist.

Syn. obliquus SELYS, Bull. Acad. Belg., 21 (2), p. 108, 1854; (*Taeniogaster*). Mon. Gomph., p. 349, 1858; (*Cordulegaster*).
HAGEN, Syn. Neur. N. Am., p. 116, 1861.—[Selys 1878.]

Distr. Austroriparian; Southeastern States.

godmani MACLACHLAN, Ent. M. Mag., 15, p. 35, 1870; ♂ ♀, types Coll. MacLachlan.
SELYS, Bull. Acad. Belg., (2) 46, p. 688, 1878; desc.
CALVERT, Biol. C. Am., p. 173, 1905; detailed desc.

Distr. Lower Sonoran, (Calvert z. 4), Mexico, Guatemala, Costa Rica.

maculatus SELYS, Bull. Acad. Belg., 21 (2), p. 105, 1854; ♀, type British Mus.—L. c., (2) 46, p. 689, 1878; ♂ ♀.—Mon. Gomph., p. 337, 1858; ♀.
HAGEN, Syn. Neur. N. Am., p. 115, 1861; desc.
CALVERT, Trans. Am. Ent. Soc., 20, p. 246, 1893; desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 476, 1901; dist.
HOWARD, Ins. Book, 1902; pl. 44, f. 7, ♂ adult.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 79, dist.

Nymph. NEEDHAM, l. c., p. 477, 1901; desc.; t. f. 16, labium.

Distr. Alleghanian into Carolinian; Atl. Coast, N. Scotia, Me. to N. C.

obliquus (SAY), Jn. Acad. Phila., 8, p. 15, 1839; ♂, type ?; (*Aeschna*).
SELYS, Bull. Acad. Belg., (2) 46, p. 692, 1878; ♂ ♀, (*Cordulegaster*), Coll. Selys.
KELLICOTT, Odon. Ohio, p. 75, 1899; good desc.
WILLIAMSON, Drag. Ind., p. 300, 1900; good desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 475, 1901; dist.—Ent. News, 16, p. 3, 1906; ethological notes.
HARVEY, Ent. News, 12, p. 271, 1901; good desc.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 79, 1908; desc.; pl. 6, wings.

Nymph. NEEDHAM, Ent. News, 16, p. 3, 1906, desc.

Distr. Alleghanian into Carolinian, Me. & Pa. to Wis. & Ill.

Gomphinae

sayi SELYS, Bull. Acad. Belg., 21 (2), p. 104, 1854; short desc.—Mon. Gomph., p. 331, 1858; ♂ ♀, types British Mus.—Bull. Acad. Belg., (2) 28, p. 203, 1869; noted.—L. c., (2) 46, p. 686, 1878; notes.

HAGEN, Syn. Neur. N. Am., p. 115, 1861; desc.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 474, 1901; dist.—Proc. U. S. Nat. Mus., 26, p. 733, 1903; venation; t. f. 25; ven. details.

HANDLIRSCH, Foss. Ins., 1906; pl. 4, f. 17, wings, after Needham.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 79, 1908; desc.

Syn. obliqua, var. *A*, SAY, Jn. Acad. Phila., 8, p. 16, 1839; ♂ (*Aeschna*), type Mus. Boston Soc.—[Hagen 1873.]

Nymph. ?NEEDHAM, Bull. 68 N. Y. State Mus., p. 267, 1903; desc.; t. f. 15, labium.

Distr. Alleghanian into Carolinian, Me., Quebec & Wis. to Ga.

SUBFAMILY **GOMPHINAE** RAMBUR.

Type genus—*Gomphus* Leach. Distribution—Cosmopolitan.

Ins. Neur., p. 152, 1842; defined to include all Gomphid genera.

SELYS, Mon. Gomph., p. 5, 1858; defined as subfamily (sensu Rambur).

NEEDHAM, Proc. U. S. Nat. Mus., 26, pp. 737-739, 1903; limited.

SELYS, Syn. Gomph., in Bull. Acad. Belg., 21 (2), pp. 23-112, 1854.

SELYS & HAGEN, Monograph des Gomphines, pp. 8 + 460, 1858; 23 pls.

SELYS, Four additions to the Synopsis:

1. Bull. Acad. Belg., (2) 7, pp. 530-552, 1859.
2. L. c., (2) 28, pp. 168-208, 1869.—3 L. c., (2) 35, pp. 732-774; (2) 36, pp. 492-531, 1173.—4 L. c., (2) 46, pp. 408-471, 658-698, 1878.

GOMPHOIDES SELYS.

Type—*obscura* (RAMBUR). Distribution—Neotropic & Nearctic.

Rev. Odon., p. 360, note, 1850; note to *Gomphus brodiei:* "Je pense que c'est de mon nouveau genre *Gomphoides* de l'Amerique, que cette aile se rapproche le plus par la disposition des triangles de l'aile. Le type actuel est la *Diastatomma obscura de Rambur.*" (See canon 42 A. O. U. Code and Art. 25 International Code.)

Syn. Progomphus Selys, Bull. Acad. Belg., 21, p. 69, 1854.—Mon. Gomph., p. 194, 1858.

BRAUER, Verh. Ges. Wien, 18, p. 373, 1868.

CALVERT, Proc. Cal. Acad., (2) 4, p. 470, 1895.—Biol. C. Am., p. 146, 1905.

WILLIAMSON, Drag. Ind., p. 248, 1900.
NEEDHAM, Can. Ent., 29, p. 168, 1897.—Bull. 47 N. Y. State Mus., p. 436, 1901.
NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 52, 1901.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 80, 1908.

borealis (MACLACHLAN), subsp. sub *obscura*.

integra (HAGEN), Bull. Acad. Belg., (2) 46, p. 659, 1878; ♂ ♀, types M. C. Z.; (*Progomphus*).
Distr. Tropic, West Indies, Cuba.

obscura (RAMBUR), Ins. Neur., p. 170, 1842; ♀, (*Diastatomma*), type Coll. Selys?
SELYS, Rev. Odon., p. 360, note, 1850; (*Gomphoides*).—Bull. Acad. Belg., 21, p. 72, 1854; (*Progomphus*).—L. c., (2) 46, p. 658, 1878; ♀ only.—Mon. Gomph., p. 201, 1858.
HAGEN, Syn. Neur. N. Am., p. 110, 1861; desc.
WILLIAMSON, Drag. Ind., p. 283, 1900; good desc.; pl. 4, ff. 4, 5, ♂ head.
NEEDHAM, Proc. U. S. Nat. Mus., 26, 1903; pl. 34, f. 2, wings.
CALVERT, Biol. C. Am., p. 150, 1905; comp. desc.
Syn. borealis HAGEN, Proc. Boston Soc., 16, p. 356, 1874; ♂ desc. from adult and Abbott's drawing in the British Museum.
Nymph. HAGEN, Trans. Am. Ent. Soc., 23, p. 246, 1897; desc.
NEEDHAM, Can. Ent., 29, p. 184, 1897; desc.
NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 55, 1901; desc.; pl. 1, f. 3, adult.
Distr. Alleghanian to Gulf strip; Mass. & Ill. to Fla.; Cal., Ore., Mexico.

Subsp. **borealis** (MACLACHLAN), Bull. Acad. Belg., (2) 35, p. 764, 1873; (*Progomphus*); ♂, Coll. MacL.
SELYS, Bull. Acad. Belg., (2) 46, p. 658, 1878; ♂ desc.; ♀ (pars), Coll. Selys.
CALVERT, Biol. C. Am., p. 151, 1905; comp. desc.; p. 398, 1907; corrections.
Syn. obscurus CALVERT, Proc. Cal. Acad., (2) 4, p. 499, 1895; desc.; pl. 16, ff. 74-79, ♂ ♀ char. & wing triangle.—[Calvert 1905.]
Distr. Lower Sonoran, (Calvert z. 4), Ore. to B. Cal., Ariz., Mex.

APHYLLA SELYS

Type—*brevipes* SELYS. Distribution—Neotropic.
Bull. Acad. Belg., 21, p. 78, 1854.—Mon. Gomph., p. 227, 1857.

Gomphinae

BRAUER, Verh. Ges. Wien., 18, p. 373, 1868.
NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 737, 1903; venation.

caraiba SELYS, Bull. Acad. Belg., 21, p. 79, 1854; (*Gomphoides*).—In Sagra: Hist. Cuba., Ins., p. 456, 1857.—Mon. Gomph., p. 232, 1857; ♀, (*Aphylla*), type Mus. Berlin; desc. as (race ? of *producta*).

Distr. Tropic; Cuba.

producta SELYS, Bull. Acad. Belg., 21, p. 79, 1854; ♂ ♀, types Mus. Berlin. —Mon. Gomph., p. 236, 1858; desc. elaborated; pl. 12, f. 6, ♂ ♀ char.; pl. 23, f. 4, ven.
HAGEN, Syn. Neur. N. Am., p. 113, 1861; desc. (*Gomphoides*).
NEEDHAM, Proc. U. S. Nat. Mus., 26, 1903; pl. 33, f. 3, wings.

Nymph. NEEDHAM & HART, Bull. Ill. State Mus., 6, p. 53, 1901; desc. (*Aphylla*).

Distr. Tropic; Fla., Cuba, Guiana, Brazil.

CYCLOPHYLLA SELYS.

Type—*signata* SELYS. Distribution—Neotropical, into Sonoran.
Bull. Acad. Belg., 21, p. 76, 1854.—Mon. Gomph., p. 216, 1858.
BRAUER, Verh. Ges. Wien., 18, p. 373, 1868.
NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 737, 1903; venation.

elongata SELYS, Mon. Gomph., p. 224, 1858; ♂, type Mus. Paris; pl. 12, f. 5, end of ♂ abd.—Bull. Acad. Belg., (2) 7, p. 546, 1859; notes.
HAGEN, Syn. Neur. N. Am., p. 113, 1861; desc. (*Gomphoides*).
CALVERT, Proc. Cal. Acad., (3) 1, p. 384, 1899; notes on venation; (*Cyclophylla*).—Biol. C. Am., p. 156, 1905; ♂ ♀, comp. desc.; (*Gomphoides*).

Distr. Lower Sonoran, (Calvert z. 2-4), Mexico: Chihuahua, Jalisco, Uruapam.

protracta SELYS, Bull. Acad. Belg., (2) 7, p. 546, 1859; ♂ ♀, types M. C. Z.
HAGEN, Syn. Neur. N. Am., p. 113, 1861; desc. (*Gomphoides*).
CALVERT, Biol. C. Am., p. 157, 1905; comp. desc.; pl. 7, ff. 15, 16, ♂ app.

Distr. Tropic, (Calvert, z. 2-3), Texas, Mexico.

NEGOMPHOIDES n.n.

Type—*infumata* (RAMBUR). Distribution—Neotropic and Nearctic.

Syn. (=*homonymn*) *Gomphoides* SELYS, Bull. Acad. Belg., 21, p. 73, 1854. Mon. Gomph., p. 208, 1858.—(See *Gomphoides*, antea, for explanation).

BRAUER, Verh. Ges. Wien, 18, p. 373, 1868.

NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 718, 1903; venation.

CALVERT, Biol. C. Am., p. 152, 1905; char.; places *Aphylla* & *Cyclophylla* as synonyms; p. 154, table of C. Am. spp.

ambigua (SELYS), Bull. Acad. Belg., (2) 36, p. 505, 1873; ♀, type Brit. Mus.; (*Gomphoides*).

CALVERT, Biol. C. Am., p. 157, 1905; ♂ ♀, comp. desc.; pl. 7, ff. 17, 18, ♂ app.; p. 398, 1907, notes.

Distr. Lower Sonoran, (Calvert z. 3-4), Mex.: Tamaulipas, Jalisco; Guatemala.

stigmata (SAY), Jn. Acad. Phila., 8, p. 17, 1839; ♀, (*Aeschna*), type lost.

SELYS, Bull. Acad. Belg., 21, p. 72, 1854; (*Progomphus ?*).—L. c., (2) 38, p. 191, 1868; ♂ ♀, (*Gomphoides*).—Mon. Gomph., p. 205, 1858.

HAGEN, Mon. Gomph., p. 423, 1858; ♂ ♀, neotypes ♀ M. C. Z., ♂ Coll. Selys; pl. 21, f. 5, ♂ char. & details; pl. 23, f. 2, base of wing.—Syn. Neur. N. Am., p. 111, 1861; desc.

NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 722, 1903; t. f. 17-2, anal loop; pl. 33, f. 2, wings.

Nymph. NEEDHAM, Proc. U. S. Nat., Mus., 27, p. 687, 1904; desc.; pl. 38, f. 1, adult.

Distr. Tropic?; Texas.

suasa (SELYS), Bull. Acad. Belg., (2) 7, p. 545, 1859; ♀, (*Gomphoides*) type Coll. Selys.—L. c., (2) 28, p. 191, 1869; ♂.—(2) 36, p. 503, 1876; ♂ ♀ desc.; ♂ M. C. Z.

HAGEN, Syn. Neur. N. Am., p. 112, 1861; ♀ desc. after Selys.

CALVERT, Biol. C. Am., p. 158, 1905; comp. desc.; pl. 7, ff. 19, 20, ♂ app.

Syn. perfida HAGEN, Syn. Neur. N. Am., p. 112, 1861; ♂, type M. C. Z.—[Selys 1873.]

Distr. Tropic, into Lower Sonoran, (Calvert z. 3), Vera Cruz, Costa Rica.

Subsp. **pacifica** (SELYS), Bull. Acad. Belg., (2) 36, p. 504, 1873; ♂, (*Gomphoides*) type Coll. Selys.

Gomphinae

CALVERT, Proc. Cal. Acad., (3) 1, p. 384, 1899; notes.—Biol. C. Am., p. 158, 1905; ♂ ♀, comp. desc.

Distr. Tropic, (Calvert z. 2-3), Mex.: Tepic, Jalisco, Putla, Guerrero, Morelos.

HAGENIUS SELYS.

Type—*brevistylus* Selys. Distribution—Nearctic & Oriental.

Bull. Acad. Belg., 21, p. 82, 1854.—Mon. Gomph., p. 238, 1858.

BRAUER, Verh. Ges. Wien., 18, p. 373, 1868.

CALVERT, Trans. Am. Ent. Soc., 20, p. 221, 1895.

WILLIAMSON, Drag. Ind., p. 248, 1900.—Proc. U. S. Nat. Mus., 33, pp. 273, 286, 1907.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 435, 1901.—Proc. U. S. Nat. Mus., 26, pp. 718, 728, 737, 1903.

NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 52, 1901.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 80, 1908.

brevistylus SELYS, Bull. Acad. Belg., 21, p. 82, 1854; ♂ ♀, types: ♂ Coll. Dale, ♀ Coll. Selys.—Mon. Gomph., p. 241, 1857; desc. amplified; pl. 13, f. 2, ♂ ♀ char.; pl. 23, f. 6, base of wing.

HAGEN, Syn. Neur. N. Am., p. 114, 1861; desc.

CALVERT, Trans. Am. Ent. Soc., 20, p. 241, 1895; good desc.

KELLICOTT, Odon. Ohio, p. 53, 1899; full desc.

WILLIAMSON, Drag. Ind., p. 282, 1900; desc.—Proc. U. S. Nat. Mus., 33, p. 286, 1907; dist.; t. f. 12, ♂ wings.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 440, 1901; desc. notes.—Proc. U. S. Nat. Mus., 26, p. 730, 1903; venation; t. f. 23, wings.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 81, 1908; desc.

Nymph. CABOT, Cat. M. C. Z., 5, p. 9, 1872; desc.; pl. 3, f. 4, adult.

HAGEN, Trans. Am. Ent. Soc., 12, p. 279, 1885; desc.

NEEDHAM, Can. Ent., 29, p. 168, 1897; char. of gomphine nymphs. Bull. 47 N. Y. State Mus., p. 440, 1901; desc. notes; pl. 18, f. 7, adult; pl. 19, f. 2, egg.

NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 61, 1901; notes; pl. 1, f. 3, adult.

Distr. Transition & Carolinian, Me. & Wis. to Md. & Tex., B. C.

OPHIOGOMPHUS SELYS.

Type—*serpentinus* (CHARPENTIER). Distribution—Holarctic.

Bull. Acad. Belg., 21, p. 39, 1854.—Mon. Gomph., p. 76, 1858.

BRAUER, Verh. Ges. Wien. 18, p. 371, 1868.

CALVERT, Trans. Am. Ent. Soc., 20, p. 221, 1893.

NEEDHAM, Can. Ent., 29, p. 166, 1897.—L. c., 31, pp. 233-238, 1899; pl. 5, showing char. of ♂ ♀s of the genus.—Bull. 47 N. Y. State Mus., p. 435, 1901; char.; pl. 20; reproduction of plate in Can. Ent., 1899.

KELLICOTT, Odon. Ohio, p. 51, 1899.

WILLIAMSON, Drag. Ind., p. 248, 1900.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 80, 1908.

Syn. Diastatomma KIRBY, Syn. Cat., p. 61, 1890.

NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 52, 1901.

anomalus HARVEY, Ent. News, 9, p. 60, 1898; ♂, type Coll. Williamson; pl. 5, f. 1, ♂ abd.—L. c., 12, p. 240, 1901; ♂ ♀ desc.

CALVERT, Ent. News, 12, p. 241, 1901; notes on Harvey's desc.

Distr. Alleghanian ?; Maine: Orono.

aspersus MORSE, Psyche, 7, p. 209, 1895; ♂ ♀, types M. C. Z.

NEEDHAM, Can. Ent., 31, p. 236, 1899; notes; pl. 5, ff. 2, 11, 20, 30, ♂ ♀ char.—Bull. 47 N. Y. State Mus., p. 437, 1901; dist.

Nymph. NEEDHAM, L. c., p. 438, 1901; desc.; pl. 18, f. 5, adult.

Distr. Alleghanian; New York, Massachusetts.

bison SELYS, Bull. Acad. Belg., (2) 36, p. 496, 1873; ♀, holotype Coll. MacLachlan.—L. c., (2) 46, p. 437, 1878; ♀ desc.

NEEDHAM, Can. Ent., 31, p. 238, 1899; notes; t. f. 32, ♀ gen.

Nymph. NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 690, 1904; desc.; pl. 38, ff. 4, 5, ad. & dets.

Distr. Lower Sonoran; California, Nevada.

carolinus HAGEN.

NEEDHAM, Can. Ent., 31, p. 238, 1899; pl. 5, ff. 8, 17, 26, 35, ♂ ♀ char.; drawings from the types in the Mus. Comp. Zool.

Nymph. HAGEN, Trans. Am. Ent. Soc., 12, p. 257, 1885; ♀ nymph. desc.

Distr. Carolinian ?; North Carolina.

carolus NEEDHAM, Can. Ent., 29, p. 183, 1897; ♂ ♀, types Cornell Univ.; pl. 7, ff. 1-4, 6, 7, ♂ ♀ char.—L. c., 31, p. 235, 1899; noted; pl. 5, ff. 1, 28, ♂ ♀ char.—Bull. 47 N. Y. State Mus., p. 436, 1901; dist.; pl. 20.

Nymph. NEEDHAM, L. c., p. 439, 1901; desc.

NEEDHAM & HART, Bull. Ill. State Mus., 6, p. 60, 1901; desc.; pl. 1, f. 4, adult.

Distr. Alleghanian ?; New York.

Gomphinae

colubrinus SELYS, Bull. Acad. Belg., 21, p. 40, 1854; ♂, type Coll. Seyls.—L. c., (2) 46, p. 438, 1878; ♀, desc. after Hagen.—Mon. Gomph. p. 76, 1858; pl. 5, f. 1, ♂ char.; desc. amplified.

HAGEN, Syn. Neur. N. Am., p. 101, 1861; desc.—Geol. Surv. Terr. Colo., (1873), p. 592, 1874; ♀ desc.; type Coll. Uhler.

NEEDHAM, Can. Ent., 31, p. 238, 1899; noted; pl. 5, ff. 16, 25, 34, ♂ ♀ char.

Nymph. HAGEN, Trans. Am. Ent. Soc., 12, p. 257, 1885; ♂ ♀ larvae.

Distr. Canadian; Maine, Newfoundland.

johannus NEEDHAM, Can. Ent., 29, p. 182, 1897; ♂, type Cornell Univ.; pl. 7, f. 5, ♂ app.—L. c., 31, p. 235, 1899; noted; pl. 5, ff. 9, 18, 27, ♂ ♀ char.—Bull. 47 N. Y. State Mus., p. 436, 1901; dist.; pl. 20, f. 5, ♂ gen.

HARVEY, Ent. News, 12, p. 209, 1901; notes on color.

Distr. Alleghanian; Maine, New York, Pennsylvania.

mainensis PACKARD, Proc. Ent. Soc. Phila., 2, p. 255, note, 1863; ♀, Peabody Acad.

HAGEN, Geol. Surv. Terr. Colo. (1873), p. 595, 1874; ♂ ♀ desc.; ♂ Coll. Uhler.

SELYS, Bull. Acad. Belg., (2) 38, p. 208, 1869; ♀ desc. after Packard.—L. c., (2) 46, p. 435, 1878; ♂ ♀ desc. after Hagen.

HARVEY, Ent. News, 12, p. 240, 1901; notes.

CALVERT, Ent. News, 12, p. 240, 1901; addition to Harvey.

NEEDHAM, Can. Ent., 31, p. 238, 1899; noted; pl. 5, ff. 10, 19, 36, ♂ ♀ char.

Syn. rupinsulensis SELYS, l. c., (2) 35, p. 741, 1873; ♀ desc.—[Hagen 1874.]

Distr. Alleghanian; Maine, Mass., New Hampshire.

montanus (SELYS), Bull. Acad. Belg., (2) 46, p. 430, 1878; ♂, type Coll. Selys. (*Herpetogomphus*).

Distr. Transition; Montana: Yellow Town.

morrisoni SELYS, C. R. Soc. Ent. Belg., 22, p. 65, 1879; ♂ ♀, types Coll. Selys.

NEEDHAM, Can. Ent., 31, p. 238, 1899; noted; pl. 5, ff. 5, 14, 30, ♂ ♀ char.

Distr. Upper Sonoran; Nevada, California.

occidentis HAGEN, Nature, 27, p. 173, 1882; notes on transformation.*

*NOTE—O. carolinus and occidentis are accredited to Hagen, according to Rule 27b of the International Code.

NEEDHAM, Can. Ent., 31, p. 238, 1899; noted; pl. 5, ff. 4, 13, 22, ♂ char.

Nymph. HAGEN, Trans. Am. Ent. Soc., 12, p. 259, 1885; desc.

Distr. Canadian; B. C., Wash., Utah.

phaleratus NEEDHAM, Can. Ent., 34, p. 277, 1902; ♂, holotype Coll. Needham.

Distr. Canadian ?; Corvallis, Ore.

rupinsulensis (WALSH), Proc. Acad. Phil., p. 388, 1862; ♂ (*Erpetogomphus*), type destroyed.

SELYS, Bull. Acad. Belg., (2) 28, p. 207, 1869; ♂ desc. after Walsh.

HAGEN, Geol. Surv. Terr. Colo. (1873), p. 594, 1874; ♂ ♀ (*Ophiogomphus*); lectotypes M. C. Z.—Bull. Acad. Belg., (2) 46, p. 434, 1878; ♀ desc.

CALVERT, Trans. Am. Ent. Soc., 20, p. 242, 1893; desc.

NEEDHAM, Can. Ent., 31, p. 236, 1899; noted; pl. 5, ff. 3, 12, 21, 30, 31, ♂ ♀ char.—Bull. 47 N. Y. State Mus., p. 437, 1901; desc. notes.

KELLICOTT, Odon. Ohio, p. 53, 1899; good desc.

WILLIAMSON, Drag. Ind., p. 298, 1900; good desc.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 81, 1908; desc.

Syn. pictus NEEDHAM, Can. Ent., 29, p. 281, 1897; ♂ (*Herpetogomphus*), types Cornell Univ.—[Needham 1901.]

Nymph. ?NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 60, 1901; desc. as (*Diastatomma sp.*) from Ill. & Ohio.

Distr. Alleghanian & Carolinian, Me., Toronto, & Wis. to Kans. & Penn.

severus HAGEN, Geol. Surv. Terr. Colo. (1873), p. 591, 1874; ♂ ♀, types M. C. Z.?

SELYS, Bull. Acad. Belg., (2) 46, p. 430, 1878; ♂ ♀, (*Herpetogomphus*).

NEEDHAM, Can. Ent., 31, p. 238, 1899; noted; pl. 5, ff. 6, 15, 24, 33; ♂ ♀ char.

Nymph. HAGEN, Trans. Am. Ent. Soc., 15, p. 259, 1885; desc.

NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 58, 1901.

Distr. Transition into Upper Sonoran; Colo., Wyo., New Mexico.

ERPETOGOMPHUS SELYS.

Type—*crotalinus* (HAGEN). Distribution—Nearctic & Neotropic.

Mon. Gomph., p. 69, 1858.—Bull. Acad. Belg., (2) 7, p. 535, 1859.

HAGEN, Syn. Neur. N. Am., p. 98, 1861.

Gomphinae

BRAUER, Verh. Ges. Wien., 18, p. 372, 1868.

CALVERT, Biol. C. Am., p. 159, 1905; char. & tables of spp.

Syn. Herpetogomphus SELYS, C. R. Soc. Ent. Belg., 22, p. 58, 1879.

KIRBY, Syn. Cat., p. 60, 1890.

NEEDHAM, Can. Ent., 29, p. 167, 1897; char.—L. c., 21, p. 234, 1899; t. f. venation.

boa SELYS, Bull. Acad. Belg., (2) 7, p. 537, 1859; ♂ only, type Coll. Selys.

HAGEN, Syn. Neur. N. Am., p. 100, 1861; after De Selys.

CALVERT, Biol. C. Am., p. 399, 1907, corrections to p. 165; pl. 10, ff. 53, 54, ♂ app.

Distr. Tropic, (Calvert z. 2), Mexico: Vera Cruz.

compositus HAGEN, Mon. Gomph., p. 400, 1858; ♀, type M. C. Z.; pl. 20, f. 2, apex of abd.—Syn. Neur. N. Am., p. 99, 1861; desc.—Geol. Surv. Terr. Colo. (1873), p. 597, 1874; ♀ (*Herpetogomphus*).

SELYS, Bull. Acad. Belg., (2) 7, p. 536, 1859; additions.—L. c., (2) 35, p. 740, 1873; ♂ ♀ desc.

Syn. viperinus HAGEN, Geol. Surv. Terr. Colo. (1872), p. 727, 1873; (*Herp.*) —[Hagen 1874.]

Distr. Upper & Lower Sonoran; Ore. & Wyo. to Ariz. & Tex., Calif.

cophias SELYS, Mon. Gomph., pp. 72, 431, 1858; ♂, type Mus. Paris; pl. 4, f. 6, ♂ char.—Bull. Acad. Belg. (2) 7, p. 537, 1859; additions. L. c., (2) 28, p. 175, 1869; ♂.

HAGEN, Syn. Neur. N. Am., p. 100, 1861; ♂ ♀ desc. (*Gomphus*).

CALVERT, Biol. C. Am., p. 164, 1905; comp. desc.; (*Erpetogomphus*); pl. 7, ff. 28, 33, 45, ♂ ♀ char.; pl. 10, f. 47, ♀ gen.

Distr. Lower Sonoran, (Calvert z. 3-4), Mex.: Cuernavaca, Guerrero.

crotalinus HAGEN, Bull. Acad. Belg., 21, p. 40, 1854; ♂ ♀, (*Ophiogomphus*), types Mus. Berlin.—Mon. Gomph., p. 72, 1854; (*Erpetogomphus*); pl. 4, ff. 5, ♂ ♀ char.—Syn. Neur. N. Am., p. 101, 1861; desc. (*Gomphus*).

SELYS, Bull. Acad. Belg., (2) 28, p. 174, 1869; notes; (*Erpetogomphus*).

CALVERT, Biol. C. Am., p. 165, 1905; comp. desc.

Syn. boa SELYS, Bull. Acad. Belg., (2) 7, p. 537, 1859; ♀ only.—[Calvert 1905.]

Distr. Lower Sonoran, (Calvert z. 3-4), Mex.: Chihuahua, etc.

designatus HAGEN, Mon. Gomph., p. 401, 1858; ♂ ♀, types M. C. Z.; pl. 20, f. 1, ♂ ♀ char.—Syn. Neur. N. Am., p. 99, 1861; desc. (*Gomphus*).

SELYS, Bull. Acad. Belg., (2) 7, p. 536, 1859; notes; (*Erpetogomphus*).

CALVERT, Biol. C. Am., p. 166, 1905; comp. desc.; p. 399, 1907, notes on ♂.

Distr. Carolinian & Austroriparian, Kans. & Ohio to Texas, Mexico.

diadophis CALVERT, Biol. C. Am., p. 167, 1905; ♀, holotype Coll. MacLachlan; pl. 7, ff. 35, 47, ♂ ♀ char.

Distr. Lower Sonoran?; Texas.

elaps SELYS, Mon. Gomph., p. 70, 1858; ♂, holotype Mus. Paris; pl. 4, f. 4, ♂ char.—Bull. Acad. Belg., (2) 7, p. 538, 1859; additions.—L.c., (2) 28, p. 175, 1869, ♂ ♀ desc.; ♀ Coll. Selys.

HAGEN, Syn. Neur. N. Am., p. 100, 1861; desc. (*Gomphus*).

CALVERT, Proc. Cal. Acad., (3) 1, p. 386, 1899; notes; pl. 25, f. 2, ♀ gen.; (*Herpetogomphus*).—Biol. C. Am., p. 163, 1905; comp. desc.; pl. 7, f. 44, ♀ gen.; pl. 10, f. 30, ♂ hamule; (*Erp*).

Syn. boa CALVERT, Biol. C. Am., p. 165, 1905; ♂ desc.—[Calvert 1907.]

Distr. Lower Sonoran, (Calvert z. 3-4) Mexico to Costa Rica.

ophibolus CALVERT, Biol. C. Am., p. 163, 1905; ♂, type Coll. Smith; pl. 7, ff. 30-32, 46, ♂ ♀ char.

Distr. Tropic, (Calvert z. 3), Mex.: Atoyac in Vera Cruz.

pictus NEEDHAM, syn. ad *Ophiogomphus rupinsulensis,* antea.

sipedon CALVERT, Biol. C. Am., p. 165, 1905; ♀, type Coll. Schumann; pl. 7, ff. 30, 40, 42, ♀ char.

Distr. Lower Sonoran, (Calvert z. 3-4), Mexico, elevated portions.

viperinus SELYS, C. R. Soc. Ent. Belg., 11, p. 68, 1867; ♂ ♀, types Coll. Selys.—Bull. Acad. Belg., (2) 28, p. 176, 1869; desc.

CALVERT, Proc. Cal. Acad., (3) 1, p. 385, 1899; desc.; pl. 25, ff. 1, 5, ♂ ♀ char.—Biol. C. Am., p. 163, 1905; comp. desc.; pl. 7, ff. 5, *a,* wings; f. 43, ♀ gen.

Distr. Lower Sonoran, (Calvert z. 2-4), Mex.: Tepic, Jalisco, Vera Cruz; Guatemala.

CYANOGOMPHUS SELYS.

Type—*waltheri* SELYS. Distribution—Neotropic into Sonoran.

Bull. Acad. Belg., (2) 35, p. 753, 1873.—Ann. Soc. Ent. Belg., 38, p. 173, 1894.

CALVERT, Biol. C. Am., p. 147, 1905.

Gomphinae

tumens CALVERT, Biol. C. Am., p. 169, 1905; ♀, type Coll. Smith; pl. 7, ff. 11, *a*, wings & ven. dets.; f. 41, ♀ char.

Distr. Tropic, (Calvert z. 3), Mexico: Atoyac in Vera Cruz.

LANTHUS NEEDHAM.

Type—*parvulus* (SELYS). Distribution—Nearctic.

Can. Ent., 29, p. 165, 1897.—Bull. 47 N. Y. State Mus., p. 435, 1901.—Proc. U. S. Nat. Mus., 26, pp. 715, 737, 1903; venation.

NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 52, 1901.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 80, 1908.

albistylus (HAGEN), Bull. Acad. Belg., (2) 46, p. 460, 1878; ♀, (*Gomphus*), type M. C. Z.

CALVERT, Trans. Am. Ent. Soc., 20, p. 242, 1893; desc.

HARVEY, Ent. News, 9, p. 63, 1898; desc.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 443, 1901; dist.; (*Lanthus*).

Syn. naevius HAGEN, Bull. Acad. Belg., (2) 46, p. 460, 1878; ♀ (*Gomphus*), type M. C. Z.

HARVEY, Ent. News, 9, p. 63, 1898; ♂ desc.; pl. 5, ff. 2-5, 9, 10, ♂ ♀ abdomen, showing characters.—[Needham 1901.]

Distr. Alleghanian into Carolinian; Me. to N. C. & Tenn.

parvulus (SELYS), Bull. Acad. Belg., 21, p. 56, 1854; ♂, (*Gomphus*), holotype British Mus.—Mon. Gomph., p. 157, 1858; desc. amplified; pl. 22, f. 1, ♂ app.—Bull. Acad. Belg., (2) 46, p. 459, 1878; ♀ desc.; type Coll. Selys.—Ent. M. Mag., 11, p. 243, 1875; desc.

HAGEN, Syn. Neur. N. Am., p. 109, 1861; desc.

CALVERT, Trans. Am. Ent. Soc., 20, p. 242, 1893; desc.

NEEDHAM, Can. Ent., 29, p. 165, 1897; mentioned as type of (*Lanthus*).—Bull. 47 N. Y. State Mus., p. 441, 1901; dist.—Proc. U. S. Nat. Mus., 26, p. 715, 1903; venation; pl. 35, f. 3, wings.

HANDLIRSCH, Foss. Ins., 1906; pl. 4, f. 16; wings, after Needham.

Nymph. HAGEN, Trans. Am. Ent. Soc., 12, p. 281, 1885; desc. as (*Uropetala thoreyi ?*).

NEEDHAM, Can. Ent., 29, p. 165, 1897; desc. notes; pl. 7, ff. 8-10, struct. dets.—Bull. 47 N. Y. State Mus., p. 442, 1901; desc.; pl. 18, f. 6, adult; pl. 20, ff. 8-10, struct. details.—Proc. U. S. Nat. Mus., 26, p. 715, 1903; noted; pl. 32, ff. 2, 3, wings.

NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 63, 1901; desc.

Distr. Alleghanian, New Eng. States, N. Scot., N. Y., N. C.

GOMPHUS LEACH.

Type—*vulgatissimus* (LINNE). Distribution—Holarctic into Oriental.

Edin. Encycl., 9, p. 137, 1815.

SELYS, Bull. Acad. Belg., 21, p. 44, 1854.—Mon. Gomph., p. 115, 1858.

BRAUER, Verh. Ges. Wien., 18, p. 371, 1868.

CALVERT, Trans. Am. Ent. Soc., 20, p. 221, 1893.

KELLICOTT, Odon. Ohio, p. 51, 1899; table of spp., baesd on ♂ app.

WILLIAMSON, Drag. Ind., p. 285, 1900; table of spp.

NEEDHAM, Can. Ent., 29, p. 65, 1897; char.; priority discussed.—Bull. 47 N. Y. State Mus., p. 435, 1901; table of N. Am. spp., based on colors.—Bull. Ill. State Lab., 6, p. 53, 1901; char.—Proc. U. S. Nat. Mus., 26, pp. 715, 718, 721, 727, 1903; venation.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 80, 1908; table after Needham, with additions.

Syn. Aeshna KIRBY, Syn. Cat., p. 64, 1890.—[Selys 1891.]

[a]bbreviatus HAGEN, Bull. Acad. Belg., (2) 46, p. 464, 1878; ♂ ♀, types M. C. Z.

CALVERT, Trans. Am. Ent. Soc., 20, p. 243, 1893; desc.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 444, 1901; dist.

HINE, Ohio Nat., p. 61, 1901; desc. notes; pl. 5, ff. 27-34, ♂ ♀ char.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 83, 1908; dist.

Nymph. NEEDHAM, L.c., p. 448, 1901; desc.

NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 72, 1901; desc.

Distr. Alleghanian; Me. to Pa.

adelphus SELYS, Mon. Gomph., p. 413, 1858; ♂, type Coll. Selys.—Bull. Acad. Belg., (2) 7, p. 541, 1859.—L. c., (2) 46, p. 457, 1878; ♀, type M. C. Z.

HAGEN, Syn. Neur. N. Am., p. 104, 1861; desc.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 444, 1901; dist.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 83, 1908.

Nymph. ?HAGEN, Trans. Am. Ent. Soc., 12, p. 262, 1885; desc.

NEEDHAM, L. c., p. 452, 1901; desc.

Distr. Alleghanian; N. Y., Mass.

amnicola WALSH, Proc. Acad. Phila., p. 396, 1862; ♂ ♀, types destroyed ?—Proc. Ent. Soc. Phila., 2, p. 252, 1863; additions.

SELYS, Bull. Acad. Belg., (2) 28, p. 184, 1869; desc.

WILLIAMSON, Drag. Ind., p. 294, 1900; desc.—Trans. Am. Ent. Soc., 27, p. 207, 1901; desc.; pl. 8, ff. 7, 8, 11; pl. 9, ff. 21, 31, ♂ ♀ char.

Gomphinae

NEEDHAM, Bull. 47 N. Y. State Mus., p. 456, 1901; dist.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 90, 1908; desc.
Nymph. NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 83, 1901; desc.
HAGEN, Trans. Am. Ent. Soc., 12, p. 271, 1885; desc. as (*olivaceus*).
Distr. Alleghanian; Me., N. Y. to Iowa.

australis NEEDHAM, Can. Ent., 29, p. 184, 1897; ♂, holotype Coll. Hempel or Needham.
Nymph. NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 78, 1901; desc.
Distr. Gulf Strip; Gotha, Fla.

borealis NEEDHAM, Bull. 47 N. Y. State Mus., p. 454, 1900; ♂ ♀, types Coll. Needham; t. f. 12, ♂ ♀ char.; (var. of *descriptus*).—L. c., 68, p. 265, 1903; notes.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 86, 1908; dist.
Syn. spicatus HAGEN, Mon. Gomph., 1858; pl. 9, f. 2, ♂ app.; the figure only, desc. correct.—[Needham 1901.]
Nymph. NEEDHAM, Bull. 68 N. Y. State Mus., p. 265, 1903; desc.
Distr. Carolinian & Alleghanian; Atl. Coast, N. H., N. Y. to N. C.

brevis HAGEN, Bull. Acad. Belg., (2) 46, p. 460, 1878; ♂ ♀, types M.C.Z.
EMMONS, Agr. Rep. N. Y., 5, pl. 15, f. 2, 1854; adult col.; no desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 449, 1901; desc.
WILLIAMSON, Proc. Ind. Acad., 1901; pl. 1, ff. 18, 19, ♂ ♀ char.
HINE, Ohio Nat., 1, p. 61, 1901; desc. notes; pl. 5, ff. 19-26, ♂ ♀ char.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 84, 1908; desc.
WALKER, Ottawa Nat., 22, p. 52, 1908; desc. notes; pl. 2, ff. 4, 5, ♂ app.
Nymph. NEEDHAM, l. c., p. 450, 1901; desc.; pl. 18, f. 3, adult.
Distr. Alleghanian into Carolinian, Mass. & N. J. to Wis., Ont.

cavillaris NEEDHAM, Can. Ent., 34, p. 276, 1902; ♂ ♀; ♂ type Coll. Hart.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 82, 1908; dist.
Distr. Gulf Strip, into Austroriparian, N. C. & Fla.

confraternus SELYS, Bull. Acad. Belg., (2) 25, p. 744, 1873; ♂ ♀, Coll. MacLachlan.
Nymph. NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 291, 1904; desc., with a doubt.
Distr. Upper Sonoran? Calif., Ore., Wash.

consanguis SELYS, C. R. Soc. Ent. Belg., 22, p. 66, 1879; ♂, type?
Distr. Carolinian ?, North Carolina.

cornutus TOUGH, Mem. Chicago Ent. Soc., 1, p. 17, 1900; ♂, type Coll. Tough; t. f. ♂ app.
WILLIAMSON, Proc. Ind. Acad., p. 175, 1900; ♂ ♀ desc.
WALKER, Ottawa Nat., 22, p. 52, 1908; desc. notes; pl. 2, ff. 8, 9, ♂ app.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 89, 1908; ♂ desc.
Distr. Carolinian; Ont. to Iowa, Wis.

crassus HAGEN, Bull. Acad. Belg., (2) 46, p. 453, 1878; ♀, type M. C. Z.
WILLIAMSON, Drag. Ind., p. 288, 1900; desc.
CALVERT, Ent. News, 12, p. 65, 1901; differences tabulated; pl. 3, ff. 1, 5, 11, 13, 15, 18, ♂ ♀ char.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 83, 1908; dist.
Syn. externus KELLICOTT, Odon. Ohio, p. 60, 1899; desc.—[Calvert 1901.]
WILLIAMSON, Drag. Ind., p. 289, 1900; desc.; pl. 7, ff. 2, 10, 31, ♂ ♀ char.
fraternus walshii KELLICOTT, Jn. Cincin. Soc., 18, p. 107, 1896.—[Williamson 1900.]
Distr. Carolinian; Tenn., to Ontario.

descriptus BANKS, Jn. N. Y. Ent. Soc., 4, p. 194, 1896; ♂ ♀, types Coll. Banks.
NEEDHAM, Zool. Bull., 1, pp. 103-113, 1897.—Bull. 47 N. Y. State Mus., p. 452, 1901; desc.; t. f. 11, ♂ ♀ char.; p. 443, t. f. 9, wings.—Proc. U. S. Nat. Mus., 26, p. 708, 1903, wings.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 86, 1908; notes.
Nymph. NEEDHAM, Bull. 47 N. Y. State Mus., p. 454, 1901; desc.; pl. 18, f. 4, adult.—L. c., 68, p. 265, 1903; notes; p. 267, corrections.—Proc. U. S. Nat. Mus., 26, 1903; t. ff. 1, 2, tracheal wings; pl. 31, f. 1, wings.
NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 70, 1901; desc.
HANDLIRSCH, Foss. Ins., 1906; pl. 4, ff. 7, 8,tracheal wings, after Needham.
Distr. Carolinian; N. Y. to Ill.

dilatatus RAMBUR, Ins. Neur., p. 155, 1842; ♀, type Coll. Selys.
SELYS, Bull. Acad. Belg., 21, p. 47, 1854; ♂ ♀, ♂ M. C. Z.—Mon. Gomph., p. 123, 1858; detailed desc.; pl. 7, f. 3, ♂ ♀ char.
HAGEN, Syn. Neur. N. Am., p. 103, 1861; desc.
KELLICOTT, Odon. Ohio, p. 56, 1899; desc.

Gomphinae

WILLIAMSON, Drag. Ind., p. 286, 1900; good desc.; pl. 6, f. 6, ♂ app.

NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 710, 1903; venation; pl. 33, f. 1, wings.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 83, 1908; dist.

Nymph. NEEDHAM, Bull. 68 N. Y. State Mus., p. 266, 1903; desc.

Distr. Carolinian into Austroriparian, Ga. to N. Y. & Mich., Ill.

exilis SELYS, Bull. Acad. Belg., 21, p. 55, 1854; ♂, type British Mus.—L.c., (2) 35, p. 748, 1873; ♂ ♀ desc.; ♀ Coll. Selys & M. C. Z.—Mon. Gomph., p. 156, 1858.

HAGEN, Syn. Neur. N. Am., p. 108, 1861; desc., after Selys.

CALVERT, Trans. Am. Ent. Soc., 20, p. 243, 1893; desc.

KELLICOTT, Odon. Ohio, p. 65, 1899; good desc.

WILLIAMSON, Drag. Ind., p. 293, 1900; desc.; pl. 6, ff. 20, 21, 36, ♂ ♀ char.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 455, 1901; dist.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 86, 1908; desc.

Nymph. NEEDHAM, l.c., p. 456, 1901; desc.

NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 81, 1901; desc.

Distr. Alleghanian into Carolinian; Me. & Wis. to Ky. & Pa.

externus HAGEN, Mon. Gomph., p. 411, 1858; ♂ ♀, types M. C. Z. & Coll. Selys; pl. 21, f. 2, ♂ ♀ char.

SELYS, Bull. Acad. Belg., (2) 7, p. 540, 1859; notes.

HAGEN, Syn. Neur. N. Am., p. 104, 1861; desc.

WILLIAMSON, Proc. Ind. Acad., p. 174, 1900; notes.

CALVERT, Ent. News, 12, p. 65, 1901; differences tabulated; pl. 3, ff. 2, 10, 17, ♂ ♀ char.; synonymy & bibliography.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 87, 1908; desc.

Syn. consobrinus WALSH, Proc. Ent. Soc. Phila., 2, p. 246, 1863; ♂ ♀, types lost.

SELYS, Bull. Acad. Belg., (2) 28, p. 178, 1869; desc.

fraternus WALSH, Proc. Acad. Phila., p. 393, 1862; ♀, types lost.—[Calvert 1901.]

Nymph. NEEDHAM, Can. Ent., 29, 1897; pl. 7, ff. 11, 12, abd. & labrum; desc. as (*fraternus*).—Bull. 47 N. Y. State Mus., p. 451, 1901; desc.; pl. 20, ff. 11, 12.—L. c., 68, p. 264, 1903; notes.

NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 74, 1901; desc.

Distr. Alleghanian to Upper Austral; Me. & Wis. to Ill.; Nebr., N. M., Tex.

fraternus (SAY), Jn. Acad. Phila., 8, p. 16, 1839; ♂ ♀ (*Aeschna*), types lost.

Gomphinae

SELYS, Bull. Acad. Belg., 21, p. 47, 1854; desc. (*Gomphus*).—Mon. Gomph., p. 125, 1858; detailed desc.; pl. 7, f. 4, ♂ ♀ char.
HAGEN, Syn. Neur. N. Am., p. 104, 1861; desc.
WALSH, Proc. Ent. Soc. Phila., 2, p. 238, 1862; desc.
KELLICOTT, Odon. Ohio, p. 59, 1899; desc.; f. 28, ♂ app.
WILLIAMSON, Drag. Ind., p. 289, 1900; good desc.; pl. 6, ff. 8, 9, 30, ♂ ♀ char.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 451, 1901; dist.
CALVERT, Ent. News, 12, p. 65, 1901; tabulations; pl. 3, ff. 3, 6-9, 16, ♂ ♀ char.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 86, 1908; desc.; pl. 5, wings.

Nymph NEEDHAM, Bull. 68 N. Y. State Mus., p. 264, 1903; desc.; pl. 20, ff. 11, 12, dets.

Distr. Carolinian & Austroriparian; N. H. & Wis. to Ark. & Va.

furcifer HAGEN, Bull. Acad. Belg., (2) 46, p. 458, 1878; ♂ ♀, types M. C. Z.
KELLICOTT, Odon. Ohio, p. 64, 1899; desc.; f. 32, ♂ app.
WILLIAMSON, Drag. Ind., p. 292, 1900; desc.; pl. 6, ff. 15, 16, ♂ app.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 461, 1901; dist.
HINE, Ohio Nat., 2, p. 61, 1902; notes; pl. 5, ff. 2, 4, 6, 9, 10, ♂ ♀ char.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 89, 1908; desc.

Nymph. WALKER, Can. Ent., 36, p. 358, 1904; desc.; t. f., adult.

Distr. Alleghanian into Carolinian; Mass. to Mich., Ohio.

graslinellus WALSH, Proc. Acad. Phila., p. 394, 1862; ♂ ♀, types lost.—Proc. Ent. Soc. Phila., 2, p. 242 ,1863; additions.
SELYS, Bull. Acad. Belg., (2) 28, p. 179, 1869; desc.
KELLICOTT, Odon. Ohio, p. 62, 1899; desc.; f. 29, ♂ app.
WILLIAMSON, Drag. Ind., p. 290, 1900; desc.; pl. 6, ff. 11, 12, 32, ♂ ♀ char.—Ent. News, 14, p. 256, 1903; details; pl. 12, ff. 7-9, ♂ char.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 87, 1908; desc.

Nymph. HAGEN, Trans. Am. Ent. Soc., 12, p. 264, 1885; desc.
NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 69, 1901; desc.

Distr. Carolinian; Md. to Wis.

hybridus WILLIAMSON, Ent. News, 13, p. 47, 1902; ♂ ♀, types Coll. Williamson.

Distr. Carolinian; Ind., Tenn.

Gomphinae

intricatus HAGEN, Mon. Gomph., p. 418, 1858; ♂, type M. C. Z.; pl. 21, f. 4, ♂ app.—Syn. Neur. N. Am., p. 108, 1861; desc.
SELYS, Bull. Acad. Belg., (2) 7, p. 542, 1859; ♂ desc.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 82, 1908; dist.
Distr. Austroriparian ? (Lower Sonoran ?); Texas to Missouri.

lentulus NEEDHAM, Can. Ent., 34, p. 275, 1902; ♂, holotype Coll. Hart.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 82, 1908; dist.
Distr. Carolinian; Flora, Ill.

lividus SELYS, Bull. Acad. Belg., 21, p. 53, 1854; ♀, holotype Brit. Mus.—Mon. Gomph., p. 150, 1858; ♂ ♀, pl. 19, f. 1, ♂ char.
HAGEN, Syn. Neur. N. Am., p. 106, 1861; desc.
KELLICOTT, Odon. Ohio, p. 66, 1899; good desc.; f. 37, ♂ app.
Syn. minutus CALVERT, Trans. Am. Ent. Soc., 20, p. 244, 1893; ♀ only.—[Williamson 1900.]
sordidus HAGEN, Bull. Acad. Belg., 21, p. 54, 1854; ♂, type Coll. Selys.—[Selys 1858.]
WILLIAMSON, Drag. Ind., p. 292, 1900; desc.; pl. 6, ff. 17, 34, ♂ ♀ char.—Ent. News, 14, p. 256, 1903; desc.; pl. 12, ff. 1-3, ♂ app.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 455, 1901, dist.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 85, 1908; desc.
umbratus NEEDHAM, Can. Ent., 29, p. 184, 1897; ♂ ♀, Coll. Needham. [Williamson 1900.]
Nymph. NEEDHAM, l. c., p. 455, 1901; desc. (*sordidus*).
Distr. Carolinian into Austroriparian; Mass. & Wis. to N. C. & Ark.

militaris HAGEN, Mon. Gomph., p. 416, 1858; ♂ ♀, types M. C. Z.; pl. 21, f. 3, ♂ ♀ char.—Syn. Neur. N. Am., p. 107, 1861.
SELYS, Bull. Acad. Belg., (2) 7, p. 542, 1859; desc.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 82, 1908; dist.
Distr. Austroriparian ? Texas.

minutus RAMBUR, Ins. Neur., p. 161, 1842; ♂, type Coll. Selys.
SELYS, Bull. Acad. Belg., 21, p. 55, 1854; ♂ ♀, ♀ British Museum.—Mon. Gomph., p. 155, 1858; detailed desc.; pl. 9, f. 3, ♂ ♀ char.
HAGEN, Syn. Neur. N. Am., p. 108, 1861; desc.
CALVERT, Trans. Am. Ent. Soc., 20, p. 244, 1893; ♂ app. desc.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 82, 1908; dist.
Nymph. NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 690, 1904; desc.; pl. 38, f. 6, adult.
Distr. Austroriparian; Fla., Ga.

naevius HAGEN, syn. ad *Lanthus albistylus*, antea.

notatus RAMBUR, Ins. Neur., p. 162, 1842; ♂, type mutilated, Mus. Paris.
SELYS, Bull. Acad. Belg., 21, p. 57, 1854; ♂ desc.—L. c., (2) 46, p. 466, 1878; ♀, type M. C. Z.—Mon. Gomph., p. 159, 1858; ♂ desc.
HAGEN, Syn. Neur. N. Am., p. 110, 1861; desc.
KELLICOTT, Odon. Ohio, p. 71, 1899; desc.
WILLIAMSON, Drag. Ind., p. 294, 1900; good desc.; pl. 6, f. 23, ♂ app.—Trans. Am. Soc., 27, p. 210, 1901; desc.; pl. 8, ff. 9, 14; pl. 9, ff. 25, 28, ♂ ♀ char.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 91, 1908; desc. notes.
Syn. fluvialis WALSH, Proc. Acad. Phila., p. 394, 1862; ♂ ♀, types lost.—Proc. Ent. Soc. Phila., 2, p. 252, 1863; desc.—[Williamson 1901.]
SELYS, Bull. Acad. Belg., (2) 28, p. 185, 1869; desc. after Walsh.
Distr. Alleghanian & Carolinian, Quebec & Mich. to N. C. & Tenn.

olivaceus SELYS, Bull. Acad. Belg., (2) 35, p. 749, 1873; ♀, type Coll. MacLachlan?
HAGEN, Rep. Surv. Terr. Colo. (1873), p. 597, 1874; ♀ desc.
CALVERT, Ent. News, 14, p. 191, 1903; ♀ desc.; pl. 8, f. 1, adult, ff. 6-8, ♀ char.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 83, 1908; dist.
Distr. Upper Sonoran ?; California, Nebraska.

pallidus RAMBUR, Ins. Neur., p. 163, 1842; ♀, types Coll. Selys.
SELYS, Bull. Acad. Belg., 21, p. 52, 1854; ♂ ♀.—Mon. Gomph., p. 105, 1858; desc. elaborated; pl. 8, f. 6, ♀ char.
HAGEN, Syn. Neur. N. Am., p. 105, 1861; desc.
WILLIAMSON, Drag. Ind., p. 291, 1900; desc.
NEEDHAM, Can. Ent., 29, p. 167, 1897; noted as type of (*Arigomphus*).
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 82, 1908; dist.
Syn. pilipes HAGEN, Mon. Gomph., p. 148, 1858; ♂ ♀, types M. C. Z. & Mus. Frankfurt; pl. 8, f. 7, ♂ ♀ char.—[Hagen 1875, with a doubt.]
SELYS, Bull. Acad. Belg., (2) 7, p. 541, 1859; desc.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 83, 1908; dist.
Nymph. NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 80, 1901; desc.
Distr. Carolinian & Austroriparian; Mass. & Mich. to Ga. & Tex.

plagiatus SELYS, Bull. Acad. Belg., 21, p. 57, 1854; ♂, holotype British Mus.—L. c., (2) 46, p. 465, 1878; ♂ ♀, ♀ M. C. Z.—Mon. Gomph., p. 159, 1858; ♂ desc.

Gomphinae

HAGEN, Syn. Neur. N. Am., p. 109, 1861; desc. after Selys.
CALVERT, Trans. Am. Ent. Soc., 20, p. 244, 1893; desc.
KELLICOTT, Odon. Ohio, p. 69, 1899; good desc.
WILLIAMSON, Drag. Ind., p. 295, 1900; desc.; pl. 6, ff. 26, 27, 37, ♂ ♀ char.—Trans. Am. Ent. Soc., 27, p. 211, 1901; desc.; pl. 8, ff. 5*a*, 15; pl. 9, ff. 20, 24, 30; ♂ ♀ char. & wing detail.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 458, 1901; dist.
HOWARD, Ins. Book, 1902; pl. 40, f. 12, ♂ adult col.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 91, 1908; desc.

Syn. elongatus SELYS, Bull. Acad. Belg., 21, p. 58, 1854; ♀, Brit. Mus.—[Selys 1878.]

Nymph. HAGEN, Trans. Am. Ent. Soc., 12, p. 269, 1885; desc.—L. c., p. 270, 1885; desc. as (*notatus*).
NEEDHAM, Bull. 47 N. Y. State Mus., p. 267, 1901; dist.—L. c., 68, p. 269, 1903.
NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 84, 1901; desc.

Distr. Carolinian & Austroriparian; N. J., Ill., & Mich. to Tex. & Fla.

quadricolor WALSH, Proc. Acad. Phila., p. 394, 1862; ♂, type lost.—Proc. Ent. Soc. Phila., 2, p. 242, 1863; desc.
SELYS, Bull. Acad. Belg., 28, p. 179, 1869; desc. after Walsh.
KELLICOTT, Odon. Ohio, p. 58, 1899; good desc.; f. 39, ♂ app.
WILLIAMSON, Drag. Ind., p. 288, 1900; good desc.; pl. 6, ff. 7, 29, ♂ app., ♀ occ.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 452, 1901; dist.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 85, 1908; desc.

Distr. Carolinian into Alleghanian; Mass. & Wis. to Tenn.

scudderi SELYS, Bull. Acad. Belg., (2) 35, p. 752, 1873; ♀, type Coll. Seyls.
HARVEY, Ent. News, 9, p. 62, 1898; ♂ desc.; pl. 5, ff. 6-8, ♂ char.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 456, 1901; dist.; pl. 17, f. 2, adult.
WILLIAMSON, Trans. Am. Ent. Soc., 27, p. 208, 1901; desc.; pl. 8, ff. 12, 19; pl. 9, ff. 26, 32, ♂ ♀ char.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 90, 1908; desc.

Nymph. NEEDHAM, L. c., p. 457, 1901; desc.; pl. 18, f. 2, adult.

Distr. Alleghanian; New England States.

segregans NEEDHAM, syn. ad *spiniceps.*

sobrinus SELYS, Bull. Acad. Belg., (2) 35, p. 745, 1873; ♂, holotype Col. MacLachlan.

Nymph. ?NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 692, 1904; desc.; pl. 43, f. 4, str. dets.

Distr. Upper Sonoran ?; Calif., Wash.

sordidus HAGEN, syn. ad *lividus*.

spicatus HAGEN, Bull. Acad. Belg., 21, p. 54, 1854; ♂, type M. C. Z.—Mon. Gomph., p. 153, 1858; ♂ desc.—Syn. Neur. N. Am., p. 107, 1861; desc.
SELYS, Bull. Acad. Belg., (2) 38, p. 183, 1869; ♀, Coll. Selys.
KELLICOTT, Odon. Ohio, p. 97, 1899; good desc.; f. 31, ♂ app.
WILLIAMSON, Drag. Ind., p. 292, 1900; desc.; pl. 6, ff. 18, 35, ♂ app., ♀ occ.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 459, 1901; dist.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 88, 1908; desc.
Nymph. HAGEN, Trans. Am. Ent. Soc., 12, p. 267, 1885; desc. as (*pallidus*).
?NEEDHAM, l. c., p. 459, 1901; desc.
NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 76, 1901; desc.
Distr. Alleghanian & Carolinian; Me., Ont. & Wis. to Ill. & Pa.

spiniceps (WALSH), Proc. Acad. Phila., p. 389, 1862; ♀ (*Macrogomphus*), type lost.—Proc. Ent. Soc. Phila., 2, p. 256, note, 1863; additions.
SELYS, Bull. Acad. Belg., (2) 28, p. 205, 1869; ♀, desc. after Walsh. L. c., (2) 35, p. 750, 1873; ♀ desc. (*Gomphus*).
KELLICOTT, Odon. Ohio, p. 69, 1899; good desc.; f. 38, ♂ app.
WILLIAMSON, Drag. Ind., p. 295, 1900; good desc.; pl. 6, ff. 24, 25, ♂ app.—Trans. Am. Ent. Soc., 27, p. 209, 1901; desc.; pl. 8, ff. 13, 18; pl. 9, ff. 22, 23, 29, ♂ ♀ characters.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 91, 1908; dist.
Syn. segregans NEEDHAM, Can. Ent., 29, p. 185, 1897; ♂, type Coll. Hart ?
WILLIAMSON, Drag. Ind., p. 297, 1900; ♂, after Needham.—[Williamson 1901.]
Nymph. CABOT, Mem. Mus. Comp. Zool., 1, p. 5, 1872; desc.; pl. 2, f. 1, adult.
HAGEN, Trans. Am. Ent. Soc., 12, p. 270, 1885; desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 447, 1901; dist.
NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 87, 1901; desc.
Distr. Carolinian; N. Y. & Ill. to Pa. & Tenn.; Mich.

vastus WALSH, Proc. Acad. Phila., p. 391, 1862; ♂ ♀, types lost.
SELYS, Bull. Acad. Belg., (2) 28, p. 176, 1869; desc.
CALVERT, Trans. Am. Ent. Soc., 20, p. 245, 1893; desc.
KELLICOTT, Odon. Ohio, p. 57, 1899; good desc.; f. 34, ♂ app.
WILLIAMSON, Drag. Ind., p. 287, 1900; desc.; pl. 6, ff. 3, 6, 28, ♂ ♀ char.

Gomphinae

NEEDHAM, Bull. 47 N. Y. State Mus., p. 459, 1901; dist.

WALKER, Ottawa Nat., 22, p. 52, 1908; desc. notes; pl. 2, f. 3, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 90, 1908; desc.

Nymph. CABOT, Mem. Mus. Comp. Zool., 5, p. 3, pl. 2, f. 4, 1872; desc. & adult.

HAGEN, Trans. Am. Ent. Soc., 12, p. 265, 1885; desc.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 447, 1901; dist.

NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 72, 1901; desc.

Distr. Carolinian; N. Y. & Iowa to Tenn. & Pa.

ventricosus WALSH, Proc. Ent. Soc. Phila., 2, p. 249, 1863; ♂, type lost.

SELYS, Bull. Acad. Belg., (2) 7, p. 540, 1859; desc. after Walsh.—L. c., (2) 46, p. 453, 1878; ♀ desc.; type Coll. Selys.

WILLIAMSON, Drag. Ind., p. 287, 1900; ♂ ♀ desc.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 456, 1901; dist.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 90, 1908; desc.

Distr. Carolinian; Mass. & Mich. to Ill. & Pa.

villosipes SELYS, Bull. Acad. Belg., 21, p. 53, 1854; ♂, Mus. Vienna.—L. c., (2) 46, p. 458, 1878; short note.

HAGEN, Syn. Neur. N. Am., p. 105, 1861; desc.

CALVERT, Trans. Am. Ent. Soc., 20, p. 244, 1893; desc.

KELLICOTT, Odon. Ohio, p. 63, 1899; good desc.; f. 30, ♂ app.

WILLIAMSON, Drag. Ind., p. 291, 1900; desc.; pl. 6, ff. 1, 14, 33, ♂ ♀ char.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 460, 1901; dist.

HINE, Ohio Nat., 2, p. 61, 1902; desc. notes; pl. 5, ff. 1, 3, 5, 7, 8, ♂ ♀ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 88, 1908; desc.

Nymph. NEEDHAM, l. c., p. 460, 1901; desc.

NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 79, 1901; desc.

Distr. Carolinian, into Alleghanian; Mass. & Mich. to Pa. & Ill.

viridifrons HINE, Ohio Nat., 1, p. 60, 1901; ♂ ♀, types Coll. Hine; pl. 5, ff. 11, —, 18, ♂ ♀ char.

WILLIAMSON, Drag. Ind., p. 294, 1900; ♂ desc.; pl. 6, f. 22, ♂ app. (*Gomphus sp.*).—Proc. Ind. Acad., 1901; pl. 1, f. 16, 17, ♂ ♀ char. (*viridifrons*).

Distr. Carolinian; Ohio, Ind., Pa.

williamsoni n.n.

Gomphinae

WILLIAMSON, Ent. News, 14, pp. 253-258, 1903; ♂, holotype Coll. Williamson; pl. 12, ff. 4-6, ♂ char.; a hybrid ("*sordidus* + *graslinellus*").

Distr. Carolinian; Indiana.

Subgenera of GOMPHUS.*

ARIGOMPHUS NEEDHAM, Can. Ent., 29, p. 181, note, 1897; type *G. pallidus*.—Bull. 47 N. Y. State Mus., p. 447, 1901.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 88, 1908.

Syn. Orcus NEEDHAM, Can. Ent., 29, pp. 167, 181, note, 1897; a homonymn.

GOMPHURUS NEEDHAM, Bull. 47 N. Y. State Mus., p. 446, 1901; type *G. dilatatus*.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 89, 1908.

GOMPHUS LEACH, NEEDHAM, Can. Ent., 29, p. 167, 1897.—Bull. 47 N. Y. State Mus., p. 445, 1901.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 84, 1908.

STYLURUS NEEDHAM, Can. Ent., 29, p. 167, 1897; type *G. plagiatus*.—Bull. 47 N. Y. State Mus., p. 446, 1901.
WILLIAMSON, Trans. Am. Ent. Soc., 27, pp. 205-217, 1901; pls. 8, 9.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 90, 1908.

	Willsn.	Needh.	Muttk.		Willsn.	Needh.	Muttk.
abbreviatus	G	G	G	lentulus		A	
adelphus	G?	G	G?	lividus	G	G	G
amnicola	S	U	(S)	militaris	G?		
australis		A		minutus	G?		
borealis	G	G	G	notatus	S		S
brevis	G	G	G	olivaceus	S		
cavillaris	G		G	pallidus	A?	A	
cornutus	G?		A?	plagiatus	S	S	S
crassus	U		G	quadricolor	G	G	G
descriptus	G	G	G	scudderi	S	U	(S)
dilatatus	U		U	sobrinus			
exilis	G	G	G	spicatus	G	A	(G)
externus	U		G	spiniceps	S	S	S
fraternus	U	G	G	vastus	U	U	U
furcifer	G	A	A?	ventricosus	U	U	U
graslinellus	G		G	villosipes	A	A	A
hybridus	U		G	viridifrons	G		G
intricatus	G		G	williamsoni	G		G

NOTE—As there is some disagreement as to the position of the various species of Gomphus since Needham's division of the genus into subgenera I give the latter in juxtaposition as interpreted by Messrs. Needham and Williamson and myself. Mr. Williamson has expressed his views to me in a letter, while Needham's references are taken from his papers on the subject (1897 and 1901). The abbreviations are as follows: G—Gomphus, A—Arigomphus, S—Stylurus, U—Gomphurus.

Gomphinae

DROMOGOMPHUS SELYS.

Type—*spinosus* SELYS. Distribution—Nearctic.

Bull. Acad. Belg., 21, p. 58, 1854.
CALVERT, Trans. Am. Ent. Soc., 20, p. 221, 1893.
KELLICOTT, Odon. Ohio, p. 51, 1899.
NEEDHAM, Can. Ent., 29, p. 167, 1897.—Bull. 47 N. Y. State Mus., p. 435, 1901.
WILLIAMSON, Drag. Ind., p. 248, 1900.
NEEDHAM & HART, Bull. Ill. State Mus., 6, p. 53, 1901.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 91, 1908.

armatus SELYS, Bull. Acad. Belg., 21, p. 59, 1854; ♂, holotype British Museum.—Mon. Gomph., p. 122, 1858; desc. (*Gomphus*).—Bull. Acad. Belg., (2) 26, p. 499, 1873; desc. (*Dromogomphus*).—L. c., (2) 46, p. 467, 1878; ♂ ♀ desc.

HAGEN, Syn. Neur. N. Am., p. 102, 1861; desc. after Selys; (*Gomphus*).—Proc. Bost. Soc., 18, p. 44, 1875; (*Dromogomphus*); identity.

Distr. Austroriparian; Georgia.

spinosus SELYS, Bull. Acad. Belg., 21, p. 59, 1854; ♂ ♀, ♂ types Coll. Dale, Mus. Copenhagen, ♀ British Museum.—Mon. Gomph., p. 120, 1858; desc. amplified; pl. 7, f. 2, ♂ ♀ char.; (*Gomphus*).

HAGEN, Syn. Neur. N. Am., p. 102, 1861; desc.
CALVERT, Trans. Am. Ent. Soc., 20, p. 245, 1893; desc.; (*Dromogomphus*).
KELLICOTT, Odon. Ohio, p. 71, 1899; desc.
WILLIAMSON, Drag. Ind., p. 296, 1900; desc.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 91, 1908; desc.

Nymph. HAGEN, Trans. Am. Ent. Soc., 12, p. 265, 1885; desc. as (*Gomphus sp.*).

NEEDHAM, Can. Ent., 29, p. 186, 1897; dist.—Bull. 47 N. Y. State Mus., p. 462, 1901; desc.; pl. 18, f. 1, adult.
NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 64, 1901; desc.

Distr. Alleghanian to Austroriparian, Me. & Wis. to Fla. & Tex.

spoliatus (HAGEN), Mon. Gomph., p. 409, 1857; ♂, type M. C. Z.; (*Gomphus*); pl. 21, f. 1, ♂ char.—Syn. Neur. N. Am., p. 103, 1861; desc. (= *armatus ?*).

SELYS, Bull. Acad. Belg., (2) 7, p. 543, 1859; notes.
KELLICOTT, Odon. Ohio, p. 72, 1899; good desc.
WILLIAMSON, Drag. Ind., p. 296, 1900; desc.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 92, 1908; desc.

Nymph. NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 692, 1904; desc.; pl. 43, f. 5, str. dets.

Distr. Carolinian & Alleghanian, Wis., Ind., Ohio, Tex.

OCTOGOMPHUS SELYS.

Type—*specularis* (HAGEN). Distribution—Nearctic.

Bull. Acad. Belg., (2) 35, p. 739, 1873.

CALVERT, Proc. Cal. Acad., (2) 4, p. 470, 1895.

specularis (HAGEN), Bull. Acad. Belg., (2) 7, p. 544, 1859; ♀ (*Neogomphus*), type M. C. Z.—Syn. Neur. N. Am., p. 110, 1861.

SELYS, Bull. Acad. Belg., (2) 35, p. 760, 1873; ♂ (*Octogomphus*).

CALVERT, Proc. Cal. Acad., (2) 4, p. 502, 1895; noted; pl. 16, ff. 80-84, ♂ ♀ char.

Distr. Lower Sonoran, Calif., Baja Calif., Mexico.

SUBFAMILY **AESHNINAE** RAMBUR.*

Type genus—*Aeshna* (FABRICUS). Distribution—Cosmopolitan.

Ins. Neur., p. 181, 1842; established as family.

BRAUER, Verh. Ges. Wien, 18, pp. 12-13, 1868; table of genera.

SELYS, Bull. Acad. Belg., (3) 5, pp. 708-748, 1883; synopsis of genera.

KARSCH, Ent. Nachr., 17, pp. 238-300, 1891; (Kritik des Systems der Aeshniden); tables of the genera, their affinities.

NEEDHAM, Proc. U. S. Nat. Mus., 26, pp. 734-737, 1903; venation, ontogeny.

CALVERT, Biol. C. Am., p. 174, 1905; table of genera.

COCKERELL, Ent. News, 19, p. 456, 1908; wing venation, disc. of affinities.

MARTIN, Cat. Coll. Selys, 18, pp. 1-84, 1908; pls. 1-2, t. ff. 1-77.—L. c., 19, pp. 85-156, 1909; pls. 3-4, t. ff. 78-156.—L. c., 20, pp. 157-223, 1909; pls. 5-6, t. ff. 157-219; monograph of the subfamily.

BOYERIA MACLACHLAN.

Type—*irene* (FONSCOLOMBE). Distribution—Holarctic.

Ann. Mag. N. H., (6) 17, p. 424, 1896; new name for *Fonscolombia* (= preoccupied).

*NOTE—The original spelling of Aeshna is resumed. The vicissitudes of spelling will not be followed in this catalogue. I will suffice to say that practically all of the authors here cited quote Aeschna. Of modern authors Calvert (Biologia 1905) and Walker (Can. Ent. 1908) use Aeshna, while more recently Martin (Cat. Coll Selys 1908-1909) prefers Aeschna. Composites of Aeschna will, of course, be quoted in their original form.

Aeshninae

WILLIAMSON, Drag. Ind., p. 248, 1900; char.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 463, 1901—Proc. U. S. Nat. Mus., 26, p. 735, 1903; venation.

NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 31, 1901.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 31, 1908.

MARTIN, Cat. Coll. Selys, 18, p. 5, 1908.—L. c., 19, p. 124, 1909.

Syn. Fonscolombia SELYS, Bull. Acad. Belg., (3) 5, p. 736, 1883; a homonymn.

KARSCH, Ent. Nachr., 17, p. 279, 1891.

CALVERT, Trans. Am. Ent. Soc., 20, p. 247, 1893.

KELLICOTT, Odon. Ohio, p. 77, 1899.

grafiana WILLIAMSON, Ent. News, 18, p. 1, 1907; ♂ ♀, types Coll. Williamson.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 94, 1908; desc.

MARTIN, Cat. Coll. Selys, 19, p. 126, 1909; desc.; t. f. 122, ♂ app.

Distr. Carolinian; N. Y. & Ont. to Pa. & Ky.

vinosa (SAY), Jn. Acad. Phila., 8, p. 13, 1839; ♂, holotype Mus. Boston Soc.; (*Aeshna*).

CALVERT, Trans. Am. Ent. Soc., 20, p. 247, 1893; desc. (*Fonscolombia*).

KARSCH, Ent. Nachr., 17, p. 285, 1891; dist.

KELLICOTT, Odon. Ohio, p. 90, 1899; desc.

WILLIAMSON, Drag. Ind., p. 300, 1900; desc. (*Boyeria*).—Ent. News, 18, p. 1, 1907; comp. desc.; tabulation of differences.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 465, 1901; desc. notes.

HOWARD, Ins. Book, 1902; pl. 44, f. 4, ♂ adult.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 94, 1908; desc.

MARTIN, Cat. Coll. Selys, 19, p. 126, 1909; desc.; t. f. 121, ♂ app.

Syn. quadriguttata (BURMEISTER), Handb. Ent., 2, p. 837, 1839; ♀, (*Aeshna*), Mus. Vienna.

HAGEN, Syn. Neur. N. Am., p. 130, 1861; desc.—[Hagen 1875.]

SELYS, Rev. Odon., p. 398, 1850; notes.

CALVERT, Trans. Am. Ent. Soc., 25, p. 53, 1898; on Burm. type.

Nymph. CABOT, Mem. M. C. Z., 8, p. 29, 1881; desc.; (*Neuraeschna*); pl. 2, f. 3, adult.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 465, 1901; desc. (*Boyeria*).

NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 36, 1901; desc.; pl. 1, f. 2, adult.

Distr. Alleghanian to Austroriparian; Me. & Wis. to Ark. & Tenn.

BASIAESCHNA SELYS.

Type—*janata* (SAY). Distribution—Nearctic.

Bull. Acad. Belg., (3) 5, p. 735, 1883.
KARSCH, Ent. Nachr., 17, p. 277, 1891.
KELLICOTT, Odon. Ohio, p. 77, 1899.
WILLIAMSON, Drag. Ind., p. 248, 1900.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 463, 1901.—Proc. U. S. Nat. Mus., 26, p. 710, 1903; venation.
NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 31, 1901.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 92, 1908.
MARTIN, Cat. Coll. Selys, 18, p. 5, 1908.—L. c., 19, p. 123, 1909.

janata (SAY), Jn. Acad. Phila., p. 13, 1839; ♂, (*Aeshna*), type Mus. Boston Soc.
HAGEN, Syn. Neur. N. Am., p. 125, 1861; desc. after Say.
KELLICOTT, Odon. Ohio, p. 81, 1899; desc. (*Basiaeschna*).
WILLIAMSON, Drag. Ind., p. 301, 1900; good desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 466, 1901; desc. notes.—Proc. U. S. Nat. Mus., 26, 1903; pl. 37, f. 2, wings.
HOWARD, Ins. Book, 1902; pl. 44, f. 1, ♂ adult.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 91, 1908; desc.
MARTIN, Cat. Coll. Selys, 19, p. 123, 1909; desc.; t. ff. 117, wgs., ♂ app.

Syn. minor RAMBUR, Ins. Neur., p. 207, 1842; ♂, (Aeshna), type ?.—[Hagen 1875.]

Nymph. NEEDHAM, Bull. 47 N. Y. State Mus., p. 466, 1901; desc.
NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 38, 1901; desc.

Distr. Alleghanian & Carolinian; Me. & Wis. to Mo. & N. C.

GOMPHAESCHNA SELYS.

Type—*furcillata* (SAY). Distribution—Nearctic.

Trans. Ent. Soc. London, p. 413, 1871.—Bull. Acad. Belg., (3) 5, p. 733, 1883.
KARSCH, Ent. Nachr., 17, p. 279, 1891.
CALVERT, Trans. Am. Ent. Soc., 20, p. 22, 1893.
KELLICOTT, Odon. Ohio, p. 76, 1899.
WILLIAMSON, Drag. Ind., p. 248, 1900.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 463, 1901.—Proc. U. S. Nat. Mus., 26, pp. 735, 756, 1903; venation.
NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 31, 1901.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 93, 1908.
MARTIN, Cat. Coll. Selys, 18, p. 6, 1908.—L. c., 19, p. 121, 1909.

Aeshninae

furcillata (SAY), Jn. Acad. Phila., 8, p. 14, 1839; ♂, (*Aeshna*), holotype Mus. Boston Soc.

HAGEN, Syn. Neur. N. Am., p. 131, 1861; ♂ desc. after Say & Rambur.—Proc. Boston Soc., 16, p. 352, 1874; desc. notes.

KELLICOTT, Odon. Ohio, p. 79, 1899; desc. (*Gomphaeschna*).

WILLIAMSON, Drag. Ind., p. 302, 1900; cites *antilope* as syn.; desc.

NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 722, 1903; venation; t. f. 17: 3, loop; pl. 37, f. 1, wings.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 93, 1908; dist.

MARTIN, Cat. Coll. Selys, 19, p. 122, 1909; desc.; t. ff. 115, 116, wgs., ♂ app.

Syn. quadrifida RAMBUR, Ins. Neur., p. 209, 1842; ♂, holotype Coll. Selys; (*Gynacantha*).—[Hagen 1861.]

Distr. Alleghanian & Carolinian; Me. & Mich. to Pa. & Ga.

Subsp. **antilope** (HAGEN), Proc. Bost. Soc., 16, p. 354, 1874; ♂ ♀, types Coll. Uhler; ♀ Coll. Hagen; (*Aeschna*).

CALVERT, Trans. Am. Ent. Soc., 20, p. 247, 1893; desc.; (*Gomphaeschna*).

Distr. Carolinian; N. J., Md., Pa., Va.

OPLONAESCHNA SELYS.

Type—*armata* (HAGEN). Distribution—Nearctic.

Bull. Acad. Belg., (3) 5, p. 735, 1883.

KARSCH, Ent. Nachr. 15, p. 238, 1889.

CALVERT, Biol. C. Am., p. 174, 1905.

MARTIN, Cat. Coll. Selys, 19, p. 119, 1909.

Syn. Hoplonaeschna KARSCH, Ent. Nachr., 17, p. 283, 1891.

NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 735, 1903.

MARTIN, Cat. Coll. Selys, 18, p. 6, 1908.

armata (HAGEN), Syn. Neur. N. Am., p. 124, 1891; ♂ (*Aeschna*), type M. C. Z.

KARSCH, Ent. Nachr., 17, p. 285, 1891; venation; (*Hoplonaeschna*).

NEEDHAM, Proc. U. S. Nat. Mus., 26, 1903; pl. 38, f. 1, wings.

CALVERT, Biol. C. Am., p. 195, 1905; ♂ ♀ desc.; (*Oplonaeschna*); pl. 8, ff. 32, 33, ♂ app.

MARTIN, Cat. Coll. Selys, 19, p. 120, 1909; desc.; t. f. 114, wgs.; pl. 3, f. 10, ad.

Distr. Lower Sonoran; New Mex., Ariz., Mex., Guat.

ANAX LEACH.

Type—*imperator* LEACH. Distribution—Cosmopolitan.

Edinb. Encycl., 9, p. 137, 1815.

BRAUER, Reise d. Novara, p. 59-63, 1866; spp.—Verh. Ges. Wien., 18, p. 370, 1868.

