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"EVERY MAN IS A VALUABLE MEMBER OF SOCIETY WHO BY HIS OBSERVATIONS, RESEARCHES, AND EXPERIMENTS PROCURES KNOWLEDGE FOR MEN."—SMITHSON.

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SMITHSONIAN MISCELLANEOUS COLLECTIONS

PART OF VOLUME XLVI

Hodgkins Fund

RESEARCHES

ON THE ATTAINMENT OF

VERY LOW TEMPERATURES

BY

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PART I



(No. 1441)

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RESEARCHES ON THE ATTAINMENT OF VERY LOW TEMPERATURES.*

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PART I.

I. INTRODUCTION.

The following is an account of a series of experiments which originated in the year 1900 in an attempt to obtain a small quantity of liquid hydrogen, to be used in separating the gas neon from helium and argon, with which neon is associated in atmospheric air. Sir William Ramsay and I had, at that time, succeeded in separating the gases argon, krypton and xenon from one another, by condensing mixtures containing them in bulbs cooled in liquid air, and submitting the solid or liquid to fractional distillation. This method could not, however, be applied to the separation of neon; for, as subsequent experiment has proved, the critical point of this gas lies below 65° abs., and consequently it could not be condensed at the temperature of liquid air. It was obvious that unless liquid hydrogen could be obtained, and applied to the separation of the neon from its companions, it would be impossible to obtain the gas in a pure state, and the work on the inactive gases would remain incomplete.

Experiments on the liquefaction of hydrogen were commenced in March, 1900. After some six or eight failures, mainly the results of attempts to adapt an old air liquefier to the new purpose, I devised and constructed an apparatus with which I was able to obtain the necessary quantity of liquid. The work was brought to a successful conclusion on July 6 of that year, and the separation of the pure neon was effected.

During the years 1901 and 1902 I was engaged, with the assistance of Mr. George Senter and Dr. Adrien Jaqueroed, in making accurate measurements of the pressure-coefficients of hydrogen and helium, and in comparing the constant-volume hydrogen and helium thermometers over wide ranges of temperature. This investigation involved the measurement of the vapor-pressures of liquid oxygen and of liquid

*The researches described by Doctor Travers were carried on with the aid of a grant from the Hodgkins Fund of the Smithsonian Institution. It is expected that further researches by Doctor Travers will be published as Part II.

hydrogen at temperatures on the scales of the two thermometers, corresponding to pressures below 800 millimeters of mercury. The liquid hydrogen employed in the researches was obtained by means of the apparatus already referred to. For this purpose, however, it was modified in some details so as to render the production of liquid hydrogen a matter of certainty. Indeed, eight out of nine experiments carried out during the summer of 1902 were successful; the one failure being due to the breaking down of the compressor. The results of these investigations have been published in the *Philosophical Transactions of the Royal Society*.

On concluding this work I turned my attention to the improvement of the apparatus for liquefying hydrogen, and to the theoretical investigation of the processes involved. An account of this work is contained in the following pages.

II. HISTORICAL.

The researches of numerous investigators, notably those of Faraday and Thilorier, carried out during the early part of the last century, had resulted in the liquefaction of all the gases then known, with the exception of hydrogen, nitrogen, oxygen, carbon monoxide, nitric oxide, and methane, which hence received the name of permanent gases. Though Faraday had probably some conception of the explanation of their behavior, it was undoubtedly a matter of general opinion that the gases possessed in themselves a permanent character, or that they would ultimately liquefy were the pressure on them sufficient. It was not until 1869, when Andrews proved there is for each substance a critical temperature above which the liquid and vapor cannot be differentiated, that existence of permanent gases was explained.

No further advance towards the liquefaction of the permanent gases was made till 1877 when, on December 24, communications were received by the French Academy independently from M. Raoul Pictet of Geneva and from M. Louis Cailletet of Chatillon-sur-Seine, announcing the liquefaction of oxygen. A week later M. Cailletet described to the academy some experiments in which, by the process of compression and subsequent expansion of hydrogen, he had succeeded in producing in it a mist, presumably of liquid.

The following is transcribed from the paper which appeared in the *Comptes Rendus* (1877, 85, 1270):

“ Dans mes premiers essais, je n'avais rien reconnu de particulier; mais, comme il arrive souvent dans les sciences expérimentales, l'habitude d'observer les phénomènes finit par en faire reconnaître les signes dans les conditions où ils avaient d'abord passé inaperçus.

“ C'est ce qui arrive pour l'hydrogène. En répétant aujourd'hui même, en présence de MM. Berthelot, H. Sainte-Claire Deville et

Mascart, qui veut bien m'autoriser à invoquer leur témoignage j'ai réussi à observer des indices de liquéfaction de l'hydrogène, dans les conditions d'évidence qui n'ont paru douteuses à aucun des savants témoins de l'expérience. Celle-ci a été répétée un grand nombre de fois. En opérant avec de l'hydrogène pur comprimé vers 280 atmosphères, puis brusquement détendu, nous avons vu se former un brouillard excessivement fin et subtil, suspendu dans toute la longueur du gaz et qui disparaissait subitement. La production même de ce brouillard, malgré son extrême subtilité, a paru incontestable à tous les savants. . . ."

In the light of our present knowledge of the properties of liquid hydrogen some other explanation must be given to the phenomenon observed by M. Cailletet and his colleagues. Possibly the mist was caused by the condensation of some impurity in the hydrogen.

Next year M. Pictet published a similar statement.* Hydrogen was generated by heating potassium formate with caustic potash in a closed apparatus connected with a steel tube terminating in a stopcock. When the pressure had risen to 650 atmospheres, and the tube was cooled to about -140°C ., the cock was opened. The jet of hydrogen issuing from the cock appeared steel-blue in color, and opaque for a length of twelve centimeters. The substance forming the jet struck the ground with a sound like that of hail falling on the earth. It is probable that the explanation of the phenomenon lies in the formation of carbon monoxide and carbon dioxide by the decomposition of the sodium formate.

The earliest experiments leading to results which can in any way be considered as reliable are those of the Polish chemists Wroblewski and Olszewski, which were commenced in 1882, and were carried out partly in conjunction, partly independently, during the succeeding years. That the work presented great difficulties may be imagined when we read of six cubic centimeters of liquid air referred to as "a large quantity."

The earlier experiments, described in letters to the Cracow Academy and in communications to the French Academy, are probably of little direct value, except in so far as they show the efforts which were being made. The following is an extract from one of Wroblewski's papers:†

"L'hydrogène soumis à la pression de 180 atm. jusqu'à 190 atm. refroidi par l'azote bouillant dans le vide (à la température de sa solidification) et détendu brusquement sous la pression atmosphérique présente une mousse bien visible. De la couleur grise de cette mousse, où l'oeil ne peut distinguer des gouttelettes incolores, on ne peut pas encore deviner quelle apparence aurait l'hydrogène à l'état de liquide

* Comptes Rendus, 86, 106.

† Comptes Rendus, 1885, 100, 981.

statique et l'on est encore moins autorisé à préciser s'il a ou non une apparence métallique.

" J'ai pu placer dans cette mousse ma pile thermo-électrique et j'ai obtenu suivant les pressions employées des températures de -208° jusqu'à $-211^{\circ}\text{C}.$ "

The last statement shows clearly that little weight can be attached to these experiments.

Professor Wroblewski's more important work consisted in an investigation of the isothermals of hydrogen at low temperatures, undertaken with a view to the calculation of the critical constants. In this work he was engaged at the time of his death, which occurred in 1888 through an accident with a paraffin lamp. The results were fortunately ready for publication, and appeared shortly afterwards in the *Sitzungsberichte* of the Vienna Academy (October 25, 1888). The following values for the critical constant were calculated by means of an equation of the "Clausius" form:

Critical temperature.....	$-240.4^{\circ}\text{C}.$
Critical pressure.....	13.3 atm.
Critical volume.....	0.00335 c.c.

An exhaustive account of Professor Olszewski's later experiments on the liquefaction of hydrogen has been published by him in the *Philosophical Magazine* for 1895.* The paper also contains a general account of his researches on liquefied gases. The following is an account of his attempt to liquefy hydrogen.

Pure hydrogen was compressed into a glass tube 11 mm. in external diameter and 7 mm. in internal diameter, containing a very thin-walled glass tube, 6 mm. in diameter, to isolate the hydrogen from the warmer walls of the larger tube. The apparatus was cooled with liquid air boiling under less than 10 millimeters pressure. The remaining operations are described by the author in the following words:

" I introduced hydrogen into the tube by slowly opening the cock on the cylinder (which contained pure hydrogen under pressure) till the pressure rose to 140 atmospheres. When the hydrogen in the tube had come down to the temperature of the cooling agent, I little by little produced expansion by opening the screw-cock. The phenomenon of hydrogen ebullition, which was then observed, was much more marked and much longer than during my former investigations in the same direction. But even then I could not perceive any meniscus of liquid hydrogen.

" I have remarked in these experiments that with a slow expansion the phenomenon of sudden ebullition always appears under the same pressure, no matter how great the initial pressure may be, provided

* Vol. 39, p. 188.

that value be not too low. So that by expansions made, beginning with the pressures of 80, 90, 100, 110, 120, 130, 140 atm., the phenomenon described constantly appeared at 20 atm.; but if the initial pressure was 70, 60 and 50 atm., the ebullition appeared at a lower and lower pressure. . . .

“To ascertain the truth of this statement I performed two series of analogous experiments with gases, the critical pressures and temperatures of which are accurately known, viz., with oxygen and ethylene. The critical temperature of oxygen is, according to my former researches, -118.8° and its critical pressure is 50.8 atm. In the same apparatus which I used for the experiments with hydrogen I cooled oxygen by means of ethylene boiling under atmospheric pressure . . . and subjected it to slow expansion beginning with initial pressures, from 40 atm., up to 100 atm. The ebullition of oxygen always appeared at a pressure of about 51 atm., provided the initial pressure was not lower than 80 atm. . . .

“I made similar experiments with ethylene, using the apparatus of Cailletet. . . .”

These experiments confirmed those made with oxygen, indicating that this “dynamical method” is applicable to the determination of critical pressures, though it would only be employed in cases, like that of hydrogen, when no other course was possible.

The next paper published in the same year* describes the application of these results to the determination of the critical and boiling temperatures of hydrogen. In place of the glass compression tube a steel vessel containing a very thin-walled glass tube was employed, the whole enclosing a resistance thermometer consisting of a very fine wire of pure platinum wound on a frame of thin mica. The wire had a diameter of 0.06 mm.; its resistance was determined at the following temperatures:

Temperature.	Resistance.
0°	1,000 ohms.
-78.2°	800 “
-182.5°	523 “
-208.3°	453 “

The hydrogen was compressed into the steel apparatus, which was cooled as in the previous experiment in liquid oxygen boiling under a pressure of 15 mm., and the expansion was carried out in the usual manner. The resistance of the coil was measured by means of a Wheatstone bridge and reflecting galvanometer, and resistance in the opposite arms of the balance was repeatedly adjusted, till on making the expansion no deflection of the galvanometer was observed. The following results were obtained:

* Philosophical Magazine, 40, 202.

Hydrogen Expanded to	Resistance of Coils.	Temperatures.
20 atmospheres.	383 ohms.	— 234.5° Centigrade.
10 " "	369 "	— 239.7 "
1 atmosphere.	359 "	— 243.5 "

The temperature in the last column was calculated by linear extrapolation from the resistance of the coil at temperatures corresponding to -182.5°C . and -208.5°C .

According to Dewar, though the method by which the measurements were made has not been published, the critical temperature of hydrogen is about -244°C ., and the critical pressure less than 15 atmospheres. The boiling point of hydrogen according to Travers and Jaquerod* is 20.55° on the helium scale and 20.36° on the hydrogen scale. Callendar† has pointed out the recalculation of Olszewski's results by means of his difference formula leads to the conclusion that the temperatures are about one degree higher than those given above; at the same time it is possible that the platinum thermometer may behave erratically at low temperatures. This latter view is confirmed by Dewar‡ who obtained -243.6° and -237.9° for the boiling point of hydrogen on two platinum thermometers; one of these values is almost identical with that obtained by Olszewski.