HAGEN, Verh. Ges. Wien., 17, pp. 31-48, 1867; on Brauer's spp.

KARSCH, Ent. Nachr., 17, pp. 278, 289, 1891; affinities.

CALVERT, Biol. C. Am., p. 176, 1905; table of C. Am. spp.

MARTIN, Cat. Coll. Selys, 18, pp. 9-27, 1908; monograph of spp

Syn. Cyrtosoma BURMEISTER, Handb. Ent., 2, p. 839, 1839.

CHARPENTIER, Lib. Eur., p. 13, 1840.

amazili (BURMEISTER), Handb. Ent., 2, p. 841, 1839; types lost; (*Aeschna*).

HAGEN, Syn. Neur., N. Am., p. 119, 1861; ♂ ♀ (*Anax*); lectotypes M. C. Z.—Verh. Ges. Wien., 17, p. 38, 1867; ♂ ♀; very detailed desc.—Psyche, 5, p. 305, 1890; desc.

BRAUER, Reise d. Novara, p. 61, 1866; desc.

CALVERT, Biol. C. Am., p. 176, 1905; comp. desc.

MARTIN, Cat. Coll. Selys, 18, p. 13, 1908; desc.; t. f. 7, ♂ app.

Syn. maculatus RAMBUR, Ins. Neur., p. 188, 1842; ♀, type Coll. Selys.—[Hagen 1867.]

Distr. Tropic, (Calvert z. 3), Mex., C. Am. to Brazil; Cuba, Barbados.

concolor BRAUER, Reise d. Novara, p. 66, 1867; ♂, type Mus. Vienna; pl. 1, f. 15, adult.—Verh. Ges. Wien., 15, p. 508, 1865; ♂ desc.

HAGEN, Psyche, 5, p. 304, 1890; ♂ ♀ desc.

CALVERT, Biol. C. Am., p. 176, 1905; comp. desc.

MARTIN, Cat. Coll. Selys, 18, p. 13, 1908; desc.

Distr. Austroriparian into Tropic; Md., Ga., Fla., Haiti, Mex., Brazil.

junius (DRURY), Ill. Exot. Ent., 1, 1773; pl. 47, f. 5; adult; (*Libellula*).

BURMEISTER, Hand. Ent., 2, p. 841, 1839; desc. (*Aeschna*).

SAY, Jn. Acad. Phila., 8, p. 9, 1839.

RAMBUR, Ins. Neur., p. 196, 1842; desc.

SELYS, Rev. Odon., p. 328, 1850; desc. (*Anax*).—In Sagra: Hist. Cuba, Ins., p. 458, 1857; desc.

HAGEN, Syn. Neur. N. Am., p. 118, 1861; desc.—Verh. Ges. Wien, 17, p. 33, 1867; distr. & syn.—Psyche, 5, p. 305, 1890; desc., distr., etc.

BRAUER, Reise d. Novara, p. 62, 1866; desc.

CALVERT, Trans. Am. Ent. Soc., 20, p. 249, 1893; desc.—Proc. Cal. Acad., (2) 4, p. 509, 1895; comp. notes; pl. 15, ff. 15, 16, ♂ app. —Biol. C. Am., p. 177, 1905; comp. desc.

Aeshninae

KELLICOTT, Odon. Ohio, p. 77, 1899; desc.

WILLIAMSON, Drag. Ind., p. 306, 1900; desc.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 471, 1901; ethol. notes.—Proc. U. S. Nat. Mus., 26, p. 709, 1903; venation; t. f. 4*p*, stigma; pl. 40, f. 3, wings.

HOWARD, Ins. Book, 1902; pl. 40, f. 15, ♂ ad. col.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 97, 1908; desc.

MARTIN, Cat. Coll. Selys, 18, p. 11, 1908; desc.; t. f. 4, ♂ app.

Syn. spiniferus RAMBUR, Ins. Neur., p. 186, 1842; ♂ type ?; pl. 1, f. 14, ♂ app.—[Hagen 1866.]

Nymph. CABOT, Mem. M. C. Z., 8, p. 36, 1881; desc.; pl. 1, f. 2, adult.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 472, 1901; desc.; t. f. 14, illustrating three stages.—Proc. U. S. Nat. Mus., 26, p. 712, 1903; t. f. 5, tracheal ven.; pl. 31, f. 3; pl. 32, f. 1, wings.

NEEDHAM & HART, Bul. Ill. State Lab., 6, p. 47, 1901; desc.; pl. 1, f. 5, adult.

Distr. Entire North Am., Hawaiian Is., Western Coast of Asia.

longipes HAGEN, Syn. Neur., N. Am., p. 118, 1861; ♀, holotype Mus. Zürich.—Verh. Ges. Wien, 17, p. 35, 1867, ♀ det. desc.—Ent. M. Mag., 20, p. 169, 1884; notes. Psyche, 5, p. 303, 1890; desc.

BRAUER, Reise d. Novara, p. 60, 1866; desc.

MACLACHLAN, Ent. M. Mag., 10, p. 227, 1874; mutilated ♂ desc., Dublin Mus.—L. c., 20, p. 129, 1883; on types.

WILLIAMSON, Drag. Ind., p. 306, 1900; dist.

CALVERT, Biol. C. Am., p. 176, 1905; comp. desc.; pl. 8, f. 10, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 97, 1908; dist.

MARTIN, Cat. Coll. Selys, 18, p. 12, 1908; desc.; t. f. 6, ♂ app.

Nymph. ?NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 695, 1904; desc.

Distr. Carolinian to Tropic, Mass. & Ohio to Fla., Haiti, Jamaica, Mexico.

walsinghami MACLACHLAN, Ent. M. Mag., 20, p. 127, 1882; ♂ ♀, types Coll. MacLachlan.

HAGEN, Psyche, 5, p. 306, 1890; desc.

CALVERT, Proc. Cal. Acad., (2) 4, p. 511, 1895; comp. notes; pl. 15, ff. 17, 18, ♂ app.—Biol. C. Am., p. 178, 1905; comp. desc.

MARTIN, Cat. Coll. Selys., 18, p. 14, 1908; desc.; t. f. 8, ♂ app.

Nymph. CABOT, Mem. Mus. Comp. Zool., 8, p. 15, 1881; desc. as (*validus*).

Distr. Lower Sonoran, (Calvert z. 3-4), Calif., Ariz., B. Calif., Guatemala.

GYNACANTHA RAMBUR.

Type—*trifida* RAMBUR. Distribution—regions of Southern Hemisphere, into northern region.

Ins. Neur., p. 209, 1842.

SELYS, in Sagra: Hist. Cuba, Ins., p. 458, 1857.—Bull. Acad. Belg., (3) 5, p. 745, 1883.

HAGEN, Syn. Neur. N. Am., p. 131, 1861.

BRAUER, Verh. Ges. Wien, 18, p. 371, 1868.

KARSCH, Ent. Nach., 17, p. 289, 1891.

MACLACHLAN, Ann. Mag. N. H., (6) 16, p. 411, 1896; note on synonymy.

KRUEGER, Stett. Ent. Zeit., 59, p. 276, 1898; affinities.

FOERSTER, Termes Füzetek, 23, p. 101; 1900; affinities.

NEEDHAM, Proc. U. S. Nat. Mus., 26, pp. 710, 735, 1903; venation.

CALVERT, Biol. C. Am., p. 189, 1905; char. & table of C. Am. spp.

MARTIN, Cat. Coll. Selys, 18, p. 8, 1908; char.—L. c., 20, p. 167,.1909

Syn. Triacanthagyna SELYS, Bull. Acad. Belg., (3) 5, p. 645, 1883.—[Karsch 1891.]

MARTIN, Cat. Coll. Selys, 18, p. 8, 1908.—L. c., 19, p. 148, 1909.

Acanthagyna KIRBY, Cat. Odon., p. 94, 1890.—[Karsch 1891.]

bifida RAMBUR, Ins. Neur., p. 213, 1842.

KRUEGER, Stett. Ent. Zeit., 59, p. 279, 1898; t. f., ♂ app.

KARSCH, Abh. Senckb. Ges., 25, p. 215, 1900; venation.

MARTIN, Cat. Coll. Selys, 20, p. 172, 1909; desc. t. f. 175, ♂ app.

Distr. Tropic, S. Am., Florida.

mexicana SELYS, C. R. Soc. Ent. Belg., 11, p. 69, 1869; ♀, holotype Coll. Selys.

CALVERT, Biol. C. Am., p. 192, 1905; ♂ ♀ comp. desc.; pl. 8, ff. 22, 23, ♂ app.

MARTIN, Cat. Coll. Selys, 20, p. 173, 1909; desc. t. f. 176, ♂ app.

Distr. Tropic, (Calvert z. 2), Mexico: Vera Cruz; Honduras.

needhami (MARTIN), Cat. Coll. Selys, 19, p. 149, 1909; ♂ ♀, (*Triacanthagyna*), types Coll. Martin; t. f. 148, ♂ app.

Distr. Florida.

nervosa RAMBUR, Ins. Neur., p. 213, 1842; ♂ ♀, ♂ type Mus. Paris, ♀ Coll. Selys.

KOLBE, Archiv f. Naturg., 54, p. 168, 1888; desc.; pl. 13, f. 1, ♂ app.

KARSCH, Ent. Nachr., 17, p. 281, 1891; dist.

Aeshninae

CALVERT, Biol. C. Am., p. 193, 1905; comp. desc.

MARTIN, Cat. Coll. Selys, 20, p. 169, 1909; desc.; t. f. 172, ♂ app.

Syn. gracilis BURMEISTER, Handb. Ent., 2, p. 837, 1839; ♀ only; type Mus. Vienna.

HAGEN, Proc. Boston Soc., 18, p 41, 1875; in part.—[Calvert 1905.]

Distr. Tropic, (Calvert z. 2-3); Calif., Fla., Mex. to Brazil; Cuba, Jamaica, Haiti.

septima SELYS, in Sagra: Hist. Cuba, Ins., p. 460, 1857; ♂, type Coll. Selys.

HAGEN, Syn. Neur. N. Am., p. 132, 1861; after Selys.

CALVERT, Biol. C. Am., p. 191, 1905; ♂ ♀, comp. desc.; pl. 8, ff. 20, 21, ♂ app.

MARTIN, Cat. Coll. Selys, 19, p. 150, 1909; desc. (*Triacanthagyna*); t. f. 149, ♂ app.

Distr. Tropic, (Calvert z. 2-3); Vera Cruz, Mex. to Brazil; Cuba, Jamaica.

tibiata KARSCH, Soc. Ent., 6, p. 121, 1891; ♂, holotype Mus. Berlin.

MACLACHLAN, Ann. Mag. N. H., (6) 17, p. 416, 1896; ♂ notes.

CALVERT, Biol. C. Am., p. 194, 1905; ♂ ♀, comp. desc.; pl. 8, ff. 24, 25; pl. 10, f. 17, ♂ app.

MARTIN, Cat. Coll. Selys, 20, p. 170, 1909; desc.; t. f. 173, ♂ app.

Distr. Tropic, (Calvert z. 2-3), Vera Cruz, Mex. to Ecuador.

trifida RAMBUR, Ins. Neur., p. 210, 1842; ♂ ♀, types Coll. Selys.

SELYS, in Sagra: Hist. Cuba, Ins., p. 459, 1857; desc.

HAGEN, Syn. Neur. N. Am., p. 131, 1861; desc.

KARSCH, Ent. Nachr., 17, p. 281, 1891; dist.

NEEDHAM, Proc. U. S. Nat. Mus., 26, 1903; pl. 39, f. 3, wings.

BUTLER, Trans. Am. Ent. Soc., 30, 1904; pl. 7, f. 4, labium.

CALVERT, Biol. C. Am., p. 191, 1905; desc.; pl. 8, ff. 28, 29, ♂ app.

MARTIN, Cat. Coll. Selys, 19, p. 148, 1909; desc. (*Triacanthagyna*); t. ff. 146, 147, wings, ♂ app.

Distr. Tropic, (Calvert z. 2-3); Fla., Calif., Mex. to Bolivia; Cuba, Jamaica.

AESHNA FABRICIUS.

Type—*juncea* (LINNE). Distribution—cosmopolitan.

Syst. Ent., p. 424, 1775.

SELYS, Rev. Odon., p. 112, 1850.—Bull. Acad. Belg., (3) 5, p. 728, 1883; limited.

KARSCH, Ent. Nachr., 17, p. 288, 1891; affinities.

NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 734, 1903; venation.

MARTIN, Cat. Coll. Selys, 18, pp. 33-79, 1908; monograph of spp.

WALKER, Can. Ent., 40, pp. 377-391, 1908; monograph of N. Am. spp.—L. c., pp. 450-451, 1909; distribution of spp.

adnexa (HAGEN), vide *Coryphaeschna,* postea.

californica (CALVERT, Proc. Cal. Acad., (2) 4, p. 504, 1895; ♂ ♀, types Cal. Acad.; pl. 15, ff. 19, 20, 23, ♂ char.
NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 736, 1903; venation; pl. 40, f. 1, wings.
MARTIN, Cat. Coll. Selys, 18, p. 47, 1908; desc.; t. f. 43, ♂ app.
WALKER, Can. Ent., 40, pp. 378, 386, 1908; ♂ ♀, comp. desc.
Nymph. NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 45, 1901; desc.
Distr. Upper & Lower Sonoran; B. C. & Cal. to Utah & Ariz.

canadensis WALKER, Can. Ent., 40, pp. 382, 389, 1908; ♂ ♀, types U. S. N. Mus.—Ottawa Nat., 22, p. 54, 1908; dist. (*Aeshna Y*).
WILLIAMSON, Ohio Nat., 7, p. 146, 1907; ♂ ♀ (*Aeshna Y*).
Syn. clepsydra MARTIN, Cat. Coll. Selys, 18, p. 36, 1908; ♂ ♀; types Coll. Selys; t. f. 36, ♂ app.—[Walker, in litteris, Aug. 14, 1909.]
Distr. Canadian, Transition; New England States to Wash.

clepsydra SAY, Jn. Acad. Phila., 8, p. 12, 1839; ♂, holotype Boston Mus.*
HAGEN, Syn. Neur. N. Am., p. 122, 1861; desc.
CALVERT, Trans. Am. Ent. Soc., 20, p. 248, 1893; ♂ ♀ desc.—Ent. News, 5, p. 9, 1894; identity discussed.
KELLICOTT, Odon. Ohio, p. 84, 1899; desc.
WILLIAMSON, Drag. Ind., p. 304, 1900; desc.; pl. 7, ff. 12, 13, ♂ app.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 91, 1908; desc.
WALKER, Can. Ent., 40, pp. 383, 388, 1908; clear desc.
Syn. arundinacea SELYS, Ann. Soc. Ent. Belg., 15, p. 36, 1872; ♀, type Coll. Selys.—L. c., 27, p. 117, 1883; ♂ desc.—[Martin 1908.]
maxima HISINGER, Not. Faun. Flor. Fenn., 6, p. 117, 1861.—[Calvert 1894, cites Heikel as author.]
Distr. Alleghanian & Carolinian, New England to Ont. & Ind.

constricta SAY, Jn. Acad. Phila., 8, p. 11, 1839; types lost.
HAGEN, Syn. Neur. N. Am., p. 123, 1861; ♂, neotype M. C. Z.

NOTE—Walker, in litteris, Aug. 14, 1909: "The synonyms given by you do not belong to the true clepsydra. A. arundinacea and maxima I have not seen. It is very probable that the first at least is a good species. A. crenata is a valid species beyond any doubt. I have examined Hagen's types carefully and find them unquestionably distinct from any American form, coming nearest to eremita."
Walker, in litteris, Sept. 24, 1909: (To clepsydra) "Some of the references * * * do not refer to the true clepsydra. * * * * * I am quite sure arundinacea is not clepsydra, but as I have not seen the type it is probably best to let it stand as a synonym of the latter on the authority of Martin."

Aeshninae

PROVANCHER, Nat. Can., 9, p. 42, 1877.

CALVERT, Trans. Am. Ent. Soc., 20, p. 249, 1893; ♂ ♀ desc.—Biol. C. Am., p. 185, 1905; comp. desc.

KELLICOTT, Odon. Ohio, p. 83, 1899; desc.

WILLIAMSON, Drag. Ind., p. 305, 1900; desc.; pl. 7, ff. 14, 15, ♂ app.—Ent. News, 17, p. 369, 1903; comp. notes.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 91, 1908; desc.

MARTIN, Cat. Coll. Selys, 18, p. 46, 1908; t. f. 44, ♂ app.

WALKER, Can. Ent., 40, pp. 380, 387, 1908; comp. desc.—Ottawa Nat., 22, p. 54, 1908; dist.—In litteris, Aug. 14, 1909; "most of the descriptions include *constricta* & *umbrosa* and often also *palmata*."

Nymph. WILLIAMSON, l. c., pl. 4, f. 10; adult.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 470, 190, desc.

Distr. Carolinian & Alleghanian; Atlantic Coast to Dakotas.

cornigera BRAUER, Verh. Ges. Wien, 15, p. 906, 1865; ♂ ♀, types Mus. Vienna; short Latin desc.—Reise d. Novara, p. 70, 1866; detailed desc.

HAGEN, Verh. Ges. Wien, 17, p. 49, 1867; validity.

CALVERT, Proc. Cal. Acad., (2) 4, p. 507, 1895; comp. notes; pl. 15, ff. 24, 31, 32, ♂ char.—L. c., (3) 1, p. 408, 1899; brief notes.—Biol. C. Am., p. 182, 1905; comp. desc.; p. 400, 1907, notes.

RIS, Magelhaenreise, p. 23, 1904; ♂ ♀ desc.

MARTIN, Cat. Coll. Selys, 18, p. 46, 1908; desc.; t. f. 42, ♂ app.

Distr. Lower Sonoran, (Calvert z. 3-4); Mexico, S. Am., Baja Cal.

crenata HAGEN, Stett. Ent. Zeit., 17, p. 369, 1856; type M. C. Z.—L. c., 19, p. 97, 1858.
SELYS, Ann. Soc. Ent. Belg., 15, p. 35, 1873; ♂ ♀.—L. c., 31, p. 60, 1887.
BERGROTH, Ent. Nachr., 7, p. 86, 1881; noted.
CALVERT, Ent. News, 5, pp. 9-13, 1894; identity (=clepsydra).

Distr. Arctic; Irkutsk. Usually cited from N. Am. Walker in litteris, Sept. 24, 1909: "A crenata—not known from N. Am. The American specimens mentioned as belonging to this species are all A. eremita.

dugesii CALVERT, Biol. C. Am., p. 184, 1905; ♂, holotype U. S. N. Mus.; pl. 8, ff. 11, 12, ♂ app.

MARTIN, Cat. Coll. Selys, 18, p. 49, 1908; ♂ desc.; t. f. 50, ♂ app.

Distr. Lower Sonoran, (Calvert z. 4); Mexico: Guanajuato.

eremita SCUDDER, Proc. Boston Soc., 10, p. 213, 1866; ♂ ♀, types M.C.Z.

HAGEN, Proc. Boston Soc., 15, p. 376, 1873; notes on types.—L. c., 18, p. 34, 1875; note on frons.

CALVERT, Ent. News, 5, p. 9, 1894; validity (=*clepsydra*).

WILLIAMSON, Ohio Nat., 7, p. 146, 1907; notes; (*Aeshna X*).

WALKER, Cant. Ent., 40, pp. 383, 388, 1908; ♂ ♀, comp. desc.

Syn. hudsonica SELYS, Ent. M. Mag., 11, p. 242, 1875; ♂ ♀, types Coll. Selys.

MARTIN, Cat. Coll. Selys, 18, p. 35, 1908; desc.; t. f. 30, ♂ app.—[Walker, in litteris, Aug. 14, 1909.]

Nymph. CABOT, Mem. M. C. Z., 8, p. 23, 1881; desc.; pl. 2, f. 2, adult.
NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 42, 1901; desc.

Distr. Hudsonian & Canadian: Labr., N. F., N. H. to Alaska & Wyo.

florida HAGEN, syn. ad *luteipennis.*

furcifera KARSCH, syn. ad *multicolor.*

hudsonica SELYS, syn. ad *eremita.*

ingens RAMBUR, vide *Coryphaeschna,* postea.

interna WALKER, Can. Ent., 40, p. 381, 388, 1908; ♂ ♀, types Acad. Phila.

Distr. Transition; B. C. to Calif. & New Mexico.

interrupta WALKER, Can. Ent., 40, pp. 381, 387, 1908; ♂ ♀, types Coll. Walker.—Ottawa Nat., 22, p. 54, 1908; dist. (*Aeshna W*).*
WILLIAMSON, Ohio Nat., 7, p. 146, 1907; notes; *Aeshna W*).

Distr. Canadian; N. F. to Mich. & Ont.

intricata MARTIN, Cat. Coll Selys, 18, p. 59, 1908; ♂ ♀, types Coll. Selys & Martin; t. f. 55, ♂ app.

Distr. Lower Sonoran: Mex., (higher parts); Venez to Bolivia & Chile.

jalapensis WILLIAMSON, Ent. News, 19, p. 265, 1908; comp. desc.; ♂ ♀, types: ♂ Coll. Calvert, ♀ Coll. Godman; t. f., ♂ app.

Distr. Lower Sonoran; Jalapa, Mex. (4,200 ft.); Amatillan, Guatemala.

juncea (LINNE), Syst. Nat., 1, p. 544, 1758; (*Libellula*).—Faun. Suec., p. 174, 1761.
STEPHENS, Ill. Brit. Ent., 6, p. 84, 1835; (*Aeshna*).
HAGEN, Syn. Lib. Eur., p. 55, 1840; complete synonymy.—Syn. Neur. N. Am., p. 120, 1861.—Stett. Ent. Zeit., 17, p. 370, 1856; ♂ ♀, notes.
SELYS, Mon. Lib. Lib., p. 106, 1840; desc.—Rev. Odon., p. 116, 1850.
EVANS, Brit. Lib., 21, 1845; pl. 11, f. 2, adult.
RIS, Fauna Helv., p. 25, 1885; desc.

NOTE.—Walker, in litteris, Aug. 14, 1909: "A. interna, interrupta, lineata, and nevadensis intergrade. * * * * They are all well marked races, well deserving names. A. nevadensis in a possible exception to this statement."

Aeshninae

ROSTOCK, Ver. Zwickau, p. 131, 1888; desc.
GARBINI, Bull. Soc. Ent. Ital., 27, p. 120, 1895; brief diagnosis.
WALLENGREN, Ent. Tidsk., 15, p. 256, 1894; short desc.
MACLACHLAN, Ent. M. Mag., p. 30, 1899; occurrence in Lappmark.
LUCAS, Brit. Drag., p. 190, 1900; complete life history; pl. 16, ♂ ♀ ads. col.
SJOSTEDT, Ent. Tidsk., 23, p. 16, 1902; short desc.; t. f. 3, adult.
CALVERT, Ent. News, 14, 1903; pl. 2, f. 1, wings.
FROHLICH, Ver. Aschaffenburg, p. 29, 1903; desc., ethol. notes.
MARTIN, Cat. Coll. Selys, 18, p. 34, 1908; desc.; t. f. 34, ♂ app.
WALKER, Can. Ent., 40, pp. 385, 390, 1908; comp. desc.; pl. 10, ff. 1, 2, 5, ♂ ♀ char.

Syn. caucasica KOLENATI, Mel. Ent., 5, p. 114, 1850; types Mus. Petersburg.
SELYS, Rev. Odon., p. 300, 1850.
ocellata (MULLER), Nova Acta Leop. Carol. Acad., 3, p. 125, 1767; (*Libellula*).—[Selys 1850.]
HAGEN, Syn. Lib. Eur., p. 54, 1840; (*Aeshna*).
picta CHARPENTIER, Lib. Eur., p. 112, 1840; ♂ ♀; pl. 20, ♂ ♀ ads. col.—[Selys 1850.]
propinqua SCUDDER, Proc. Boston Soc., 10, p. 21, 1866; ♂ ♀, types Mus. Boston Soc.—[Hagen 1875.]
rustica ZETTERSTEDT, Ins. Lapp., p. 1040, 1840.—[Selys 1850.]

Nymph. Lucas, Brit. Drag., p. 193, 1900; desc.

Distr. Circumboreal: Arctic—Alpine & Hudsonian: Europe, Asia, N. Am.: N. F. & N. H. to Alaska & Colorado.

lineata WALKER, Can. Ent., 40, pp. 382, 388, 1908; ♂ ♀, types Coll. Walker.

Distr. Canadian; N. Dak. to Rockies; Manitoba, Sask.

luteipennis BURMEISTER, Handb. Ent., 2, p. 837, 1839; ♂, types M. C. Z., Mus. Vienna.
CALVERT, Proc. Cal. Acad., (2) 4, p. 503, 1895; comp. desc.; pl. 17, ff. 27, 28, ♂ app.—Trans. Am. Ent. Soc., 25, p. 53, 1898; on Burm. types.—Biol. C. Am., p. 186, 1905; comp. desc.; p. 400, 1907; notes.
MARTIN, Cat. Coll. Selys, 18, p. 73, 1908; desc.; t. f. 72, ♂ app.

Syn. excisa BRAUER, Verh. Ges. Wien, 15, p. 906, 1865; ♂ shortly desc.; type Mus. Vienna.—Reise d. Novara, p. 69, 1866; desc.; pl. 1, f. 19, ♂ app.
HAGEN, Verh. Ges. Wien, 17, p. 50, 1867; desc. notes & synonymy.
florida HAGEN, Syn. Neur. N. Am., p. 125, 1861; ♀, type M. C. Z.—[Calvert 1905.]

Distr. Lower Sonoran, (Calvert z. 3-4); Mex. (elevated) to Brazil.

macromia BRAUER, syn. ad. *Coryphaeschna adnexa,* postea.

maxima HISINGER, syn. ad *clepsydra.*

multicolor HAGEN, Syn. Neur. N. Am., p. 121, 1861; ♂ ♀, types M. C. Z.
CALVERT, Proc. Cal. Acad., (2) 4, p. 508, 1895; desc.; pl. 15, ff. 25, 26, ♂ app.—Biol. C. Am., p. 183, 1905; comp. desc.; p. 400, 1907; notes.
WILLIAMSON, Proc. Ind. Acad., p. 177, 1900; desc.—Ent. News, 9, pp. 265, 301, 1908; differentials; t. f., ♂ app.
MARTIN, Cat. Coll. Selys, 18, p. 48, 1908; desc.; t. f. 45, ♂ app.
WALKER, Can. Ent., 40, pp. 379, 386, 1908; desc.
Syn. furcifera KARSCH, Ent. Nachr., 17, p. 310, 1891; ♂, type Mus. Berlin. —[Calvert 1905.]
Distr. Upper & Lower Sonoran; B. C. to Tex., Colo. & Panama.

mutata HAGEN, Syn. Neur. N. Am., p. 124, 1861; ♀, holotype Mus. Vienna.
WILLIAMSON, Ent. News, 19, pp. 264, 302, 1908; differentials, desc.; t. f., ♂ app.
WALKER, Can. Ent., 40, pp. 379, 386, 1908; comp. desc.
Distr. Carolinian; Ind. Ohio, Mass.

nevadensis WALKER, Can. Ent., 40, p. 382, 1908; ♂, type M. C. Z.
Distr. Lower Sonoran ?; Reno, Nevada.

palmata HAGEN, Stett. Ent. Zeit., 17, p. 369, 1856; ♂, type M. C. Z.
WALKER, Can. Ent., 40, pp. 379, 388, 1908; ♂ ♀ desc.
Syn. constricta CALVERT, Proc. Calif. Acad., (2) 4, p. 509, 1895; comp. desc.; pl. 15, ff. 29, 30, ♂ app.—[Walker, in litteris, Aug. 14, 1909.]
Distr. Boreal; Pacific Coast, Kamchatka, Alaska to Colo., Utah, B. Cal.

punctata MARTIN, Cat. Coll. Selys, 18, p. 54, 1908; ♂ ♀, types Coll. Martin; t. f. 51, ♂ app.
Distr. Tropic ?; Mexico, Brazil.

septentrionalis BURMEISTER, Handb. Ent., 2, p. 839, 1839; ♀, holotype M. C. Z.
HAGEN, Syn. Neur. N. Am., p. 120, 1861; ♂ ♀ desc.—Psyche, 5, p. 254, 1890; det. desc.
CALVERT, Trans. Am. Ent. Soc., 25, p. 54, 1898; on Burm. type.

Aeshninae

MARTIN, Cat. Coll. Selys, 18, p. 38, 1908; desc.; t. f. 35, wings, f. 36, ♂ app.

WALKER, Can. Ent., 40, pp. 386, 390, 1908; comp. desc.

Distr. Hudsonian; N. H. & Labrador to Great Slave Lake.

sitchensis HAGEN, Syn. Neur. N. Am., p. 119, 1861; ♂, type M. C. Z.—Psyche, 5, p. 353, 1890; ♂ ♀, very detailed desc.

MARTIN, Cat. Coll. Selys, 18, p. 41, 1908; desc.; t. f. 37, ♂ app.

WALKER, Can. Ent., 40, pp. 386, 390, 1908; comp. desc.

Distr. Hudsonian & Canadian; N. F. & Mich. to Alaska.

subarctica WALKER, Can. Ent., 40, pp. 385, 390, 1908; ♂ ♀, types Coll. Walker.

Distr. Canadian; Nova Scotia to Mich.

tuberculifera WALKER, Can. Ent., 40, pp. 385, 387; ♂ ♀, types Acad. Phila.

Distr. Alleghanian; N. H., Ont. to Wis.

umbrosa WALKER, Can. Ent., 40, pp. 380, 390, 1908; ♂ ♀, types U. S. N. Mus.—Ottawa Nat., 22, p. 54, 1908; dist. (*Aeshna Z*).

WILLIAMSON, Ohio Nat., 7, p. 146, 1907; notes (*Aeshna Z*).

Syn. constricta SCUDDER, Proc. Boston Soc., 10, p. 212, 1866; ♂ ♀ desc.

HOWARD, Ins. Book, 1902; pl. 41, f. 4, ♂ adult.

WALKER, In litteris, Aug. 14, 1909; (= *umbrosa*).

Nymph. CABOT, Mem. M. C. Z., 8, p. 24, 1881; desc.; pl. 3, f. 1, adult; (*constricta*).

NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 42, 1901; desc. (*constricta*).—[teste Walker, loc. cit.]

Distr. Canadian to Upper Austral; Atlantic to Pacific Coast.

verticalis HAGEN, Syn. Neur. N. Am., p. 122, 1861; ♂, types M. C. Z.

PROVANCHER, Nat. Can., 9, p. 43, 1877.

CALVERT, Trans. Am. Ent. Soc., 20, p. 248, 1893; desc.

KELLICOTT, Odon. Ohio, p. 84, 1899; ♂ ♀.

WILLIAMSON, Drag. Ind., p. 304, 1900; desc.; pl. 7, ff. 10, 11, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 78, 1908; desc.

MARTIN, Cat. Coll. Selys, 18, p. 38, 1908; desc. (race of *juncea*).

WALKER, Can. Ent., 40, pp. 385, 398, 1908; desc.

Syn. propinqua SCUDDER, Proc. Boston Soc., 10, p. 214, 1866; in part.

Nymph. NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 46, 1901; desc.

Distr. Alleghanian & Carolinian; Wis. & Ill. to Atl. Coast.

virens RAMBUR, vide *Coryphaeschna*, postea.

williamsoniana CALVERT, Biol. C. Am., p. 185, 1905; ♂, type Coll. Deam; pl. 8, ff. 13, 14, 19, ♂ char.
MARTIN, Cat. Coll. Selys, 18, p. 57, 1908; ♂ ♀; t. f. 53, ♂ app.
Distr. Lower Sonoran, (Calvert z. 3-4), Mexico: Cuernavaca.

CORYPHAESCHNA WILLIAMSON.

Type—*ingens* (RAMBUR). Distribution—Neotropic, into Gulf Strip.
Ent. News, 14, p. 2, 1903; full characterization.
CALVERT, Ent. News, 14, pp. 8, 9, 1903; further notes, and spp.

adnexa (HAGEN), Syn. Neur. N. Am., p. 127, 1861; ♂, type M. C. Z.; (*Aeshna*).
CALVERT, Ent. News, 14, p. 9, 1903; ♂ ♀ desc. (*Coryphaeschna*).—Biol. C. Am., p. 188, 1905; comp. desc. (*Aeshna*).
MARTIN, Cat. Coll. Selys, 18, p. 75, 1908; desc.; t. f. 74, ♂ app.
Syn. macromia BRAUER, Verh. Ges. Wien, 15, p. 906, 1865; ♂, type Mus. Vienna.—Reise d. Novara, p. 68, 1866; desc. amplified.—[Calvert 1905.]
HAGEN, Verh. Ges. Wien, 17, p. 50, 1867; identity.
Distr. Tropic, (Calvert z. 2-3), Tamaulipas, Mex. to Brazil; Cuba, Haiti, etc.

ingens (RAMBUR), Ins. Neur., p. 192, 1842; ♂, type Coll. Selys; (*Aeshna*).
HAGEN, Syn. Neur. N. Am., p. 128, 1861; ♂ ♀ desc.
WILLIAMSON, Ent. News, 14, p. 8, 1908; desc.; (*Coryphaeschna*).
CALVERT, Ent. News, 14, p. 8, 1903; desc.; pl. 2, f. 2, wings.
NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 736, 1903; venation; pl. 40, f. 2, wings.
MARTIN, Cat. Coll. Selys, 18, p. 77, 1908; desc.; t. f. 76, ♂ app. (*Aeshna*).
Syn. abboti HAGEN, Stett. Ent. Zeit., 24, p. 373, 1863; ♀.—Proc. Bost. Soc., 16, p. 350, 1874; ♀, desc. from Abbot's drawing in Brit. Mus.—[Hagen 1875.]
Distr. Gulf Strip; Ga., Fla., Cuba, Panama; N. C.

virens (RAMBUR), Ins. Neur., p. 192, 1842; ♀, type Coll. Selys; (*Aeshna*).
HAGEN, Syn. Neur. N. Am., p. 127, 1861; ♂ ♀ desc.
SCUDDER, Proc. Boston Soc., 10, p. 190, 1866; on ♂ app.
CALVERT, Ent. News, 14, p. 9, 1903; desc. (*Coryphaeschna*).—Biol. C. Am., p. 187, 1905; comp. desc. (*Aeshna*); pl. 8, ff. 17, 18, ♂ app.

Aeshninae

MARTIN, Cat. Coll. Selys, 18, p. 76, 1908; desc.; t. f. 27, wings; t. f. 75, ♂ app.

Distr. Tropic, (Calvert z. 2-3), Ga., W. Indies; Mex. to Brazil & Bolivia.

NASIAESCHNA SELYS.

Type—*penthacantha* (RAMBUR). Distribution—Nearctic.

Termes Füzetek, 23, p. 93, 1900; diagnosis in Foerster's paper.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 463, 1901; char.—Proc. U. S. Nat. Mus., 26, pp. 718, 736, 1903; venation, affinities.

NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 30, 1901; char.

WILLIAMSON, Ent. News, 14, p. 5, 1903; affinities; tabulations.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 95, 1908; char.

MARTIN, Cat. Coll. Selys, 18, p. 7, 1908; char.—L. c., 19, p. 86, 1909.

penthacantha (RAMBUR), Ins. Neur., p. 208, 1842; ♀, type Mus. Paris; (*Aeshna*).

HAGEN, Syn. Neur. N. Am., p. 129, 1861; ♂ ♀ desc.

WALSH, Jn. Acad. Phila., p. 397, 1862; noted.

WILLIAMSON, Drag. Ind., p. 305, 1900; desc.

NEEDHAM, Bull. N. Y. State Mus., p. 467, 1901; ethol. notes; (*Nasiaeschna*).—Proc. U. S. Nat. Mus., 26, p. 755, 1903; ven.; pl. 39, f. 1, wings.

NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 33, 1901; venation.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 95, 1908; dist.

MARTIN, Cat. Coll. Selys, 18, 1908; pl. 2, f. 7, adult colored ♂.—L. c., 19, p. 87, 1909; desc.; t. ff. 80, 81, wings, ♂ app.

Nymph. GARMAN, Bull. Ill. State Lab., 3, p. 178, 1888; notes; (*Epiaeschna heros*).

NEEDHAM, l. c., p. 468, 1901; desc.

NEEDHAM & HART, l. c., p. 34, 1901; desc.; pl. 1, f. 1, adult.

Distr. Carolinian to Gulf Strip; Ill. & N. Y. to Fla. & Tex.

EPIAESCHNA HAGEN

Type—*heros* (FABRICUS). Distribution—Nearctic.

Proc. Boston Soc., 18, p. 86, 1877.

SELYS, Bull. Acad. Belg., (3) 5, p. 729, 1883.—Termes Füzetek, 23, p. 94, 1900.

KARSCH, Ent. Nachr., 17, p. 279, 1891; affinities.

CALVERT, Trans. Am. Ent. Soc., 20, p. 228, 1893.—Biol. C. Am., p. 196, 1905.

KELLICOTT, Odon. Ohio, p. 77, 1899.

WILLIAMSON, Drag. Ind., p. 248, 1900.—Ent. News, 14, p. 5, 1903.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 463, 1901.—Proc. U. S. Nat. Mus., 26, p. 736, 1903; affinities.
NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 31, 1901.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 95, 1908.
MARTIN, Cat. Coll. Selys, 18, p. 7, 1908.—L. c., 19, p. 85, 1909.

heros (FABRICIUS), Ent. Syst., Suppl., p. 295, 1798; (*Aeshna*).
RAMBUR, Ins. Neur., p. 194, 1842; ♂ ♀ desc.
HAGEN, Syn. Neur. N. Am., p. 128, 1861; desc.
WALSH, Proc. Acad. Phila., p. 397, 1862; noted.
HARRIS, Ent. Corr., p. 326, 1869.
AARON, Drag. vs. Mosquitoes, 1890; pl. 1, f. 2, adult col.
PROVANCHER, Nat. Canad., 10, p. 130, 1878; notes.
KARSCH, Ent. Nachr., 17, p. 286, 1891; dist. (*Epiaeschna*).
CALVERT, Trans. Am. Ent. Soc., 20, p. 246, 1893; desc.—Ent. News, 14, 1903; pl. 2, f. 3, wings.
KELLICOTT, Odon. Ohio, p. 81, 1899; desc.
WILLIAMSON, Drag. Ind., p. 302, 1900; desc.
HOWARD, Ins. Book, 1902; pl. 41, f. 7, ♂ adult.
WALKER, Ottawa Nat., 22, p. 55, 1908; dist.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 95, 1908; desc.
MARTIN, Cat. Coll. Selys, 19, p. 85, 1909; desc.; t. ff. 78, 79, wings, ♂ app.

Syn. multicincta SAY, Jn. Acad. Phila., 8, p. 9, 1839; ♀ ("this species usually referred to *heros* Fabr.")—[Hagen 1861.]

Nymph. CABOT, Mem. M. C. Z., 8, p. 39, 1881; desc.; pl. 1, f. 3, adult.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 469, 1901; desc.; t. f. 13, labium.
NEEDHAM & HART, Bull. Ill. State Lab., 6, p. 36, 1901; desc.

Distr. Carolinian to Gulf Strip; Me., Ont. & S. Dak. to Tex. & Fla.

FAMILY **LIBELLULIDAE** RAMBUR.

Ins. Neur., p. 24, 1842; defined.
BRAUER, Verh. Ges. Wien, 18, pp. 712-790, 1868; groups and generic char.
NEEDHAM, Proc. U. S. Nat. Mus., 26, pp. 739-742, 1903; defined.

SUBFAMILY **CORDULIINAE** SELYS.

Type genus—*Cordulia* LEACH. Distribution—Cosmopolitan.
Bull. Acad. Belg., (2) 31, pp. 234-565, 1871; Synopsis des *Cordulines*.

Macromiini

—Addition au Syn., l. c., (2) 37, pp. 11-35, 1874.—Secondes Addition, l. c., (2) 45, pp. 183-222, 1878.

MARTIN, Cat. Coll. Selys, Vol. 17, pp. 94, 1907; monograph of subfamily; 99 text figures; 3 plates colored.

WILLIAMSON, Ent. News, 19, pp. 428-432, 1908; revision of classification, 5 groups distinguished, general characters for the groups.

NEEDHAM, Ann. Ent. Soc. Am., 1, pp. 273-280, 1908; critical notes to Williamson; tables of genera.

TRIBUS *MACROMIINI* NEEDHAM.*

Type genus—*Macromia* RAMBUR. Distribution—Cosmopolitan.

Ann. Ent. Soc. Am., p. 278, 1908; defined as subfamily.—Bull. 47 N. Y. State Mus., p. 479, 1901; insufficient diagnosis.—Proc. U. S. Nat. Mus., 26, p. 739, 1903; characters noted.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, pp. 64, 98, 1908; in part.

MARTIN, Cat. Coll. Selys, 17, p. 57, 1907; (Groupe *Macromia*), in part.

DIDYMOPS RAMBUR.

Type—(*servillei* RAMBUR) = *transversa* (SAY). Distribution—Nearctic.

Ins. Neur., p. 142, 1842.

HAGEN, Syn. Neur. N. Am., p. 135, 1861.—Verh. Ges. Wien, 17, p. 58, 1867.

BRAUER, Verh. Ges. Wien, 18, pp. 369, 1868.

SELYS, Bull. Acad. Belg., (2) 45, p. 211, 1878.

CALVERT, Trans. Am. Ent. Soc., 20, p. 223, 1893.

KELLICOTT, Odon. Ohio, p. 85, 1899.

WILLIAMSON, Drag. Ind., p. 479, 1900.—Proc. U. S. Nat. Mus., 37, p. 369, 1909.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 481, 1901.—Proc. U. S. Nat. Mus., 26, p. 756, 1903.

MARTIN, Cat. Coll. Selys, 17, pp. 58, 75, 1907.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 98, 1908.

transversa (SAY), Jn. Acad. Phila., 8, p. 19, 1893; ♂, (*Libellula*), type Mus. Boston Soc.

NOTE.—Though the Macromiinæ (sensu Needham) are quite compact as a group, they are here reduced to tribal rank. The Cordulinae s. s. and Macromiinae, as defined by Needham, cannot be coordinated. Needham's definition on the contrary subordinates the Corduliinae to his Macromiinaee.

HAGEN, Syn. Neur., N. Am., p. 135, 1861; ♂ ♀, (*Didymops*); ♂ after Say.—Proc. Boston Soc., 15, p. 268, 1873; on type.—L. c., 16, p. 359, 1874; dist. (*Macromia*).

SELYS, Bull. Acad. Belg., (2) 31, p. 548, 1871; desc.

CALVERT, Trans. Am. Ent. Soc., 20, p. 250, 1893; desc. (*Didymops*).

KELLICOTT, Odon. Ohio, p. 98, 1899; desc.

WILLIAMSON, Drag. Ind., p. 307, 1900; desc.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 481, 1901; ethol. notes.—Proc. U. S. Nat. Mus., 26, 1903; pl. 41, f. 2, ♂ wgs.

HOWARD, Ins. Book, 1902; pl. 45, f. 9, ♂ adult.

MARTIN, Cat. Coll. Selys, 17, p. 75, 1907; desc.; t. f. 88, wings.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 98, 1908; desc.

Syn. cinnomomea BURMEISTER, Handb. Ent., 2, p. 845, 1839; ♀, (*Epophthalmia*) holotype Mus. Halle.—[Hagen 1861.]

CALVERT, Trans. Am. Ent. Soc., 23, p. 57, 1898; on Burm. type.

servillei RAMBUR, Ins. Neur., p. 142, 1842; ♂, (*Didymops*), type Coll. Selys.—[Hagen 1861.]

Nymph. CABOT, Mem. M. C. Z., 17, p. 14, 1890; desc.; pl. 1, f. 3, adult.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 481, 1901; desc.; pl. 18, f. 8, adult.

Distr. Alleghanian & Carolinian; Me. & Mich. to Ga. & S. C.

MACROMIA RAMBUR.

Type—*cingulata* RAMBUR. Distribution—Cosmopolitan.

Ins. Neur., p. 137, 1842.

HAGEN, Syn. Neur. N. Am., p. 132, 1861.

BRAUER, Verh. Ges. Wien, 18, p. 370, 1868.

SELYS, C. R. Soc. Ent. Belg., 14, p. 7, 1870.—Bull. Acad. Belg., (2) 31, p. 536, 1871; monograph of spp.—L. c., (2) 45, p. 210, 1878.

CALVERT, Trans. Am. Ent. Soc., 20, p. 223, 1893.

KARSCH, Ent. Nachr., 25, p. 176, 1899.

KELLICOTT, Odon. Ohio, p. 85, 1899.

WILLIAMSON, Drag. Ind., p. 245, 1900; char.—Proc. U. S. Nat. Mus., 37, pp 368-398, 1909; monogr. of N. Am. spp., tabulations of differences, 7 t. ff.*

NEEDHAM, Bull. 47 N. Y. State Mus., p. 483, 1901.—Ann. Ent. Soc. Am., 1, p. 278, 1908.

MARTIN, Cat. Coll. Selys, 17, p. 75, 1907; monograph of spp.

*NOTE.—Mr. Williamson very kindly sent me the page proof of his Macromia paper, from which I have gleaned the references here included; although the paper is not published at the date of this writing (Nov. 12, 1909), the form is final and the references thereto will probably need no correction.

Macromiini

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 98, 1908.

Syn. Pseudogomphus KIRBY, Proc. Zool. Soc. London, p. 229, 1889.—[Kirby 1890.]

?Hylaeschna SJOSTEDT, Bih. Svenska Akad., 25, p. 40, 1900.—[Williamson, in litt.: "I have *Hylaeschna* as synonym of *Macromia* on my card. I do not remember who told me of this—"]

alleghaniensis WILLIAMSON, Proc. U. S. Nat. Mus., 37, p. 376, 1909; ♂ ♀, types Coll. Williamson.

Distr. Carolinian; Va., Penn., Ky.

annulata HAGEN, Syn. Neur. N. Am., p. 133, 1861; ♂ ♀, types M. C. Z.
SELYS, Bull. Acad. Belg., (2) 31, p. 544, 1871; desc.
MARTIN, Cat. Coll. Selys, 17, p. 66, 1907; desc.
WILLIAMSON, Proc. U. S. Nat. Mus., 37, p. 387, 1909; desc.

Distr. Carolinian; Texas, Ill., Carolina.

australensis WILLIAMSON, Proc. U. S. Nat. Mus., 37, p. 381, 1909; ♂ ♀, types Coll. Williamson.

Distr. Austroriparian ?; Wister, Oklahoma; Dallas, Tex.

flavipennis WALSH, syn. ad *pacifica.*

georgina (SELYS), Bull. Acad. Belg., (2) 45, p. 197, 1878; ♀, type Coll. Selys; (*Epophthalmia*).
MARTIN, Cat. Coll. Selys, 17, p. 64, 1907; desc.; t. f. 81, ♀ app.; pl. 2, f. 14, ad. col.
WILLIAMSON, Proc. U. S. Nat. Mus., 37, p. 383, 1909; ♂ ♀, allotype Coll. Williamson; (*Macromia*).

Distr. Austroriparian; N. C. & Ga. to Tex.

illinoiensis WALSH, Proc. Acad. Phila., p. 397, 1862; ♀, type lost.
SELYS, Bull. Acad. Belg., (2) 31, p. 546, 1871; ♂ ♀ desc.; ♂ M.C.Z.
CALVERT, Trans. Am. Ent. Soc., 20, p. 251, 1893; desc.
KELLICOTT, Odon. Ohio, p. 87, 1899; desc.
WILLIAMSON, Drag. Ind., p. 308, 1900; desc.—Proc. U. S. Nat. Mus., 37, p. 377, 1909; desc., t. ff. 5, 6, ♂ ♀ wings.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 483, 1901; ethol. notes.
HOWARD, Ins. Book, 1902; pl. 42, f. 7, ♂ adult.
MARTIN, Cat. Coll. Selys, 17, p. 67, 1907; desc.; t. f. 86, ♂ app.
WALKER, Ottawa Nat., 22, p. 56, 1908; brief diagnosis.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 99, 1908; desc.; pl. 6, wings.

Nymph. ?CABOT, Mem. M. C. Z., 17, p. 3, 16, 1890; desc.; pl. 2, f. 1, adult.

Distr. Carolinian; Wis., Ottawa & Penn. to Ill. & N. C.

magnifica MACLACHLAN, Bull. Acad. Belg., (2) 37, p. 22, 1874; ♂ ♀, types Coll. MacLachlan.

MARTIN, Cat. Coll. Selys, 17, p. 67, 1907; desc.

WILLIAMSON, Proc. U. S. Nat. Mus., 37, p. 389, 1909; desc.

Distr. Upper Sonoran; California, Arizona.

pacifica HAGEN, Syn. Neur. N. Am., p. 134, 1861; ♂, type M. C. Z., mutilated.

SELYS, Bull. Acad. Belg., (2) 36, p. 542, 1871; ♂ ♀, Coll. Selys.

WILLIAMSON, Drag. Ind., p. 309, 1900; desc.—Proc. U. S. Nat. Mus., 37, p. 389, 1909; desc.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 99, 1908; desc.

Syn. flavipennis WALSH, Proc. Acad. Phila., p. 398, 1862; ♀, type lost.

SELYS, Bull. Acad. Belg., (2) 31, p. 545, 1871; desc.—[Martin 1907 to *annulata,* Williamson 1909 to *pacifica.*]

Distr. Upper Austral; Wis. to Ind., Texas, Calif.

taeniolata RAMBUR, Ins. Neur., p. 139, 1842; ♂, type Mus. Paris.

HAGEN, Syn. Neur. N. Am., p. 132, 1861; ♂ ♀ desc.—Proc. Boston Soc., 16, p. 359, 1874, notes.

SELYS, Bull. Acad. Belg., (2) 31, p. 527, 1874; desc.

CALVERT, Trans. Am. Ent. Soc., 20, p. 250, 1893; desc.

KELLICOTT, Odon. Ohio, p. 86, 1899; desc.

WILLIAMSON, Drag. Ind., p. 309, 1900; desc.—Proc. U. S. Nat. Mus., 37, p. 372, 1909; desc.; t. f. 3, wings.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 483, 1901; dist.

MARTIN, Cat. Coll. Selys, 17, p. 64, 1907; desc. (*Epophthalmia*).

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 99, 1908; desc. (*Macromia*).

Nymph. ?CABOT, Mem. M. C. Z., 17, p. 9, 1890; desc.; pl. 2, f. 4, adult.

Distr. Carolinian to Gulf Strip; N. Y. & Wis. to Kans. & Fla.

wabashensis WILLIAMSON, Proc. U. S. Nat. Mus., 37, p. 374, 1909; ♂, Coll. Williamson; t. f. 4, wings.

Distr. Carolinian ?; Bluffton, Ind.

TRIBUS *CORDULIINI* SELYS.

Type genus—*Cordulia* LEACH. Distribution—Cosmopolitan.

Bull. Acad. Belg., (2) 31, pp. 234-565, 1871; in part.

NEEDHAM, Ann. Ent. Soc. Am., 1, p. 278, 1908; defined as subfamily.

EPICORDULIA SELYS.

Type—*princeps* (HAGEN). Distribution—Nearctic.

Bull. Acad. Belg., (2) 31, p. 259, 1871.—L. c., (2) 45, p. 207, 1878.

CALVERT, Trans. Am. Ent. Soc., 20, p. 223, 1893.

WILLIAMSON, Drag. Ind., p. 249, 1900.

KELLICOTT, Odon. Ohio, p. 85, 1899.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 484, 1901.—Ann. Ent. Soc. Am., 1, p. 280, 1908.

MARTIN, Cat. Coll. Selys, 17, p. 1907.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 100, 1908.

princeps (HAGEN), Syn. Neur. N. Am., p. 134, 1861; ♂ ♀, (*Epitheca*), types M. C. Z.

SELYS, Bull. Acad. Belg., (2) 31, p. 275, 1871; desc. (*Epicordulia*).

CALVERT, Trans. Am. Ent. Soc., 20, p. 251, 1893; desc.

KELLICOTT, Odon. Ohio, p. 88, 1899; desc.

WILLIAMSON, Drag. Ind., p. 310, 1900; desc.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 489, 1901; ethol. notes.

HOWARD, Ins. Book, 1902; pl. 45, f. 8; ♂ adult.

MARTIN, Cat. Coll. Selys, 17, p. 46, 1907; desc.; t. f. 58, wings.

WALKER, Ottawa Nat., 22, p. 57, 1908; brief diagnosis.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 102, 1908; desc.

Syn. regina SELYS, l.c., (2) 31, p. 277, 1871; ♂, (*Cordulia*), type Coll. Selys.—[Martin 1907.]

Nymph. GARMAN, Bull. Ill. State Lab., 3, p. 179, no. 10, 12, 1883; (*Libellula* nymphs).

CABOT, Mem. M. C. Z., 17, p. 25, 1890; desc.; pl. 3, f. 3, pl. 4, f. 3, adults.

NEEDHAM, l. c., p. 488, 1901; desc.; pl. 21, f. 2, adult.

Distr. Carolinian & Austroriparian; Me. & N. Dak. to Tex. & Ga.

NEUROCORDULIA SELYS.

Type—*obsoleta* (SAY). Distribution—Nearctic.

Bull. Acad. Belg., (2) 31, p. 278, 1871.—L. c., (2) 45, p. 206, 1878.

CALVERT, Trans. Am. Ent. Soc., 20, p. 223, 1893.
WILLIAMSON, Drag. Ind., p. 249, 1900.
NEEDHAM, Bull 47 N. Y. State Mus., p. 484, 1901.—Ann. Ent. Soc. Am., 1, p. 278, 1908.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 100, 1908.

obsoleta (SAY), Jn. Acad. Phila., 8, p. 29, 1839; ♀, (*Libellula*), type Mus. Boston Soc.
HAGEN, Syn. Neur. N. Am., p. 136, 1861; ♂ ♀, (*Didymops*).
SELYS, Bull. Acad. Belg., (2) 31, p. 279, 1873; desc. (*?Epitheca*).
HAGEN, Proc. Boston Soc., 15, p. 268, 1873; syn. & type.—Pysche, 5, p. 369, 1890; desc.; pl. 1, ff. 7-9, ♂ ♀ char.; (*Neurocordulia*).
CALVERT, Trans. Am. Ent. Soc., 20, p. 252, 1893; desc.
WILLIAMSON, Drag. Ind., p. 312, 1900; desc.—Ent. News, 19, p. 428, 1908; venation.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 485, 1901; bibl. & notes.
MARTIN, Cat. Coll. Selys, 17, p. 38, 1907; desc.; t. f. 45, wings; ff. 46-48, ♂ ♀ char.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 100, 1908; dist.
Syn. polysticta BURMEISTER, Handb. Ent., 2, p. 856, 1839; ♂, (*Libellula*), type M. C. Z.
CALVERT, Trans. Am. Ent. Soc., 25, p. 81, 1898; on Burm. type.—[Hagen 1861.]
molesta WALSH, Proc. Ent. Soc., Phila., 2, p. 254, 1863; ♀, type destroyed; (*Cordulia*).—[Hagen 1867.]
Nymph. NEEDHAM, l. c., p. 486, 1901; desc.
Distr. Carolinian & Austroriparian; Mass. & Ill. to N. C. & La.

yamaskarensis (PROVANCHER), Nat. Canad., 7, p. 248, 1875; ♂, (*Aeshna*), type ?—L. c., 9, p. 86, 1877; ♂ ♀, (*Epitheca*).
HAGEN, Bull. Acad. Belg., (2) 45, p. 191, 1878; desc. (*jamaskarensis*); cited by Selys as Hagen's species.—Psyche, 5, p. 367, 1890; good desc.; pl. 1, ff. 1-6, ♂ ♀ char.
MARTIN, Cat. Coll. Selys, 17, p. 39, 1907; ♂ desc.; t. f. 49, ♂ app.
WALKER, Ottawa Nat., 22, p. 57, 1908; desc. notes.
WILLIAMSON, Ent. News, 19, p. 428, 1908; venation; pl. 18, wings.
Distr. Alleghanian; Quebec, Lakes betw. Georgian Bay & Ottawa.

Corduliini

PLATYCORDULIA WILLIAMSON.

Type—*xanthosoma* WILLIAMSON. Distribution—Nearctic.
Ent. News, 19, p. 431, 1908.

xanthosoma WILLIAMSON, Ent. News, 19, p. 432, 1908; ♂, type Coll. Williamson; t. f., ♂ char.; pl. 18, wings.
MARTIN, Cat. Coll. Selys, 17, (add.), p. 98, 1909; desc.
Distr. Austroriparian ?, Oklahoma.

HELOCORDULIA NEEDHAM.

Type—*uhleri* (SELYS). Distribution—Nearctic.
Bull. 47 N. Y. State Mus., pp. 484, 495, 1901; char. tabulated.—Ann. Ent. Soc. Am., 1, p. 280, 1908.
MARTIN, Cat. Coll. Selys, 17, p. 40, 1907.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 101, 1908.

selysii (HAGEN), Bull. Acad. Belg., (2) 45, p. 189, 1878; ♂ ♀, (*Cordulia*), types M. C. Z.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 496, 1901; desc. notes (*Helocordulia*); t. ff. 21, *a - d*, ♂ ♀ app.
MARTIN, Cat. Coll. Selys, 17, p. 40, 1907; desc.; t. f. 50, wings; f. 52, ♂ app.; pl. 1, f. 7, adult colored.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 101, 1908; dist.
Distr. Austroriparian; Ga., N. C.

uhleri (SELYS), Bull. Acad. Belg., (2) 31, p. 274, 1871; ♂ ♀, (*Cordulia*), types: ♂ Mus. Boston Soc., ♀ Coll. Uhler.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 496, 1901; ethol. notes; (*Helocordulia*); t. f. 21, *x, y*, ♂ ♀ app.
MARTIN, Cat. Coll. Selys, 17, p. 40, 1907; desc.; t. f. 51, ♂ app.
WALKER, Ottawa Nat., 22, p. 58, 1908; brief diag.; pl. 2, ff. 15, 16, ♂ app.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 101, 1908; dist.
Nymph. NEEDHAM, l. c., p. 498, 1901; desc.; t. f. 22, structural details.
Distr. Alleghanian & Carolinian; Me. & Ont. to Pa. & N. J.

TETRAGONEURIA HAGEN.

Type—*semiaquaea* (BURMEISTER). Distribution—Nearctic.
Syn. Neur. N. Am., p. 140, 1861.
BRAUER, Verh. Ges. Wien, 18, p. 370, 1868.
CALVERT, Trans. Am. Ent. Soc., 20, p. 223, 1893.
KELLICOTT, Odon. Ohio, p. 86, 1899.

WILLIAMSON, Drag. Ind., p. 249, 1900.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 249, 1901.—Proc. U. S. Nat. Mus., 26, p. 724, 1903.—Ann. Ent. Soc. Am., 1, p. 280, 1908.
MARTIN, Cat. Coll. Selys, 17, pp. 10, 40, 1907.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 103, 1908.
Syn. Tetragoneura SELYS, Bull. Acad. Belg., (2) 31, p. 259, 1871.—L. c., (2) 45, p. 207, 1878.

basiguttata SELYS, subsp. sub *cynosura.*

canis MACLACHLAN, Ent. M. Mag., 23, p. 104, 1886; ♂, type Coll. MacLachlan.
MARTIN, Cat. Coll. Selys, 17, p. 43, 1907; ♂ ♀ desc.; t. f. 55, ♂ app.
WALKER, Ottawa Nat., 22, p. 58, 1908; desc. notes; pl. 2, ff. 13, 14, ♂ app.
Distr. Transition ?; Ottawa; U. S., Washington (Terr.)

complanata (RAMBUR), subsp. sub *cynosura.*

costalis SELYS, subsp. sub *cynosura.*

cynosura (SAY), Jn. Acad. Phila., 8, p. 30, 1839; ♂ (*Libellula*), type Mus. Boston Soc.
SELYS, Bull. Acad. Belg., (2) 31, p. 270, 1871; ♂ ♀ desc. (*Cordulia*).
HAGEN, Proc. Boston Soc., 15, p. 271, 1873; on type & identity.
CALVERT, Trans. Ent. Soc., 20, p. 252, 1893; desc. (*Tetragoneuria*).
KELLICOTT, Odon. Ohio, p. 89, 1899; desc.
WILLIAMSON, Drag. Ind., p. 311, 1900; desc.—Ent. News, 16, p. 255, 1905; ethol. notes; oviposition.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 493, 1901; ethol. notes; dist.—Proc. U. S. Nat. Mus., 26, p. 724, 1903; t. f. 19, wings.
MARTIN, Cat. Coll. Selys, 17, p. 41, 1907; desc.; t. f. 54, ♂ app.
WALKER, Ottawa Nat., 22, p. 57, 1908; brief diag.; pl. 2, ff. 11, 12, ♂ app.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 104, 1908; desc.
Syn. lateralis BURMEISTER, Handb. Ent., 2, p. 847, 1849; ♂, (*Epophthalmia*), type M. C. Z.
HAGEN, Syn. Neur. N. Am., p. 139, 1861; ♂ ♀, (*Cordulia*).—[Hagen 1873.]
CALVERT, Trans. Am. Ent. Soc., 25, p. 58, 1898; on Burm. type.
Nymph. CABOT, Mem. M. C. Z., 17, p. 28, 1890; desc.

Corduliini

NEEDHAM, Bull. 47 N. Y. State Mus., p. 492, 1901; desc.; t. f. 20, abdomen.

Distr. Alleghanian to Austroriparian; Me. & N. Dak. to Fla. & La.

Subsp. **basiguttata** SELYS, Bull. Acad. Belg., (2) 31, p. 271, 1871; ♂ ♀, Coll. Selys.

MARTIN, Cat. Coll. Selys, 17, p. 42, 1907; desc.

Distr. Florida, Boston.

Subsp. **complanata** (RAMBUR), Ins. Neur., p. 145, 1842; (*Cordulia*), ♂ ♀ Coll. Selys.

SELYS, Bull. Acad. Belg., (2) 31, p. 273, 1871; desc.

MARTIN, Cat. Coll. Selys, 17, p. 42, 1907; desc. (*Tetragoneuria*).

Distr. Austroriparian; Florida, N. C.

Subsp. **costalis** SELYS, Bull. Acad. Belg., (2) 31, p. 273, 1871; ♀, type British Mus.—L. c., (2) 37, p. 20, 1874, ♂ ♀.

MARTIN, Cat. Coll. Selys, 17, p. 43, 1907; desc.

Distr. Austroriparian; Georgia.

indistincta MORSE, Psyche, 7, p. 210, 1895; ♀, type M. C. Z.

MARTIN, Cat. Coll. Selys, 17, p. 45, 1907; desc.

Distr. Alleghanian?, Mass.

semiaquaea (BURMEISTER), Handb. Ent., 2, p. 858, 1839; ♀, (*Libellula*), holotype M. C. Z.

HAGEN, Syn. Neur. N. Am., p. 140, 1861; ♀ ♂, (*Tetragoneuria*).—Proc. Boston Soc., 16, p. 360, 1874; notes (*Cordulia*).

SELYS, Bull. Acad. Belg., (2) 31, p. 272, 1871; desc.

CALVERT, Trans. Am. Ent. Soc., 20, p. 252, 1893; desc. (*Tetragoneuria*).—L. c., 25, p. 88, 1908; on Burm. type.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 493, 1901; dist.

HOWARD, Ins. Book, 1902; pl. 43, f. 1; ♂ adult.

MARTIN, Cat. Coll. Selys, 17, p. 42, 1907; desc. (race of *cynosura*).

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 104, 1908; desc.

Nymph. NEEDHAM, l. c., p. 493, 1901; dist.

Distr. Transition, to Austroriparian; B. C. & Me. to Fla.

spinigera SELYS, Bull. Acad. Belg., (2) 31, p. 269, 1871; ♂, type Coll. Selys.—L. c., (2) 37, p. 20, 1874; ♀, British Museum.

WILLIAMSON, Drag. Ind., p. 311, 1900; desc.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 493, 1901; dist., ethol. notes.

MARTIN, Cat. Coll. Selys, 17, p. 45, 1907; desc.; t. f. 57, ♂ app.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 104, 1908; desc.
Nymph. NEEDHAM, l. c., p. 493, 1901; dist.
Distr. Transition to Upper Austral; B. C. & Wash. to Wis. & Ga.

spinosa (HAGEN), Bull. Acad. Belg., (2) 45, p. 188, 1878; ♂ ♀, (*Cordulia*), types: ♂ Coll. Selys, ♀ British Museum.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 495, 1901; dist. (*Tetragoneuria*); pl. 22, f. 2, ♂ adult.
MARTIN, Cat. Coll. Selys, 17, p. 44, 1907; desc.; t. f. 56, ♂ app.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 104, 1908; dist.
Syn. spinigera SELYS, Bull. Acad. Belg., (2) 37, p. 20, 1874; ♀ only.
Nymph. NEEDHAM, l. c., p. 495, 1901; dist.
Distr. Carolinian, N. Y. & Wis. to Ga.

DOROCORDULIA NEEDHAM.

Type—*libera* (SELYS). Distribution—Nearctic & Neotropic (?)*
Bull. 47 N. Y. State Mus., pp. 485, 504, 1901.—Ann. Ent. Soc. Am., 1, p. 280, 1908.
MARTIN, Cat. Coll. Selys, 17, pp. 10, 35, 1907; char. & spp.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 103, 1908.

lepida (HAGEN), Bull. Acad. Belg., (2) 31, p. 264, 1871; ♂ ♀ (*Cordulia*), types Coll. Uhler & M. C. Z.—Proc. Boston Soc., 15, p. 270, 1873; note on distr.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 506, 1901; ethol. notes; t. f. 28, *x-z*, ♂ ♀ app. (*Dorocordulia*).
MARTIN, Cat. Coll. Selys, 17, p. 35, 1907; desc.; t. f. 40, ♂ app.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 103, 1908; dist.
Distr. Alleghanian, into Carolinian; New England States, N. Y. to N. J.

libera (SELYS), Bull. Acad. Belg., (2) 31, p. 263, 1871; ♂ ♀ (*Cordulia*), types M. C. Z.
WILLIAMSON, Drag. Ind., p. 314, 1900; desc. (*Somatochlora*).
NEEDHAM, Bull. 47 N. Y. State Mus., p. 505, 1901; ethol. notes; t. f. 28, *a-c*, ♂ ♀ app.; (*Dorocordulia*).
MARTIN, Cat. Coll. Selys, 17, p. 35, 1907; dist.; t. f. 39, wings; f. 40, ♂ app.

*NOTE.—See Calvert, Ann. Carnegie Mus., 6, p. 225, 1909: Dorocordulia errans CALVERT; pl. 7, f. 131, ♂ app. I join with Calvert in the opinion that the label of Chapada was probably placed on the pin by mistake. Since the description is based on a single specimen, we must wait for further captures for correction or verification.

Corduliini

WALKER, Ottawa Nat., 22, p. 59, 1908; desc. notes; pl. 2, f. 17, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 103, 1908; desc.

Nymph. NEEDHAM, l. c., p. 505, 1901; desc.

Distr. Alleghanian; Me. & Wis. to Ind. & N. Y.

lintneri (HAGEN), Bull. Acad. Belg., (2) 45, p. 187, 1878; ♂ ♀ (*Cordulia*), types Mus. Albany.—Psyche, 5, p. 272, 1890; desc.; pl. 1, ff. 10, 11, 16, 17, ♂ ♀ char.; wg. det.

EMMONS, Agr. Rept. N. Y., 5, pl. 15, f. 1, ♂ adult col., 1854; no name.

MARTIN, Cat. Coll. Selys, 17, p. 36, 1907; desc.; t. f. 42, ♂ app.; (*Dorocordulia*).

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 103, 1908; dist.

Distr. Transition; N. Y., Saskatchewan, Lake Winnipeg.

CORDULIA LEACH.

Type—*aenea* (LINNE). Distribution—Holarctic.

Edinb. Encycl., 9, p. 137, 1815.

STEPHENS, Ill. Brit. Ent., 6, p. 88, 1836.

SELYS, Mon. Lib. Eur., p. 61, 1840.—Rev. Odon., p. 68, 1850.—Bull. Acad. Belg., (2) 31, p. 258, 1871.—L. c., (2) 45, p. 208, 1878.—C. R. Soc. Ent. Belg., 14, p. 5, 1870.

RAMBUR, Ins. Neur., p. 144, 1842.

BRAUER, Verh. Ges. Wien., 18, p. 370, 1868.

ROSTOCK, Ver. Zwickau, p. 27, 1888.

WALLENGREN, Ent. Tidsk., 15, p. 246, 1894.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 485, 1901.—Ann. Ent. Soc. Am., 1, p. 280, 1908.

SJOSTEDT, Ent. Tidsk., 23, p. 7, 1902.

FROHLICH, Ver. Aschaff., p. 22, 1903.

MARTIN, Cat. Coll. Selys, 17, pp. 10, 37, 1907.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 100, 1908.

Syn. Chlorosoma CHARPENTIER, Lib. Eur., p. 12, 1840.—[Selys, 1850.]

shurtleffi SCUDDER, Proc. Boston Soc., 10, p. 217, 1866; ♂, type Mus. Boston Soc.

SELYS, Bull. Acad. Belg., (2) 31, p. 265, 1871; ♂ ♀ desc.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 502, 1901; ethol. notes.

MARTIN, Cat. Coll. Selys, 17, p. 37, 1907; desc.; t. f. 43, wings; f. 44, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 103, 1908; dist.
Nymph. NEEDHAM, l. c., p. 503, 1901; desc.
Distr. Hudsonian & Canadian; N. H. & N. F. to Alaska & B. C.

SOMATOCHLORA SELYS.

Type—*metallica* (VANDERLINDEN). Distribution——Cosmopolitan.
Bull. Acad. Belg., (2) 31, p. 279, 1871.—L. c., (2) 45, p. 204, 1878.
WALLENGREN, Ent. Tidsk., 15, p. 247, 1894.
CALVERT, Trans. Am. Ent. Soc., 20, p. 223, 1893.
KELLICOTT, Odon. Ohio, p. 85, 1899.
WILLIAMSON, Drag. Ind., p. 249, 1900.—Ent. News, 17, pp. 137-140, 1906, 2 pls.; N. Am. spp. discussed.—L. c., 20, pp. 77-79, 1909; corrections.
NEEDHAM, Bull. 47 N. Y. State Mus., pp. 484, 504, 1901.—Proc. U. S. Nat. Mus., 26, p. 741, 1908.—Ann. Ent. Soc. Am., 1, p. 280, 1908.
MARTIN, Cat. Coll. Selys, 17, pp. 10, 19, 1907.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 100, 1908.
Syn. Chlorosoma CHARPENTIER., Lib. Eur., p. 23, 1840.—[Selys 1871.]

albicincta (BURMEISTER), Handb. Ent., 2, p. 847, 1839; ♀, (*Epophthalmia*), type M. C. Z.
HAGEN, Syn. Neur. N. Am., p. 138, 1861; ♂ ♀ (*Cordulia*).
SELYS, Bull. Acad. Belg., (2) 31, p. 58, 1871; desc. (*Epitheca*).
CALVERT, Trans. Am. Ent. Soc., 25, p. 58, 1898; on Burm. type.
CURRIE, Proc. Wash. Acad., 3, p. 220, 1901; desc. notes (*Somatochlora*).
WILLIAMSON, Ent. News, 17, p. 138, 1907; dist.; pl. 6, ff. 18-20, ♂ ♀ char.
MARTIN, Cat. Coll. Selys, 17, p. 28, 1907; desc.; t. f. 29, ♂ app.
Syn. eremita SCUDDER, Proc. Boston Soc., 10, p. 215, 1866; ♂ ♀, types Mus. Boston Soc.; (*Cordulia*).—L. c., 11, p. 300, 1867; (= *albicincta ?*).
Distr. Hudsonian, into Canadian; Labr. to N. H.; Alaska.

charadraea WILLIAMSON, Ent. News, 18, p. 5, 1907; ♂, holotype Coll. Williamson; t. ff. 1, 2, ♂ app.
Distr. Transition; Jefferson Co., Colo.

cingulata (SELYS), Bull. Acad. Belg., (2) 31, p. 302, 1871; ♀ (*Epitheca*), type Coll. Selys.—L. c., (2) 37, p. 20, 1874; notes.—L. c., (2) 45, p. 195, 1878; ♂ ♀, type ♂ Coll. MacLachlan.—Ent. M. Mag., 11, p. 241, 1875; ♂ desc.

Corduliini

WILLIAMSON, Ent. News, 17, p. 138, 1906; dist. (*Somatochlora*).
MARTIN, Cat. Coll. Selys, 17, p. 23, 1907; desc.

Distr. Hudsonian into Canadian; Labrador to N. H., Mass.

elongata (SCUDDER), Proc. Boston Soc., 10, p. 218, 1866; ♂ ♀, types Mus. Boston Soc. (*Cord.*).
SELYS, Bull. Acad. Belg., (2) 31, p. 292, 1871; desc. (*Epitheca*).
WALKER, Can. Ent., 39, p. 74, 1907; dist.; pl. 2, ff. 2, a, ♂ char. (*Somatochlora*).
MARTIN, Cat. Coll. Selys, 17, p. 23, 1907; desc.; t. f. 21, ♂ app.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 102, 1908; desc.

Distr. Alleghanian; Me. & N. Y. to Wis.

ensigera MARTIN, Cat. Coll. Selys, 17, p. 29, 1907; ♀, holotype Coll. Selys; t. f. 31, ♀ app.; pl. 1, f. 5, ♀ adult col.

Distr. Transition ?; Montana.

filosa (HAGEN), Syn. Neur. N. Am., p. 136, 1861; ♂, type M. C. Z. (*Cordulia*).
SELYS, Bull. Acad. Belg., (2) 31, p. 287, 1871; ♂ ♀ desc.
CALVERT, Trans. Am. Ent. Soc., 20, p. 253, 1893; desc. (*Somatochlora*).
WILLIAMSON, Drag. Ind., p. 313, 1900; desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 500, 1901; noted; t. f. 24, ♂ ♀ app.
MARTIN, Cat. Coll. Selys, 17, p. 22, 1907; desc.; t. ff. 19, 20, ♂ ♀ app.

Syn. tenebrosa WALSH, Proc. Acad. Phila., p. 399, 1862; ♀, type lost; (*Cordulia*).—[Selys 1871].

Distr. Carolinian to Gulf Strip; N. J. & Md. to Fla.

forcipata (SCUDDER), Proc. Boston Soc., 10, p. 216, 1866; ♂, (*Cordulia*), type Bost. Soc.
SELYS, Bull. Acad. Belg., (2) 31, p. 295, 1871; ♂ ♀, (*Epitheca*).—L. c., (2) 45, p. 194, 1878; additions.
WILLIAMSON, Ent. News, 17, p. 136, 1906; notes (*Somatochlora*); pl. 6, ff. 9-11, ♂ char.
MARTIN, Cat. Coll. Selys, 17, p. 25, 1907; desc.; t. ff. 24, 25, ♂ ♀ app.

Distr. Canadian; Hudson's Bay, N. F., N. Scot., Ont., N. H.

franklinii (SELYS), Bull. Acad. Belg., (2) 45, p. 195, 1878; ♀, very brief diagnosis; type Coll. Selys; (*Epitheca*).

MARTIN, Cat. Coll. Selys, 17, p. 25, 1907; ♀ only; (*Somatochlora*).

Syn. septentrionalis SELYS, Bull. Acad. Belg., (2) 31, p. 298, 1871; ♂ only.

WILLIAMSON, Ent. News, 17, p. 138, 1906; desc.; pl. 5, f. 1, ♂ app.—[Williamson 1909.]

Distr. Canadian; Me., Hudson's Bay, Saskatchewan?

hudsonica (HAGEN), Bull. Acad. Belg., (2) 31, p. 301, 1871; ♂ ♀, (*Epitheca*), types M. C. Z.

MARTIN, Cat. Coll. Selys, 17, p. 27, 1907; desc.; t. f. 28, ♂ app.; (*Somatochlora*).

Distr. Canadian; Hudson's Bay; Newfoundland.

linearis (HAGEN), Syn. Neur. N. Am., p. 137, 1861; ♂ ♀, (*Cordulia*); types: ♂ M. C. Z., ♀ Coll. Uhler.—Proc. Boston Soc., 16, p. 360, 1874; (*Epitheca*), notes.

SELYS, Bull. Acad. Belg., (2) 31, p. 286, 1871; desc.—L. c., (2) 45, p. 193, 1878.

CALVERT, Trans. Am. Ent. Soc., 20, p. 253, 1893; desc. (*Somatochlora*).

WILLIAMSON, Drag. Ind., p. 313, 1900; desc.—Ent. News, 16, p. 5, 1905; dist.—L. c., 18, p. 2, 1907; dist.; t. f. 2, ♂ app.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 501, 1901; noted; t. f. 25, ♂ ♀ app.

MARTIN, Cat. Coll. Selys, 17, p. 21, 1907; desc.; t. ff. 17, 18, ♂ ♀ app.

Syn. procera SELYS, l. c., (2) 31, p. 285, 1871; ♀ ♂, (*Cordulia*), types: ♂ British Mus., ♀ Coll. Selys.—[Selys 1878.]

Nymph. NEEDHAM, l. c., p. 269, 1903; desc. (*Somatochlora sp.*)—Ent. News, 16, p. 6, 1905.

Distr. Carolinian; Pa. to Ill. & Mo.

macrotona WILLIAMSON, Ent. News, 20, p. 78, 1909; ♂ ♀, types Ill. State Lab.

Distr. Alleghanian ?, Duluth, Minn.

minor CALVERT, Ent. News, 9, p. 87, 1898; in note (subsp. of *elongata*); ♂, type Coll. Calvert.

WILLIAMSON, Ent. News, 11, p. 457, 1900; desc. notes; pl. 9, ff. 11, *a*, ♂ app.

HOWARD, Ins. Book, 1902; pl. 42, f. 6; ♂ adult.

WALKER, Can. Ent., 39, p. 72, 1907; dist.; pl. 2, ff. 3, *a*, ♂ app.

Distr. Transition; N. H., Me., Ont., Wyo.

Corduliini

nasalis (SELYS), Bull. Acad. Belg., (2) 37, p. 32, 1874; ♀, (*Epitheca*), type Brit. Mus.

MARTIN, Cat. Coll. Selys, 17, p. 28, 1907; brief desc.

Distr. N. Am. (no specific locality cited).

provocans CALVERT, Ent. News, 14, p. 39, 1903; ♂, types Coll. Daecke, Calvert; pl. 3, ff. 7, 8, ♂ char.

MARTIN, Cat. Coll. Selys, 17, p. 29, 1907; ♂ desc.; t. f. 30, ♂ app.

Distr. Carolinian; N. J., Pa.

semicircularis (SELYS), Bull. Acad. Belg., (2) 31, p. 295, 1871; ♂, (*Epitheca*), M. C. Z.—L. c., (2) 45, p. 194, 1878; ♂ ♀; ♀ type Coll. Selys.

HAGEN, U. S. Surv. Terr. Colo. (1873), p. 590, 1874; ♂ ♀ desc.

WILLIAMSON, Ent. News, 17, p. 136, 1907; desc. notes; pl. 5, ff. 2-5; pl. 7, f. 21, ♂ ♀ char.; (*Somatochlora*).

MARTIN, Cat. Coll. Selys, 17, p. 26, 1907; desc.; t. f. 26, ♂ app.

Distr. Canadian; Me. to B. C., Utah, Colo.

septentrionalis (HAGEN), Syn. Neur. N. Am., p. 139, 1861; ♀, (*Cordulia*), type M. C. Z.

SELYS, Bull. Acad. Belg., (2) 31, p. 298, 1871; ♀ only; (*Epitheca*). L. c., (2) 45, p. 195, 1878; desc.

MARTIN, Cat. Coll. Selys, 17, p. 25, 1907; dist.

Syn. hudsonica WILLIAMSON, Ent. News, 17, p. 138, 1906; notes; pl. 6, ff. 14-17, ♂ ♀ char.—[Williamson 1909.]

?franklinii MARTIN, Cat. Coll. Selys, 17, p. 25, 1907; ♂ only.—[Williamson 1909.]

Distr. Hudsonian; Labr., Hudson Bay.

tenebrosa (SAY), Jn. Acad. Phila., 8, p. 18, 1839; ♂, (*Libellula*), type lost.

HAGEN, Syn. Neur. N. Am., p. 137, 1861; (*Cordulia*), desc. after Say.

SELYS, Bull. Acad. Belg., (2) 31, p. 289, 1871; ♂ ♀, (*Epitheca*), Coll. Selys.

WILLIAMSON, Drag. Ind., p. 314, 1900; desc. (*Somatochlora*).

NEEDHAM, Bull. 47 N. Y. State Mus., p. 502, 1901; noted; t. f. 27, ♂ ♀ app.

MARTIN, Cat. Coll. Selys, 17, p. 24, 1907; desc.; t. ff. 22, 23, ♂ ♀ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 101, 1908; ♂ app. desc.

Distr. Alleghanian, into Carolinian; N. Y. & N. J. to Ill.

walshii (SCUDDER), Proc. Boston Soc., 10, p. 217, 1866; ♂, (*Cordulia*); Mus. Boston Soc.

SELYS, Bull. Acad. Belg., (2) 31, p. 293, 1871; ♂, (*Epitheca*).

CALVERT, Trans. Am. Ent. Soc., 17, p. 33, 1890; ♀ desc. (*Somatochlora*).

NEEDHAM, Bull. 47 N. Y. State Mus., p. 591, 1901; noted; t. f. 26, ♂ app.

HOWARD, Ins. Book, 1902; pl. 40, f. 10; ♂ ad. col.

MARTIN, Cat. Coll. Selys, 17, p. 26, 1907; ♂ desc.; t. f. 27, ♂ app.

Distr. Alleghanian; N. H., Me.

williamsoni WALKER, Can. Ent., 39, p. 70, 1907; ♂ ♀, types Coll. Walker; pl. 2, ff. 1, *a-c*, ♂ ♀ char.

Syn. elongata NEEDHAM, Bull. 47 N. Y. State Mus., p. 499, 1901; noted; t. f. 23, ♂ app.; pl. 21, f. 1, adult.

WALKER, Can. Ent., 38, p. 151, 1906; noted.—[Walker 1907.]

Nymph. NEEDHAM, l. c., p. 500, 1901; desc. as (*S. elongata*).

Distr. Alleghanian; N. Y. to Ontario.

SUBFAMILY **LIBELLULINAE** SELYS.

Rev. Odon., p. 1, 1850; as tribus.

BRAUER, Verh. Ges. Wien, 18, pp. 364-370, 712-730, 1868; review of genera.

KIRBY, Trans. Zool. Soc. London, 12, pp. 249-348, 1889; pls. 51-57; revision of the subfamily; desc. of n. genera and n. spp.

KARSCH, Berl. Ent. Zeitschr., 33, pp. 347-392, 1889; Beiträge zur Kenntniss der Arten u. Gattungen der Libellulinen.—Abh. Senckb. Ver., 25, pp. 216-230, 1900; new system proposed.

CALVERT, Ent. News, 12, 325, 1901; classification, after Karsch.—Biol. C. Am., pp. 198-205, 1905; synopsis of N. Am. genera.

NEEDHAM, Bull. 47 N. Y. State Mus., pp. 506-508, 1901; table of N. Y. genera.

KRUEGER, Stett. Ent. Zeit., 63, p. 71, 1902; on classification.

FOERSTER, Jb. Ver. Mannheim, 71 & 72, pp. 3-17, 1906; new system proposed.—Jb. Ver. Nassau, 59, pp. 305-343, 1906; additions & corrections.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 105, 1908; table of Wis. genera, after Needham.

RIS, Mitth. Schweiz. Ent. Ges., 10, pp. 436-446, 1903; on parallelism of European & N. Am. genera.—In Schultz: Forschungsreise, p. 328, 1908; notes on present systems; a prospective system noted.

Libellulinae

—Cat. Coll. Selys, 9, pp. 1-120, 1909; pl. 1, t. ff. 89; part one of monograph of the *Libellulinae;* pp. 18-38, a new system of classification explained.

LADONA NEEDHAM.*

Type—*exusta* (SAY). Distribution—Nearctic.

Can. Ent., 29, p. 146, 1897.—Bull. 47 N. Y. State Mus., p. 507, 1901.
FOERSTER, Mitth. Bad. Zool. Ver., 15, p. 5, 1902.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 105, 1908.

exusta (SAY), Jn. Acad. Phila., 8, p. 29, 1839; ♂, type Mus. Boston Soc.; (*Libellula*).
HAGEN, Proc. Boston Soc., 15, p. 265, 1875; on Say's type.
CALVERT, Trans. Am. Ent. Soc., 20, p. 259, 1893; desc.
KELLICOTT, Odon. Ohio, p. 99, 1899; desc.
WILLIAMSON, Drag. Ind., p. 331, 1900; desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 529, 1901; identity; t. f. 31, ♂ gen.; (*Ladona*).
HOWARD, Ins. Book, 1902; pl. 41, ff. 5, 6; ♂ ♀ ads.; (*Libellula*).
WALKER, Ottawa Nat., 22, p. 62, 1908; dist.; (*Ladona*).
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 116, 1908; desc.

Syn. julia UHLER, Proc. Acad. Phila., p. 88, 1857; ♂, (*Libellula*), type Coll. Uhler.—[Hagen 1873.]
HAGEN, Syn. Neur. N. Am., p. 153, 1861; ♂.—Stett. Ent. Zeit., 28, p. 92, 1867; ♂ ♀ desc.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 116, 1908; desc. (*Ladona*).

Nymph. NEEDHAM, l. c., p. 530, 1901; desc.

Distr. Transition & Upper Austral; Mass. & B. C. to Fla.

Subsp. **depianata** (RAMBUR), Ins. Neur., p. 75, 1842; ♂ ♀, Coll. Selys; (*Libellula*).
HAGEN, Syn. Neur. N. Am., p. 154, 1861; ♂ ♀.
CALVERT, Trans. Am. Ent. Soc., 20, p. 258, 1893; identity (=*exusta*).
NEEDHAM, Can. Ent., 29, p. 144, 1897; (*Ladona*).

Nymph. NEEDHAM, l. c., 29, p. 144, 1897; desc. (*Ladona*).—Bull. 47 N. Y. State Mus., p. 529, 1901; desc.

Distr. Austroriparian; Pa. to Fla.

NOTE.—Ris, in litteris, July 23, 1909: "I do not accept Platetrum, Plathemis, Ladona, Leptetrum, Belonia, etc." Needham, in litt., March 3, 1909: " * * the genus Ladona, I still think it valid. I have been trying to get nymphs from the closely allied European L. fulva * * * * but have not, as yet, succeeded. Such nymphs as I have seen are distinct enough, but I would like to see whether there are any intergradient characters to be found among the nymphs of exotic species." See also tabulations by Calvert in Biol. C. Am., p. 206, 1905.

LIBELLULA LINNE.*

Type—*depressa* LINNE. Distribution—Cosmopolitan.

Syst. Nat., 1, p. 543, 1758; genus established for all Odonata.
LATREILLE, Hist. Nat. Crust., Ins., 3, p. 286, 1882; limited.
RAMBUR, Ins. Neur., p. 26, 1842; divisions pointed out.
SELYS, Rev. Odon., p. 3, 1850; type designated and divisions.
HAGEN, Syn. Neur. N. Am., p. 151, 1861; characters.
BRAUER, Verh. Ges. Wien, 18, p. 366, 730, 1868; limited.
ROSTOCK, Ver. Zwickau, p. 125, 1888; char.
KIRBY, Trans. London Zool. Soc., 12, pp. 260, 284, 1889; restricted to 1 sp.
CALVERT, Trans. Am. Ent. Soc., 20, p. 225, 1893; used in Brauer's sense.—Biol. C. Am., pp. 198, 206, 1906; char. & C. Am. spp.
WALLENGREN, Ent. Tisdk., 15, p. 241, 1894.
KELLICOTT, Odon. Ohio, p. 92, 1899.
WILLIAMSON, Drag. Ind., p. 252, 1900.
NEDHAM, Bull. 47 N. Y. State Mus., p. 508, 1901; char.; p. 530, table of N. Y. spp.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 117, 1908; table, after Needham.
RIS, Cat. Coll. Selys, 9, p. 22, 1909; includes *Ladona* & *Plathemis*.

Syn. Belonia KIRBY, Trans. London Zool. Soc., 12, pp. 260, 288, 1889.
KARSCH, Berl. Ent. Zeitschr., 33, p. 361, 1890.

Holotania KIRBY, l. c., 12, pp. 261, 288, 1889.

Leptetrum NEWMAN, Ent. Mag., 1, p. 511, note, 1833.
KIRBY, l. c., 12, pp. 260, 286, 1889.

Platetrum NEWMAN, l. c., 1, p. 511, note, 1833.
KIRBY, l. c., 12, pp. 260, 286, 1889.
WALLENGREN, Ent. Tidsk., 15, p. 283, 1894.

Pigiphila BUCHECKER, Syst. Ent., p. 11, 1878.

auripennis BURMEISTER, Handb. Ent., 2, p. 861, 1839; ♂, type M. C. Z.
HAGEN, Syn. Neur. N. Am., p. 155, 1861; ♂ ♀ desc.
SCUDDER, Proc. Boston Soc., 10, p. 191, 1866; notes.
CALVERT, Trans. Am. Ent. Soc., 20, p. 256, 1893; desc.—L. c., 25, p. 93, 1898; on Burm. type.—Biol. C. Am., p. 208, 1906; comp. desc.
KELLICOTT, Odon. Ohio, p. 97, 1899; desc.
WILLIAMSON, Drag. Ind., p. 329, 1900; desc.

*NOTE.—The N. Am. genera of Ris' group II are Libellula, Orthemis, and Cannaphila; to these I have added Ladona and Plathemis, which Ris does not recognize. Group I is not represented in the American fauna. Group I and II form what Ris calls his "Libelluli-form" Libellulinae.

Libellulinae

NEEDHAM, Bull. 47 N. Y. State Mus. p. 533, 1901; dist.
HOWARD, Insect Book, 1902; pl. 45, f. 6, ♂ adult.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 117, 1908; dist.

Syn. costalis RAMBUR, Ins. Neur., p. 59, 1842; ♂ ♀ Coll. Selys.

Nymph. NEEDHAM, l. c., p. 533, 1901; desc.

Distr. Austroriparian & Tropic; (Calvert z. 2-3), Atl. Coast, Mass. & Ohio to Fla. & Tex.; Mexico; Cuba, Isle of Pines.

axillena WESTWOOD, Edit. Drury, 2, 1837; pl. 47, f. 1.—Duncan: Intr. Ent., p. 292, 1840; pl. 29, f. 1.
HAGEN, Syn. Neur. N. Am., p. 156, 1861; desc.—Proc. Boston Soc., 16, p. 361, 1874; identity.
CALVERT, Trans. Am. Ent. Soc., 20, p. 257, 1893; desc.
HOWARD, Ins. Book, 1902; pl. 43, ff. 5, 6; ♂ ♀ ads.

Syn. leda SAY, Jn. Acad. Phila., 8, p. 22, 1839; very brief diagnosis.—[Hagen 1861.]
lydia DRURY, Ill. Exot. Ent., 2, pl. 47, f. 1, 1773.—[Hagen 1861.]
RAMBUR, Ins. Neur., p. 55, 1842; desc.

Nymph. ?NEEDHAM, Bull. 68 N. Y. State Mus., p. 273, 1903; desc.

Distr. Austroriparian; Pa. to Fla. & La.

basalis SAY, syn. ad *luctuosa*.

comanche CALVERT, Ent. News., 18, p. 201, 1907; dist.; new name for *flavida* HAGEN.—Biol. C. Am., p. 401, 1907; ♂ ♀ dist.

Syn. (=*homonymn*) *flavida* HAGEN, Syn. Neur. N. Am., p. 156, 1861; ♂, type M. C. Z.—U. S. Surv. Terr. Colo. (1872), p. 728, 1873.—L. c. (1873), p. 587, 1874; desc.

Distr. Upper Sonoran, (Calvert z. 4), Mont., Wyo. to Tex. & Mex., Calif.

composita HAGEN, U. S. Surv. Terr. Colo. (1872), p. 728, 1873; ♀, *Mesothemis*), type M. C. Z.—L. c. (1873), p. 587, 1874; correction; (*Libellula*).

Distr. Transition, Yellowstone.

croceipennis SELYS, subsp. sub. *saturata*.

cyanea FABRICIUS, Syst. Ent., p. 424, 1775.
RAMBUR, Ins. Neur., p. 70, 1842; desc.
CALVERT, Trans. Am. Ent. Soc., 20, p. 256, 1893; desc.—Ent. News, 18, p. 201, 1901; identity discussed, tabulation of differences.
KELLICOTT, Odon. Ohio, p. 97, 1899; desc.

WILLIAMSON, Drag. Ind., p. 330, 1900; desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 534, 1901; dist.
HOWARD, Ins. Book, 1902; pl. 44, ff. 2, 3; ♂ ♀ ads.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 117, 1901; dist.

Syn. bistigma UHLER, Proc. Acad. Phila., p. 87, 1857.—[Hagen 1861.]
quadrupla SAY, Jn. Acad. Phila., 8, p. 23, 1839; ♂ ♀, types Mus. Boston Soc.
HAGEN, Syn. Neur. N. Am., p. 157, 1861; desc.—[Hagen 1867.]

Nymph. NEEDHAM, l. c., p. 534, 1901; desc.

Distr. Carolinian; N. H. & Ind. to Ga.

flavida RAMBUR, Ins. Neur., p. 58, 1842; ♀, type Coll. Selys.
CALVERT, Ent. News, 18, p. 201, 1907; identity, differences tabulated.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 117, 1908; dist.

Syn. plumbea UHLER, Proc. Acad. Phila., p. 87, 1857.
HAGEN, Syn. Neur. N. Am., p. 157, 1861; ♂ ♀.—[Calvert 1907.]
CALVERT, Trans. Am. Ent. Soc., 20, p. 534, 1893; desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 534, 1901; dist.
HOWARD, Ins. Book, 1902; pl. 40, f. 13; ♂ ad. col.

Distr. Austroriparian; Atl. coast, Pa. & N. J. to Fla.

foliata (KIRBY), Trans. Zool. Soc. London, 12, p. 333, 1889; ♀ only, (*Belonia*), type British Museum; pl. 54, f. 4, ♀ ad. colored.
CALVERT, Biol. C. Am., p. 208, 1906; ♂ ♀ comp. desc. (*Libellula*).

Distr. Lower Sonoran, (Calvert z. 4), Mex., Guatemala, Costa Rica.

forensis HAGEN, Syn. Neur. N. Am., p. 154, 1861; ♂, type Mus. Berlin.—U. S. Surv. Terr. Colo. (1873), p. 585, 1874; ♂ ♀, types M. C. Z.

Nymph. NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 706, 1904; desc.

Distr. Upper Sonoran; B. C. to Calif., Mont. to Ariz.

herculea KARSCH, Ent. Nachr., 15, p. 235, 1889; ♂ ♀, types Mus. Berlin.—Berl. Ent. Zeitsch., 33, p. 361, 1890; extract from Brauer's letter; (= *Belonia*).
CALVERT, Biol. C. Am., p. 209, 1906; comp. desc.

Syn. longipennis KIRBY, Trans. Zool. Soc. London, 12, p. 334, 1889; ♀, (*Belonia*), type British Museum.—[Calvert 1906.]
foliata KIRBY, l. c., p. 333, 1889; ♂ only, type Brit. Mus.—[Calvert 1906.]

Distr. Tropic, (Calvert z. 2-4), Mexico to Paraguay.

incesta HAGEN, Syn. Neur. N. Am., p. 155, 1861; ♂, type M. C. Z.—Psyche, 5, p. 384, 1890; ♂.

Libellulinae

CALVERT, Trans. Am. Ent. Soc., 17, p. 34, 1890; ♀ desc.—L. c., 20, p. 257, 1893; desc.
KELLICOTT, Odon. Ohio, p. 99, 1899; desc.
WILLIAMSON, Drag. Ind., p. 330, 1900; desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 531, 1901; dist.
HOWARD, Ins. Book, 1902; pl. 43, f. 3; ♂ adult.
WALKER, Ottawa Nat., 22, p. 62, 1908; dist.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 118, 1908; desc.

Distr. Alleghanian & Carolinian; Me. & Wis. to Mo. & N. C.

longipennis (KIRBY), syn. ad *herculea.*

luctuosa BURMEISTER, Handb. Ent., 2, p. 861, 1839; types Mus. Vienna.
HAGEN, Syn. Neur. N. Am., p. 152, 1861; desc.
CALVERT, Trans. Am. Ent. Soc., 25, p. 93, 1898; on Burm. types.—Ent. News, 17, p. 30, 1906; priority discussed.
WALKER, Ottawa Nat., 22, p. 62, 1908; dist.

Syn. basalis SAY, Jn. Acad. Phila., 8, p. 23, 1839; ♂, type lost.—[Calvert 1907.]
HAGEN, Proc. Boston Soc., 18, p. 70, 1875; priority.
CALVERT, Trans. Am. Ent. Soc., 20, p. 265, 1893; desc.
KELLICOTT, Odon. Ohio, p. 96, 1899; desc.
WILLIAMSON, Drag. Ind., p. 329, 1900; desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 532, 1901; dist.
HOWARD, Insect Book, 1901; pl. 43, ff. 2, 6, ♂ ♀ adults
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 118, 1908; desc.
odiosa HAGEN, Syn. Neur. N. Am., p. 152, 1861; ♂ ♀, types M. C. Z. [Calvert 1907.]

Nymph. NEEDHAM, l. c., p. 532, 1901; desc. as (*odiosa*).

Distr. Alleghanian to Austroriparian; Me. & N. Dak. to New Mex. & Fla., Mexico.

merida SELYS, syn. ad *Cannaphila vibex.*

nodisticta HAGEN, Syn. Neur. N. Am., p. 151, 1861; ♂, type M. C. Z.—U. S. Surv. Terr. Colo. (1873), p. 583, 1874; ♂ ♀.
CALVERT, Biol. C. Am., p. 213, 1906; comp. desc.

Distr. Upper Sonoran, (Calvert z. 4-5), Mont. & Wash. to Calif. & Nev.; Mex. to Venez.

odiosa HAGEN, syn. ad *luctuosa.*

plumbea UHLER, syn. ad *flavida.*

pulchella DRURY, Ill. Exot. Ent., 1, pl. 48, f. 5, 1773.
RAMBUR, Ins. Neur., p. 54, 1842; desc.
HAGEN, Syn. Neur. N. Am., p. 153, 1861; desc.
CALVERT, Ent. News, 2, p. 36, 1891; abnormal wing.—Trans. Am. Ent. Soc., 20, p. 259, 1893.
NEEDHAM, Outdoor Studies, p. 56, f. 55, 1898; adult.—Bull. 47 N. Y. State Mus., p. 536, 1901; dist.; pl. 23, f. 2, adult.—Proc. U. S. Nat. Mus., 26, 1903; pl. 48, f. 3, wings.
KELLICOTT, Odon. Ohio, p. 101, 1900; desc.
WILLIAMSON, Drag. Ind., p. 332, 1900; desc.
HOWARD, Ins. Book, 1902; pl. 40, f. 7; ♂ ad. col.
WALKER, Ottawa Nat., 22, p. 62, 1908; dist.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 119, 1908; desc.
Syn. bifasciata FABRICIUS, Syst. Ent., p. 421, 1775.—[Rambus 1842.]
BURMEISTER, Handb. Ent., 2, p. 862, 1839.
CALVERT, Trans. Am. Ent. Soc., 25, p. 93, 1898; on Burm. desc.
confusa UHLER, Proc. Acad. Phila., p. 87, 1857.—[Hagen 1867.]
versicolor FABRICIUS, Syst. Ent., p. 423, 1775.—[Burmeister 1839].
Nymph. NEEDHAM, Bull. 47 N. Y. State Mus., p. 536, 1901; desc.—Proc. U. S. Nat. Mus., 26, p. 712, 1903; t. f. 6, tracheation.
Distr. Alleghanian to Austroriparian; Me. & N. Dak. to Tex. & Fla.

quadrimaculata LINNE, Syst. Nat., 1, p. 543, 1758.—Faun. Suec., p. 371, 1761.
CHARPENTIER, Lib. Eur., p. 63, 1840; desc.; pl. 3, ♂ ♀ adults colored.
SELYS, Mon. Lib. Eur., p. 32, 1840; desc.; pl. 3, f. 1, ♂ app.—Rev. Odon., p. 7, 1850.
RAMBUR, Ins. Neur., p. 50, 1842; desc.
HAGEN, Syn. Neur. N. Am., p. 150, 1861; desc.
PACKARD, Amer. Nat., 1, p. 310, 1867; pl. 9, f. 2, adult.
RIS, Faun. Helv., p. 10, 1885; desc.
ROSTOCK, Ver. Zwickau, p. 125, 1888; desc.
CALVERT, Trans. Am. Ent. Soc., 20, p. 258, 1893; desc.
WALLENGREN, Ent. Tidsk., 15, p. 237, 1894; brief diagnosis.
GARBINI, Bull. Soc. Ent. It., 27, p. 115, 1895; desc.
KELLICOTT, Odon. Ohio, p. 100, 1899; desc.
WILLIAMSON, Drag. Ind., p. 331, 1900; desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 534, 1901; dist.
SJOSTEDT, Ent. Tidsk., 23, p. 8, 1902; desc.; t. f. 1, adult.
HOWARD, Ins. Book, 1902; pl. 40, f. 3; ♂ ad. col.
FROHLICH, Ver. Aschaff., p. 12, 1903; desc.
WALKER, Ottawa Nat., 22, p. 63, 1908; dist.

Libellulinae

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 119, 1908; desc.

Syn. maculata HARRIS, Expos. Engl. Ins., pl. 46, f. 1, 1782.

praenubila NEWMAN, Ent. Mag., 1, p. 420, 1833;

STEPHENS, Ill. Brit. Ent., 6, p. 92, 1836.

EVANS, Brit. Lib., p. 26, 1839; pl. 17, f. 2.

quadripunctata FABRICIUS, Spec. Ins., p. 520, 1781.

ternaria SAY, Jn. Acad. Phila., 8, p. 21, 1839; ♂, Mus. Boston Soc.—[Hagen 1861.]

Nymph. NEEDHAM, l. c., p. 534, 1901; desc.

Distr. Holarctic; Europe, Asia, N. America; Canadian to Carolinian; Canada, N. F. to Alaska; U. S., Me. & Wash. to Ark. & N. C.

saturata UHLER, Proc. Acad. Phila., p. 88, 1857; ♂, type M. C. Z.

HAGEN, Syn. Neur. N. Am., p. 152, 1861; ♂ ♀.—Stett. Ent. Zeit., 28, p. 92, 1867; on Uhler type.—U. S. Surv. Terr. Colo. (1873) p. 585, 1874; desc.

CALVERT, Proc. Cal. Acad., (2) 4, p. 516, 1895; desc. notes; pl. 16, ff. 70-73, ♂ char.—Biol. C. Am., p. 210, 1906; comp. desc.; p. 401, 1907; notes.

Nymph. NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 705, 1904; desc.; pl. 42, f. 1, adult.

Distr. Upper & Lower Sonoran, Mont. & N. M. to Baja Calif. & Mex. (Calvert z. 3-4).

Subsp. **croceipennis** SELYS, C. R. Soc. Ent. Belg., 11, p. 67, 1868.

HAGEN, U. S. Surv. Terr. Colo. (1873), p. 586, 1874; desc.

CALVERT, Biol. C. Am. p. 212, 1906; comp. desc.; differences tabulated.

Syn. saturata HAGEN, Syn. Neur. N. Am., p. 152, 1861; in part; ♂ ♀ from Mex.—[Calvert 1906.]

CALVERT, Proc. Cal. Acad., (2) 4, p. 615, 1895; in part.

uniformis KIRBY, Trans. Zool. Soc. London, 12, p. 333, 1889; ♀, (*Belonia*), type British Museum.—[Calvert 1906.]

KARSCH, Ent. Nachr., 15, p. 342, 1889; affinities.

Distr. Lower Sonoran, (Calvert z. 3-4), Tex., to Mex. to Costa Rica.

Subsp. **aliasignata** n. n.

Syn. (= *hom.*) *uniformis* NEEDHAM, Proc. U. S. Nat. Mus., 26, 1903; pl. 8, f. 2, wings.

CALVERT, Biol. C. Am., p. 212, 1906; identity.

saturata CALVERT, Proc. Cal. Acad., (2) 4, p. 516, 1895; in part.—[Calvert 1906.]

Distr. Lower Sonoran; Texas, Mexico, B. Calif.

semifasciata BURMEISTER, Handb. Ent., 2, p. 862, 1839; ♀, holotype Mus. Halle.
HAGEN, Syn. Neur. N. Am., p. 151, 1861; ♂ ♀, M. C. Z.—Proc. Boston Soc., 15, p. 264, 1873; synonymy.
CALVERT, Trans. Am. Ent. Soc., 20, p. 235, 1893; desc.—L. c., 25, p. 93, 1898; on Burm. type.
NEEDHAM, Outdoor Studies, p. 55, 1898; t. f. 54, adult.—Bull. 47 N. Y. State Mus., p. 535, 1901; dist.; pl. 23, f. 1, adult.
KELLICOTT, Odon. Ohio, p. 100, 1899; desc.
WILLIAMSON, Drag. Ind., p. 332, 1900; desc.
HOWARD, Ins. Book, 1902; pl. 45, f. 5, ♂ adult.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 119, 1908; desc.
Syn. maculata RAMBUR, Ins. Neur., p. 55, 1842.—[Hagen 1861.]
hersilia BLANCHARD, in d'Orbigny, Dict. d'Hist. Nat., Atlas, 2.—Ins. Neur., pl. 1, f. 2, 1861.
ternaria SAY, Jn. Acad. Phila., 8, p. 21, 1839; ♀ only, type Mus. Boston Soc.—[Hagen 1861, 1873.]
Distr. Alleghanian & Carolinian; Me. & Minn. to Mo. & Tenn.

vibex HAGEN, vide *Cannaphila*, postea.

vibrans FABRICIUS, Ent. Syst., 2, p. 380, 1793.
CALVERT, Trans. Am. Ent. Soc., 2 p. 257, 1893; desc. as (form? of *axillena*).
KELLICOTT, Odon. Ohio, p. 98, 1899; desc.
WILLIAMSON, Drag. Ind., p. 330, 1900; desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 531, 1901; dist.
HOWARD, Ins. Book, 1902; pl. 40, f. 11; ♂ ad. col.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 118, 1908; desc.
Syn. leda SAY, Jn. Acad. Phila., 8, p. 22, 1839; brief diagnosis.—[Hagen 1861.]
lydia, var. A, SAY, l. c., p. 22, 1839; brief desc.
HAGEN, Syn. Neur. N. Am., p. 155, 1861; desc.
RAMBUR, Ins. Neur., p. 55, 1842; in part.
Distr. Carolinian; Mass. & Me. to Mo. & N. C.

PLATHEMIS HAGEN.

Type—*lydia* (DRURY). Distribution—Nearctic.
Syn. Neur. N. Am., p. 149, 1861.
KIRBY, Trans. Zool. Soc. London, 12, pp. 260, 287, 1889.
CALVERT, Trans. Am. Ent. Soc., 20, p. 225, 1893.—Biol. C. Am., p. 205, 1906.
KELLICOTT, Odon. Ohio, p. 92, 1899.

Libellulinae

WILLIAMSON, Drag. Ind., p. 251, 1900.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 508, 1901.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 105, 1908.

lydia (DRURY), Ill. Exot. Ent., 1, pl. 47, f. 4, 1773; (*Libellula*).
EMMONS, Rep. Agr. N. Y., 5, pl. 15, ff. 4, 5, 1854; ♂ ♀, adults, no name given.
WILLIAMSON, Drag. Ind., p. 333, 1900; desc. (*Plathemis*).—Ent. News, 17, p. 351, 1906; dist.; t. f., showing tubercle on 1st abd. segment.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 537, 1901; dist.
HOWARD, Ins. Book, 1902; pl. 40, ff. 1, 5; ♂ ♀ ads. col.
WALKER, Ottawa Nat., 22, p. 63, 1908; dist.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 120, 1908; desc.

Syn. trimaculata DEGEER, Mem. Ins., 3, p. 556, 1773; pl. 26, f. 2; ad.; (*Libellula*).
FABRICIUS, Ent. Syst., Suppl., 2, p. 374, 1793.
RAMBUR, Ins. Neur., p. 52, 1842; ♂ ♀.
HAGEN, Syn. Neur. N. Am., p. 149, 1861; (*Plathemis*).
PACKARD, Amer. Nat., 1, p. 310, 1867; pl. 9, f. 1, adult; (*Libellula*).
RILEY, Ins. Mo., 5, p. 14, 1873; t. f., adult.
CALVERT, Trans. Am. Ent. Soc., 20, p. 259, 1893; desc. (*Plathemis*).
NEEDHAM, Outdoor Studies, pp. 57, 65, 1898; ff. 56, 66, ♂ ♀ adults. (*Libellula*).
KELLICOTT, Odon. Ohio, p. 102, 1899; desc. (*Plathemis*).

Nymph. NEEDHAM, Bull. 47 N. Y. State Mus., p. 537, 1901; desc.; t. f. 32, adult.

Distr. Transition to Upper Austral; N. F. & B. C. to Ark. & N. C.

subornata HAGEN, Syn. Neur. N. Am., p. 149, 1861; ♂ ♀, types M. C. Z.
WILLIAMSON, Ent. News, 17, p. 351, 1906; identity; t. f., abd. tubercle.
CALVERT, Biol. C. Am., p. 205, 1906; comp. desc.

Nymph. NEEDHAM & COCKERELL, Psyche, 10, p. 139, 1903; desc. & ethol. notes.

Distr. Lower Sonoran, Kans. & Utah to Tex. & Mex.

ORTHEMIS HAGEN.

Type—*ferruginea* (FABRICIUS). Distribution—Neotropic, into Nearctic.
Syn. Neur. N. Am., p. 160, 1861.
BRAUER, Verh. Ges. Wien, 18, pp. 367, 729, 1867; char.—SB. Acad. Wiss. Wien, 87, p. 91, 1883; char.

KIRBY, Trans. Zool. Soc. London, 12, pp. 263, 286, 1889.
CALVERT, Proc. Cal. Acad., (2) 4, p. 472, 1895; char.—Ann. Mus. Buen. Aires, 7, p. 34, 1902; table of spp.—Biol. C. Am., p. 201, 1906; char.; p. 232, table.
RIS, Cat. Coll. Selys, 9, p. 22, 1909; char.

discolor (BURMEISTER), syn. ad *ferruginea*.

ferruginea (FABRICIUS), Syst. Ent., p. 423, 1775; (*Libellula*).
KIRBY, Trans. Zool. Soc. London, 12, 286, 1889; noted; pl. 57, ff. 3, *a-c*, venation, leg, ♂ app.—Ann. Nat. Hist., (7) 3, p. 364, 1899; ♂ ♀ (*Orthemis*).
CALVERT, Proc. Cal. Acad., (2) 4, p. 520, 1895; desc. notes; pl. 16, ff. 67-69, ♂ char.—Ann. Mus. Buen. Aires, 7, p. 34, 1902; dist. —Biol C. Am., p. 234, 1906; comp. desc.; pl. 9, f. 34, thorax.
NEEDHAM, Proc. U. S. Nat. Mus., 26, 1903; pl. 48, f. 1, wings.
RIS, Magelhaenreise, p. 42, 1904; noted.
Syn. discolor (BURMEISTER), Handb. Ent., 2, p. 856, 1839; ♂ ♀, (*Libellula*), Mus. Halle.
HAGEN, Syn. Neur. N. Am., p. 160, 1861; desc.—Stett. Ent. Zeit., 29, p. 279, 1868; detailed desc.; identity with *ferruginea* suggested.
UHLER, Proc. Boston Soc., 11, p. 297, 1868; noted.
KOLBE, Arch. f. Naturg., 54, p. 168, 1888; noted.
KARSCH, Ent. Nachr., 15, p. 236, 1889.
CALVERT, Trans. Am. Ent. Soc., 25, p. 57, 1898; on Burm. type.
macrostigma RAMBUR, Ins. Neur., p. 57, 1842; ♂ ♀, (*Libellula*).—[Hagen 1861.]
Nmph. NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 702, 1904; desc., t. f. 2, labium.
Distr. Lower Sonoran to Tropic; Fla., Tex. to Chili; W. Indies; Ariz., New Mex.

levis CALVERT, Biol. C. Am., p. 238, 1906; ♂ ♀, types U. S. Nat. Mus.; pl. 9, ff. 38, 39, ♂ char.
Distr. Tropic, (Calvert z. 2-3), Mexico to Venezuela.

CANNAPHILA KIRBY.

Type—*insularis* KIRBY. Distribution—Neotropical.
Trans. Zool. Soc. London, 12, pp. 259, 305, 1889.
CALVERT, Biol. C. Am., p. 200, 1906; char.; p. 239, spp.
RIS, Cat. Coll. Selys, 9, p. 23, 1909; char.

Libellulinae

angustipennis (RAMBUR), Ins. Neur., p. 63, 1842; ♀, (*Libellula*), Coll. Selys.

SELYS in Sagra, Hist. Cuba, Ins. p. 446, 1851.

HAGEN, Syn. Neur. N. Am., p. 159, 1861; ♂ ♀.

SCUDDER, Proc. Boston Soc., 10, p. 192, 1866; desc.

KARSCH, Berl. Ent. Zeitschr., 33, p. 380, 1890; dist.; (= *Cannaphila*).

CALVERT, Biol. C. Am., p. 241, 1906; comp. desc.

Syn. funerea CARPENTER, Proc. Dublin Soc., 8, p. 434, 1897; ♂, type Dublin Mus.; pl. 6, ff. 5-9, venation, ♂ char.—[Calvert 1906, with a doubt.]

Distr. Tropic, (Calvert z. 2-4), Mex. to C. Am.; Greater Antilles.

Subsp. **insularis** KIRBY, Trans. Zool. Soc. London, 12, p. 341, 1889; ♂ ♀, British Museum.—Ann. Nat. Hist., (6) 4, p. 233, 1889; dist.

KARSCH, Berl. Ent. Zeitschr., 33, p. 380, 1890; dist.

CALVERT, Biol. C. Am., p. 242, 1906; comp. desc.

FOERSTER, Ent. Wochenbl., 24, p. 5, 1907; affinities.

Syn. angustipennis UHLER, Proc. Boston Soc., 11, p. 297, 1867; brief note; (*Libellula*).

Distr. Tropic, (Calvert z. 2), Greater Antilles; Honduras to Brazil.

vibex (HAGEN), Syn. Neur. N. Am., p. 159, 1861; ♂, (*Libellula*), type M. C. Z.

CALVERT, Biol. C. Am., p. 243, 1906; ♂ ♀, (*Cannaphila*); pl. 8, f. 35, wings.

Syn. merida SELYS, C. R. Soc. Ent. Belg., 11, p. 67, 1868.—[Calvert 1906.]

Distr. Lower Sonoran, (Calvert z. 3-4), Mexico to Brazil.

PERITHEMIS HAGEN.*

Type—*domitia* (DRURY). Distribution—Nearctic & Neotropic.

Syn. Neur. N. Am., p. 185, 1861.

BRAUER, Verh. Ges. Wien, 18, pp. 365, 718, 1868.

KIRBY, Trans. Zool. Soc. London, 12, pp. 259, 273, 1889.

CALVERT, Trans. Am. Ent. Soc., 20, p. 224, 1893.—Biol. C. Am., pp. 204, 310-315, 1905; char. & revision of genus.*

KELLICOTT, Odon. Ohio, p. 92, 1899.

WILLIAMSON, Drag. Ind., p. 250, 1900.

*NOTE (1).—Perithemis is the only N. Am. genus represented in group III of Ris' classification.

*NOTE (2).—The references and synonymy, as here cited, are taken in their entirety from Calvert in the Biologia C. Am.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 506, 1901.—Proc. U. S. Nat. Mus., 26, p. 716, 1903.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 105, 1908.
RIS, Cat. Coll. Selys, 9, p. 24, 1909.

californica MARTIN, syn. ad *intensa*.

domitia (DRURY).
bibliographica generalia.
DRURY, Ill. Nat. Hist., 2, pl. 45, f. 4, 1773;; ♂ ad col. (*Libellula*).
WESTWOOD, Edit. Drury, 2, p. 83, 1837; pl. 45, f. 4.
HAGEN, Syn. Neur. N. Am., p. 185, 1861; desc. (*Perithemis*).
CALVERT, Proc. Cal. Acad., (3) 1, p. 402, 1899.
RIS, Magelhaenreise, p. 30, 1904.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 106, 1908.
bibliographica specifica.
KIRBY, Trans. Zool. Soc. London, 12, p. 325, 1889.—Ann. Nat. Hist., (6) 4, p. 232, 1889.
?SCUDDER, Proc. Boston Soc., 10, p. 198, 1866.
?BURMEISTER, Handb. Ent., 2, p. 855, 1839; (*Libellula*).
CALVERT, Trans. Am. Ent. Soc., 25, p. 75, 1898; on Burm. types.—Biol. C. Am., p. 312, 1906; careful diagnosis of subsp.
Syn. metella SELYS in Sagra: Hist. Cuba, Ins., p. 451, 1857; (*Libellula*).
Distr. Tropic; Greater Antilles: Cuba, Jamaica; Florida.

*Subsp.***intensa** KIRBY, Trans. Zool. Soc. London, 12, pp. 326, 1889; ♂, type British Museum; pl. 51, f. 6, ♂ adult col.
CALVERT, Biol. C. Am., p. 310, 1906; ♂ ♀ desc.; pl. 6, ff. 10-18, wings, showing color variation; p. 408, 1908; notes on venation.
Syn. californica MARTIN, Bull. Mus. Paris, p. 104, 1900; desc. as (var. of *intensa*).
domitia CALVERT, Proc. Cal. Acad., (3), p. 402, 1899; Tepic specimens.
?icteroptera SELYS, in Sagra: Hist. Cuba, Ins., p. 451, 1857; (*Libellula*).
Distr. Lower Sonoran, (Calvert z. 2-4); Ariz., B. Calif., Mexico.

*Subsp.***iris** HAGEN, Syn. Neur. N. Am., p. 185, 1861; ♂ ♀, types M. C. Z.
CALVERT, Biol. C. Am., p. 313, 1906; desc.; p. 408, 1908; venation.
Syn.?domitia KIRBY, Ann. Mag. N. Hist., (7) 3, p. 363, 1899.
Distr. Tropic, (Calvert z. 2-3), B. Calif., Mex. to Brazil; Cuba.

Subsp. **mooma** KIRBY, Ann. Mag. N. Hist., (6) 4, p. 233, 1889; ♀, type Dublin Mus.

Libellulinae

CALVERT, Biol. C. Am., p. 314, 1906; ♂ ♀; pl. 6, ff. 19-27, wings, colored, to illustrate variation of markings.

Distr. Tropic, (Calvert z. 2-4); La.; Mex. to Argentine; Jamaica.

Subsp. **pocahontas** KIRBY, Ann. Mag. N. Hist., (6) 5, p. 232, 1890; ♀, type Dublin Museum.

Distr. Tropic; Jamaica.

Subsp. **seminole** CALVERT, Biol. C. Am., p. 314, 1906; ♀, type Coll. Calvert.

Distr. Austroriparian ?; Florida, New Jersey.

Subsp. **tenera** (SAY), Jn. Acad. Phila., 8, p. 31, 1839; ♀, type lost; (*Libellula*).

CALVERT, Biol. C. Am., p. 316, 1906; ♂ ♀, (*Perithemis*), neotypes Coll. Calvert; p. 408, 1908; on venation.

Syn. tenuicincta SAY, Jn. Acad. Phila., 8, p. 31, 1839; ♂, (= *tenera?*); (*Libellula*).

chlora RAMBUR, Ins. Neur., p. 125, 1842; ♂, (*Libellula*).

domitia HAGEN, Syn. Neur. N. Am., p. 185, 1861; (*Perithemis*); var. 1 only.—Stett. Ent. Zeit., 24, p. 375, 1863.

CALVERT, Trans. Am. Ent. Soc., 20, p. 264, 1893.

KELLICOTT, Odon. Ohio, p. 112, 1899.

NEEDHAM, Outdoor Studies, ff. 58, 59, 1898; ♂ ♀ adults.—Bull. 47 N. Y. State Mus., p. 512, 1901; ethol. notes; pl. 24, ff. 3, 4, ♂ ♀ adults.—Proc. U. S. Nat. Mus., 26, 1903; pl. 43, f. 3, wings.

HOWARD, Ins. Book, 1902; pl. 40, ff. 2, 4, 6, ♂ ♀ adults.

Nymph. NEEDHAM, l. c., p. 513, 1901; desc.; pl. 19, f. *s*, egg; p. 433, t. f. 8*c*, str. dets.; (*domitia*).

BUTLER, Trans. Am. Ent. Soc., 30, p. 124, 1904; pl. 6, f. 5, labium.

Distr. Carolinian to Gulf Strip; Mass. & Wis. to Fla. & Tex., Mex., Brazil, Ecuador.

NANNOTHEMIS BRAUER.*

Type—*bella* (UHLER). Distribution—Cosmopolitan.

Verh. Ges. Wien, 18, pp. 369, 726, 1868.

KIRBY, Trans. Zool. Soc. London, 12, pp. 259, 312, 1889.

KARSCH, Ent. Nachr., 16, p. 255, 1889.

CALVERT, Trans. Am. Ent. Soc., 20, p. 224, 1893.

*NOTE.—Nannothemis and the two following genera Anatya and Micrathyria Ris places in group V. Group IV is not represented in the American fauna, while group V deals exclusively with American genera. Of these groups Ris speaks as follows: In litt., July 23, 1909: "Groups IV and V are parallel inter se, being the Old World and American series of a somewhat lower and more archaic type which culminates in the more specialized genera of group VI."

WILLIAMSON, Drag. Ind., p. 251, 1900.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 506, 1901.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 105, 1908.
RIS, Cat. Coll. Selys, 9, p. 26, 1909.

Syn. Nannophya HAGEN, Syn. Neur., N. Am., p. 186, 1861.—[Brauer 1868.]

bella (UHLER), Proc. Acad. Phila., p. 87, 1857; ♀, (*Nannophya*), type Coll. Uhler.
HAGEN, Syn. Neur. N. Am., p. 186, 1861; desc. after Uhler.—Stett. Ent. Zeit., 28, p. 90, 1867; ♂ desc.; M. C. Z.
PACKARD, Amer. Nat., 1, p. 311, 1867; pl. 9, f. 6.
CALVERT, Trans. Am. Ent. Soc., 20, p. 260, 1893; desc. (*Nannothemis*).
WILLIAMSON, Drag. Ind., p. 327, 1900; desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 509 ,1901; ethol. notes.—Proc. U. S. Nat. Mus., 26, 1903; pl. 43, f. 2, wings.
WEITH, Can. Ent., 33, pp. 252-255, 1901; ethol. notes.

Syn. unicolor HAGEN, Stett. Ent. Zeit., 28, p. 90, 1867; ♂, M. C. Z.—[Hagen 1867.]

Nymph. NEEDHAM, Can. Ent., 33, p. 254, 1901; desc.; t. f. 8, adult & str. dets.—Bull. 47 N. Y. State Mus., p. 511, 1901; desc.; t. f. 29, ad. & str. dets.

Distr. Alleghanian & Carolinian; Me. & Ga. to Ind. & Ont.

maculosa (HAGEN), Syn. Neur. N. Am., p. 187, 1861; ♂, (*Nannophya*), type M. C. Z.
NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 722, 1903; (*Nannothemis*); t. f. 17: 7, loop.

Distr. Carolinian ?; Georgia.

ANATYA KIRBY.

Type—*anomala* (=*guttata*) KIRBY. Distribution—Neotropical.
Trans. Zool. Soc. London, 12, pp. 263, 293, 1889.
KARSCH, Berl. Ent. Zeitschr., 33, p. 373, 1890; affinities.
NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 718, 1903; venation.
CALVERT, Biol. C. Am., p. 200, 1906; char.; p. 244, table of spp.
RIS, Cat. Coll. Selys, 9, p. 27, 1909; char.

guttata (ERICHSON), Schomb. Reis. Br. Guiana, 3, p. 584, 1848; (*Libellula*).
KARSCH, Ent. Nachr., 15, p. 248, 1890; venation, position (= *Dythemis*.)

Libellulinae

NEEDHAM, Proc. U. S. Nat. Mus., 26. 1903; pl. 44, f. 1, wings; (*Anatya*).

CALVERT, Biol. C. Am., p. 245, 1906; ♂ ♀ desc.

Syn. anomala KIRBY, Trans. Zool. Soc. London, 12, p. 338, 1889; ♂, type Brit. Mus.; pl. 53, f. 9, ♂ adult; pl. 57, f. 7, ♂ app.—[Cavlert 1906.]

difficilis SELYS, Ann. Mus. Genov., 14, p. 301, 1879; ♂ ♀, (*Agrionoptera*).—[Calvert 1906.]

Distr. Tropic, (Calvert z. 3), Mex. to Brazil.

normalis CALVERT, Proc. Cal. Acad., (3) 1, p. 300, 1899; ♂, type Cal. Acad.; pl. 25, ff. 9, 13, ♂ char.—Biol. C. Am., p. 245, 1906; comp. desc.

Syn. theresiae SELYS, Barl. Ent. Zeitschr., 45, p. 260, 1900; ♀, type ?; t. f. 3, profile of body; pl. 3, f. 4, ♀ adult.—[Calvert 1906.]

Distr. Tropic, (Calvert z. 2-3), Mex. to Paraguay.

MICRATHYRIA KIRBY.

Type—*didyma* (SELYS). Distribution—Neotropic, into Nearctic.

Trans. Zool. Soc. London, 12, pp. 264, 303, 1889; char.

KARSCH, Berl. Ent. Zeitschr., 33, p. 371, 1890; affinities.

CALVERT, Proc. Cal. Acad., (2) 4, p. 472, 1895; char.—Trans. Am. Ent. Soc., 20, p. 224, 1893.—Biol. C. Am., p. 200, 1906; char.; p. 220, table of spp.—Ann. Carnegie Museum, 6, p. 229, 1909; neotropic spp.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 507, 1901; char.

KRUEGER, Stett. Ent. Zeit., 14, p. 218, 1903; affinities.

RIS, Ent. News, 14, p. 218, 1903; affinities.—Cat. Coll. Selys, 9, p. 27, 1909.

aequalis (HAGEN), Syn. Neur. N. Am., p. 167, 1861; ♂ ♀, (*Dythemis*), types M. C. Z.

CALVERT, Proc. Cal. Acad., (2) 4, p. 543, 1895; desc. (*Micrathyria*); pl. 17, ff. 107-109, ♂ ♀ gen.—Biol. C. Am., p. 229, 1906; comp. desc.

Syn. septima SELYS, Berl. Ent. Zeitschr., 45, p. 265, 1900; ♂ ♀, Mus. Vienna; pl. 3, f. 6, ♂ adult.—[Calvert 1906.]

Distr. Tropic, (Calvert z. 2-4), Mexico to Ecuador; Greater Antilles.

atra (MARTIN), Ann. Soc. Ent. France, 66, p. 590, 1897; (*Dythemis*).

CALVERT, Biol. C. Am., p. 225, 1906; ♂ ♀, (*Micrathyria*); pl. 9, ff. 13-15, ♂ char.

Distr. Tropic, Mexico to Brazil.

berenice (DRURY), vide *Erythrodiplax*, postea.

debilis (HAGEN), Syn. Neur. N. Am., p. 168, 1861; ♂, (*Dythemis*), type M. C. Z.
CALVERT, Biol. C. Am., p. 229, 1906; desc. (*Micrathyria*); pl. 9, ff. 25-27, ♂ char.
Distr. Tropic, (Calvert z. 2-4), Mexico, Guatemala, Cuba.

didyma (SELYS), in Sagra: Hist. Cuba, Ins., p. 453, 1857; (*Libellula*).
CALVERT, Proc. Cal. Acad., (2) 4, p. 539, 1895; ♂ ♀, (*Micrathyria*); pl. 17, ff. 98-102, ♂ ♀ char.—Biol. C. Am., p. 223, 1906; comp. desc.; pl. 9, f. 2, wings.
RIS, Magelhaenreise, p. 35, 1904; dist., ethol. notes.
Syn. phyrne RAMBUR, Ins. Neur., p. 121, 1842; ♂ ♀, (*Libellula*).—[Hagen 1875.]
dicrota HAGEN, Syn. Neur. N. Am., p. 166, 1861; ♂, (*Dythemis*), type M. C. Z.—[Kirby 1889.]
poeyi SCUDDER, Proc. Boston Soc., 10, p. 194, 1866; ♂, (*Mesothemis*), holotype Mus. Boston Soc.—L. c., 11, p. 300, 1868; (= *Dythemis dicrota*).
HAGEN, Stett. Ent. Zeit., 28, p. 98, 1867; syn.—Proc. Boston Soc., 11, p. 292, 1868; synonym noted.
Distr. Tropic (Calvert z. 2-4) Mex. to Ecuador; Greater Antilles.

dissocians CALVERT, Biol. C. Am., p. 226, 1906; ♂, type ?; pl. 9, ff. 19-21, ♂ char.
Distr. Tropic (Calvert z. 3), Atoyac in Mexico; Puerto Rico.

hagenii KIRBY, Syn. Cat., p. 41, 1890; new name for (*didyma* HAGEN).—Ann. Mag. N. Hist., (7) 3, p. 368, 1899; ♂ desc.
CALVERT, Proc. Cal. Acad., (2) 4, p. 541, 1895; desc.; pl. 17, ff. 95-97, ♂ ♀ gen.—Biol. C. Am., p. 225, 1906; comp. desc.; pl. 9, ff. 16-18, ♂ char., thorax.
Hom. didyma HAGEN, Syn. Neur. N. Am., p. 165, 1861; ♂ ♀, (*Dythemis*), types M. C. Z.
Syn. dicrota HAGEN, Proc. Boston Soc., 18, p. 75, 1875; new name (*Dythemis*) for *didyma*.
Distr. Tropic, (Calvert z. 2-3), Mex. to C. Rica; Greater Antilles; Texas.

ocellata MARTIN, Ann. Soc. Ent. France, 66, p. 589, 1898; ♂ ♀, types Coll. Martin.

Libellulinae

CALVERT, Biol. C. Am., p. 226, 1906; comp. desc.; pl. 9, ff. 22, 23, ♂ app., thorax.

Distr. Tropic, (Calvert z. 2-3), Mex. to Ecuador.

pertinax (HAGEN), vide *Brechmorhoga*, postea.

schumanni CALVERT, Biol. C. Am., p. 227, 1906; ♂ ♀, types ♂ Coll. Schumann, ♀ Coll. Williamson; pl. 8, ff. 39, 40, ♂ char.; pl. 9, f. 24, ♂ app.

Distr. Lower Sonoran, (Calvert z. 2-4), Pacific Coast, Mex. to C. Rica.

septima SELYS, syn. ad *aequalis*.

ERYTHRODIPLAX BRAUER.*

Type—*fusca* (RAMBUR). Distribution—Neotropic, into Nearctic.

Verh. Ges. Wien, 18, pp. 368, 722, 1868.

KIRBY, Trans. Zool. Soc. London, 12, pp. 264, 278, 1889.

RIS, Magelhaenreise, p. 35, 1904; affinities to *Trithemis*.—Cat. Coll. Selys, 9, p. 28, 1909; char.

CALVERT, Biol. C. Am., p. 201, 1906; synopsis of spp.

abjecta (RAMBUR), form Cii of *connata*.

ambusta (HAGEN), syn. ad *justiniana*, sub *connata* Ei.

berenice (DRURY), Ill. Exot. Ent., 1, pl. 48, f. 3, 1773; ♀ ad. col. (*Libellula*).

SAY, Jn. Acad. Phila., 8, p. 25, 1839; ♂ desc.; Mus. Boston Soc.

RAMBUR, Ins. Neur., p. 88, 1842; desc.

HAGEN, Syn. Neur. N. Am., p. 178, 1861; desc. (*Diplax*).

PACKARD, Amer. Nat., 1, p. 311, 1867; pl. 9, ff. 3, 4, adults.—Guide Ins., p. 605, 1869; desc. notes; t. f. 589, 590; adults.

CALVERT, Trans. Am. Ent. Soc., 20, p. 260, 1893; desc. (*Micrathyria*) in part.—Ent. News, 17, p. 99, 1906; on venation.—Biol. C. Am., p. 269, 1906; desc. (*Erythrodiplax*).

NEEDHAM, Bull. 47 N. Y. State Mus., p. 528, 1901; dist.

HOWARD, Ins. Book, 1902; pl. 41, ff. 1-3, ♂ ♀ adults.

RIS, Ent. News, 14, p. 218, 1903; on venation.

*NOTE.—This genus belongs to group VI of Ris' classification. Other North American genera of this group are Pseudoleon, Erythemis, Lepthemis, Sympetrum, Pachydiplax. Ris classes these genera and those of group VII (see note under Leucorrhinia) with the "Sympetri-form" Libellulinae.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 115, 1908; dist.

Syn. histrio BURMEISTER, Handb. Ent., 2, p. 849, 1839; ♀, (*Libellula*), M. C. Z.—[Hagen 1861.]

CALVERT, Trans. Am. Ent. Soc. 25, p. 63, 1898; on Burm. type.

Nymph. CALVERT, Ent. News, 15, p. 174, 1904; desc. (*Micrathyria*).

BUTLER, Trans. Am. Ent. Soc., 30, 1904; pl. 7, f. 3, labium.

Distr. Carolinian & Austroriparian; Mass. & Pa. to N. C. & Tex., Mex.

Subsp. **naeva** (HAGEN), Syn. Neur. N. Am., p. 167, 1861; ♂ ♀, (*Dythemis*), types M. C. Z.—Proc. Boston Soc., 11, p. 293, 1867; identity.

CALVERT, Ent. News, 11, p. 99, 1906; notes (*Erythrodiplax*).—Biol. C. Am., p. 270, 1906; desc.

Syn. berenice CALVERT, Trans. Am. Ent. Soc., 20, p. 261, 1893; in part, (*Micrathyria*).

Distr. Gulf Strip & Tropic, (Calvert z. 2), Fla., Bahamas, Gr. Antilles, Panama.

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connata (BURMEISTER).*

Form **Ai**

fraterna (HAGEN), Proc. Boston Soc., 15, p. 375, 1873; new name for *abjecta* Scudder; (*Diplax*).—L. c., 18, p. 71, 1875; noted.

CALVERT, Biol. C. Am., p. 253, 1906; comp. desc.; (*Erythrodiplax*).

Syn. abjecta et *ochracea* SCUDDER, Proc. Boston Soc., 10, pp. 196, 197, 1866; ♂ ♀, (*Diplax*) types Mus. Boston Soc.—[Hagen 1873.]

abjecta HAGEN, Syn. Neur. N. Am., p. 184, 1861; ♂ ♀, (*Diplax*), types M. C. Z.

Distr. Lower Sonoran & Tropic, Mex., Brazil; Greater Antilles.

Form **B**

CALVERT, Biol. C. Am., p. 260, 1906; ♂ ♀ desc.

RIS, Deutsch. Ent. Zeitschr., p. 530, 1908; ♂ ♀ desc.

Distr. Honduras, Guatemala.

Form **Bi**

CALVERT, Biol. C. Am., p. 264, 1906; ♂ ♀ desc.

Distr. Tropic, Mex., Bolivia, Brazil.

Form **C**

CALVERT, Biol. C. Am., p. 260, 1906; ♂ ♀ desc.

Distr. Tropic, Atl. Coast of Mex., C. Am.; Bolivia.

*NOTE.—Pending a further revision of this greatly variable species, I cite the references in the order of forms as given by Dr. Calvert in the Biol. C. Am., pp. 253-267, 1906.

Libellulinae

Form **Ci**

connata (BURMEISTER), Handb. Ent., 2, p. 855, 1839; ♂, (*Libellula*), type M. C. Z.

RIS, Magelhaenreise, p. 39, 1904; noted, (*Erythrodiplax*).

CALVERT, Trans. Am. Ent. Soc., 25, p. 77, 1898; desc. of Burm. type.—Biol. C. Am., p. 264, 1906; ♂ ♀ desc.

Syn. communis RAMBUR, Ins. Neur., p. 93, 1842; ♂ ?(*Libellula*), type Mus. Paris.

leontina BRAUER, Reise d. Novara, p. 93, 1866; ♂, (*Libellula*).—[Ris 1904.]

Distr. Chili.

Form **Cii**

abjecta (RAMBUR), Ins. Neur., p. 83, 1842; ♂, (*Libellula*), type Coll. Selys.

HAGEN, Syn. Neur. N. Am., p. 184, 1861; desc. (*Diplax*); in part. Stett. Ent. Zeit., 30, p. 263, 1869.

CALVERT, Biol. C. Am., p. 265, 1906; desc.

Distr. Lower Sonoran, Mex. to Brazil.

Form **D**

CALVERT, Biol. C. Am., p. 260, 1906; ♂ ♀ desc.

Distr. Tropic, (Calvert z. 2-4), Mexico to Brazil.

Form **Di**

basifusca CALVERT, Proc. Acad. Cal., (2) 4, p. 536, 1895; ♂ ♀, (*Trithemis*), types Cal. Acad. pl. 16, ff. 58-61, ♂ ♀ char.—L. c., (3) 1, p. 396, 1899; noted.—Biol. C. Am., p. 261, 1906; desc. (*Erythrodiplax*).

Distr. Lower Sonoran, (Calvert z. 3-4), B. Calif., Mex. to Paraguay.

Form **E**

fusca (RAMBUR), Ins. Neur., p. 78, 1842; ♂, (*Libellula*), type Coll. Selys.

RIS, Magelhaenreise, p. 38, 1904; noted.

CALVERT, Biol. C. Am., p. 260, 1906; ♂ ♀ desc. (*Erythrodiplax*).

Syn. famula ERICHSON, Schomb. Reis. Br. Guiana, 3, p. 584, 1848; (*Libellula*).—[Calvert 1906, with a doubt.]

pulla KIRBY, Ann. Mag. N. Hist., (7) 3, p. 363, 1899; (*Trithemis*).—[Calvert, 1906, with a doubt.]

Distr. Tropic, (Calvert z. 2-3), Mexico to Argentine.

Form **Ei**

justiniana (SELYS), in Sagra: Hist. Cuba, Ins., p. 450, 1857; (*Libellula*).
HAGEN, Syn. Neur. N. Am., p. 181, 1861; ♂ ♀, (*Diplax*).—Proc. Boston Soc., 15, p. 375, 1873; identity.
SCUDDER, Proc. Boston Soc., 10, p. 197, 1866; desc.
CALVERT, Biol. C. Am., p. 260, 1906; ♂ ♀, (*Erythrodiplax*).
Syn. ambusta HAGEN, Proc. Boston Soc., 11, p. 293, 1867; new name for (*justiniana* Hagen, 1861).—[Calvert 1906.]
Distr. Tropic, Greater and Lesser Antilles.

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distinguenda (RAMBUR), syn ad *ochracea.*

fraterna (HAGEN), form Ai sub *connata.*

funerea (HAGEN), Syn. Neur. N. Am., p. 158, 1861; ♂, (*Libellula*), type M. C. Z.
CALVERT, Proc. Cal. Acad., (3) 1, p. 398, 1899; notes; ♂, (*Trithemis*).—Biol. C. Am., p. 248, 1906; ♂ ♀, (*Erythrodiplax*).
Syn. tyleri KIRBY, Ann. Nat. Hist., (7) 3, p. 364, 1899; ♂, (*Trithemis*), type British Museum; pl. 15, f. 1, ♂ adult.—[Calvert 1906.]
Distr. Lower Sonoran, (Calvert z. 2-4), Calif., Mex., C. Am.

fusca (RAMBUR), form E sub *connata.*

justiniana (SELYS), form Ei sub *connata.*

leontina (BRAUER), syn. ad *connata,* form Ci.

minuscula (RAMBUR), Ins. Neur., p. 115, 1842; ♂ ♀, (*Libellula*), types Coll. Selys.
HAGEN, Syn. Neur. N. Am., p. 183, 1861; desc. (*Diplax*).—Proc. Boston Soc., 15, p. 268, 1873; identity.
KIRBY, Ann. Mag. Hist., (7) 3, p. 368, 1899; ♂ desc.; (*Diplacodes*).
WILLIAMSON, Drag. Ind., p. 325, 1900; desc. (*Sympetrum*).
NEEDHAM, Proc. U. S. Nat. Mus., 27, 1904; pl. 44, f. 3, wings (*Trithemis*).
CALVERT, Biol. C. Am., p. 267, 1906; comp. desc.; (*Erythrodiplax*).
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 108, 1908; dist.; (*Sympetrum*).

Libellulinae

Nymph. NEEDHAM, l. c., 27, p. 709, 1904; desc.; pl. 41, f. 10, adult.

Distr. Gulf Strip & Tropic, Ky. & N. C. to Fla. & Tex., Mex. to Argentine.

montezuma CALVERT, syn. ad *umbrata.*

naeva (HAGEN), subsp. sub *berenice.*

ochracea (BURMEISTER), Handb. Ent., 2, p. 854, 1839; ♂, (*Libellula*), types M. C. Z.

HAGEN, Syn. Neur. N. Am., p. 181, 1861; ♀ only, (*Diplax*).

KIRBY, Ann. Nat. Hist., (6) 14, p. 263, 1894; identity & syn.; (*Trithemis*).

CALVERT, Trans. Am. Ent. Soc., 25, p. 71, 1898; desc. of Burm. types; reply to (Kirby 1894).—Biol. C. Am., p. 255, 1906; desc.; pl. 9, f. 40, ♂ gen.

Syn. distinguenda RAMBUR, Ins. Neur., p. 81, 1842; ♂ ♀, (*Libellula*).—[Calvert 1906.]

fervida ERICHSON, Schomb. Reis. Br. Guiana, 3, p. 584, 1848; (*Libellula*).—[Hagen 1875.]

incompta RAMBUR, l. c., p. 119, 1842; ♀, type Coll. Selys.

justiniana SELYS, in Sagra: Hist. Cuba, Ins., p. 450, 1857; part.—[Hagen 1861.]

Distr. Tropic, (Calvert z. 2-4), Mex. to Brazil; Greater Antilles.

tyleri (KIRBY), syn. ad *funerea.*

umbrata (LINNE), Syst. Nat., 1, p. 545, 1758; (*Libellula*).

FABRICIUS, Spec. Ins., 1, p. 522, 1781.

BURMEISTER, Handb. Ent., 2, p. 856, 1839; desc.

RAMBUR, Ins. Neur., p. 73, 1842; ♂ ♀ desc.

HAGEN, Syn. Neur. N. Am., p. 158, 1861; desc.—Stett. Ent. Zeit., 29, p. 274, 1868; identity & synonymy.

SELYS, in Sagra: Hist. Cuba, Ins., p. 448, 1857.

KOLBE, Arch. f. Naturg., 54, p. 167, 1888; noted, (*Libella*).

CALVERT, Biol. C. Am., p. 251, 1906; comp. desc. (*Erythrodiplax*).

Syn. fallax BURMEISTER, Handb. Ent., 2, p. 855, 1839; ♀, (*Libellula*), Mus. Vienna.—[Rambur 1842.]

CALVERT, Trans. Am. Ent. Soc., 25, p. 78, 1898; on Burm. type.

flavicans RAMBUR, Ins. Neur., p. 87, 1842; ♂ ♀, Coll. Selys.—[Hagen 1861.]

fuscofasciata BLANCHARD, Voy. d'Orbigny, 6, p. 217, 1837-1843; pl. 28, f. 5, ♂ ad. col.

montezuma CALVERT, Proc. Cal. Acad., (3) 1, p. 397, 1899; ♀, (*Trithemis*).—[Calvert 1906.]

ruralis BURMEISTER, l. c., 2, p. 856, 1839; ♀, (*Libellula*), M. C. Z.—[Hagen 1861.]

CALVERT, Trans. Am. Ent. Soc., 25, p. 78, 1898; on Burm. types.

subfasciata BURMEISTER, l. c., 2, p. 855, 1839; ♂, Mus. Vienna.—[Rambur 1842.]

CALVERT, l. c., 25, p. 78, 1898; on Burm. type.

tripartita BURMEISTER, l. c., 2, p. 856, 1839; ♂, type M. C. Z.—[Hagen 1861.]

CALVERT, l. c., 25, p. 78, 1898; on Burm. type.

unifasciata DEGEER, Mem. Ins., 3, p. 557, 1773; pl. 26, f. 4.—[Rambur 1842.]

Distr. Tropic & Gulf Strip; Ga. & Fla. to Tex.; W. Indies; Mex. to Argentine.

PSEUDOLEON KIRBY.

Type—*superbus* (HAGEN). Distribution—Nearctic.

Trans. Zool. Soc. London, 12, pp. 261, 274, 1889.

CALVERT, Proc. Cal. Acad., (2) 4, p. 472, 1895.—Biol. C. Am., p. 198, 1905.

RIS, Cat. Coll. Selys, 9, p. 28, 1909.

superbus (HAGEN), Syn. Neur. N. Am., p. 148, 1861; ♂ ♀, (*Celithemis*), types M. C. Z.

KIRBY, Trans. Zool. Soc. London, 12, p. 274, 1889; (*Pseudoleon*); pl. 53, f. 7, ♂ ad.

CALVERT, Proc. Cal. Acad., (2) 4, p. 518, 1895; desc.; pl. 16, ff. 62-66, ♂ ♀ char.—Biol. C. Am., pp. 214-216, 1906; detailed desc.

Distr. Lower Sonoran, (Calvert z. 2-5), Ariz., Cal., C. Cal., Mex., Guat.

ERYTHEMIS HAGEN.

Type—*peruviana* (RAMBUR). Distribution—Nearctic & Neotropic.

Syn. Neur. N. Am., p. 168, 1861.

BRAUER, Verh. Ges. Wien., 18, pp. 368, 723, 1868; char.

KIRBY, Trans. Zool. Soc. London, 12, pp. 264, 304, 1889; char.

CALVERT, Biol. C. Am., p. 204, 1906; char.; p. 328, 1907, table of of C. Am. spp.

Syn. Mesothemis HAGEN, Syn. Neur. N. Am., p. 170, 1861.—[Calvert 1906.]

BRAUER, Verh. Ges. Wien, 18, pp. 369, 721, 1868.

KIRBY, Trans. Zool. Soc. London, 12, pp. 264, 303, 1889.

Libellulinae

CALVERT, Trans. Am. Ent. Soc., 20, p. 225, 1893.—Proc. Cal. Acad., (2) 4, p. 472, 1895.

KELLICOTT, Odon. Ohio, p. 92, 1899.

WILLIAMSON, Drag. Ind., p. 250, 1900.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 507, 1901.—Proc. U. S. Nat. Mus., 26, p. 718, 1903.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 105, 1908.

attala (SELYS), in Sagra: Hist. Cuba, Ins., p. 445, 1857; (*Libellula*).

HAGEN, Syn. Neur. N. Am., p. 172, 1861; desc. after Selys; (*Mesothemis*).

CALVERT, Biol. C. Am., p. 335, 1907;; ♂ ♀, comp. desc.; (*Erythemis*).

Syn. annulata RAMBUR, Ins. Neur., p. 78, 1842; (*Libellula*); in part.—[Hagen 1861.]

MARTIN, Bull. Mus. Torino, 11, no. 240, p. 1, 1896; (*Mesothemis*), noted.

annulosa et *mithra* SELYS, in Sagra: Hist. Cuba, Ins., p. 446, 1857; (*Libellula*).

mithra HAGEN, Syn. Neur. N. Am., p. 172, 1861; (*Mesothemis*); desc. after Selys.

Distr. Tropic, (Calvert z. 2-4), Mex. to Brazil; W. Indies; Cuba, Martinique.

collocata (HAGEN), subsp. sub *simplicicollis.*

credula (HAGEN), Syn. Neur. N. Am., p. 184, 1861; ♂ ♀, (*Diplax*), types M. C. Z.

CALVERT, Biol. C. Am., p. 339, 1907; comp. desc.; (*Erythemis*).

Distr. Tropic West Indies: St. Thomas; Brazil.

haematogastra (BURMEISTER), Handb. Ent., 2, p. 857, 1839; ♂, (*Libellula*), type Mus. Vienna.

HAGEN, Syn. Neur. N. Am., p. 161, 1861; desc. from type; (*Leptthemis*).

CALVERT, Trans. Am. Ent. Soc., 25, pp. 82, 94, 1898; on Burm. type.—Biol. C. Am., p. 338, 1907; ♂ ♀ comp. desc.; (*Erythemis*). —Ann. Carnegie Mus., 6, p. 263, 1909; noted; pl. 9, f. 154, ad. col.

Distr. Georgia; Jamaica; Panama to Paraguay.

mithroides (BRAUER), Berl. Ent. Zeitschr., 45, p. 266, 1900; ♂, type Mus. Vienna? ; t. f. 1, body; pl. 3, f. 5, ♂ adult colored; (*Mesothemis*).

CALVERT, Biol. C. Am., p. 334, 1907; ♂ ♀ comp. desc.; (*Erythemis*).

Syn. bicolor HAGEN, Syn. Neur. N. Am., p. 169, 1861; Chaco ♀ only; M. C. Z.—[Calvert 1907.]

Distr. Tropic, (Calvert z. 2-3); Mex. to Paraguay.

peruviana (RAMBUR), Ins. Neur., p. 81, 1842; ♂, type ?; (*Libellula*).

KIRBY, Trans. Zool. Soc. London, 12, 1889; pl. 55, f. 3, wings; (*Erythemis*).

CALVERT, Biol. C. Am., p. 333, 1907; ♂ ♀ comp. desc.

Syn. bicolor ERICHSON, Schomb. Reisen in Br. Guiana, 3, p. 583, 1848; (*Libellula*).

HAGEN, Syn. Neur. N. Am., p. 169, 1861; ♂ ♀, (*Erythemis*).

frubriventris BLANCHARD, Voy. d'Orb. Ins., p. 217, 1845; pl. 8, f. 4, ♂ adult; (*Libellula*).—[Calvert 1907, with a doubt.]

Distr. Tropic, (Calvert z. 2-3), Mex. to Argentine; Jamaica.

rubriventris BLANCHARD, syn. ad *peruviana.*

simplicicollis (SAY), Jn. Acad. Phila., 8, p. 28, 1839; ♂, (*Libellula*), type Mus. Boston Soc.

HAGEN, Syn. Neur. N. Am., p. 170, 1861; ♂ ♀, (*Mesothemis*).

KIRBY, Trans. Zool. Soc. London, 12, 1889; pl. 57, ff. 4, a, wing & leg.

CALVERT, Trans. Am. Ent. Soc., 20, p. 265, 1893; desc.—Ent. News, 17, p. 30, 1906; generic position (= *Erythemis*).—Biol. C. Am., p. 331, 1907; comp. desc.

KELLICOTT, Odon. Ohio, p. 113, 1899; desc.; (*Mesothemis*).

WILLIAMSON, Drag. Ind., p. 325, 1900; desc.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 527, 1901; dist.—Proc. U. S. Nat. Mus., 26, 1903; pl. 45, f. 3, wings.

HOWARD, Ins. Book, 1901; pl. 41, ff. 8, 9, ♂ ♀ adults.

HANDLIRSCH, Foss. Ins., 1906; pl. 4, f. 19, wings, after Needham.

WALKER, Ottawa Nat., 22, p. 61, 1908; dist.; (*Erythemis*).

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 115, 1908; desc. (*Mesothemis*).

Syn. caerulans et *maculiventris* RAMBUR, Ins. Neur., pp. 64, 87, 1842; ♂ ♀, (*Libellula*), types Coll. Selys.—[Hagen 1861.]

gundlachii SCUDDER, Proc. Boston Soc., 10, p. 195, 1866; ♂, (*Mesothemis*), type Mus. Boston Soc.—L. c., 11, p. 299, 1868; (=*simplicicollis*).

Nymph. NEEDHAM, Bull. 47 N. Y. State Mus., p. 527, 1901; desc.

Libellulinae

BUTLER, Trans. Am. Ent. Soc., 30, p. 125, 1904; pl. 6, f. 5*g*, labium.
Distr. Austral to Tropic; U. S., Ont. to B. C.; W. Indies.

Subsp. **collocata** (HAGEN), Syn. Neur. N. Am., p. 171, 1861; ♂, (*Mesothemis*), type M. C. Z.—U. S. Surv. Terr. Colo. 1873), p. 587, 1874; desc.
CALVERT, Proc. Cal. Acad., (2) 4, p. 552, 1895; desc.; pl. 17, ff. 103-106, ♂ ♀ char.—Biol. C. Am., p. 332, 1907; comp desc.; (*Erythemis*).
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 115, 1908; dist.
Nymph. ?NEEDHAM & COCKERELL, Psyche, 10, p. 139, 1903; desc.
Distr. Transition to Upper Sonoran; B. C. to Calif.; Mont. to Tex., Mex.

verbenata (HAGEN), Syn. Neur. N. Am., p. 162, 1861; ♂ ♀, (*Lepthemis*), types M. C. Z.
CALVERT, Proc. Cal. Acad., (3) 1, p. 406, 1899; comp. desc.—Biol. C. Am., p. 336, 1907; comp. desc.; (*Erythemis*).
KIRBY, Ann. Nat. Hist., (7) 3, p. 366, 1899; notes, affinities; pl. 15, f. 2, adult; (*Mesothemis*).
Distr. Tropic, (Calvert z. 2-4), Texas; Mexico to Paraguay; Greater Antilles.

LEPTHEMIS HAGEN.

Type *vesiculosa* (FABRICIUS). Distribution—Neotropical.
Syn. Neur. N. Am., p. 160, 1861.
BRAUER, Verh. Ges. Wien, 18, pp. 368, 723, 1868.
KIRBY, Trans. Zool. Soc. London, 12, pp. 264, 302, 1889.
CALVERT, Biol. C. Am., p. 204, 1906; p. 339, 1907.
RIS, Cat. Coll. Selys, 9, p. 30, 1909.

gravida CALVERT, vide *Cannacria*, postea.

haematogastra (BURMEISTER), vide *Erythemis*, antea.

plebeja (BURMEISTER), **verbenata** (BURMEISTER), vide *Erythemis*, antea.

vesiculosa (FABRICIUS), Syst. Ent., p. 421, 1775; (*Libellula*).
RAMBUR, Ins. Neur., p. 50, 1842; desc.
HAGEN, Syn. Neur. N. Am., p. 161, 1861; desc. (*Lepthemis*).
KOLBE, Arch. f. Naturg., 54, p. 168, 1888; noted.

KIRBY, Trans. Zool. Soc. London, 12, 1889; pl. 57, f. 1, wings.—Ann. Nat. Hist., (7) 3, p. 366, 1899; ♂ desc.

CALVERT, Biol. C. Am., p. 339, 1907; comp. desc.

Syn. acuta SAY, Jn. Acad. Phila., 8, p. 24, 1839; ♀, (*Libellula*), type lost.—[Hagen 1861.]

Distr. Tropic, (Calvert z. 2-4), Florida Keys, Antilles, Tex., Mex., C. Am. to Paraguay.

SYMPETRUM NEWMAN.

Type—*vulgatum* (LINNE). Distribution—Holarctic.

Ent. Mag., 1, p. 511, 1833; insufficient diagnosis.

HAGEN, Ent. Amer., 4, p. 31, 1888; on validity & applicability.

ROSTOCK, Ver. Zwickau, p. 123, 1888; char.

KIRBY, Trans. Zool Soc. London, 12, pp. 263, 276, 1889; char.

WALLENGREN, Ent. Tidsk., 15, p. 245, 1894; char.

WILLIAMSON, Drag. Ind., p. 250, 1900; char.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 507, 1901; table of N. Y. spp.—Proc. U. S. Nat. Mus., 26, p. 720, note, 1903; flight; p. 742, venation.

NAVAS, Bol. Soc. Espan., 2, p. 132, 1902; char.

SJOSTEDT, Ent. Tidsk., 23, p. 7, 1902; char.

FOERSTER, JB. Ver. Mannheim, 71 & 72, p. 10, 1905; char.

CALVERT, Biol. C. Am., p. 204, 1906; char.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 108, 1908; table of Northern spp.

RIS, in Schultze: Forschungsreise, p. 339, 1908; on distr.—Cat. Coll. Selys, 9, p. 30, 1909; char.

Syn. Diplax CHARPENTIER, Lib. Eur., p. 12, 1840.

HAGEN, Syn. Neur. N. Am., p. 173, 1861.

CALVERT, Trans. Am. Ent. Soc., 20, p. 224, 1893.—Proc. Cal. Acad., (2) 4, p. 439, 1895.

KELLICOTT, Odon. Ohio, p. 92, 1899.

GARBINI, Bull. Soc. Ent. Ital., 27, p. 111, 1895; (to include *Leucorrhinia*).

RIS, Mitth. Schweiz. Ges., 10, p. 439, 1903.

Philonomon FOERSTER, Jb. Ver. Nassau, 59, p. 308, 1906.—JB. Ver. Mannheim, 71 & 72, p. 10, 1905.—[Ris 1908. Considers the genus valid in Cat. Coll. Selys, 1909.]

albifrons (CHARPENTIER, homonymn, ad *ambigua;* (*Leucorrhinia* (*Libellula*) *albifrons* (BURMEISTER) 1839).

Libellulinae

ambigua (RAMBUR), Ins. Neur., p. 106, 1842; ♀, (*Libellula*), type Coll. Selys.

SELYS, Rev. Odon., p. 325, 1850.—[Hagen 1867, to *albifrons*.]

Syn. albifrons (CHARPENTIER), Lib. Eur., p. 81, 1840; ♂, type M. C. Z., (*Libellula*); pl. 11, f. 3, ad. col.

RAMBUR, Ins. Neur., p. 110, 1842; desc.

HAGEN, Syn. Neur. N. Am., p. 177, 1861; ♂ ♀ desc.; Charp. corrected; (*Diplax*).

WILLIAMSON, Drag. Ind., p. 323, 1900; desc. (*Sympetrum*).—Proc. Acad. Ind., p. 177, 1900; desc. notes.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 525, 1901; notes; t. f. 30, ♂ ♀ char.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 109, 1908; dist.

Distr. Carolinian & Austroriparian; Mass. & Ill. to Mo., Tex. & Ga.

assimilatum (UHLER), Proc. Acad. Phila., p. 88, 1857; (*Libellula*), types Coll. Uhler.