These facts may be taken as sufficient evidence that Olszewski obtained liquid hydrogen, first in the form of a mist or spray in a glass tube, and afterwards in a steel vessel. In the latter experiment it is probable that the liquid at its boiling point persisted for a sufficient time to cool a platinum resistance thermometer to that temperature.

III. THEORETICAL DISCUSSION OF THE FOREGOING.

In discussing the principles on which the experiments of Cailletet, Pictet, Wroblewski and Olszewski on the one hand, and of Dewar and myself on the other hand, considerable confusion has arisen. Indeed several well-known text-books of physics, and even certain works devoted to the study of liquefied gases, attribute the cooling which takes place in every case to adiabatic expansion. Dewar's early papers make no mention of the fact that in his, as in my own experiments, the cooling is due to the fact that when hydrogen is cooled to the temperature of liquid air it, like air or carbonic acid, becomes cooled when allowed to expand without performing external work. The cooling may be the result of work done against internal forces. This matter is first discussed in my paper on the liquefaction of hydrogen published in 1901.

In the earlier experiments referred to above, the gas was compressed either into a tube over mercury, so that in opening a cock the mercury

* Philosophical Transactions, 1902.

† Philosophical Magazine, 1899, 191.

‡ Bakerian Lecture, 1901.

escaped from the tube as the gas expanded; or the gas was compressed directly by means of a pump into a glass or steel vessel, and then part of it was allowed to escape directly through an orifice. In the first case the gas exerted a pressure on the mercury, and on expanding did work which was performed in giving the mercury a certain velocity through the escape cock, and partly in overcoming fluid friction. In the second case, part of the gas which remained in the vessel did work in driving the remainder through the orifice or cock, partly in overcoming friction at the orifice, partly in giving to the gas an increased velocity, which would quickly be dissipated in the formation of eddy currents outside the orifice.

If we were dealing with a perfect gas for which the simple law

$$pv = \text{const.}$$

were rigidly true, and if such a gas were allowed to expand, or were compressed, adiabatically, the relation between pressure and volume would be expressed by the equation

$$pv^k = \text{const.},$$

where k is the ratio of the specific heat at constant pressure to the specific heat at constant volume. If the gas were allowed to expand adiabatically under the conditions mentioned above, where p_1 and p_2 are the initial and final pressure, and T_1 and T_2 the initial and final absolute temperatures,

$$\frac{T_1}{T_2} = \left(\frac{p_1}{p_2} \right)^{\frac{k-1}{k}}.$$

Since the heat capacity of the gas is always considerably less than that of the vessel in which it is contained, the condition represented above is probably never approached, though, as Olszewski's later experiments show, a considerable degree of cooling can be effected. The practical application of the principle is probably only possible on a large scale.

Olszewski's observation that when the initial pressure in the apparatus exceeded a certain value the liquid always appears when the pressure falls to the critical pressure, is not further discussed by him; the phenomenon can, however, be simply explained by means of an Andrews diagram (fig. 1).

Suppose that the gas is compressed along the isothermal $a' a'' a'''$, and under the conditions determined by these points is, in successive experiments, allowed to expand adiabatically. In each case liquid should first appear at the point at which the adiabatic cuts the dotted line enclosing the area which represents the conditions under which the

liquid and gaseous phases can connect. The adiabatic $a''' b'''$ passes through the critical point, so that in this case the liquid will first appear at the critical pressure. For higher initial compressions the adiabatics will lie on the left hand side of the critical point on the diagram, and

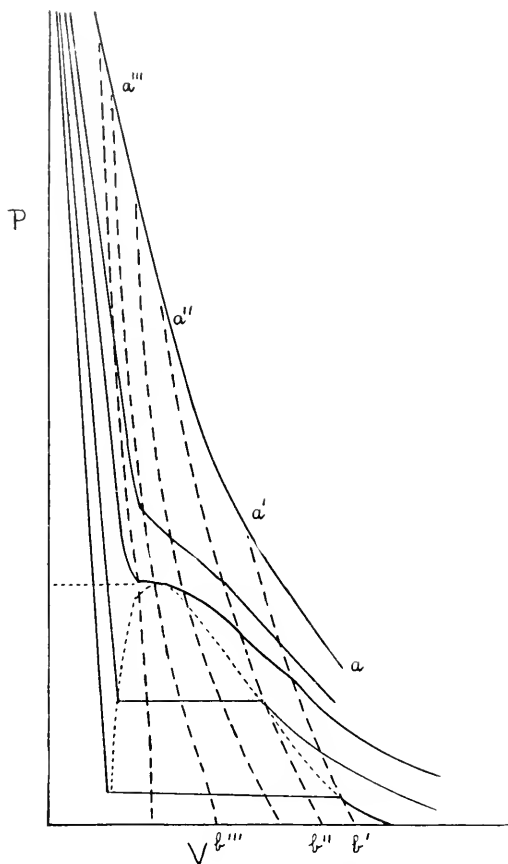


FIG. 1.—Andrews diagram.

liquid will first appear under conditions represented by the point at which they cut the horizontal line drawn through the critical point. For high pressures the adiabatics will, of course, lie very close together, and the horizontal line will differ but slightly from the curve joining the ends of the horizontal section of the isothermal.

IV. THE APPLICATION OF THE JOULE-THOMSON EFFECT TO THE LIQUEFACTION OF AIR.

The change in temperature which takes place when a gas is allowed to expand without performing effective external work was first studied by Joule and Lord Kelvin in 1848. The gas compressed to about two

atmospheres flowed in a steady stream through a plug of compressed fiber so that the increase in the kinetic energy of the gas, which would take place if the gas streamed through an orifice in a plate, was reduced to a minimum, and practically eliminated. In passing from the higher to the lower pressure work was done in overcoming internal friction, so that were the gas a perfect one its total energy content would remain constant, and there would be no change of temperature. In the case of air and carbon dioxide it was found, however, that a fall of temperature took place; hydrogen, on the other hand, became warmer.

The change of temperature must be attributed to the performance of work in overcoming internal stresses; though as to what the nature of these stresses may be we have at present no knowledge. In many text-books of physics it is stated that the direction of the change of temperature, the sign of the Joule-Thomson effect, is connected with the variation of the product " PV " with pressure for the gas. Though for hydrogen (and helium) the value of the product increases with rise of pressure, while it decreases in the case of air and all other gases, this relationship does not really apply. For pressures above fifty atmospheres the value of the product PV for air increases with rise of pressure, yet, if we expand air from 100 atmospheres to 50 atmospheres, it still becomes cooled.

For small differences of pressure the change of temperature was found to be directly proportional to the difference between the pressure on the two sides of the plug. The results are stated by the original investigators in terms of degrees Centigrade per hundred inches of mercury differences of pressure; it is now more usual to express the value of the Joule-Thomson effect in terms of degrees per atmosphere difference of pressure.

The experiments which were carried out at temperatures between the boiling and melting points of water, showed that the magnitude of the effect varied with the temperature, and might be represented by the formula,

$$z = \frac{\alpha}{T} \pm \beta,$$

where z is the Joule-Thomson Effect, T is the absolute temperature and α and β are constants. The values of the constants for air and hydrogen are as follows:

	α	β
Air	64.1	-0.331
Hydrogen	441.5	0.697

These figures indicate that for either gas above a certain temperature, the inversion temperature of the Joule-Thomson effect, the effect

will be positive; below that temperature it will be negative. The inversion points calculated by Witkowski are 633° and 193.7° absolute for air and hydrogen respectively. Olszewski (*Nature*, 1902) confirms the second figure, finding 192.5° absolute for the inversion point for hydrogen. He points out that the inversion points are practically corresponding temperatures for the two gases.

The application of the principle of free expansion to the liquefaction of air was first made practicable by Hampson in England and Linde in Germany. Since Hampson and Linde's work paved the way to the production of liquid hydrogen, by a very similar process, and as my researches have been based upon their results, some mention must be made of their work. To Dr. Hampson I am particularly indebted for much advice and assistance in carrying out my investigations.

V. THE PERFORMANCE OF THE HAMPSON AIR LIQUEFIER.

The Hampson air liquefier is too well known to require a lengthy description. It consists of a coil formed by winding two, or in some cases four, copper tubes coaxially so as to build up a cylinder 100 cm. long and 30 cm. in diameter. The coil is enclosed in a metal case. Air enters the copper tube at the top under a pressure of 180 atmospheres, and expands at a valve, in which the tubes unite at the bottom of the coil. The air, cooled by expansion, presses upwards through the interstices of the coil, cooling the compressed air it contains. The cooling of the valve is therefore progressive, and results, after a few minutes, in the partial liquefaction of the escaping air. The liquid collects in a space at the bottom of the metal case containing the coil, and is drawn off from time to time through a cock.

The apparatus as installed in the Chemical Department of University College, London, is worked in connection with a Whitehead "torpedo compressor" driven by an electro-motor. To deliver about ten cubic meters of air per hour (measured under atmospheric conditions), and to maintain a pressure in the liquefier of 180 atmospheres, requires the expenditure of about 6.5 horse-power; the compressor runs at 360 revolutions per minute. An attempt has been made by Mr. Arnold Ogden and myself to determine the efficiency of the plant. I have also carried out a fairly complete investigation of the air liquefier.

The work done in compressing the air was determined by measuring the electrical energy absorbed by the motor under the following conditions:

Power required to run motor free	0.6	E. H. P.
Power absorbed by motor, belt and bearings (cylinders removed) ..	1.8	"
Power required to run motor with cylinder in place (no compression)	3.7	"

Power absorbed during trial.....	(a) 6.4 E. H. P.	(b) 6.2 "
Power absorbed in compressing the air.....	2.7 "	2.5 "
Weight of air compressed per hour.....	14.4 kilos	14.1 kilos
Weight of air compressed per E. H. P.....	5.3 "	5.6 "
Pressure	165 atm.	163 atm.
E. H. P. required to compress the same quantity of air isothermally.....	2.23	2.18

The energy put into the air is thus between 20 and 25 percent more than would be required for isothermal compression. The compression is carried out in two stages, the ratio of the initial to the final pressure being the same in each stage, so that thrusts on the two pistons were balanced. The pressure in the coil and pipe connecting the two cylinders was measured during one of the trials, and was found to vary between thirteen and fourteen atmospheres. In a larger compressor, working at a slower speed, the compression would approach much more closely to the isothermal. The efficiency, which is only about 0.13 in the Whitehead compressor, would also be much higher.

The investigation of the Hampson air liquefier proved somewhat troublesome as many factors had to be taken into consideration. It was necessary to measure:

The total quantity of air passing through the apparatus.

The quantity of liquid air produced.

The rate of absorption of heat by the coil through conduction, in terms of the liquid air evaporated.

The loss, through evaporation, of liquid air on drawing off the liquid from the cock at the bottom of the apparatus.

The pressure and temperature of the air entering and leaving the apparatus.

The temperature of the liquid air.

The total quantity of air passing through the apparatus was measured by connecting the exhaust pipe of the liquefier with a gas meter. This "sixty-light" meter was placed at my disposal by the Gas Light and Coke Company of London: to the manager of the Company I wish to tender my thanks.

The liquid air was drawn off at definite intervals into a weighed globular vacuum vessel, silvered between the walls. The vessel was half full of liquid air at the commencement of each experiment, and the rate at which liquid air evaporated from it was determined.

To measure the quantity of air lost by evaporation of the liquid, as it issued from the cock on the Hampson apparatus, the arrangement shown in fig. 2, A, B, was adopted. The mouth of the vacuum vessel *a* was fitted with a rubber stopper *b*, through which passed a tube *c* of the same diameter as the thumb-screw *f* on the liquid air valve *e* of the Hampson liquefier, with which it was connected by means of a piece

of wide rubber tube. The side tube *d* communicated by means of a flexible rubber tube with a small gasometer.