HAGEN, Stett. Ent. Zeit., 28, p. 93, 1867; ♂ ♀ desc.—Syn. Neur. N. Am., p. 174, 1861; (*Diplax*).

CALVERT, Trans. Am. Ent. Soc., 20, p. 263, 1893; desc. (var. of *rubicundulum*).

KELLICOTT, Odon. Ohio, p. 109, 1899; desc.

NEEDHAM, Bull. 47 N. Y. State Mus., p. 524, 1901; dist.; t. f. 30, ♂ ♀ char.; (*Sympetrum*).

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 107, 1908; desc.

Distr. Alleghanian; N. Y. to B. Columbia & Nebr.

atripes (HAGEN), U. S. Surv. Terr. Colo. (1873), p. 588, 1873; ♂ ♀ (*Diplax*), types M. C. Z.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 109, 1908; dist. (*Sympetrum*).

Distr. Canadian; Yellowstone.

chrysoptera (SELYS), Ann. Soc. Ent. Belg., 27, p. 95, 1883; (*Diplax*).

Distr. Washington (State).

corruptum (HAGEN), Syn. Neur. N. Am., p. 171, 1861; ♂ ♀, (*Mesothemis*), types M. C. Z.—U. S. Geol. Surv. Terr. Colo. (1872), p. 728, 1873.—L. c., (1873), p. 587, 1874.—L. c., (1874), p. 919, 1875.

SELYS, Ann. Soc. Ent. Belg., 28, p. 43, 1884; (*Diplax*).

CALVERT, Trans. Am. Ent. Soc., 20, p. 264, 1893; desc.—Proc. Acad. Cal., (2) 4, p. 545, 1895; desc.; pl. 17, ff. 120-123, ♂ ♀ char.—Biol. C. Am., p. 323, 1906; comp. desc. (*Sympetrum*).
KELLICOTT, Odon. Ohio, p. 111, 1899; desc. (*Diplax*).
WILLIAMSON, Drag. Ind., p. 324, 1900; desc. (*Sympetrum*).
NEEDHAM, Bull. 47 N. Y. State Mus., p. 521, 1901; dist.
HOWARD, Ins. Book, 1902; pl. 42, f. 5, ♂ adult.
OSBURN, Ent. News, 16, p. 195, 1906; desc. notes.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 109, 1908; desc.

Nymph. NEEDHAM, Bull. 68 N. Y. State Mus., p. 271, 1903; desc.; t. ff. 16, 17, str. dets.

Distr. Transition & Upper Austral; N. Y. to Tenn. & La.; Tex. to Honduras, north to B. Columbia; Asia; Sea of Ocholsk.

costiferum (HAGEN), Syn. Neur. N. Am., p. 174, 1861; ♂ ♀, (*Diplax*), type M. C. Z.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 523, 1901; desc. notes; (*Sympetrum*); t. f. 30, ♂ ♀ char.
HOWARD, Ins. Book, 1902; pl. 44, ff. 8, 9; ♂ ♀ ads.
WALKER, Ottawa Nat., 22, p. 60, 1908; desc. notes.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 111, 1908; desc. notes.

Syn. scoticum MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 111, 1908; dist.

Nymph. NEEDHAM, l. c., p. 520, 1901; dist.

Distr. Transition & Upper Austral; Me. & N. Y. to Kans. & B. C.

decisum (HAGEN), syn. ad *obtrusum*.

flavicostum (HAGEN), syn. ad *madidum*.

gilvum (SELYS), subsp. sub *illotum*.

illotum (HAGEN), Syn. Neur. N. Am., p. 172, 1861; ♂, (*Mesothemis*), type M. C. Z.—U. S. Surv. Terr. Colo. (1873), p. 587, 1874.
SELYS, Ann. Soc. Ent. Belg., 28, p. 43, 1884; (*Diplax ?*)
CALVERT, Proc. Cal. Acad., (2) 4, p. 545, 1895; identity; pl. 17, ff. 114-119, ♂ char.—Biol. C. Am., p. 320, 1906; ♂ ♀, comp. desc. (*Sympetrum*).
OSBURN, Ent. News, 16, p. 195, 1905; ethol. notes.

Nymph. NEEDHAM, Outdoor Studies, 1897; ff. 68-70; adult.—Bull. 47 N. Y. State Mus., 1901; p. 429, t. f. 6, head; pl. 25, f. 1, adult.—L. c., 68, p. 272, 1903; notes.

Libellulinae

Distr. Transition & Upper Sonoran, (Calvert z. 3-5), Pac. Coast, B. C. to Calif.; Nev.

Subsp. **gilvum** (SELYS), Ann. Soc. Ent. Belg., 28, p. 43, 1884; desc. (*Diplax ?*).

CALVERT, Biol. C. Am., p. 322, 1906; ♂ ♀, (*Sympetrum*).

Syn. illotum MARTIN, Boll. Mus. Torino, 11, no. 240, p. 2, 1896.—[Calvert 1906.]

Distr. Lower Sonoran, (Calvert z. 3-4), B. Calif. to Venez; Calif.

Subsp. **virgulum** (SELYS), Ann. Soc. Ent. Belg., 28, p. 44, 1884; desc. (*Diplax?*).

CALVERT, Proc. Cal. Acad., (3) 1, p. 401, 1899; noted.—Biol. C. Am., p. 321, 1907; ♂ ♀; (*Sympetrum*).

Distr. Lower Sonoran, (Calvert z. 3-5), B. Calif., Mex. to Peru.

imbutum (SAY), Jn. Acad. Phila., 8, p. 32, 1839; ♂ ♀, (*Libellula*), types not extant.

HAGEN, Syn. Neur. N. Am., p. 185, 1861; after Say, (*Diplax*).

Distr. Carolinian; Maryland, New York.

madidum (HAGEN), Syn. Neur. N. Am., p. 174, 1861; ♀, type M. C. Z. (*Diplax*).—Psyche, 5, p. 385, 1890; ♂ ♀ desc.

OSBORN, Ent. News, 16, p. 195, 1905; dist.; t. ff. 1, 2, ♀ genitalia.

WILLIAMSON, Ent. News, 1900; pl. 9, f. 13, ♂ gen.

Syn. flavicostum (HAGEN), Psyche, 5, p. 386, 1890; ♂ ♀, (*Diplax*), types M. C. Z.; identity with *madidum* suggested.—[Calvert 1907.]

Nymph. ?NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 707, 1904; desc.

Distr. Upper Sonoran; B. C. to Calif.; Mont., Wyo., Colo.

obtrusum (HAGEN), Stett. Ent. Zeit., 28, p. 95, 1867; new name for *rubidundula*, var. (*Diplax*).

CALVERT, Trans. Am. Ent. Soc., 20, p. 264, 1893; desc.

KELLICOTT, Odon. Ohio, p. 109, 1899; desc.; f. 27, ♀ gen.

WILLIAMSON, Drag. Ind., p. 323, 1900; desc. (*Sympetrum*).

NEEDHAM, Bull. 47 N. Y. State Mus., p. 525, 1901; dist. t. f. 30, ♂ ♀ char.

HOWARD, Ins. Book, 1902; pl. 40, f. 16; ♂ ad. col.

WALKER, Ottawa Nat., 22, p. 61, 1908; notes; pl. 2, f. 26, ♂ gen.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 110, 1908; desc.

Syn. decisum HAGEN, U. S. Surv. Terr. Colo. (1873), p. 588, 1874; ♂ ♀, (*Diplax*), types M. C. Z.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 109, 1908; dist. (*Symp.*)—[Osburn 1905.]

HAGEN, Proc. Boston Soc., 18, p. 79, 1875; identity with *obtrusum* suggested.

Distr. Transition into Upper Austral; Mass. & Del. to B. C. & Colo.

pallipes (HAGEN), U. S. Surv. Terr. Colo. (1873), p. 589, 1874; ♂, (*Diplax*), type M. C. Z.

OSBURN, Ent. News, 16, p. 194, 1905; dist.; t. ff. 3, 4, ♀ gen.; (*Sympetrum*).

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 108, 1908; dist.

Distr. Canadian; B. C. to Colo.

rubicundulum (SAY), Jn. Acad. Phila., 8, p. 26, 1839; ♂, (*Libellula*), type lost.

HAGEN, Syn. Neur. N. Am., p. 176, 1861; ♂ ♀, (*Diplax*), neotypes M. C. Z.—Psyche, 5, p. 385, 1890; desc.

SCUDDER, Proc. Boston Soc., 10, p. 219, 1866; comp. notes, identity.

CALVERT, Trans. Am. Ent. Soc., 20, p. 262, 1893; desc.

KELLICOTT, Odon. Ohio, p. 109, 1899; desc.; f. 24, ♂ gen.

WILLIAMSON, Drag. Ind., p. 322, 1900; desc. (*Sympetrum*).

NEEDHAM, Bull. 47 N. Y. State Mus., p. 524, 1901; dist.; t. f. 30, ♂ ♀ char.

HOWARD, Ins. Book, 1902; pl. 42, ff. 8, 9; ♂ ♀ ads.

WALKER, Ottawa Nat., 22, p. 60, 1908; dist.; pl. 2, ff. 23-25, ♂ ♀ char.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 110, 1908; desc.

Distr. Alleghanian into Carolinian; Me. & Pa. to N. Dak. & Wyo.

scoticum (DONOVAN), Brit. Ins., 15, p. 523, 1811; (*Libellula*).

STEPHENS, Ill. Brit. Ent., 6, p. 94, 1835.

NEWMAN, Ent. Mag., 1, p. 511, 1835.

SELYS, Mon. Lib. Eur., p. 53, 1840; ♂ ♀ desc.—Rev. Odon., p. 48, 1850; desc.

EVANS, Brit. Lib., p. 27, 1845; pl. 27, ff. 1, 2; (*Diplax*).

RIS, Fauna Helv., p. 9, 1885; brief diagnosis; (*Libellula*).

ROSTOCK, Ver. Zwickau, p. 124, 1888; desc.

WALLENGREN, Ent. Tidsk., 15, p. 246, 1894; desc. (*Sympetrum*).

GARBINI, Bull. Soc. Ent. It., 27, p. 114, 1895; desc. (*Diplax*).

WILLIAMSON, Ent. News, 11, p. 457, 1900; desc. (*Sympetrum*); pl. 9, f. 12, thorax; f. 14, ♂ gen.

Libellulinae

SJOSTEDT, Ent. Tidsk., 23, p. 11, 1902; desc.

FROHLICH, Ver. Aschaff., p. 15, 1903; desc.

Syn. cancellata MULLER, Faun. Fridr., p. 61, 1764; (*Libellula*).—[Hagen 1867.]

flaveolata LINNE, Faun. Suec., p. 372, 1761; (*Lib.*); ♀ only—[Selys 1850.]

nigra CHARPENTIER, Lib. Eur., p. 83, 1840; ♂ ♀, (*Lib.*); pl. 12, ♂ ♀ ad. col.—[Selys 1850.]

nigricula EVERSMANN, Bull. Mosc., 9, p. 240, 1836; ♂ pl. 1, ff. 1, 2, ad. col.—[Sel. 1850.]

pallidistigma STEPHENS, Ill. Brit. Ent., 6, p. 94, 1835; (Lib.).—[Selys 1850.]

EVANS, Brit. Lib., p. 27, 1845; desc.; pl. 20, f. 1, adult; (*Lib.*).

parvula MULLER, Zool. Dans. Prodr., p. 141, 1776.

triedra MULLER, Nova Acta Acad. Leop.—Carol., 3, p. 129, 1776.

Distr. Holarctic; Europe, Asia, America; N. H. to B. C.

semicinctum (SAY), Jn. Acad. Phila., p. 27, 1839; ♂, (*Libellula*), type lost.

HAGEN, Syn. Neur. N. Am., p. 176, 1861; ♂, (*Diplax*), neotypes M. C. Z.

CALVERT, Trans. Am. Ent. Soc., 20, p. 263, 1893; desc.

KELLICOTT, Odon. Ohio, p. 110, 1899; desc.; f. 25, ♂ gen.

WILLIAMSON, Drag. Ind., p. 324, 1900; desc. (*Sympetrum*).

NEEDHAM, Bull. 47 N. Y. State Mus., p. 523, 1901; dist.; t. f. 30, ♂ ♀ char.

HOWARD, Ins. Book, 1902; pl. 43, ff. 7, 9; ♂ ♀ ads.

WALKER, Ottawa Nat., 22, p. 60, 1908; dist.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 110, 1908; desc.

Nymph. NEEDHAM, l. c., p. 524, 1901; desc.; pl. 25, f. 2, adult.

Distr. Alleghanian into Carolinian; Me. & Pa. to B. C.

vicinum (HAGEN), Syn. Neur. N. Am., p. 175, 1861; ♂ ♀, (*Diplax*), types M. C. Z.

CALVERT, Trans. Am. Ent. Soc., 20, p. 264, 1893; desc.

KELLICOTT, Odon. Ohio, p. 110, 1899; desc.; f. 25, ♂ gen.

WILLIAMSON, Drag. Ind., p. 323, 1900; desc. (*Sympetrum*).

NEEDHAM, Bull. 47 N. Y. State Mus., p. 522, 1901; dist.; t. f. 30, ♂ ♀ char.

WALKER, Ottawa Nat., 22, p. 60, 1908; dist.; pl. 2, f. 22, ♂ app.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 111, 1908; desc.

Nymph. NEEDHAM, l. c., p. 523, 1901; desc.

Distr. Transition, into Upper Austral; Me. & N. C. to B. C.

virgulum (SELYS), subsp. sub *illotum*.

PACHYDIPLAX BRAUER.

Type—*longipennis* (BURMEISTER). Distribution—Nearctic.
Verh. Ges. Wien, 18, pp. 368, 728, 1868.
KIRBY, Trans. Zool. Soc. London, 12, pp. 263, 305, 1889.
CALVERT, Trans. Am. Ent. Soc., 20, p. 225, 1893.—Biol. C. Am., p. 204, 1906.
KELLICOTT, Odon. Ohio, p. 92, 1899.
WILLIAMSON, Drag. Ind., p. 250, 1900.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 507, 1901.—Proc. U. S. Nat. Mus., 26, pp. 714, 726, 1903.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 114, 1908.
RIS, Cat. Coll. Selys, 9, p. 30, 1909.

longipennis (BURMEISTER), Handb. Ent., 2, p. 850, 1839; ♀, (*Libellula*), Mus. Halle.
HAGEN, Syn. Neur. N. Am., p. 172, 1861; ♂ ♀, (*Mesothemis*).
CALVERT, Trans. Am. Ent. Soc., 20, p. 265, 1893; desc. (*Pachydiplax*).—L. c., 25, p. 66, 1898; on Burm. type.—Biol. C. Am., p. 341, 1906; comp. desc.
KELLICOTT, Odon. Ohio, p. 114, 1899; desc.
WILLIAMSON, Drag. Ind., p. 326, 1900; desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 526, 1901; desc.
HOWARD, Ins. Book, 1902; pl. 45, f. 7; pl. 40, f. 9, ♂ ♀ ads.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 114, 1908; desc.
Syn. socia et *truncatula* RAMBUR, Ins. Neur., pp. 95, 96, 1842; ♂ ♀, Coll. Selys.—[Hagen 1861.]
Nymph. NEEDHAM, l. c., p. 527, 1901; desc.
Distr. Austral to Gulf Strip; entire U. S.; B. Cal., Mex.; Bermudas.

LEUCORRHINIA BRITTINGER.*

Type—*albifrons* (BURMEISTER). Distribution—Holarctic.
SB. Acad. Wien, 1, p. 333, 1850; defined.
BRAUER, Verh. Ges. Wien, 18, pp. 368, 719, 1868; char.
KIRBY, Trans. Zool. Soc. London, 12, pp. 262, 275, 1889; char.
ROSTOCK, Ver. Zwickau, p. 121, 1888; char. & table of German spp.
HAGEN, Trans. Am. Ent. Soc., 17, pp. 229-245, 1890; pl. 10; monograph of genus.

*NOTE.—Except for the genus Austrothemis, group VII of Ris' classification is indigenous to America and consists of Leucorrhinia, Celithemis, Planiplax, and Brachymesia. (See note under Erythrodiplax.)

Libellulinae

CALVERT, Trans. Am. Ent. Soc., 20, p. 224, 1893; char.
WALLENGREN, Ent. Tidsk., 15, p. 243, 1894; char.
KELLICOTT, Odon. Ohio, p. 92, 1899; char.
WILLIAMSON, Drag. Ind., p. 250, 1900; char.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 507, 1901; char.
SJOSTEDT, Ent. Tidsk., 23, p. 7, 1902; char.
FROHLICH, Ver. Aschaff., p. 18, 1903; char.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 111, 1908; char. & table of N. Am. spp.
RIS, Cat. Coll. Selys, p. 31, 1909; char.

Syn. Coenotiata BUCHECKER, Syst. Ent., p. 10, 1878; in part.

borealis HAGEN, Trans. Am. Ent. Soc., 17, p. 232, 1890; desc.; types M. C. Z.; pl. 10, ff. 10, 21, ♂ ♀ gen.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 113, 1908; dist.

Distr. Hudsonian; Hudson's Bay.

frigida HAGEN, Trans. Am. Ent. Soc., 17, p. 231, 1890; ♂ ♀, types M. C. Z.; pl. 10, ff. 2, 7, 17, 20; ♂ ♀ char.; base of wing.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 112, 1908; ♂ ♀ dist.

Distr. Canadian, into Transition; Mass., Ont., Dak. to B. C.

glacialis HAGEN, Trans. Am. Ent. Soc., 17, p. 234, 1890; ♂, type M. C. Z.; pl. 10, ff. 3, 14, ♂ ♀ char.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 518, 1901; ♀ desc.; pl. 10, ff. 3-5, ♂ ♀ ads. colored; t. f. 18, wings.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 113, 1908; desc.

Nymph. NEEDHAM, l. c., p. 519, 1901; desc.; pl. 10, ff. 1, 2, adults.

Distr. Transition; N. Y. to Wis. to Nev.

hudsonica (SELYS), Rev. Odon., p. 53, 1850; ♂ ♀, (*Libellula*), ♂ Coll. Selys.
HAGEN, Syn. Neur. N. Am., p. 180, 1861; desc. after Selys; (*Diplax*).—Trans. Am. Ent. Soc., 17, p. 233, 1890; desc.; (*Leucorrhinia*); pl. 10, ff. 13, 18, ♂ ♀ gen.
CURRIE, Proc. Wash. Acad., 3, p. 221, 1901; desc. notes.
WALKER, Ottawa Nat., 22, p. 59, 1908; dist.; pl. 2, ff. 18, 19, ♂ ♀ app.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 112, 1908; desc.

Syn. hageni CALVERT, Trans. Am. Ent. Soc., 17, p. 38, 1890; desc.; pl. 5, ff. 2, 3, 10, ♂ ♀ char.

Distr. Boreal; Hudson's Bay & N. Bruns. to Alaska & B. C., Wis.

intacta HAGEN, Syn. Neur. N. Am., p. 179, 1861; ♂ ♀, (*Diplax*), types M. C. Z.—Trans. Am. Ent. Soc., 17, p. 235, 1890; desc. (*Leucorrhinia*); pl. 10, ff. 6, 8, 16, 23, ♂ ♀ char.
CALVERT, Trans. Am. Ent. Soc., 17, p. 38, 1890; desc.; pl. 5, ff. 7-9, ♂ ♀ char.—L. c., 20, p. 262, 1893; desc.
KELLICOTT, Odon. Ohio, p. 106, 1899; desc.
WILLIAMSON, Drag. Ind., p. 321, 1900; desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 517, 1901; desc.
HOWARD, Ins. Book, 1902; pl. 44, ff. 5, 6; ♂ ♀ ads.
WALKER, Ottawa Nat. 22, p. 59, 1908; dist.; pl. 2, ff. 20, 21, ♂ ♀ char.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 113, 1908; desc.
Nymph. NEEDHAM, l. c., p. 517, 1901; desc.
Distr. Transition into Upper Austral; Me. & Pa. to Wash. & B. C.

proxima CALVERT, Trans. Am. Ent. Soc., 17, p. 38, 1890; ♂ ♀ types Coll. Calvert; pl. 5, ff. 5, 6, ♂ app.—Ent. News, 9, p. 87, 1898; notes to Harvey.
HAGEN, Trans. Am. Ent. Soc., 17, p. 232 ,1890; desc.; pl. 10, ff. 4, 9, 22, ♂ ♀ char.
HARVEY, Ent. News, 9, p. 87, 1898; on variation.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 113, 1908; desc.
Distr. Canadian; Me. to B. C.

CELITHEMIS HAGEN.

Type—*eponina* (DRURY). Distribution—Nearctic.
Syn. Neur. N. Am., p. 147, 1861.
BRAUER, Verh. Ges. Wien, 18, pp. 367, 718, 1868.
KIRBY, Trans. Zool. Soc. London, 12, pp. 261, 274, 1889.
CALVERT, Trans. Am. Ent. Soc., 20, p. 224, 1893.
KELLICOTT, Odon. Ohio, p. 92, 1899.
WILLIAMSON, Drag. Ind., p. 250, 1900.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 507, 1901.—Proc. U. S. Nat. Mus., 26, p. 742, 1903.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 106, 1908.
RIS, Cat. Coll. Selys, 9, p. 31, 1909.

amanda (HAGEN), syn. ad *ornata*.

elisa (HAGEN), Syn. Neur. N. Am., p. 182, 1861; ♂ ♀, (*Diplax*), types M. C. Z.
WALSH, Proc. Acad. Phila., p. 400, 1862; noted, (*Celithemis*).

Libellulinae

PACKARD, Amer. Nat., 1, p. 311, 1867; pl. 9, f. 5, adult.
CALVERT, Trans. Am. Ent. Soc., 20, p. 261, 1893; desc.
KELLICOTT, Odon. Ohio, p. 104, 1899; desc.
WILLIAMSON, Drag. Ind., p. 315, 1900; desc., ethol. notes.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 515, 1901; desc. notes.
HOWARD, Ins. Book, 1902; pl. 40, f. 14, ♀ ad. col.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 106, 1908; desc.

Nymph. NEEDHAM, l. c., p. 515, 1901; desc.

Distr. Alleghanian & Carolinian; Me. & Wis. to N. C. & Mo.

eponina (DRURY), Ill. Exot. Ent., 2, pl. 47, f. 2, 1773; (*Libellula*).
FABRICIUS, Ent. Syst., 2, p. 382, 1793.
COQUEBERT, Icones, p. 45, 1804.
SAY, Jn. Acad. Phila., 8, p. 24, 1839; desc.
RAMBUR, Ins. Neur., p. 46, 1842; desc.
HAGEN, Syn. Neur. N. Am., p. 147, 1861; desc. (*Celithemis*).—Stett. Ent. Zeit., 28, p. 231, 1867; desc. notes.
CALVERT, Trans. Am. Ent. Soc., 20, p. 261, 1893; desc.
NEEDHAM, Outdoor Studies, p. 60, 1898; desc.—Bull. 47 N. Y. State Mus., p. 514, 1901; desc. notes; pl. 24, f. 2, adult.
KELLICOTT, Odon. Ohio, p. 103, 1899; desc.
WILLIAMSON, Drag. Ind., p. 318, 1900; desc.
HOWARD, Ins. Book, 1902; pl. 43, f. 4, ♀ adult.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 107, 1908; desc.

Syn. camilla RAMBUR, Ins. Neur., p. 46, 1842; ♂ ♀, types Coll. Selys; (*Libellula*).

lucilla RAMBUR, l. c., p. 46, 1842; desc. from Fabr. text & Coqt. fig., (*Libellula*).—[Hagen 1861.]

Nymph. NEEDHAM, l. c., p. 515, 1901; desc.

Distr. Alleghanian to Gulf Strip; Mass. & N. Dak. to Tex., Fla.; Cuba.

fasciata KIRBY, Trans. Zool. Soc. London, 12, p. 326, 1889; ♂, types British Museum; pl. 52, f. 2, ♂ adult col.
HINE, Ent. News, 10, p. 1, 1899; ♀ desc.; t. ff. showing col. patt. of wgs.
KELLICOTT, Odon. Ohio, p. 104, 1899; desc.
WILLIAMSON, Drag. Ind., p. 320, 1900; desc.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 108, 1908; desc.

Distr. Carolinian to Gulf Strip; N. J. & Wis. to Fla.

ornata RAMBUR, Ins. Neur., p. 96, 1842; ♂ ♀, types Coll. Selys; (*Libellula*).

HAGEN, Syn. Neur. N. Am., p. 182, 1861; ♂ desc.; (*Diplax*).
CALVERT, Trans. Am. Ent. Soc., 20, p. 271, 1893; desc. (*Celithemis*).
NEEDHAM, Bull. 47 N. Y. State Mus., p. 516, 1901; desc. notes.
HOWARD, Ins. Book, 1902; pl. 42, ff. 2, 3, ♂ ♀ adults.

Syn. amanda HAGEN, Syn. Neur. N. Am., p. 183, 1861; (*Diplax*), type M. C. Z.—[Hagen 1890.]

pulchella BURMEISTER, Handb. Ent., 2, p. 849, 1839; ♀ (*Libellula*); type M. C. Z.
CALVERT, Trans. Am. Ent. Soc., 25, p. 61, 1898; on Burm. type.—[Hagen 1890.]

Distr. Alleghanian to Austroriparian; Atl. Coast, Me. to Fla.

PLANIPLAX n.n.

Type—*erythropyga* KARSCH. Distribution—Neotropical.

Syn. (=*homonymn*) *Platyplax* KARSCH, Ent. Nachr., 17, p. 268, 1891.—[Preoccupied for *Hemiptera*—Fieb. 1861.]
CALVERT, Biol. C. Am., p. 204, 1906; char., l. c., p. 327, 1907; spp.
RIS, Cat. Coll. Selys, 9, p. 31, 1909.

sanguiniventris CALVERT, Biol. C. Am., p. 327, 1907; ♂, type Coll. Calvert; pl. 9, f. 55, wings; ff. 56-58, ♂ ♀ char.

Distr. Tropic, (Calvert z. 2-3), Mexico.

BRACHYMESIA KIRBY.

Type—(*australis* KIRBY) = *furcata* (HAGEN). Distribution—Neotropical, (Sydney for *australis* = ?)
Trans. Zool. Soc. London, 12, pp. 262, 280, 1889.
RIS, Cat. Coll. Selys, 9, p. 31, 1909.

Syn. Cannacria KIRBY, Trans. Zool. Soc., London, 12, pp. 262, 300, 1889.
CALVERT, Proc. Cal. Acad., (2) 4, p. 472, 1895.—Biol. C. Am., p. 204, 1906; p. 324, 1907; tables of C. Am. spp.—[Ris, in litteris, June 23, 1909.]

australis KIRBY, syn. ad *furcata*.

batesii (KIRBY), Trans. Zool. Soc. London, 12, p. 341, 1889; ♂, type British Mus.; pl. 53, f. 1, ♂ ad. col.; pl. 57, f. 9, ♂ app.; (*Cannacria*).

Libellulinae

CALVERT, Proc. Cal. Acad., (2) 4, p. 547, 1895; desc.; Biol. C. Am., p. 326, 1907; ♂ ♀.

Syn. fumipennis CURRIE, Proc. Wash. Acad., 3, p. 387, 1901; ♂, (*Cannacria*), type U. S. N. Mus.; t. ff. 31-34, ♂ char.—[Calvert 1907.]

Distr. Tropic, (Calvert z. 2-3), Mex. to Brazil; Cuba, Haiti, Barbados.

fumipennis (CURRIE), syn. ad *batesii.*

furcata (HAGEN), Syn. Neur. N. Am., p. 169, 1861; ♂ ♀, (*Erythemis*), types M. C. Z.

KARSCH, Berl. Ent. Zeitschr., 33, pp. 348, 373, 1890; venation, (*Cannacria*).

CALVERT, Proc. Cal. Acad., (2) 4, p. 548, 1895; desc.; pl. 17, ff. 110-113, ♂ ♀ char.—L. c., (3) 1, p. 410, 1899; brief comp.—Biol. C. Am., p. 325, 1907; desc.

Syn. australis KIRBY, Trans. Zool. Soc. London, 12, p. 330, 1889; (*Brachymesia*), type British Museum; listed from Sydney, probably incorrectly labeled.—[Ris, in litteris, June 23, 1909.]

smithii KIRBY, Ann. Mag. N. Hist., (6) 14, p. 266, 1894; ♂ ♀, (*Cannacria*), types British Museum.—[Calvert 1907.]

CARPENTER, Jn. Inst. Jamaica, 2, p. 260, 1896; noted.

Distr. Tropic, (Calvert z. 2-4), Fla. & Baja Calif. to Brazil; Bahamas; Antilles.

gravida (CALVERT), Trans. Am. Ent. Soc., 17, p. 35, 1890; ♂ ♀, (*Lepthemis*), types Coll. Calvert.—Proc. Cal. Acad., (2) 4, p. 547, 1895; desc. (*Cannacria*).—Ent. News, 5, p. 193, 1894; position (= *Cannacria*).—Biol. C. Am., p. 327, 1907.

Distr. Austroriparian; Md. to Fla. & Tex.

smithii (KIRBY), syn. ad *furcata.*

DYTHEMIS HAGEN.*

Type—*rufinervis* (BURMEISTER). Distribution—Nearctic & Neotropic.

Syn. Neur. N. Am., p. 162, 1861.

BRAUER, Verh. Ges. Wien, 18, pp. 368, 733, 1868.

KIRBY, Trans. Zool. Soc. London, 12, pp. 264, 298, 1889.

*NOTE.—Dythemis, Scapanea, Paltothemis, Brechmorhoga, Macrothemis, and Gynothemis, all from America, constitute Ris group IX. Group VIII is not represented in the American fauna. Ris calls groups IX and X the "Corduli-form" Libellulinae. (In litt., July 23, 1909.)

CALVERT, Proc. Cal. Acad., (2) 4, p. 472, 1895.—Proc. Boston Soc., 28, pp. 301-309, 1908; affinities of genus, tables of spp.—Biol. C. Am., p. 201, 1906; char.; p. 272, table of C. Am. spp.
RIS, Cat. Coll. Selys, 9, p. 34, 1909.

atra (MARTIN), vide *Micrathyria*, antea.

broadwayi KIRBY, syn. ad *velox*.

fugax HAGEN, Syn. Neur. N. Am., p. 163, 1861; ♂, type M. C. Z.
CALVERT, Proc. Boston Soc., 28, p. 309, 1898; brief diagnosis; pl. 1, ff. 6, 7, leg.
Nymph. NEEDHAM & COCKERELL, Psyche, 10, p. 139, 1903; with a doubt.
NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 700, 1904; desc. notes; t. f. 2, str. dets.
Distr. Lower Sonoran; Texas, New Mexico.

maya CALVERT, Biol. C. Am., p. 272, 1906; ♂ ♀, types ♂ Coll. Calvert, ♀ Coll. Champion; pl. 8, f. 45, ♂ gen.—L. c., p. 405, 1908, notes.
Distr. Lower Sonoran, (Calvert z. 3-4), Mexico, Guatemala.

multipunctata KIRBY, Ann. Mag., N. Hist., (6) 14, p. 265, 1894; ♂ ♀, types British Museum.
Distr. Tropic; W. Indies, Granada.

naeva (HAGEN), vide *Erythrodiplax*, antea.

nigra MARTIN, syn. ad *velox*.

nigrescens CALVERT, syn. ad *velox*.

rufinervis (BURMEISTER), Handb. Ent., 2, p. 850, 1839; type Mus. Vienna, sex ?; (*Libellula*).
HAGEN, Syn. Neur. N. Am., p. 162, 1861; ♂ ♀, (*Dythemis*).
CALVERT, Trans. Am. Ent. Soc., 25, p. 67, 1898; on Burm. type.—Proc. Boston Soc., 28, p. 316, 1898; notes; pl. 1, f. 4, tarsal nails.
Syn. conjuncta RAMBUR, Ins. Neur., p. 91, 1842; ♂, (*Libellula*), Mus. Paris.—[Hagen 1875.]
SELYS, In Sagra: Hist. Cuba, Ins., p. 444, 1857.
vinosa SCUDDER, Proc. Boston Soc., 10, p. 192, 1866; ♂ ♀, (*Libellula*), types Mus. Boston Soc.—[Hagen 1867.]
Distr. Tropic; Greater Antilles, Cuba, Haiti, etc.

Libellulinae

russata CALVERT, syn. ad *Paltothemis lineatipes,* postea.

sterilis HAGEN, syn. ad *velox.*

velox HAGEN, Syn. Neur. N. Am., p. 163, 1861; ♂, type M. C. Z.
CALVERT, Proc. Boston Soc., 28, p. 309, 1898; desc.; varr.—Biol. C. Am., p. 272, 1906; comp. desc. & entire synonymy.
Syn. broadwayi KIRBY, Ann. Mag. N. Hist., (6) 16, p. 227, 1894; ♂ ♀, types British Mus.—L. c. (7) 3, p. 365, 1899; identity maintanied.
nigra MARTIN, Ann. Soc. Ent. France, 66, p. 590, 1898; ♀, type Coll. Martin.
nigrescens CALVERT, Proc. Cal. Acad., (3) 1, p. 390, 1899; ♂ ♀, types Cal. Acad.
sterilis CALVERT, Proc. Cal. Acad., (2) 4, p. 523, 1895; desc. notes; pl. 16, ff. 52-55, ♂ ♀ char.—Proc. Boston Soc., 28, p. 310, 1898; noted as variety.
tabida CALVERT, l. c., 28, p. 310, 1898; ♂ ♀, types M. C. Z.
tessellata RAMBUR, Ins. Neur., p. 89, 1842; ♂ ♀, (*Libellula*).
Nymph. NEEDHAM & COCKERELL, Psyche, 10, p. 139, 1903; desc., with a doubt.
?NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 699, 1904; desc.; pl. 42, f. 2, ad.
Distr. Lower Sonoran to Tropic, (Calvert z. 2-4), Tex., N. M., Calif., Mex. to Arg.

SCAPANEA KIRBY.

Type—*frontalis* (BURMEISTER). Distribution—Neotropical.
Trans. Zool. Soc. London, 12, pp. 264, 298, 1889.
KARSCH, Berl. Ent. Zeitschr., 33, p. 362, 1890; affinities.
CALVERT, Proc. Boston Soc., 28, pp. 301-309, 1898; affinities.
RIS, Cat. Coll. Selys, 9, p. 34, 1909.

frontalis (BURMEISTER), Handb. Ent., 2, p. 857, 1839; ♂, (*Libellula*), Mus. Vienna.
SELYS, in Sagra: Hist. Cuba, Ins., p. 453, 1857.
HAGEN, Syn. Neur. N. Am., p. 154, 1861; desc. from Burm. type, (*Dythemis*).
SCUDDER, Proc. Boston Soc., 10, p. 193, 1866; ♂ ♀ desc.
RIS, Cat. Coll. Selys, 9, p. 16, 1909; t. f. 3, wings; (*Scapanea*).
Distr. Tropic; Greater Antilles, Cuba, Isle of Pines, Jamaica, Haiti.

PALTOTHEMIS KARSCH.

Type—*lineatipes* KARSCH. Distribution—Nearctic & Neotropic.
Berl. Ent. Zeitschr., 33, p. 362, 1890.
CALVERT, Proc. Boston Soc., 28, p. 312, 1908; discussion of affinities.—Biol. C. Am., p. 202, 1906.
RIS, Cat. Coll. Selys, 9, p. 34, 1909.

lineatipes KARSCH, Berl. Ent. Zeitschr., 33, p. 362, 1890; ♂, types Mus. Berlin.
CALVERT, Proc. Boston Soc., 28, p. 312, 1899; noted; pl. 1, ff. 1, 8, 9, tarsus & femora.—Biol. C. Am., p. 292, 1906; ♂ ♀.
NEEDHAM, Proc. U. S. Nat. Mus., 26, 1903; pl. 47, f. 3, wings.
Syn. russata CALVERT, Proc. Cal. Acad., (2) 4, p. 526, 1895; desc.; (*Dythemis*); pl. 16, ff. 46-49, ♂ ♀ char.—[Calvert 1899.]
Nymph. NEEDHAM, Proc. U. S. Nat. Mus., 27, p. 699, 1904; desc.; pl. 39, f. 1, adult.
Distr. Lower Sonoran, (Calvert z. 3-5), SW. States, Tex., Mex. to Brazil.

BRECHMORHOGA KIRBY.

Type—*grenadensis* KIRBY. Distribution—Neotropic, into Nearctic.
Ann. Mag. N. Hist., (6) 14, p. 265, 1894.
CALVERT, Proc. Boston Soc., 28, pp. 301-309, 1898; disc. of char., synopsis of spp.—Biol. C. Am., p. 201, 1906; char.; p. 278, 1907; table of spp.
RIS, Cat. Coll. Selys, 9, p. 34, 1909; char.

columba CALVERT, Proc. Boston Soc., 28, p. 315, 1898; ♂, type M. C. Z.; (=*praecox?*).
Distr. Lower Sonoran ?; Cuernavaca, Mex.; Appun, Venez.

grenadensis KIRBY, Ann. Mag. N. Hist., (6) 14, p. 265, 1894; ♂, type Br. Mus.
?CALVERT, Proc. Boston Soc., 28, p. 315, 1898; in part.
Distr. W. Indies; Grenada.

inequiunguis CALVERT, Proc. Cal. Acad., (2) 4, p. 533, 1895; ♂ ♀, (*Macrothemis*), type Cal. Acad.; pl. 16, ff. 34, 40-45, ♂ ♀ char.—L. c., (3) 1, p. 394, 1899; brief diagnosis.—Proc. Boston Soc., 28, p. 317, 1898; notes; pl. 1, f. 2, tars. nail.—Biol. C. Am., p. 236, 1906; comp. desc.; (*Brechmorhoga*).

Libellulinae

Syn. vulgipes CALVERT, Proc. Boston Soc., 28, p. 320, 1898; ♀, (*Macrothemis*), types M. C. Z.—[Calvert 1906.]

?KIRBY, Ann. Mag. N. Hist., (7) 3, p. 365, 1899; ♀, with a doubt.

Distr. Tropic, (Calvert z. 2-3), B. Cal., Mexico to Brazil.

mendax (HAGEN), Syn. Neur. N. Am., p. 164, 1861; ♂, (*Dythemis*), type M. C. Z.

CALVERT, Proc. Cal. Acad., (2) 4, p. 529, 1895; ♂ ♀; pl. 16, ff. 56, 57, ♂ char.—L. c., (3) 1, p. 391, 1899; notes.—Proc. Boston Soc., 28, p. 313, 1898; desc. (*Brechmorhoga*); pl. 1, f. 5, tars. nail; pl. 2, ff. 23, 30, ♀ char.—Biol. C. Am., p. 283, 1906; comp. desc.

Distr. Tropic, (Calvert z. 3), Texas, B. Calif.; Tepic in Mexico.

nubecula (RAMBUR), Ins. Neur., p. 122, 1842; ♀, (*Libellula*), holotype Mus. Paris.

CALVERT, Proc. Boston Soc., 28, p. 314, 1898; brief diag.; (*Brechmorhoga*); pl. 1, f. 18, ♂ gen.; pl. 2, f. 22, col. patt.—Biol. C. Am., p. 285, 1906; desc.

Syn. catharina KARSCH, Berl. Ent. Zeitschr., 33, p. 366, 1890; ♂ ♀, (*Macrothemis*), types Mus. Berlin.—[Calvert 1898.]

grenadensis CALVERT, Proc. Boston Soc., 28, p. 315, 1898; Chiriqui ♂ only.

Distr. Tropic, (Calvert z. 2-3), Mexico to Paraguay.

pertinax (HAGEN), Syn. Neur. N. Am., p. 166, 1861; ♂ (*Dythemis*), type Mus. Vienna.

CALVERT, Proc. Boston Soc., 28, p. 316, 1898; brief diag.; pl. 1, f. 20, ♂ gen.; pl. 2, f. 21, col. patt.—Biol. C. Am., p. 283, 1906; comp. desc.; pl. 8, f. 38, wings.

Syn. ?sallaei SELYS, C. R. Soc. Ent. Belg., 11, p. 67, 1868; (*Dythemis*).—[Calvert 1906.]

Distr. Lower Sonoran, (Calvert z. 2-4), Mexico to C. Am.

postlobata CALVERT, Proc. Boston Soc., 28, p. 314, 1898; brief diag.; pl. 1, f. 13, ♂ gen.; pl. 2, f. 26, col. pattern.—Proc. Cal. Acad., (3) 1, p. 393, 1899; ♂, type Cal. Acad.; pl. 25, f. 12, ♂ gen.—Biol. C. Am., p. 283, 1906; comp. desc.

Distr. Tropic, (Calvert z. 2-3), Guerrero, Tepic, Mexico.

praecox (HAGEN), Syn. Neur. N. Am., p. 166, 1861; ♂, (*Dythemis*), type M. C. Z.

CALVERT, Proc. Cal. Acad., (2) 4, p. 530, 1895; desc. notes.—Proc. Boston Soc., 28, p. 315, 1898; type ♀ only; (*Brechmorhoga*); pl. 2, f. 25, col. pattern; f. 29, ♀ gen.—Biol. C. Am., p. 281, 1906; ♂ ♀; pl. 8, f. 49, ♂ gen.

Distr. Tropic, (Calvert z. 2-4), Mex. to Colombia.

sallaei (SELYS), syn. ad *pertinax*.

tepeaca CALVERT, Biol. C. Am., p. 406, 1908; ♂ ♀, types ♂ Coll. Barrett, ♀ Coll. Calvert, Adams, Smith; pl. 10, ff. 55, 56, ♂ ♀ gen.

Distr. Lower Sonoran, (Calvert z. 3-4), Vera Cruz, Cuernavaca, Mexico.

vivax CALVERT, Biol. C. Am., p. 280, 1906; ♂ ♀, type ♂ Coll. Champion; pl. 8, ff. 46-48, ♂ gen.

Syn. praecox CALVERT, Proc. Boston Soc., 28, p. 315, 1898; Bkistebu ♂ only.—[Calvert 1906.]

Distr. Tropic, (Calvert z. 2-4), Mexico to Panama.

MACROTHEMIS HAGEN.

Type—*celaeno* (SELYS). Distribution—Neotropical.

Stett. Ent. Zeit., 29, p. 281, 1868.

BRAUER, Verh. Ges. Wien, 18, p. 734, 1868.

KIRBY, Trans. Zool. Soc. London, 12, pp. 262, 297, 1889.

KARSCH, Berl. Ent. Zeitschr., 33, p. 362, 1890.

CALVERT, Proc. Cal. Acad., (2) 4, p. 472, 1895.—Proc. Boston Soc., 28, pp. 301-309, 1898; affinities; p. 317, table of spp.—Biol. C. Am., p. 202, 1906; char.; p. 288, 1907; table of spp.

NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 718, 742, 1903; venation.

RIS, Cat. Coll. Selys, 9, p. 34, 1909; char.

catharina KARSCH, syn. ad *Brechmorhoga nubecula*, antea.

celaeno (SELYS), in Sagra: Hist. Cuba, Ins., p. 454, 1857; (*Libellula*).

HAGEN, Stett. Ent. Zeit., 29, p. 281, 1868; ♂ ♀, (*Macrothemis*); identity.

CALVERT, Proc. Boston Soc., 28, p. 325, 1899; comp. notes; pl. 1, f. 3, tars. nails.

NEEDHAM, Proc. U. S. Nat. Mus., 26, 1903; pl. 46, f. 1, wings.

Distr. Tropic; Greater Antilles; Cuba, Haiti, St. Thomas, Isle of Pines.

debilis (HAGEN), vide *Micrathyria*, antea.

Libellulinae

hemichlora (BURMEISTER, Handb. Ent., 2, p. 849, 1839; ♀, (*Libellula*), type M. C. Z.

KIRBY, Trans. Zool. Soc. London, 12, 1889; (*Macrothemis*); pl. 54, f. 3; pl. 57, f. 11, ♀ ad., tars.

CALVERT, Trans. Am. Ent. Soc., 25, p. 61, 1898; on Burm. type.—Proc. Boston Soc., 28, p. 328, 1899; ♂ ♀; pl. 2, f. 27, ♂ app.; f. 32, thorax.—Biol. C. Am., p. 290, 1906; comp. desc.

Distr. Tropic, (Calvert z. 2-3), Mex. to Brazil.

inacuta CALVERT, Proc. Boston Soc., 28, p. 328, 1899; brief diagnosis.—Proc. Cal. Acad., (3) 1, p. 396, 1899; ♂ ♀, types ♂ Cal. Acad., ♂ ♀ M. C. Z.; pl. 25, ff. 7, 10, ♂ ♀ gen.—Biol. C. Am., p. 288, 1906; comp. desc.

Distr. Tropic, Calvert z. 2-4, Mexico to Panama.

inequiunguis CALVERT, vide *Brechmorhoga*, antea.

naeva (HAGEN), vide *Erythrodiplax*, antea.

pseudimitans CALVERT, Proc. Boston Soc., 28, p. 329, 1898; brief diagnosis; pl. 2, f. 35, thor. col. patt.—Proc. Cal. Acad., (3) 1, p. 393, 1899; brief desc.—Biol. C. Am., p. 290, 1906; comp. desc.

Syn. imitans CALVERT, Proc. Cal. Acad., (2) 4, p. 531, 1895; ♂ ♀, types Cal. Acad.; pl. 16, ff. 33, 35-39, ♂ ♀ char.—[Calvert 1898.]

Distr. Tropic, (Calvert z. 1-4), Mex., B. Calif. to Ecuador & Venez.

vulgipes CALVERT, syn. ad *Brechmorhoga inequiunguis*, antea.

THOLYMIS HAGEN.*

Type—*tillarga* (FABRICIUS). Distribution—Equatorial.

Stett. Ent. Zeit., 28, p. 221, 1867.

BRAUER, Verh. Ges. Wien, 18, pp. 365, 712, 1868.

KIRBY, Trans. Zool. Soc. London, 12, pp. 258, 265, 1889.

KRUEGER, Stett. Ent. Zeit., 63, p. 75, 1902.

*NOTE.—Tholymis, Pantala, Tramea, Tauriphila, Miathyria, Ephidatia, Macrodiplax and Antidythemis are the American representatives of Ris' group X. Ris, in litt., July 23, 1909: "Group X, the Tramea-group, might be called, together with IX, the Corduli-form Libellulinae. * * * There is no reason why to separate the series (certainly nearly connected inter se) Zyxomma - Tholymis - Pantala from the Tramea nucleus. The position of Antidythemis (which might have Libellula - Orthemis affinities) and Camacinia (which has analogies with Thermorthemis) is doubtful." Comparing the genera of group X with the system of other authors, this group forms a parallel of Gruppe Divergentes FOERSTER (Jb. Ver. Mannheim, 71, pp. 4-7, 1905) and a fusion of the groups Zyxommini and Pantalini KARSCH (Abh. Senckb. Ges., 25, p. 211, 1900).

CALVERT, Biol. C. Am., p. 200, 1906.
RIS, Cat. Coll. Selys, 9, p. 35, 1909.

citrina HAGEN, Stett. Ent. Zeit., 28, p. 218, 1867; ♂ ♀, types M. C. Z.
SELYS, Ann. Mus. Genov., (2) 10, p. 440, 1891; noted.
CALVERT, Biol. C. Am., p. 220, 1906; desc.; pl. 9, ff. 9, 10, ♂ .char.; f. 11, wings.
Distr. Tropic, (Calvert z. 2-3), Mexico to Brazil; Cuba.

PANTALA HAGEN.*

Type—*flavescens* (FABRICIUS). Distribution—Cosmopolitan.
Syn. Neur. N. Am., p. 141, 1861.
BRAUER, Verh. Ges. Wien, 18, pp. 364, 713, 1868.
KIRBY, Trans. Zool. Soc. London, 12, pp. 258, 265, 1889.
CALVERT, Trans. Am. Ent. Soc., 20, p. 223, 1893.—Proc. Cal. Acad., (2) 4, p. 471, 1895.—Biol. C. Am., p. 203, 1906.
KELLICOTT, Odon. Ohio, p. 92, 1899.
WILLIAMSON, Drag. Ind., p. 250, 1900.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 508, 1901.—Proc. U. S. Nat. Mus., 26, p. 721, 1903.
FOERSTER, Jb. Ver. Mannheim, 71 & 72, p. 4, 1905.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 105, 1908.
RIS, Cat. Coll. Selys, 9, p. 35, 1909.

flavescens (FABRICIUS), Ent. Syst., Suppl., p. 285, 1798; (*Libellula*).
HAGEN, Syn. Neur. N. Am., p. 142, 1861; desc. (*Pantala*).—Stett. Ent. Zeit., 28, p. 215, 1867; desc.
CALVERT, Trans. Am. Ent. Soc., 20, p. 254, 1893; desc.—Proc. Cal. Acad., (2) 4, p. 512, 1893; noted; pl. 17, ff. 92-94, ♂ ♀ char.—Biol. C. Am., p. 307, 1906; comp. desc.; p. 406, 1908; notes.
KELLICOTT, Odon. Ohio, p. 93, 1899; desc.
WILLIAMSON, Drag. Ind., p. 315, 1900; desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 539, 1901; dist.—Proc. U. S. Nat. Mus., 26, 1903; pl. 50, f. 3, wings.
HOWARD, Ins. Book, 1902; pl. 42, f. 1, adult.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 122, 1908; desc.
RIS, in Schultze: Forschungreise, p. 342, 1908; dist., ethol. notes.
Syn. analis BURMEISTER, Handb. Ent., 2, p. 852, 1839; ♂, (*Libellula*), types Mus. Halle, & M. C. Z.—[Hagen 1861.]
CALVERT, Trans. Am. Ent. Soc., 25, p. 69, 1898; on Burm. type.

*NOTE.—See note under Macrodiplax balteata, postea.

Libellulinae

sparshallii CURTIS, Guide, p. 162, 1829; (*Libellula*).—[Calvert 1895.]
DALE, Naturalist, London, 2, p. 333, 1847; note.
SELYS, Mon. Lib. Eur., p. 36, 1840.—Rev. Odon., p. 322, 1850; (= *viridula*).

terminalis BURMEISTER, Handb. Ent., 2, p. 852, 1839; (*Libellula*), Mus. Vienna.
CALVERT, Trans. Am. Ent. Soc., 25, p. 69, 1898; on Burm. types.—[Hagen 1861.]

viridula BEAUVAIS, Ins. Afr. Amer., p. 69, 1805; pl. 3, f. 4, adult; (*Libellula*).
RAMBUR, Ins. Neur., p. 38, 1842; desc.—[Hagen 1861.]

Nymph. CABOT, Mem. M. C. Z., 3, p. 43, 1890; desc. pl. 6, f. 5, adult.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 539, 1901; desc.—Proc. U. S. Nat. Mus., 27, p. 712, 1904; desc.; pl. 40, f. 5, adult.

Distr. Cosmopolitan (circumequatorial); all continents, except Europe (Italy?); N. Am.: Alleghanian to Tropic; Me. & N. Dak. to Calif. & Fla.; W. Indies; Mex., C. Am.

hymenea (SAY), Jn. Acad. Phila., 8, p. 19, 1839; ♀, (*Libellula*), type lost.
HAGEN, Syn. Neur. Am., p. 142, 1861; ♂ ♀, (*Pantala*), neotypes M. C. Z.—Stett. Ent. Zeit., 28, p. 217, 1867; desc.
CALVERT, Trans. Am. Ent. Soc., 20, p. 254, 1893; desc.—Proc. Cal. Acad., (2) 4, p. 512, 1895; noted; pl. 17, ff. 90, 91, ♂ ♀ char.—Biol. C. Am., p. 309, 1906.
KELLICOTT, Odon. Ohio, p. 93, 1899; desc.
WILLIAMSON, Drag. Ind., p. 315, 1900; desc.
HOWARD, Insect Book, 1902; pl. 42, f. 4, adult.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 540, 1901; dist.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 123, 1908; desc.

Nymph. ?MACLACHLAN, Proc. Zool. Soc. London, pp. 84-87, 1877; t. f., adult.

Distr. Carolinian to Tropic, Pa. & Wis. to Fla. & N. M.; Cuba, Mex. to Argentine.

TRAMEA HAGEN.

Type—*carolina* (LINNE). Distribution—Cosmopolitan.
Syn. Neur. N. Am., p. 143, 1861.
BRAUER, Verh. Ges. Wien., 18, pp. 364, 713, 1868.
KIRBY, Trans. Zool. Soc. London, 12, pp. 258, 268, 1889.
CALVERT, Trans. Am. Ent. Soc., 20, p. 223, 1893.—Proc. Cal. Acad., (2) 4, p. 471, 1895.—Biol. C. Am., p. 303, 1906; char.; p. 300, 1907, table of C. Am. spp.

KELLICOTT, Odon. Ohio, p. 92, 1899.
WILLIAMSON, Drag. Ind., p. 250, 1900.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 508, 1901; char.—Proc. U. S. Nat. Mus., 26, pp. 728, 742, 1903; venation.
KRUEGER, Stett. Ent. Zeit., 63, p. 83, 1902.
FOERSTER, JB. Mannheim, 71 & 72, p. 4, 1905.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 105, 1908.
RIS, Cat. Coll. Selys, 9, p. 36, 1909.

abdominalis (RAMBUR), Ins. Neur., p. 37, 1842; ♂ ♀, (*Libellula*), types Coll. Selys.
HAGEN, Syn. Neur. N. Am., p. 145, 1861; desc. (*Tramea*).—Stett. Ent. Zeit., 28, p. 223, 1867; noted.
CALVERT, Proc. Cal. Acad., (2) 4, p. 515, 1895; desc. notes.—Biol. C. Am., p. 304, 1906; comp. desc.
KIRBY, Ann. Mag. N. Hist., (6) 14, p. 292, 1894; dist.
Syn. basalis SELYS, in Sagra: Hist. Cuba, Ins., p. 441, 1857; (*Libellula*).—[Hagen 1861.]
insularis SCUDDER, Proc. Boston Soc., 10, p. 191, 1866; ♀, (*Tramea*), type Mus. Boston Soc.—L. c., 11, p. 299, 1867; (= *abdominalis*).
Nymph. CABOT, Mem. M. C. Z., 3, p. 45, 1890; desc.
Distr. Gulf Strip to Tropic, Tenn. to Fla., Cuba.

basalis (BURMEISTER), syn. ad *cophysa*.

calverti n.n.
Syn. longicauda var. CALVERT, Proc. Cal. Acad., (2) 4, p. 514, 1895; desc.; pl. 17, ff. 88, 89, ♂ ♀ char.—L. c., (3) 1, p. 408, 1899, identity.—Biol. C. Am., p. 303, 1906; comp. desc.
Distr. Tropic, (Calvert z. 2-4), B. Calif., Mex., Guat., B. Hond.

carolina (LINNE), Cent. Ins., p. 28, 1863.—Syst. Nat., 2, p. 904, 1867; (*Libellula*).
DRURY, Ill. Exot. Ent., 1, pl. 47, f. 6, 1773.
RAMBUR, Ins. Neur., p. 32, 1842; desc.
HAGEN, Syn. Neur. N. Am., p. 143, 1861; desc. ♂ ♀, (*Tramea*).
CALVERT, Trans. Am. Ent. Soc., 20, p. 255, 1893; desc.
KELLICOTT, Odon. Ohio, p. 95, 1899; desc.
WILLIAMSON, Drag. Ind., p. 316, 1900; desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 538, 1901; desc. notes.
HOWARD, Insect Book, 1902; pl. 43, f. 8; adult.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 122, 1908; desc.

Libellulinae

Nymph. CABOT, Mem. M. C. Z., 3, p. 46, 1890; desc.; pl. 6, f. 2, adult.
NEEDHAM, l. c., p. 538, 1901; desc.

Distr. Carolinian to Tropic; Mass. to La. & Fla. Antilles.

cophysa HAGEN, Stett. Ent. Zeit., 28, p. 226, 1867.
?CALVERT, Proc. Cal. Acad., (2) 4, p. 515, 1895; desc. notes.—Biol. C. Am., p. 301, 1906; comp. desc.—Ann Carnegie Mus., 6, p. 259, 1909; dist.

Syn. basalis BURMEISTER, Handb. Ent., 2, p. 852, 1839; (*Libellula*), type Mus. Vienna.
CALVERT, Trans. Am. Ent. Soc., 25, pp. 70, 94, 1898; on Burm. type.
KIRBY, Ann. Nat. Hist., (6) 19, p. 599, 1897; (*Tramea*), noted.—[Calvert 1906.]
darwini KIRBY, Trans. Zool. Soc. London, 12, p. 315, 1889; ♀, type British Museum; pl. 51, f. 1, ♀ adult col.
CURRIE, Proc. Wash. Acad., 3, p. 386, 1901; ♂ ♀.—[Calvert 1906.]
incerta RAMBUR, Ins. Neur., p. 34, 1842; ♂, (*Libellula*).—[Calvert 1906, with a doubt.]

Distr. Tropic (Calvert z. 2-4), C. Am. to Brazil; West Indies.

darwini KIRBY, syn. ad *cophysa.*

incerta (RAMBUR), syn. ad *cophysa.*

insularis HAGEN, Syn. Neur. N. Am., p. 146, 1861; ♂ ♀, types M. C. Z.—Stett. Ent. Zeit., 28, p. 224, 1867; on Scudder's ♀ (= *abdominalis*).
SCUDDER, Proc. Bost. Soc., 10, 191, 1866; ♂ only.—L. c., 11, p. 299, 1867; syn.
UHLER, Proc. Boston Soc., 11, p. 296, 1867; desc.
CALVERT, Biol. C. Am., p. 303, 1906; comp. desc.

Distr. Tropic (Calvert z. 2-4), Fla. Keys, Bahamas, Greater Antilles, Mex., C. Am.

lacerata HAGEN, Syn. Neur. N. Am., p. 145, 1861; ♂ ♀, types M. C. Z.
CALVERT, Trans. Am. Ent. Soc., 20, p. 255, 1893; desc.
KELLICOTT, Odon. Ohio, p. 94, 1899; desc.
WILLIAMSON, Drag. Ind., p. 316, 1900; desc.
NEEDHAM, Bull. 47 N. Y. State Mus., p. 539, 1901; dist.
HOWARD, Insect Book, 1901; pl. 40, f. 8, ♂ ad. col.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 121, 1908; desc.

Nymph. CABOT, Mem. M. C. Z., 3, p. 46, 1890; desc.; pl. 6, f. 1, adult.
NEEDHAM, l. c., p. 539, 1901; desc.
Distr. Carolinian to Austroriparian; N. Y. & S. Dak. to Calif. & Fla., Mexico.

longicauda var. CALVERT, syn. ad *calverti*.

onusta HAGEN, Syn. Neur. N. Am., p. 144, 1861; ♂ ♀, types M. C. Z.—Stett. Ent. Zeit., 28, p. 222, 1867.
CALVERT, Proc. Cal. Acad., (2) 4, p. 513, 1895; desc. notes; pl. 17, ff. 85-87, ♂ ♀ char.—Biol. C. Am., p. 305, 1905; comp. desc.
KELLICOTT, Odon. Ohio, p. 95, 1899; desc.
WILLIAMSON, Drag. Ind., p. 346, 1900; desc.
NEEDHAM, Proc. U. S. Nat. Mus., 26, 1903; pl. 49, f. 3, wings.
MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 122, 1908; dist.
Syn. carolina SELYS, in Sagra: Hist. Cuba, Ins., p. 440, 1857; (*Libellula*).
Distr. Carolinian to Tropic, Ohio & Ill. to Cal. & Fla., Mex., C. Am., Cuba.

virginia (RAMBUR), Ins. Neur., p. 33, 1842; ♂, (*Libellula*), Coll. Selys.
Syn. chinensis HAGEN, Syn. Neur. N. Am., p. 144, 1861; ♂, (*Tramea*); in part; Mus. Vienna.
Distr. Austroriparian; Carolina, Virginia.

TAURIPHILA KIRBY.

Type—*australis* (HAGEN). Distribution—Neotropical.
Trans. Zool. Soc. London, 12, pp. 258, 268, 1889.
KARSCH, Berl. Ent. Zeitschr., 33, p. 351, 1890; char.
CALVERT, Biol. C. Am., p. 203, 1906.
RIS, Cat. Coll. Selys, 9, p. 37, 1909.

australis (HAGEN), Stett. Ent. Zeit., 28, p. 229, 1867; ♀, (*Tramea*) types M. C. Z.
CALVERT, Biol. C. Am., p. 297, 1906; ♂ ♀, (*Tauriphila*).
Syn. iphigenia HAGEN, Stett. Ent. Zeit., 28, p. 230, 1867; ♂, (*Tramea*), type M. C. Z.—L. c., 29, p. 262, 1869; priority.
NEEDHAM, Proc. U. S. Nat. Mus., 26, 1903; pl. 49, f. 2, wings.
RIS, Magelhaenreise, p. 33, 1904; identity, (= *australis*).
Distr. Tropic, (Calvert z. 2), Mexico to Brazil; Cuba.

azteca CALVERT, Biol. C. Am., p. 298, 1907; ♂ ♀, types Coll. Schumann.
Distr. Tropic, (Calvert z. 2-4), Mexico, Atl. Coast.

MIATHYRIA KIRBY.

Type—*simplex* (RAMBUR). Distribution—Neotropic.
Trans. Zool. Soc. London, 12, pp. 258, 269, 1889.
CALVERT, Proc. U. S. Nat. Mus., 16, p. 124, 1893; char.—Biol. C. Am., p. 203, 1906.
RIS, Cat. Coll. Selys, 9, p. 37, 1909.

balteata (HAGEN), vide *Macrodiplax*, postea.

marcella (SELYS), in Sagra: Hist. Cuba, Ins., p. 452, 1857; (*Libellula*).
HAGEN, Stett. Ent. Zeit., 28, p. 227, 1867; noted, (*Tramea*).
KIRBY, Ann. Mag. N. Hist., (7) 3, p. 262, 1899; ♂, (*Miathyria*).
CALVERT, Proc. Cal. Acad., (3) 1, p. 388, 1899; desc. notes.—Biol. C. Am., p. 294, 1906.—
NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 709, 1903; t. f. 4*q*, stigma.
RIS, Magelhaenreise, p. 34, 1904; noted.
Syn. simplex HAGEN, Syn. Neur. N. Am., p. 146, 1861; ♂ ♀, (*Tramea*); identity with *marcella* suggested.
Distr. Tropic, (Calvert z. 2-4), Mexico to Argentine; Greater Antilles.

pusilla KIRBY, syn. ad *simplex*.

simplex (RAMBUR), Ins. Neur., p. 121, 1842; ♂ ♀, (*Libellula*), types Coll. Selys.
SELYS, in Sagra: Hist. Cuba, Ins., p. 452, 1857.
HAGEN, Stett. Ent. Zeit., 28, p. 228, 1867; noted, (*Tramea*).
CALVERT, Proc. Cal. Acad., (3) 1, p. 389, 1899; dist., (*Miathyria*).—Biol. C. Am., p. 296, 1906; comp. desc.
Syn. pusilla KIRBY, Trans. Zool. Soc. London, 12, p. 318, 1889; ♂, type British Museum; pl. 52, f. 3, ♂ ad col.—Ann. Mag. N. Hist., (6) 19, p. 600, 1897; identity with *simplex* suggested.
CALVERT, Proc. Cal. Acad., (3) 1, p. 389, 1899; dist.
Distr. Tropic, (Calvert z. 2-3), Mexico to Brazil; Cuba.

EPHIDATIA KIRBY.

Type—*longipes* (HAGEN). Distribution—Neotropical.
Trans. Zool. Soc. London, 12, pp. 262, 283, 1889.
NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 718, 1903; venation.
CALVERT, Biol. C. Am., pp. 199, 216, 1906; char.
RIS, Cat. Coll. Selys, 9, p. 37, 1909.

longipes cubensis (SCUDDER), Proc. Boston Soc., 10, p. 190, 1866; ♀, (*Macromia*), type Mus. Boston Soc.

CALVERT, Biol. C. Am., p. 216, 1906; ♂ ♀, (*Ephidatia*); pl. 9, ff. 1-5, ♂ ♀ char.

Syn. amasonica KIRBY, Trans. Zool. Soc. London, 12, p. 331, 1889; ♂, British Museum.—[Calvert 1906.]

longipes HAGEN, Syn. Neur. N. Am., p. 169, 1861; in part; (*Erythemis*).

specularis HAGEN, Stett. Ent. Zeit., 28, p. 98, 1867; (*Erythemis*).

Distr. Tropic, (Calvert z. 2-3), Mex. to Peru; Greater Antilles.

MACRODIPLAX BRAUER.

Type—*cora* BRAUER. Distribution—Circumequatorial.

Verh. Ges. Wien, 18, pp. 366, 737, 1868.

KIRBY, Trans. Zool. Soc. London, 12, pp. 261, 282, 1889.

SELYS, Ann. Soc. Ent. Belg., 41, p. 72, 1897.

RIS, Cat. Coll. Selys, 9, p. 37, 1909.

balteata (HAGEN), Syn. Neur. N. Am., p. 140, 1861; ♀, (*Tetragoneuria?*), type M. C. Z.

CALVERT, Proc. Cal. Acad., (3) 1, p. 389, 1899; position ("no *Miathyria*, location doubtful").

RIS, in litteris, June 23, 1909; position and distr. (= *Macrodiplax*).*

Distr. Gulf Strip, Texas, Florida Keys, Cuba.

*NOTE.—Ris, in litteris, June 23, 1909: "Macrodiplax (Brauer) will be an American genus. I have examined a male of **Balteata** Hagen, kindly lent me from Philadelphia. After having confronted exactly the specimen with **M. cora** (the only other species of the genus, all the other names are synonyms), I am certain, that balteata is congeneric with Macrodiplax M. balteata seems to have a rather restricted habitat (Texas, Cuba, Florida—my specimen was from Key West), whereas the area of **cora** is exceedingly large and mostly insular, from Samoa, Queensland and Formosa to that of Pantala flavescens and **hymenea** I have the idea, that both species of Socotra and Mauritius. The case of the two species is, on a smaller scale, analogous to **Macrodiplax** might inhabit salt water."

PART II. FOSSILIA.

ORDER **ODONATA** FABRICIUS.

SCUDDER, Proc. Boston Soc., 10, pp. 173-192, 1867; pl. 6; first account of N. Am. fossil Neuroptera.—Bull. U. S. Surv. Terr., 4 no. 2, pp. 519-543, 1878; (*Dysagrion*).—L. c., pp. 747-776, 1878; (*Podagrion*).—Ann. Rep. U. S. Geol. Surv., 12, pp. 271-293, 1883; map; account of Tertiary lake-basin at Florissant, Colo.—Proc. Boston Soc., 21, pp. 407-409, 1883; fossils of Green River, Wyo. and Florissant, Colo.—Fossil Insects of N. Am.: Vol. 1, Pretertiary Insects, pp. 455, pls. 35; Vol. 2, Tertiary Insects, pp. 663, pls. 28; New York, 1890.—Bull. 93 U. S. Geol. Surv., 25 pp,, 3 pls., 1892; Florissant fossils.

HANDLIRSCH, Die Fossilen Insection, 6 & 1430 & 40 pp., 51 pls., 1906-1908; Odonata: pp. 35, 463, 579, 600, 667, 896, 1151, 1161-1166, 1171, 1176, 1185, 1189, 1190, 1198, 1203, 1207, 1211-1217, 1221, 1229, 1230, 1291, 1297, 1298, 1339, 1342, 1343; characters of order, desc. of fossils, catalogue of fossils, chronology of classification systems, phylogeny, evolution, founding of new system; figures on pls. 4, 9, 31, 32, 37, 42, 47.

SELLARDS, Am. Jn. Sci., 22, pp. 249-258, 1906; nervuration of Permian Odonata, phylogeny of fossil and recent forms.

COCKERELL, Bull. Am. Mus., 23, pp. 133-139, 1907; (*Lithaeschna*), fossil and recent forms.—Am. Nat., 42, pp. 569-563, 1908; (*Phenacolestes*).—Bull. Am. Mus., 24, pp. 59-69, 1908; fossil and recent forms characterized. Ent. News, 19, p. 456, 1908; char. of fossil genera.

SUBORDER **PROTODONATA** BROGNIART.

Type family—*Protagrionidae* HANDLIRSCH. Distribution—Carbon & Permian.

Bull. Soc. Rouen, p. 65, 1885; as family for *Protagrion.*

HANDLIRSCH, Foss. Ins., p. 305, 1906; raised to ordinal rank, full char.

SELLARDS, Am. Jn. Sci., 22, pp. 257-258, 1906; emended, suborder.

FAMILY **PARALOGIDAE** HANDLIRSCH.

Type genus—*Paralogus* SCUDDER. Distribution—(Upper Carbon), N. Am. Foss. Ins., p. 310, 1906; defined.

PARALOGUS SCUDDER.

Type—*aeschnoides* SCUDDER. Distribution—(Upper Carbon), N. Am. Bull. U. S. Geol. Surv., 101, p. 21, 1893.

aeschnoides SCUDDER, Bull. U. S. Geol. Surv., 101, p. 21, 1893; from wing; pl. 1, ff. *a, b,* wing.
BROGNIART, Faune Ent. Terr. Prim., p. 521, 1893; fig.
HANDLIRSCH, Proc. U. S. Nat. Mus., 29, p. 690, 1906; noted.—Foss. Ins., p. 310, 1906; noted; pl. 31, f. 39, wing, after Scudder.
Distr. Rhode Island (Upper Carbon).

FAMILY **TUPIDAE.**

Type genus—*Tupus* SELLARDS. Distribution—(Permian & Carbon) N. Am.

PALAEOTHERATES HANDLIRSCH.

Type—*pensilvanicus* HANDLIRSCH. Distribution—(Upper Carbon) Penn. Foss. Ins., p. 311, 1906.

pensilvanicus HANDLIRSCH, Foss. Ins., p. 311, 1906; desc.; pl. 32, f. 5, fragment of apical third of wing.
Distr. Pittston, Pa. (Upper Carbon).

TUPUS SELLARDS.

Type—*permianus* SELLARDS. Distribution—(Permian) Kansas. Am. Jn. Sci., 22, p. 249-258, 1906.

permianus SELLARDS, Am. Jn. Sci., 22, pp. 249-258, 1906; desc.; t. f. 1, four wings, fragments of head and leg; t. ff. 2-7, wing details.
Distr. Kansas (Permian).

SUBORDER **ZYGOPTERA** SELYS.

FAMILY **COENAGRIONIDAE** KIRBY.

SUBFAMILY **COENAGRIONINAE** KIRBY

MELANAGRION COCKERELL.

Type—*umbratum* (SCUDDER). Distribution—(Tertiary) Colo.

nigerrimum COCKERELL, Am. Jn. Sci., 26, p. 69, 1908; desc. of wing.
Distr. Florissant, Colo. (Tertiary).

umbratum (SCUDDER), Tert. Ins. N. Am., 1890; pl. 13, ff. 12, 14, wing; (*Lithagrion*).
COCKERELL, Am. Jn. Sci., 26, p. 70, 1908; dist. (*Melangrion*).
Distr. Florissant, Colo. (Tertiary).

LITHAGRION SCUDDER.

Type—*hyalinum* SCUDDER. Distribution—(Tertiary) Colo.
U. S. Surv. Terr., 6, p. 293, 1882.—Ann. Rep. U. S. Geol. Surv., 12, p. 284, 1883.—Proc. Boston Soc., 21, p. 409, 1883.

hyalinum SCUDDER, Tert. Ins. N. Am., 1890; pl. 13, f. 4, wing.
COCKERELL, Bull. Am. Mus., 23, p. 133, 1907; desc.; t. f. 2, wing.
Am. Jn. Sci., 26, p. 29, 1908; desc.; t. f. 1, wing.
Distr. Florissant, Colo. (Tertiary).

COELICCIA KIRBY.

aliena SCUDDER, Bull. 93 U. S. Geol. Surv., p. 12, 1892; desc. (*Trichocnemis*); pl. 1, f. 2, wing.
COCKERELL, Am. Jn. Sci., 26, p. 72, 1908; desc.; t. f. 3, wing.
Distr. Florissant, Colo. (Tertiary).

HESPERAGRION CALVERT.

praevolans COCKERELL, Bull. Am. Mus., 23, p. 138, 1907; desc.; t. f. 3, wing.—Am. Jn. Sci., 26, p. 72, 1908; dist.
Distr. Florissant, Colo. (Tertiary).

COENAGRION KIRBY.

exsularis SCUDDER, Tert. Ins. N. Am., 1890; pl. 13, f. 5, wing; (*Agrion*).
COCKERELL, Am. Jn. Sci., 26, p. 72, 1908; dist.
Distr. Florissant, Colo. (Tertiary).

mascescens SCUDDER, Tert. Ins. N. Am., 1890; pl. 13, ff. 8, 9, wing; (*Agrion*).
COCKERELL, Am. Jn. Sci., 26, p. 72, 1908; dist.
Distr. Florissant, Colo. (Tertiary).

telluris SCUDDER, Tert. Ins. N. Am., 1890; pl. 13, f. 10, nymph; (*Agrion*).
COCKERELL, Bull. Am. Mus., 24, p. 60, 1908; desc.; pl. 5, f. 10, nymph.
Distr. Florissant, Colo. (Tertiary).

ENALLAGMA CHARPENTIER.

florissantella COCKERELL, Am. Jn. Sci., 26, p. 70, 1908; desc.; t. f. 2, wing.
Distr. Florissant, Colo. (Tertiary).

mortuella COCKERELL, Entomologist, 42, p. 172, 1909; complete inscet.
Distr. Florissant, Colo. (Miocene).

MEGAPODAGRION SELYS.

abortivum SCUDDER, Bull. U. S. Geol. Surv. Terr., 4, p. 775, 1878; wing. —Tert. Ins. N. Am., 1890; desc.; pl. 5, ff. 7, 8, wing; (*Podagrion*).
Distr. Green River, Wyo. (Eocene).

SUBFAMILY **DYSAGRIONINAE** COCKERELL.

Type genus—*Dysagrion* SCUDDER. Distribution—(Tertiary, Eocene), Colo., Wyo.
Bull. Am. Mus., 24, p. 60, 1908; defined.

PHENACOLESTES COCKERELL.

Type—*mirandus* COCKERELL. Distribution—(Tertiary) Colo.
Bull. Am. Mus., 24, p. 61, 1908.

Fossilia

mirandus COCKERELL, Bull. Am. Mus., 24, p. 61, 1908; desc. pl. 5, f. 13, wing.

Distr. Florissant, Colo. (Tertiary).

parallelus COCKERELL, Bull. Am. Mus., 24, p. 61, 1908; desc.; apical half of wing.—Am. Nat., 42, p. 574, 1908; t. f. 4, entire adult.—Am. Jn. Sci., 26, p. 75, 1908; dist.

Distr. Florissant, Colo. (Tertiary).

DYSAGRION SCUDDER.

Type—*frederici* SCUDDER. Distribution—(Eocene) Wyo. Bull. U. S. Surv. Terr., 4, p. 534, 1878.

frederici SCUDDER, Bull. U. S. Surv. Terr., 4, p. 526, 1878; wing.—Tert. Ins. N. Am., 1890; pl. 6, ff. 2, 5, 6, 9, 10, 14, 17, wings and details, fragments of adult.

Distr. Green River, Wyo. (Eocene).

lakesii SCUDDER, Tert. Ins. N. Am., p. 132, 1890; wing.

Distr. Green River, Wyo. (Eocene).

packardi SCUDDER, in Zittel, Handbuch d. Palaeont., 1 (2), p. 776, 1885; adult and fragment; f. 979.—Tert. Ins. N. Am., p. 132, 1890; desc. pl. 6, ff. 1, 3, 11, adult.

Distr. Green River, Wyo. (Eocene).

Agrionid incertae sedis.

N. g., n. sp. NEEDHAM, Proc. U. S. Nat. Mus., 26, p. 716, 1903; t. f. 9, wing.

Distr. Not stated, fossil in M. C. Z.

SUBORDER **ANISOPTERA** SELYS.

FAMILY **AESHNIDAE** SELYS.

SUBFAMILY **AESHNINAE** RAMBUR.

OPLONAESCHNA SELYS.

separata (SCUDDER), Tert. Ins. N. Am., p. 144, 1890; desc.; pl. 13, f. 5, wing; (*Aeshna*).—Bull. U. S. Geol. Surv. Terr., 6, p. 293, 1881; (*Aeshna sp.*).

NEEDHAM, Proc. U. S. Nat. Mus., 226, p. 761, 1903; (*Hoplonaeschna*).

COCKERELL, Am. Jn. Sci., 26, p. 74, 1908; desc.

Distr. Florissant, Colo. (Tertiary).

LITHAESCHNA COCKERELL.

Type—*needhami* COCKERELL. Distribution—(Miocene) Colo. Bull. Am. Mus., 23, p. 133, 1907.

needhami COCKERELL, Bull. Am. Mus., 23, p. 133, 1907; t. f. 1, hind wing; tables, details of venation.

Distr. Florissant, Colo. (Miocene).

AESHNA FABRICIUS.

larvata SCUDDER, Tert. Ins. N. Am., p. 115, 1890; pl. 13, f. 11, larva.

Distr. Florissant, Colo. (Miocene).

solida SCUDDER, Tert. Ins. N. Am., p. 146, 1890; desc.; pl. 13, f. 1, wing.
COCKERELL, Ent. News, 19, p. 456, 1908; desc.

Distr. Florissant, Colo. (Miocene).

FAMILY **LIBELLULIDAE** RAMBUR.

SUBFAMILY **CORDULIINAE** RAMBUR.

STENOGOMPHUS SCUDDER.

Type—*carletoni* SCUDDER. Distribution—(Tertiary) Colo. Bull. U. S. Geol. Surv. Terr. no. 93, p. 14, 1892.

carletoni SCUDDER, Bull. U. S. Surv. Terr. no. 93, p. 14, 1892; pl. 1, f. 1, fore wing.

RIS, in litteris, April 12, 1910; " . . . The specimen is not a Gomphine; it is a Corduline, more especially something between *Neurocordulia* and *Platycordulia* on one side, *Aeschnosoma* on the other side."*

Distr. Roan Mt., Colo. (Tertiary).

NOTE.—The arguments on which Dr. Ris' Corduline supposition is based, will probably be printed elsewhere.

SUBFAMILY **LIBELLULINAE** SELYS.

SYMPETRUM NEWMAN.

Diplax? sp. SCUDDER, Rep. Progr. Geol. Surv. Canada (1874-1875), p. 280, 1877; desc. of larva.

Distr. Quesnel, Brit. Columbia (Oligocene).

LIBELLULA LINNE.

(Libellula) SCUDDER, Bull. U. S. Geol. Surv. Terr., 4, p. 775, 1878.—Tert. Ins. N. Am., p. 146, 1890; pl. 6, ff. 4, 16, larva.

Distr. Green River, Wyo. (Oligocene).

(***Libellula carbonaria*** **SCUDDER=*arachnid* (*Graeophorus carbonarius*).—[Scudder, 1890.]**

PART III.—ADDITIONS AND CORRECTIONS.*

p. 53 To **Oxyagrion** add
FOERSTER, JB. Ver. Nassau, 62, p. 230, 1909; dist. from *Amphiagrion.*

p. 56 To **Enallagma carunculatum** add
Distr. California.

p. 66 To **Amphiagrion** add
FOERSTER, JB. Ver. Nassau, 62, p. 230, 1909; notes on distr.; *A. audinum* ♂ ♀ n. sp.—S. Am.

p. 76 To **Cordulegaster diastatops** add
Nymph. TILLYARD, Proc. Linn. Soc. N. S. Wales, 34, p. 705, 1910; t. f. 1, labium.

p. 83 To **Ophiogomphus carolinus** add
Distr. Wisconsin (Transition).

p. 90 From **Gomphus borealis** strike
Syn. spicatus HAGEN and refer same to spicatus proper. [See Calvert, Occ. Papers Boston Soc. N. H., 7, p. 20, 1905; note under *spicatus.* See also Muttkowski, Bull. Wis. N. H. Soc., (2) 6, p. 88, 1908; note under *spicatus.*]

p. 97 To **Gomphus spicatus** HAGEN add
HAGEN, Mon. Gomph., pl. 9, f. 2, 1858; ♂ ♀ char.

p. 106 Under **Anax walsinghami** read
Nymph. CABOT, M. C. Z., noted (nec desc.).

p. 126 From **Tetragoneuria spinigóra** MUTTKOWSKI strike
Bull. Wis. N. H. Soc., (2) 6, pl. 5, 1908; wings only; and refer to *Libellula quadrimaculata* (p. 139); the description is valid.—[Ris, in litteris, Jan. 16, 1910.]

*NOTE.—The number of additions received and corrections noted till the date of this writing is not large, yet by no means unimportant, as will be seen from the context. I preferred assembling them under a special head to inserts which might easily become detached and lost.—R. A. MUTTKOWSKI, Public Museum, Milwaukee, May 14th, 1910.

p. 133 To **Libelluline** add

RIS, Cat. Coll. Selys, 10, pp. 121-244, 1910; pl. 2, t. ff. 90-152; part two of monograph.

p. 139 To **Libellula quadrimaculata** add

Syn. spinigera MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, pl. 5; wings only (*Tetragoneuria*).—[Ris in litteris, Jan. 16, 1910.]

p. 147 From **Nannothemis** remove

maculosa HAGEN and refer same to *Erythrodiplax*.—[Teste Ris, in litt., Jan. 16, 1910.]

p. 152 After **Erythrodiplax leontina** insert

maculosa Hagen, Syn. Neur. N. Am., p. 187, 1861; ♂ (*Nannophya*), type Mus. Zurich.—NEEDHAM, Proc. U. S. N. Mus., 26, p. 722, 1903; (*Nannothemis*); loop.—RIS, in litteris, Jan. 16, 1910; (= *Erythrodiplax*), near *minuscula*.

Distr. Carolinian ?, Georgia.

p. 168 Cross all references of **Celithemis fasciata** and read as follows:

Celithemis fasciata KIRBY, Trans. Zool. Soc. London, 12, p. 326, 1889; ♂, types in British Museum; pl. 52, f. 2, ♂ adult.

WILLIAMSON, Ohio Naturalist, 10, p. 156, 1910; ♂ ♀ desc.; pl. 6, 7, ff. 1-4, wings.

Distr. Austroriparian & Gulf Strip; Ohio & N. C. to Fla. & La.

Celithemis monomelaena WILLIAMSON, Ohio Naturalist, 10, p. 155, 1910; ♂ ♀, types Coll. Williamson; pl. 7, 8, ff. 5-9, wings.

Syn. fasciata HINE, Ent. News, 10, p. 1, 1899; ♀ desc.; t. ff. showing col. patt. of wings.

WILLIAMSON, Ent. News, 10, p. 42, 1899; ethol.—Drag. Ind., p. 360, 1900; desc.

KELLICOTT, Odon. Ohio, p. 104, 1899; desc.

MUTTKOWSKI, Bull. Wis. N. H. Soc., (2) 6, p. 108, 1908; desc.

Distr. Carolinian, Canada & Wis. to Ill. & N. J.

p. 186 **Coeliccia (Trichocnemis) allena**

"is probably an *Argia* or *Amphiagrion*"—RIS, in litt., April 12, 1910. —[Upon comparison to *Hespcragrion* and *Argia* Scudder's figure seems an intermediate between these two genera, as it combines characters of both, but also differs from each genus in several important points.—R. A. M.]

PART IV.—INDEX.

NAMES.—Genus, family and subfamily names, and captions of the introduction are in LARGE CAPITALS; species names in small letters. Roman type indicates valid names, *italic* the synonymns. The genus accompanies each species; if several generic names are quoted for one species, the first indicates the present position of the species; the others are genera under which the species has passed.

PAGE NUMBERS.—When several page numbers are cited, the FIRST points out the page on which the bibliography is quoted. Parentheses enclosing numbers denote fossils.

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Lolo Objects in the Public Museum, Milwaukee.

BY FREDERICK STARR

In his *Languages of China before the Chinese,* Terrien de Lacouperie mentions and discusses fifty-five aboriginal peoples, who occupied China before the flood of immigrants from the West poured into that country. Some of these have disappeared and are unknown in present populations; of others, fragments of greater or less significance remain. Conspicuous among these latter are the Lolos who live in the provinces of Sechuen and Yunnan, in extreme southwestern China, on the borders of Tibet. Some 3,000,000 people living in that district still speak the Lolo language. They live upon an area of considerable extent, mountainous, and of difficult access. In 1907, the great sinologue, Henri Cordier, brought together the existing data regarding this interesting people in a monograph entitled *Les Lolos; etat actuel de la question.* His summary is so definite and complete that it leaves nothing to be desired and, as it is easily to be obtained, it must be the foundation for all future study. Since his work, however, there have been several contributions to knowledge of the Lolos. Among these may be mentioned the studies of Torii and Vial. The Japanese Torii, in his expedition into southwestern China had occasion to measure twelve male subjects. The French missionary, Father Vial, who has worked among Lolos for many years and who had already made important contributions regarding them has just published a great work upon them, which we have not yet seen; it should be the most important source for information.

The Lolos are commonly divided into the subjugated and the independent Lolos. The subjugated Lolos recognize Chinese sovereignty and Lolo chiefs hold petty offices under the imperial direction. The independent Lolos recognize no outside control and over their mountain fastnesses the Chinese make no pretense of rule. Not only is this so, but Lolo bands make occasional excursions or plundering raids against the Chinese, robbing and pillaging and taking prisoners as slaves or to be held in their villages for ransom.

It is not our intention to here attempt a monograph of this interesting people, but simply to introduce some material regarding them which has been brought to this country. Shortly after my return from Japan, where in 1904 I visited the Ainu of Yezo, I had a call from Mr. Owen L. Stratton of Chicago, who wished to tell me

of his personal experiences with Lolos of Sechuen. He was deeply impressed by their unlikeness to the Chinese and never wearied of emphasizing their attractive traits. He had some photographs of them, as also various objects of Lolo manufacture and an interesting manuscript. We planned together to prepare a careful statement based upon his notes and recollections, but failed to do so. Eventually, Mr. Stratton returned to China, where he died late in the summer of 1908, of cholera. Before leaving he presented me the photographs and the Lolo manuscript and sold his objects of Lolo workmanship to the Public Museum at Milwaukee. So far as we know these are the only Lolo objects in the United States and it has seemed worth while to describe them. When he turned them over to the Museum, Mr. Stratton made a hurried memorandum with reference to his experience from which we condense and summarize the following statement:

"My home for the last three years has been Kiang-ting-fu, Sechuen, West China, or the provincial capital, Chen-tu, 2,000 miles from the sea. One summer, I had spent a number of weeks in a Chinese city, 11,000 ft. above the sea, upon the Thibetan border, in the northwestern part of the province; here we saw large numbers of the aborigines who came from the mountains in different directions and from different tribes to work in the grain fields for the Chinese. They were most interesting and greatly attracted us. We could scarcely believe our eyes as we looked upon the graceful, pretty young women, passing us on the way, with hollyhocks in the long braids of their hair, or listening to them as they stood upon the hillsides yodling with sweet voices. These people were subject to a greater or less degree to Chinese authority. * * * In November, 1899, I made my second journey from Kia-ting-fu, up to the garrison town on the Lolo border. My earlier trip having been made soon after my arrival in western China, I was now much better equipped for observation. * * * Our destination was four days distant, southwest, into the mountains. * * * The next morning after my arrival at Opien-ting * * (where four days were spent) * * I was suddenly discovered by a group of passing Lolos, who had come down to town for trade. In they came like a flock of sheep and crowded around me so closely that it was impossible for me to sit up straight. They examined my clothing (Chinese dress which I had worn for three years); they looked up my sleeve at my foreign underwear; they saw my watch, pencils, etc., and I took pains to show them every foreign thing I had, also my books, tracts, etc. I told them, speaking in Chinese, of course, and with the help of my servant and others, about us foreigners and of the country from which we came. Among other things I said: 'In my country we do not have temples everywhere filled with idols of wood and clay, but we worship the heavenly ruler; to which they all excitedly responded, 'he also is a tribesman.' They treated me in the friendliest manner and I felt that I was in the presence of my own race. They were

soon gone as suddenly as they came. During my stay I constantly had Lolo callers. Several were especially friendly. Two fine young fellows, hostages from the Yamen (the Chinese official residence and office) called whenever they were allowed. They, and others like them, were the finest specimens of men I have ever seen. They averaged nearly the American stature, were perfectly built, of great strength and suppleness, quick as lightning, had no disease (an eye might be gone or a scar seen as the result of battle, but no weakness). Their faces were full of expression; they had beautiful brown eyes and perfect teeth. The running conversation was accompanied by a natural and charming smile and in talking they would get almost as close to you as possible and look fully into your face and eyes. (All this is in striking contrast to the Chinese.) * * Buddhism, born in India, swept over Asia, mountain and valley, conquering everywhere; but in these mountain fastnesses it has not one devotee. These people have held the passes and successfully combatted every Chinese effort to subdue them during the passing centuries. * * * A remarkable trait is the high respect in which they hold their women; a woman may even rise to the headship of a tribe. * * * After several years in China and having become accustomed to the conditions that hedge in and seclude women, it was delightful to see these graceful, natural, matrons and girls with their long vari-colored skirts hanging to the ground, handsomely embroidered and appliqued jackets, over which they wore a long felt cape; on their heads they wore a loose, baggy, cloth bonnet. Most of them had a handsome necklace, after the fashion of a dog collar and they also wore large and fantastic silver ear-rings. The men shave the head, except in front; the hair left is twisted up inside of a piece of cloth, giving the appearance of a horn; the head is then bound up with the rest of the cloth, turban fashion, and the horn is tucked in at the side. Men also wear the handsome jackets and roomy felt capes; their trousers are long and of several colors. Both men and women go barefoot. They raise grains, vegetables, cattle, sheep and poultry. It has been said that there are 3,000,000 of them. The Chinese hate them and fear them. A Chinese official calling on us one day at Kia-ting-fu said, 'One Lolo can put ten Chinese to flight, equally armed; and one Lolo with a stone in his hand can do more damage than one Chinaman with a gun.' The Lolos frequently raid Chinese border towns and destruction lies in their wake. * * * After considerable difficulty, with the aid of my excellent servant, I was able to secure a few Lolo belongings; first a little musical instrument attached to the button of a bright young Lolo's coat; then another; then a cape; other musical instruments; a pipe; other clothing; and, finally, some implements of warfare. Much explanation was necessary. No one had ever purchased such things before."

So far Mr. Stratton's notes. We have given the statement almost in his own words. The objects now in the Public Museum at Milwaukee are as follows:

1. Cape or Cloak. (Plate I, 3.) This is the most characteristic article of Lolo dress and is worn by both sexes. It is of black or dark brown wool beaten into thick and well matted felt. There is a remarkable pleating around the upper border, which passes over a free, heavy cord of many strands of black cotton-like thread. One end of this cord is tied upon itself into a loop; the other, free, end is drawn through this and tightened after the garment has been adjusted. Notwithstanding that the border passes *over* the cord, the felt is everywhere single thickness and shows no sign of doubling or sewing; it appears to have been beaten around the cord. Length, 42 inches.

2. Skirt. (Plate II, 7.) For woman. Composed of bands of cotton stuff of different colors, sewed together. The narrow upper border is light green; the next band is light blue and consists of four pieces of stuff sewed end to end; the next is darker blue, then red, then indigo blue; the next one is red and pleated; the next, last, one is bluish-green and heavily pleated. The total width of these six horizontal bands is somewhat over 40 inches.

3. Jacket. (Plate I, 1.) For man. In general form, overlap, button arrangement, button-loops, etc., it is not unlike the Chinese. The narrow, decorative neck-bordering, only a half-inch wide, is indigo-blue in color, with a chain-stitching of pink, green, and red. The garment itself is of coarse blue cotton; the overlap flap is bordered with a blue band and chain-stitching in pink and then with red appliqué upon which is white with black stitching—the whole being about an inch and a quarter wide. The sleeves are bordered with indigo stuff upon which is a red flannel band appliqué, with bits of gray or white stuff appliqué and with fancy stitching and indigo-blue appliqué patterns on the red ground; the total width of this decorative bordering is eight inches. The buttons are small, cast, metal buttons of foreign origin and bear as design a bird on a branch. Total length, about 25 inches.

4. Trousers. (Plate I, 2.) For man. Of dull or dirty green cotton. The upper border is meant to flap over and is lined with gray stuff; so are the trousers in general. The overflap border is 5 inches wide; from its lower edge the green stuff forming the body of the trousers is about 26 inches wide; below it come 3 inches of orange, then 2¾ inches of dark indigo, then 4½ inches of red. This garment is ample and voluminous throughout. Total length, 5 + 36 inches.

5. CAP or HEAD-SACK. (Plate II, 6.) Material, an almost-black-indigo cotton. The border is bound with indigo-blue stuff, which ends in narrow tapes for tying; the bottom of the sack consists of gores, which converge under an appliqué red flannel disk; at the sides where the edges of the material of the sack are sewed together, are strips of red stuff appliqué, stitched with olive-yellow; the border band is left open at the ends and the cleft thus formed is bordered with light blue. The depth of this cap or head-sack from border to decorative disk is 19-20 inches. Caps of this form are not confined to the Lolos; Rockhill* says: "In Li' tang the men wear in summer a circular piece of white cotton cloth ornamented on top with a blue-cloth disk, the center of which is red. A drawing-string fixed in the lining enables them to fasten it on their heads."

6. ORNAMENTAL NECKBAND. (Plate II, 5.) For woman. Of black cloth, bound and strengthened on the inner margin; it is almost covered with small hemispherical metal shells attached like buttons and arranged in a band with dentate margin; at the ends are five metal catches and eyes, side by side, for fastening it about the neck. Fully extended, this neckband is 13½ inches long (including the locking device) and 2¼ inches wide.

7. RING. Crudely made by filing from a block or lump of brass; viewed from the side it is stirrup-shaped, with a little squared projection on the upper (inner) side which is pierced with a minute hole; the lower (outer) side is developed into an irregularly round disk, upon which are scooped out six small pits, arranged unevenly spaced in a circle around a seventh central pit. The ring is small and badly shaped; antero-posterior diameter, 13/16 inch; transverse diameter, 5/8 inch.

8. CARRY-NET. (Plate II, 1.) An open, square-meshed net of well-made, heavy, strong cord of a brownish color; the cords interpenetrate, being original work not netting made from already twisted cords; the cords are about 1/16 of an inch thick and the meshes are about 1½ inches square. The lower margin is made of three heavy cords, laid side by side; these are much thicker than the mesh cords, being about ¼ of an inch in diameter and the three making a band about ¾ of an inch wide. A rope for closing the sack and carrying it runs through the meshes of the free and open margin and ends at both sides in a double cord to the ends of the base-band. This closing cord is doubled in the marginal loops and so knotted as to close the sack, when pulled from both sides at once. Depth, when closed, about 24 inches.

*Rockhill, W. W. *Notes on the Ethnology of Tibet.*

9. TOBACCO PIPE. Plain; the bowl is cut from a grayish-green, compact material resembling soapstone; the workmanship is poor, but the surface is polished; the bowl presents a square horizontal section and is largest at top, tapering downward; it is pierced *through* for the passage of a slender stem of cane, which projects in front beyond the bowl; the cane of this stem was originally interrupted by three septa, which have been pierced; within the bowl the stem is cut away along its upper side to permit of air draught. Stem slender and about 15 inches long; bowl, 1 inch in diameter at top, ¾ inch in diameter at bottom; bowl-hole, ⅝ inch in diameter at top; height, 2⅜ inches.

10. Bow. (Plate III, 1.) A plain and simple stick of fine-grained, heavy, rather light-colored wood; it tapers quite evenly toward both ends; the inner face is almost flat, slightly rounded at the sides; the upper (outer) surface is quite convex, rounded at the sides and tapering toward the ends. With the exception of about six inches of the middle part of the inner surface, it is heavily covered with a black varnish; this has flowed and to some degree dried in longitudinal wrinkles. At two places equidistant from the center and separated by about fifteen inches, the bow appears to be wound with narrow strips of some vegetable fibre, but this wrapping cannot be examined as it is covered with the black varnish; similar bindings are found at two other points distant from these—one five-and-a-half inches, the other six-and-a-half inches. The bowstring was strung upon simple notches on the inner face, about one inch distant from the tips; the cord is lacking. Length, about 48 inches; greatest width, about 1 inch.

11. ARROWS; two in number. (Plate III, 4, 5.) (a) Slender cane shaft; deeply, cleanly, and squarely notched in the base; wrapped with sinew for seven-eighths of an inch. Point, of steel, long, slender, thick, rather heavy, barbed; shaped by filing; it is inserted *in* the shaft, for which it is really too heavy. Total length a little more than 15 inches, of which 2 inches is exposed point; width of point at barbs, about ⅜ inch. (b) Slender, dark, cane shaft; notched as preceding; smeared at joints and for some distance beyond with black varnish; it is perhaps wrapped at the butt with vegetable fibre (or sinew), but if so the wrapping is concealed under the varnish; it is wrapped at the tip to prevent splitting by the inserted point. The point is of filed steel, in general like the preceding, but the barbs are unevenly developed and below them the shank is awkwardly flattened into a lozenge-shaped expansion; the resulting form is ugly and inconvenient. Total length, about 16 inches, of which 4⅛ inches is exposed point; width at barbs, about ⅜ of an inch.

12. QUIVER. (Plate III, 6.) Curious form; the material resembles leather, but is wood and basketry, heavily covered with black varnish; form and construction are alike difficult of description. The somewhat cylindrical body is internally of basketry; the hooding upper end is of wood; the whole outer surface, which is ribbed, is black varnished. The exterior is decorated with lines of white disks (of material like porcelain, or shell) embedded in the black varnish. The lower end is decorated with a large central disk around which are circles of smaller ones. The quiver is supplied with ears for a carrying-cord. Total length, 19½ inches; diameter at bottom, about 5 inches; diameter across opening, 2⅝ inches.

13. BOWSTRING WRIST-GUARD. (Plate III, 7.) Made of hard leather, bent and dried; upper margin slightly flared; lower (wrist) margin narrower and pierced with two holes for tie thong; black varnished and painted; border orange, followed by a narrow lemon-yellow line; upon the black ground within are decorative designs in orange and lemon-yellow, composed of triangles, curves, quadrants, cross-lines, etc. Greatest width, 4¾ inches.

14. SWORD. (Plate III, 3.) Blade straight and heavy; thick at back margin and thinning to the cutting edge; this is not quite parallel to the back margin, the blade being widest at the upper (handle) end; at the tip it ends abruptly by an oblique line at about 45° to the cutting edge. There is a slight convex elevation on the blade close to the handle, which appears to be part of the blade itself, but this is uncertain as the upper part, for about four and three-quarters inches, is heavily coated with black varnish. The wooden handle is four and three-fourths inches long. At the end of the handle is a disk of wood, separate and somewhat loose, which is varnished; it is copper covered and is held in place by a nail. Length of blade, 29½ inches; maximum width, 1½ inches; thickness at back margin, 3/16 of an inch.

15. SCABBARD. (Plate III, 2.) Of wood, coated with brownish-black varnish; it is apparently covered with shagreen, closely fitted, (the edge of this overlapping along an irregular line); this overlapped wrapping has been wound around near the ends with narrow strips of vegetable fibre and with cord, the bindings being afterward varnished over; the space covered by this wrapping near the lower end is about four inches and a half, but the actual tip is exposed; the space thus wrapped toward the upper end is about one and three-fourths inches, and again the wrapping ceases before the end. The inner (under) surface of this scabbard is almost flat; the outer

(upper) surface is crested with a low longitudinal ridge; the sheath is composed of two pieces of wood, united along their edges, and the space for the sword-rest is made at the expense of both. At six and one-fourth inches from the upper end is a wooden loop or ear about one and a half inches long, for the passage of a carry-cord; a second one, about seven and a half inches from it, has been broken away. A strap loop, curiously bound around this and made of thick leather, now serves for carrier; it is three-fourths of an inch wide and decorated with color and incised work; much too large to pass through the ears it is kept from slipping. partly by a thong through the perfect ear, partly by a wrapping of cord and thong. Length, about 30 inches; width, 1¾ inches; height, when laid flat, 1 inch.

16. CUIRASS. (Plate III, 8.) Composed of heavy, moulded plates of thick leather, black varnished and decorated in red and yellow; the shoulders are protected by two projecting wings; the upper part of the body is composed of large, rectangular plates, adjacent and overlapped in such fashion as to present a firm resistance to blows; apparently rectangular black scales with red center, some of these actually consist of a pair of scales, the lower black, larger, the upper, red, smaller; the lashing, with neat thongs of leather and pads and strips of red flannel and unbleached cotton is complicated and neatly done. From this firm body of large scales hangs an apron of seven horizontal rows of scales; each row overlaps the one above it and the scales in each row overlap; these scales are small, and are black at the outside edges, yellow in the middle; the lower ones are bent to almost a right angle at the lower margin, forming a neat horizontal finish line which is painted red; these scales are so neatly lashed by narrow thongs as to give a distinctly decorative effect. Height, about 21 inches.

17, 18. JEWS-HARPS. (Plate II, 8, 9.) Made of sheet brass. A pair, delicately pierced at the upper end, are hung from a single cord; the bit of brass is wider below than above and in this wider part a slender, vibratile tongue is cut out, which remains attached at its upper end. The cord from which the two instruments hang passes up through a little tube case of cane or wood, which is brilliantly colored in black, yellow and red. The cord passes through a small hole at the upper end of this case and is knotted above. The instruments are drawn up by it into the case. Case length, 3 7/16 inches; diameter, ⅜ inch; instruments, 2⅝ inches long.

This jews-harp is comparable with a larger and coarser one made of bambu, which is common throughout southeastern Asia and parts of Malaysia. Rockhill mentions it as used by Lissus and other non-

Tibetan tribes in southeastern Tibet, where it is carried in bambu cases. A similar instrument is a favorite with women in eastern Tibet, who regularly carry it at their girdle.

19, 20, 21. MUSICAL PIPES. Pipes and whistles appear to be in constant use, and Mr. Stratton brought three specimens, quite different from each other. (a) Bambu or cane; it is plugged at the larger end, and the smaller end is situated just above a natural septum; near the larger end, the epidermis is scraped away and the space is wrapped with sinew or fine fibre; just here it is pierced with a burnt, uneven, oval or elliptical blow-hole, ¾ by ⅝ of an inch in diameter, (outer surface measure); almost in line with it, near a septum, are two round holes, one and one-fourth inches apart, and about 3/16 of an inch in diameter; on the opposite side is a line of nine holes, similar to these and unevenly spaced; at intermediate (quarter) spaces, are two pairs of holes, like the first two in relation and size. There are, thus, a blow-hole and fifteen smaller note-holes. In line with one of these latter pairs, beyond a septum—where it is absolutely useless, is a final solitary hole. Length, 17⅛ inches; diameter 13/16 inches. (b) Cane, open throughout; one end cut squarely, the other, bevel-trimmed; near the square-cut end is a small opening; about a quarter around the circumference from it is a line of six rather unevenly spaced holes. Length, 13 inches; diameter, ½ inch; small single hole, ⅜ of an inch from the end; first of the line of holes, 1¾ inches from the end; diameter of the larger holes, 3/16 of an inch. (c) Slender cane, open through. At one end is an inserted bit of cane, which is pierced through a septum with a minute puncture and has a small, lifted, vibratile lip or reed in its upper surface; at the other end are six holes in line. Length, 11 inches; inserted bit, 2 inches; diameter 5/16 of an inch; external diameter of holes, ¼ of an inch—as the edge slopes, the actual opening is less.

Just before his return to China, Mr. Stratton presented me a dozen or more photographs of Lolos. Unfortunately these are not accompanied by exact data. Some were made by Mr. Stratton himself, but others were made by missionary friends. It is safe to assume that all were made in the district visited by Mr. Stratton, and that they represent Lolos from the region behind Opien-ting. We have seen no better pictures of Lolos than some of these. We have selected the best of them for reproduction and they are here presented as Plates IV-VIII. The cost of making these half-tones has been supplied by Mr. Nelson C. Field of Columbia, Missouri. The pictures deserve careful study. In them we see the wearing of the great capes of dark felt, and the use of such skirts, jackets and

trousers as are described above; we also see that both sexes are in the habit of going barefoot; the curious and characteristic dressing of the hair into "horns" wrapped about with cloth, a custom mentioned by every traveler, is well shown. The pictures are of sufficient size, too, to give considerable detail of features, so that it is possible to test the common claim that the Lolos present a non-Mongolian type.

One of the most interesting points connected with the Lolos is their possession of a peculiar written character. The best known and fullest account in English of Lolo writing is that of Baber.* Those who have read his book all remember with what diligence he sought for samples of this writing and with what joy he finally secured some data. Later he received a beautiful manuscript, of which Terrien de Lacouperie wrote an interesting analysis. Since Baber's time various travelers have brought out Lolo books and today at the School of Living Languages, Paris, Henri Cordier, by prodigious effort, has brought together a veritable little library of them. Considerable study has been made of the Lolo writing, but the results are yet far from satisfactory. Even such questions as the direction of writing, whether the characters are ideographic or phonetic, how many different characters are used, are badly answered and the question of their origin has barely more than been propounded. Father Vial seems confident of his ability to read them, but one may read his writings and still doubt. Terrien de Lacouperie compared the characters with various early Asian forms; he showed really striking similarities between them and those upon an ancient seal from Harappa, India; he seems to have decided that it was derived from an early and simple form of Chinese writing, with a final origin in the alphabet of Asoka or one closely related to it. But much remains to do, before his suggestion will carry conviction. So far as the Lolos themselves are concerned, most of them make no pretence of being able to *read* their books, which seem to have been written chiefly for and by the sorcerer or conjuror. They appear to deal with legends and magical practices and the key to their precise significance is probably lost even to the conjurors who ignorantly guard them and copy them often with little understanding. Mr. Stratton had one of these manuscripts, secured from an American missionary. This he gave me as a parting gift. Mr. Moses F. Rittenhouse of Chicago, has borne the expense of making fifty facsimile copies of this in zinc-etching. These copies are for distribution to students who know the Lolo language or who come into actual contact with Lolos. They have been made in the hope of getting a consensus of opinion as to the contents and significance of the manuscript. The reproduction is a careful one as to size and number of

*Baber, E. C. *Travels and Researches in the Interior of China.*

pages, their arrangement, the characters and pictures and it approximates to texture and color of the paper. The manuscript consists of twenty written pages measuring about 10½ by 8 inches; these are fastened together along the upper edge. The characters, which give the impression of simplified Chinese characters, appear to run in horizontal lines from right to left. One of the twenty pages is completely occupied by pictures and a part of two other pages is taken up by illustrations. These are badly drawn animals and human beings(?), figures like crossed dumb-bells, etc., etc. In art value and general character they are comparable with the rude scrawls of little children among ourselves.

That there is much of interest to the ethnographer and geographer in the high mountain land of the independent Lolos is evident from what we have said. There is a population of millions almost unknown, an area of mountains quite unexplored. A thorough investigation of that region would yield an important contribution to geography and general ethnography. But two questions beyond all others have especial, almost romantic, interest. 1. Who are these hardy mountaineers, these aborigines preceding the Chinese? Are they representatives of the great yellow race--*Homo Mongolicus?* or are they, as so many travelers suggest, *our* kindred, members of the white race, *Homo Caucasicus?* If the latter, where in the family tree do they belong? *Who* are their nearest kin? 2. What is their written system? Can it be read? Whence did it come? What do these curious manuscripts contain? Does Father Vial know?

A long journey within and through and through the country of the independent Lolos is an attractive proposition. It would be dangerous, but it can probably be done. These Lolos live in tribes with definite territories and settled chieftains. A traveler ere entering the country must have the confidence of those chieftains living nearest Chinese settlements. Trusting himself to them he might be passed from one to another across the country. He ought to tarry long enough with each to make genuine investigations of significance. But he must have wisdom, gentleness and firmness if he would come out alive. Last year one man made such an effort and lost his life in the attempt. The story is told in *The North China Herald* of April 17, 1909, as follows:

"Mr. Ferguson, of the British and Foreign Bible Society, Chentu, passed through this city a few days ago. He was returning from a trip to the Lolo country, where he had successfully negotiated for the recovery of the body of the late Mr. Brooks, who was murdered there about three months ago. It will be remembered that Mr. Brooks, who, with a friend, Mr. Myers, had been traveling through the province for some time making a specialty of exploring the old caves which abound here, left Ningyuanfu unaccompanied by any foreigner, leaving word that he would probably return in a few days.

The Lolo country is not far from this city, and Mr. Brooks first visited some of the border tribes. Finding them friendly he was induced to try to make his way across the country, a feat which it is doubtful if any foreigner has yet accomplished. By gifts of money he secured guarantee of safe passage and was handed on from tribe to tribe. He succeeded in making his way almost across the country, having passed through some ten or twelve tribes, when the guide supplied by the last tribe he had visited suddenly deserted him. Mr. Brooks had no official escort with him for he had gone without the knowledge of the Chinese officials, but had in his employ some seven Chinese, one of whom acted as interpreter. Thus deserted, they traveled on as best they could until they fell in with some tribes-people, who, finding strangers in the heart of their country, were naturally somewhat suspicious and hostile. Explanations were given and money offered for a safe escort to the next tribe. Mr. Brooks, perhaps not satisfied with his interpreter's efforts, took the Lolo leader by the arm and tried by gesticulations to make plain his meaning. The Lolo, however, suddenly drew his sword and aimed such a blow at Mr. Brooks' head as would have proved fatal had it hit him as intended. By a quick movement Mr. Brooks escaped the force of the blow, receiving it on the arm instead of the head. Thinking, as was in all probability the case, that his life was in immediate danger, he drew his revolver and shot the man. Then firing several shots into the air he called upon his men to run and they escaped across a river to another tribe. Here they explained their position and Mr. Brooks promised a large reward for a safe escort out of the country. They were assured that the tribe they had just left were bitter enemies and would not dare to cross the river. However, before the Lolos would consent to escort them out of the country they demanded that Mr. Brooks give up his rifle. This he at last consented to do. No sooner had they received the rifle than they raised their war cry. The other tribe rushed across the river, for the two tribes were friends, not enemies. Surrounded by about two hundred enraged tribesmen, there was no hope for the little company. In a few moments all was over. Marvellous to say, from under the pile of stones that was heaped upon them there crawled, some hours later, two of the Chinese. These, though terribly beaten and wounded, had not been actually killed. They were captured and sold as slaves. It was from these, who have since been redeemed, that the above probably true account of the matter was obtained. Much credit is due to Mr. Ferguson for the able way in which he has sifted the affair and secured the remains of Mr. Brooks.

This incident is indeed a sad and regrettable one, and yet, to those knowing the character of the Lolos, not one to be wondered at. The Chinese officials are much opposed to foreigners entering the Lolo country, in fact practically forbid it. It is only by avoiding them that one can enter. He who enters, however worthy his motive, should first count the cost."

PLATE I.

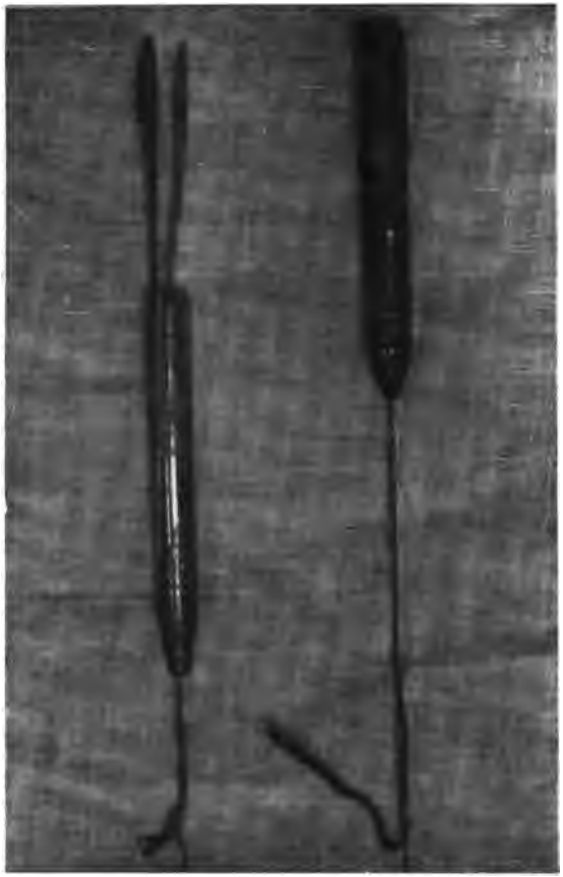

PLATE II.

PLATE III.

PLATE IV.

PLATE V.

PLATE VI.

PLATE VII.

PLATE VIII.

BEES OF NORTHWESTERN WISCONSIN

By S. Graenicher.

Up to the present time nothing has been published on the bee fauna of this part of Wisconsin.† The bees which form the subject of this paper were obtained on two collecting expeditions of the Milwaukee Public Museum. On the first of these the members of the party proceeded in boats down the St. Croix River, from its headwaters at the Upper St. Croix Lake in Douglas Co. on to Hudson in St. Croix Co., about 20 miles above the juncture of the St. Croix and Mississippi Rivers. The time spent was from July 7 to August 14, 1909, and collections were made at the following localities and on the following dates:

Solon Springs (Upper St. Croix Lake), Douglas Co., July 7-15.
Gordon, Douglas Co., July 16.
St. Croix Dam, Douglas Co., July 17-22.
Coppermine Dam, Douglas Co., July 23.
Fishtrap, Burnett Co., July 24.
Mouth of Nemakagon River, Burnett Co., July 25-26.
Swiss, Burnett Co., July 27.
Mouth of Yellow River, Burnett Co., July 28-August 2.
Kettle River Rapids,* Burnett Co., August 4.
Randall, Burnett Co., August 5-7.
Never's Dam, Polk Co., August 9.
Farmington, Polk Co., August 11-12.
Hudson, St. Croix Co., August 13-14.

The expedition of 1910 selected Hudson, the terminal of the St. Croix expedition, as the starting point, remaining there from July 6-12. Five more weeks were spent at the following points along the Mississippi River:

†After this paper had gone to the printer, the author received through the kindness of Mr. Chas. W. Metz the latter's "Revision of the Genus Prosopis in North America" (Trans. Am. Ent. Soc. XXXVII, No. 2, pp. 85-156, plates II-IX), in which two species are reported from Wisconsin. The exact locality is not mentioned, but judging from the shaded area on the accompanying map they were collected in some part of northwestern Wisconsin.

*Rapids of the St. Croix River above the mouth of the Kettle River.

Prescott, Pierce Co., July 13-26.
Maiden Rock, Pierce Co., July 27-August 10.
Fountain City, Buffalo Co., August 11-17.

Altogether 166 species of bees are dealt with in this paper, 7 of which are new (*Colletes vicinalis, Sphecodes solonis, Halictus nigroviridis, Andrena nivaloides, Nomada wisconsinensis, Nomada cockerelli, Triepeolus obliteratus*), and descriptions of which will be found further on; 3 additional new species from the St. Croix region (*Perdita pallidipennis, Perdita citrinella* and *Anthidium chippewaense*) were described in the Canadian Entomologist, Vol. XLII (1910), pp. 101-104 and 157-160.

A BEE OF NOCTURNAL HABITS.

At Prescott, Pierce Co., Wis., *Sphecodogastra texana* Cr. was observed carrying on its work during the hours of the night, collecting pollen and nectar from the flowers of an evening primrose: *Oenothera rhombipetala* Nutt. This plant grows in patches along the sandy bluffs at Prescott, and it occurs also in great numbers at several places in the sandy river bottoms between Prescott and Maiden Rock. The females of *Sphecodogastra texana* begin to arrive at the flowers some time after sunset. On July 14th the first one made its appearance at 7 minutes past 8 o'clock, on the following evening a few minutes earlier. They were observed on several evenings, and on July 15th the flowers were inspected as late as 10 p.m. and a number of the bees found in activity. They were never seen on these flowers in the daytime, not even in the early morning after sunrise, when the flowers were still open. Nor were they met with on any other flowers of that region.

Specimens of *Sphecodogastra texana* found in New Mexico (reported by Prof. T. D. A. Cockerell in Trans. Am. Ent. Soc., Vol. XXV, p. 185, December, 1898) seem to differ somewhat in their habits from those of the Wisconsin region. They were captured in the daytime on the following flowers:

1. A ♂ and a ♀ on *Senecio douglassii* at Las Cruces, Oct. 17 (E. A. Wooton).
2. A ♀ on pear blossoms at Mesilla, April 13, 1895 (Jessie Casad).

Prof. Cockerell has kindly re-examined these specimens, and informed me that the ♂ has large ocelli, the same as the ♀, and that neither one of the ♀♀ carries any pollen. I am also indebted to Prof. Cockerell for having compared a specimen of the bees from Prescott with his New Mexico material, and having found them to be conspecific.

The extraordinary size of the ocelli distinguishes this bee from any other species of our region. This character represents an adaptation to nocturnal habits, and it is present in the South American genus *Megalopta* F. Smith, the habits of some of the species of which have been made known by Ducke[1] in Pará (Brazil). According to this author the bees were found during the day in dense woods, but rarely on the wing, while in the evening females loaded with pollen were captured, mostly flying around the lamp. Ducke further states that *Megalopta* is not a Panurgine bee, as considered by Smith, but that it comes closest to *Halictus*. In this respect it agrees with the N. Am. genus *Sphecodogastra,* which is simply an *Halictus* adapted to nocturnal life. Described in 1872 by Cresson (Hymenopt. texana, Tr. Am. Ent. Soc. IV, 249) as *Sphecodes texana* from specimens collected in Texas, it was referred by Prof. Cockerell (loc. cit.) to *Halictus* in 1898, and Ashmead created in 1899 (Classification of the bees, or the superfamily *Apoidea.* Trans. Am. Ent. Soc. Vol. XXVI, pp. 49-100) the genus *Sphecodogastra,* based on the size of the ocelli.

Prof. Cockerell has called my attention to Bingham's statements (Brit. Ind. Hymenopt., 1, p. 534), according to which the bee *Xylocopa rufescens* Smith is "crepuscular, on fine moonlight nights its loud buzzing can often be heard all night long." From Prof. Cockerell I have the following information: "I possess a male of *Xylocopa rufescens,* and observe that it has very large ocelli (transverse diameter of middle ocellus 1020 μ)."

Some species of *Megacilissa* are known to be nocturnal. In New Mexico Prof. C. H. T. Townsend captured specimens of *Megacilissa yarrowi* Cr. at the flowers of *Datura meteloides* and *Lippia Wrighti*

(1). Neue Beob. ueber d. Bienen d. Amazonasiaender. Zeits. f. wissens. Insektenbiol. Vol. II, pp. 51-60 (1906).

in the early morning before sunrise during the first week in September (reported by T. D. A. Cockerell and Willmatte Porter, Contr. New Mex. Biol. St., Observ. on bees, with descr. of new genera and species, Ann. & Mag. Nat. Hist. Vol. IV, series 7, pp. 403-421, December, 1899). From observations on *Megacilissa matutina* and *M. eximia,* two South American species, Schrottky concludes that "on warm nights the *Megacilissae* are flying all night long." (C. Schrottky, A contr. to the knowl. of some S. Am. Hymen., chiefly from Paraguay. Smiths. Miscell. coll., Vol. XLVIII, p. 259, Feb. 4, 1907.)

The social wasps of South America of the genus *Apoica* fly during the night, and some of our solitary wasps belonging to the family *Mutillidae* (*Photopsis* and *Brachycistis*) are likewise nocturnal in their habits. The males of the latter have large ocelli, while in *Apoica* both sexes are supplied with them. In the *Mutillidae* the females are wingless and crawl over the ground; the males possess wings, and fly around in search of the females. The enlargement of the ocelli in one sex, while in the opposite sex no such enlargement is noticeable, may be explained by the difference in habits. In *Apoica* both sexes are winged and both supplied with large ocelli.

In *Sphecodogastra texana* we are dealing with a typical nocturnal species, and this view is strengthened by the fact, that the two females taken on flowers in the daytime in New Mexico had not collected any pollen from the flowers. It will be noted that one of these females was obtained in April, and the other in October, and this leads us to conclude that *S. texana* produces at least two broods a year, as is the case with most, if not all, of the species of *Halictus.*

In 1903 Prof. T. D. A. Cockerell (Can. Ent. Vol. XXXVI, p. 342, 1903) described a bee *Halictus galpinsiae* which he observed in New Mexico on the flowers of *Gaura coccinea* and *Galpinsia fendlerii* (an evening primrose) after sunset, and this has the ocelli larger in proportion than those of the ordinary species of *Halictus,* but, as Prof. Cockerell informs me, "not larger than those of the closely related *H. aberrans* Crawf., which is diurnal." At any rate either of these species is far behind *S. texana* as regards the size of the ocelli.

The flowers of the evening primrose, *Oenothera rhombipetala,* begin to open late in the afternoon, and remain open until about half past 9 o'clock in the forenoon. Early in the forenoon and towards evening they are visited by several other species of bees, as also by some other insects, and by the humming bird. Some bees are in the habit of forcing their way into these flowers when closed, and of *Oenothera biennis* we have been informed by Robertson[2] that a diurnal bee *Anthedon* (*Melissodes*) *compta* collects its pollen exclusively from the flowers of that species. In these flowers the pollen grains are large and cling together, being connected by cobweb-like threads, and accordingly the bee *Anthedon compta* has the pollen-collecting brushes on the hind legs (scopae) loose, and thinly plumose as pointed out by Robertson. A comparison of our species of *Halictus* with *Sphecodogastra texana* shows that in the latter the scopae are looser than in the former.

OLIGOTROPIC BEES.

Most of our bees visit a large variety of flowers, and have, for this reason been called polytropic by Loew.[3] For bees limiting their visits to a few species of flowers only, this author introduced the term oligotropic. Robertson[4] restricted the use of this latter term to such bees as collect their pollen from the flowers of a single species, or from several more or less closely related species (belonging to the same genus, or at least to the same family).

The occurrence of such an oligotropic bee in a given region is dependent on the presence of the particular plant or plants which furnish the pollen. Of the bees considered in this paper the following 30 species represent oligotropic species in Robertson's sense:

Species of Bee.	Plants Furnishing Pollen.
Prosopis illinoiensis Rob.	*Umbelliferae* (Robertson).
Colletes eulophi Rob.	*Compositae* "
" *armatus* Patton.	" "

(2). Chas. Robertson. Flower visits of oliogotropic bees. Bot. Gaz. XXXII (1901), p. 367.

(3). E. Loew. Blumenb. v. Insekt., etc. Jahrb. bot. Gart. Berlin. III (1884).

(4). Chas. Robertson. Flowers and insects XIX. Bot. Gaz. XXVIII (1899), p. 27.

Colletes latitarsis Rob.
" *aberrans* Ckll.
Halictus nelumbonis Rob.
Andrena peckhami Ckll.
" *clypeonitens* Ckll.
" *nubecula* Sm.
" *asteris* Rob.
" *aliciae* Rob.
" *rudbeckiae* Rob.
" *helianthi* Rob.
" *solidaginis* Rob.
Panurginus asteris Rob.
" *rudbeckiae* Rob.
Halictoides marginatus Cr.
Macropis ciliata Patton.
" *morsei* Rob.
Perdita maura Ckll.
" *citrinella* Graen.
" *pallidipennis* Graen.
Megachile pugnata Say.
" *campanulae* Rob.
Melissodes cnici Rob.
" *agilis* Cress.
" *trinodis* Rob.
" *vernoniae* Rob.
Xenoglossa strenua Cress.
Anthophora walshii Cress.

Physalis—species (Robertson).
Petalostemum-species (Cockerell)
Nymphaeaceae (Robertson).
Compositae.
"
" (Robertson).
" "
" "
" "
" "
" "
" "
" "
Helianthus--species. "
Steironema—species.
" "
Physalis—species (Cockerell).
Petalostemum villosum.
Compositae.
" (Robertson).
Campanula americana "
Cirsium—species "
Compositae "
" "
Vernonia—species "
Cucurbitaceae (Cockerell).
Cassia Chamaecrista (Robertson)

The plant families are represented as follows:

Nymphaeaceae	1	species	of	oligotropic	bees.
Umbelliferae	1	"	"	"	"
Leguminosae	3	"	"	"	"
Solanaceae	2	"	"	"	"
Campanulaceae	1	"	"	"	"
Cucurbitaceae	1	"	"	"	"
Primulaceae	2	"	"	"	"
Compositae	19	"	"	"	"

More than one half of the oligotropic bees of this list depend for their pollen on the *Compositae*. *Rudbeckia hirta, R. laciniata, Heliopsis scabra, Lepachys pinnata,* species of *Aster, Solidago, Helianthus, Liatris, Eupatorium, Cirsium, Vernonia fasciculata,* and *Boltonia asteroides* are the most important species of the region in this respect. Among the plants belonging to some other family *Physalis pubescens* may be mentioned; this species, which is rather common throughout our region, is visited by *Perdita maura* and *Colletes latitarsis.* Two species of oligotropic bees pay their attention to *Petalostemum villosum,* a plant inhabiting the dry sandy slopes at Randall, Burnett Co., North Hudson, St. Croix Co., and Prescott, Pierce Co. The flowers of this plant furnish pollen to *Colletes aberrans* and *Perdita citrinella.*

LIST OF BEES COLLECTED IN THE REGION.

Prosopis Fabricius.

1. **P. basalis** Sm. A boreal species (type locality Hudson Bay). Rather common at Solon Springs (Douglas Co.), and found also in Burnett and St. Croix Cos. (Hudson).

2. **P. modesta** Say. This and the following species are extremely variable. The ♂ ♂ of the two differ in the absence (*illinoiensis*), or presence (*modesta*) of punctures on the first abdominal segment. The ♀ ♀ are not as easily separated. Specimens from Douglas, Burnett, St. Croix and Pierce Cos.

3. **P. illinoiensis** Rob. Douglas, Burnett, Polk and Pierce Cos. Taken on the flowers of *Cicuta maculata* and *Sium cicutaefolium.*

4. **P. ziziae** Rob. Specimens from the mouth of the Yellow River in Burnett Co., Prescott and Maiden Rock in Pierce Co.

5. **P. varifrons** Cress. The light markings on clypeus, scape and tegulae are quite variable in both sexes. Collected at Solon Springs in Douglas Co., the mouth of the Nemakagon River in Burnett Co. and Maiden Rock in Pierce Co.

6. **P. verticalis** Cress. Douglas, Burnett, and Pierce Cos.

7. **P. pygmaea** Cress. A very common species throughout the region. Specimens from Douglas, Burnett and Pierce Cos.

8. **P. saniculae** Rob. Maiden Rock in Pierce Co. and Fountain City in Buffalo Co. The specimens from this region are more slender and decidedly smaller than those from eastern Wisconsin (Milwaukee and Washington Cos.).

Colletes Latreille.

9. **C. aberrans** Ckll. Found only on *Petalostemum villosum* at Randall, Burnett Co., Hudson, St. Croix Co., and Prescott, Pierce Co.

10. **C. eulophi** Rob. A visitor of the *Compositae*. Taken at Gordon, Douglas Co., and from there on along the St. Croix and Mississippi rivers at various points in Burnett, St. Croix and Pierce Cos.

11. **C. armatus** Patton. This too is an oligotropic visitor of the *Compositae*. Mouth of the Yellow River, Kettle River Rapids, and Randall in Burnett Co.

12. **C. brevicornis** Rob. 1 ♀ from Hudson in St. Croix Co.

13. **C. nudus** Rob. Mouth of the Yellow River and Randall in Burnett Co., and Prescott, Pierce Co.

14. **C. latitarsis** Rob. Not found on any other plant than *Physalis pubescens* at Hudson, St. Croix Co., Prescott and Maiden Rock, Pierce Co.

15. **C. vicinalis** n. sp.

♀. This belongs to the group with dark hairs on the thorax above, and it runs in Swenk's[5] table to *distinctus*, a southern species, but it has the two basal abdominal segments slightly punctate, and the antennal joint 3 longer than 4. Length about 10 mm. Clypeus shining, convex and somewhat sulcate, with distinct striate punctures. Mandibles black, piceous at the apex. Malar space at least half as long as wide. Supraclypeal area shining, more closely and finely punctured than the clypeus. Sides of the face dull, with feeble shallow punctures. Vertex, occiput and cheeks shining, finely and very closely punctured, especially the cheeks. Head clothed with a dirty-white pubescence, which is long and copious on the upper portion of the face and on the cheeks below. Antennae black, all of the joints from the fourth on as long as wide. Mesonotum shining, with distinct punctures, which are

(5). Myron Harmon Swenk. Specific characters of the bee genus Colletes. Contrib. Dept. Ent. Univ. Nebr. July, 1908.

close anteriorly, and become scattered towards the scutellum. The latter is shining and punctured the same as the adjoining portion of the mesonotum. Superior face of metathorax formed by a series of narrow, moderately deep pits. Pubescence of the thorax of the same color as that of the head, except in the region of the scutellum where dark hairs are intermixed with the whitish ones. Tegulae black. Wings slightly dusky, with dark brown nervures and stigma. Legs black, clothed with whitish pubescence. No spines on anterior coxae. Dimensions of the tarsal joints about the same as in *distinctus*. Abdomen broad, shining, with apical bands of white pubescence on segments 1 to 5, and a basal band on segment 2. The latter band, as also the apical one on segment 1 is thin and widely interrupted. Punctures very small on all of the segments, barely noticeable on 1 and 2. Segments depressed apically about one-fifth.

Type: Solon Springs, Douglas Co., Wis., taken between July 7 and 15, 1909 (No. 28449).

Two paratypes from the same locality taken together with the type (Nos. 28450 and 28451). Type and paratypes in the collection of the Publ. Museum of Milwaukee. In one of the paratypes (28450) the apical hair bands have nearly disappeared through rubbing.

Sphecodes Latreille

16. **S. arvensis** Patton. A common species in Burnett, Polk, St. Croix and Pierce Cos.

17. **S. davisii** Rob. One ♀ from Prescott, Pierce Co.

18. **S. prosphorus** Lov. and Ckll. Type locality: Waldoboro, Maine. Through the kindness of Mr. John H. Lovell I have had the loan of a ♂ and a ♀ from the type locality. 2 ♀♀ from Solon Springs, Douglas Co., and 1 ♀ from Maiden Rock, Pierce Co., agree with the Maine specimens.

19. **S. cressonii** Rob. 1 ♀, mouth of the Yellow River, and 1 ♀, Randall, both localities in Burnett Co.

20. **S. solonis** n. sp.

♀. Length about 7 mm. Head and thorax black; the first three segments of abdomen red, fourth and fifth intensely black, the sixth dark, tinged with red. Head broad, shining, especially so on vertex and clypeus. Punctures of the face finer and closer than those of vertex and clypeus. Face barely covered with short and sparse white pubescence. Mandibles distinctly notched, black at base, otherwise red, with dark apices. Antennae black,

somewhat brownish towards the tips. Joint 3 a little longer than 4; 2 and 4 subequal. Mesonotum very shiny, with small shallow punctures, which are not close. Median sulcus and parapsidal grooves poorly developed. Disk of metathorax not distinctly defined, with numerous raised lines. Truncation of metathorax enclosed by a circular rim, and divided by a prominent median vertical ridge. The enclosed surface contains shallow reticulations. Mesothoracic and metathoracic pleurae roughened, the latter more finely so than the former. Abdomen broad, slightly narrowed towards the base; surface shining, with hardly a trace of punctures, except some very minute ones on the bases of segments 3 to 5. On the venter the distribution of red and black is the same as on the upper side. Tegulae black, somewhat testaceous exteriorly. Wings hyaline with a dark-brown stigma, and black nervures. Second submarginal cell about half as long as third, narrowed one-third towards the marginal. First recurrent nervure joining the second submarginal cell beyond its middle. Legs black; knees, front tibiae anteriorly, middle and hind tibiae apically, and all the tarsi reddish-testaceous.

♂. Length nearly 6 mm. Body slender, shining and black, except a broad apical band on segment 1 of abdomen, a narrowed apical band on segment 2, and a still narrower subapical band on segment 3 which are testaceous. On the venter the coloration of the segments is the same as above. In the testaceous markings of the legs the male agrees with the female, and the antennae are testaceous beneath from about the 4th joint on to the tips. Antennal joint 4 about equal to 2 plus 3; joint 3 a trifle shorter than 2. Face below and especially the clypeus densely covered with short white pubescence, whereby the surface is hidden from view. Punctation of the head and thorax finer and closer than in the female. Tegulae darker throughout than in the other sex. On the disk of the metathorax the radiating lines are more numerous and better developed, and the whole area is more clearly defined than in the female. There is no rim around the metathoracic truncation, and the reticulations of its surface are closer than in the female.

Types: Solon Springs, Douglas Co., Wis., taken between July 7 and 15, 1909. (Nos. 32833 and 28399.) In the coll. of the Publ. Museum of Milwaukee.

This is a *Sphecodes* sens. strict. as understood by Robertson. The ♀ runs to *minor* in Robertson's table, but that species has the abdomen entirely red, the mesonotum not sulcate, etc. Among other characters the shiny surfaces of the body and the testaceous coloration of the tarsi and other parts of the legs may serve to distinguish *S. solonis* from some other closely related species.

Halictus Latreille.

21. **H. lerouxii** Lep. A species of wide distribution. Common throughout the Wisconsin region. Specimens taken at various points along the St. Croix and Mississippi Rivers, from Solon Springs in Douglas Co. to Maiden Rock in Pierce Co.

22. **H. parallelus** Say. Rather common at Prescott and Maiden Rock in Pierce Co. and Fountain City in Buffalo Co.

23. **H. provancheri** D. T. This is, to all appearances, the most common Halictus of our entire region. Taken at many places between Solon Springs in Douglas Co. and Fountain City in Buffalo Co.

24. **H. coriaceus** Sm. Specimens from Douglas, Burnett, Polk, St. Croix and Pierce Cos.

25. **H. ligatus** Say. Frequents mostly flowers of the *Compositae*. Prescott and Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

26. **H. nelumbonis** Rob. An oligotropic visitor of the *Nymphaeaceae*. 2 ♀♀ taken at Maiden Rock in Pierce Co.

27. **H. truncatus** Rob. A number of ♂ and ♀ specimens from Douglas, Burnett, Polk and St. Croix cos.

28. **H. arcuatus** Rob. Mouth of the Yellow River in Burnett Co., Prescott and Maiden Rock in Pierce Co.

29. **H. quadrimaculatus** Rob. 2 ♀♀ takes at Prescott in Pierce Co.

30. **H. foxii** Rob. 1 ♀ from the St. Croix Dam in Douglas Co., 1 ♀ from Hudson in St. Croix Co. and 1 ♂ from Maiden Rock in Pierce Co.

31. **H. pectoralis** Sm. Specimens from the mouth of the Yellow River and the Kettle River Rapids in Burnett Co., Farmington in Polk Co., Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co. This species is very variable in size, especially in the ♂ sex.

32. **H. nymphalis** Sm. 4 specimens from Prescott and Maiden Rock in Pierce Co. represent undoubtedly the true *nymphalis*. Compared with a specimen of *H. mesillensis* Ckll. received from Prof. Cockerell it is found to be distinctly more brassy than *mesillensis*.

33. **H. vierecki** Crawf. An inhabitant of dry localities, found especially in sandy regions at the mouth of the Yellow River and at Randall in Burnett Co., Hudson in St. Croix Co., and Prescott in Pierce Co.

34. **H. tegularis** Rob. Numerous specimens from Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co.

35. **H. cressonii** Rob. Solon Springs and Gordon in Douglas Co., Farmington in Polk Co., Hudson in St. Croix Co. and Maiden Rock in Pierce Co.

36. **H. albipennis** Rob. 2 ♀♀ from Farmington in Polk Co., 2 ♀♀ from Hudson in St. Croix Co. and 1 ♀ from Prescott in Pierce Co. The latter specimen is more finely and sparsely punctured on the mesonotum than those from the other localities, but in all other points it agrees with them.

37. **H. zephyrus** Sm. This is a very common species in eastern Wisconsin, but it seems to be rather rare in the northwestern part of the state. It was met with at Hudson in St. Croix Co., Maiden Rock in Pierce Co. and Fountain City in Buffalo Co.

38. **H. pilosus** Sm. Mouth of the Yellow River and Randall in Burnett Co., Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co.

39. **H. sparsus** Rob. Solon Springs in Douglas Co., Prescott and Maiden Rock in Pierce Co. and Fountain City in Buffalo Co.

40. **H. pruinosus** Rob. 1 ♀ from Prescott in Pierce Co.

41. **H. connexus** Cr. Yellow River in Burnett Co., Never's Dam and Farmington in Polk Co., Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co. and Fountain City in Buffalo Co.

42. **H. hortensis** Lov. Specimens from Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co. agree with specimens from the type locality (Waldoboro, Maine). I am greatly indebted to Mr. John H. Lovell for specimens of this, as also of the three following species which were described by him.

43. **H. viridatus** Lov. 2 ♀♀ from Hudson in St. Croix Co., 1 ♂ and 7 ♀♀ from Prescott, 2 ♀♀ from Maiden Rock in Pierce Co. The mesonotum in these Wisconsin specimens is more brassy and more strongly punctured than in the Maine specimens.

44. **H. versans** Lov. Solon Springs in Douglas Co., Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co.

45. **H. oblongus** Lov. Numerous specimens from Solon Springs and Coppermine Dam in Douglas Co., the mouth of the Nemakagon River, Swiss and Randall in Burnett Co., Farmington in Polk Co., Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co. and Fountain City in Buffalo Co.

46. **H. versatus** Rob. Solon Springs in Douglas Co., mouth of the Nemakagon River in Burnett Co. and Farmington in Polk Co.

47. **H. nigro-viridis** n. sp.

♀. Length nearly 7 mm. Head and thorax dark green, abdomen black. Face as broad as long, with distinct close punctures, those on the vertex being extremely close. Clypeus with a purplish hue and with coarser and fewer punctures. Cheeks broad, shining, finely punctured. Antennae black, slightly lighter uderneath towards the apex. Mesonotum shining, with sparse small and shallow punctures. Median sulcus very distinct, parapsidal grooves poorly developed. Base of metathorax surrounded by a semi-circular low rim. Enclosure with raised lines; of these the median one and about six on each side reach as far as the rim. Metathorax with a distinct truncation, the surface of which is finely roughened and is divided in the middle by a low vertical ridge. Wings smoky; stigma, nervures and tegulae dark testaceous, the latter blackish in front. Third submarginal cell about one and one-half times as long as the second, narrowed considerably towards the marginal. Legs dark, with the tarsi somewhat ferruginous. Inner spur of hind tibia with 5 teeth, those near the base rather long. Body clothed with ochreous pubescence, which is conspicuous on the legs, lower surface of abdomen and in the vicinity of the anal rima, but otherwise very short and sparse. Abdomen oval, smooth, shining and impunctate. When viewed from the side purplish tints are noticeable on the black ground color.

Type: Swiss, Burnett Co., July 27, 1909 (No. 32837). In the coll. of the Public Museum of Milwaukee. It is close to *H.* (*Chloralictus*) *atriventris* Crawf. (type locality: Goldstream, B. C.) but this has the head and thorax of a dark blue color, the apical margins of the abdominal segments testaceous, characters that separate it from *H. nigro-viridis*.

Sphecodogastra Ashmead.

48. **S. texana** Cr. Numerous ♀♀ at Prescott in Pierce Co. on the flowers of *Oenothera rhombipetala*. The nocturnal habits of this species have been discussed at the beginning of this paper.

Augochlora Smith.

49. **A. pura** Say. Common in Douglas Co. at Solon Springs, St. Croix Dam and Coppermine Dam. Not as frequent farther south. Specimens were obtained in Burnett, Polk and Pierce Cos.

50. **A. fervida** Sm. Not found in the northern parts; specimens were collected at Maiden Rock in Pierce Co. only.

51. **A. viridula** Sm. Mouth of the Nemakagon River, mouth of the Yellow River, Kettle River Rapids and Randall in Burnett Co., Prescott and Maiden Rock in Pierce Co.

52. **A. confusa** Rob. Solon Springs, Douglas Co., mouth of the Nemakagon River, mouth of the Yellow River and Randall in Burnett Co., Farmington in Polk Co., Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

53. **A. similis** Rob. Prescott, Pierce Co.

Agapostemon Smith

54. **A. radiatus** Say. Collected at the mouth of the Yellow River, and at Randall in Burnett Co., Hudson, St. Croix Co., Prescott and Maiden Rock, Pierce Co., Fountain City, Buffalo Co.

55. **A. viridulus** Fab. Farmington, Polk Co.; Hudson, St. Croix Co.; Prescott and Maiden Rock, Pierce Co.

56. **A. splendens** Lep. Solon Springs and St. Croix Dam in Douglas Co.; Randall in Burnett Co.; Hudson in St. Croix Co.; Maiden Rock in Pierce Co.

57. **A. texanus subtilior** Ckll. Specimens from Hudson in St. Croix Co., and Prescott in Pierce Co.

Eunomia Cresson.

58. **E. heteropoda** Say. Occurs in sandy spots at Hudson, St. Croix Co., Prescott and Maiden Rock, Pierce Co.

Andrena Fabricius.

59. **A. nivalis** Sm. Solon Springs and Gordon in Douglas Co.

60. **A. nivaloides** n. sp.

♀. Length about 9 mm. Black, with light ochreous pubescence. Head as broad as long. Clypeus smooth and shining, with distinct and close punctures on the sides; a narrow median stripe is impunctate. Process of labrum rounded. Mandibles black. Short thin pubescence on the sides of the face, around the antennae and on the lower side of the cheeks. Facial fovea more than half as wide as the distance between the eye and the lateral ocellus. From above, the facial fovea appears light ochreous; it is separated from the eye by a shining narrow line and extends below the antennal line. Antennae black, joint 3 as long as 4 plus 5. Cheeks not broad, slightly shining, with extremely fine reticulations. Mesonotum dullish anteriorly, shining posteriorly, minutely and sparsely punctured; there are delicate reticulations between the punctures. Scutellum with punctures larger and closer than on the mesonotum. Metathoracic area not sharply defined, its surface much rougher than that on the sides. Mesopleurae nearly bare, hardly shining. Tegulae dark testaceous, piceous in front. Wings dusky, nervures and stigma dark testaceous. Third submarginal cell nearly twice as long as second, narrowed one-half towards the marginal. Legs black, clothed with light ochreous pubescence. Tibial scopa formed by dense and moderately long, simple hairs. Hind metatarsus a little over half as broad as tibia at its greatest breadth. Abdomen shining, impunctate. Segment 2 depressed less than one-half, but more than one-third. Sparse light pubescence on dorsum of segment 1, thin interrupted apical hair-bands on segments 2 to 4. Anal fimbria dark brown. Apical hair-bands on ventral segments 2 to 5.

Type: Solon Springs, Douglas Co., Wis., taken between July 7 to 15, 1909 (No. 28433).

Paratypes: 2 ♀♀ from the type locality (Nos. 28410) and 28412) and 1 ♀ from the mouth of the Yellow River in Burnett Co., Wis., taken either Aug. 1 or Aug. 2, 1909 (No. 29634).

Types and paratypes in the coll. of the Publ. Museum of Milwaukee.

This species runs in Viereck's table for the females of the Connecticut *Andrenae* (Ent. News, Vol. XVIII, pp. 280-288, 1907) to *nivalis* and *placida*, both of which occur in Wisconsin. In color it resembles *nivalis*, but that is a much larger bee of heavier build, with the pubescence more ochreous, the clypeus more evenly punctured and less shining, the metathoracic area smoother, etc. *Placida* agrees in size with *nivaloides*, but the pubescence of head and thorax is whiter, the clypeus duller; above all the finger-shaped process of the labrum serves to distinguish *placida* from any other bee known to me from the Wisconsin region. On account of the shining clypeus,

with its smooth median impunctate area *nivaloides* might be confounded with *clypeonitens* Ckll., but the latter has distinct uninterrupted abdominal hairbands and sooty anal fimbria.

61. **A. wheeleri** Graen. 1 ♀, Solon Springs, Douglas Co.

62. **A. crataegi** Rob. Specimens from Solon Springs and Gordon in Douglas Co.

63. **A. alleghaniensis** Vier. 3 ♀♀ from Solon Springs in Douglas Co. run to this species in Viereck's tables of Connecticut *Andrenae* (Ent. News, Vol. XVIII, pp. 280-288, 1907).

64. **A. vicina** Sm. Solon Springs in Douglas Co., and mouth of the Yellow River in Burnett Co.

65. **A. fragilis** Sm. Prescott in Pierce Co.

66. **A. peckhami** Ckll. An oligotropic bee, collecting its pollen from some of the *Compositae,* mostly from sunflowers. Taken at the mouth of the Nemakagon River and the mouth of the Yellow River in Burnett Co.; Farmington in Polk Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

67. **A. clypeonitens** Ckll. Mouth of the Nemakagon River in Burnett Co.; Prescott and Maiden Rock in Pierce Co. This, too, like the foregoing, is an oligotropic visitor of the *Compositae.*

68. **A. nubecula** Sm. Maiden Rock in Pierce Co. on flowers of the *Compositae.*

69. **A. asteris** Rob. Maiden Rock in Pierce Co., visiting the flowers of *Aster*-species, but also taken on other composite flowers.

70. **A. aliciae** Rob. Never's Dam and Farmington in Polk Co.; Maiden Rock in Pierce Co., and Fountain City in Buffalo Co. On *Helianthus* and *Rudbeckia.*

71. **A. rudbeckiae** Rob. As the name implies, this species visits mostly flowers of some species of *Rudbeckia.* It is found most frequently on those of *R. hirta,* but at Prescott in Pierce Co. it was observed collecting pollen from the flowers of *Lepachys pinnata.* Taken also at Maiden Rock in Pierce Co.

72. **A. helianthi** Rob. Farmington in Polk Co.; Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

73. **A. solidaginis** Rob. Specimens from the mouth of the Yellow River in Burnett Co.; Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

74. **A. robertsonii** D. T. Solon Springs and Gordon in Douglas Co.; Swiss in Burnett Co., and Hudson in St. Croix Co.

75. **A. forbesii** Rob. Solon Springs in Douglas Co.

76. **A. multiplicata** Ckll. Taken at Solon Springs, Gordon, and St. Croix Dam in Douglas Co.; Fishtrap, mouth of the Nemakagon River, Swiss and mouth of the Yellow River in Burnett Co.

77. **A. obscura** Rob. Mouth of the Nemakagon River, mouth of the Yellow River, and Randall in Burnett Co.; Hudson in St. Croix Co., and Prescott in Pierce Co.

Macropis Panzer.

78. **M. morsei** Rob. This species visits the flowers of *Steironema ciliatum*. Taken at Solon Springs, Gordon and St. Croix Dam in Douglas Co.; mouth of the Nemakagon River, and mouth of the Yellow River in Burnett Co., and Hudson in St. Croix Co.

79. **M. ciliata** Patton. Visits the same flowers as the foregoing. Prescott and Maiden Rock in Pierce Co.

Halictoides Nylander.

80. **H. novae-angliae** Rob. Mouth of the Nemakagon River, mouth of the Yellow River and Randall in Burnett Co.; Farmington in Polk Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co.

81. **H. marginatus** Cr. 1 ♂ Farmington, Polk Co. A visitor of sunflowers.

Panurginus Nylander.

82. **P. asteris** Rob. On flowers of the *Compositae* at the mouth of the Yellow River in Burnett Co.; Farmington in Polk Co.; Prescott and Maiden Rock in Pierce Co.

83. **P. rudbeckiae** Rob. Also an oligotropic visitor of the *Compositae*. Specimens from the mouth of the Yellow River, Kettle River Rapids and Randall in Burnett Co.; Farmington in Polk Co.; Hudson in St. Croix Co., and Prescott in Pierce Co.

Calliopsis Smith.

84. **C. andreniformis** Sm. An extremely common species. Specimens from Solon Springs, Douglas Co.; mouth of the Yellow River and Randall in Burnett Co.; Hudson, St. Croix Co.; Prescott, Pierce Co., and Fountain City, Buffalo Co.

85. **C. verbenae nebraskensis** Crawf. Prescott and Maiden Rock in Pierce Co. Taken on the flowers of *Verbena hastata.*

Perdita Smith

86. **P. maura** Ckll. Taken at Hudson in St. Croix Co. and Prescott in Pierce Co. on the flowers of *Physalis pubescens.*

87. **P. bruneri** Ckll. One male taken at the Kettle River Rapids on the flowers of *Rudbeckia hirta.*

88. **P. citrinella** Graen. This species was described from specimens taken at Hudson, St. Croix Co. on the flowers of *Petalostemum villosum.* A specimen from Prescott in Pierce Co., also a ♀, like the type, agrees in general with the latter.

89. **P. pallidipennis** Graen. The specimens from which this species was described, were taken in 1909 along the St. Croix River, at the mouth of the Yellow River, the Kettle River Rapids, and Randall in Burnett Co. In 1910 specimens were collected at Prescott in Pierce Co. on the flowers of *Lepachys pinnata.* This species favors the flowers of several species of *Compositae.*

Nomada Fabricius.

90. **N. florilega** Lovell and Cockerell. Specimens from Solon Springs in Douglas Co., and the mouth of the Yellow River in Burnett Co. agree with the description.

91. **N. cressonii** Rob. Mouth of the Yellow River, Burnett Co.

92. **N. articulata** Sm. Farmington in Polk Co., and Maiden Rock in Pierce Co.

93. **N. graenicheri** Ckll. (Can. Ent. Vol. XXXVII, p. 189, ♀.)

The ♀♀ show the following variations: The yellow spots on labrum, clypeus and supraclypeal area are either indistinct, or entire-

ly absent. Middle coxae also marked with yellow. Posterior tibiae blackened in front, and behind. Only the first 2 joints of the antennae red.

♂. First joint of antennae (scape) robust. Yellow bands on abdominal segments 1 to 6. Segment 7 very slightly notched, the notch in some of the specimens hardly noticeable. Otherwise the male resembles the female rather closely.

11 ♂♂ and 7 ♀♀ taken at the following localities: 1 ♂ at the mouth of the Yellow River, Burnett Co., between July 28 and 31, 1909; 1 ♀ at Hudson, St. Croix Co., August 13, 1909; 10 ♂♂ and 6 ♀♀ at Maiden Rock, Pierce Co., between August 4 and 10, 1910.

94. **N. wisconsinensis** n. sp.

♀. Length about 9 mm. Pubescence light, extremely sparse and short, hardly noticeable. Punctures of the head close and strong on the vertex, becoming shallower and more scattered on the lower sides of the face, and on the clypeus. Cheeks narrow. Joint 3 of antennae longer than 4. Antennae reddish at base, gradually becoming darker towards the apex. A sharp ridge between the base of the antennae. Yellow lateral facemarks reaching up as high as the lower ocellus, broadening out below, and gradually assuming the dark ferruginous color of the lower region of the face and clypeus. A slight yellow mark behind the summit of the eye. Labrum and mandibles of a lighter ferruginous color, the mandibles with a yellow line at base. Mandibles simple. Mesothorax very coarsely punctured. A broad line on collar, tubercles, scutellum, postscutellum, a spot on pleura beneath the base of the hind wing, and a small linear mark in front of this (beneath the tubercle) lemon-yellow. On one side these two pleural marks are separate, on the other slightly connected. Scutellum with two distinct lobes. Metathorax rather smoothish, with indistinct punctures. Abdomen shining, closely and finely punctured. Segment 1 has the punctures shallower and farther apart than the remaining segments. Yellow markings on the abdomen as follows: a very narrow subapical band on segment 1, a broader one, narrowed medially on segment 2, two widely separated cuneate yellow marks, pointed mesad on segment 3, a slightly interrupted band on segment 4, and a broad band narrowed medially and hardly interrupted on segment 5. Venter entirely black. Wings dusky. Stigma testaceous, nervures fuscous. Tegulae and base of costal nervure yellow. Basal nervure interstitial with the transverse medial nervure. Legs reddish. Front coxae simple. Middle and posterior coxae each with a yellow spot along the external margin. A faint dark line on anterior surface of hind femur, and a yellow spot near the apex of hind tibia exteriorly.

♂. Length about 10 mm. Clypeus, supraclypeal mark, lateral facemarks, labrum, and mandibles entirely yellow, the tips of the latter with a

slight reddish tinge. Antennae dark above, reddish below, except at extreme tip. The two pleural marks are united on both sides. Abdominal bands on segments 1 to 6 narrowed medially, interrupted on 6 only. Segment 7 strongly notched. Hind femora black on basal two-thirds.

Types: Randall, Burnett Co., August 5-7, 1909 (Nos. 29751 and 29752).

Paratypes: 1 ♂, mouth of the Yellow River, Burnett Co., between July 28 and 31, 1909; 2 ♂♂, Prescott, Pierce Co., between July 13 and 19, 1910; 1 ♂, Maiden Rock, Pierce Co., between August 4 and 10, 1910; 2 ♂♂, Fountain City, Buffalo Co., between August 12 and 17, 1910. These males are very variable in size, the smallest one (Maiden Rock) being only 7 mm. long.

Types and paratypes in the coll. of the Public Museum of Milwaukee.

In its general appearance this species resembles *Nomada* (*Cephen*) *texana* Cress. rather closely, but the spine on the front coxa is entirely lacking.

95. **N. cockerelli** n. sp.

♂. Length 8 mm. Black with cream-colored markings. Head and thorax thinly clothed with short white pubescence, longest on the under sides. Mandibles simple, cream-colored with ferruginous tips. Labrum, broad apical margin of clypeus, and a narrow facial mark on each side below (adjoining the clypeal mark) creamy. Face slightly shining, finely and closely punctured. Punctures of the vertex coarser, but not as close. Antennae dark above, reddish beneath along their entire length. Joint 3 somewhat longer than 4. No spine on front coxae. Thorax dull with close punctures. A line on collar, tubercles, and two spots on scutellum creamy white. Scutellum produced, slightly bilobed. Metathorax smoother and with a much finer punctation than the other regions of the thorax. Wings dusky, especially so in the apical region. Nervures and stigma fuscous. Basal nervure ending a trifle basad of transverse medial nervure. Outer half of tegulae yellowish, inner half rufo-piceous. Abdomen shining, with dense minute punctures. Cream-colored markings as follows: slightly interrupted bands, narrowed towards the middle on segments 2 to 4, broadest on 2; narrow entire bands on segments 5 and 6. The band on segment 5 is emarginate on each side anteriorly. Bands of the same color on ventral segments 2 to 5. Segment 7 entire. Coxae and trochanters black. Anterior and middle femora black on posterior surface, reddish-yellow at tip, and along the anterior surface. Posterior femora black with reddish-yellow tips. Anterior and middle tibiae reddish-yellow in front, black behind. Posterior tibiae black, with a yellow

ring at base and a yellow blotch at apex exteriorly, these two markings being connected by a narrow yellow line along the outer margin of the tibia. Tarsi reddish-yellow, those of the hind legs darkened on the outer surface.

Type: Hudson, St. Croix Co., between July 6 and 12, 1910 (No. 37769).

Paratype: Mouth of the Yellow River, Burnett Co., between July 28 and 31, 1909. A specimen belonging to this same species, taken in Milwaukee Co., was sent to Prof. T. D. A. Cockerell some time ago, and Prof. Cockerell kindly suggested that it might be new. In Robertson's tables it runs to *placida*, but that has yellow markings, and differs otherwise. Types and paratypes in the coll. of the Publ. Museum of Milwaukee.

Viereckella Swenk.

96. **V. pilosula** Cress. This is the *Nomada pilosula* described by Cresson, as stated by Mr. H. L. Viereck, who had the kindness to compare a specimen from Milwaukee with the type. Prof. Cockerell, to whom also a specimen was sent, places it in *Viereckella*. It is not rare in Wisconsin, and in the region considered in this paper specimens were obtained at Solon Springs and St. Croix Dam in Douglas Co., mouth of the Yellow River, Kettle River Rapids and Randall in Burnett Co., Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co.

Epeolus Latreille.

97. **E. bifasciatus** Cress. Specimens from Randall, Burnett Co., Farmington, Polk Co., and Hudson, St. Croix Co.

98. **E. pusillus** Cress. 1 ♂ from Maiden Rock in Pierce Co. This specimen has the antennae entirely black.

99. **E. lectoides** Rob. 2 ♂♂, 1 ♀ from the mouth of the Yellow River in Burnett Co., 1 ♀ from Hudson in St. Croix Co. and 1 ♂ from Prescott in Pierce Co. All of these agree in detail with the description.

100. **E. scutellaris** Say. 6 specimens which are referred to this species were taken in the following localities: 1 ♀, Kettle River Rapids; 1 ♂ and 1 ♀ at Randall in Burnett Co.; 1 ♂ and 2 ♀♀ at Prescott in Pierce Co. They show a great deal of variation in the

distribution of red. In one ♀ the entire clypeus, the pleurae to a considerable extent and the vertex wholly red, in the other specimens these parts red to a slight extent only.

Argyroselenis Robertson.

101. **A. minima** Rob. St. Croix Dam in Douglas Co.; the mouth of the Yellow River and Kettle River Rapids in Burnett Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co. In three of the ♀ ♀ the bands on abdominal segments 1 and 2, as also that on 3 interrupted. In the ♂ the labrum and the first three joints of the antennae mostly black.

Triepeolus Robertson.

102. **T. simplex** Rob. Prescott and Maiden Rock in Pierce Co. and Fountain City in Buffalo Co. In all of these specimens the first 3 antennal joints are tinged with red, not only in the ♂ ♂, but in the ♀ ♀ also.

103. **T. concavus** Cr. 2 ♀ ♀ from Maiden Rock in Pierce Co.

104. **T. cressonii** Rob. This species was rather common at Maiden Rock in Pierce Co. on the flowers of *Verbena hastata* and *Vernonia fasciculata*. It was taken besides at the mouth of the Yellow River, Kettle River Rapids and Randall in Burnett Co., and Fountain City in Buffalo Co.

105. **T. donatus** Sm. Randall in Burnett Co.; Farmington in Polk Co., and Maiden Rock in Pierce Co.

106. **T. lunatus** Say 7 ♂ ♂, Prescott, and 1 ♀, Maiden Rock in Pierce Co.

107. **T. concolor** Rob. 2 ♂ ♂, Prescott, and 1 ♀, Maiden Rock in Pierce Co.

108. **T. obliteratus** n. sp.