The vacuum vessel rested on the point at which it was finally sealed (fig. 2, B), so that when the liquid air cock was opened by rotating the

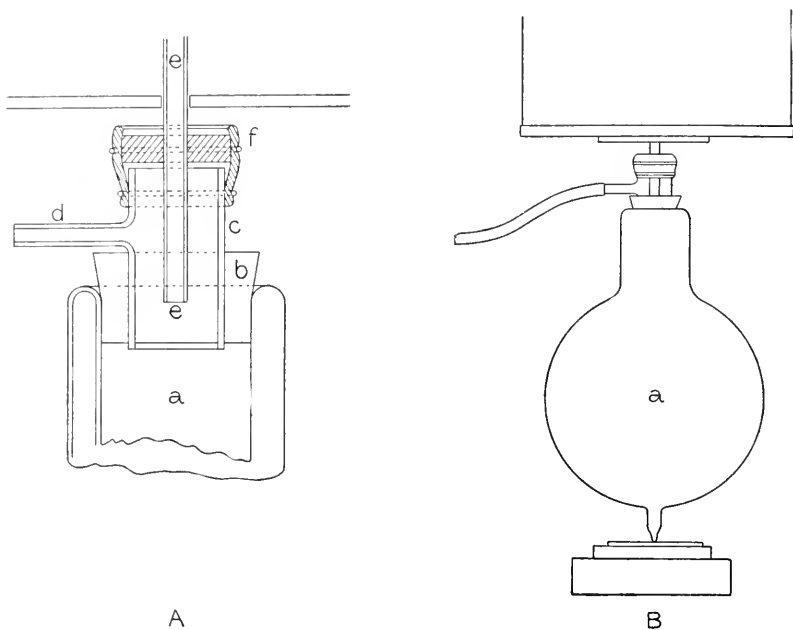


FIG. 2.—Apparatus for measuring air lost by evaporation of liquid.

thumb screw *f*, it merely turned on its axis. The quantity of gaseous air produced by the evaporation of the liquid air could be measured by measuring the rise of the gasometer attached to *d*. The quantity of liquid air collected in the vacuum vessel amounted to about one kilogram per hour; the loss by evaporation corresponding to the same period was usually seventy to eighty grams per hour.

The quantity of heat entering the Hampson apparatus through its insulating packing of animal wool was determined by stopping the compressor when the liquid air in the collecting chamber had been allowed to accumulate for five minutes, closing the expansion valve, allowing the air to escape from the regenerator coil by means of a side-cock outside the apparatus, and measuring the rate of evaporation of the liquid air from the inside of the apparatus, and the rate of change of temperature of the regenerator coil. The latter measurement was made by means of an air thermometer with a narrow cylindrical bulb which was inserted through the center of the coil in place of the valve spindle. The following is a record of the results of an experiment.

Time after Stopping Compressor.	Quantity of Air Collected per Minute.	Mean Temperature of Coil (Absolute).
0		
5	5.2 liters.	257
7	5.2	255
9	4.5	250
11	4.0	244
13	3.7	241
15	3.2	239.5
17	3.2	239
19	2.9	238.5
21	2.9	238.5
22	2.8	239

It will be seen that as soon as the circulation of the air through the apparatus was suspended the liquid air in it began to evaporate rapidly, heat being conveyed to it by conduction from the outside. However, long before the whole of the liquid air in the apparatus had evaporated the temperature of the coils had become steady and the quantity of liquid air thus evaporating per minute could be taken as a measure of the quantity of heat entering the apparatus during the process of liquefying air. This quantity corresponds to about 2.6 liters of gaseous air per minute, or to a loss of 200 grams of liquid air per hour.

During an actual experiment it was the duty of one assistant to maintain a steady current of air, escaping at an almost constant pressure, through the apparatus. The pressure gauges were read every minute; the gas meter readings were taken at the end of every half hour, the liquid air was drawn off every five minutes, and the vacuum vessels removed and weighed every half hour; the temperature at which the air entered and left the apparatus and the barometer readings were taken at intervals during an experiment. The following are the results of some observations:

December 14, 1902. Machine started at 10:20 A. M.

Duration of experiment.....	10:55 to 11:25	11:25 to 11:55
Weight of liquid air collected.....	460 gms.	490 gms.
Loss by evaporation.....	40 gms.	35 gms.
Loss due to heat absorption by liquefier.....	100 gms.	100 gms.
Weight of air passing through gas meter.....	6,620 gms.	6,525 gms.
Total weight of air passing through apparatus.....	7,120 gms.	7,050 gms.
Theoretical quantity of liquid air per hundred of gaseous air.....	8.4	8.9
Quantity collected per hundred of gaseous air.....	6.4	6.9
Efficiency of liquefier.....	76.2	77.5
Mean pressure.....	167 atm.	165 atm.
Temperature interchange.....	0.4° C.	0.4° C.

The results of other sets of observations led to practically the same result. The errors of the various observations probably reduce the

accuracy of the results to within about two percent of the truth. The final result leads to the conclusion that the theoretical quantity of liquid air which it should be possible to obtain by the Hampson-Linde principles, where the air is expanded from 180 atmospheres, is between eight and nine percent of the air passing into the apparatus.

The complete theoretical study of the Hampson-Linde process is impossible, both on account of its highly complicated nature, and of our ignorance of the thermodynamic properties of air over wide ranges of temperature and pressure. The results stated above lead however to conclusions which are interesting and are hardly likely to be merely a matter of chance.

If air were compressed to P atmospheres and allowed to expand, as in the Hampson machine, but so that the current of air did not flow back over the coil, the fall of temperature of the escaping gas at a short distance from the jet could be calculated from the formula

$$\Delta T = \alpha(P - p),$$

and the heat absorbed by

$$\Delta Q = \alpha(P - p)C_p,$$

where α is the Joule-Thomson Effect and C_p is the specific heat at a constant pressure of one atmosphere.

Since the work done on the gas in bringing it toward the jet is practically equal to the work done by the gas in its passage away from the jet p_v being very nearly constant, the quantity ΔQ is a measure of the change in the internal energy of the gas in passing from pressure P to pressure p . This being the case it should be possible to pass over intermediate stages to calculate the quantity of liquid air produced in the Hampson apparatus from known data.

The specific heat at a constant pressure of one atmosphere (C_p) has been found by Witkowski* to have the value of 0.237 between 100°C. and the temperature of liquid air; the same value was obtained by Regnault for the higher range of temperature. The Joule-Thomson effect at 10°, the mean temperature of the air entering the liquefier, was found by Joule and Lord Kelvin to be 0.25°C. per atmosphere. The latent heat of vaporization of air is about 50 cal.

Suppose the air enters the liquefier at 165 atmospheres pressure and at 9.5°C. If x of the air liquefies at 87° abs.,

Heat absorption on expansion = $0.25 \times 0.237 \times 164$;

Heat absorption due to cooling and liquefaction of x parts of air = $x \{ 50 + (0.237 \times 206) \}$;

Heat absorption due to cooling of unliquefied air = $(1 - x)(0.5 \times 0.237)$.

* Philosophical Magazine, July, 1896.

Quantity of air liquefied = 9.5 to 10 percent.

This result is of considerable value in considering the phenomena connected with the liquefaction of hydrogen.

VI. THE LIQUEFACTION OF HYDROGEN. PRELIMINARY EXPERIMENTS.

It has already been pointed out that the original experiments of Joule and Lord Kelvin showed that hydrogen, when allowed to expand freely, behaved differently from other gases, becoming heated instead of cooled. The magnitude of the effect depended upon the absolute temperature at which the experiment was performed, decreasing with fall of temperature. From their experiments it might be predicted that the effect would change sign at very low temperatures. Employing the formula,

$$x = \frac{\alpha}{T} - \beta^2$$

to represent the experimental results, Witkowski found 64.1 and 0.331 for the values of the constants α and β respectively, and -79°C . for the inversion point of the effect. Witkowski's prediction has recently been verified experimentally by Olszewski (p. 10).

In 1898 Dewar* succeeded in obtaining a jet of hydrogen sufficiently cold to solidify air, and later constructed an apparatus with which he obtained liquid hydrogen in quantity. In his first experiments he compressed the gas into steel cylinders under 180 atmospheres, and then allowed it to pass through coils cooled in solid carbonic acid, and in liquid air boiling under reduced pressure, to a regenerator coil contained within a vacuum vessel. The gas escaped through a pin valve at the bottom of the regenerative coil, and became cooled, but before any liquid could be collected the opening had become blocked with some solid impurity, and the experiment was at an end. Later, Dewar constructed a larger apparatus, and succeeded in obtaining liquid hydrogen in quantity. He has not, however, published any description of it.

Dewar's first experiment had confirmed the prediction that hydrogen, when cooled to the temperature of liquid air, became further cooled on free expansion, but it did not throw any further light on the behavior of this gas. Indeed it still remained possible, though perhaps improbable, that it would only be necessary to cool the gas to the temperature of solid carbonic acid before allowing it to enter the regenerator coil of the liquefaction apparatus. Accordingly some preliminary experiments were set on foot in which a Hampson air liquefier, modified as occasion required, was employed.

* Proceedings Chemical Society.

In my first experiments the hydrogen before entering the regenerator coil of the Hampson apparatus, which was cooled by making liquid air in it, was passed through a coil immersed in solid carbonic acid and alcohol ($-78^{\circ}\text{C}.$). The result was negative; indeed, it appeared that the temperature of the inside of the apparatus began to rise as soon as the hydrogen was allowed to expand in it, for on opening the liquid air cock at the base of the apparatus the temperature of the gas which escaped ceased after the first few minutes from being extremely cold.

More than two months were spent in similar experiments with like results. If, however, these experiments led to no immediate results, they showed clearly that even though it might be theoretically possible to liquefy hydrogen by the method of free expansion without employing liquid air as a cooling agent, it was practically essential to cool the gas to the lowest attainable temperature before allowing it to expand. This knowledge, and the experience in dealing with compressed hydrogen, gained in the course of these experiments led me to design an apparatus with which I was at once successful in obtaining liquid hydrogen. The apparatus I constructed, with the assistance of Mr. J. Holding, without whom I could not have carried on these researches; it cost but a few shillings, and after being slightly modified it served me again in 1902 in my researches on the properties of liquid hydrogen.

VII. THE FIRST HYDROGEN LIQUEFIER.

This apparatus has been fully described in a paper read before the Physical Society of London in November, 1900.* Fig. 3, A and B, shows the general structure of the apparatus as first used, and the modifications which were introduced into it for my later experiments.

In the original form (A), the hydrogen, under a pressure of from 150 to 180 atmospheres, was first cooled to -75° by passing through a coil *A* immersed in a mixture of solid carbonic acid and alcohol. It then passed through a coil contained within the central chamber *B*, which, during an experiment, was continually replenished with liquid air. The coil passed through the floor of the chamber *B* into a lower chamber *C*, which communicated with an exhaust pump through the pipe *f*. Liquid air was allowed to flow from *B* into *C* through a valve, which was controlled from above by the lever *b*, and evaporating under a pressure of 100 mm. reduced the temperature of the compressed gas to below $-200^{\circ}\text{C}.$

The gas then entered the regenerator coil *D*, which was much shorter than in the Hampson air liquefier, being 180 mm. long and 50 mm. in diameter. The reason for taking these dimensions will be dealt

* Philosophical Magazine, 1901, p. 411.

with later (Part II). The regenerator coil and the lower part of the chamber *C* were enclosed within the vacuum vessel *H*, which was secured to the metallic part of the apparatus by means of a gland *p* (fig. 4) which compressed a rubber ring into the space between the outer wall

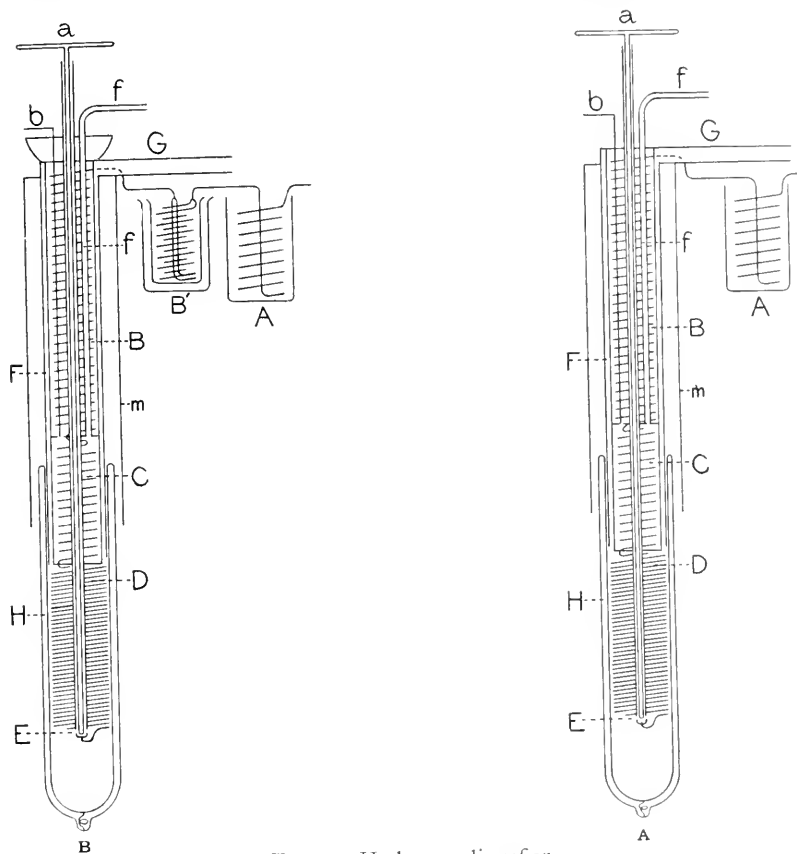


FIG. 3.—Hydrogen liquefier.

of the vacuum vessel and the inner wall of the tube *m*, making a gas-tight junction. The apparatus rested on a brass flange, soldered to the tube *m*, in a round hole in a wooden shelf fixed to the wall of the compressor room. The upper part was surrounded with a thick layer of natural wool.