♀. Length 9 mm. Black, with cinereous markings. Face densely covered with silvery pubescence, hiding the close and fine punctures from view. There is also a covering of glittering pile on cheeks and occiput. These parts are finely punctured. Vertex shining, more coarsely punctured. Antennae black, with the apex of the scape ferruginous. Mandibles black with ferruginous tips; the labrum ferruginous along the lateral borders. Mesonotum finely punctured, with 2 distinct cinereous lines which do not reach

the transverse line in front. Pleurae broadly covered with cinereous pubescence above, shining, closely and coarsely punctured below. Scutel bilobed, slightly prominent; lateral teeth black, sharp, conical, much shorter than the lobes. Wings dusky along the margin. Nervures and stigma black, tegulae reddish-testaceous. In each wing the second transverse-cubital nervure is incompletely developed, only one-half of it (adjoining the cubital) being present. Femora and tibiae basally and apically, front and middle tibiae anteriorly, and all the tarsi red. Legs otherwise black, with a short glittering pile. Tibial spurs black. Cinereous border of abdominal segment 1 not broader on the sides; the uncovered black transverse patch long and narrow. Apical bands on segments 1 to 4 uninterrupted. The patch along each side of segment 2 (proceeding from the apical band) is broad, pointed and bent towards the middle, forming a comma-shaped marking. A triangular cinereous patch on each side of the dorsum of segment 5; middle of the segment slightly shining, finely punctate, with concave apex. Apex of pygidium truncate. Broad apical bands on ventral segments 2 to 4. Ventral segment 5 straight, sparsely covered with glittering pile near the apex.

♂. Agrees in general with the ♀, but is a trifle smaller. More ferruginous on the labrum than in the ♀, and first 3 joints of antennae black, mixed with ferruginous. The 2 longitudinal lines on the mesonotum longer, and reaching the anterior transverse band. Tegulae more reddish than in the other sex, and tubercles also red. There is only an extremely short stump of a second transverse-cubital nervure on the cubital nervure in each wing; the latter has practically only 2 submarginal cells. Legs red with very little black on femora and tibiae. Abdomen with 6 apical hair-bands, the 1st interrupted; the 6th whiter than the others.

Types: ♀ taken at the mouth of the Yellow River in Burnett Co., Wis., between July 28 and 31, 1909 (No. 29595). ♂ from Prescott in Pierce Co., Wis., taken between July 13 and 19, 1910 (No. 39317). Types in the coll. of the Publ. Museum of Milwaukee.

This species looks like a *T. donatus* with red legs (black in *donatus*); the cinereous pubescence has a more yellowish tint than in *donatus*. Both of the specimens have the second transverse cubital nervure more or less obliterated in both wings.

Melecta Latreille.

109. **M. interrupta** Cr. A ♂ specimen from Maiden Rock in Pierce Co.

Coelioxys Latreille.

110. **C. texana** Cr. Solon Springs in Douglas Co.; mouth of the Nemakagon River, Swiss, mouth of the Yellow River and Kettle River Rapids in Burnett Co., and Prescott in Pierce Co.

111. **C. moesta** Cr. Solon Springs and Coppermine Dam in Douglas Co.; mouth of the Yellow River and Randall in Burnett Co.

112. **C. ribis** Ckll. Specimens from Douglas Co. (Solon Springs) and Burnett Co. (mouth of the Yellow River) agree quite closely with a specimen received from Prof. Cockerell.

113. **C. lucrosa** Cr. Solon Springs in Douglas Co.

114. **C. modesta** Cr. St. Croix Dam in Douglas Co. and Prescott in Pierce Co.

115. **C. rufitarsis** Sm. This is one of our most common species of *Coelioxys*. Taken at Solon Springs and Gordon in Douglas Co.; the mouth of the Yellow River in Burnett Co.; Farmington in Polk Co.; Hudson in St. Croix Co., and Prescott in Pierce Co.

116. **C. octodentata** Say. Randall in Burnett Co.

Stelis Panzer.

117. **S. subemarginata** Cress. Solon Springs in Douglas Co.

118. **S. nitida** Cress. Solon Springs in Douglas Co.

Dianthidium Cockerell.

119. **D. simile** Cress. Specimens from Swiss and the mouth of the Yellow River in Burnett Co.; Hudson in St. Croix Co., and Prescott in Pierce Co.

120. **D. jugatorium** Say. Numerous specimens from the mouth of the Nemakagon River, Swiss, the mouth of the Yellow River and Randall in Burnett Co.; Prescott and Maiden Rock in Pierce Co.

Anthidium Fabricius.

121. **A. chippewaense** Graen. Types from Pine Co. in Minnesota, paratypes from the mouth of the Yellow River in Burnett Co. in Wisconsin. This is extremely close to *A. cockerelli* Titus, and may be considered an eastern representative of that species. Titus described his species as a *Protanthidium*. Prof. T. D. A. Cockerell, to whom a specimen of *A. chippewaense* was sent, kindly informed me that the latter is a "*Heteranthidium*, related to *occidentale* and *zebratum*." *Protanthidium* is an Asiatic genus.

Osmia Panzer.

122. **O. atriventris** Cress. Solon Springs in Douglas Co.; Fishtrap, mouth of the Nemakagon River, and mouth of the Yellow River in Burnett Co.

123. **O. simillima** Sm. Solon Springs and St. Croix Dam in Douglas Co.; Pansy and mouth of the Yellow River in Burnett Co., and Hudson in St. Croix Co.

124. **O. canadensis** Cress. A ♀ taken at Gordon in Douglas Co.

125. **O. bucephala** Cress. This and the foregoing species are rarely met with in Wisconsin. One ♀ of *bucephala* from Solon Springs in Douglas Co.

Monumetha Cress.

126. **M. borealis** Cress. Not uncommon at Solon Springs in Douglas Co.

Alcidamea Cresson.

127. **A. simplex** Cress. Occurs throughout our region. Specimens from Solon Springs in Douglas Co.; Randall in Burnett Co., Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co.

128. **A. truncata** Cress. Much rarer than the preceding species. Gordon in Douglas Co., and mouth of the Yellow River in Burnett Co.

Andronicus Cresson.

129. **A. cylindricus** Cress. Solon Springs in Douglas Co.; mouth of the Yellow River in Burnett Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co.

Ashmeadiella Cockerell.

130. **A. denticulata** Cress. Specimens from Swiss, the mouth of the Yellow River and Randall in Burnett Co.

Heriades Spinola.

131. **H. carinatus** Cress. A widely distributed species, common in Wisconsin. Taken at Solon Springs, Gordon and St. Croix

Dam in Douglas Co.; the mouth of the Yellow River, Kettle River Rapids and Randall in Burnett Co.; Never's Dam in Polk Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co.

Megachile Latreille.

132. **M. pugnata** Say. This is an oligotropic visitor of the *Compositae*. Specimens from Solon Springs, Gordon and St. Croix Dam in Douglas Co.; Fishtrap, the mouth of the Nemakagon River, Swiss and the mouth of the Yellow River in Burnett Co.; Hudson in St. Croix Co.

133. **M. infragilis** Cress. Solon Springs, St. Croix Dam and Coppermine Dam in Douglas Co.; Nemakagon River, mouth of the Yellow River and Kettle River Rapids in Burnett Co.

134. **M. sexdentata** Rob. A ♂ from Prescott in Pierce Co.

135. **M. montivaga** Cress. Specimens from Solon Springs and St. Croix Dam in Douglas Co.; the mouth of the Nemakagon River, Swiss, the mouth of the Yellow River and Randall in Burnett Co.

136. **M. wootoni** Ckll. Determined by Prof. Cockerell. Common at Solon Springs in Douglas Co.

137. **M. brevis** Say. Solon Springs in Douglas Co.; Hudson in St. Croix Co.; Prescott in Pierce Co., and Fountain City in Buffalo Co.

138. **M. fortis** Cress. One ♂ of this western species was taken at Maiden Rock in Pierce Co.

139. **M. latimanus** Say. This species is met with everywhere in our state. Specimens from Solon Springs in Douglas Co.; the mouth of the Yellow River and Randall in Burnett Co.; Farmington in Polk Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

140. **M. vidua** Sm. Solon Springs in Douglas Co.; mouth of the Nemakagon River and mouth of the Yellow River in Burnett Co.; Hudson in St. Croix Co., and Fountain City in Buffalo Co.

141. **M. mendica** Cress. Taken at Solon Springs in Douglas Co.; Randall in Burnett Co.; Hudson in St. Croix Co., and Fountain City in Buffalo Co.

142. **M. campanulae** Rob. The ♀ collects its pollen from the flowers of *Campanula americana.* Specimens from Solon Springs in Douglas Co., and Randall in Burnett Co.

143. **M. pruina** Sm. Randall in Burnett Co.

Melissodes Latreille.

144. **M. agilis** Say. Very common. Taken at the mouth of the Yellow River and Randall in Burnett Co.; Farmington in Polk Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co. Like the following this bee obtains its pollen from various species of *Compositae.*

145. **M. trinodis** Rob. (?**pennsylvanica** Lep.). Mouth of the Yellow River and Randall in Burnett Co.; Farmington in Polk Co.; Hudson in St. Croix Co.

146. **M. rustica** Say. St. Croix Dam in Douglas Co.; mouth of the Nemakagon River, Swiss, mouth of the Yellow River and Randall in Burnett Co.; Farmington in Polk Co.; Hudson in St. Croix Co., and Maiden Rock in Pierce Co.

147. **M. vernoniae** Rob. Taken on the flowers of *Vernonia fasciculata* at Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co.

148. **M. cnici** Rob. (?**desponsa** Sm.). The ♀♀ collect their pollen from the flowers of thistles. Specimens from Randall in Burnett Co.; Never's Dam and Farmington in Polk Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co.

149. **M. bimaculata** Lep. Prescott and Maiden Rock in Pierce Co.

150. **M. obliqua** Say. Collecting pollen mostly from the flowers of *Lepachys pinnata,* but also from those of *Rudbeckia hirta* and *R. laciniata.* Taken at Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co.

Xenoglossa Smith.

151. **X. strenua** Cress. Two ♂♂ and one ♀ were collected at Hudson in St. Croix Co. on the flowers of *Cirsium arvense,* sucking. The ♀♀ of this genus collect pollen from the flowers of *Cucurbitaceae.*

Anthophora Latreille.

152. **A. bomboides** Kirby. A boreal species. Taken at Solon Springs in Douglas Co. on the flowers of *Apocynum androsaemifolium.*

153. **A. walshii** Cress. One ♂ taken at the mouth of the Yellow River in Burnett Co. on the flowers of *Rudbeckia hirta.* The ♀ gets her pollen, according to Robertson, from the flowers of *Cassia Chamaecrista,* a plant frequently met with along the St. Croix and Mississippi Rivers. In the region considered in this paper this bee seems to be rather scarce, and the ♂ referred to above is the only specimen I have seen.

Clisodon Patton.

154. **C. terminalis** Cress. This bee is not uncommon in Wisconsin. Specimens from Solon Springs and Gordon in Douglas Co.; the mouth of the Nemakagon River, Swiss, the mouth of the Yellow River, Kettle River Rapids and Randall in Burnett Co.; Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

Ceratina Latreille.

155. **C. dupla** Say. One of the most common bees throughout the state. Taken at Solon Springs in Douglas Co.; the mouth of the Yellow River and Randall in Burnett Co.; Never's Dam in Polk Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co.; Fountain City in Buffalo Co.

Psithyrus Lepeletier.

156. **P. variabilis** Cress. Taken at Solon Springs and Coppermine Dam in Douglas Co.; the mouth of the Nemakagon River and the mouth of the Yellow River in Burnett Co.

157. **P. laboriosus** Fab. Maiden Rock in Pierce Co.

Bombus Latreille.

158. **B. huntii** Greene=**ternarius** Say. This and the following two species were the dominant bumblebees in Douglas Co., especially at Solon Springs. Taken besides at Fishtrap, mouth of the Nemakagon River and the mouth of the Yellow River in Burnett Co., and Never's Dam in Polk Co.

159. **B. terricola** Kirby. Solon Springs and St. Croix Dam in Douglas Co.; Fishtrap, mouth of the Nemakagon River, mouth of the Yellow River and Randall in Burnett Co.

160. **B. consimilis** Cress. Solon Springs, Gordon, St. Croix Dam and Coppermine Dam in Douglas Co.; mouth of the Nemakagon River, Swiss and mouth of the Yellow River in Burnett Co.; Farmington in Polk Co.; Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

161. **B. pennsylvanicus** Deg.=**fervidus** Fab. Specimens from the mouth of the Yellow River in Burnett Co.; Never's Dam in Polk Co., and Maiden Rock in Pierce Co.

162. **B. impatiens** Harr.=**virginicus** Oliv. Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

163. **B. americanorum** Fab. This seems to be more common in the southern parts of the state than in the northern. Taken at the mouth of the Yellow River in Burnett Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

164. **B. borealis** Kirby. Specimens from Gordon in Douglas Co.; the mouth of the Nemakagon River, Swiss and the mouth of the Yellow River in Burnett Co. This species belongs to the boreal region, and occurs probably throughout the northern parts of our state. There is a ♀ in the collection of the Public Museum of Milwaukee from Divide in Vilas Co., and one from Jacksonport in Door Co.

Bombias Robertson.

165. **B. separatus** Cress. Rather common in some parts of the state. Taken at Solon Springs in Douglas Co.; the mouth of the Yellow River and Randall in Burnett Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

166. **B. auricomus** Rob. This species does not seem to be represented in the northern counties. Specimens from Hudson in St. Croix Co., and Prescott in Pierce Co.

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THE DREAM DANCE OF THE CHIPPEWA AND MENOMINEE INDIANS OF NORTHERN WISCONSIN

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CONTENTS.

INTRODUCTION.

As a part of the work of the Department of Anthropology of the Public Museum of the City of Milwaukee, the author had occasion to spend the months of July and August and part of September of 1910 in the northern part of Wisconsin in ethnological work among the Indians there. The object particularly in view upon this occasion was the collecting of ethnological material for the museum, together with all possible data concerning the life and culture of the peoples visited. Fortunately, during this time opportunity came to witness the so-called dream dance among both the Chippewa and the Menominee. Furthermore, various individuals were encountered from whom information concerning this interesting ceremony was obtained, even though no ceremony was being held at that particular time.

Also much information was obtained concerning other phases of the ceremonial life of these people, embracing the medicine lodge, the ceremonial games, the ceremonial feasts and the smoking customs. Time will permit at present only a short mention of most of these various interesting features of the culture of these two tribes.

The Chippewa or, as they originally called themselves, the Ojibwa, formed at the time of the arrival of the whites in this region one of the largest of the tribes of North America. They appear to have originally occupied the region embracing both shores of Lakes Superior and Huron. During early historic times there were within the United States considerable movements of the Chippewa accompanied by wars with certain of the surrounding peoples, and resulting in their pushing southeastward in the peninsula between Lake Huron and Lake Erie, and southward to some extent in Wisconsin. Their greatest movement appears to have been westward out through Minnesota and North Dakota. Nothing like accurate data are obtainable concerning the numbers of the Chippewa

in former times. At present they number somewhere about thirty thousand, of which about three thousand six hundred are located upon the three Chippewa reservations in northern Wisconsin. These reservations are: Lac Court Oreilles, in Sawyer county, La Pointe, or as it is sometimes called the Odanah reservation, in Ashland and Iron counties on the immediate shore of Lake Superior, and Lac du Flambeau, in Vilas and Iron counties.

The relations existing between the Chippewa and certain other tribes belonging to the great Algonquin linguistic stock appear to have always been very cordial. With the Ottawa and Potawatomi especially their relations were intimate, apparently by virtue of the fact that these three tribes all sprang originally from the same source, as nearly as can be gathered. At present also especially friendly relations are maintained between the Wisconsin Chippewa and the small number of Potawatomi still residing in the state. More or less friendly relations appear to have existed from time immemorial between the Chippewa and the Menominee who are also an Algonquin people, though these relations were not so intimate as those of the Chippewa with the Ottawa and the Potawatomi. At the present time the relations between the Chippewa and the Menominee are very cordial.

The Menominee appear to have been at all times a comparatively small tribe whose numbers probably never varied greatly from that of the present day, which is about 1,600. When first encountered by whites they resided in the vicinity of the Menominee river which forms part of the boundary between Wisconsin and Michigan. They laid claim to the western shore of Lake Michigan from the mouth of Green bay to the mouth of the Milwaukee river, and inland to embrace the whole drainage basins of the Menominee and the Fox rivers. They at present reside on what is known as the Menominee reservation, on the upper course of the Wolf river, in Shawano and Oconto counties.

The Chippewa and the Menominee are, as above noted, closely related linguisticly and the various features of their culture are very similar. Both are typical woodland peoples. Two characteristic features of their material culture are especially striking: the use of birch bark in making houses, canoes, basketry and a variety of other

objects, and the use of the wild rice as a food. In fact the Menominee derive their tribal name from the wild rice. The term Menominee is really an abbreviated form of the full name, minōminē'wûk ină'nīūwûk, by which these people call themselves. The first of these terms is derived from mûnō'ma, signifying wild rice, which may be resolved into minō', meaning good or beneficient, and min, meaning seed. The second term comes from ină'nīū, meaning human being or people. The plural ending, wûk, appears in both these terms. The full signification of this name is, therefore, the people of the beneficient seed.

At the present time both tribes live under very artificial conditions, being as they are under reservation management and coming constantly into contact with the whites from whom they are continually absorbing more and more of so-called civilization. They have in fact lived under these conditions for many years past and this long association with the whites has yielded the inevitable result: the whole mode of life of the people has been very greatly altered. Many of their old pursuits have been given up, and all of the sources of supply of their native products have been greatly diminished, while many have been very largely eliminated. They have consequently taken over the dress, the customs and the mode of life of the whites to a very large extent. This applies to all the individuals of both tribes.

Further, missionaries have been among them for many years, which fact has resulted in the conversion of a large number, especially of the younger generation, to a new faith and has caused the aboriginal religious practices of the people at large to become a less conspicuous feature of their culture. There still remains, however, a very considerable number of individuals in both tribes who adhere very devoutly to the aboriginal creeds and who keep up in a large measure of purity the old time religious practices. It is, of course, with this portion of the people that the present discussion is particularly concerned.

Both tribes celebrate the following four classes of ceremonies: the dream dance, the medicine dance, ceremonial games, and certain special ceremonial feasts. Of these the first mentioned is from certain points of view the most important and it is with it that we have here especially to deal.

THE DREAM DANCE.

The dream dance may be regarded as one form of the messiah cult and, though it is in reality a ceremony of modern origin, has spread over a wide area and is now practiced by many tribes. As explained by the Chippewa and Menominee it is said to have had its origin in the following circumstances:

Somewhere in the Sioux country at a time between twenty and thirty years ago (the Chippewa and Menominee are certain of neither the place nor the exact date) a band of Sioux was attacked by a detachment of United States troops. The majority of the Indians made good their escape, but their camp, which was located near a small lake, was immediately occupied by the troops. Among the Indians was a girl whose age is variously stated at from ten to sixteen years, who was unable to get away as the soldiers approached. She swam out into the lake and hid among some pond lillies. Here she remained in the hope that the soldiers would soon leave and that she would then be able to make her way back to shore. Instead of departing, however, the soldiers established their camp here and remained for quite a number of days.

After an interval of ten days, during all of which time the girl had been here in the water and without food, she heard a voice up in the sky and upon looking up saw a dark cloud approaching the lake. It settled down over the lake and in it she found the Great Spirit, who had come to rescue her. He took her up into the cloud and carried her away to a place of safety, commending her very greatly for her fortitude and complimenting her upon the virtue of her long fast. He then gave her full instructions concerning the dream dance, including the songs to be used in the dance, and told her to return to her people and teach them the ceremony.

Upon relating her experiences to the head men of her tribe, the whole episode was immediately set down as a direct revelation and command from the Great Spirit, and the ceremony was immediately made in accordance with her directions, and from that time on the dream dance cult spread from tribe to tribe and has superseded almost completely the older ceremonies of a somewhat similar nature. The details of the ceremony as practiced among the different tribes may differ slightly, certain features being absent in one locality

which are present in another, but in all its essential elements the ceremony is the same wherever encountered. This dance appears to have no absolutely fixed period of recurrence, and there is no fixed season in which it must be held. In practice it is a summer ceremony and there is usually one large general dance in each community somewhere about the first of July, though other minor dances may be celebrated upon various occasions during the year, especially during the summer, for the dream dance is primarily an open air ceremony.

It will perhaps be well to first consider the essential aboriginal features of this important ceremony, and to later take up a consideration of the differences which exist between the characteristic features of the ceremony as now practiced by the Chippewa and by the Menominee, then to compare this ceremony with the famous ghost dance and the religion which attaches to it, and finally to discuss certain interesting extraneous ideas which have been introduced among the Chippewa within the past few years. The essential aboriginal features of the dream dance are as follows:

THE DANCING GROUND.

A special dancing ground from fifty to eighty feet in diameter is prepared and is marked off by a circle of logs or a low earth embankment, or is enclosed by a low fence. In some instances it is made in the form of a figure with four or more sides, as in the one shown on plate IX, fig. 2, but these forms are due to structural considerations, the original intent being that the enclosure should be circular, such as that represented in plate IX, fig. 1. In every case this circle is provided with an opening toward the west (fig. 2), and among the Chippewa with one also toward the east (fig. 1). Such openings serve as doors and no matter how low the enclosure may be, it is, while the ceremony is being performed, absolutely necessary for every one to enter and leave by way of these openings.

Ordinarily the circle of logs, or the embankment, which delineates the boundaries of this dancing ground, is not over a foot high, as is the case in the circle shown in plate IX, fig. 1, and the dancers could easily step over it if they chose. In fact at any time other than

that at which the ceremony is actually being performed, they do step over the enclosure and cross the ground at will, but during the ceremony such action would be, as above stated, directly contrary to all law and order, and anyone committing such an offense would be severely penalized. With such a low enclosure as this there is

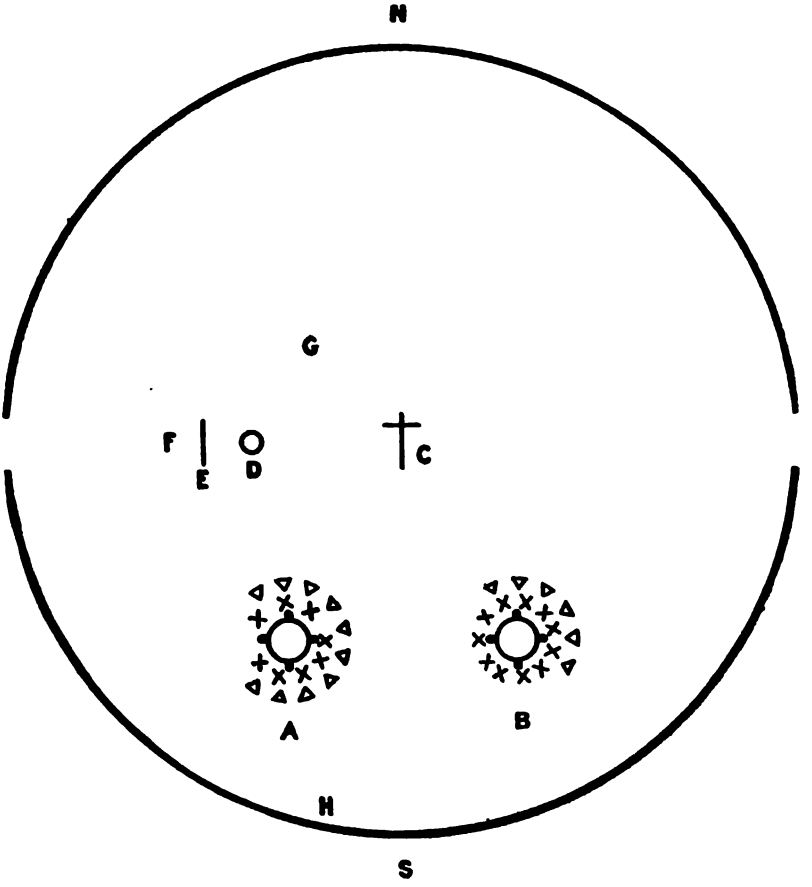


FIGURE 1.
Diagram showing the Typical Chippewa dream dance enclosure and giving the position of the important personages and objects connected with the dance.

nothing except the vigilance of the participants in the ceremony to prevent dogs from entering. This, also, is strictly against the rules,

and in former times any dog who was so unfortunate as to get within one of these dancing circles was immediately killed. At the present time, however, more leniency is shown, and the dog is simply driven out and, if possible, whipped in order to prevent his return.

These low enclosures are still used in all cases by the Menomi-

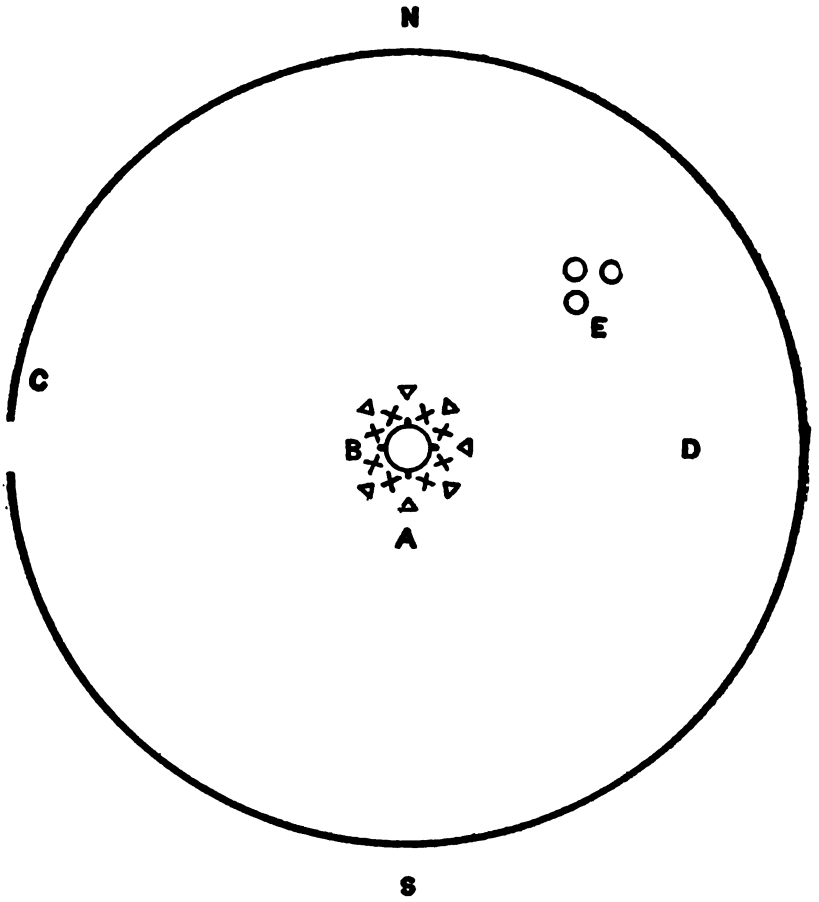


FIGURE 2.
Diagram showing the typical Menominee dream dance enclosure and giving the positions of the important personages and objects connected with the dance.

nee, but among the Chippewa they appear to have everywhere given place to a fence. The tendency of these enclosures is toward round-

ness, with the result that they usually have eight or more sides. In one instance noted, plate IX, fig. 2, such a dancing ground had but four sides. This was the ground on which the dance at Whitefish, near the village of Reserve, was held in July. It was stated by the Indians, however, that up to four or five years ago this dancing ground had been a hundred and fifty yards or thereabouts toward the west from its present location, and that when there it was approximately a circle, though enclosed by a fence as at the present time. Upon moving to this new location and building a new fence, it was deemed easier to build a square than a hexagonal or a nearly circular enclosure. Such a fence is not usually over six feet or thereabouts in height, and may be built of almost any material available. The particular enclosure above mentioned is simply a frame work of lumber, upon which is stretched the ordinary large-meshed wire chicken fencing. The dancing enclosure at Lac du Flambeau is, on the other hand, made of solid lumber, is about six feet in height, and is hexagonal in form. Another enclosure of similar material is located at what is known as Round Lake, near the extreme northern end of the Lac Court Oreilles reservation.

As above stated, among the Menominee the low enclosure about one of these dancing grounds is usually provided with but a single door (fig. 2), which faces toward the west, but among the Chippewa there is usually a second door (fig. 1), this being diametrically opposite the one on the west. This western door is recognized as the more important of the two, and is the regular door of entry into the dancing area. Among both the Menominee and the Chippewa there is at the present time less strictness than formerly in respect to entering and leaving the enclosure during the ceremony. At the present time any one is privileged to go and come about as he pleases, so long as he passes through the proper opening and conducts himself in an orderly and respectful manner. It is said, however, that formerly such was not the case, but that when once within the enclosure it was incumbent upon a participant to remain there throughout the ceremony, except in case of some especially urgent cause for leaving. At certain times during the ceremonies of to-day the gates are closed. That is to say, a guard is stationed at each of the gates and no one may leave the enclosure without permission of the

chief dancer, under whose direction the ceremony is being performed. Furthermore, such a person, even though he has this permission, is required to pay a small fine in the form of tobacco or some other commodity. These fines are devoted to the good of the drum which is commonly spoken of as the grandfather of the participants in the ceremony and through the agency of which the invocations of these participants are carried up to the Great Spirit.

THE DRUM.

The objects about which this whole ceremony centers are a large drum and a special calumet. The former is elaborately decorated with strips of fur, beadwork and cloth, and with pendants of beadwork, coins, and various other objects. Its two heads are painted in a special symbolic manner. Inside of one of these dance circles there may be several of these drums, but there is always at least one. If but one drum is present, it is usually placed at or near the center of the circle, as is the case in fig. 2. If more than one drum is present all are arranged upon the dancing area so as to be as symmetricly placed as possible. In fig. 1 is shown an arrangement in which two drums were present. During the regular day-time ceremony the drum is hung, by means of loops, upon four elaborately decorated stakes, as is shown in plate X, fig. 1, and to even better advantage in plate XI, fig. 1.

The drum itself is constructed as follows: A large wooden wash tub is procured and the bottom is removed. Over the two ends are stretched rawhide heads, which are drawn very tightly by means of lacings of thongs. This, of course, is done when the rawhide is wet, and upon drying the heads become very tight and resonant. Before these heads are put onto the drum a thong is stretched across the inside and from this is suspended a small bell which jingles very pleasantly as the drum is being carried about. It also produces a constant jingle as the drum is beaten in the ceremony. It was claimed by some of the Chippewa of the Lac Court Oreilles reservation that the bell is not used except by themselves. Drums provided with these bells have, however, been found in other sections, though of course these may have been made by these particular Chippewa,

and may have found their way into these localities as gifts from them, this being a very prevalent custom in this region.

The above construction of what may be termed its body results ordinarily in a drum, the upper head of which is approximately two

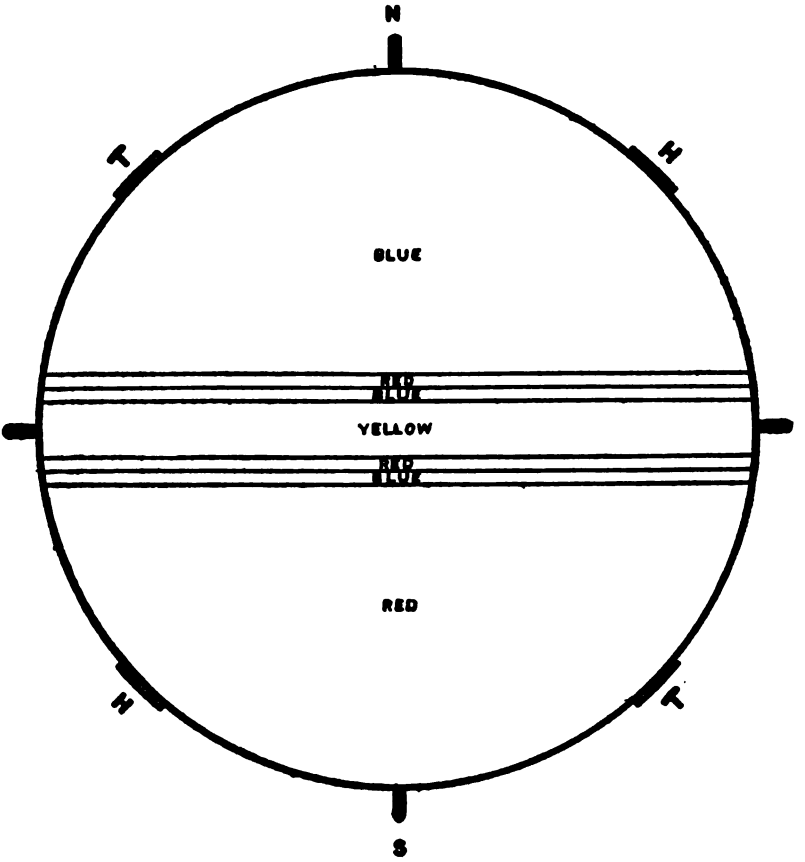


FIGURE 3.
Drawing looking down upon the upper head of the dream dance drum and showing its orientation and symbolic decoration.

feet in diameter. One such drum measured had an upper head of twenty-five inches, a lower head of twenty-three inches, and a depth of twelve inches. These dimensions are quite typical of such drums. The larger head is always used as the top, and about its edge is fastened a fur, or nowadays more frequently a velvet band, varying

in width upon different drums. Usually this band forms a sort of skirt and reaches from this upper edge of the drum down to perhaps an inch or two below its lower head, thus covering its sides completely. It hangs loosely from this upper edge, and is not attached at any point along the sides of the drum, or at the edge of the lower head. About this upper edge is a broad band, usually of beadwork, but sometimes of fur. Here also are invariably the four special beaded pieces, which form the most important feature of the decoration of the drum. Below this beaded band and attached to the "skirt" above mentioned are fastened pendants of various kinds, some made of beadwork, others of coins, and still others of various other metal objects. In fact, almost anything may be used which will produce a pleasing jingle and add to the good appearance of the drum. Frequently, also, the bottom of this skirt ends in a fringe made of buckskin strings provided with small conical metal objects: such as coins, thimbles, and in fact almost any object which will jingle as the drum is being beaten. Fig. 1 of plate XI shows a fairly near view, looking from the northwest, of one of these drums. At the time this photograph was taken the drum was not being played, though dancers are shown in the background. At this ceremony two drums were present, and they, as is customary in such ceremonies, took turn about in providing the music. The second of these drums is well shown in plate X, fig. 1. This one is shown in use though only two dancers are included in this photograph.

The most important feature of the decoration of the drum is the four beaded pieces which hang at the four quarters of its upper edge and equidistant from adjacent stakes upon which the drum is supported. Two of these beaded pieces depict a head, or a bust, and each of the other two depicts a hand. The view of the drum shown in plate XI, fig. 1, was taken from such a quarter that the former is shown, while the drums in plate X, fig. 1, and in plate XIV, fig. 2, show the latter. The first pair of these beaded pieces are attached to the drum at the northwest and southeast quarters, while the hands appear at the northeast and the southwest quarters. The positions of these beaded pieces are shown in fig. 3 which represents one of these drums with its essential features of decoration. In this illustration T T represent the two busts and H H the two hands. These

represent the head, or the head and body, and the hands of the Great Spirit who gave this ceremony to the people, and to whom the invocations during the ceremony are made. The same color symbolism observed in painting the drum heads, shortly to be described, is found here. Thus the pieces attached to the northwest and the northeast quarters are blue, while those at the southwest and the southeast quarters are red. Very frequently these special beaded pieces are also provided with jingling fringes, such as that on the lower edge of the skirt of the drum. Plate XI, fig. 1, shows one of these beaded pieces the sides and lower border of which are provided with the jingling fringe.

The heads of the drum are painted in red, blue and yellow (fig. 3) symbolicly and are exactly alike. Through the center runs a yellow band from an inch to an inch and a half in width, which is said to represent the path of the sun. To the south is a red stripe about half an inch in width. Next to this is a blue stripe of about the same width, and finally the remainder of this half of the drum head is painted red. This is said to symbolize the brightness of the sun and light toward the south. To the north of the yellow medial line the same kind of painting is found, except that the colors are exactly reversed, there being first a narrow blue stripe, then a narrow red stripe, and finally a blue area. The blue symbolizes the darker sky toward the north. The four leather loops which support the drum upon the stakes are very exactly placed in relation to the painting on the heads of the drum. One loop appears exactly at each end of this yellow medial line, the other two loops appearing at the ends of the opposite diameter.

In preparing for the ceremony it is necessary to make holes in the ground to receive the points of the stakes which support the drum, and this is done with the greatest of care to see that they are so placed that the symbolic coloring will be correct, and that the yellow medial line will exactly delineate the path of the sun at whatever time of year the ceremony is being held. In fig. 3 these stakes are indicated by the four heavy projections from the circumference of the circle at the four cardinal points.

These stakes are on an average about a yard in length. The lower two thirds of such a stake is plain and tapers gradually to a

sharp point. It is usually made of some hardwood and at its largest cross section measures about three quarters of an inch by two inches. This largest dimension is at the point where the notch which holds the loop which supports the drum is situated. This notch is usually from two to perhaps six inches in depth, and is made by simply cutting away the wood down the center of the stake for a space about half an inch wide. That is to say, starting with the stake three feet in length, its upper third is parted by means of a slot half an inch in width. One of the resultant projections is then cut off thus leaving two projections of about equal cross section dimensions but of unequal lengths. One measures from two to six inches or thereabouts in length, while the other is a foot or more in length. The longer projection is then more or less rounded, is bent to a greater or less degree, and is ornamented with buckskin, with beadwork, or with painting, or sometimes with all three. At the extremity of this curve, or what may be called the horn of the stake, are usually tied various pendant objects, such as ribbons and short beadwork strips, and always one or more eagle feathers. These stakes are so placed that this curved horn projects outward from watever side of the drum the stake stands.

On the inner surface of the short inner projection which forms the notch for the loop upon which the drum rests, is placed some kind of a mark designating the particular position which this stake is to occupy when the drum is set. This is often done by means of brass tacks, a single tack indicating one of the cardinal points, two tacks indicating another, and so on. In setting up the stakes for this drum it is essential that they should be very carefully placed according to these marks. The ornamentations of the stakes, other than the above mentioned special markings to show the position which the stake must occupy, do not appear to differ in any systematic way in any given set of four stakes, though as a matter of fact in almost all cases no two stakes are exactly alike. So far as could be learned, however, these differences have no special significance. A very considerable variety is found in the different sets of stakes, each set being evidently made and ornamented according to the personal preference of the particular makers of the drum to which the stakes belong. The same applies to the decorations upon the

sides of the drum itself, and very considerable differences in ornamentation are found in different drums. The drum heads are, of course, always painted the same, their decoration having a definite symbolic significance and being therefore prescribed.

Between ceremonies these stakes are kept, together with the drum, by the drum's special guardian. They are usually enclosed in a special bag made for the purpose and hung or otherwise placed near the drum. Their sole use is to support the drum during the daytime ceremony. Those ceremonies held at night do not require that the drum be elevated from the ground, and at such times the stakes are not brought out to the dancing area.

The greatest of reverence is paid to this drum, and it receives the very best of care. A special keeper is appointed for it, and it is never left alone at any time. Offerings of tobacco are kept with it at all times, and between ceremonies it is the duty of its keeper, as also of any one who is visiting at his house, to smoke to the drum in order to invoke the patronage of the Great Spirit for the benefit of the tribe and especially for the benefit of those persons concerned with the dream dance cult.

The making of one of these drums and of the accessories which accompany it is the occasion of very elaborate and solemn ceremonies, and requires a considerable length of time for preparation and several days for the actual execution of the work itself. Such a drum is not made except for some very special reason, such as the loss through breakage of an old drum, or such as the desire to present one of these drums to a friendly neighboring community. When it is agreed by the various members of a given community who are interested in this cult that such a drum should be made, the actual work is placed in the hands of certain people especially appointed for the task. The materials are assembled and minor ceremonies are held over the production of each of the important parts, such as the making of the beaded band about the upper head of the drum, and such as the painting of the drum heads. A considerable amount of money and goods is required to enable the members interested in the cult to produce one of these drums, since each person who has in hand the production of some particular feature of the drum must be paid an amount commensurate with the importance of the part

which he is producing, and also commensurate with the amount of work entailed. Also the materials must be the best obtainable, and the large pipe and other accessories must be provided.

Having completed such a drum it is then necessary to hold a ceremony for its dedication. It may then be used by the people of the community where it is made, if it is for that purpose, or it may then be sent to the community for which it is intended as a present. Upon such an occasion notice is given to the community destined to receive the drum some weeks, or even some months, before it is sent, and when it finally goes as many as possible of the members of the community who are making the gift accompany the drum, and an elaborate ceremony, a so-called "friendship" dance, is held. The drum is presented by the head man of the visitors to the head man of the hosts with appropriate speeches relative to the importance of the ceremony, the significance of the gift, and the friendly relations which exist between the two communities. Upon such an occasion the members of the community receiving the drum make to the members of the community giving it very substantial presents; not in payment for the drum, but as a sign of good will and friendship. In fact it is a very prevalent custom among many aboriginal peoples to make a return gift at the time of, or very soon after, receiving a gift from anyone, though this is in no way considered by them in the light of a purchase. To the Indian it is a mere matter of both duty and privilege to show his good will to a friend by making a return present of approximately equal value. The presentation of a drum is a very important occasion among the Chippewa and Menominee and the presents given are commensurate with this importance. In fact it frequently happens that the visitors who have come upon such a mission, return to their homes with a number of ponies and a variety of other chattels which, if they were to be bought in the open market, would cost a good many dollars.

The giving of a drum by one community to another is certainly very significant when that part of the creed of this cult which prescribes the establishment of universal peace is taken into consideration. It is not at all unusual to hear the uninitiated white-man speak of one of these dream dances as an "Indian War Dance." Nothing could be farther from the truth, since every phase of this whole cere-

mony, and every feature of the creed with which it is concerned deals with peace instead of war, with friendship instead of hatred, and exemplifies to a striking degree what we are pleased to term the golden rule. Furthermore, it must be remarked very much to the credit of the Indian that he not only preaches his creed, but practices it, a condition which unfortunately does not always exist among the whites. Still further, it should be noted that he is no hypocrite and that he does not simply preach and practice his creed at times of these ceremonies, but that he lives up to these doctrines in his daily life. This, of course, applies to those individuals in these tribes who are devout believers in this dream dance cult. There are others who have no special affiliation with the members of this faith.

THE CALUMET

The second object of reverence about which the ceremony centers is the special calumet with its elaborately ornamented stem. The catlinite bowl of the calumet is in reality a sacrificial altar, or censer, the office of which is the burning of sacred tobacco, in order that its incense may be carried to the particular diety in whose honor the offering is made. It is used in making offerings to almost any of the many dieties of the Indian polytheon, but especially is it employed in making offerings to the Great Spirit, to the thunder birds, and to certain others of the more important dieties worshiped by these people. The only illustration available of a pipe which was actually used in the dream dance is that shown in plate XII, fig. 2. A close inspection of this illustration will show that the bowl of this pipe has very elaborate metal inlaying which is, however, quite unusual for pipes used in this ceremony. Its long stem is elaborately carved as is customary in these pipes. Of calumets used for other purposes several illustrations are shown in plates XXI, XXII and XXIII. Some of these, such as those shown in plate XXI, figs. 2-4, and in plate XXIII, figs. 1 and 2 were used especially for smoking for the benefit of the thunder birds and before objects sacred to them.

Those shown in figures 1 and 2 of plate XXII were especially devoted to smoking for the benefit of the medicine bags of their owners. The large black stone pipe shown in plate XXI, fig. 1, was

a "chief's" pipe and had no special ceremonial significance. Those pipes shown in figs. 3-12 of plate XXIII were used for ordinary smoking and therefore do not belong to the class of calumets, in the strict sense of that term.

The bowl of the dream dance calumet varies considerably in size, and more or less also in form. As is shown in those illustrated in plate XXI, figs. 2-4, and in plate XXIII, figs. 1 and 2, the bowl of the typical calumet consists of a cylindrical base from four to about nine inches in length, from near the middle of the top of which rises at right angles the bowl proper, which extends to a height equal to from a third to a half the length of the base. In many cases the cross section of one of these bases is not a perfect circle, but is flattened very decidedly on the bottom of the pipe. It is often sufficiently flat to allow the pipe to stand erect as it rests upon this surface. The upright bowl proper is perforated, this perforation being on an average from a half to three-quarters of an inch in diameter. The perforation of the upright bowl proper meets a second opening which runs in from the rear end of the base of the pipe, and which is usually somewhat smaller than the perforation in the bowl itself. Into this perforation in the base is inserted one end of the wooden stem.

From a third to a half of the length of this cylindrical base projects out in front of the upright bowl proper. Whatever the origin of this particular form of pipe may have been, this projection serves two purposes. As one of these calumets passes about in a circle in which the participants sit at some distance one from another it is customary for the pipe tender to pass it to each individual separately, and in doing so he almost invariably holds it by this projection. He thus presents it, stem first, to one of the participants who smokes from one to several puffs, and who then returns it directly to the pipe tender who again grasps this projection with one hand and carries it on to the next smoker. When the pipe is passed about in a circle, like that of the drummers, in which its members sit close together, it is passed directly by one member to his neighbor next to the left. In such a case the projection on the pipe bowl is not used. When such a pipe has passed around the circle of participants in either of these manners, there remains a certain

amount of tobacco in the bowl which must then be smoked out. This is done either by the pipe tender himself, or by one of the important participants in the ceremony to whom the pipe tender finally presents the pipe for this purpose. In any case it is customary for the man who does this final smoking out of the pipe to rest this projecting point on the ground, he himself leaning over sufficiently to be able to reach the stem of the pipe in that position. In plate XII, fig. 2, this is well shown. In this case, one of the most important participants in the dance, a man who was especially looked up to as an orator, and who was at the same time the representative and spokesman of one of the chiefs of the tribe, is smoking out the pipe after it has gone the rounds in the regular way.

In most cases, those calumets which are intended for the highest form of ceremonial use, such as that in the dream dance, are, as above mentioned, very plain. Now and then those intended for other uses, such for instance as more or less ordinary daily smoking, are less exact in general form, but are much more highly ornamented, being inlaid with lead, pewter, and even silver in bands and variously shaped figures. Examples of such pipes are shown in figs. 1 and 4 of plate XXI, and in figs. 1 and 5 of plate XXIII. Others have carved bands and various other linear designs in high relief as in the pipe shown in fig. 3 of plate XXI. In a large measure, however, the typical calumet especially that used in the dream dance, is very plain.

The ceremonial calumet used by the Chippewa and the Menominee at the present time is almost invariably made of catlinite, two kinds of which are easily recognizable. The one is a fairly light red and is apparently a little finer in grain than the other. This comes from west of the Mississippi and pipes made from it are obtained by the Wisconsin Chippewa and by the Menominee exclusively through trade with the Minnesota Chippewa and other tribes farther to the west. The second kind of catlinite is a much darker red, bordering in fact upon the brick red, and appears to be of a slightly coarser grain. This is said to be found exclusively east of the Mississippi, and is still mined and used to some extent by the Wisconsin peoples, particularly by the Chippewa of the Lac Court Oreilles reservation. Two sources of supply were mentioned by

these people. One is located on the small stream known as Pipe-stone creek, and at a point four or five miles southwest of the Indian village of Post, which is located on the Chippewa river and in the northeastern part of the reservation. It is said that Pipe-stone creek cuts through a deposit of catlinite several feet in thickness, but that comparatively little use is made by the Indians of stone from this deposit since the point at which it is located is rather difficult of access. The second locality mentioned by them is near the eastern border of Barron county, and directly east of the town of Rice Lake. Mention was made of this deposit many years ago in some of the surveys of the region, and it was visited in the summer of 1909 by Mr. Geo. A. West, of Milwaukee, who found evidences that the deposit is being worked by the Indians at the present time. Mr. West spoke upon the subject of this quarry at a meeting of the Wisconsin Archeological Society in Milwaukee, in 1910, and at that time presented to the Museum a specimen of the native catlinite which he had brought out from the quarry. This specimen is shown in plate XXV, fig. 6.

In reality the most important part of one of these calumets is its long stem, which is often elaborately decorated with painting, and sometimes with various pendant objects such as feathers, strips of fur and ribbons. Some are very elaborately carved and some are even nicely inlaid with metal in various designs. The forms of these stems vary to a considerable extent. Some are circular in cross-section, others square, and still others have diamond shapes of various proportions. Those most highly prized and the ones which are very frequently used in the dance are the long stems which are twisted, in whole or in part. As a matter of fact this twisting is only in effect, and is not actual, but they are so carved that they appear as if a flat stem had been twisted about after the manner of a corkscrew. Furthermore, some of these stems are excised, that is to say, cut out so as to produce an openwork effect. Several examples of elaborate pipe stems are shown in plates XXI to XXIII. None of the stems here shown were used in the dream dance and these are all less elaborate than the stems ordinarily employed in this ceremony.

The long stem of the ceremonial pipe is, as above stated, in reality the most important part of the pipe, and is the portion which carries in a large measure its ceremonial significance. The importance of this stem as compared with that of the bowl is shown by the following three facts:

1. It is smoked only during the most elaborate and extremely formal parts of a ceremony. The bowl on the other hand is used at various other times in connection with a shorter and plainer stem.

2. There are certain special tunes which are played for the benefit of the drum's pipe, and to these the pipe tender must dance. In this dance he carries with him this long pipe stem, but it is significant that he does not carry at the same time the bowl. This may be partly due to the weight of the bowl and to its fragility, but it seems probable that it is more largely due to purely ceremonial considerations and to the greater importance of the stem.

3. When going away to another locality to attend a ceremony it is the privilege and duty of the pipe tender to take with him this long stem, and to dance with it during the ceremony. He does not, however, take the bowl which belongs to this stem. When possessing the stem at one of these ceremonies he is accredited as the representative of the drum to which this pipe stem belongs, and represents also the people themselves who are concerned with this particular drum.

As above stated, the bowl of one of these ceremonial pipes may be used without the long and elaborately decorated stem. For this purpose there is provided a second stem something like those shown in plate XXI, figs. 2a and 3a, which is shorter and which has comparatively little decoration. When it is desired, therefore to smoke the bowl of this pipe at a time when its full ceremonial significance and power are not required, this short stem is employed. It is always used during the evening dance when the drum is not suspended upon its stakes, and when the whole ceremony is less elaborate, and therefore requires less strictly ceremonial conduct. It is also used by the drum's keeper in smoking before the drum between ceremonies, as also by anyone who chances to visit at his house, and who wishes to smoke before the drum, which is a common practice among these people.

In addition to this special ceremonial pipe used in the dream dance, there are several other forms. Mention has already been made of certain other ceremonial pipes and of the large black stone "chief's" pipe. These, together with the "Micmac" and other small pipes employed in every day smoking, will be treated more in detail in another section of this paper.

Of all these various forms the pipe which is at present of the greatest importance among the Chippewa and the Menominee is the particular calumet which is used in connection with the dream dance. This special pipe, together with both its stems, always accompanies the drum and is placed, when the drum is in use in the dance, at the foot of the western stake which supports it (fig. 2, B). With the pipe is also a special tobacco tray in which the tobacco to be smoked in this pipe is prepared. Such a tray is usually of wood and may be of any one of several forms. In plate XXIV, figs. 4, 5 and 8, are shown three trays of this type.

As used here the term tobacco embraces not only tobacco proper, that is to say, the leaf of some species or other of *Nicotiana*, but also the dried barks of certain shrubs which are smoked. These barks are collectively called by the Chippewa pákūzīgûn. The term kinnikinnick is also loosely applied to them as a means of distinction from true tobacco, though kinnikinnick is in its more strict sense applicable only to the mixture of these barks with tobacco proper, and this is the form in which it is usually smoked. The unmixed bark is, however, sometimes used, particularly when no tobacco is at hand. A special discussion of smoking is taken up in another section of this paper and this matter is more fully treated there. Suffice it to say here that the material ordinarily smoked in the dream dance pipes is tobacco mixed with a small percentage of one or another of these barks thus producing true kinnikinnick in the strictest sense of that term.

For this calumet also there is a special pouch, which is attached to the loop of the drum which suspends it from its western stake. This is an elaborately decorated pouch, and in it is kept the stock of the particular tobacco which is to be smoked in the drum's pipe. In this pouch also are kept all donations of money which are made for the benefit of the drum.

This pipe has a special keeper, whose duty it is to see that it is properly cared for, that it is filled, lighted and passed about in its particular circle at the prescribed four times during each day's ceremony, and that it is properly emptied of its ashes and returned to its place after passing about in this manner.

Four times during each day's ceremony the pipe tender goes over to the place near the foot of the western stake where the calumet is kept (fig. 2, B) and, after carefully fitting the bowl and the long stem together, fills the bowl from the prepared tobacco in the tray above mentioned. He then, if the ceremony is among the Menominee, lights a small piece of punk, such as that shown in plate XXIV, fig. 1, and places it upon the tobacco in the bowl. He then faces toward the drum, and hence toward the east, and turns the pipe around four times above his head. The pipe is held so that the stem is horizontal and is somewhat in front of the tender. As he turns it about in this position the stem passes over his head. After these four turns he presents the stem to one of the drummers who draws upon it and ignites the tobacco. In most instances the punk stays on the bowl without any difficulty, but now and then it drops off. It is not, however, an essential part of the ceremony to have it on the pipe as it turns about in this manner. This is clearly shown from the fact that among the Chippewa the punk is not used at all. The pipe is simply turned around the required number of times and is then lighted by holding a match to it while one of the drummers draws upon the stem.

The other two ceremonial pipes used by the Menominee, namely, that used by the dancers and that used by the impersonator of the Great Spirit, are lighted in a similar manner. Each person who turns a pipe around over his head in this manner always faces toward the drum no matter upon what side of it he may stand.

In turning the pipe in this ceremonial manner during the dream dance four turns are sufficient and no special notice is accorded the cardinal points. However, upon some other occasions the cardinal points are carefully taken into account. For instance one of the chiefs of the Menominee was recently at the Museum and it was proposed that a friendly pipe be smoked all around by those present. The large chief's pipe, shown in plate XXI, fig. 1, together with

some tobacco, was accordingly taken from the exhibition case for this purpose. The old man filled it and then, facing toward the east, turned it four times around above his head as just described, after which he presented its stem toward the east. After four more turns he presented its stem toward the south, and thus the cycles of four turns of the pipe and the presentation of its stem continued until he had completed the presentation to the west, the north, up toward the zenith, and finally down toward the earth, making six points in all.

Among the Menominee the drum's pipe is used exclusively by the circle of drummers except upon very rare occasions when it may be passed out of this circle to a chief, or to some man of high importance in the ceremony. Among the Menominee there is always, in one of these ceremonies, a second calumet also, which is in all essentials the same as that above described, but which is used exclusively by the dancers and is kept by another special pipe tender, whose position is at C (fig. 2), just to the north of the door. This particular official, though a very important one among the Menominee, appears to be quite absent among the Chippewa where there is only one pipe for each drum. This pipe serves both the drummers and the dancers, a fact which may possibly be due to the intrusion of recent ideas and the consequent modification of the ceremony, all of which will be taken up in detail later. Among the Menominee this particular pipe tender receives practically all the donations of tobacco made by each person participating in the ceremony as he or she enters the door. A person may if he chooses give tobacco directly to the drum's pipe, but he always gives some to this particular pipe tender in every case, and usually he gives all his tobacco directly to this man. This tobacco is later apportioned, the larger part going to the drum.

At one Menominee ceremony witnessed there was even a third calumet which was kept by the impersonator of the Great Spirit and smoked by him almost exclusively. He did upon certain occasions pass this pipe around among certain of the more important officials in both the dancers' and the drummers' circles. At another ceremony in this same tribe, however, no such impersonator was seen and there were but two calumets present. This was a ceremony

held during the week of the tribal council which met at Keshena during the latter part of August and the first days of September, 1910. It is possible that, owing to the very public nature of the occasion, this feature of the ceremony was omitted.

In case a particularly large donation of tobacco is made by some individual, a special speech is made by one of the head men over it before it is given to the drum. These speeches call particular attention to the donor of this tobacco and commend him to the special consideration of the participants in the ceremony and ask that he be regarded as the friend of all present. Particular mention is made of the virtue of such a gift from the stand-point of its religious significance, and such a speech always includes an invocation to the Great Spirit that the tobacco so given shall be received by him and considered as a votive offering, and that in return the welfare of the individual giving the tobacco, as also the welfare of the remainder of the people assembled, shall be promoted in every way. In case a large donation of tobacco is made by a stranger, that is to say some one not belonging to the particular community in which the dance is being held, extra care is taken by the head men to see that an appropriate speech is made over it and that special commendation is given for the act, and that a special invocation to the Great Spirit is made. Such donations of tobacco are received by all present in the most friendly and fraternal spirit, and one making such a donation is looked upon with favor even though he is not a devout believer in the dream dance cult. His sincerity is never questioned regardless of who he is or whence he comes.

Furthermore, the tobacco donated by the women who participate in the ceremony is usually kept apart from that donated by the men, and this as a whole is the cause of a special speech by the chief or some head man. He expresses the gratitude of the men for the participation of the women in the ceremony and for their kindness in preparing the feasts, and he invokes the special benefaction of the Great Spirit upon them.

PARTICIPANTS IN THE CEREMONY.

The participants in the dance may be divided into two general classes. The first of these may be termed the musicians, and com-

prises (1) the drummers, who are also the male singers, and (2) the women, who assist in the singing. The second of these general classes comprises the dancers, all of whom are men.

The drummers, who may number as many as fifteen or thereabouts, kneel immediately around the drum, as indicated by the circles of crosses in figures 1 and 2. Each beats the drum with a slender drum stick about two feet long and three-eighths of an inch in diameter. The head end of such a drum stick is wrapped with cloth or buckskin. As they drum they all sing, following the lead of the person who starts the particular song which is being used. Any one of the drummers is privileged to start a song, and they usually take turns in this leading.

In a larger circle, that indicated by the triangles in figures 1 and 2, directly outside that of the drummers are seated the women, who intone a nasal accompaniment to the song of the men. In this singing the women never open their mouths, and very frequently each holds her nose partly shut with one hand so that it is a high-keyed humming that is produced. This blends in a rather pleasing manner with the louder song of the men. There is no restriction as to the number of women who may join in the singing. In seating themselves these women never form a closed circle around the drum. It is necessary that such a circle should be open at the west where the drum's pipe is kept. In case more wish to participate in the singing than can get into a single circle, a second circle is formed outside the first. In the case of the drummers on the other hand, the circle is completely closed if necessary to accomodate a large number of drummers. Obviously no second circle of drummers is possible.

The dancers who are, as above stated, all men usually appear attired in the ordinary clothing used by the whites, though in the majority of cases there are certain additions to this attire in the way of beadwork, feathers, and now and then paint. In a large measure, however, the spectacular dress of former years has given place to the more simple dress imposed upon the every day life of the Indian by the influences of civilization. A glance at the plates of illustrations will show the commonplaceness of the average dress of both the men and the women participating in this ceremony. As a rule the dancers dress more elaborately than do the drummers or the

women who assist in the singing. For such occasions there are made special beaded shirts, such as those shown in plate XIII, fig. 1, also bead sashes and knee bands of beadwork and bright colored yarns. Frequently, also, large elaborately beaded bags, supported by broad beaded bands passing over the shoulders, are worn by dancers. These are in every case primarily decorative and have in most instances no pouch in which anything can be carried.

Now and then a man is found who is attired in a more primitive costume. For instance the speaker who is shown in plate XVII, fig. 2, in the act of delivering an oration wears a pair of leggings and a breech clout each made of black velvet and ornamented with variously colored ribbons. These velvet garments are, of course, merely substitutes for the older type of buckskin garments which were in everyday use in aboriginal times among these peoples.

At the present time every one attending one of these ceremonies is completely dressed, that is to say, all parts of the body, except the hands and face, are covered. This is quite a different condition from that which obtained in more primitive times when a much more abbreviated costume was worn, thus permitting the application of paint to all of the upper parts, at least, of the body. At the present time, however, it is considered highly improper for a participant in this ceremony to appear in a costume which is in the least abbreviated. This is clearly shown in the treatment accorded the young man who appeared in a half nude condition during the ceremony at Whitefish, the details of which are given in the section of this paper which deals with that particular ceremony. This young man was naked to the waist line and had the upper part of his body painted with dots and short lines.

Under ordinary circumstances paints are at the present day almost entirely absent from these ceremonies, but now and then some old man is found who paints his face to a slight extent. He sometimes uses a simple coat of red with which he covers all or the greater part of his face, and sometimes he dots or streaks it with red, blue or yellow, or perhaps he uses all three colors at once. The use of these three pigments in connection with this ceremony appears to be more or less symbolic since they are the three colors which appear upon the drum, the yellow being the median line repre-

senting the path of the sun, the red representing the southern half of the sky, and the blue representing the sky to the north of this sun path.

Each of the three classes of participants: the drummers, the women and the dancers, has its special duty, and no member of any class participates in the duties of the other two classes, except upon certain very special occasions. This applies very strictly to the women, who never do anything but sing in their particular manner. They also never smoke the calumet as it passes about, though they all chew tobacco incessantly during the whole ceremony. The drummers almost never dance except upon the occasion of some error in their drumming or singing. For instance, if one of the drummers strikes the drum out of time with the rest, or if he makes some slight mistake in the time, no attention is paid to the error until after the particular round of the dance then in progress is finished. After a pause of a few seconds at the end of this round, the drum starts again and plays for perhaps a minute, during which time the man who made the error must rise and dance a few steps where he stands. This is said to be by way of acknowledging his error, and signifying that no intentional slight to the drum has been committed. In plate XI, fig. 2, is shown at the extreme left one of the drummers dancing off such an error. Also, upon rare occasions, the chief drummer may present to the chief dancer his own drum stick. In such a case this dancer takes the place of the chief drummer and all play a special tune to which the chief drummer dances.

What appears on the surface to be an exception to this rule of the absolute division of duties among these three classes is the fact that among the Menominee it was observed that certain young men at times joined the drummers' circle and drummed in the regular manner, while at other times they joined the dancers' circle and participated in the dancing. As a matter of fact these were members of the drummers' circle of another drum and were therefore visitors at this ceremony. Hence they were privileged to dance to the music of this drum and were also allowed to participate in the drumming if they chose. A similar condition was observed in the ceremony at Whitefish where two drums were present. Only one of these drums was played at a time, and, as a rule, when one drum

was silent its drummers remained seated, though its dancers almost always danced to the music of either drum indifferently. Occasionally, however, one or more of the drummers of the silent drum would dance to the music of the one which was then being played.

There are, as above indicated, certain special personages connected with such a ceremony. These are, on the one hand, the chief drummer, the drum keeper, and the drum's pipe tender; and on the other hand, the chief dancer, the dancers' pipe tender and certain special directors of the ceremony. Both the chief dancer and the dancers' pipe tender are, among the Menominee, usually seated immediately north of the entrance to the dancing area which is always on the western side of the circle. The chief dancer may or may not be the chief of the tribe, since this religion has nothing whatever to do directly with governmental affairs. The directors of the ceremony are usually old men who are thoroughly familiar with every feature of the dance and their office is to indicate the times of starting and stopping the ceremony each day, to prescribe the proper order of procedure, and to pass upon matters of propriety connected with the dance. Among the Chippewa these directors number four and under ordinary circumstances agree very well one with another upon the procedure of the dance. Now and then however their opinions may differ, as was the case in the dance at Whitefish, which will be described later. Among the dancers there is also a special class of men known as the "braves." The visitors from distant points always have particular positions in the circle and are given special attention by their hosts.

MUSIC.

A great variety of tunes are played and sung in one of these ceremonies. There are, in addition to the general tunes to which every one is privileged to dance without any particular leader, special tunes for the chief drummer, the drum keeper, the chief dancer, the chief of the tribe, and each one of the pipe keepers; also for the class of braves, for other special personages who may be present, and for visitors from a distance. These tunes are always accompanied by the drum, which is, as a matter of fact, from the ceremonial standpoint, the most essential feature of the music since it is the

beating of the drum which, together with the smoke from the ceremonial pipes, is supposed to carry the invocations of the participants up to the Great Spirit. The beating of the drum is to all intents and purposes, so far at least as the ear can detect, the same throughout, which gives a similar rhythm to all the songs. The words used in these songs differ very considerably according to the song, but were said by informants to be largely archaic or, in some cases, to be comprised of unintelligible syllables. The intonation likewise appears to differ with each song, and these differences of intonation are even greater than are those of the words used. These songs are characterized by much repetition, and have to all appearances no absolutely fixed duration. Under normal conditions, when a few men only are dancing, a song lasts from five to ten minutes, but if a lively interest is evinced in a particular song, or if for some other reason a considerable number of men are dancing the song may be prolonged to perhaps fifteen minutes. Of especially great duration are those songs which are played for certain particular purposes, as for instance the song played during the consecration of the foods for a feast. The duration of this song depends entirely upon the length of time consumed by the consecrator in performing the ceremony over the food, and this ceremony differs very considerably under different circumstances.

As above stated each of these songs is accompanied by drumming, which is in its general nature the same for all songs. The strokes are in pairs, which gives the general impression of a difference in the interval of time between the two strokes of a pair and that between the final stroke of one pair and the initial stroke of the next. These intervals are doubtless of practically equal duration, this effect being produced by a difference in force rather than a difference in time. The first stroke of such a pair is comparatively heavy and is followed immediately by a lighter one. The drumming also is led by the particular man who leads the song then being used. Any singer is thus privileged to start a song and to lead it throughout. The singing continues until such time as this leader gives the signal to stop, which is indicated by a particularly heavy stroke of his drum stick a few bars before the song is to be ended.

Under the existing conditions it was impossible to attempt anything in the way of recording songs or to attempt an analysis of this music. It is, however, highly probable that the songs here used are in a large measure similar to, and in many cases identical to those used by the Minnesota Chippewa, who were employed by Miss Densmore as a source of the material from which she has written her comprehensive paper upon "Chippewa Music."[1]

DANCING.

Upon playing any one of the special tunes above referred to the particular person, or class of persons for whom it is intended, must lead in the dance. It would seem that in most cases the rules of the dance permit any one else to participate, but that in certain cases the tune is intended for this particular person or class of persons and for him alone.

In this dancing a person may dance in place, that is to say, may go through the necessary motions with the feet, without moving from the position in which he is standing, or he may dance one or more times around the circle. Very frequently the dancers take at first a complete turn around the circle and come back to the vicinity of their seats and here dance until the tune is finished. In taking a turn around the circle in this manner the movement is usually somewhat of the skipping step. Perfect time is, however, kept to the music no matter what movement may be employed. Upon coming back to the point at which he intends to dance in place the dancer ordinarily stands in one position and keeps time by moving his heels up and down. This is done in a manner similar to that of the drumming, namely, the movements of the heels are in pairs. Two motions up and down are first made with one heel and then two motions with the other, these being in unison with the double stroke of the drum sticks. The position assumed in dancing in this manner is a perfectly erect one, the weight of the body being rapidly shifted from one foot to the other as the dancing proceeds. Another form of dancing in place requires a slightly bent posture. The weight of the body is thrown onto one leg while the opposite foot is raised slightly from the ground. The foot is kept in a position which is nearly horizontal and is moved back and forth in time to the music, the toe just touching the ground at each stroke of the drum. The move-

[1]Bull. 45, Bur. Amer. Ethn. 1910.

ment back and forth is not more than perhaps from two to four or five inches and continues for as many as eight or ten of these double strokes of the drum sticks. At the end of such a series the dancer, without losing a stroke, changes his position, throwing the weight of his body onto the foot which has just been used in dancing and using the opposite foot for the motion of the dance as above described.

Any man present whether he is a member of the particular group of people to which the drum belongs, a member of a similar group elsewhere, or a member of no group at all, is privileged to dance at one of these ceremonies, except of course that he is not supposed to dance to special tunes played for certain particular individuals or classes of individuals to which he does not belong. In fact persons, such as whites, who are definitely known not to have any affiliation with the sect of the dream dance are welcomed in the ceremony provided their conduct is proper and in conformity to that prescribed by the rules of the dance. On the other hand participation in the dance is entirely voluntary and a person may sit in the circle day after day if he chooses without once dancing or otherwise participating even though he may be invited repeatedly to do so. In the speeches made by the leading men frequent mention is made by them of their desire to see all participate and invitations are extended to all present to join in the dancing or to otherwise enter into the ceremony.

These invitations to dance are not confined to words alone, but a person by his actions may invite another to dance. This is seen especially among the regular dancers. If, for instance, some regular dancer is seated with the evident intention of skipping a round of the dancing another may dance up immediately in front of him and execute a few especially vigorous steps or may hold before him a pipe, a beaded wand or any other object he happens to be carrying, or he may simply hold a hand before him, any of which actions serves as a special invitation to the one seated to rise and join in the dance. No offense is taken if he does not join in such a case, but etiquette rather requires him to do so.

ORATIONS.

Many speeches are made during the course of the day. Almost any man who is participating in the ceremony is privileged to speak. It is only necessary for him to rise after any particular round of the dance has been finished and the music has stopped, or to remain standing if he has been dancing during the round. This calls attention to the fact that he has something to say and he is then privileged to speak upon whatever subject he chooses, and the subjects vary greatly. In practice, of course, this speaking is largely confined to the more important men connected with the ceremony, such as the chief dancer, the chief drummer, and others. As above mentioned, in the case of a large donation of tobacco, or in the case of a donation of a considerable quantity of food, special announcement is made and a special speech is given by one of these head men in which the people are notified of this action of their benefactor, and a special invocation to the Great Spirit for the welfare of this particular individual is made. Other speeches deal with the desire of the participants for the assistance and benefactions of the Great Spirit to help them in matters of health and general prosperity. Still others are exhortations to the people for a better ethical standard, while others are chastisements of certain individuals or classes of individuals who are found to be negligent or malicious in some particular or other.

Still other orations recount the story of the divine origin of the ceremony and outline its creed, which, as was above mentioned, may be very concisely stated as a most perfect conception of the golden rule and the promotion of universal peace. This creed is all embracing and demands for the stranger the same consideration as is accorded the tribesman and blood relative. Frequently an old man rises after a round of dancing and delivers a lengthy and eloquent dissertation upon the ethical principles involved in the creed of the dream dance, stating that he, himself, cannot expect to live much longer to see the creed flourish and to assist in the propagation of the welfare of the people at large, and that he wishes to impress upon the younger generation the desirability of at all times honoring the faith, doing homage to the Great Spirit, and above all assisting in the propagation of the principles of universal peace and brother-

hood. Frequently he recounts during such an oration some instance showing the direct benefit which has been derived by some individual or by some community as a result of their strict observance of the rules governing the faith and their endeavor to at all times observe the mandates of the Great Spirit.

Now and then some person is guilty of an act in the dancing circle or immediately adjacent thereto that merits the direct condemnation of some of the head men connected with the ceremony. Upon such occasions one or more of these head men will speak upon this subject, outlining the undesirability of the action of the particular individual in question and showing the people wherein a direct transgression of established principles has been committed. An instance of this was shown upon one occasion at a dance upon the Menominee reservation. The rules governing this ceremony absolutely prohibit the use of intoxicating liquors in the vicinity of the dancing circle. They are even so strict that they prohibit the presence of anyone at the dance who has recently taken liquor. One day two young men who had been drinking slightly came to the dance. They had not been guilty of drinking the liquor in the immediate vicinity of the dancing ground and their state of insobriety was such that it was quite unnoticeable unless one's attention was called to it. It was, however, quickly detected by the chief drummer, who immediately arose and delivered a most scathing rebuke to these young men for this flagrant misconduct. He spoke at considerable length upon the viciousness of such conduct and recommended that these young men be requested to leave the premises upon which the dancing ground was located, and said that he hoped that this action would serve as an example to others against the use of intoxicating liquors during the dance. This speech was followed by another from one of the chief men connected with the dance, and almost immediately these two young men left the premises and did not return until the following day. Such wilful violations of the principles involved in this dance are spoken of in terms which leave no room for doubt as to the displeasure of the speaker, and which might be considered by some as inconsiderate of the feelings of those against whom the speeches are directed. It must, however, be remembered that the offenders are in no way ignorant of these prin-

ciples, that these violations are directly wilful and that they therefore in reality merit no other treatment than that which they receive.

In cases, on the other hand, where there is a violation of some principle of the creed, which violation appears to be due to ignorance rather than to malicious intent, the action of those in authority is always very mild and considerate. This is shown in the case of the young man who appeared in a half nude condition at the dance at Whitefish. Several men spoke against his action, but all these speeches were couched in conciliatory terms. It was pointed out that he was a young man and that he was probably unaware of the strict rules governing such matters. Allowances must therefore be made for him on this score of ignorance, and harsh judgment must be suspended. It was outlined, however, by each of the several speakers that it was his duty to point out that such conduct was not permissible and that this young man must be asked not to again appear in such attire. Furthermore, these same speakers each presented him with some article of clothing.

These speeches outlining the creed and setting forth the rules and regulations governing the conduct of the dance are almost invariably made by members of the home circle, that is to say residents of the place at which the dance is held. Speeches are also frequently made by participants from a distance who have come as visitors to this community, but the tenor of such speeches is usually that of gratitude and appreciation for the reception accorded the visitors, and expressing joy at the excellent spirit shown in the ceremony. One visitor at the dance at Whitefish, for instance, recounted how he had traveled over a great part of the middle west and had danced in many different localities and with many different tribes, and how he had found in all these localities this same ceremony, how its principles were the same wherever he had encountered it, and what a great benefit it was proving to the communities in which its devotees resided. He took occasion to mention especially the importance of Whitefish as a center of this creed, and delighted the people of Whitefish by recounting the fact that he had danced at a point far toward the west, in the Sioux country, to the music of a drum which had been made by the Whitefish people and which had been pre-

sented by them to another community toward the west and which had eventually found its way to this comparatively remote region. He also told how the story of this particular drum's origin was still kept by its present owners, and how they always spoke with great respect concerning the people of Whitefish.

FEASTS.

Under ordinary circumstances, one of these dances begins at about eleven o'clock in the morning and lasts until between four and five in the evening. The dancing is almost continuous with but very short intermissions, except during the feast of the day, which is usually served at about one o'clock. The foods intended for this feast are brought into the dancing circle and a special ceremony is performed over them, after which they are apportioned to all those present. In one of the Menominee ceremonies witnessed during the summer, there was a special person who did not at any time appear in the Chippewa ceremony. He impersonated the Great Spirit, and at this dance it was he who performed over the foods the ceremony of consecration. His position in the circle was at the point marked D in the accompanying figure 2. He wore in addition to the ordinary dress of the dance, a large eagle feather cape. This was tied by a cord passing about under his arm pits, and reached nearly to the ground. It consisted of a cloth foundation to which was attached the tail feathers of the golden eagle in such a manner as to make a complete covering over this cloth backing. Each feather was specially ornamented with small bits of the white pelts of weasels, which were glued directly to the quill of the feather out toward its tip. Near the center of the top of this cape were two eagle wing feathers, which were so arranged that when the cape was worn they projected directly out from the back like a pair of horns. Between dances this impersonator sat upon a stool, over which was thrown a blanket which extended for some distance toward the east, and the office of which was to keep the feather cape from touching the ground. In taking his seat after a dance the impersonator was very careful to see that the cape lay properly upon this blanket, and in no case was it allowed to touch the ground, or to become soiled in any way. Accompanying this cape was a beaded wand about eighteen or twenty

inches in length, this being a sort of badge of office, as it were, and serving the impersonator in the same manner as does the pipe stem of the drum's calumet in the case of the special pipe tender. While inside the ring the impersonator always wore this cape and always carried the beaded wand. In case he had occasion to leave the circle, however, the cape was very carefully placed upon the stool and the wand put in such a position back of the two eagle wing feathers that they would stand erect, thus leaving the cape and wand to impersonate the chief diety during his absence. Great reverence was paid to this impersonator while present in the ring and participating in the ceremony as the representative of the Great Spirit, though when divested of his special insignia and outside the ring this old gentleman was looked upon in every way the same as anyone else.

The Menominee name of this impersonator was given as tca' manītū, a fact which it was difficult at first to reconcile with the Menominee name for the Great Spirit, which is mă'tc awătuk. It seems probable, however, that the name comes in reality from the Chippewa gi'tcī manītū, and that it has been corrupted into the present form tcá manītū. This whole ceremony came from the west, and so far as can be learned was introduced among the Menominee from the Chippewa, or perhaps from the Potawatomi. In view of this fact, therefore, it seems not at all unlikely that the present form of the name of this impersonator comes from the Chippewa gi'tcī manītū, which is their name for the Great Spirit. It is claimed that this impersonator has no direct connection with the thunder bird, which is such an important factor in the mythological concepts of the Menominee and the Chippewa, and this seems probable when it is remembered that the Menominee name for the thunder bird is nă'mă'kiū. The function of this impersonator is, according to the Indians, to represent the Great Spirit, and the ceremony is in a large measure directed as an invocation to him in this representative capacity. His seat in the dancing circle is so placed that he faces the drum at all times, and there are played special songs to which he alone may dance.

Perhaps his most important office is that of consecrating the foods to be used in the feasts, which form one of the most character-

istic features of the dream dance. The ceremony of consecration as performed by him was as follows:

At one o'clock or thereabouts, the dishes containing the feast were brought in and placed at a point near the eastern border of the dancing area (fig. 2, E). In this particular case the feast was provided almost entirely by the impersonator himself, who was also the keeper of the drum and the owner of the house near which the dance was held. He personally brought in the vessels containing the foods and placed them in their proper position. Then, going over to his stool, which was at D, he again put on his feather cloak and took up his beaded wand. This was a signal for the drummers to play and sing the particular air connected with the consecration of the food. To the accompaniment of this music, which continued constantly throughout this part of the ceremony, the impersonator performed the following rite before the food was served.

He first danced with a skipping step completely around the ring in a clockwise direction, and then completely around the point, E, at which the foods had been placed. He then danced slowly back and forth four different times along the eastern side of the ring. He next danced in a circle around the foods, finally coming to a position immediately to the north of them. At this juncture he placed his beaded wand in his belt and there it remained until this part of the ceremony was completed. Here he danced in place for a few minutes, after which he bent over as if to pick up some of the food and while in this bent posture, he danced a complete circle and a quarter in a clockwise direction about the foods, thus bringing himself to a position immediately to the east of the foods. He then faced toward the east and made a motion with both hands upward and outward, signifying that he was throwing or offering these foods toward the eastern sky. Having thrown the foods in this ceremonial manner toward the east, he faced about toward the west thus again facing the foods, and danced in place for several minutes. He then bent in the same manner as above over the foods and danced another complete clockwise circle and a quarter about them, thus bringing him to the south of them. He then faced toward the south and threw or offered the foods in this ceremonial manner upward toward the southern sky. Facing the foods again he danced in place

for some minutes more, after which he performed the same kind of a dance, and ceremonial picking up of the foods and threw them toward the western sky, being, of course, in this case on the western side of the foods. A similar cycle brought him again to the north from which position he threw the foods toward the northern sky, thus completing four of the six cardinal points. In this position he danced for some minutes, after which he made a motion as if picking up the foods, but omitted the dance about them. These he threw up toward the zenith in the same manner as he had thrown the others toward the foregoing four cardinal points. In this case he remained facing toward the foods, not turning his back on them as he had done in the four cases above mentioned. Finally for the sixth and last time, he danced in place and made motions as if picking up the foods, this time throwing them toward the earth and completing the ceremonial offering of these foods toward the six cardinal points recognized by the Menominee.

This ceremony having been completed a couple of men came up and began the serving of the foods to the participants in the ceremony. Each participant is supposed upon such an occasion to provide his own dish, which is taken by one of these waiters, filled and returned to him. He then places it by his side or in any convenient place until all have been served. When everyone is thus ready, one of these waiters goes over to the impersonator of the Great Spirit and feeds him a spoonful of food, and not until then is anyone else at liberty to eat. This feeding of the Great Spirit is done with the idea that as this impersonator in the ceremony partakes of the food in this way so the Great Spirit himself partakes of its essence and thus signifies that the feast is acceptable to him and that he looks with favor upon the givers of the feast and the participants in the ceremony. After this everyone is at liberty to eat his portion of food.