The hydrogen expanding at the valve *E*, which was controlled by the lever *a*, became further cooled, and passing upward through the interstices of the coil, cooling it and the gas passing through it, so that after a short time liquid began to separate in the vacuum vessel. From the top of the regenerator coil the gas passed through the annular space *F*, surrounding the chambers *B* and *C*, and returned through the tube *G* to the compressor.

The hydrogen which liquefied in *H* was drawn off and collected by the method described on page 20. The arrangements for the compression and circulation of the hydrogen gas will also be dealt with later.

The modifications which were introduced into the apparatus, when I recommenced my experiments in 1902, were simple though important. As originally constructed the coil in the liquid air chamber *B* was so short that it did not present sufficient surface for the effective cooling of the compressed gas passing through it. Further, the chamber *B* was so narrow that not only was it difficult to fill it with liquid air, but if, through irregular adjustment of the valve, there was a sudden rush of gas through the coil, the liquid air boiled violently, and overflowed the chamber.

This difficulty was easily overcome by introducing between *A* and *B* (fig. 3, B) a coil *B'* consisting of two five-meter lengths of copper pipe wound into an open spiral. The pipes were carefully spaced by means of pieces of copper wire soldered to them at intervals. The coil was immersed in liquid air contained in the inner of two glass beakers, which were separated by pieces of cork, so as to leave an air space between them, and surrounded with a thick layer of natural wool.

A copper funnel was also soldered to the top of the tube which formed the chamber *B*, to facilitate the operation of filling it with liquid air. The apparatus as thus modified was used about ten times. Of these experiments only one failed through a break-down in the compressor.

VIII. THE SECOND HYDROGEN LIQUEFIER.

Shortly after I had completed the researches I have just referred to, I was asked by Professor d'Arsonval of Paris, and by Professor Anschütz of Bonn, to design hydrogen liquefiers for their laboratories. As I had not then carried out any further experiments with a view to improving my method of liquefying hydrogen, and as the apparatus I had already constructed had given me perfect satisfaction, except that it was not very economic so far as the refrigerants, liquid air and carbon dioxide, were concerned, I designed another machine of the same principle but of a more compact form. The apparatus was constructed by Brin's Oxygen Company.

A section of the apparatus is shown in fig. 4. The hydrogen from the compressor enters the apparatus at the cross-piece below the pressure gauge and passes first through the coil in the chamber *A*, which is intended to contain a mixture of carbonic acid and alcohol. The whole system of coils is double, each component being of the same length. The total length of copper coil in each of the chambers *A* and *B* is about twenty meters. The cock *x* is intended to allow the hydrogen

to escape and return to the gasometer in case the expansion valve *E* becomes blocked. After passing through *A*, the compressed gas passes through the coils in the chambers *B* and *C*. The chamber *B* contains liquid air, some of which is allowed to flow into *C* through a pin valve which is regulated by the rod *b*. The liquid air in *C* evaporates under a pressure of about 100 millimeters of mercury, an exhaust being maintained by means of a pump communicating with *B* through the tube *f*, and reduces the temperature of the compressed gas to below -200° C. The total length of coil in the chamber *C* is about five meters. The gas then enters the regenerator coil *D*, 180 mm. long and 50 mm. diameter, and passing through it expands at the valve *E*, which is controlled by means of the valve-rod and lever *a*. The expanded gas passes upwards through the interstices of the regenerator coil, and returns by way of the annular space *F* and the tube *G* to the compressor.

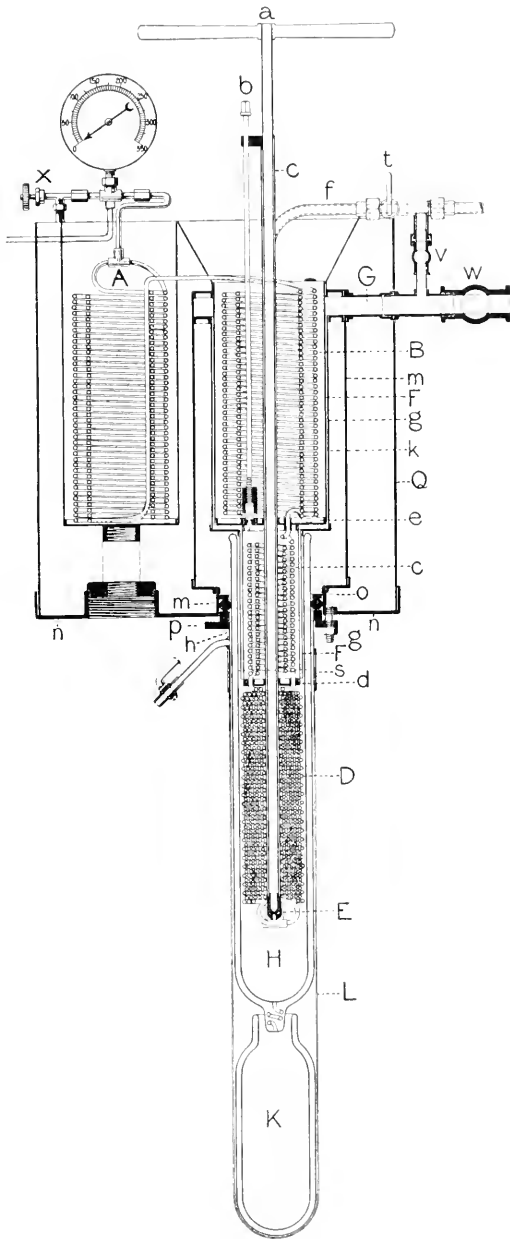


FIG. 4.—Section of hydrogen liquefier.

The accompanying diagram of this apparatus shows clearly how the gas-tight connection between the outer wall

of the vacuum-vessel *H* and the inner wall of the lower part of the supporting tube *mm* is made. The brass ring *o* is supported above by a slight flange on the inside of the lower portion of the tube *m*, and a rubber ring is compressed between this ring and a gland *p*, which is forced home by means of three screws, of which one is seen in the diagram. As the lower part of the tube *m* is continuous with the brass plate *nn*, it never becomes very cold, and the junction is always gas-tight.

The liquid hydrogen which is formed in the vacuum vessel *H* is collected in the vessel *K*. This vessel is placed inside a tube *L*, which is long enough to enclose *H* as far as the lower edge of the brass tube *h*, which forms part of the gland *p*. A rubber sleeve is secured by wire to *h* and *L* making a gas-tight junction. By opening the tap *r* gas can be allowed to escape from the space within *L*, and consequently liquid can flow from *H* into *K*. This enables one to dispense with a cock at the bottom of the vacuum vessel *H*. By connecting the cock *r* to the supply pipe from the gasometer (fig. 8, *S*), loss of hydrogen can be avoided.

During an experiment, the tube *L* and its contents are enclosed within an arrangement of three concentric glass shades in order to shield off heat, and to prevent the condensation of moisture taking place.

The apparatus is supported on a cast iron stand with a vertical column 130 cm. high, which screws into the bottom of the brass plate *nn*. This latter is of oval shape and supports a brass case *Q* which surrounds the upper part of the apparatus, the intermediate space being packed with wool.

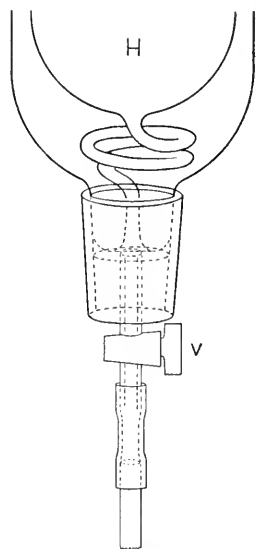


FIG. 5.—Brass tap to vacuum vessel.

The use of the cocks *t*, *v* and *w* must now be pointed out. With this type of liquefier, the first step toward liquefaction of hydrogen is to cool the whole apparatus to the temperature of liquid air. With this object a small brass tap *V* (fig. 5) is fitted by means of a rubber cap to the nozzle of the vacuum vessel *H* and this is in turn connected by a short piece of rubber tube to a glass tube 300 mm. long. By closing the cocks *t* and *w*, opening the cock *V*, and starting the exhaust pump, liquid air can be drawn through the glass tube and the cock *V* into the vacuum vessel *H* from a vacuum vessel, usually containing two liters of the liquid. Liquid air is drawn into the vessel *H* till it rises above the top of the coil *D*; then, by closing the cock *V* and maintaining the exhaust, the temperature of

the coil can be reduced to below -200°C . Meanwhile liquid air is poured into the chamber *B*, and by opening the cock *t* some of it is drawn into the chamber *C*.

IX. HYDROGEN LIQUEFIER WITH SECOND REGENERATOR COIL.

In each of the different forms of the hydrogen liquefier which have hitherto been described there exists one very obvious defect: the hydrogen, after expanding at the valve *E* and passing through the interstices of the regenerator coil *D*, is at a temperature not far from -210°C ., and in this condition it leaves the apparatus, absorbing heat from the walls of the tube through which it passes on its return to the compressor.

Now if we assume that the specific heat of hydrogen at a constant pressure of one atmosphere is equal to 3.41 units over the range of temperature we are considering (see page 14), the heat which each gram of hydrogen would absorb in returning to the normal temperature would be

$$3.41 \times 220 = 750 \text{ units.}$$

As approximately 1,000 grams of hydrogen pass through the apparatus per hour, this involves a loss of 750,000 heat units, the equivalent of fifteen liters of liquid air.

In order to estimate the relative advantage of employing the cold hydrogen in place of solid carbonic acid as a means of cooling the incoming gas, it would be necessary to determine the specific heat of the compressed hydrogen over the range of temperature. The measurements could not, however, be carried out with sufficient accuracy to be of any real value without great difficulty, and, indeed, it would make no appreciable difference were the specific heat of the hydrogen half again as great.

If one assumes that the relationship between the internal energy of the compressed and expanded hydrogen can be calculated, as in the case of air, from the formula (page —),

$$JQ = K(Jp)Cp,$$

where *JQ* is the heat generated or absorbed by the gas during its passage through the regenerator coils of the apparatus, *K* the Joule-Thomson Effect at which it enters the apparatus, *Jp* the fall of pressure in the apparatus, and *Cp* the specific heat of the gas under a constant pressure of one atmosphere,—to cool the gas compressed to 150 atmosphere from 15°C . to -75°C . it is necessary to absorb

$$90 \times 3.41 + 0.09 \times 150 \times 3.41,$$

a quantity ten percent greater than that calculated on the assumption

that the thermal capacities of the compressed and expanded hydrogen are the same. This difference is insignificant and has no effect on the general problem.