The foods used in any of these feasts must be consecrated, but the mode of procedure differs to a certain extent in different localities as is shown in the consecration ceremony as it exists among the Chippewa where this impersonator does not exist. This consecration is described in detail in recounting the dream dance held at Whitefish, July second to tenth, 1910.

During the whole ceremony for the consecration of food, the drummers play and sing continuously, but immediately the ceremony is over the music ceases. It is resumed immediately the feast is finished, and the remainder of the day is spent in dancing in the same manner as before the feast.

THE EVENING CEREMONY.

The ceremony proper ends, as above stated, at between four and six o'clock, but during the evening there is always held a short, though less elaborate, ceremony. This differs only in certain features from the regular ceremony of the day. The drum is not hung on its four stakes; in fact, these stakes are not brought out to the circle at all. Furthermore, the whole ceremony need not necessarily be held in the dancing enclosure, but may be held almost anywhere else, as is shown in speaking of the Whitefish ceremony. Wherever this evening ceremony is held a blanket or other piece of cloth is placed on the ground in order to protect the drum from direct contact with the earth. However in placing the drum upon this cloth it is oriented as carefully as if it were being hung on the stakes. The long, elaborately decorated stem used with the drum's calumet is brought out and placed in its proper position at the west of the drum, but is not used in smoking. All smoking during the evening ceremony is done with the same bowl as is used during the day, but with its short stem. Furthermore, there is no ceremonial lighting and passing of the pipe. A few speeches similar to those heard in the daytime are made during the evening, but the whole evening ceremony is much less elaborate than that held during the day and it rarely lasts more than an hour and a half or two hours.

COMPARISON OF THE CHIPPEWA AND MENOMINEE CEREMONIES.

In the foregoing pages the attempt has been to give a complete general idea of the typical dream dance and to describe more or less in detail certain features, such as pipes, which are intimately related to the ceremony. In doing this it has been necessary to call attention to differences existing in certain features of the ceremony as it

is performed by the Chippewa and by the Menominee. It may now be well to take up more in detail a consideration of these points of difference.

One of the most striking of these differences in the ceremony, as performed in these two localities, is the presence among the Menominee of two and sometimes three calumets, and the presence among the Chippewa of but one calumet for each drum. As has already been pointed out, the drum's calumet is the most important among the Menominee, notwithstanding the fact that there is always one, and sometimes two, other pipes present. Further, attention has been called to the fact that one of these extra pipes is kept for the special use of the dancers, and another for the use of the impersonator of the Great Spirit whenever he is present. Among the Menominee the drum's calumet is never smoked outside the drummers' circle, while among the Chippewa it is smoked by both drummers and dancers. Furthermore, among the Menominee the pipe is always lighted by means of punk, while among the Chippewa it is lighted directly with a match.

Among the Chippewa the donations of tobacco are given, under ordinary circumstances, directly to the drum or to whatever person or object they are intended for, while among the Menominee tobacco is almost invariably given to the keeper of the dancers' calumet, whose position is directly north of the entrance to the dancing circle, and it is by him given to the drum's pipe and to the impersonator of the Great Spirit, as also to certain other individuals for whom it is intended. It is also permissable, though not customary, among the Menominee to give tobacco directly to the drum or to any person or object for whom it is intended. By virtue of this fact the dancers' pipe tender becomes in this tribe a much more important official than he would otherwise be.

The dancing circle is, among the Chippewa, provided with two doors, while among the Menominee there is but one. There are also some cases among the Chippewa where but a single door is present, but custom appears to favor two openings. Furthermore, the enclosure of the Chippewa tends to angularity and is usually quite high, while that of the Menominee is more nearly, if not quite, circular and is very low.

Two striking and important features stand out in contrast to one another in the ceremony performed at Whitefish and in that performed on the Menominee reservation. As will be pointed out more fully later on in this paper there has arisen at Whitefish what may be termed a special version of this dream dance cult which embraces certain modern, introduced ideas. Particularly is this noticeable in the presence of a large cross in the center of the dancing area. There is, on the other hand, no impersonator of the Great Spirit at this point, whereas among the Menominee this official is a very prominent character and one of high importance in the ceremony.

COMPARISON OF THE DREAM DANCE WITH THE GHOST DANCE.

In view of the fact that all, or at least most religious creeds wherever found have certain fundamental principles, which are very similar, it is quite natural that the dream dance faith should possess certain features which appear in various other religions. Perhaps its nearest parallel is the ghost dance religion, which for many years formed a very important factor in the life of the Indians of a large part of the western United States. On the other hand, the two faiths are dissimilar in many of their details, and it may be worth while to make a short comparison of the two.

Mr. James Mooney's excellent and exhausive paper entitled "The Ghost-Dance Religion"[3] gives a full discussion of the origin, the rise and fall, and the details of this important religion. It appears that this faith in its first tangible form had its origin with a Delaware prophet whose first vision of importance came to him in 1762, and was the direct expression in this religious manner of the ever increasing discontent which naturally arose among the Indians with the encroachments of the whites upon their territory and the imposition of the customs and artificial conditions of the new comers upon them. In fact one of the chief tenets of this prophet was the requirement that the adherents of the new faith should use not only their influence, but the violence of war in ridding the country of the white-man, whose presence was the greatest calamity which had ever befallen the Indians. The doctrine as promulgated by this prophet had, therefore, as one of its chief features the direct com-

[3]Ann. Rep. Bur. Amer. Ethn. XIV, part 2, 1896.

mand of the Great Spirit that war should be made upon the whites. In this respect it differed very materially from the more recent teachings of this religion, which prescribed the very opposite conduct, as will be shown later.

In various other respects the creed of the Delaware prophet was a good one. It prescribed, so far as inter-tribal relations were concerned, a reign of brotherhood, and a cessation of inter-tribal wars. It prescribed also a state of most perfect intra-tribal felicity which included a doctrine similar to that of the golden rule, and which prescribed the abandonment of the use of intoxicating liquors which had by that time become a great curse among most of the tribes. Finally, it prescribed the supplanting of the old faiths, especially those concerned with the medicine ceremonies, by the new religion.

After some years of this supposedly divine guidance through the agency of this prophet a large number of the tribes, many of which had formerly been the bitterest of enemies, were united under the leadership of Pontiac for a determined effort looking toward the overthrow of the British Colonies, for it was against them that the feelings of the Indians were directed, while the French, on the other hand, were considered their friends. The progress and outcome of this war are matters of history. It ended with the complete defeat of the Indian forces, and with the final killing, through treacherous means, of Pontiac himself.

As is the case with all such Messiah movements, first one time and then another, was set for the final coming of the millenium and the establishment by supernatural means of a great and universal Indian paradise. These prophesies having failed and the war of Pontiac, which was a direct outgrowth of this religion, having ended disastrously the faith received a very sever blow from which it did not recover for many years, though it still survived in a more or less latent state.

In fact it was not until over forty years later that any important agitation along these lines again arose. This came through the revelations and teachings of Tenskwatawa, the Shawano prophet, who in 1805 announced his revelations, which were in most respects quite like those of his predecessor above mentioned. In his visions in which he was supposed to journey to the spirit world, and to

communicate directly with the Great Spirit he received instructions concerning the ghost dance religion and concerning the conduct of himself and of his followers. His teachings were a denunciation of all forms of the then existing witchcraft and medicine practices, a denunciation of drinking and of the use of the white-man's dress and implements, as also of the practice of the inter-marriage between the white-men and Indian women. He prescribed that his followers should return to the old mode of life where all property was in common, and where buckskin clothing and the fire-stick should replace the white-man's dress and his flint and steel.

The naturally religious nature of the Indians caused them to quickly take up the teachings of this new prophet, and to herald him as the direct mouthpiece of the Great Spirit, with the result that delegations came from many tribes both near and far to visit him and receive his teachings, which they in turn transmitted to the members of their respective tribes. Tenskwatawa was the brother of Tecumseh, who was a level headed and astute chieftain, and who was quick to see in the teachings of his brother which brought all these delegations to their village the opportunity for the organization of a great political movement, which would, he believed, enable his race to form a confederation which would be powerful enough to stop the further invasion of their territory by the whites, who had already driven the Indians from the whole Atlantic seaboard and the region as far west as the Ohio valley. He had for years insisted that the region west of the Ohio should be unmolested by the whites and left as the domain of the Indians, and he saw in the conditions now before him the opportunity to organize the various tribes against this common enemy and effectually stem the tide of white immigration which was pressing farther and farther westward and becoming more and more insistent in its demands for greater territory. Acting upon this idea he succeeded in forming one of the greatest confederations known in American history. Its power was finally broken through a strategetic move by General Harrison in 1811, but Tecumseh and many of his followers participated on the side of the British in the war of 1812.

The hopes of the Indians for victory through supernatural means had been great and their expectations of an ideal paradisial con-

dition had been high, but their realization of these hopes and expectations had received a severe shock with the result that their faith was in most cases completely shaken and their prophet was repudiated. Thus, for the second time the teachings of the ghost dance religion had proven false and the prophesies of its leaders had not come true, with the result that most of its followers repudiated it and returned to their former faiths.

During the following years up to the latter part of the 19th century various lesser prophets and leaders sprang up, but with no very great success until in 1889 Wovoka, a Paiute, residing in the Mason valley, Nevada, received revelations which caused him to proclaim himself the Messiah and which gave him great prestige and gave the ghost dance religion a new life and an entirely new meaning.

Whereas the element of opposition to the existing order of things had been an important factor in the teachings of the two principal prophets above mentioned, Wovoka taught that all men, regardless of race, were under the patronage of the Great Spirit and that so long as the Indians were in association with other races they must treat them as brothers and in every way obey the precepts laid down in the doctrine of brotherly love and tolerance. He was grossly misrepresented in many instances, it being stated that the ultimate object of his doctrine was the same as were those of the former prophets, and that there would eventually be an uprising for the massacre of the whites. His teachings were, however, so far as this point was concerned, directly the opposite. They prescribed that the Indians must live at peace with the whites and that they must treat them in every way in a fraternal manner. Furthermore, they expressly prescribed that the Indians must put away all the old practices which in any manner savored of war. That blood was shed at this time and on account of this religion cannot be denied especially when the battle of Wounded Knee is recalled, but this fact is not directly chargeable against the precepts of the faith itself. Together with these special precepts and ethical principles certain ritualistic observances in the former of the ceremony, itself, of the ghost dance were prescribed.

The dance with its creed, prescribing honesty, good will and peace, spread very rapidly and pilgrimages were now made from great distances to meet the Messiah, as had been done in the case of the Shawano prophet. In this way the ghost dance in the form then given to the people by Wovoka spread rapidly over a large area of the plains and the western plateau regions, but it seems not to have gone to any extent into the regions east of the lower course of the Missouri river, and hence did not come to the Minnesota and Wisconsin peoples. It is an interesting fact, however, that the dream dance appears to have come at about this same time from the Minnesota tribes to the Chippewa and Menominee of Wisconsin, and that while these two ceremonies are by no means the same there appear to be certain features common to the two which point to a possible connection between them.

The essential features of the ghost dance religion as they appeared in their most recent form, that taught by Wovoka, when compared with those underlying the dream dance show certain interesting similarities and differences as follows:

1. Both faiths have their origin in revelations, which come to individuals who are supposed to be especially endowed with occult powers, and who are given in these visions the creed of the faith and the ritualistic procedure of the ceremony with instructions to transmit them to their people.

2. The creed in each religion embodies certain ethical principles which call for a reign of peace, good will and justice, and for the equality of races and individuals.

3. The object sought by the worship in each case is the future, and secondarily the present, betterment of the individual participants and the race at large. This in the case of the ghost dance takes the form of an idea that a regeneration of the earth will shortly be in order at which time the Indians are to be given back their former life and are, together with their resurrected relatives and friends, to live upon the earth in a state of perpetual youth and under ideal conditions. This state of affairs is to come with the appearance of a Messiah upon the earth and will be heralded by signs. Various definite dates have been prophesied for its arrival and it is the failure of these prophesies which has caused the apparent aban-

donment from time to time of the faith, though the naturally religious feelings of the people quickly respond to new prophesies and new revelations of a similar kind. With the dream dance, on the other hand, it appears that, while a similar idea is the underlying principle, it has taken no such tangible form. The devotees are content to pin their faith to a promised new order of things, which shall be ushered in at an indefinite future date. The most important part of this faith is the hope of the devotees for reward in the ordinary spirit world in return for good deeds and upright living in the present world.

4. The desire of the devotees of each of these religions are expressed by means of invocations to the Great Spirit and by means of definite and fixed ritualistic ceremonies.

The important features of these ritualistic observances, as compared one with another, are as follows:

A. The ghost dance is held in an unenclosed area, the ground being, however, usually consecrated by the priests before the beginning of the ceremony. The dream dance, on the other hand, is held within an enclosure definitely set apart for the purpose, and which must be entered by one, or sometimes two, fixed openings.

B. There are certain sacred objects connected with each of these ceremonies. In the ghost dance these are, the sacred crow, certain feathers, maces, arrows and game sticks, and especially a large tree or pole which is placed in the center of the dancing area and about which the dancers circle. In the dream dance, on the other hand, there are two objects of special sacredness, the large drum and the calumet. The only thing found in the dream dance which would be in any way analogous to the tree or pole of the ghost dance is the large cross which is kept in the center of the dancing area at Whitefish. This is, however, not present in any other locality so far as known, and does not even here form a central point about which to dance. Furthermore, it is a very recent introduction as will be shown later.

C. No musical instruments are used in the ghost dance, whereas a large drum is the central figure and one of the most important features of the dream dance.

D. In the ghost dance there is no priesthood other than the seven leaders of the dance, and there are no other special officials. Further, the participants are not divided into definite classes. In the dream dance there are certain definite officials, such as the four directors, the pipe tenders, the "chief priest," and the chief drummer. Furthermore, in this ceremony the participants are very exactly divided into the three classes: the drummers, the women who assist in the singing, and the dancers.

E. In the ghost dance men, women and children are all permitted to participate in the dancing, whereas in the dream dance only certain definite men are permitted to dance, while others drum, and the women are never permitted to do either, but confine their activities to assisting in the singing. Girls likewise may assist in the singing, and boys are early taught to dance or drum.

F. In the ghost dance the participants are very exactly painted with symbolic designs, whereas in the dream dance painting is not at all an essential feature, and is rarely used.

G. In the ghost dance all the participants form a circle, each person grasping the hand of his adjacent neighbor, and all moving sidewise with a dragging, shuffling step in time to the songs which provide the music. In the dream dance, on the other hand, each man who participates dances entirely independently of every other dancer and the movement is always forward, and in no case sidewise, as above mentioned.

H. In both these dances dogs are very strictly excluded from the dancing area.

I. After the completion of the ghost dance the participants bathe as a purification ceremony, while no such practice appears to exist in connection with the dream dance.

J. The ghost dance is usually a night ceremony, beginning late in the afternoon or in the early evening, though it may sometimes begin in the morning. The dream dance, on the other hand, always begins in the forenoon and usually rather late in the forenoon, and the ceremony proper ends late in the afternoon. While there is a ceremony in the evening it is of much less importance and is quite secondary to the real ceremony of the day.

K. In most regions no fires are used in connection with the ghost dance, but among the northern Cheyenne four large fires are

built in a particular manner at the four cardinal points. In the dream dance fire does not figure except as the calumet may be considered a sacrificial altar.

L. The ghost dance has for one of its chief objects the communication of the participants with the spirits of departed relatives and friends, this being accomplished by hypnotic trances induced through the agency of the medicine man. The chief object of the dream dance, on the other hand, is to communicate with the Great Spirit and invoke his aid for various purposes, but no special communication with the future world is undertaken, and nothing related either to trances or to hypnosis plays any part in it.

M. One of the important features connected with the various prophets of the ghost dance religion has been the belief in their ability to cure the sick and even raise the dead. No such idea appears to exist among those who embrace the dream dance religion, not even at Whitefish where Mr. Steve Grover holds a position which is quite comparable to that of a prophet in the ghost dance.

It will thus be apparent that these two ceremonies have various features which are analogous or in some cases even identical. This, together with the facts that it came to these people from the west and that it may have arisen at about the same time at which the last important wave of the messiah cult and ghost dance religion were spreading so rapidly over the western plateaus and plains, might perhaps be taken as an indication of a connection between the dream dance and this latest version of the ghost dance.

That this connection is doubtful, however, and that the dream dance, as such, arose quite independently of the later form of the ghost dance seems much more probable. It seems in fact quite probable that the Sioux girl's vision which gave birth to the dream dance came to her at a time prior to the last wave of the ghost dance religion, which started in 1889; or, if it came later, that she belonged to a division of the Sioux not yet reached by this wave. Had she and her people been familiar with this new version of the creed and had they been active devotees of it her revelations would have undoubtedly been much more influenced by its precepts. Also there is a certain amount of weight to be attached to the indefinite statement of Chippewa and Menominee informants that her vision came

to her some time between twenty and thirty years ago. If nearer the latter than the former date her revelations antedate those of Wovoka by several years.

On the other hand, there are a sufficient number of similar details in these two ceremonies so that it seems very probable that her vision was more or less influenced by beliefs derived from the older versions of the ghost dance which originated from the teachings of the earliest prophets, various of which beliefs must have been held over in the minds of her people from these earlier days even though the cult had fallen into disrepute and the prophets had been repudiated.

THE DREAM DANCE HELD AT WHITEFISH, JULY 2nd to 10th, 1910.

From the foregoing comparisons of this ceremony as it exists among these two tribes it is obvious that the Menominee ceremony is somewhat the more aboriginal of the two. Furthermore, a very interesting special feature of the dream dance is that which was found at the point known as Whitefish about three miles west of the village of Reserve on the Lac Court Oreilles reservation. In this special feature is shown also an interesting instance of the manner in which a ceremony that is well established, and which extends over a wide range of territory, may be at any time altered in some particular locality. The dream dance had been for many years practiced, in the same manner as that above described, by the Indians of the vicinity of Whitefish, and bore no particular features other than the ones above mentioned. However, from the visions of a little girl, which happened to be accompanied by certain corroborative circumstances, there were created certain entirely new features in this ceremony, which have rendered Whitefish more or less of a Mecca for those who embrace the dream dance faith. In fact it not infrequently happens that Indians come from various other localities, even as far distant as Oklahoma, to attend one of these ceremonies. By virtue of the fact that a good opportunity was presented to attend and to make a detailed study of the nine days dream dance, called in Chippewa bwoni-nī'mītiwin, held at Whitefish, July 2nd to 10th, 1910, it may be of interest to consider the

parts of this ceremony in detail as they passed day by day, omitting for the sake of brevity descriptions of the drum and such other matters as have already been considered in the fore part of this paper and which are in a large measure alike in all of these ceremonies wherever found.

FIRST DAY, JULY 2nd, 1910.

Unfortunately it was impossible to arrive at the dancing ground before the latter part of the afternoon of this first day. Practically nothing of importance was missed, however, since only eight or ten people had as yet assembled, and since during the following days all the important features of the ceremony were repeated. The ceremony of this first day ended completely in the latter part of the afternoon, there being upon this occasion no evening ceremony such as that held on the following days.

SECOND DAY, JULY 3rd, 1910.

This particular dream dance had been scheduled for the fourth of July especially, and it was no great wonder that there were few in attendance on Saturday, July 2nd. On the following day, however, many more arrived, for, in as much as this date fell on Sunday, it made a convenient stopping place in work, and many of the people came from various parts of the reservation, and most of them remained during the following days.

The drums, dēwē'gûn (plural dēwē'gûnûn), of which there were two used in this ceremony, were set in the dancing area at about eight-thirty a.m. During the night they had been kept in a neighboring house, and before being set out in the dancing area in the morning everything was prepared for the dance, which was to occupy the greater part of the day. Each drum was very carefully set, the four stakes, called wagnû'tkībitcīgûnûn, which supported it being placed in the holes in the ground which had been prepared for them on the previous day. The holes were made by driving a crow bar down at the four cardinal points about each drum. Much care is necessary in making these holes, since the stakes must extend down onto the ground just far enough so that when the drum is

hung by means of its loops upon them, it will clear the ground by from one to two inches. Once these holes are made they serve throughout the whole ceremony, since the drum is always replaced each day in the same position in the dancing area. In this particular case the two drums occupied the southern half of the area, their positions being shown at A and B in fig. 1. Had there been more drums they would have been placed in convenient locations in other parts of the dancing area, and in such a way as to bring them more or less equidistant from the center of the area, which was in this particular case occupied by a large red cross, fig. 1, C. The drums were placed without any particular ceremony, they simply being taken in, each by its respective tender, called ōbīgīʒīgē'-wīnīnī* (plural ōbīgīʒīgē'-wīnīnī-wûg), and hung upon the stakes and adjusted in the proper manner. These drum tenders are supposed to care for the drum during the ceremony, to heat its heads and keep them tight, to place the drum in position for the dance and to remove it after the day's dance is over, and in every way to see that it is properly handled. The particular tenders in this case were for the westernmost drum, fig. 1, A, adjidja'k and nīke^{n}s; and for the easternmost drum, fig. 1, B, tigū'mic. A careful distinction should be made between these tenders and the drum warden, called wē-dēwē'gûn-it, whose office is to keep and care for the drum during the intervals between ceremonies. For the drum A above mentioned the wardens were John Grover and Mike Taylor. The name of the warden of the drum situated at B was not learned. As soon as this placing of the drums had been finished the music began.

In some instances there were but one or two drummers at each drum at the start, but, as soon as the music had been going for a short time, other drummers came in and joined the drummers' circle. The only one of the drummers who has a special designation among the Chippewa is the head drummer who is called bagaa'kōkwan-genawindûñg. The first part of this term is derived from the name of the special beaded ceremonial wand or drum stick which is called bagaa'kōkwan and which serves this head drummer as a kind of badge of office. The only time when it is ever used to beat the drum is during the ceremony of dedication of the latter. The drum is struck once only with it at that time. The rank and

* ʒ has a sound similar to ʒ in azure.

file of the drummers, as also of the dancers are called simply nīmīwē'-wīnini-wûg, literally dancing men. Immediately about the drum were placed mats and rugs, upon which the drummers knelt, or sat, throughout the whole dance of the day.

During the preliminary drumming, as also later in the day when the dance was in progress, the drums took turn about in providing the music. One drum would be played for from one to several tunes during which time the drummers of the other drum would rest, after which this other drum would provide the music while those of the first drum rested. This preliminary drumming went on until about nine-fifteen a.m. By this time a very considerable number of people had assembled within the enclosure, which in this particular case was, as above mentioned, a square fence, around the full length of which there ran a bench upon which the spectators and dancers sat. An exterior view of this enclosure is shown in plate IX, fig. 2, while plates X to XIX show various views taken within this same enclosure. By about nine-fifteen most of the women who were to participate in the singing had joined the women's circles, represented by the circles of triangles about the drums in figs. 1 and 2, these being just outside the drummers' circles, represented by the circles of crosses. Most of the dancers and spectators also had assembled by this time.

The rank and file of the dancers are called nīmīwē'-wīnini-wûg, which signifies literally dancing men, but there are connected with each drum separately certain special personages among the dancers who have special designations and who are supposed to occupy positions about the dancers' circle in the order of their rank. These are (1) the head dancers or "chief priests," called ō'gīma (plural ō'gīmag), (2) the four directors or masters of ceremony, called ōgitcīda-ōgīma (plural ōgitcīdag-ōgīmag) or nīga'nū-ōgitcīda (plural niga'nu-ōgitcīdag), and (3) the two messengers called skabē'wis (plural skabē'wisûg). After these comes the rank and file of the dancers above mentioned.

It was then not until about nine-fifteen that the dance itself began. There was no visible signal given for the commencement of the dance, and it was claimed by the Indians that no special tune was played to begin it. Several men simply arose and commenced to dance at this time, and from then on until about six forty-five p.m.

the dance proceeded round after round with very short intermissions, except when speeches were being made, and during the time when the feast was being served. On this day the maximum number of dancers assembled was seventeen, and the number of drummers at each drum varied from two to nine.

During the forenoon various of the men made speeches. Among those who spoke were two or three of the old men, who reside in the vicinity of Whitefish. They discoursed upon various subjects, and one old man called particular attention to the object of the ceremony, declaring that the whole ceremony was the religion of his people, and that it must be considered to be as sacred as the religion of the white-man, and that it must be at all times kept and fostered, with due reverence to its precepts and fidelity to its creed. He declared that the drum was a direct gift from the Great Spirit, or ma'nītū, and that they should upon this occasion show their appreciation of the beneficence of the ma'nītū by joining most heartily in the ceremony and having an enthusiastic and successful gathering. He exhorted the people not to be bashful in the presence of the whites, and said that they should never feel ashamed of their religion since it was in every way equal, from their standpoint, to the religion of the whites.

Another man said, among other things, that he rejoiced to see several strangers who had come from considerable distances to attend the ceremony. This and other similar declarations were made as a kind of speech of welcome to the visitors who were present. In return two of these visitors spoke. In fact they made several speeches during the course of this second day. One of them, a Chippewa from Minnesota, who is shown in plate XIII, fig. 2, in the act of speaking, said that he had come over to Whitefish especially to attend this dance, and that he rejoiced in the welcome which he was receiving, and assured his hosts of the great pleasure it was giving him to participate in the ceremony. It is an interesting fact that here at Whitefish there has sprung up a special variant of the dream dance cult, the details of which will be fully described later, and that by virtue of this fact the ceremonies held at this particular place are heralded to considerable distances as of great importance. In fact almost every summer when this dance is held Indians are to be

found here from various parts of the region immediately to the west, and even from as far away as Oklahoma. Notices are sent out by mail sometime before it is intended to hold one of these ceremonies and usually quite a number come from distant points to attend it. That few came upon this occasion is due to the fact that a report of a smallpox epidemic in this section had spread about and had dissuaded the Indians from a distance from coming. These few people, however, had come from Minnesota, and later in the ceremony a considerable delegation from the St. Croix region in Wisconsin arrived.

The speeches made at these ceremonies are not always of an ultra serious nature, in fact it is not at all necessary to look and act extremely serious in order to participate in one of these dream dances. Frequently dancers purposely do various things to create a laugh, and now and then a speaker purposely makes some remark which causes a great outburst of applause or laughter. For instance, the particular speaker from Minnesota above mentioned, remarked during his speech, after having dilated upon the royal reception which was being accorded him by his hosts, that he was a bachelor and that he saw about him such a great number of good looking women that he was greatly pleased, and that he was not at all sure but that he might find some one of them who would be willing to become his wife. This was regarded as a very facetious suggestion upon his part and provoked a round of laughter, but still greater mirth was caused when, upon taking his seat, this same speaker asked one of the messengers to bring him a drink of water, whereupon another one of the messengers remarked that from that sign his chance of obtaining a wife in that community was very poor, since he had observed that the women at this reservation were very much aversed to waiting on their husbands. This was but one of the many instances where the solemnity of the occasion was relieved and where matters were enlivened very considerably by these little pleasantries and jokes at the expense of some individual or group of individuals. It must be observed, however, that throughout all this pleasantry there was in no case the slightest manifestation of a spirit of facetiousness in connection with the drum, or the other sacred objects connected

with the ceremony. In speaking of and in handling these objects the most solemn and profound respect was always paid them.

Another one of the visitors who spoke on this first day said that he had occasion to travel about a great deal, that he was very fond of the dream dance, and never missed an opportunity of attending one of these ceremonies. In his travels he had had occasion to journey far to the westward, and that he wished to tell the people assembled that he had encountered in this extreme western region (probably in the Sioux country) a drum which had been made by the people of Whitefish. It had been presented to some people toward the west and had finally found its way to the community in which he had encountered it. He said, furthermore, that the people of Whitefish were always very well spoken of by all the tribes with whom he had come into contact, because of their hospitality and on account of their care in celebrating the dream dance.

Upon entering the dancing area, each participant in the ceremony presented whatever amount of tobacco he or she wished to give for the benefit of the ceremony. This was given in most cases directly to one or the other of the two drums, the particular one selected being the drum to which this individual logically owed his allegiance, for each drum represents a separate community or a separate group of individuals in a community and a person is supposed to take up his station in connection with the drum to which he logically belongs. In many instances tobacco was given not only to the drum but also to the cross which was in the center of the area, and in some instances a third donation was made to the principle instigator of this ceremony, or as he might be termed the "chief priest." The Chippewa term applied to this official is ō'gīma (plural ō'gīmag), which is the same as the term for chief of the tribe. By virtue of certain special revelations which will be given later, Mr. Steve Grover holds this high office here at Whitefish. There were in this ceremony also two other men to whom, by virtue of their leadership, this term ō'gīma was applied. These were Billy Boy and djicī'b-dīnigûn. The amount of tobacco given by each individual is entirely a personal matter and concerns himself alone, but it is considered very bad form to enter the area without making at least a small donation, and the larger the donation the more it is

appreciated both by the other participants in the ceremony and by the Great Spirit, or ma'nītū, who presides over the ceremony.

At about noon, the special messengers, or attendants as they may be called, at the ceremony, brought in onto the dancing area the foods which were to be used in the feasts. These messengers, called skabē'wis (plural skabē'wisûg), are men whose duty it is to attend to the serving of the feasts, to bring water and to do all kinds of errands for the head men connected with the dance. There are usually two such messengers connected with each drum. In the present instance the drum A, fig. 1, had two, but the drum B had but one. For drum A there were wa'bīʒec, or wa'cīman and Alec Rousseau, and for B there was gībitwē'we. These foods were placed directly west of the cross, and at a point, fig. 1, D, about half way between it and the western or main entrance to the enclosure. When all was in readiness a special tune was played and sung and a man particularly appointed by the head men of the dance for this service performed a special ceremony, a kind of ceremony of consecration over these foods. This consisted of dancing about the foods in a particular manner and making certain ritulistic motions over them. It was impossible on this first occasion to observe in detail the exact sequence of these motions, and all the various parts of this dance, though it was observed more fully at a later time, and will be described in speaking of that occasion.

This ceremony having been finished, the music stopped and the messengers or waiters proceeded to distribute the foods among all those present. Each person who attended the ceremony had a cup or other dish of his own, and this was taken by the messengers and filled. In plate XV, fig. 2, the messengers are shown serving the foods for the feast. When everyone had been served, and not until then, it was considered proper to partake of the feast. This feast lasted perhaps three-quarters of an hour, after which the dancing was resumed and continued throughout the rest of the afternoon until about 6:45, as above mentioned.

During the course of the day the calumet was smoked the regulation four times, as has been already outlined in speaking of this subject in the early part of this paper. In this case there was but one pipe connected with each drum. This was smoked not only by

the drummers themselves, but also by the dancers and spectators connected with that particular drum. So far as observed, however, there was no case in which the calumet belonging to one drum was passed about among those people who were connected with the other drum. As elsewhere noted, such a pipe is kept by a special pipe tender called pwo'gûn-ĭ-wĭnini, literally pipe man. In this ceremony the pipe tender of the drum at A was pûckwûdaiya'ma, while that of the drum at B was wēwēcĭga'bok.

During the early part of the afternoon one of the messengers went about with a bag of tobacco, presenting each person present with a pinch, except a very few of the old men, who, so far as could be learned, received no tobacco for the reason that the matter in hand was one which concerned them, and concerning which they were already fully informed. This tobacco was given by an old man, one of the important men of the ceremony, and its purpose was that of an announcement that he intended to do some particular thing, and that he wished the presence, when the time came, of everyone to whom the tobacco was given. After the passing of the tobacco this old man arose and announced that on the following day he would recount in the circle a wonderful vision which had come to another man, a young man who did not consider himself a proper person to announce such a dream, and who had therefore asked this old man, who was more familiar with such supernatural matters to announce it for him in order that action might be taken upon it. The vision had appeared to this young man upwards of a year before, but he was not then in a position such that he wished to relate it. The old man said that, at the time of making the announcement, he did not himself know what the vision was. He said that the young man was not then present but would arrive on the following morning, and would then relate to the old man his vision which he in turn would recount when the proper time came in the ceremony.

This announcement was received with signs of satisfaction by the participants, and was followed immediately by a round of dancing, after which the same old man announced that the superintendent of the Indian school at Hayward had sent word that he wished to donate a beef for the feast of the following day. The old man

also said that certain men were about to start to bring this meat, and that the particular people whose duty it was to attend to such matters should be on hand early the next morning to prepare the meat and attend to the making of the feast for the following day.

It has been mentioned in the earlier part of this paper that the speeches now and then partake of the nature of verbal chastisments of those persons who have conducted themselves improperly. Some of them also are in the nature of warnings against improper conduct. After the above announcement concerning the feasts of the next day another round of dancing was held, in which nearly everyone present joined, this being a sign of the appreciation of the people for the donation which had just been announced. Immediately following this dance, John Quarters, one of the prominent men of this vicinity, made a long speech, in which he said that he had understood that certain unscrupulous white-men were planning to come to this dance for the purpose of selling liquor to the Indians. He urged the Indians to use every effort to prevent this and declared that he, as a representative of his township, which lays immediately adjacent to the reservation, for he as a matter of fact lives just off the reservation proper, would pledge himself to see that no liquor was sold within the jurisdiction of his township. He said that he had spoken to ask their co-operation to see that none was sold on the reservation, and especially did he urge upon them that none should be used during the ceremony, recalling to their minds the sacredness of the dream dance and the great displeasure which it would give the Great Spirit if any of them were guilty of drinking, or any of the other forbidden practices. His speech was favorably received, as was manifested by the participation of nearly all those present in the rounds of dancing which immediately followed it.

A little later, the author's interpreter, Mr. Ira Isham, discussed with Mr. Quarters the author's presence at the ceremony, the objects in view and the motives underlying his visit, after which Mr. Quarters made another long speech, in which he recounted to the people what had been told him by the interpreter, and urged that the stranger be received in a friendly and courteous manner. His speech was throughout punctuated with expressions of assent from his auditors, and the round of dancing which immediately followed

was participated in by nearly all present, thus giving further proof of their good-will and of the spirit of approbation in which the speech was received. Shortly after this one of the principle men of the ceremony came over to state that on the following day if the author would bring his dish, as did the other participants in the ceremony, they would take care to see that it was kept well filled. He was greatly pleased to receive the assurance from the author that this would be done. This illustrates the kindly manner in which everyone, regardless of race, creed or station is received at one of these ceremonies, providing of course he attends the ceremony in the proper spirit and conducts himself in a fitting manner. The rest of the afternoon was taken up with dancing and with speeches upon various subjects, all the speeches being quite similar to those which have already been mentioned.

Finally an old man, one of the four directors, ōgi'tcīdag-ōgīmag, arose and announced that two more tunes would be played by each drum, and that at the conclusion of these the ceremony for the day would be ended. This was a sign for everyone to participate, for although a man may remain seated during the rest of the day, he almost invariably, unless physically disabled, dances these last rounds of the day. It should be noted here that under ordinary circumstances there are four of these directors or masters of ceremony for each drum, but in the present case the one set of directors served for both drums. These four old men were bwēgī'ǯik, zīmaka$^{n'}$, pwo'gûn and bīdû'k.

Whereas, during all this time the drummers had kept very strictly each to his own drum, they now all assembled at one drum, and all played most heartily while everyone danced. The first of these two tunes was not different in its general character from others which had been played during the day, but the second was marked by a division into four parts. These parts were separated by short periods of drumming by striking on the edge of the drum. That is to say, the handle end of the drum stick was lowered so that instead of the head of the stick striking the drum head itself, the edge of the drum was struck with the handle. This made a gentle tapping which kept time with the song, which was itself correspondingly lowered by the singers dropping their voices. After each of these

intermissions in the drumming the drum sticks were again raised so that they struck the head of the drum and the tune then proceeded in the regular manner with its full force. Thus, by means of this tapping on the edge of the drum, the tune was divided into four parts. At the conclusion of this tune the loops of the drum were taken off the stakes and the drum was let down onto the ground. This signified that, so far as this particular drum was concerned, the ceremony was at an end.

All the drummers then went over to the other drum and joined in the two tunes which were due from it. These were more or less dissimilar to those which had just been played upon the other drum. During the playing of these last tunes all the dancers present formed in a circle around the particular drum which was being played and danced most energetically. Finally, after this drum had also been let down from its stakes onto the ground, the whole day's ceremony was completed and the drums and their accessories were immediately taken away and placed in their proper positions in the house adjacent, there to remain during the night.

From nine o'clock to ten thirty in the evening a short informal dance was held in the house in which the drums were being kept. One of the drums was placed on a blanket in order to protect it from direct contact with the floor, and a series of tunes similar to those during the day was played upon it, and to these the few dancers who were present danced. These evening ceremonies are, as has already been explained, much less elaborate than are those held in the daytime. They are not considered to be as potent as the daytime ceremonies, and do not have the effect upon the welfare of the people that is produced by the latter. They are held, however, with the same object in view, namely; to please the Great Spirit and to invoke his good offices in behalf of the participants in particular and the community in general.

THIRD DAY, JULY 4th, 1910.

This was the first of the more important days of the dance. In fact it was perhaps the most important of the nine days occupied by this ceremony. The dance had been originally scheduled for July 4th, but had begun, as a matter of fact, on July 2nd. It was therefore not until the 4th that most of the people arrived and that

the ceremony in its full force began. Announcement had been made on the previous day concerning a donation of a considerable amount of beef by the superintendent of the Indian school at Hayward, and a messenger had been sent to bring it. Everything was therefore in readiness for a good substantial feast, and the whole day's program was somewhat more elaborate than were those of the preceding days.

The drums were placed in the circle at about nine a.m. though no singing was done before twelve. Some of the men began at about nine o'clock to carve and cook the meat, the women, meanwhile, attending to such matters as bread baking, tea making, etc. By eleven-thirty the whole feast was prepared and the kettles of meat and the pans of bread and other foods were placed on the table which was kept for this special purpose just outside the dancing circle and immediately south of the western entrance to it.

At about twelve o'clock the drumming and singing began in the circle and the people assembled for the ceremony of the day. For about an hour they danced in the usual manner after which a man elaborately dressed in beadwork, much after the manner of one of the men shown in both figures of plate XV, borrowed a bell anklet from one of the dancers and placed it, in a north and south direction, upon the ground at the position marked E in fig. 1. This man acted in the capacity of consecrator of the foods of the feast. The consecrator is a definitely recognized official of the dream dance, being called by the Chippewa ûgwasē'kwē-wīnini, and in this particular case performed an elaborate ceremony before the feast was served. One of the messengers had, just prior to this time, brought in a large kettle of meat which he placed at the position marked D in this same figure. The consecrator then performed a ceremony over the kettle of meat which served as a ceremony of consecration for the whole feast and included the meats and other foods which remained outside the circle as well as the one kettle of meat which was actually present in the circle and over which the ceremony was actually performed.

This ceremony consisted of four parts, and proceeded as follows: This consecrator, accompanied by two messengers, knelt at the position marked F in fig. 1, facing the bell anklet at E, the kettle of meat at D and the cross which stood at C in the center of the

circle. A special tune was played throughout this entire ceremony of consecration and while he was in this kneeling position he swayed his body from side to side in time to this music. After a minute or two of this swaying he extended his arms horizontally to their full length and then raised them slowly upward, with the palms of his hands downward, swaying them also in time to the music. When his arms had reached a position which brought them at an angle of 45 degrees with the perpendicular they being, of course, extended to their full length, he presented his palms upward and outward towards the east, after which he allowed his arms to drop to his sides. Still in this kneeling position he swayed his body in time to the music for a space of perhaps two or three minutes more after which the presenting of his palms toward the east was repeated in exactly the same manner as above described. This cycle was repeated four times in all.[8]

The second division of the ceremony of consecration proceeded as follows: The consecrator, still accompanied by the two messengers, arose from his kneeling position and danced in place for perhaps a couple of minutes. He then advanced towards the bell anklet and made a motion as if to pick it up. At this time, of course, his position was on the west of the anklet and the kettle of meat. He next danced a complete circle around both these objects and approached them from the north, again making the motion as if to pick up the anklet. Next, after dancing in place for a minute or so, he repeated his dance in a circle about the objects and approached them from the east with the same motion as if to pick up the anklet. Finally he repeated the same cycle, approaching the anklet from the south, after which he picked it up and tied it about his waist.

The third division of the ceremony was performed over the kettle of meat alone. After picking up the anklet, as above described, he danced in place for a short time and then performed a dance in a circle about the kettle, approaching it from the west and making a

[8]In almost every case the ritulistic observances were in cycles of four, though some instances were noted in which three appeared to be the number used among the Chippewa. Among the Menominee, however, no case of the use of three as a sacred number was noted, and its use among the Chippewa was such as to make it impossible to determine definitely whether it was connected with certain special observances or whether it was perhaps due to some error of the performer or to an error of observation.

motion as if to strike it with a special beaded wand which he carried. He repeated this dancing in a circle about the kettle until he had approached it and had made the same motion of striking it from the north, from the east, and from the south, thus completing the required four times, and ending his part of the ceremony of consecration. During all this time he had been followed and imitated in every motion by the two attendants or messengers, but they now continued to dance alone and to perform the fourth part of the ceremony.

This final portion of the ceremony consisted of the dancing by the two messengers of a complete cycle of four, such as has just been described in speaking of the third part of the ceremony. As they approached the kettle from each of the four cardinal points they made motions as if to strike or count coup upon the contents of the kettle, after which in each case they made motions as if picking up a part of the contents of the kettle and presenting it upward and outward towards the opposite cardinal point from that on which they then stood. All these as well as all of the foregoing motions of presentation toward the cardinal point opposite to that on which the performer stands, are said to be intended to symbolize the offering of the food, or whatever is supposed to be contained in the hand of the performer, to the Great Spirit and to other deities which preside over the fortunes of the people and which are concerned with the particular cardinal points toward which these motions and offerings are made. Having counted their final coup upon this particular kettle over which the ceremony was being performed, the remainder of the kettles and dishes of food were then brought into the circle and the feast was ready to serve. These messengers, together with two or three other men, took the individual dishes consisting of cups, small tin plates and various other receptacles, each individual having brought to the dance his own dish and spoon, and filled these from the kettles, returning each dish to its proper owner. When all had been served, and not until then, every one was privileged to partake of the feast.

Throughout the whole ceremony of consecration, just described, the drummers of one drum had played a special tune, which is devoted to this particular purpose. The other drum had meantime

been silent. With the counting of the last coup by the messengers upon the kettle of meat the drumming ceased and throughout the serving of the food and partaking of the feast no music was heard. Immediately upon the conclusion of the feast, however, the music and dancing were resumed.

The dancing continued in the ordinary manner for about half an hour, after which the calumets, a particular one of which belonged to each of the drums, were lighted. Each pipe was filled and handled by its special pipe tender called pwo'gûn-ī-wīnini (plural pwo'gûn-ī-wīnini-wûg). Each pipe was filled with tobacco which was taken from the special tobacco tray, called sēma'-winagûn, at the foot of the western stake of the drum to which the pipe belonged, this tobacco having been taken in part, at least, from the special tobacco pouch, called ckibida'gûn, fastened to the loop, which supports the drum on its western stake. The pipe tender in each case filled the pipe while standing on the western side of the drum and while facing the drum. This therefore brought him facing toward the east. Having filled the pipe he held it above his head and somewhat in front of him, the long pipe stem extending toward the east. After holding it in this position for some seconds he slowly revolved it, the stem still being held in its horizontal position. The pipe was thus turned around over his head four times, after which it was lowered and the stem presented to one of the drummers, who drew upon the pipe while the pipe tender lighted a match and held it to the tobacco in the bowl. In this manner the pipe was finally lighted. It was then passed around the circle of drummers, each drummer taking from one to half a dozen puffs from it. After the circle of drummers had smoked from it, the pipe was then passed to the dancers who were particularly connected with the drum to which this pipe belonged, and each dancer was permitted to take a few puffs from it. In passing the pipe among the drummers it was generally handed by one drummer to the next. But as it passed about among the dancers it was always returned by a smoker to the pipe tender who received it and passed it on to the next smoker. In handling the pipe he always grasped it by the protruding point which projects out beyond the upright bowl itself.

Finally after the pipe had passed around both these circles, that of the drummers and then that of the dancers, it was received by the pipe tender who sat down and himself smoked out the remainder of the tobacco in the bowl. It is an interesting fact that in this final smoking out of the pipe this protruding point of the bowl served another purpose. The pipe was not held up as in the ordinary manner, but was rested with this protruding point upon the ground, the smoker leaning over sufficiently to reach the stem. Plate XII, fig. 2, shows the smoking out of one of these pipes in this manner. The calumet as a whole is comparatively long and heavy, a fact which may account in part at least for the custom of resting this protruding point on the ground or on a man's foot while he smokes.

Finally, having finished this smoking out, the pipe tender detached the bowl from the stem, carefully knocked the ashes from the bowl and replaced both the bowl and the stem at the foot of the western stake of the particular drum to which the pipe belonged, and here the pipe remained until the time for the next ceremonial smoke. Ordinarily such a pipe is smoked four times during the course of the day.

During the early part of the afternoon a number of men made speeches expressing their satisfaction at the large attendance at the dance and their pleasure at the good spirit which prevailed throughout the ceremony. None of these speeches were out of the ordinary, but were in a way testimonials from these various individuals signifying their own personal pleasure and satisfaction.

As above stated, during the ceremony of the day before an old man had distributed tobacco and had then announced that he would to-day tell a vision which a certain young man not then present had had. Pursuant to this announcement therefore a blanket was spread during the middle of the afternoon at a point a little north of the cross in the center of the dancing area. Immediately various persons brought gifts of blankets, quilts, clothing, tobacco and other objects, and placed them on this blanket. A young man was next led out and seated upon the blanket, and shortly thereafter a young woman, with her two children, was seated near him. The old man then arose and took a position out near the center of the dancing area. Here he recounted the vision of this young man in which

a spirit had appeared to him and given him a direct command from the Great Spirit that he should take as his wife this young woman, who was a widow whose husband had died upwards of two years before. He was commanded by the Great Spirit to marry this widow and to care for her and her two children, and to be to the children as their own father. Furthermore, the Great Spirit commanded him to join the dance and to thereafter participate regularly in the ceremonies. Up to this time he had, as a matter of fact, not been a member of the dream dance and had not participated to any extent. Still further, the Great Spirit had even told him what his part in the ceremony should be by commanding him to join one of the circles of drummers. At the conclusion of the old man's remarks the young man was led over to one of the drums and seated in its drummers' circle, and from then on he participated in the drumming in the regular manner.

The gifts, which had been placed on the blanket, were from the relatives of the widow, and from those of her deceased husband. They were given in recognition of the good service which this young man was about to perform in taking the widow as his wife and providing for her and her children. These presents did not as a matter of fact profit this young man directly, for about an hour after he had been seated at the drum he arose and distributed among the people present all these gifts; giving a blanket to one, a quilt to another, a shirt to another, and so on until everything had been distributed. So far as could be learned no special order or special consideration was used in making this distribution, and no patricular return of presents to this young man was required or expected.

The young man's vision was by this means only partly fulfilled. It was prescribed that, in the fall, or as it is expressed by the Chippewa when the leaves have fallen, it would be necessary for the young man to call a dance in order to fulfill to the last degree the command of the Great Spirit.

During the latter part of the afternoon an old man arose and spoke in behalf of a young man who had been ill and unable to work for some months. He discussed the merits of the case and the desirability of obtaining governmental or other aid for the young man whose family was even at that time considerably in need. He

then suggested that the "Town Board" should vote an appropriation to assist the young man.

It should here be explained that, while the Chippewa residing on this reservation are wards of the government to a very large extent, they are given a considerable amount of independence so far as their local governmental affairs are concerned. They have a regularly organized township government, with a "Town Board," a town clerk and various other officials, and they have regular meetings at which they administer the affairs of their community. Especially such matters as road work and the expenditure of town funds for the communal welfare are in the hands of this "Town Board." This old man's speech was followed by a round of dancing, after which a member of the "Town Board" itself rose and spoke on the subject suggested by the old man. He showed that to vote an appropriation for this young man, no matter how needy he might be, was an impossibility at that time since the town was already considerably in debt and had recently found it necessary to negotiate a loan of fourteen hundred dollars for road work. He suggested that the matter be taken up with the officials of the reservation and that another attempt be made to secure from that source the necessary aid. His speech was followed by another round of dancing, after which another old man spoke on this subject and offered the suggestion that a collection should immediately be taken up for the benefit of the young man. This old man's speech was translated by special request to the white people present, of whom there were a considerable number outside the ring. The result of this collection was the sum of five dollars and sixty cents, which was given directly to a merchant, who was himself an Indian and who had the full confidence of the people, with instructions that he should give to the young man and his family the value of this sum in merchandise, but that under no circumstances should he give the young man any money. By this means it was hoped to preclude the possibility of the use of any part of this sum for the purchase of liquor and to make it absolutely sure that the destitute family would receive the full benefit of the donation. This is a very excellent example of the attitude of the participants in the dream dance and of the people who believe so devoutly in its creed. They are at all times helpful

one to another and never let pass an opportunity to do an act of brotherly kindness, regardless of whether the recipient of this benefaction is a member of their own cult or not. In fact it is even immaterial whether he is a member of their own race. Their creed demands that they shall at all times be helpful to anyone in need and that they shall promote the precepts of the golden rule to their fullest extent.

From five o'clock to about six-fifteen the dancing was especially energetic and nearly all the dancers participated almost continuously. Finally one of the directors of the dance arose and announced that the day's dance would end with the playing of two tunes by each drum. This was done in the same manner as has already been described in speaking of the dance of July third. The drums were then removed to the house in which they were kept over night and the day's ceremony was at an end.

When the director arose to make this announcement concerning the ending of the dance the two messengers of the westernmost drum started immediately to haul down the flags which were run up upon the poles at the gates about sunrise each day and which were always removed promptly upon the announcement of the conclusion of the dance for the day.

During the evening one of the usual, more informal dances was held in this house, and proceeded in about the same manner as was described in speaking of the dance of the previous evening.

During the afternoon and during a considerable part of the night a white-man's dance was held by the younger people in an old school house, a short distance from the dream dance enclosure. During the day a small organ had been brought out from Reserve, and this, together with a violin, provided the music for the occasion. The dances were in almost every case the old fashioned square dances. Some of the older people came in during the evening and looked on, but few of them participated, the dancing being confined almost exclusively to the younger generation.

There were certain features in the conduct of some of the participants in these dances which contrasted very greatly indeed with the conduct of the participants in the dream dance. This, of course, is not at all strange when it is remembered that the dream dance is

entirely a religious ceremony, whereas the dance of the whites is merely a pastime. As has already been mentioned intoxication, or even the slightest evidence of drinking, is met in the dream dance with the greatest of disapproval if not in fact upon some occasions with bodily violence. Unfortunately, however, the same rules as are so strictly enforced in the dream dance do not prevail at these white dances. The contrast, therefore, which was presented at this time was striking to say the least, for the reason that quite a number of the young men had obtained liquor and had not only imbided, but had become boisterously drunk and deported themselves in a most ungentlemanly and disgusting fashion. There were in fact some cases in which fisticuffs and other forms of violent amusement were indulged in, and in one or two instances women were roughly handled by their drunken husbands. On the other hand many of the young men behaved in a perfectly proper manner and the dance in so far as they and the young women were concerned, was a very decorous and genteel affair.

It is largely due to this improper conduct upon the part of certain undesirable individuals who attend that cause these white dances to be so much looked down upon by many of the members of the dream dance cult, though there is at the same time a certain inherent dislike for them owing to the complete differences of the motives underlying the two.

FOURTH DAY, JULY 5th, 1910.

As usual the drums were placed at about nine o'clock, and a large part of the morning was occupied in the preparation of the foods for the feast. The dancing began at about eleven-thirty and proceeded without any special incident until about twelve-thirty when a delegation of visitors from the region of Clam lake in Burnett county arrived and entered the enclosure, taking their seats along the northern border of the dancing area. They numbered about twenty-five all told and there were among them eight dancers. The chief, a lame man, was of course unable to participate in the dancing and sat throughout this day and the following days, smoking his long black chief's pipe a large part of the time. At about one o'clock one

of the head men of the dance announced that the ceremony of consecration of food, which had been performed on the preceding day, was sufficient also for the food of the present day and that it would therefore be unnecessary to perform another ceremony before the feast. The foods were then immediately brought in and served.

After the feast the dancing was resumed and continued for a few minutes when a new phase of the ceremony appeared. Near the cross a large blanket was spread and upon this many of the people, residents of Whitefish and vicinity and therefore the hosts upon this occasion, brought and deposited all sorts of gifts: blankets, quilts, clothing, tobacco, foods, etcetera. In fact anything anyone wished to give on this occasion was acceptable. These were gifts for the visitors. And as soon as the entire lot of presents had been assembled they were divided into two bundles, one was taken over and presented to the chief of the Clam lake people and the other presented to a representative of another division of the Chippewa who resides further to the west and who, as above mentioned in speaking of the ceremonies of the day before, had spoken at some length concerning the esteem in which the people of Whitefish were held by other tribes which he had had occasion to visit. These were given to him for the people whom he represented, but who were not able to be present at the time. A speaker of the Whitefish people then arose and announced that these presents were given by the hosts to their visitors as an indication of their friendship and esteem. He said that the presents had not been distributed to each separate visitor, but that this had been left for the chief of the Clam lake people to do as he deemed proper.

This speech was followed by dancing, in which all of the dancers present participated. A little while later the speaker, gagīgīdō'-wīnini, of the chief of the Clam lake people delivered a lengthy discourse in which he assured the hosts of the great pleasure it was giving him and his people to attend this ceremony and assuring them of the gratitude of the visitors for the gifts which they had received, and giving all possible evidence in his speech of the friendly relations existing between the two divisions of the people and in every way speaking to promote the good will and friendly feeling of everyone present. He then distributed among his own people the pres-

ents contained in the bundle. This was of course done for and at the direct instigation of the chief. It should be here mentioned that the chiefs rarely speak for themselves and rarely do anything such as distributing presents and the like among their people. These matters are attended to for them by their representatives who are commonly called speakers or orators. Such a man is chosen for this office, at least to a certain extent, by virtue of his ability as an orator, although other factors may enter into his selection.

Shortly after this speech by the orator of the Clam lake chief the representative of the other division of the Chippewa also spoke, and told how there had been other members of his community who had planned to attend the ceremony, but for one cause or other they had been unable to do so, how they held the Whitefish people in high esteem and how they all regretted very much their inability to be present at this ceremony. He declared that he intended to take the bundle of gifts, which had been presented to him, just as it was then tied up and take it home to his people and there distribute the presents in the same manner as if they were actually on hand to receive them in the dancing circle.

Each of these speeches were followed by dancing, as were also each of the various speeches made later on in the afternoon. There followed directly after the speech by this last representative of the visitors other speeches by some of the prominent men among the Whitefish people, in which they expressed their gratitude to the Great Spirit for the good weather, for the excellent attendance at the ceremony, for the feasts and in general expressed their entire satisfaction at the progress of affairs.

Toward the latter part of the afternoon a little unpleasant circumstance arose. The duties of the four masters of ceremony above mentioned are especially to see that everything connected with the ceremony progresses in proper sequence and that the whole dance is conducted in the manner outlined by the original giver of the ceremony. One of these masters of ceremony arose and spoke at some length censuring the people for not having conducted the ceremony strictly according to the rules laid down by the Sioux girl to whom the ceremony was originally given by the Great Spirit. He claimed that certain songs had been omitted and that certain parts of the

ceremony should have been performed before the time at which he was speaking, and that their omission was a flagrant violation of the rules governing the ceremony. In particular he mentioned that they had omitted to set apart a special day for the principal man, or "chief priest," concerned with this ceremony, Mr. Steve Grover. He claimed also that there should have been set apart a special day for each of the two drums and another special day for the Great Spirit, upon each of which days the ceremony performed should be particularly concerned with the subject to which the day was devoted. He even went so far as to demand that the ceremony must be performed properly and to say that if the people present wished to do so they might remove him from his office as director and appoint another. He said, however, that he did not think that they would do so since he had been duly appointed to his office. He declared that he was simply discharging his duty as he saw it and that he expected the errors to be corrected. In view of his correct position he deemed it proper that he should be retained in office.

Another of the four directors then spoke. He opened his address with the statement that he wished good feeling to prevail on every hand and that he did not want to offend anyone, but that he felt it his duty to call attention to the fact that he was one of the four directors, and, furthermore, that he was one of those to whom the details of the ceremony had been originally recounted when the ceremony was brought from the west to their community. He then declared that the ceremony had been conducted entirely in accordance with the instructions given and the rules laid down by the original giver of the ceremony. He also stated that everything had been done as prescribed and furthermore that he did not deem it within the province of any of the directors present to dictate to the drummers what tunes they should play. He said that he, therefore, felt it his duty to take issue with the former speaker and to say that he considered that the ceremony was progressing in the regular and prescribed manner.

In answer to this speech the director who had first spoken arose and again called attention to the fact that he also was one of those to whom instructions concerning the ceremony had been originally given. He declared that he was a man who never forgot anything

and that he still felt positive that he was correct and that he would not give up the contention that certain special days should be set apart as above indicated, and that certain parts of the ceremony and certain songs had been omitted.

No reply was made to this speech, but a strong feeling of tenseness and suspension was in the air, and from the looks on the faces of the participants there was certainly a question as to what the outcome of this controversy might lead to. It was, of course, not a personal matter among the directors, but a matter which concerned the whole people and their religion and might therefore lead to grave misunderstandings in the whole community. The situation was, however, greatly relieved after a few minutes by the fact that one of the drummers started a tune. He was immediately joined by the rest of the drummers, with the result that all the dancers joined heartily in the dance which followed. This was said to be a silent expression of good will, the purpose of which was to smooth over the recent unpleasantness.

From this time on the dancing was very animated and everyone participated. There was a comparatively small amount of speech-making during the remainder of the afternoon. The special speaker of the Whitefish people made, however, a lengthy speech outlining to the participants the author's object in attending the ceremony and recommending that he be well received and shown every courtesy by the people.

Finally at about six o'clock one of the directors made the usual announcements regarding the final dances of the day, the flags were hauled down, and the usual two songs by each drum were played, all of the dancers joining in the dance in every case. Thus all was ended, so far as the daytime ceremony was concerned, by six-fifteen.

There was during the evening the usual drumming and a small amount of dancing in the house in which the drums were kept. This was not of more than an hour's duration all told.

During the evening also there was held in the school house adjacent to the dancing circle a white-man's dance similar to the one mentioned as having been held on the previous evening.

FIFTH DAY, JULY 6th, 1910.

The drums were placed in the dancing area at about nine o'clock as usual and the dance itself began at about eleven o'clock. Very shortly after the beginning of the dance a large collection of goods of one kind and another was placed near the cross in the center of the dancing area. This was an offering by the home people, that is to say, those of the immediate vicinity, for the benefit of the children. It was given in order that the children might prosper in health and otherwise and especially that they might learn and perpetuate the faith of their fathers. Furthermore, these gifts also carried with them a special invocation to the Great Spirit for the health, prosperity and protection of the women. It was said that as a matter of fact this collection of goods should have been taken up on the first day of the ceremony, but that it had through some inadvertence been overlooked. Later in the morning these gifts were distributed among the visiting people from a distance, and this distribution was followed by speeches of gratitude from representatives of the visitors.

At about half past twelve one bucket of food was brought in and placed at the usual point (fig. 1, D) in the dancing area and a short ceremony was performed over it. This ceremony was much less elaborate than the one above described. One man attired in ordinary costume performed this ceremony which consisted of dancing around the food three times, then dancing in place for perhaps a minute while on the west of the receptacle containing the food, then approaching the receptacle three times, dancing up to it and then backward away from it for a few feet, and finally in making a motion as if to pick up some of the food and present it with the usual upward and outward motion, which has already been described in detail, to the opposite cardinal point. He then danced a similar cycle and performed a similar set of motions from the north, then from the east and finally from the south, after which he gave a jump towards the food and made a motion as if to spear it, thus counting coup upon it. It was then immediately served and the feast was begun. During all this ceremony one of the drums played as usual a special tune connected with this consecration ceremony.

REVELATIONS.

During the first day or two of the ceremony the author had been informed that there existed a book in which had been recorded certain special visions which were directly concerned with the ceremony as it is performed at Whitefish, which is, as has already been stated, a variant of the original dream dance as it was handed down by the Sioux girl and which exhibits certain very special features. Further inquiry had been made concerning this book and interest had been expressed in it. To the author's surprise and pleasure Mr. Steve Grover, the "chief priest" of the ceremony, arose immediately after this feast was finished and spoke at some length to the people recounting to them the above mentioned circumstances and finally telling them that it was his intention to allow the author to read this book. With characteristic fair-mindedness he continued and said that he wished to in no way keep from the rest of the people any action of his and that he had therefore deemed it best to tell them one and all what he intended to do, and that he had brought with him the book (as a matter of fact he at that moment had the book in his hand), and that he wished it read in the dancing enclosure and in the presence of all those concerned with the ceremony. His action was approved by the participants in the ceremony and the book was immediately handed to the author who read this record of the visions, or as they might more properly be termed, revelations, in the presence of them all.

Before recounting the essential features of these revelations it will be well to mention the circumstances under which they occurred. About eight or ten years ago, Miss Maggie Quarters, daughter of Mr. John Quarters above mentioned, had the series of visions which are recorded in this book, and which are carefully kept as a record in connection with this ceremony. She was at that time about eight or ten years of age and had been for some time in ill health. At a time about a year or perhaps a little more before the first of her visions Mr. Steve Grover had had a vision in which he had seen substantially the same things which later were revealed to the little girl and in which he was told by the Great Spirit substantially the same things as were repeated to her later. He had

up to that time not been especially devout concerning the dream dance, but when this vision appeared to him his attitude was very greatly changed. Upon the occasion of the next dance he spoke to the people and told them of the things he had seen and what he had been told, but he was received, as is very often the case in such matters, with derision. It is believed, therefore, that having been unsuccessful in presenting through this adult his desires and instructions, the Great Spirit had decided to use a child as his means and had appeared to this girl, who was of such tender years that no question could be raised as to her motives or as to the sincerity of her story, as had been done in the case of the adult.

The revelations which had been sent through her were recounted at the dance by her mother, to whom she told them, and were accepted by the people as direct messages from the Great Spirit and as commands to them which must thereafter govern their actions. These revelations were as follows:

I.

One day, as this little girl was out of doors, she saw a cloud of globose form standing directly over the dream dance enclosure, which was, as a matter of fact, directly in front of her father's house and not more than four hundred yards from it. In this cloud she saw the Great Spirit seated. He pointed out to her some men near by who were playing cards and told her that people must not gamble and must not drink. He and the cloud then disappeared.

II.

About a month later she started to school one morning. The school house was perhaps a quarter of a mile from her father's house. She was suddenly taken up and transported immediately to heaven. She was taken directly to the abode of the Great Spirit himself, which she found to be a large palace of many rooms, some filled with tobacco, some with clothing and some with foods. Furthermore, the good, clean clothing was separated from the bad and the well prepared foods were separated from the poorly pre-

pared foods. All these were objects which had been used in the ceremony in times past. These same offerings had gone in spirit directly to the abode of the Great Spirit and had been accepted by him, together with the invocations which had accompanied them. He then, through this little girl, commanded the people to respect the cross, offer tobacco and other commodities regularly to it and to observe strictly the regulations of the dance. He also spoke bitterly of the disbelief of the people and complained that the people refused to believe him when he sent his messages through adults and said that he had decided to try talking through a baby, meaning of course this little girl. He further declared that if the people did not heed him when this message was sent in this manner he would next try a dog as messenger. After this she was returned to the earth as miraculously as she had been carried away.

III.

Some time after this second revelation the little girl begged her mother to go to a dance some distance from home, this was for some reason or other impossible, and that evening while they were sitting in the house she asked her mother if she did not hear sounds. The mother replied that she did not and thought no more of the matter. The next morning, however, the little girl told her mother what had happened to her. Two angels came and took her by the hand. As they went along the leader of the two asked her if she knew the signification of certain red and black marks which appeared on a scroll which was carried by the angels. She was then told that they indicated the duration of the earth under present conditions and further that if the people would only believe in the messages sent to them by the Great Spirit and mend their unrighteous ways three lines more could be added to those already on the scroll and that much more grace given before the end of the world. The leader then said, "I am going to show you how the earth will be washed by and by." She then threw a bucket of water on the ground and the whole earth was flooded.

The Great Spirit then appeared and told the little girl to look westward, she did so and saw the evil spirit and all the bad people

who had played cards, drunk liquor and done various other things which had been directly forbidden by the Great Spirit. With the Great Spirit, on the other hand, were all the people who had followed his instructions and who were devout believers in the dream dance.

The leader of the angels then told her to look down upon the earth, there she saw Steve Grover's house and it was as if transparent. She could see everything within it, she saw in particular a large cross in one part of the house. Presently she was told to look again and she beheld the house as before, but in place of the cross Steve Grover himself was standing at the point which the cross had formerly occupied.

She was then told by the Great Spirit that after the destruction of the world by a flood that there would be a re-creation of animal life. After this the angels again took her and again showed her the scroll and instructed her to believe everything she had seen and to recount her experiences to her people. They said also in parting that ten days warning would be given before the destruction of the world by the forthcoming flood. She was then returned to the earth.

IV.

Some time after the above vision this little girl was hungry one day and went to the house for some food, she found the doors and windows all open, but her parents and all others about the house were gone. She looked eastward and saw a road leading toward the place from which the sun rises. Thinking that her parents must have gone in that direction she started out to search for them. She had not gone far when she heard a sound and presently she distinguished a voice and heard some one say, "No, I must not touch the ground or I will not win out." The voice then asked her where she was going. When she replied that she sought her parents, the voice then told her, "You are going in the wrong direction, catch hold of my hand and we will find them." She did as she was bidden and found that it was the Great Spirit who was speaking to her. He took her up in a cloud and they sped through space for some dis-

tance and finally they went straight up into the center of the sky and to his mansion.

Here she saw her father and her mother seated upon beautiful chairs and, upon still further looking about, she saw many other people, including her sisters and brothers, also seated upon elegant chairs. The Great Spirit then told her that this was what happened to those who believed in his teachings and who belonged to the good old fashioned dance which is his institution. He exhorted her to believe and to teach the people, and said that if they would not believe in his teachings and embrace the true faith this time he would next resort to sending his messages by means of a shell like that used in the medicine dance or by means of a stump. He told her further that shortly before the end of the world was due he was going to cause mammals, stones, birds, fire and other speechless objects in nature to talk as human beings now do.

Finally he informed her that he was presently going to send her back to the earth, and that this was the last message he was going to transmit through her and that when she had delivered this message to the people she must say no more about the matter and must not thereafter discuss her revelations. She was straightway returned to the earth where she recounted this last vision to her mother as she had those which preceded it. She has never since had a vision of any kind pertaining to any such matters.

This girl has since grown to young womanhood, being now about 18 or 20 years of age. She is apparently in every respect a normal person of good intellect and exhibits no particular points, either mentally or physically, which would serve to differentiate her from anyone else of normal attainments. She has since having these visions been asked many questions concerning them, but has steadfastly refused to say anything further about the matter, thus following to the letter the mandates of the Great Spirit received in her fourth and last revelation.

When these revelations were recounted upon the occasion of the next dance after they were given to this girl the people were much impressed and their religious spirit, which is by nature profound, was moved to much greater activity. They hailed Mr. Grover as one especially under the patronage of the Great Spirit and as one

to whom they owed great respect and reverence, not so much for himself personally as for his connection with the Great Spirit. He is now recognized as the leader, or as he has been termed in the foregoing pages, the "chief priest," of the dream dance in the vicinity of Whitefish where, by virtue of these revelations, a special cult has arisen which makes Whitefish of special significance to the Indians of this region and even to those at considerable distances. In fact it is regarded almost in the nature of a Mecca, so that Indians from very distant points come here to celebrate this dance, which is usually held sometime about the 4th of July. They sometimes come, as above stated, from points even as remote as Oklahoma, and very frequently they come from various points in Minnesota and elsewhere toward the west.

Mr. Grover is a very modest and unassuming man who has usually not much to say, but who lives up to the doctrines of his faith to the last letter. At the dances he occupies the position marked H in fig. 1, but is in no way distinguished from the others present except that he wears embroidered in silk on his vest a small red cross, this being emblematic of the relation in which he stands to the large cross which is always kept in the center of the dancing area at times of ceremonies, and which occupies a corner of the principal room in his own dwelling between ceremonies.

During the remainder of the afternoon the dance proceeded as usual, but there were comparatively few speeches. One man, however, distributed tobacco and announced that there was outside the dancing enclosure a man whose son had died five days before and who had not come into the dance. He said that on the following day he wished to have performed for this man the ceremony for the removal of mourning and that he wished the man brought into the circle for that purpose.

As was stated in the beginning, this whole day's ceremony was especially for the children and the very young people, and had for its object the assurance that they should learn and perpetuate the ceremony. It ended as usual with the regulation number of tunes played by the drums at the end of the day.

During the evening there was a short session of dancing in the house in which the drums were kept.

SIXTH DAY, JULY 7th, 1910.

The drums were as usual placed at about nine o'clock and the dance began somewhere between eleven and eleven-thirty. The dancing progressed without special incident until about one-thirty at which time the feast was served.

Directly after the feast certain speeches were made by some of the leading men relative to the attendance at the ceremony of certain whites. Other than this comparatively little of importance happened until about three p.m. when two young men from Round lake arrived and entered the dancing area prepared to participate in the ceremony. One of these men was naked above the waist and had his body more or less elaborately painted. The two danced the next round after their entry, this being one of the ordinary dances and in no way especially sacred. This young man had, however, by appearing in this half nude attire transgressed one of the many strict rules governing the ceremony and, although in olden times dancing in this sort of attire was considered proper, such action under the rules of the drum and in connection with the present day religious ideas was decidedly culpable.

Immediately following this round a "brave dance" was danced in which, of course, as the rules prescribe, only those men who belonged to the division known as "the braves" participated. Immediately following this dance one of the old men who was a member of "the braves" arose and spoke upon the impropriety of the participation of a person in such scanty attire in the dances held in the presence of the drum and in its honor. He went at considerable length into an explanation of the rules and regulations which govern such matters and was careful to state that it was in no way his desire to offer offense to this young man or to anyone else, but that he felt it his duty to remonstrate with the young man and to call his attention to what he was charitable enough to consider a lack of education upon the young man's part rather than a wilful violation by him of any of the precepts of the faith. In concluding he outlined very positively that it was, according to the rules of the drum, absolutely necessary that the young man should be properly and completely attired and finally ended his discourse by walking over

and presenting him with a shirt. His example was immediately followed by two others of the braves who had participated in the foregoing dance. These two men made no speeches since the first brave had voiced their sentiments and had spoken at sufficient length concerning the matter. Each simply walked over and made the young man a present. One gave him a shirt and the other a coat.

He was not obliged to immediately put on any of these garments which were presented to him for, as the above mentioned speaker said, the young man had come to the dance and had danced once in this half nude condition and he should therefore be permitted to continue throughout the remainder of the afternoon. He pointed out, however, that it must be distinctly understood that thereafter he was not to appear so attired in the ring.

Immediately following this were a few more rounds of dancing after which one of the more important men spoke further upon the same subject, saying that he felt sure that this young man had intended no offense and that his action was due solely to the fact that he was unaware that it was contrary to the rules of the cult to dance in the presence of the grandfather (meaning the drum) in such attire. He said that he deprecated very greatly any ill-feeling which might possibly arise from this little incident and that he hoped that all present would look upon the matter with due forbearance, and that the young man himself would not consider that he was being unduly upbraided. He then offered on his own behalf the materials for a feast, which action was hailed with much show of good will and appreciation by all present.

It should be noted that the young man from Round lake who had transgressed the rules of the drum by dancing as above described did not participate in any of the dances during the remainder of the day. In fact he did not participate again thereafter, but he and his companion left that evening or the following day, supposedly for their home.

After some more dancing a speech was made by an old man on behalf of a young man who was seated at the wrong drum. He had, as a matter of fact, been playing there for some time which is quite contrary to the rules and regulations governing such matters. A considerable amount of tobacco was distributed among the dancers

and others assembled on behalf of this young man, and he was properly placed at the drum to which he rightfully belonged.

Then followed a series of special dances. These were in order, as follows: a dance for the head chiefs, one for the sub-chiefs, one for the braves, one for the warriors and one for the drummers. Finally the head brave danced alone a special dance for the "brave" women. This dance is especially for the women of the brave class, but is never danced by themselves since the women never under any consideration dance in the ring. It is always danced by the head brave and during the time he is so occupied the brave women are making presents to the assembled guests.

Late in the afternoon of the previous day, as has already been noted, an old man distributed tobacco and made a speech concerning one of the drummers whose son had died five days before. The drummer had as usual under such circumstances not come to the dance. That is to say, he had not come inside the circle, though he had been seen outside. Having finished the speech the old man sent out by a messenger a package of tobacco to this drummer requesting that on the following day he should attend.

The result of this request was seen to-day, for in the late afternoon this drummer put in an appearance. A blanket was spread in front of the cross, and the drummer, a middle-aged man, was seated upon it. His face and hands were then bathed and he was dressed in a new shirt and some beadwork and a blue and red streak was painted diagonally across his face from the center of his forehead down across his right cheek. This ceremony was for the removal of the signs of mourning from this bereaved parent and was preceded and also followed by a short speech from the old man who was particularly concerned with the performance of the ceremony. This speaker was immediately followed by another who delivered a lengthy discourse, after which he placed an eagle feather in the hat of the mourner. This speech was earnestly and eloquently delivered, but it was impossible to learn its exact import, since the author's interpreter was specially requested not to translate the speech, it being said that it was a speech of censure delivered against some one, though whether this was the real reason for their desire to keep it secret could not be determined absolutely.

At the end of this speech the mourner was led over and seated at one of the drums after which two other men made speeches of condolence to him. Thereafter throughout the ceremony he attended regularly and participated in the drumming as did the others.

Very late in the afternoon the author's interpreter, after going at considerable length into a discussion with two or three of the head men concerned with this ceremony, made for him a speech to the people assembled. The interpreter was introduced by Mr. Steve Grover, the principal leader of the ceremony, and the interpreetr's announcement that, if acceptable to all present, the author wished on the following day to give a feast to the participants in the ceremony was warmly received. This was shown not only by the verbal acclamations which it called forth, but also it was attested by the energy of the participants in the round of dancing which immediately followed, it being a universal custom among these people to dance most energeticly to show their approbation of a speech or act which has immediately preceded the particular round of dancing in question.

After another short interval of dancing the usual announcement of the regular set number of final tunes for each drum was made, and this was immediately followed by the final dancing of the day. As the announcer arose to speak concerning this final dancing the two messengers as usual hauled down the flags at the entrances to the dancing area.

As usual a short, informal dance was held during the evening in the small log house immediately adjacent to the dancing area, though this dance was without special incident.

SEVENTH DAY, JULY 8th, 1910.

The drums were as usual placed in the dancing circle at about nine o'clock in the morning and the dancing began in the course of an hour and a half thereafter.

At about one o'clock the regular feast was served, this feast being the one which had been announced on the previous day to be given by the author. The foods were brought in to the usual place at the point marked D in fig. 1, and here the messenger of the

"braves" performed an elaborate ceremony of consecration which was practically the same as that already described in detail. He was attired in a nicely beaded shirt and wore two of the large ceremonial beaded bags. He is shown in plate XV, fig. 2, where he, in company with two other messengers, is just apportioning the foods of this feast to the participants. Also in fig. 1 of this same plate he is shown leading one of the braves to the special braves' feast.

Inasmuch as a beef had been provided for this occasion it was deemed proper to hold a special braves' feast, such as was in olden times held in connection with a feast of buffalo or other large game. The head of this beef was placed at a point a short distance northwest of the center of the ring, its position being indicated in fig. 1 by the letter G. To the accompaniment of a special braves' song the braves' messenger danced about the circle several times, taking at each turn one of the braves whom he led by the hand over to the position G where he seated him for this special feast. In fig. 1 of plate XV this scene is shown. Upon the ground is the dish containing the beef's head. Seated near it is one of the braves, and standing close by is another whom the messenger has just brought to this point. The old man with the eagle feather in his hat who is advancing in the foreground is also one of the braves who had been led over by the messenger, but who was obliged to return to his seat at the edge of the circle in order to procure his knife. It was necessary before he could take his seat at this feast that he be led to it by the special messenger, but being once seated he could then move about as he pleased and was therefore privileged to return for his knife and needed no guidance by the messenger for this purpose. In addition to the members of the "brave class" this messenger also led over to this feast a young man whose office was that of a representative of the drums.

While this elaborate seating of the braves was going on the other messengers were filling the dishes of all the participants in the general feast so that by the time all the braves were seated in this ceremonial manner every one had been served, and immediately this seating was completed all were privileged to eat.

At the conclusion of this feast the ordinary procedure would have been for all the braves, or at least for the head brave, to speak,

each recounting some of the deeds of bravery which were placed to his credit and by virtue of which he was a member of the brave class. For some reason or other this feature of the ceremony was omitted upon this occasion.

In the early part of the afternoon, an old man belonging to the brave class arose and made a speech in which he announced the bringing in of an old man and an old woman whose grandson had recently died. They were to be brought into the circle in order that the ceremony of the removal of the signs of mourning might be performed for them. The woman was the mother of the man for whom a similar, though much less elaborate ceremony, was performed on the previous day, he also being in mourning for the same deceased boy. Up to this time this couple had remained outside of the enclosure, but immediately after the old man's announcement they came inside.

The old man carried with him a large bundle, which he placed on the seat beside him, propping it up in an erect position as is shown in plate XVI, fig. 1, where it is shown just to the old man's left. This was the death bundle representing the deceased. It was carefully wrapped in a blanket and a shawl and was shown every attention that might have been accorded a small child. Such a bundle represents the person of the deceased and is kept for a year after his death. It is taken about and cared for the same as the deceased would have been if alive. Food is placed before it whenever the remaining members of the family dine, it is given water at regular intervals, and is in every way treated and handled as if it were an actual living being. Such a bundle consists in reality of clothing and all kinds of goods bound up into a more or less cylindrical package. At its upper end there is placed a more or less elaborate piece of bead or quillwork surmounted by feathers or other ornaments. This whole decoration represents the head of the bundle and was in this particular case made of quillwork.

At a point just west of the cross, which stands in the center of the circle a large blanket was spread and upon this the man and woman were seated, each being led to it by the hand. Water was next brought and the hands and faces of the two were carefully bathed (plate XVII, fig. 1). This and the subsequent dressing and

painting of the two were performed in a large measure by four persons, two old men caring for the man and two old women for the woman. These persons were members of a special society, the particular objects of which are to attend the sick and to minister to the needy. The male and female members are called tcī-ōgī'tcida and tcī-ōgī'tcida-kwe respectively. Various participants in the dance brought over clothing, which they gave to the two mourners, and from this certain articles were selected by the attendants who removed the outer garments of both and placed these new outer garments on them instead. Part of this re-dressing is shown in plate XVI, fig. 2. This was immediately followed by the painting of the faces of the two mourners. An old man produced some blue, some yellow and some red pigments and painted a streak of each of these colors diagonally across the face of each mourner. Beginning at the center of the forehead these narrow streaks ran down in front of the right eye, across the right cheek and down under the jaw. The colors were arranged as they are upon the drum heads, the yellow appearing in the middle between the other two. This painting is shown in plate XVIII where, in fig. 1, the paint is being prepared, and in fig. 2, is being applied. The illustration in fig. 2 shows, upon the right cheek of the man mourner, a short white line which is in reality the yellow streak of paint above mentioned.