It might be expected, then, as the result of employing a second regenerator coil of sufficient length to produce a heat interchange so complete that the temperature would not differ by more than one or two degrees, that the gas would enter the coil in the liquid air chamber at a temperature not far from -170° C. instead of at -75° , as in the earlier forms of the apparatus. The liquid air would then serve to cool the gas only through 15° instead of through 110° , and, when the apparatus was once cooled down, it should consume only about one fifth of the liquid air required to maintain the older machine in action.

Though it is practically impossible to obtain accurate figures for the quantity of liquid air used in an experiment, I am satisfied that the results which I had predicted were fully realized in the apparatus which I next constructed.

The form of the liquefier is shown in fig. 6. It is practically identical with that last described, only the carbonic acid cooling chamber is replaced by the regenerator coil *Z*, and consequently the position of the escape pipe *G* is changed.

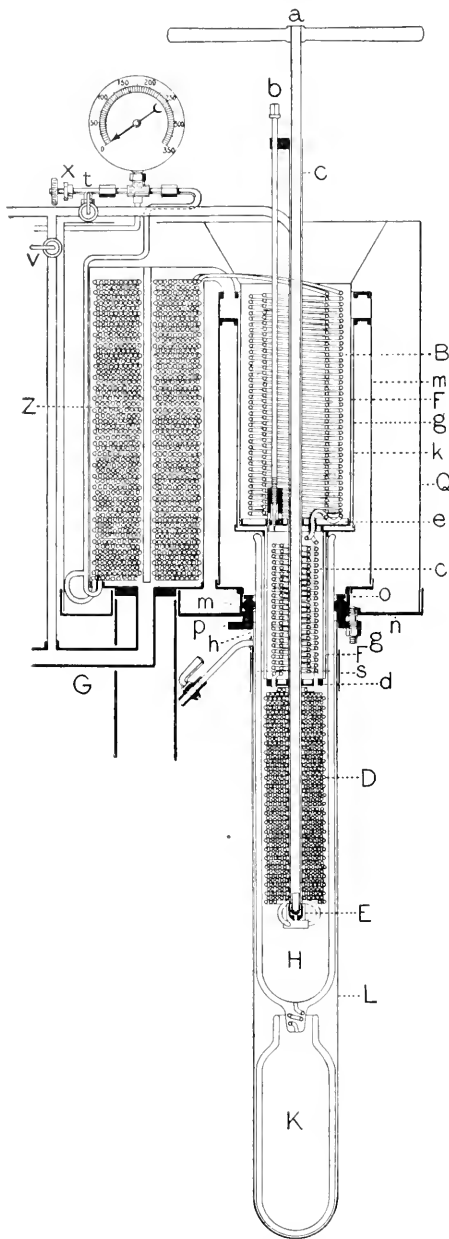


FIG. 6.—Hydrogen liquefier with second regenerator coil.

acid cooling chamber is replaced by the regenerator coil *Z*, and consequently the position of the escape pipe *G* is changed.

The hydrogen enters the apparatus from the compressor at a distributing cross piece below the gauge, as in the last model, and passes first to the bottom of the regenerator coil Z . This consists of two pipes of 3.2 mm. external and 2 mm. internal diameter, wound coaxially to form a coil 300 mm. long and 100 mm. in diameter. The coil is covered with a layer of flannel and fits tightly into a brass case communicating above with the top of the annular space F and at the bottom with the escape pipe G . The upper end of the coil communicates with the coil in the liquid air chamber B .

The structure of the remaining parts of the apparatus is identical with that of the last model and needs no further description; though there is a slight difference in the arrangement of the pipes f and G and of the cocks t , V (and τv), their uses are identical and a description of the method of manipulation of either apparatus will serve for both.

Olszewski* has described a liquefier somewhat similar to mine, though at the time at which his paper was published the apparatus had not been tested. He states that it is possible to liquefy hydrogen by cooling it to the temperature of liquid air boiling under normal pressure before allowing it to enter the regenerator coil (D , figs. 4, 6). It appears to me, however, that as the regenerator coil is of the same dimension as in my machine, Olszewski's apparatus will be found to be considerably less efficient.

Before describing my latest researches on the liquefaction of hydrogen it will be convenient to consider the method of compressing the hydrogen, and of manipulating the liquefier.

X. COMPRESSION OF THE HYDROGEN.

The Whitehead torpedo compressor, as employed in connection with the Hampson air liquefier, cannot be used for the compression of hydrogen without modification. In the usual form of this machine the packings of the pistons in both cylinders consist of cup-fibers carried on the ends of the pistons and moving with them. In fig. 7, A, the low pressure cylinder is shown in section. Air is drawn into the cylinder through the valve a and expelled through the valve b ; c is the piston, which carries the cup fiber d , and is actuated by means of the connecting rod e . The piston and cross head f are one solid piece of metal.

It will easily be seen that when gas is being compressed the contact between the edge of the cup-fiber and the walls of the cylinder is perfect, but that when gas is being drawn into the cylinder, the pressure in it falls below that of the atmosphere, and there is a tendency for air to enter it between the metal and the fiber. The extent to which this would take place would be considerably increased if the cross head became slightly worn and acquired a little side play.

* Acad. des Sci. de Cracowie, December, 1902.

In some of my earlier experiments I was considerably troubled by the presence of impurities in the hydrogen, and at last traced the trouble to this source. For some time I managed to get over my difficulties by replacing the low pressure cup-fiber each time I compressed hydrogen, but as this proved troublesome and unsatisfactory I resolved to modify the low pressure cylinder so as to completely eliminate all chance of further trouble.

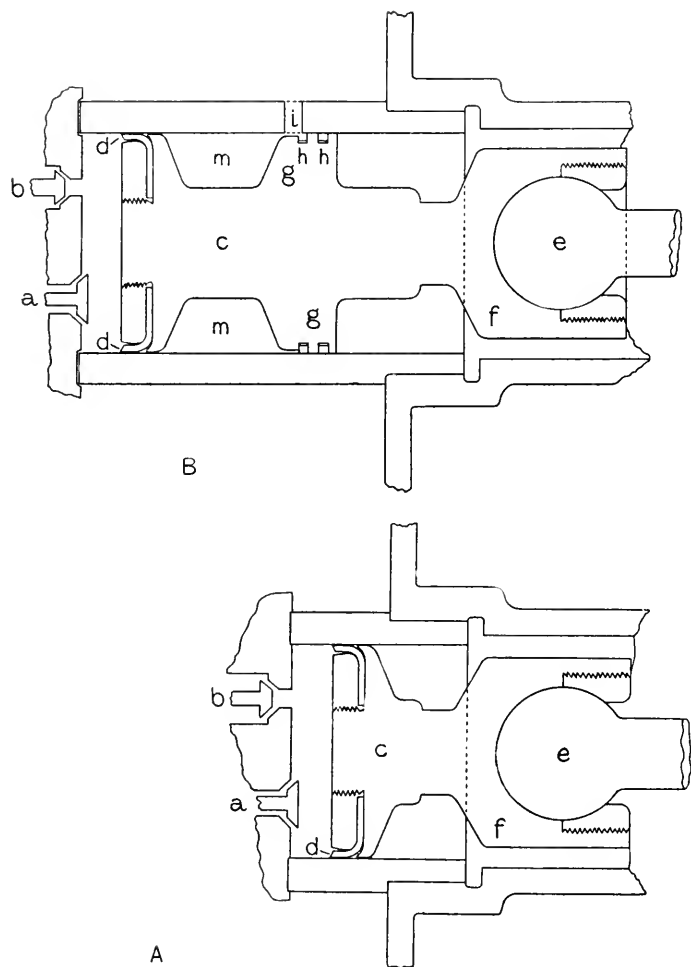


FIG. 7.—Hydrogen compressor.

The alterations were carried out by Brin's Oxygen Company. The new arrangement of the cylinder is shown in fig. 7, B. The length of the cylinder and of the studs which keep the cylinder cover in place was increased by 87 mm., the length of the stroke, and a second piston *gg*, with bronze rings of the usual pattern was introduced between the

original piston *c* and crosshead *f*. A hole *i* was bored in the top of the cylinder so that the space *mm* filled with water automatically from the tank in which the cylinder was immersed. If now the cup-fiber *dd* fitted the cylinder badly, only water could be drawn into the latter during the compression of the gas.

The whole arrangement for the compression and circulation of the hydrogen is shown in fig. 8. The hydrogen is conveyed from the gasometer, which is not shown in the figure, by a pipe *CC*, which communicates through a stopcock and connecting pipe with the low-pressure intake of the compressor *A*. The liquefying apparatus I have described was designed to work with about ten cubic meters of gas per hour. To deliver this quantity of gas the compressor must run at 360 revolutions per minute, and requires about seven horse-power to drive it.

Water mixed with about twenty percent of glycerol and one percent of caustic soda is drawn into the compressor from the reservoir *R*. The jet of the glass stopcock on *R* passes through a rubber cock in the neck of a small funnel which is connected below with the small cock on the intake pipe by means of a piece of rubber tube.

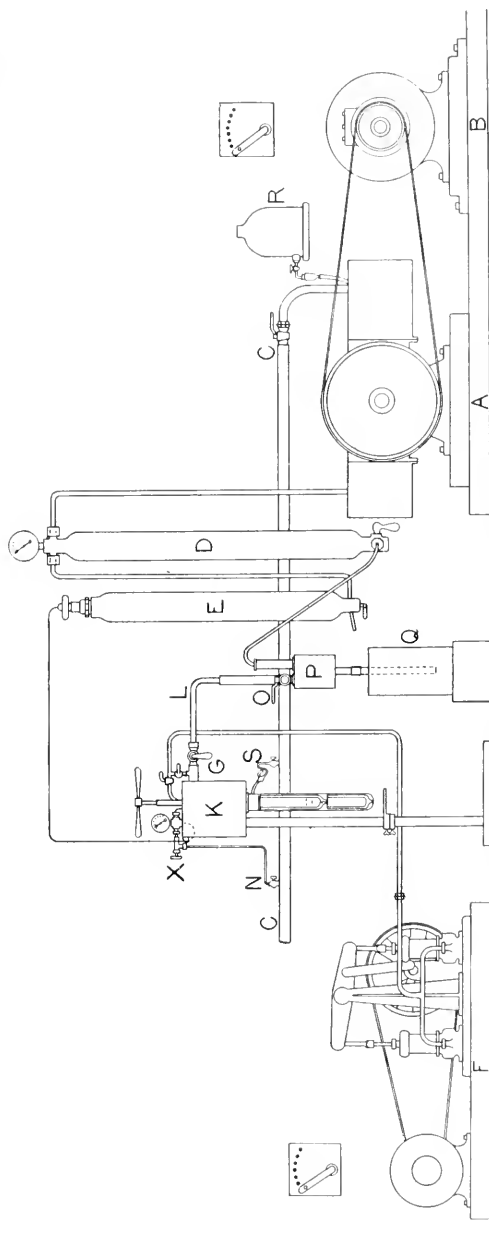


Fig. 8.—Arrangement of the liquefier, compressor, pump, etc.

The hydrogen is compressed in two stages, as described on page 23, and first enters the water separator *D* where the lubrication water is separated and discharged. The pipe from the cylinder *D* enters the collecting chamber *P*; the water runs into the tank *Q*, while the gas returns to the supply pipe *C*. The collecting chamber is shown in detail in fig. 9.

The compressed gas, which now contains only a trace of moisture, passes next through the cylinder *E* containing solid caustic potash, on its way to the liquefier *K*, which in the diagram is of the type described on pages 18-20. After undergoing compression, and partial liquefaction, the remaining gas returns by way of the pipe *L* to the distributing chamber *P*, and thence into the pipe *C*. Should the pressure rise suddenly through the blocking of the expansion valve, the cock *x* can be opened and some of the gas allowed to escape through a pipe which enters the supply pipe *C* through a small cock *N*. The connecting pipe *S*, which is of rubber, serves to prevent any waste through the escape of the hydrogen which passes out of the spiral opening at the bottom of the vacuum vessel *H* (figs. 5 or 6), when the liquid hydrogen runs into the receiving vessel (p. 20).

The operation of cooling down the liquefier has been described on page 19, and need not be dealt with again here. The next step in the operation was to remove the air from the compressor and purifying cylinders, and this was usually accomplished by starting the compressor two or three times, so as to take three or four cubic feet of gas into it on each occasion, and then allowing the compressed hydrogen to escape by opening a cock at the bottom of the potash purifier *D*. Later it was found to be much more effective to allow the hydrogen to pass completely through the apparatus and to escape at the expansion valve. In this case, the "washing out" of the apparatus had to be completed before the cooling down was commenced.

After washing out the apparatus the motor was again started and the pressure was allowed to rise.

Meanwhile the cap and the tap *V* (see page 20, fig. 5) had been removed from the bottom of the vacuum vessel *H*, and the liquid air was allowed to drain out of it. The collecting vessel *K* was now placed inside the tube *L* (figs. 4 or 6), and the latter was placed in position as shown in the figure. The connection between the tube *L* and the brass tube *h*, which formed part of the gland *p*, was made by means of a rubber sleeve *s*, secured to both by means of a tube of copper wire. When the sleeve was in position gas could only escape from the space within the tube *L* through the cock *r*, so that when the latter was closed the liquid which formed in *H* could not flow into *K*. When, however, the cock *r* was opened, liquid and gas could flow from *H* into *K*, the gas passing through the cock *r* and the tube *S*

(figs. 4, 6, 8) to the main hydrogen supply pipe. The cock *r* was not opened till the liquefaction of the hydrogen had commenced.

The tube *L* was usually surrounded either by a large vacuum vessel or by three concentric glass shades, spaced apart with asbestos mixed with a little pentoxide of phosphorus to absorb moisture from the surrounding air. This arrangement prevented the deposition of moisture on the walls of the tube *L* and enabled one to see what was taking place inside.

When the pressure in the apparatus had risen to 150 atmospheres the expansion valve was slowly opened and for a few moments the hydrogen was allowed to escape from the circulation system, either by bubbling through the water in the tank *Q*, fig. 8, or by opening the cock *O'* (fig. 9). When sufficient hydrogen had been allowed to escape, and the apparatus was considered to be free from air, the cock *O'* (fig. 9), was closed, the cock *O* was opened and the hydrogen was allowed to circulate through the system.

Shortly after commencing the expansion a small quantity of solid impurity always separated in the bottom of the vacuum-vessel *H* (figs. 4, 6). It is noteworthy that the solid impurity never blocked the coil, though it is probable that the latter was cooled to below the critical point of hydrogen, but seemed to encrust the valve at the point at which the expansion took place. Hannay* pointed out some years ago that gases under high pressure, particularly in the neighborhood of their critical points, were able to hold solids in solution; considering the complete continuity of the liquid and gaseous states of matter this is hardly remarkable. To this phenomenon, which is allied to that of retrograde condensation in the case of mixed gases, is due the fact that the coils are never blocked by the presence of impurities, which at the temperatures to which the gas is cooled should behave as non-volatile solids, but which are dissolved by the compressed gas in the coil.

When the liquefier is working well it should require about half an hour from the time of commencing operations to fill a receiving vessel (*K*, figs. 4, 6) holding about half a liter. When once liquid hydrogen is formed, and the cock *r* is opened, the liquid falls in large drops from the nozzle of the vessel *H*. The liquid is usually slightly milky at first, but the solid impurity soon settles to the bottom of the receiving vessel, leaving the liquid clear.

When the receiving vessel is full the tube *L* can be lowered, and the receiving vessel drawn out of it by means of a wire attached to it. The receiving vessel is at once plugged with wool and placed inside a second vessel containing liquid air.

In machines which required solid carbonic acid about four kilos of that substance was required at each experiment, together with about

* Proceedings of the Royal Society, 1879, Vol. 30, 484.

eight liters of liquid air. With these quantities the apparatus could be run for about thirty minutes. With the apparatus having the second regenerator coil, which did not require carbonic acid, five liters of liquid air fully sufficed to cool the apparatus in the first place and to cool the hydrogen during a run of more than twice the duration of the former experiments.

The collecting chamber referred to on page 20 is a cylindrical brass box about 80 mm. in diameter and 100 mm. high. The tube γ is con-

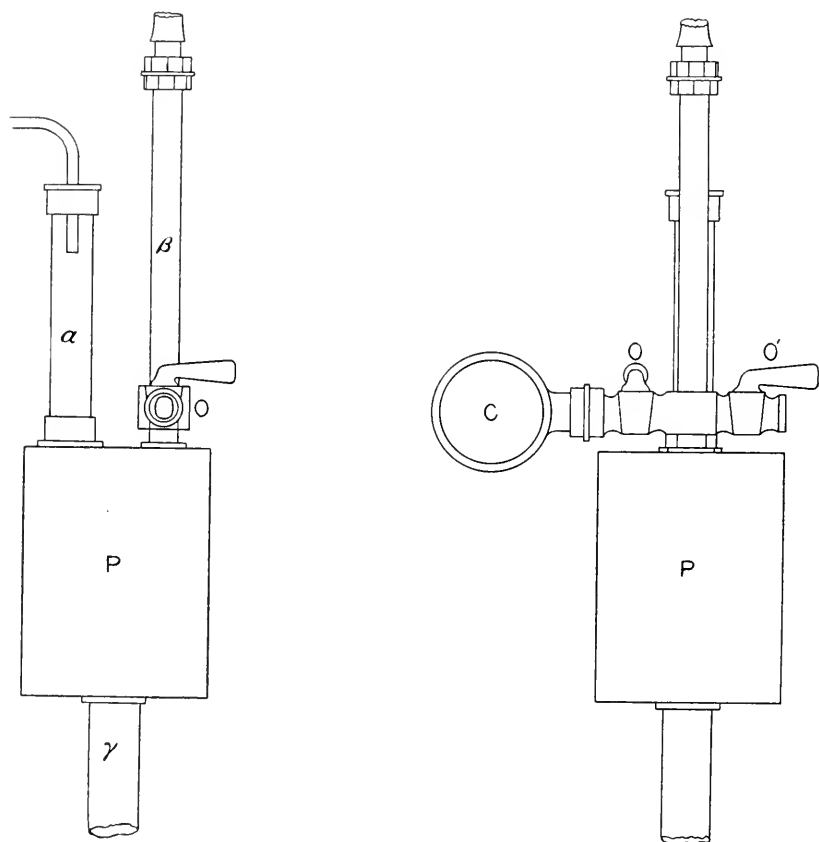


FIG. 9.—Collecting chamber.

nected by means of a piece of wide rubber tube with a brass tube of similar diameter which dips about 50 cm. below the surface of the water in a tank Q , fig. 8. The tube α is of glass, joined by means of a socket with the cylinder P , and by a cap with the pipe through which water is discharged from the water separator D , fig. 8. By means of this arrangement the gas discharged together with the water is saved. The pipe β is connected by means of a crosspiece with the body of the apparatus and with the two cocks O and O' . The cock O

communicates directly with the pipe *C* leading from the gasometer to the compressor, and through it the hydrogen which returns from the liquefier through the tube *G*, figs. 3, 4, 6, *L* fig. 8 and *a* fig. 9, can be returned to the circulation system. The hydrogen which escapes from the liquefier when the expansion is first commenced, is allowed to escape through the cock *O'*, which is closed before the cock *O* is opened. The pipe *γ* serves not only to discharge the water delivered through *a*, but also as a safety valve.

XII. THE PREPARATION OF THE HYDROGEN.

In my earlier experiments I prepared the hydrogen by the action of dilute (25 percent) sulphuric acid on commercial zinc, contained in a beer barrel, which had received several coats of enamel paint. Since, however, it appeared that the gas suffered both loss and contamination by diffusion through the walls of the barrel, I replaced it by a lead vessel. The apparatus for generating the hydrogen is shown in fig. 10.

The vessel *A*, which was 500 mm. high and 300 mm. in diameter, was made of sheet lead, "burnt" at the junctions in the oxy-hydrogen blow-pipe. At the commencement of each operation it usually contained about fifteen kilograms of pure granulated zinc. Dilute sulphuric acid containing little copper sulphate was run into *A* in a steady stream from the reservoir *B*, and as the zinc sulphate solution accumulated it was run off through the stop-cock *E*. The hydrogen could either be allowed to escape through the pipe *C*, which was plunged into a deep vessel filled with water, and acted as a safety valve, or to pass along the pipe *D* into the purifying towers *F*, *F'*.

The towers *F*, *F'*, *F''* were filled with broken pumice, which was kept wet by means of solutions of the reagents contained in the reservoirs *G*, *G'*. The first of these, which supplied the first two towers, contained an acid solution of chromic acid, the second contained silver nitrate solution, which served to remove arseniureted hydrogen from the gas. The excess of the reagents flowed through inverted syphons, which acted as gas traps, at the bottom of the towers, and was collected in the vessels *H*, *H'*.

The gas finally passed through a solution of caustic potash contained in the vessel *K* and entered the pipe leading to the gasometer through the cock *L*.

If the gasometer already contained some hydrogen this gas could be used to wash out the generating apparatus before introducing the fresh quantity of gas. This could easily be done by first lowering the reservoir *J*, so as to empty the vessel *K*, and thus raising the tube *C* till the gas bubbled through the water in which it was immersed, and escaped.

XIII. THE GASOMETER.

The gasometer in use at University College, London, is of the simple type shown in fig. 11, A. It consists of two cylindrical tanks, one enclosing the other. The outer tank is 2,000 cm. high and 1,500 cm. in diameter, the inner one is 1,800 cm. high and 1,450 cm. in

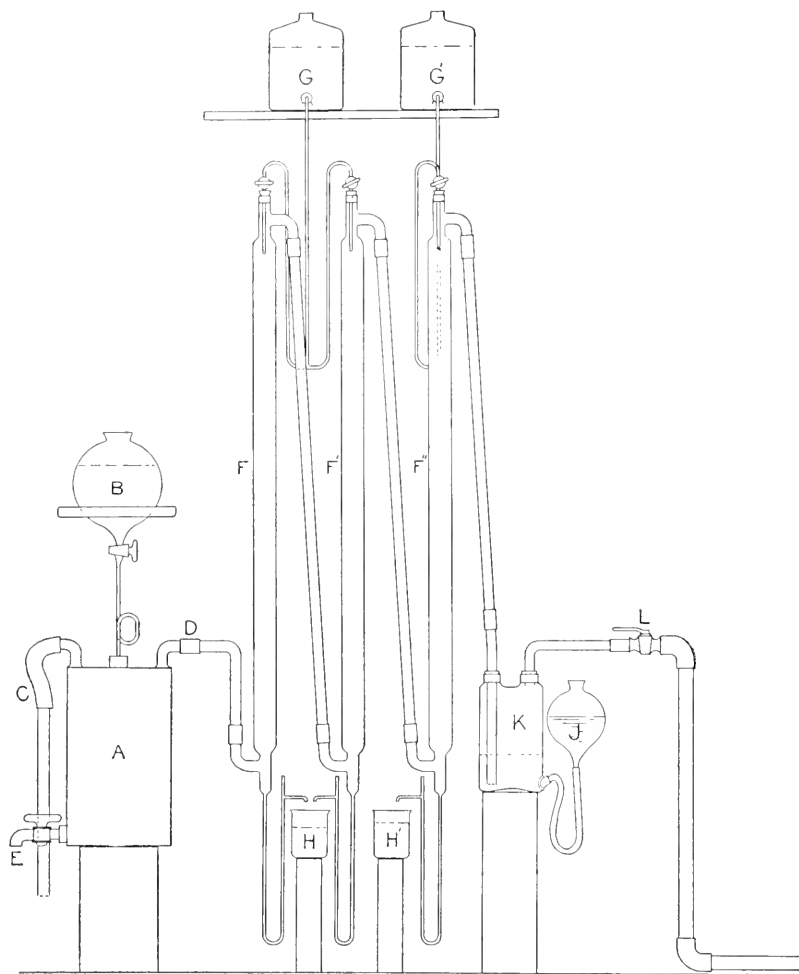


FIG. 10.—Apparatus for generating the hydrogen.

diameter. The outer tank is filled with water to just above the level of the top of the inner tank. The supply pipe passes through the center of the gasometer, and opens inside a small dome in the top of the inner tank. This enables practically the whole of the gas to be easily expelled from the gasometer.