Having been thus washed, newly dressed and painted, and having thereby their signs of mourning removed, speeches were made to the mourners and for their special benefit by certain of the principal men. The burden of these speeches was an exhortation to the mourners that they should be cheerful and join in the dance and worship the Great Spirit just as they would have done had their grandson not died. They were told that it was their privilege and duty to worship the Great Spirit even though they were obliged to mourn the loss of the departed at the same time, and that, although in mourning, they must attempt to temporarily forget their sorrow and participate in the ceremony in a normal manner. The old man was told that he was welcome to the circle just as if he were not in mourning and that all the privileges and rights of the "braves" were granted him in this dance. In plate XVII, fig. 2, Billy Boy, one of the principal men connected with the ceremony is shown speaking

to the two mourners and exhorting them to remember the creed of their grandfather, the drum, and to at all times worship the Great Spirit and to join in this ceremony for the sake of the drum and their faith. After each of the several speeches made by these head men a round of dancing followed in which all the dancers participated, including the man in mourning. He simply arose and danced in place where he had been seated during the ceremony just described. Plate XIX shows two views of this dancing between speeches.

Finally, after these principal men had finished their speeches the brave who led the old man over to his seat in the center of the dancing area again took him by the hand and led him back to this seat among the dancers at the side of the ring.

One of the women who had participated in the removal of mourning took the woman mourner by the hand and led her over to a seat in the circle of women singing about the particular drum to which she logically belonged. This was followed by another round of dancing, after which the old man in mourning arose and made a lengthy speech in which he dwelt particularly upon the death of his grandson and the mourning of himself and his wife over it. He declared that, although he had already buried two wives and several children, never had he so mourned the loss of any one of them as he did that of this grandchild, whose death had occurred just as he was about to reach maturity, and in whom the old man had foreseen a great comfort in his extreme old age. The boy was an only grandchild, and with his death went all of the hope of the old man for his declining years. He spoke also at length upon the kindness of the participants in the dance and especially of their goodness in bringing himself and his wife into the circle and performing this ceremony for them in order that they might join in the worship of the Great Spirit whom all revered. With this speech the whole ceremony for the removal of mourning for these two old people was completed, and they participated in the dance until its close two days later.

Later in the afternoon a lunch was given in the dancing area, this being provided by the two old people for whom this ceremony had just been performed, and by the younger man for whom a similar ceremony had been performed the day before. The object

of this feast was to celebrate the reception of these three into the ceremony, and to signify their gratitude for being thus permitted to participate.

Later on in the afternoon one man, a visitor from a distance, arose after one of the rounds of dancing and made a considerable number of presents of beadwork and other articles to various people about the circle. At the same time he made a speech in which he said that it often happened that visitors were accused of attending one of these ceremonies solely for the purpose of acquiring wealth by means of the many presents which were given away by their hosts on such occasions. He said that he wished to disprove this and that he was therefore now giving away upon his own account much more property than he had received, that he might prove to those assembled that he had come for the truly virtuous purpose of worshipping the Great Spirit by participating in this dance, and that he had no desire to take back with him to his home more goods that he had brought away. As a matter of actual fact he had already received from his hosts a considerable quantity of blankets, beadwork and other goods, but these were not for himself personally, but for the people of the community in which he lived, and it was his duty upon returning to distribute these among the members of his community. On the other hand, the presents which he was now making were made by him personally, and furthermore they did actually exceed in value the gifts which he had received from his hosts for the other people in his community. He therefore by his action most thoroughly discredited any accusation that he had come to this ceremony for the purpose of acquiring wealth.

During the afternoon a visitor from the St. Croix region spoke upon the subject of a visit which he had made to some Sioux farther to the west. He had found them without a drum. They had formerly possessed one, but had given it away, and at the time he was speaking were without one. He suggested the desirability of the people of Whitefish making a new drum and presenting it to these Sioux. His speech was immediately followed by one from Mr. Steve Grover, who has, by virtue of his office, a special right to speak upon such matters. He said that he fully appreciated the desirability of providing these people with a drum in order that they

might worship in the regulation manner, but that hasty action would in his opinion be very undesirable in such a matter as this, and he recommended that in view of the importance of the making of such a drum the matter should be thoroughly considered before any definite move was made. With this the whole matter rested. His speech, as was each of the others also, was followed by a round of dancing.

During the latter part of the afternoon a little boy, in running across the dancing area, stubbed his toe and fell. This was considered a sign of very bad luck, and in order to overcome the effect of this unpropitious omen the child's father immeditaely proceeded to give away a number of articles to people about the circle after which he made a speech asking that all present should wish that the boy's luck might return to him and that no misfortune should befall him.

During the course of the afternoon one of the older drummers took the sacred beaded drumstick, called in Chippewa bagaa'kōkwan, and made a speech for the benefit of a newly seated drummer, who was a young man. He charged this young drummer that this beaded stick was a very sacred object and that it must be treated with the greatest of respect and that he was going to give it to him, that he must honor it and dance with it, but that it must never be used to beat the drum, but always held in reverence as an object given directly to the people by the Great Spirit.

During the latter part of the afternoon one old brave made a lengthy speech concerning the action of the author who, he said, had shown his good will toward the Indians by giving considerable quantities of tobacco, and by providing a feast. He spoke in complimentary terms concerning the whole matter and finally ended his speech by presenting the author with two necklaces of beadwork. His action was followed by that of another of the head men of the ceremony, who spoke in a similar commendatory manner, and later on by that of a third man who presented an elaborately beaded belt. These were worn by their recipient throughout the rest of the ceremony greatly to the satisfaction of all of the participants who considered this a most friendly act.

Finally, at between five and six o'clock, one old brave spoke and announced that the following day would probably be the last day of the ceremony, and asked that everyone join most heartily in it, and that all be on hand in order to make an early start for the day. He ended his speech by the announcement that it would be immediately followed by three tunes by each drum, which would finish the ceremony for that day. He also announced that on the following day there would be played four tunes by each drum in this final dancing.

His speech was accordingly followed by the three tunes to each drum and the letting down and final removal of the drums from the circle after which the daytime ceremony for this day was at an end.

As is usual a short, less elaborate ceremony was held during the evening. One of the drums being placed, as on previous evening, on the floor of the small log cabin adjacent to the dancing enclosure, and being played for an hour or an hour and a half without any special incident.

EIGHTH DAY, JULY 9th, 1910.

During the early part of the forenoon there was a light rainfall which prevented an early start of the ceremony. It was therefore about twelve o'clock before the drums were placed in the circle, and it was nearly one o'clock before the dancing actually began. After the dancing had proceeded about an hour, and after the easternmost of the two drums, that at B, fig. 1, had been played twice, its upper head suddenly broke. This was considered a very serious and important matter. Many of the men inspected the drum and finally an old man spoke at some length upon the subject, saying that he considered this a direct manifestation from the Great Spirit that there had been something irregular in connection with the ceremony. He deemed it probable that the Great Spirit was displeased on account of the fact that many of the participants in the ceremony remained outside the circle for a considerable time after the drums had been placed and after everything was in readiness for the dancing. He said that they should have come in and commenced the dancing at once and that their failure to do so was manifestly displeasing to the Great Spirit.

Everyone about the whole dancing circle appeared very deeply affected by the breaking of this drum head and considered it an extremely ill omen. Mr. Steve Grover, whose position as "chief priest" of the cult at Whitefish gave his opinion great weight, next spoke, saying that he was deeply moved by this manifestation of the displeasure of the Great Spirit and that he deemed it necessary that all present should make proper atonement for it. He then told of a vision he had had some time before which ran as follows:

"I saw a pure white eagle, without a dark spot on him, flying from the west toward me. As I watched the eagle approach I saw also two men coming toward me and directly behind the eagle. As the first of these men neared me he shot an arrow which fell directly in front of me and immediately at my feet. When the eagle reached me and came directly over my head he suddenly turned and flew westward again.

"The first of the two men then came to me and talked to me about the drum. He said that we must keep this drum very sacred, that we must give tobacco in honor of the Great Spirit and that by so doing we would secure health and prosperity. He gave me full instructions concerning the care and the use of the drum and concerning the offering of tobacco to it. Finally, having finished his speech, he rose straight up in the sky and started westward whence he came. As he arose I thought I heard the sound of jingling bells and upon again looking in the direction in which he had gone I saw, not a man, but a drum such as we have before us."

The speaker then recounted again the story of the origin of the dream dance, which was substantially the same as that given in the foregoing pages, and he spoke especially upon the instructions given by the Sioux girl to the people after she had acquired this ceremony directly from the Great Spirit with instructions to transmit it to her people. His discourse ended with an exhortation to the people to use great care and to follow implicitly the instructions given with the drum for their guidance.

This speech was followed by still another from one of the old men who spoke at considerable length concerning the necessity of following these instructions and the need of honoring the Great Spirit in every way.

His speech was followed by the distribution of tobacco. This was done by an old man on behalf of the women participating in the ceremony. This distribution of tobacco was followed by a speech from the old man, he acting, of course, as spokesman for the women who are not privileged to speak for themselves. He said that the women wished it known that they respected and honored the drum and all the precepts connected with it, that they most deeply regretted the breaking of this drum and the incidents which contributed to the displeasure of the Great Spirit who had caused its breaking. They further wished to call attention to the fact that they were powerless to act independently in the matter since it was their understanding that the rules and regulations governing the drum and the conduct of the participants in the ceremony did not permit the women to enter the dancing area until after the men had come in and taken their positions. They had therefore kept out of the area until after the men had entered and they wished now to express their deep regret that they had not been able to avert this catastrophe. They said that they desired to emphasize the fact that they wished to show all due respect to the Great Spirit and honor to the drum and had meant no harm in their conduct.

Next a large blanket was spread near the cross in the center of the dancing area and everyone belonging to the group owning the broken drum placed some kind of a gift on the blanket, this being by way of atonement for their misconduct in connection with this matter.

This action was immediately followed by a speech from one of the head men of the group of the broken drum who said that the original instructions given by the Sioux girl when the dream dance religion was transmitted by her to the people was that in case one of these drums was broken it must not be discarded, but must be used until a new one was made to take its place. He said that therefore they must carry out these instructions and continue to play the broken drum until the new one was made, and he exhorted all to remember while using this drum the chastisement which was then being visited upon them by its breaking. This then ended the special ceremony connected with the breaking of the drum and from this time on the dance proceeded as if nothing had happened to mar its

regular course. In fact the dancing was especially lively during this day, more people participating than formerly, and a more lively interest being manifested by all parties concerned.

The feast of the day was given by a man in honor of the drums and of the Great Spirit. This was for the saving of his child who had recovered after having been treated through the agency of the drum. Four years previously this child had been ill for a long time, had been treated by the medicine men and had shown no improvement. Its life was almost dispaired of when the father had a vision in which a spirit appeared and condoled with him and told him that there was yet one hope for the child's recovery. This lay in the drum. He consequently gave presents at the next dream dance which was held within a few days thereafter and asked the participants to invoke the aid of the Great Spirit for the recovery of the child. Within a short time a marked improvement was seen in the child's condition. Its recovery from then on was rapid and complete, and now, four years later, it is well and happy. The father, therefore, gave this feast in honor of the drums and of the Great Spirit and in commemoration of the saving of his child's life.

There were brought within the enclosure on this day two of the death bundles already described. These were brought by their keepers to the feast and provided with food as above stated and in every way treated as living human beings would have been.

During the afternoon of this day there was an unusual amount of presenting, this being the particular day of the ceremony allotted for the making of presents. The presenting was done in a most promiscuous manner, and the presents consisted of all manner of objects: blankets, shawls, clothing of all sorts, beadwork, guns, etc. One of the most notable features of this presenting occurred when the wife of one of the head men of the Whitefish settlement went over and handed one of the visitors a small green twig. By this means she signified that she presented him with a horse. This method is used in presenting horses by virtue of the fact that they are obviously too unwieldly to bring into the circle, and also that they would not be permitted there on account of the restrictions concerning such matters. The recipient of the branch is privileged to call upon the giver at any time and receive the pony which this branch

represents. Later the husband of the woman spoke at some length upon the subject, described the pony and assured the recipient of the gift that he wished his own good will also to accompany the pony when it left him. Later the recipient of this gift made a short speech in which he complimented the people of Whitefish upon their generosity and spoke warmly of the friendship existing between the people here and those of his own community.

As was above stated, at all times during the afternoon there was a great deal of giving and taking by both men and women, but at one time there was a particular song played for the benefit of the women during which they were especially privileged to make presents to their friends. During this song the men made no presents at all, this activity being confined strictly to the women who, however, gave to men, women and children alike.

Following this special gift song for the women there was a special tune, that played for the benefit of any man who wishes to divorce his wife. One old man danced this, and afterwards spoke upon the subject saying that, as every one must know, he had not danced because he really wished to divorce his wife, but because he deemed it best not to allow the tune to be played entirely through without someone to dance to it since this might prove displeasing to the Great Spirit. The idea involved in this dance is that the man who wishes to divorce his wife and who feels sufficiently sure of his ground to do so may dance to this tune and thus signify his intention. If he is well received when dancing all goes smoothly. If, on the other hand, this public declaring of his intention in this matter is not received with favor by the people he may be the object of a great deal of ridicule, and it is necessary that he be a very strong willed and an influential man to withstand it and keep his prestige in the community. If the wife in such a case is of the proper metal she will have some man rise immediately after this dance and speak for her. He will announce her entire satisfaction in the matter and state that life with this man had become unbearable, and that she has been simply awaiting an opportunity to get rid of him. This is likely to be considered a joke at his expense and is likely to provoke a great deal of ridicule. Especially is this the case if she goes on to enumerate his many and various faults.

This dance was followed by a special pipe or calumet dance, which was danced alone by the keeper of the calumet connected with the westernmost drum. During this round of dancing he carried the large ceremonial pipe stem.

During the remainder of the afternoon the dancing proceeded after the usual manner, and various speeches were made. One of these was made by an old brave who announced that it had been the intention to adhere to the old custom of closing the gates of the enclosure upon this day. That is to say, guards were to have been stationed at these gates, their duty being to permit no one to leave the area without the permission of the chief dancer, and then only upon payment of a small fine, this fine being devoted to the benefit of the drum. He said that it had, however, finally been decided to abandon this idea and forego this part of the ceremony.

At last it was announced that inasmuch as more visitors had been daily expected at the dance, and inasmuch as they might yet arrive it was deemed advisable to suspend rather than close the dance on this day, so that in case these visitors should arrive during the night or on the following day the dance could be continued. This announcement was followed by the usual announcement of the ending of the dance for the day by the playing of a given number of tunes by each of the drums. In this case, however, the number was four instead of three as on the previous day. Four tunes were then played by each of the drums and the ceremony was ended for the day.

As upon the previous days a short session of drumming and dancing was held during the evening in the log cabin immediately adjacent to the dancing area.

NINTH DAY, JULY 10th, 1910.

This ninth day's ceremony was more or less of a hold-over from that of the day before, and lacked the enthusiasm and elaborateness of those of the previous days. There was but a small amount of dancing, though the feast was held about as usual.

This feast was spread near noon, and showed one special feature of much interest. A piece of canvas was placed just east of the cross in the center of the ring, the longest dimension of the canvass extending east and west. The day's feast was spread upon this, and at its eastern extremity was placed the broken drum described above. A speech was then made stating that this feast was being given by the young man whose dream had been related several days before and who had, pursuant to a direct command from the Great Spirit, signified his intention of marrying a young widow and providing for her and her two children. He had been commanded at the same time to give this feast, and it had been stated by the Great Spirit that if he neglected this last matter the children would die before the leaves fell in the fall of the year. In reality therefore this feast was given for two purposes. One of these was the welfare of these two children. The other and primary one, however, was the benefit of the broken drum and those connected with it. A small portion of the food of the feast was placed directly before the drum and this was eaten by certain of the head men. The remainder of the food was distributed in the usual manner among the rank and file of the participants in the ceremony. All this food was supposed to be eaten in company with the Great Spirit and the whole feast was accompanied by invocations for the safe conduct of the broken drum to its home, and for the good luck of those connected with it.

During the early part of this last day a moccasin game was started. It lasted until late in the afternoon with an intermission only for the feast. Such a game would not be considered good form during the days of the regular ceremony, but on this ninth day it was permissible by virtue of the fact that the real ceremony was at an end the night before, which left the participants free in such matters.

After this feast the dancing continued without special incident until about four o'clock or perhaps four-thirty, at which time the whole nine days' ceremony was ended by the final playing of the regular number of tunes by each drum, and by the hauling down for the last time of the flags.

The large red cross which had been brought from Mr. Grover's house at the beginning of the dance and which had remained con-

stantly as the central figure in the circle was now returned by Mr. Grover to its place of safe keeping in his house, where it always remains during the intermissions between one ceremony and the next.

Upon the top of this cross was placed during each day a tablet covered with blue cloth and provided with loops of the same material which extended from corner to corner along its four edges. It was said to symbolize the heavens, and is shown in several of the accompanying illustrations, especially in that of plate XVI, fig. 2. This object was removed every evening, wrapped in a large silk handkerchief and carefully kept over night, being returned to its place on top of the cross on the following morning. Thus the cross itself was the only sacred object which was allowed to remain in the dancing enclosure over night. The drums, their stakes, the pipes, the flags and all other sacred objects were removed from the enclosure every night.

At the conclusion of the ceremony on this last day the drums, together with the objects which regularly accompany them, were taken, each to the house of its respective warden, and there kept until time for the next ceremony. The care with which these objects are kept and the reverence paid them during the intervals between the ceremonies have already been mentioned in the foregoing part of this paper.

At the conclusion of the feast above mentioned an announcement was made that there would be celebrated during the late afternoon, a so-called squaw dance (kwe'-nīmītiwin), this being a non-religious dance in which the women are permitted to participate. It is customary to have one of these squaw-dances at the end of such a ceremony for the special benefit of the women who are never permitted to participate in the dancing at the ceremony itself. A special drum is provided for this purpose and the dancing is done outside of the sacred dream dance ring. This is made an occasion of much mirth and contrasts very greatly with the solemnity and ceremoniousness of the dream dance itself. Whereas in the dream dance men only participate in the dancing and every man dances alone and according to his own notion, the squaw dance is characterized by the dancing of couples and by the invitation of one person to another to participate. Any person is privileged to invite another to dance.

The inviting simply consists in making a present of greater or less value to the person invited. Not a word is spoken. The object presented is simply brought and placed before or handed to the person invited who is then supposed to follow the person who has tendered the invitation over to the ring aroung the drum where the dancers are assembled. There are furthermore, no restrictions as to sex in these invitations. A person may invite another of his or her own sex or of the opposite sex. The dance itself consists of a sidewise shuffling step, each dancer closely following the others around the circle in a clockwise direction until the leader suddenly reverses the direction of movement of the line. Then all proceed in a contra-clockwise direction for a distance equal to about half of the perimeter of the circle. The dance is then at an end and each participant is privileged to go his way.

Custom demands that a person who has received such a present and invitation must at a later time return a present of equal or approximately equal value. In doing so he tenders of course an invitation to participate in another round of dancing. It does not, however, require that this return present shall be made to the person who tendered the invitation in the first place, but such an invitation may be tendered to anyone present and this serves as a return invitation the same as if it had been tendered to the particular individual who made the first advances. The squaw dance held toward the close of this particular day lasted about two hours and is shown in the two illustrations on plate XX.

With the conclusion of this squaw dance the whole nine days activities here at Whitefish on this occasion were at an end, and the visitors started that evening and during the following forenoon on their return journeys and everything about the community settled down to the usual routine of everyday life.

OTHER CEREMONIES.

In passing, mention should be made of the fact that among both the Chippewa and the Menominee there are several other ceremonies of greater or less importance all of which are celebrated by these people with the most profound reverence and sincerity.

The most important and elaborate of these is the "medicine dance," or as it may be better termed the "ceremony of the medicine

lodge," which is a much older and more strictly aboriginal ceremony than the dream dance. The "Medicine Society" which celebrates this meremony is strictly esoteric and everything connected with the ceremony is very carefully kept by the members of the society. Detailed descriptions of this ceremony as witnessed by Dr. W. J. Hoffman among the members of both these tribes are given in his two papers entitled "The Midewiwin or 'Grand Medicine Society' of the Ojibwa" and "The Menomini Indians" published in the seventh and the fourteenth Annual Reports respectively of the Bureau of American Ethnology, 1891 and 1896.

Miss Frances Densmore also has recently contributed[4] very valuable data concerning this ceremony, especially in reference to its music among the Chippewa.

Of great importance among these people also are certain feasts and certain games, all of strictly ceremonial significance and all conducted with the utmost reverence for the Great Spirit and the other deities in whose honor they are celebrated. The most important of these feasts are those for the medicine bags and those for the war bundles.

There are three games in particular which are played from purely religious considerations and from which the element of pastime is strictly lacking. These are the lacrosse game, played by the men, the special game of double-ball, played by the women, and a special dice game played by the women.

Furthermore, there are various other ceremonies of lesser importance which are largely individual matters, but throughout which this same reverential spirit runs and which form quite important factors in the culture of these tribes. Among these may be mentioned ceremonies for good luck in hunting and other like pursuits, ceremonies connected with the supernatural healing of the sick, and the propitiatory ceremony performed upon arriving at the rice fields in the late summer.

Throughout all these ceremonies, from the dream dance and the ceremony of the medicine lodge, both of which are of communal importance, on the one hand, down to the smallest and least important individual ceremony on the other, there is one prominent characteristic feature which is perhaps the most prominent phase of the

4 Op. cit.

elaborate religious life of these two tribes. This is the use of tobacco. So far as it is concerned with the dream dance itself this has been quite fully considered in the foregoing pages, but it may be well in concluding this paper to take up a more detailed consideration of pipes in general and of the smoking customs concerned with these other phases of the ceremonial and daily life of these people.

PIPES.

It has already been pointed out that the pipes of the Chippewa and the Menominee may be divided according to use into two classes: those reserved strictly for important ceremonial use and those which are used for more common daily smoking. Some of the latter class may be at times used also for smoking of a slightly ceremonial nature. Strictly speaking the first class is occupied almost exclusively by the true calumet; that is to say, by the pipe with the catlinite bowl of some form similar to one of those shown in plate XXI, figs. 2-4, and plate XXIII, figs. 1, 2, 5 and 6. The bowl of such a pipe may vary greatly in size, but its general form is usually quite constant. It may be more or less ornamented by means of lines or other figures in relief, (plate XXI, fig. 3), by means of ordinary incised decorations, by means of ridges and projections carved out of the material itself (plate XXIII, figs. 1 and 2) or with inlayings of metal (plate XXI, fig. 4, and plate XXIII, figs. 1 and 5). Usually, however, it is very plain. In this same class of strictly ceremonial pipes should be included also certain of the tomahawk-shaped pipes, though these are of a less aboriginal type. For instance, the two elaborately beaded pipes shown in figs. 1 and 2 of plate XXII were used for ceremonial smoking in connection with sacred medicine bags. One of these is of catlinite and the other of brass. The latter is of trade manufacture and the former is made in imitation of these trade articles.

Pipes of certain forms may be used both for ceremonial and for common smoking, as is shown by the fact that whereas the two tomahawk-shaped pipes above mentioned were used very strictly for ceremonial smoking, the two of similar form shown in figs. 3 and 4

of this same plate were employed in ordinary everyday smoking. There are, on the other hand, certain pipes which are never used ceremonially. For instance, those of what has been termed the "Micmac" type (plate XXIII, figs. 8 and 9), and such other forms as those shown in figs. 4, 7, 10, 11 and 12 of this same plate are used strictly for daily smoking. Such common pipes are usually made of limestone or sandstone, but sometimes of catlinite. Their stems are ordinarily very plain and the bowls are usually undecorated. Exceptions to this rule are shown in the stem shown in fig. 4a and the bowls in figs. 11 and 12. In no case, however, is such decoration elaborate.

In making one of these pipe bowls, even at the present day, the general shaping and working of the outer surfaces is done largely by a process of rubbing. For making the holes in the pipe, regardless of the material of which it is made, there is employed an interesting type of bow drill the shaft of which is shown in plate XXV, fig. 2. The bow used is an ordinary hunting bow, a turn of the bow string being taken around the wooden part of the shaft. A slight depression is made in a block of wood, in the floor, or in any suitable surface and the rounded point of the wooden part of the shaft is rested in this. This brings the fairly slender iron drill point upward. The roughly shaped pipe bowl is held down upon this point and the drill is rotated by means of the bow. The iron point of the drill has sometimes a double devel much after the fashion of the drills used by mechanics for drilling metals. In other instances this extreme point is simply sharpened without beveling, but in such a case the sides of the shaft farther up the drill are roughened by striking it with some sharp edged tool. Either type of drill is quite effective and will bore out the holes in such a pipe very evenly. Fig. 3 of plate XXV shows a partly bored sandstone pipe bowl which was destined to be made into a pipe of the "Micmac" type. The positions of the drill and the partly finished pipe shown in this plate are the reverse of those in which they are actually used.

There are four classes of stone materials used by these tribes in pipe making. The most important of these is catlinite, a fine grained reddish material which is usually dug from some distance below the surface and is quite soft when first brought up. It is usually worked

as far as possible into the desired forms soon after its removal from the ground since it becomes very hard upon exposure to the air. It is the most highly prized material used by the Indians for pipe making. A piece of this material which was obtained by Mr. Geo. A. West from the Barron county quarry is shown in plate XXV, fig. 6.

The next in importance of these materials is the fine grained black stone used in making such pipes as that shown in plate XXI, fig. 1. This is said by the Indians to be a very rare stone in the region and to be obtainable only under the water in certain lakes. Pipes made of this stone may be used for various purposes, but are said to have been in aboriginal times used almost exclusively as chief's pipes.

The fact that both this black stone and the catlinite are quite difficult to obtain has given rise to an interesting practice of repairing broken pipes. This is done by cutting into the stone in such a manner as to cross the line of fracture and then hammering metal, usually lead, into these incisions. Sometimes this mending is done with no evident regard for the appearance of the mended portion, as is the case in the pipe shown in plate XXIII, fig. 2, but more frequently it is done in such a manner as to produce a definite design and thus really add to the aesthetic quality of the pipe as a whole. Such is the case in the mending of the pipe shown in fig. 5. The upright bowl proper of this pipe was broken off, but has been securely fastened in place by the vertical line of metal which appears on either side of it at this point. These lines are extended far beyond the limit of necessity and made to form part of the general scheme of ornamentation of the pipe as a whole.

An interesting piece of mending is found in the pipe shown in fig. 1 of this same plate. This specimen, like that shown in fig. 5, had at one time a short projection in front of the upright portion of the bowl. When this was broken off its place was supplied by a very neatly fashioned short point of metal. This is quite an unusual method of handling such a case, since under ordinary circumstances the original stone projection would have been fastened back into place, especially if it happened to be a very long projection like that shown in fig. 2.

The more ordinary pipes for daily smoking are, as above stated, made of either limestone (plate XXIII, figs. 8, 9) or sandstone (plate XXIII, figs. 10-12). It is an interesting fact that these sandstone pipes are sometimes put to a use other than that of smoking. the particular specimen shown in fig. 12 has been used to a very considerable extent upon both its faces as a whetstone. Now and then one of these common pipes is made of catlinite as is shown in fig. 7 of this same plate.

Metal pipes are in most cases a product of white manufacture. The idea is entirely due to modern influence, but there are certain cases where lead pipes are whittled out by the Indians themselves. These are very small pipes of the type shown in plate XXIII, fig. 3. All the metal tomahawk-shaped pipes encountered by the author among the Indians were of brass, though iron pipes do occur, and mention was made of the occurrence of copper ones. The pipes of this type are, so far as could be learned, the direct product of white manufacture though cases do undoubtedly occur in which they are made by Indians who have learned this form of metal-working from the whites, which of course amounts to the same thing so far as the aboriginality of this type of pipe is concerned.

In speaking, in the early part of this paper, of the calumet used in connection with the dream dance mention was made of the high importance of its stem and of the diversity of forms which it takes. The stems used with other ceremonial pipes are of much less important significance, though they are scarcely less diverse in form. The elaborateness of the large stem represented in plate XXI, fig. 1a, is worthy of note. This stem is diamond-shaped in cross-section and on top is very elaborately decorated with nickeled metal and near the rear end with copper. On the lower surface are three metal loops for the attachment of feathers or other pendant objects. An eagle feather is at present attached to one of these. Such an elaborate stem is always designed for some special use, the one here shown being the stem of a chief's pipe.

Other examples of stems of greater or less elaborateness and which are of a special ceremonial significance are shown in plate XXI, figs. 2a, 3a and 4a, and in plate XXII, figs. 1 and 2.

Among the more common pipes there is no such an element of great ceremonial significance connected with the stem. It, however, takes a considerable variety of forms, from that of a simple, cylindrical, natural stem to a more or less elaborately carved one. Examples of the latter are shown in plate XXIII, figs. 1a and 4a, while examples of the former are shown in figs. 2a, 3 and 5-12 of this same plate. These simpler stems are usually made of a natural twig or branch from which the pith has been removed, and they may even have the bark left on them, as is the case in the one shown in fig. 7. Ordinarily, however, the bark is removed and usually the wood is blackened by holding it over a fire until it arrives at the point of charring. All pipe stems, whether for ceremonial or for common pipes, are made of wood.

SMOKING MATERIALS.

The materials used at the present day in these various pipes are tobacco proper, that is to say the product of the leaf of some species or other of *Nicotiana*, and the inner barks of certain shrubs. The mixture of these latter with tobacco makes kinnikinnick, which is the form in which both these materials are frequently prepared and most used. In practice the term tobacco is loosely applied to all kinds of smoking materials and it has been from time to time used in that way in the foregoing pages, but it should always be remembered that this is a more or less colloquial use of the term and that among these Indians the smoking material most used is really the mixture of these barks, which are the aboriginal smoking material, with true tobacco. It is maintained by the Chippewa and Menominee that until the coming of the white-man true tobacco was unknown to them, and that no species of *Nicotiana* was found in their region. In fact it is well known to botanists that no *Nicotiana* is indigenous to Wisconsin. The tobacco used by them at the present time is a very cheap grade of smoking tobacco, with which they usually mix a small amount of finely cut plug tobacco. It may be used directly in this form, but is, as above stated, more frequently mixed with varying per cents. of the inner barks of certain shrubs, all of which are called by the Chippewa pa'kūzīgûn (plural pa'kūzīgûnûn).

They recognize three different shrubs as producers of good smoking materials. These are gēga'daganagēgok, wo'banūyak and mūʒû'mic. They are said by informants to have flavors which are quite different one from another and are here named in the order of their desirability. Unfortunately circumstances were not favorable to the securing of perfect botanical specimens of each of these three shrubs. A specimen of wo'banūyak was, however, obtained and has been identified by Dr. S. Graenicher, acting curator of botany of the Museum, as the silky dogwood, *Cornus amomum*. From other material and data collected it seems probable that the most desirable species, that called gēga'daganagēgok, is the red ozier, *Cornus stolonifera* and that the third and poorest species, that called mūʒû'mic is the panicled dogwood, *Cornus paniculata*.

All these three are low shrubs and are fairly plentiful in many localities throughout the forests of northern Wisconsin. The stems of these are gathered and are usually brought intact, often with the leaves still on them, to the house or camp. Here they are trimmed of branches and twigs and the dark outer bark is carefully scraped from them. This leaves the white inner bark which is then scraped off in ribbons and placed on a drier. In plate XXV, fig. 1, is shown a bundle of the stems before the dark outer bark has been removed, while in fig. 7 of the same plate is shown a bundle after both the outer and the inner barks have been scraped off. Fig. 4 of the same plate shows one of the wickerwork, fan-shaped driers. Such a drier is in reality nothing but a stick with its one end split into from three to six pieces which serve as vertical elements upon which are placed a considerable number of horizontal ones is a simple, wickerwork technic. The freshly scraped strips of inner bark from the dogwood stems are placed upon this fan, its opposite end is stuck into the ground in such a position as to bring the fan about a foot above a small bed of coals which have been hauled out to one side of the camp fire. In about twenty minutes the bark is thoroughly dried and ready for storage and for use. It is customary to prepare only a comparatively small amount of this at any one time, probably owing to the fact that it grows so accessibly that it is deemed unnecessary to prepare more at one time. Fig. 5 of plate XXV shows

one of these driers with the bark on it just as it was being dried by the Indians.

Smoking materials are usually stored in a buckskin bag, though in more recent times cloth bags and various other receptacles are used. Mention has already been made of the special, highly decorated bag attached to the loop which supports the drum at its western stake. Tobacco intended for very special and highly ceremonial uses usually has some especially elaborate storage receptacle like this. For every day use many men have more simple buckskin pouches such as that shown in plate XXIV, fig. 2, which they carry about with them. A young man usually carries such a pouch in his pocket, but an old man very frequently hangs it at his belt. This he does by passing the top end of the bag under his belt and then taking a turn around the belt with it so that it passes completely around the belt itself and passes twice between the belt and the wearer's body. The friction holds it firmly in place. This custom of fastening the pouch at the belt appears to be a survival of the older days before trousers with pockets had replaced leggings and the breech clout, upon the string of which the tobacco pouch was then worn in this same manner.

For use about the house a small amount of properly mixed tobacco is usually kept in some sort of an open tray. These trays are frequently of wood and take a variety of forms. Three of these are shown in plate XXIV, figs. 4, 5 and 8. Frequently small shallow birch bark baskets, such as that shown in fig. 7 of this same plate, are employed for this purpose, and now and then the carapace of a turtle is so used. One of these is shown in fig. 6 of this plate.

The ordinary snuff of commerce is used to a certain extent by these people, more frequently as a dip than in the nose. It is ordinarily kept in the small tin cans in which it is purchased, but small birch bark snuff boxes are also made. These, one of which is shown in plate XXIV, fig. 3, are elliptical in cross-section and are made by wrapping a long strip of bark several times around small wooden blocks which serve as base and top respectively. This is done in such a manner as to secure very tight fitting joints which prevent the fine powder from sifting out. The top is removable and provides in this way a cover for the box.

SMOKING CUSTOMS.

Having considered more or less in detail in the foregoing pages the instruments and the materials used in smoking, as well as the occasions upon which tobacco is used, it may now be desirable to consider more particularly the customs concerned with its use. It should be observed at the outset that tobacco plays a very unimportant roll as a satisfier of an animal craving, and as a pastime among the Indians. To be sure the Indians do smoke a great deal of tobacco, and do chew a reasonable amount of it in their regular daily routine. This is often done in such a manner that, to the casual observer, it might appear that its use was in every way the same as is that by the average white-man, who uses it as a matter of habit and for his own personal pleasure. No doubt among the younger Indians, and those who have been converted to the Christian religion, tobacco has lost much, and in some cases perhaps all, of its religious significance. To the Indian of the old school, on the other hand, the one who is still a devout believer in the dream and medicine dances, and who sees the hand of the supernatural in many phases of his daily life, tobacco may be said to be used, even at the present day, in a strictly religious manner. It is with this older and more aboriginal type of Indian that we wish here to deal and it is very doubtful if he ever takes even a pinch of tobacco for any purpose whatever without an intuitive feeling of reverence for it and for the supernatural beings which his mind associates with it. It may, therefore, be said that so far as our consideration is concerned the use of tobacco, by these two tribes at least, is strictly ceremonial.

These modes of use of tobacco may be divided into two distinct groups, one of which may be called passive and the other active. In the former case the tobacco is placed with various objects, or in certain special localities, as offerings to the particular spirits concerned with those objects and those localities. The tobacco is not actually consumed, but is simply placed with these objects, or in these localities, the idea being that the spirit to which it is offered partakes of the essence, or what might be termed the spiritual element of the tobacco. It is, therefore, in reality, passive under such circumstances. It may remain for almost any required length

[8]Since this paper was written there has appeared Mr. Geo. A. West's comprehensive discussion of the "Uses of Tobacco and the Calumet by Wisconsin Indians," in which he treats this subject in detail from the earliest times up to the present day. The Wisconsin Archeologist, vol. 10, no. 1, pp. 5-64, 1911.

of time with such an object or in such a locality, during which time it has performed no active function. Its mere presence and the fact that the spirit to which it is offered is able to consume its spiritual essence is quite sufficient for the purpose in hand. In a large measure these uses are confined to the keeping of spirits in a passified state. That is to say, it causes them to remain in good humor, and it rarely happens that tobacco is used in this manner for propitiating an enraged spirit, or as an offering to invoke the immediate and active aid of a spirit.

For the purposes of propitiation and acceleration, on the other hand, the active uses of tobacco are necessary. Here the direct object sought is one of two, either to propitiate a spirit which has shown by one means or another its displeasure with the person making the offering, or to invoke the active aid of a spirit which is now entirely inactive, or is at least insufficiently active. Ordinarily tobacco used in this manner is consumed by the person or persons making the offering, and its consumption is accompanied by an invocation to the particular spirit or spirits in question for the particular end sought by these suppliants.

The chief passive uses of tobacco found among the Chippewa and the Menominee are the following:

When any one of a variety of ceremonial objects, such as war bundles, medicine bags, dream bundles, thunder stones, thunder emblems, mnemonic records and spirit stones, are put away for safekeeping it is always necessary to put with it a small amount of tobacco in order to please its spirit and to insure that it will not become dissatisfied with its lot and make trouble for the owner of the object with which it is connected.

Furthermore, it is necessary to renew this tobacco from time to time, since the spirit of this particular object consumes the spiritual essence of the tobacco and a new supply of actual tobacco must be added in order to provide the spirit with a constant source for its own needs, for these spirits are very fond of tobacco and consume a great deal of its essence in this way. In most cases it is only necessary to place with such an object a fair sized cut of plug tobacco or a small handful of smoking tobacco, and to replace this several times during the year with a fresh supply, but at no special

stated intervals. In case such an object is taken out from its place of keeping and handled, or used, it is then necessary to renew the tobacco when it is again put away, but in case the object is left in its place of keeping continuously it is only necessary to renew the tobacco at fairly infrequent intervals. With certain objects, such as a thunder stone, however, there are regular prescribed times at which the tobacco must be renewed. A thunder stone is one of the round black stones which occur in various sizes and which are supposed to be the actual missiles hurled by the thunder birds. It is this missile that causes the destruction which is ascribed by the whites to a stroke of lightning. It is esteemed by its owner as a very powerful object of medicine and must be treated with great respect and care in order that the thunder birds, who in reality own and control the stone, and who by special favor permit a human being to retain it for a time, shall not be offended. The possessor of such a stone is required to renew the tobacco with it four times during the course of a year. This must be done upon the occasion of the first peal of thunder in the spring, again about the middle of the summer, a third time at about the time the thunder storms cease in the fall, and a fourth time during mid-winter. The particular tobacco prescribed in this case was said by one informant to be a ten cent cut of ordinary plug tobacco. If the possessor of the stone is a single man, one of these cuts is sufficient. If, however, he is a man of family he must add another cut for each member of his family. In the latter case, upon the renewal of the tobacco, the old tobacco may be removed and used by the possessor of the stone, or by his friends. In the case of the single man, however, the cuts of tobacco must be left until four have accumulated, after which, upon placing the fifth cut, these four old pieces are removed and used, and another cycle of four is accumulated.

Should the possessor of any one of these sacred objects be negligent in his duties in these respects, the spirit which controls the object is very likely to exhibit its displeasure in some unpleasant manner, by causing illness to the owner or some member of his family, by bringing a drouth and destroying crops, or by some other exhibition of its power and its control over the destinies of the offender. In case any such displeasure is manifested, the possessor

of this sacred object notes at once that through some inadvertence he has offended this spirit, it is then incumbent upon him to make reparation as quickly as possible. This may be done in any one of several ways. In case his offense is not very great, he may appease the wrath of the offended spirit by placing tobacco with the object, and by invoking the beneficence of the spirit. In case the offense is of a more grave nature, it may be necessary for him to give a feast, or to play one of the sacred games, or to hold some special ceremony, at which time he openly and frankly acknowledges to the people assembled his guilt and negligence, and makes open amends to the spirit for them.

Of special interest in this connection is the war bundle, which is, as are all matters pertaining to war, directly under the control of the thunder birds. The thunder birds, are immense mythical creatures, living at the western extremity of the world, and are by some said to inhabit a large rocky island some distance from the shore out in the great western ocean which bounds the world in this quarter. These are perhaps the most important of the mythological beings among both the Menominee and the Chippewa. They control absolutely the fortunes of war, and in many ways play a very important part especially with those who are directly under their particular protection. Perhaps the most important function of these war bundles, so far at least as the every day life of the people is concerned, is their control of the weather. In this particular matter their power is absolute, and it is the duty of every man who possesses a war bundle to so conduct himself toward it and toward the thunder birds that no misfortunes will befall, not only himself, but also the community at large, through bad weather conditions of any kind. For instance, if a very severe thunder storm comes up, it is the duty of every man possessing one of these bundles to go to it and place there a handful of fresh tobacco. The use of tobacco in an active manner is, however, more important in connection with the war bundle. For instance a man should not only place tobacco before his bundle in this case so that it may partake of the spiritual essence of it, but he should also smoke before it. In every instance he must invoke the good offices of the thunder birds and endeavor in every way to appease their wrath. Should he be at some distance

from his war bundle when the storm comes up he must come out of doors and throw a handful of tobacco upward and toward the west, that is, toward the abode of the thunder birds, asking at the same time a cessation of the storm.

In the case of a drouth, on the other hand, it is customary for all the men in any given locality who possess war bundles to be called together at some stated time and place and to celebrate a ceremony over these bundles. The trouble in this case is just the opposite of that which arises from a violent storm. In that case the thunder birds are too active and beligerent. In this case they are not sufficiently active. During this ceremony the bundles are hung on a long pole in the center of the area used and much tobacco is offered and smoked on their behalf. The object, therefore, of such a ceremony is to appease the wrath of the thunder birds who are remaining at their home in the west and withholding the rain, and to induce them to come forth and bring a much needed storm with them.

One more instance of this passive use of tobacco will be sufficient to embrace all the typical cases found among these two tribes. There are certain localities such, for instance, as certain lakes, pools and rivers, and especially certain stones, in which dwell certain special, local spirits and where tobacco is always placed by passers-by. It is considered that these localities and stones are the actual abodes of these spirits, which have the power to do much good, or much harm, according as they are propitiated or offended by the people at large, and especially by those who have occasion to pass directly by their abodes. By making a small offering of tobacco in passing one of these spirit stones, for instance, a person acquires the good will of the spirit inhabiting it, and so long as it is provided with an abundance of tobacco it is pacific and will cause no trouble. On the other hand, should it be neglected for a time, and especially should a person pass the stone without taking any notice of it and without leaving at least a small pinch of tobacco, it is very likely to become offended and to visit upon such a person some illness or other affliction.

What have been termed the active uses of tobacco are in some respects much more important than are the passive uses, for while

in a large measure the passive uses serve to keep an already inactive spirit quiet and to thereby prevent it from doing harm, the active uses of tobacco serve to pacify an already maliciously active spirit, or to arouse to benevolent action a now passive spirit. Mention has just been made of the active use of tobacco in connection with the war bundle for the regulation of weather conditions. In this same way tobacco is used at games, at feasts, and at dances, all of which are, among the Menominee and Chippewa, in the strictest sense ceremonial observances.

The most important of the games of these people is lacrosse. It is not, as is supposed by many, played as a pastime, but is strictly ceremonial, and is not played except at the direct command of some supernatural guardian spirit to some individual. The spirit appears to this individual in a waking vision, or in a dream, and instructs him to get together the necessary prizes for a lacrosse game, and to call a game in the near future. The object of such a command is that the person may make amends for some infringements which have been committed by him upon some rules and restrictions concerned with some religious observance, or in order that he may obtain some desired supernatural favor, such as a return to health. As soon as arrangements are properly made, he sends out one or more messengers with a quantity of tobacco. These messengers go from place to place, and from house to house presenting to each man whom the giver of the game has designated a small amount of tobacco. This tobacco serves as an invitation to him to attend and participate in the game at a certain given time and given place which are stated to him by the messenger. The acceptance of this gift of tobacco is the acceptance of the invitation to attend the game. In case the one invited cannot attend he declines the proffered tobacco and sends by the messenger an explanation as to why he cannot participate. At the game the giver has a considerable quantity of tobacco placed together with the prizes for which the game is to be played, and this is used freely by the participants in the game. During the game they can only chew the tobacco, since they are too busily engaged to smoke, for one of these games is a very active occupation. The tobacco which remains after the game is finished is, however, divided among the participants and much of it is smoked.

Among the women there are two games which may be played as a result of a vision, and in both of which tobacco plays an important part. These are the women's shinney game, a type of double-ball game, and the special women's dice game.

There are certain special feasts which may be given by the individual upon certain occasions, in all of which tobacco plays a very important part, being placed with the particular objects with which the feast is concerned, and being smoked during the ceremony. One of these feasts is that given by an individual for his medicine bag, and is quite a different matter from the regular medicine dance or ceremony of the medicine lodge. In such a case a man invites certain of his friends to partake of this special feast with him, and the actual feasting is done in the presence of his medicine bag, and is preceded by ceremonial smoking. Similarly a special feast and ceremony may be given by an individual for the honor of his war bundle, and it not infrequently happens that one of these special feasts is given as the result of a vision in which some guardian spirit appears to a man and gives him certain supernatural powers.

In the case of the medicine bag, as also of the war bundle and certain other ceremonial objects, it is customary to keep certain special calumets to be smoked upon the occasion of a ceremony with which it is concerned, and for smoking upon special occasions when some favor, such as a change of weather, is asked of the spirits which control such sacred objects. Examples of pipes devoted to such special uses are shown in plate XXII, figs. 1 and 2, in which are shown two tomahawk-shaped pipes used especially in connection with medicine bags. In plate XXI, figs. 4 and 4a, appear the bowl and stem of a calumet especially devoted to smoking for the thunder birds. Its possessor was especially under the patronage of the thunder birds and used it particularly in connection with a large thunder stone and a thunder bird emblem which he had obtained from his guardian spirits through direct communications in visions.

As has been already mentioned in speaking of that subject each drum used in the dream dance has a special calumet, and among the Menominee, are also one, and sometimes two, other special calumets. The object of this special calumet, its form, manufacture, uses, and its high importance in the dream dance have already been discussed

in detail in the foregoing pages, so that it need be only mentioned here that it is used as a sacrificial altar devoted to special smoking in connection with this particular ceremony, and that the use of tobacco in it is strictly what has been here designated as an active one. The smoke and the incense which arise from this particular ceremonial calumet are supposed to ascend to the abode of the Great Spirit and to be pleasing to him. Accompanying them are, of course, the invocations of the participants in the ceremony, and these are supposed to be received with favor when accompanied by the smoke and aroma from these ceremonial pipes. Especially effecacious is the smoke from the drum's own pipe, since this as a pipe is of special importance, and since the tobacco which is smoked in it comes from the special pouch which is fastened to the loop which supports the drum on its western stake, and which is therefore especially potent.

One or two minor customs connected with the use of the pipe may also be mentioned in this connection. Almost all the pipes of fair size, which are intended for daily use, are provided with two or three stems, which may be all of the same length, or the lengths of which may vary. Likewise they may all be of the same appearance, or one may be much more elaborately decorated than another. These stems are used indifferently by the smoker and apparently without any particular sequence.

Upon finishing his smoke he detaches the stem from the bowl, carefully removes the ashes, and puts the two stems and the bowl away together. In no case is the bowl of such a pipe left attached to the stem. This does not ordinarily apply to very small pipes, such as those of the "Micmac" type and others which are used more as pocket pieces, and which are usually carried about in the tobacco pouch. Among the Chippewa the "Micmac" type of pipe is very prevalent among the old men, though the common wooden pipe of commerce is used to a large extent by the younger generation. Among the Menominee, on the other hand, the commercial pipe has almost completely supplanted the old time common pipe.

In smoking it is almost invariably the custom to tamp the tobacco down into the bowl of the pipe with the first finger after a few puffs have been taken and it is certain that the tobacco has thoroughly ignited. Among the Menominee there is a saying that

a Menominee always tamps the tobacco down in his pipe, and he has for this reason a delicious and sweet odored smoke, whereas among the Potawatomi the tobacco is never tamped down, and the odor from their pipes is very foul as a result. In the case of the dream dance calumet this tamping down of the tobacco is done in this same manner by the pipe tender, but in no case was a special tamping stick, such as is often used by certain tribes farther to the west, encountered among any of the members of either of these tribes.

CONCLUSION.

In considering the foregoing discussion certain important facts stand out prominently.

Firstly: The Chippewa and the Menominee are an extremely devout and sincerely religious people, worshipping a polytheon which centers about a chief deity designated as the Great Spirit, which term is a literal rendition of the names by which he is known in the respective language of these two tribes. While this chief deity is the central figure in this polytheon, great importance also attaches to certain lesser deities or spirits, and much power is ascribed to them, each being credited with special connection with certain objects, localities or forces of nature and being looked upon as the potential guardian spirit of some individual or other. These deities may exert great influence for good or evil according as they are pleased or displeased with the actions of individuals. They manifest their pleasure by giving propitious conditions to the people, and their displeasure by causing storms, drouths, illness, and other unfavorable conditions.

Second: The most important factor in dealing with all these spirits is tobacco, which is used in what have been here termed a passive and an active manner, the design of the former being chiefly to keep in an inactive condition and satisfied spirits which might become dangerous if displeased by inattention or otherwise, and the design of the latter being to propitiate malevolently active spirits, and to arouse inactive spirits to benevolent action.

These active uses of tobacco are the more important of the two classes and are employed in several ways: by individuals in their

daily life, in connection with special feasts and games, and especially in connection with ceremonies of which the medicine dance and the dream dance are the most important. In these cases it is smoked in calumets which are devoted exclusively to the particular purpose in hand. Of these the drum's pipe, which is used in connection with the dream dance is the most important and shows the most highly ceremonial use. It is in fact one of the most important objects connected with this elaborate ceremony.

Third: The dream dance, while a ceremony of modern origin, ranks in importance equally with the more aboriginal and strictly esoteric medicine dance. Its motives are the worship of the Great Spirit and the propagation of a doctrine of universal peace and brotherhood, and its devotees practice these teachings with the utmost sincerity and consistency.

The objects of special reverence are the drum, which is called the grandfather of the devotees, and the drum's calumet, which serves as a sacrificial altar. Through the combined agencies of these two the invocations of the devotees are carried up to the Great Spirit.

Elaborate ritualistic ceremonies are held at certain special times, but a great respect is paid the drum at all times and offerings are frequently made by individuals to it during the intervals between these ceremonies. The ceremony itself is very thoroughly organized and its conduct is directed by certain special individuals, and those who participate in it are divided into certain special classes, each with its own particular duty. The whole ceremony is strictly non-esoteric and any person, regardless of race or creed is welcome to participate in it.

The origin of this special cult is due to the vision of a Sioux girl which occurred within fairly recent times. The ceremony has spread over a wide range of territory, and has become more or less modified in different localities. Perhaps the most interesting feature, however, of the ceremony as it now appears among these people is its alteration and the intrusion of new ideas due to the visions of a little girl a few years ago. These were taken as direct revelations from the Great Spirit and have caused the place known as Whitefish, on the Lac Court Oreilles reservation, to become a veritable Mecca for devotees of the dream dance religion, even from great distances.

Milwaukee, Wisconsin,
May 15, 1911.

TABLE SHOWING

Museum numbers and lengths of specimens used as illustrations in plates XXI to XXV.

PLATE XXI.

Fig. No.	Catalog Number	Length Inches	Length Centimeters
1	4444	5.9	15.
1a	4444	30.1	76.4
2	5153	7.5	19.
2a	5153	14.6	37.2
3	5149	9.	23.
3a	5149	14.5	36.9
4	4442	4.6	11.7
4a	4442	25.7	65.5

PLATE XXII.

Fig. No.	Catalog Number	Length Inches	Length Centimeters
1	4446	23.3	59.3
2	4445	19.7	50.2
3	5146	19.	48.3
4	5147	21.1	53.7

PLATE XXIII.

Fig. No.	Catalog Number	Length Inches	Length Centimeters
1	4439	5.	12.5
1a	4439	9.6	24.4
2	5148	5.7	14.5
2a	5148	14.7	37.4
3	4438	15.2	38.5
4	4447	1.9	5.
4a	4447	14.9	37.8
5	5797	9.6	24.3
6	5151	7.1	18.

7	5159	4.2	10.8
8	5170	6.2	15.9
9	5157	9.3	23.6
10	5166	5.7	14.6
11	5690	7.	17.9
12	5165	5.9	15.

PLATE XXIV.

		Length	
Fig. No.	Catalog Number	Inches	Centimeters
1	4521	3.3	8.5
2	4450	9.	22.7
3	5401	3.	7.5
4	5183	5.7	14.6
5	4177	16.	40.7
6	5399	6.6	16.7
7	4797	9.	23.
8	5181	20.5	52.

PLATE XXV.

		Length	
Fig. No.	Catalog Number	Inches	Centimeters
1	5193	30.	76.
2	5179	16.1	41.
3	5171	1.9	5.
4	5199	29.	73.8
5	5191	24.7	63.
6	12132	9.	23.
7	5194	28.	71.

EXPLANATION OF PLATE IX.

Figure 1. Circular dream dance enclosure located at the Zoar settlement on the Menominee reservation. This enclosure is formed by an earth embankment about a foot high. Neg. no. 1-182.

Figure 2. The dancing ground at Whitefish on the Lac Court Oreilles reservation showing a square enclosure formed by a high fence, and showing the flag poles at the four points of the compass. Neg. no. 1-50.

1

2

EXPLANATION OF PLATE X.

Figure 1. The dream dance at Whitefish showing the two ceremonial drums, one of which is being played. Neg. no. 1-72.

Figure 2. The dream dance showing a large number of men dancing about one of the drums. Neg. no. 1-55.

1

2

EXPLANATION OF PLATE XI.

Figure 1. A near view of one of the dream dance drums showing the stakes upon which it is supported and showing the symbolic decoration in beadwork. Neg. no. 1-58.

Figure 2. A near view of the circle of drummers about one of the drums showing them playing for the benefit of one of their number who made a mistake in drumming in the preceding tune, and who is shown at the left of the figure dancing in atonement for his error. Neg. no. 1-60.

1

2

EXPLANATION OF PLATE XII.

Figure 1. The dream dance at Whitefish showing the cross in the center of the dancing area, and showing one of the drums with its circles of drummers and singers, and also showing a number of men dancing. Neg. no. 1-54.

Figure 2. The smoking out of the calumet by one of the chief men connected with the ceremony after it has passed around among the other participants. Neg. no. 1-62.

1

2

EXPLANATION OF PLATE XIII.

Figure 1. One of the orators (Mr. John Quarters) of Whitefish speaking to the people concerning matters connected with the dream dance. In the foreground is shown one of the drums with its circles of drummers and singers. Neg. no. 1-65.

Figure 2. A visitor speaking at the dream dance at Whitefish. Neg. No. 1-64.

1

2

EXPLANATION OF PLATE XIV.

Figure 1. A scene in the dancing area at the dream dance showing the participants listening attentively to an oration. Neg. no. 1-71.

Figure 2. A scene showing the daily feast at the dream dance at Whitefish. Neg. no. 1-69.

1

2

EXPLANATION OF PLATE XV.

Figure 1. The feast of the "Braves" held during the dream dance. In this scene the messenger of the "Braves" is just leading a member of the "Braves" up to participate in this feast. Neg. no. 1-76.

Figure 2. Messengers preparing the food of the feast for distribution after it has been properly consecrated by a special ceremony for that purpose. Neg. no. 1-68.

1

2

EXPLANATION OF PLATE XVI.

Figure 1. A scene at the dream dance at Whitefish showing particularly a death bundle. Neg. no. 1-91.

Figure 2. Newly clothing two mourners as part of the ceremony of the removal of mourning. Neg. no. 1-85.

1

2

EXPLANATION OF PLATE XVII.

Figure 1. Bathing and newly clothing two mourners as part of the ceremony for the removal of mourning. Neg. no. 1-84.

Figure 2. An orator speaking to the two mourners who have just passed through the ceremony for the removal of mourning. Neg. no. 1-88.

1

2

EXPLANATION OF PLATE XVIII.

Figure 1. Preparing to paint the faces of two mourenrs as the last stage in the ceremony of the removal of mourning. Neg. no. 1-86.

Figure 2. Painting the faces of the two mourners in completion of the ceremony for the removal of mourning. The streak of yellow paint can be seen on the cheek of the man mourner. Neg. no. 1-87.

1

2

EXPLANATION OF PLATE XIX.

Figure 1. The man mourner joining in the dance for the benefit of himself and wife directly after the completion of the ceremony for the removal of mouring. Neg. no. 1-89.

Figure 2. Another view of the same dance as that shown in Fig. 1, but taken so as to include the remaining dancers and the drum. Neg. no. 1-90.

1

2

EXPLANATION OF PLATE XX.

Figure 1. The so-called squaw dance as seen from a distance. Neg. no. 1-93.

Figure 2. The squaw dance with a larger circle of dancers participating. Neg. no. 1-96.

1

2

EXPLANATION OF PLATE XXI.

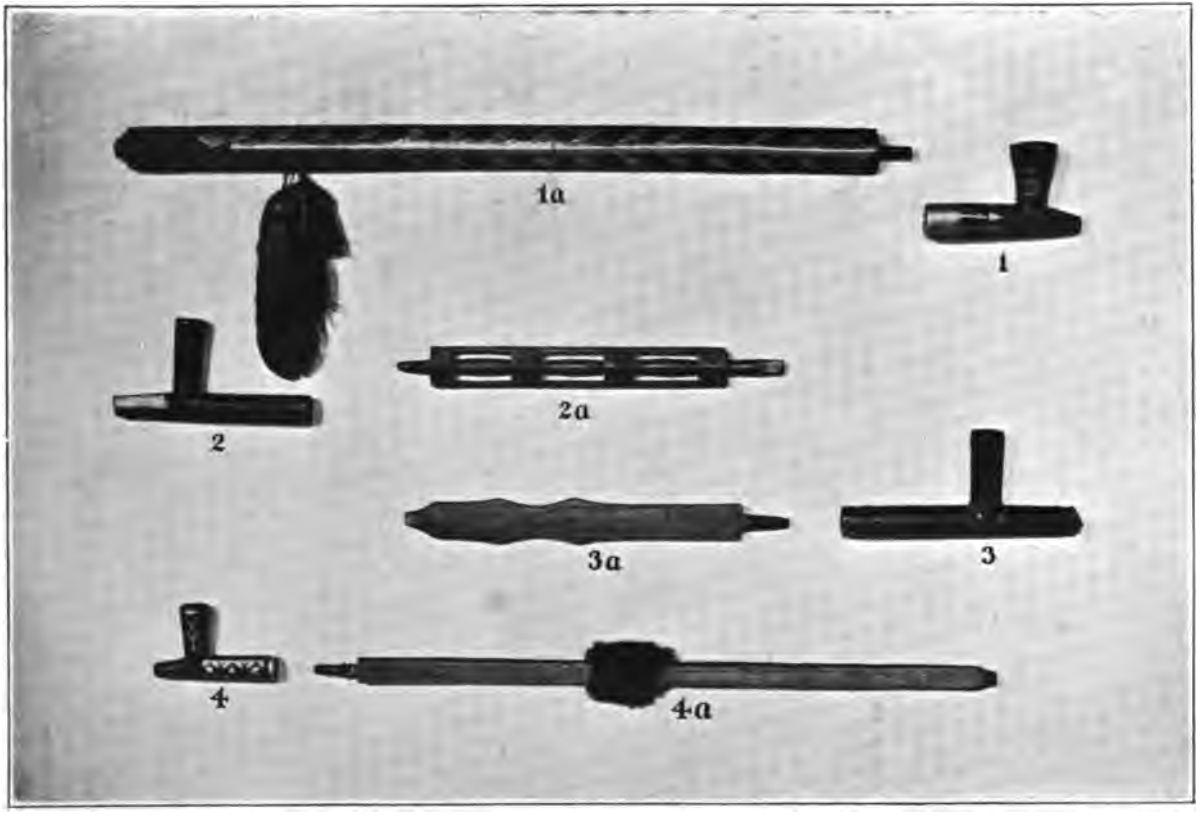
Figures 1 and 1a. Chief's pipe with black stone bowl inlaid with metal and with long and very elaborately decorated stem.

Figures 2 and 2a. Calumet with typical plain bowl of catlinite and with elaborately excised stem.

Figures 3 and 3a. Calumet with large bowl of catlinite showing simple decoration in raised lines.

Figures 4 and 4a. Calumet with small bowl of catlinite elaborately inlaid with metal and with long painted stem with fur band.

Neg. no. 1-204.



EXPLANATION OF PLATE XXII.

TOMAHAWK-SHAPED PIPES.

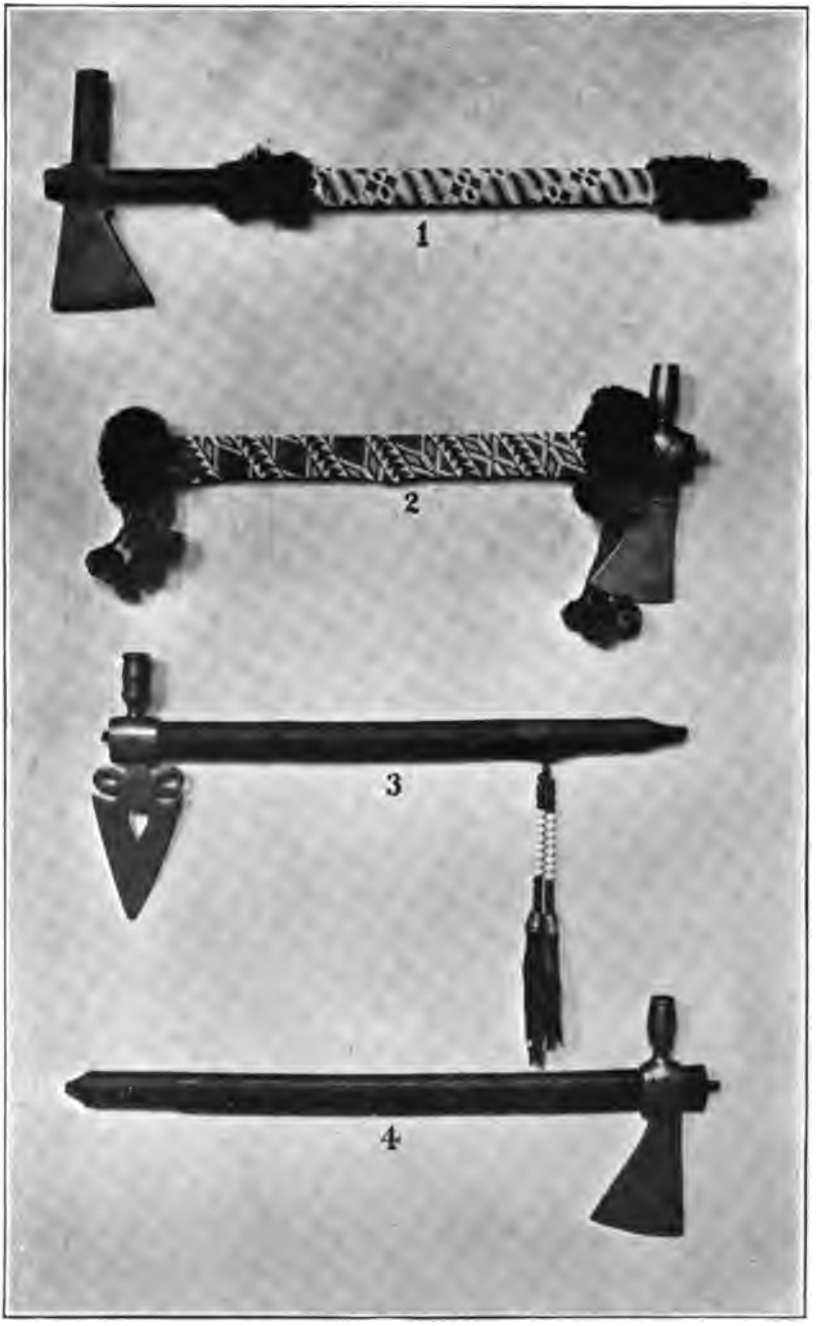
Figure 1. Tomahawk-shaped pipe, the bowl of which is of catlinite, and the stem of which is elaborately ornamented with beadwork and fur.

Figure 2. Tomahawk-shaped pipe, the bowl of which is of brass, and the stem of which is elaborately decorated with beadwork, fur and tassels.

Figure 3. Tomahawk-shaped pipe with brass bowl of elaborately excised design and with stem ornamented with pendants of large beads, thimbles and ribbons.

Figure 4. Tomahawk-shaped pipe with bowl of brass and with plain stem.

Neg. no. 1-205.



EXPLANATION OF PLATE XXIII.

Figures 1 and 1a. Pipe with bowl of catlinite ornamented with inlaid metal and with a prominent ridge on the upper side of its base, and with a short protruding point of metal. The stem of this pipe shows decoration by excision and by means of incised lines.

Figures 2 and 2a. Pipe with bowl of catlinite showing a very prominent scalloped and perforated ridge on the upper side of its base and showing mending with metale. The stem of this pipe is perfectly plain.

Figure 3. Small lead pipe showing a prominent ridge on the upper part of its bowl and a prominent sharp point, and with a perfectly plain stem.

Figures 4 and 4a. Black pipe of standstone and of unusual form. The stem of this pipe shows rough carving on its edges and a slight amount of decoration by incision.

Figure 5. Small catlinite pipe, the bowl of which has been mended in such a manner as to make the metal used in mending serve a decorative purpose.

Figure 6. Small pipe of catlinite decorated with incised dots about the upright bowl proper.

Figure 7. Small square pipe of catlinite with stem showing the use of a twig with the bark on it for this purpose.

Figure 8. Limestone pipe of the "Micmac" type.

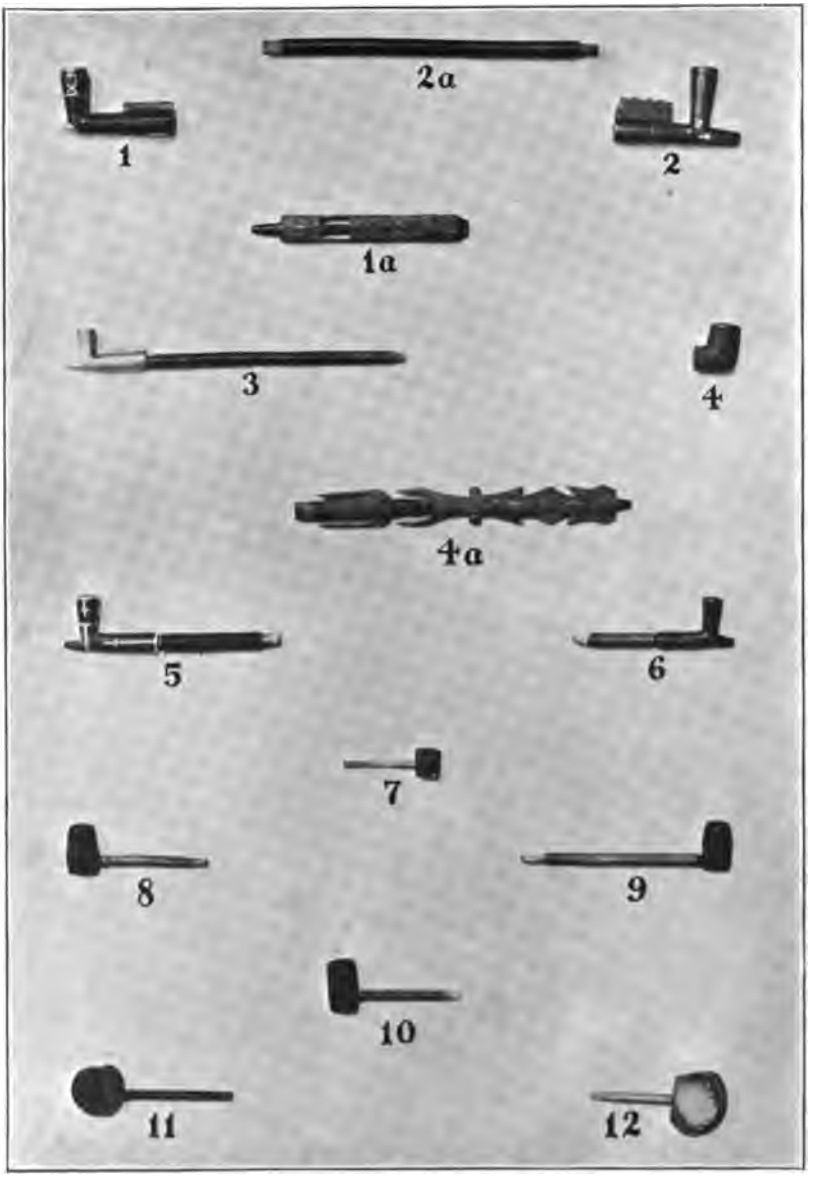
Figure 9. Limestone pipe of the "Micmac" type showing a slightly different form from that in figure 8.

Figure 10. Sandstone pipe of very unusual form.

Figure 11. Small discoidal pipe showing decoration with incised lines.

Figure 12. "Heel-shaped pipe of standstone, showing decoration with incised dots. This pipe also shows where it has been used as a whetstone.

Neg. no. 1-206.



EXPLANATION OF PLATE XXIV.

Figure 1. Punk used in lighting the ceremonial pipe.

Figure 2. Buckskin tobacco pouch, such as is employed in every-day use.

Figure 3. Snuff box made of birch bark.

Figure 4. Elliptical shallow wooden tobacco tray used in mixing tobacco with dogwood bark in making kinnikinnick.

Figure 5. Long narrow wooden tobacco tray used in preparing kinnikinnick for smoking.

Figure 6. Carapace of a turtle used as a tobacco tray.

Figure 7. Birch bark tobacco tray.

Figure 8. Large wooden tobacco tray provided with handle.

Neg. no. 1-207.

EXPLANATION OF PLATE XXV.

Figure 1. Stems of one of the species of dogwood from which one of the smoking materials is made. This illustration shows these stems before the outer bark has been removed.

Figure 2. Drill with wooden handle and iron point used in making perforations in pipes.

Figure 3. Partly finished sandstone pipe of the "Micmac" type.

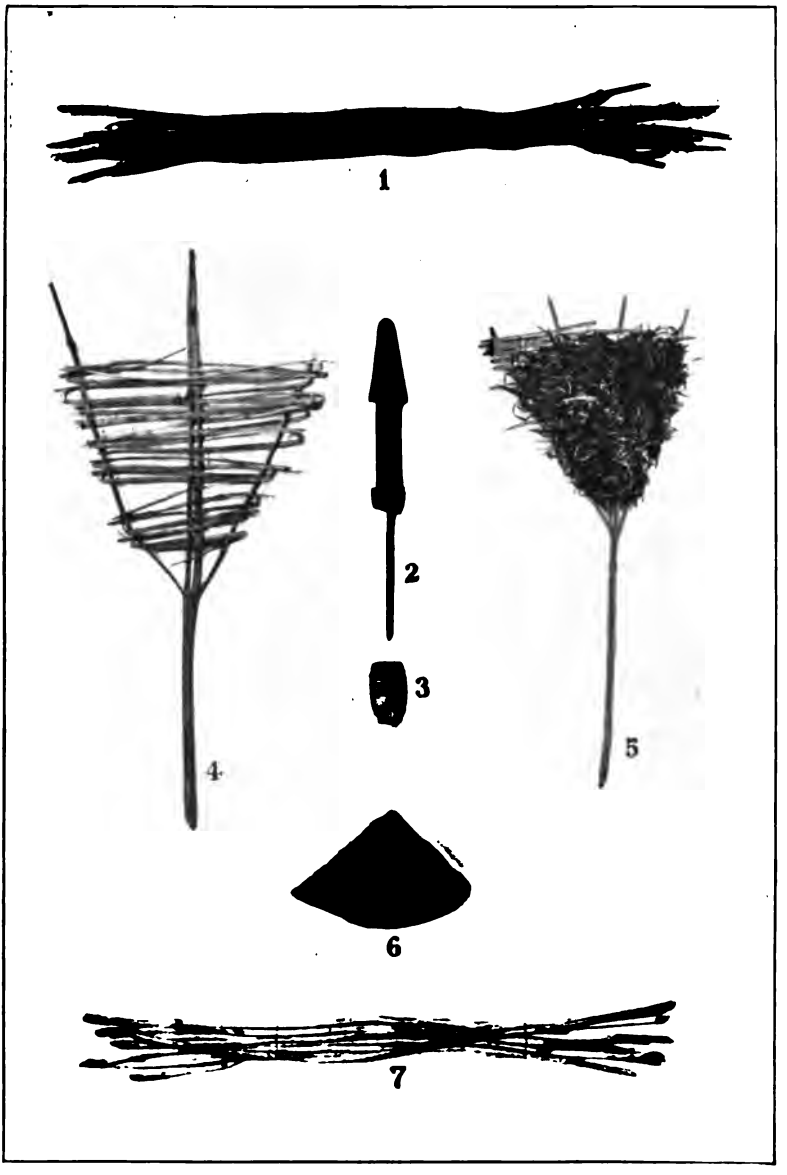
Figure 4. Plain wickerwork kinnikinnick dryer.

Figure 5. Kinnikinnick dryer with dogwood bark upon it. This shows the manner in which the narrow ribbons of the inner bark of the dogwood are dried for smoking.

Figure 6. Piece of catlinite from a quarry in Barron County.

Figure 7. Stems of the dogwood after the inner bark has been removed for drying into smoking material, which when Mixed with tobacco forms kinnikinnick.

Neg. no. 1-208.



INDEX.*

*Bull., Publ., Mus., Milw., Vol. I.

ERRATA.

Page 3, line 37. For "cities" read "cites."
Page 25, line 12. For "pp. 26-416" read "pp. 16-420;" also add "pp. V-XXX"
Page 31, lines 31 and 32. For "H. H. Smith and Schumann" read "Godman."
Page 33, line 24. For "Trujillo" read "Godman."
Page 34, lines 13 and 14. Strike out reference to Calvert.
Page 35, line 1. For "Needham" read "Calvert."
Page 35, line 6. For "p. 40" read "p. 45." Also add "Ent. Mo. Mag., (2) 13, p. 32, 1902."
Page 36, line 25. For "pp. 45-47" read "pp. 45, 47."
Page 38, line 17. For "p. 48" read "pp. 48, 50."
Page 39, line 12. To "♀ type" add "Mus. Brooklyn Inst."
Page 45, line 7. For "Calvert, MacLachlan, Adams, etc.," read "Calvert."
Page 46, lines 18 and 19. For "Adams, Deam" read "Adams."
Page 49, line 31. Strike out "*s.*"
Page 50, lines 24 and 25. For "Godman, MacLachlan, Calvert and Calif. Acad." read "Calif. Acad."
Page 51, lines 31 and 32. For "Godman, Calvert" read "Godman."
Page 52, lines 12 and 13. For "Godman, Adams, Deam" read "Godman, Adams."
Page 52, line 27. For "types M.C.Z." read "♂ coll. Godman."
Page 55, lines 21 and 22. For "types ♂ ♀ Acad. Phila., ♂ Coll. Banks, ♀ Coll. Calvert" read "types ♂ ♀ Acad. Phila."
Page 56, line 20. For "p. 389" read "p. 380."
Page 57, line 3. For "Lower Sonoran, (Calvert z. 2-3), B. Cal., Mex. to C. Rica, West Indies" read "West Indies."

Errata

Page 57, line 5. Add "types coll. Godman."
Page 57, line 8. For "As above for *coecum*, except W. Ind.; Colombia" read "Lower Sonoran, (Calvert z. 2-3), B. Cal., Mex. to Brazil and Venez., W. Indies."
Page 61, lines 1 and 2. For "♂ ♀, types in Coll. Wills." read "♂, holotype in M.C.Z."
Page 64, line 23. Add "types coll. Godman."
Page 71, line 35. For "*veneriotata*" read "*venerinotata*."
Page 72, line 23. For "♂ Coll. Champion" read "♂ Coll. Godman."
Page 74, line 2. For "1858" read "1854."
Page 86. Insert to follow line 16, "Calvert, Biol. C. Am., p. 166, 1905; comp. desc.; pl. 7, ff. 29, 38, ♂ ♀ char."
Page 87, line 18. For "Smith" read "Godman."
Page 87, line 22. For "Schumann" read "Godman."
Page 88, line 1. For "Smith" read "Godman."
Page 104, line 31. For "M.C.Z." read "apparently not in M.C.Z."
Page 105, line 26. Strike out reference to Calvert.
Page 108, line 37. Add "Calvert, Biol. C. Am., p. 179, 1905; char. and table of C. Am. spp."
Page 115, line 23. Add "Calvert, Biol. C. Am., p. 187, 1905; comp. desc. (*Aeschna*)."
Page 133, line 28. For "N. Am." read "C. Am."
Page 137, line 11. For "Coll. Selys" read "Oxford Univ."
Page 138, line 14. Add "Biol. C. Am., p. 213, 1906; p. 401, 1907."
Page 144, lines 21 and 22. For "type M.C.Z." read "type ?"
Page 144, line 33. For "pp. 204, 310-315" read "pp. 203, 309-318."
Page 145, line 32. For "types M.C.Z." read "types ?"
Page 146, line 7. For "p. 314" read "p. 316."
Page 149, line 22. For "type ?" read "type coll. Godman."
Page 150, lines 5 and 6. For "♂ Coll. Schumann, ♀ Coll. Williamson" read "♂ ♀ coll. Godman."
Page 150, line 16. Insert "p. 246" before "synopsis of spp."
Page 151, line 20. For "p. 253" read "p. 263."
Page 152, line 25. For "p. 261" read "p. 266."
Page 153, line 1. For "**El**" read "**Fl**"
Page 153, line 6. For "p. 260" read "p. 266."
Page 159, line 22. For "p. 204" read "pp. 204, 320."
Page 170, line 23. For "Coll. Calvert" read "Acad. Phila."
Page 171, line 9. Add "Biol. C. Am., p. 272, 1906; comp. desc."
Page 171, line 15. For "♂ coll. Calvert" read "♂ Coll. Godman."
Page 172, line 27. Add "Biol. C. Am., p. 201, 1905."
Page 173, line 34. For "p. 236" read "p. 286."
Page 175, line 7. For "coll. Barrett" read "coll. Calvert."
Page 175, line 10. For "Champion" read "Godman."
Page 178, line 39. For "p. 303" read "p. 203."
Page 180, line 32. Add "Biol. C. Am., p. 305, 1906."
Page 181, line 27. Add "pl. 9, ff. 46, 47, ♂ app."
Page 181, line 33. For "coll. Schuman" read "col. Godman."
Page 183, footnote. Transpose 8th and 9th lines.
Page 296, line 35. For "former" read "form."

BULLETIN

OF THE

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VOL. I ARTICLE I

CATALOGUE OF THE ODONATA OF NORTH AMERICA

BY RICHARD A. MUTTKOWSKI

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BULLETIN

OF THE

PUBLIC MUSEUM OF THE CITY OF MILWAUKEE

VOL. I PART II

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BY S. GRAENICHER

THE DREAM DANCE OF THE CHIPPEWA AND MENOMINEE INDIANS OF NORTHERN WISCONSIN

BY S. A. BARRETT

MILWAUKEE, WIS., U. S. A.
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1911

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