When it was first placed in position the water in the gasometer was saturated with hydrogen by passing a stream of that gas through it from a small generator. The gas passed to the bottom of the tank by

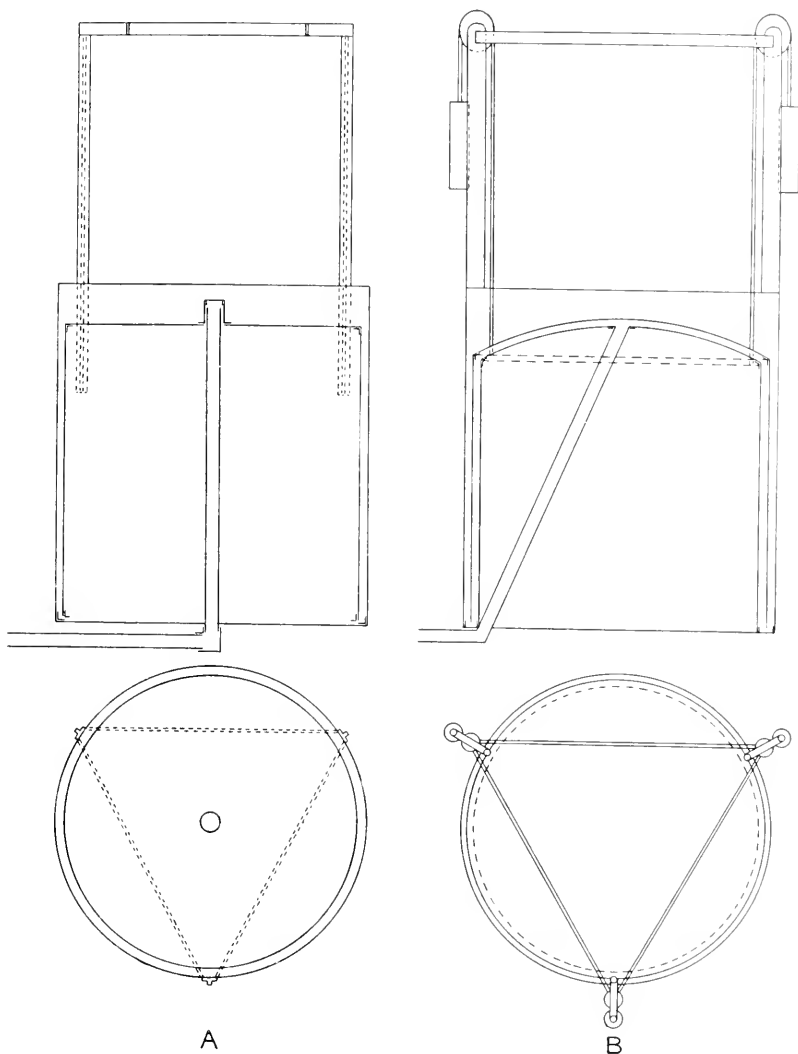


FIG. 11.—Gasometers.

means of a piece of composition gas pipe. The operation of saturating the water occupied nearly a week; it was not, however, necessary to repeat it as the gasometer always contained hydrogen.

The pressure inside the gasometer was equivalent to about 500 mm. of water.

Though for financial reasons I was obliged to content myself with

a gasometer of the type I have described, there is a considerable advantage in one of the kind shown in fig. 11, B. Such a gasometer is in use in connection with the liquefaction plant which I designed for Professor Auschütz of Bonn. Gasometers of this type are used for the storage of acetylene.

XIV. CONCLUSION OF PART I.

I have so far succeeded in designing an apparatus by means of which I can at a comparatively small cost produce quantities of liquid hydrogen sufficient for experimental purposes. I have usually obtained half a liter as a maximum quantity, as it has always been sufficient for the experiments I have had in hand.

I am at present engaged in designing an apparatus in which the liquid hydrogen will be produced inside a metal chamber, and will be drawn off through a cock. The elimination of the glass vacuum vessel presents obvious advantages. At the same time I am investigating the conditions most favorable to effective heat interchange in the regenerator coil *D*, figs. 4, 6, of the apparatus. The dimensions of the coils (p. 16) in the machines I have already experimented with has always been one quarter of the size of the coil of the Hampson air liquefier, the temperature gradient being in one case 50° and in the other 200° . The results of my experiments appear to indicate that these dimensions are too small, for the reason that the heat interchange is a function not only of the conductivity of the metal of which the coils are constructed, but also of certain properties of the gas. Further, it appears probable that the spacing of the coils will have a considerable influence on the efficiency of the apparatus, and that for hydrogen, which has a low viscosity, the coils should be closer together than in a machine which is designed to liquefy air.

In conclusion I wish to express my indebtedness to the Smithsonian Institution for the assistance it has given me in carrying out these investigations.

SMITHSONIAN MISCELLANEOUS COLLECTIONS

PART OF VOLUME XLVI

A CATALOGUE OF
NORTH AMERICAN DIPTERA

(OR TWO-WINGED FLIES)

BY

J. M. ALDRICH



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A CATALOGUE OF NORTH AMERICAN DIPTERA

By J. M. ALDRICH.

INTRODUCTION.

The present work is based upon Osten Sacken's Catalogue of North America Diptera, second edition, published in 1878.* All the references of that work are embodied in this, with only such changes as later studies seem to require.

Still, the great amount of work which has been done on North American Diptera within the quarter of a century has largely changed the face of the subject. Hence the reader will probably observe, especially at first, more of contrast than resemblance. The number of species has doubled; the number of references to previously known species has almost doubled; several families have been monographed or revised, with more or less change of nomenclature; along with this has gone the publication of a multitude of smaller papers, touching every family but one, and the larger part of the genera. Under these conditions it is inevitable that great changes should appear in the new catalogue. It is the more necessary that I should acknowledge my obligation, which is far greater than appears on the surface.

Faunal limits.—These, as in the former catalogue, include all of North America, in the widest sense, taking in Panama on the South and Greenland and the Aleutian Islands on the North. The West Indies are included, even down to Trinidad, adjoining Venezuela. There is no place to draw a line between the islands. The Bermudas and the Hawaiian Islands are not included.

Scope.—To give the most information consistent with the limits of space has been the object. All references to a species, if in any way descriptive or useful, have been inserted if found. The only known exceptions are in those species like the Hessian fly and house-fly, where the references are so numerous that a selection of the more important articles is necessary. Another exception is uniformly made of articles in non-scientific journals; these are only mentioned when of importance in tracing the history of a species.

* Smithsonian Miscellaneous Collections, Vol. xvi.

Professor J. H. Comstock extended courtesies when I was visiting Cornell. In his department I examined a considerable collection of Diptera determined by Osten Sacken and Williston, also some interesting literature. In the Cornell University library I found "Silliman's Journal."

Mr. Samuel Henshaw assisted me very kindly when I examined some families in the Loew-Osten Sacken collection at Harvard University.

Dr. Garry de N. Hough gave me some unpublished notes, and a large number of Diptera.

Mr. O. A. Johannsen, of Cornell University, revised the classification of the Chironomidæ for me, greatly improving my work on that family.

Mr. Hugo Kahl gave me unpublished notes of his own; he also gave me minute directions about some points to look up in the Loew-Osten Sacken collection, the outcome of which gave me a very high opinion of Mr. Kahl's acuteness in systematic work, and revealed some peculiar errors of Loew in describing two or three species.

To W. D. Hunter, C. W. Johnson, C. T. Brues, and Professors V. L. Kellogg and C. V. Piper, I am indebted for references to literature.

Mr. A. L. Melander gave me great assistance in the Empididæ. I have followed his advice quite uniformly in regard to nomenclature and synonymy in that family.

I have availed myself of Dr. Coloman Kertész's great work, "Catalogus Dipteriorum," of which two volumes have reached me, only to the extent of adopting the generic distribution of the Cecidomyidæ, and of picking up one species—*Culex penafielii* Will.—which I had not found before. My work was almost completed when the first volume of Kertész came out.

To all the gentlemen named, I extend my sincere thanks.

The catalogue closes January 1, 1904.

J. M. ALDRICH.

UNIVERSITY OF IDAHO,
January 27, 1904.

SYSTEM OF CLASSIFICATION ADOPTED.

Suborder PROBOSCIDEA.

Section ORTHORHAPHA.

Division *Nemocera*.

Superfamily 1.—*Nemocera Vera*:—Tipulidæ, Dixidæ, Psychodidæ, Chironomidæ, Culicidæ, Mycetophilidæ, Cecidomyidæ.

Superfamily 2.—*Nemocera Anomala*:—Bibionidæ, Simuliidæ, Blepharoceridæ, Rhyphidæ, Orphnephilidæ.

Division *Brachycera*.

Superfamily 3.—*Eremochæta*:—Stratiomyidæ, Tabanidæ, Acanthomeridæ, Leptidæ (inclusive of Xylophagidæ and Coenomyidæ).

Superfamily 4.—*Tromoptera*:—Nemestrinidæ, Cyrtidæ, Bombyliidæ, Therevidæ, Scenopinidæ.

Superfamily 5.—*Mydaidæ*:—Mydaidæ.

Superfamily 6.—*Energopoda*:—Apioceridæ, Asilidæ, Dolichopodidæ, Empididæ, Lonchopteridæ, Phoridæ.

Section CYCLORHAPHA.

Division *Athericera*.—Platyppezidæ, Pipunculidæ, Syrphidæ, Conopidæ.

Division *Calyptrata*.—Æstridæ, Tachinidæ, Dexiidæ, Sarcophagidæ, Muscidæ, Anthomyidæ.

Division *Acalyptrata*.—Scatophagidæ, Heteroneuridæ, Helomyzidæ, Borboridæ, Phycodromidæ, Sciomyzidæ, Sapromyzidæ, Lonchæidæ, Ortalidæ, Rhopalomeridæ, Trypetidæ, Micropezidæ, Sepsidæ, Psilidæ, Diopsidæ, Ephydridæ, Oscinidæ, Drosophilidæ, Geomyzidæ, Agromyzidæ.

Suborder EPROBOSCIDEA.

Hippoboscidæ, Nycteribiidæ.

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Dipterological Contributions. Kans. Univ. Sci. Bull., II, 21-47; June, 1903.

Contains 37 new species from North America, and 7 from S. Africa; also some tables of genera.

Six new species of Diptera from Kansas, appended to Snow's List. Kans. Univ. Sci. Bull., II, 221-223; Nov., 1903.

Aldrich, J. M.

A New Genus and Species of Tabanidæ. Psyche, VI, 236, figs.; March, 1892.

Goniops hippoboscoides, n. gen. and sp. (syn. of *chrysocoma* O. S.).

New Species of Phora. Canadian Entomologist, XXIV, 142-146, figs.; June, 1892.

Phora cimbicis, *luggeri*, *minuta*, and *setacea*; table of species.

Revision of the Genera Dolichopus and Hygroceleuthus. Kansas Univ. Quart., II, 1-26, 1 pl.; July, 1893.

Twenty-two new species; table of species, etc.

New Genera and Species of Psilopinæ. Kansas Univ. Quart., II, 47-50; July, 1893.

Three genera and four species; *Leptorhethum* is the only genus of Psilopinæ which I now retain as given in this article.

The Dolichopodid Genus Liancalus Loew. Psyche, VI, 569-571; Dec., 1893.

L. hydrophilus and *similis*; table of species.

Courtship Among the Flies. American Naturalist, XXVIII, 35-37; Jan., 1894.

Habits of some species of *Dolichopus*.

New Genera and Species of Dolichopodidæ. Kansas Univ. Quart., II, 151-157; Jan., 1894.

Two new genera and five new species; notes on other described western species.

The Tipulid Genera Bittacomorpha and Pedicia. Psyche, VII, 200-202, fig.; Feb., 1895.

Bittacomorpha occidentalis, n. sp.

The Dipterous Genera Tachytrechus and Macellocerus. Trans. Amer. Ent. Soc., XXIII, 81-84; March, 1896.

Tachytrechus floridensis; *Macellocerus olympic* and *auratus*.

On the Diptera of St. Vincent: Dolichopodidæ and Phoridae. Trans. Ent. Soc. London, 1896, pt. 3, pp. 309-345 and 435-439.

Many new species, tables in several genera, and notes on described species.

A Collection of Diptera from Indiana Caves. 21st Annual Report of the Department of Geology and Natural Resources of Indiana, 186-190; published May 6, 1897.

Odontopoda, n. gen.; *Mycetophilus umbraticus*, *Odontopoda sayi*, *Blepharoptera latens* and *specus*, *Limosina tenchbarum*; notes on other species.

Goniops and other Synonyms. Entom. News, XI, 531; Sept., 1900.

No new species.

Biologia Centrali-Americana: Diptera, 1, Suppl., 333-366, 1 pl.; Dec., 1901.

Dolichopodidæ: 47 new species; *Sarcionus* and *Phylarchus*, n. gen.

Dolichopodidæ of Grenada, W. I. Kans. Univ. Sci. Bull., 1, 75-94, 1 pl., March, 1902.

Fourteen new species; *Xanthina*, new genus.

Aldrich, J. M., and Turley, L. A.

A Balloon-making Fly. American Naturalist, xxxiii, 809-812, figs.; 1899.

The species here discussed was afterwards described as *Empis arobat-icus* by Mr. Melander.

Austen, E. E.

Descriptions of New Species of Dipterous Insects of the Family Syrphidæ in the Collection of the British Museum, with Notes on Species Described by the late Francis Walker. Part I. Bacchini and Brachyopini. Proc. Zool. Society of London, Jan. 17, 1893, pp. 132-164, 2 col. pl.

Ocyptamus iris and *Baccha sagittifera*, from Jamaica; many important notes on Walker's types and other species.

On the Specimens of the Genus *Cutiterebra* and Its Allies in the Collection of the British Museum, with descriptions of a new Genus and Three new Species. Annals and Magazine of Natural History, Ser. 6. Vol. xv, 377-396, 1 pl.; May, 1895.

Cutiterebra funebris (Trinidad), *approximata* Walk. (Vancouver); *Bogeria princeps*, n. gen. and sp., Mexico; other important notes.

Further Notes on *Cutiterebra*: On the Identity of Certain Species Described by the late Bracy Clark. Annals and Magazine of Natural History. Ser. 6, Vol. xvi, 147-155; August, 1895.

C. atrox, *detrudator* and *fontinella* of Clark.

Notes on Hippoboscidæ in the Collection of the British Museum. Annals and Magazine of Natural History. Ser. vii, Vol. xii, 255-266; Aug., 1903.

Important notes on species of Wulp and Walker; no new species.

Babb, Geo. F.

Notes on *Rhagoletis suavis*, with desc. of larva and puparium. Ent. News, xiii, 242, 1 pl.; Oct., 1902.

Baker, C. F.

Biological Notes on some Colorado Diptera. Ent. News, vi, 173, 174; June, 1895.

Records rearing of twelve species.

Banks, Nathan.

Some Psychodidæ from Long Island. Canadian Entomologist, xxvi, 329-333; Dec., 1894.

Psychoda nigra, *minuta*, *superba*, *bicolor*; table of species.

Notes on Psychoda. Canadian Entomologist, xxvii, 324; November, 1895.

P. albitarsis. Ithaca, N. Y.

Syrphidæ of Long Island, N. Y. Journal of the N. Y. Ent. Society, v, 40, 41; 1897.

A list of species collected at Sea Cliff, L. I.

The Eastern Species of Psychoda. Canadian Entomologist, xxxiii, 273-275; Oct., 1901.

P. signata, *opposita*, *nitida*.

Concerning *Gastrophilus epilepsalis* French. Canadian Entomologist, xxxv, 333, 1903.

Becker, Theodor.

Dipterologische Studien. In Berliner Entomologische Zeitschrift.

- I. Scatomyzidæ. Vol. xxxix, pp. 77-196, 1 plate; 1894.
- II. Sapromyzidæ. " XL, pp. 171-264, 1 pl.; 1895.
- III. Lonchæidæ. " XL, pp. 313-344; 1895.
- IV. Ephydridæ. " xli, pp. 91-276, 4 plates; 1896.
- V. Pipunculidæ. " xlii, pp. 23-100, 1 plate; 1897. Supplement.
xlv, 215-252; 1900.

Die Leptiden Formen im Gebiete der Europäisch-Asiatischen und Mittelmeer-Fauna. Entomologische Nachrichten, xxvi, 97-112 and 113-116; 1900.

Die Phoriden. Abhandlungen der K. K. Zool.-Botan. Gesellschaft in Wien, I, Heft. 1, pp. 1-100, 5 plates; 1901.

Note.—These recent monographs of European Diptera are admirably executed, and are especially useful to the American student for genera. A considerable number of the species are common to Europe and North America.

Bellardi, Luigi.

Saggio di Ditterologia Messicana. Two parts and supplement, with five plates. Mem. della Reale Accad. delle Scienze di Torino, Ser. 2. Vol. xix, 201-277, 2 plates, 1859; xxi, 103-199, and Appendix, 200-225, with 3 plates, 1861-62. Also published separately with a different pagination.

Apelicia, n. g.; many new species. Osten Sacken gives the pages as they occur in the separate edition, which I follow.

Bergroth, Evald.

Note on some South African Tipulidæ. Entom. Tidskrift, ix, 1888.

Contains a note on *Holorusia rubiginosa*. I am indebted to Professor V. L. Kellogg for this reference.

Ueber einige Nordamerikanische Tipuliden. Wiener Entom. Zeitung, vii, 193-201; June, 1888.

Eight new species, with notes on several others.

The same, Part II. Pp. 239, 240; Sept., 1888.

Pachyrhina excelsior, n. sp., and several notes.

Zwei neue Dipteren. Wiener Entomol. Zeitung, viii, 295-298; Nov., 1889.

One is from New Zealand, the other is *Dialysis disparilis*, from British Columbia; there is an additional note on the latter, Vol. xi, 162.

Buetenmüller, Wm.

Essay on the Destruction of the Mosquito and the House-fly. 180 pp., 2 plates; 1890.

Cecidomyia clavula, n. sp. Bull. American Museum of Natural History, iv, 1892, 269, pl. xv, f. 5.

Gall only.

Bigot, Jacques.

Diptera of Cuba. In "Historia física, política y natural de la Isla de Cuba," by Ramon de la Sagra, Paris, 1857, Vol. vii, with one plate. "Published in French and in Spanish; the French edition is quoted in the catalogue, the Spanish has a different pagination"—O. S. Not seen.

Twenty-five new species.

Dipterorum aliquot nova genera. Revue et Magazin de Zoologie, 1850, 305-315, pl. xi.

Hystriosphona nigra, *Cryptincura hieroglyphica*.

Leptidi. Bulletin de la Société Zoologique de France, XII, 1-22, 1887.

21 N. A. species.

Muscidi. Bulletin de la Société Zoologique de France, XII, 581-617, 1887.

16 N. A. species.

Tabanidi. Mémoires de la Société Zoologique de France, v, 602-690, 1892.

26 N. A. species.

Diptères nouveaux ou peu connus. Annales de la Société entomologique de France, as follows (the asterisk indicates that there are no new N. A. species):

Number.	Part.	Year.	Pages.	Subject.
I		1874	107-115	Diopsis.*
II		1874	116	Echinomyia.*
III	2	1874	235-242	Diptères nouveaux (miscellaneous).*
IV	3	1874	451-468 (1	col. pl.) Rutilia and Formosia.*
V	4	1875	237-248	Asilidæ. 4 N. A. sp.
VI	5	1875	469-482	Sphixea and Volucella. 10 N. A. sp.
VII		1875	483-488	Cyphomyia. 1 N. A. sp.
VIII	6	1876	389-400	Phasidæ, etc. 1 N. A. sp.
IX	7	1877	35-48	Somomyia. 3 N. A. sp.
X	8	1877	243-259	Somomyia, continued. 9 N. A. sp.
XI	8	1877	260-262	Miscellaneous notes.*
XII	9	1878	31-40	Phumosia, Pyrellia, etc. 3 N. A. sp.
XIII		1878	40-47	Ocyptera. 5 N. A. sp.
XIV		1878	48	Miscellaneous notes, partly N. A.
XV	10	1878	213-240	Asilidæ. 9 N. A. sp.
XV	10	suite 1878	401-446	Asilidæ. 14 N. A. sp.
XVI	11	1879	183-234	Xylophagidæ and Stratiomyidæ. 18 N. A.
XVII		1879	235, 236	Notes. Laphystia.
XVIII	12	1880	85-89	Plagiocera, etc.*
XIX		1880	90-94	Diopsidæ.*
XX	13	1880	139-154	Dipt. of Persia and the Caucasus.*
XXI	14	1880	213-230	Eristalis. 7 N. A. sp.
XXII	15	1880	369-376	Notes on Tabanidæ; a few N. A. genera.
XXIII	16	1881	13-21	Nemistrinidæ. 1 N. A. gen.—Parasymmictus
XXIV		1881	22, 23	Bombylidæ.*
XXV		1881	24	Atopognathus, n. g.*
XXVI	17	1881	363-371	Miscellaneous new species.*
XXVII		1881	372-374	Notes. Eristalis zonatus.
XXVIII	18	1882	453-460	Acanthomeridæ. 2 N. A.
XXIX	19	1882	5-21	Anthomyidæ.*
XXX		1882	21, 22	Ctenostylum.*
XXXI	20	1883	61-88	Volucella. 4 N. A.
XXXII	21	1883	221-258	Syrphidæ, 1st pt.*
XXXII	22	1883	315-356	Syrphidæ, 2d pt. No. 1. 34 N. A.
XXXII	23	1884	535-560	Syrphidæ, 2d pt. No. 2. 20 N. A.
XXXII	24	1884	73-115	Syrphidæ, 2d pt. No. 3. 34 N. A.
XXXIII	25	1885	263-304	Anthomyidæ. 21 N. A.
XXXIV	26	1885	121-124	Glossina.*
XXXV	27	1885	225-246	Anomalocerati. 5 N. A.
XXXVI	28	1885	241-252	Syrphidi, addenda. 2 N. A.
XXXVII	29	1886	287-302	Tanypezidæ.*
XXXVII	29	1886	369-392.	Tanypezidi. 19 N. A.

Number.	Part.	Year.	Pages.	Subject.
XXXVIII	30	1887	17-19	Loxocera.*
XXXIX	31	1887	20-46	Stratiomyidæ and Conopidæ. 18 N. A.
	XL	1887	203-208	Myopidi. 6 N. A.
	XLI	1888	77-104	Tachinidæ. 14 N. A.
	XLII	1888	253-270	Miscellaneous diagnoses. 83 N. A.
	XLIII	1889	111-134	Empidæ. 5 N. A.
	XLIII	1889	313-320	Cyrtidæ. 1 N. A.
	XLIV	1889	321-328	Therevidæ.*
	XLV	1890	261-296	Dolichopididæ. 8 N. A.
	XLVI	1892	321-375	Bombyliidæ. 19 N. A.

Notes on North American Diptera, with new genera and species, published in Bulletin de la Société entomologique de France, as follows:

Year.	Pages.	Subject.
1875	clxxiv (196)	Thevenimyia californica.
1877	xxvi (38)	Carlottamyia mœrens.
1877	lxxiii (101)	Macroceromys.
1879	l, li (64)	Merapioidus villosus.
1879	86	Parasynmictus.
1879	164, 165	Notes on Arthropeas and Glutops.
1879	231, 232	Corrections to article in Annales, 1879, 183-234.
1880	5	Megalemyia argyropasta, Acanthomera rubriventris.
1880	62, 63	Phyllomydas phyllocerus, Enoplemis mira, Megacittarus argenteus.
1882	4	Syrphidæ.
1882	19-21	Corrections; Lycastrihyncha, etc.
1882	78, 79	Eurhinomallota metallica.
1882	112	Myelaphus melas, Enoplemis cinerea.
1883	35	Proboscimyia siphonina.
1884	xxix (34, 35)	Mikimyia furcifera.
1884	42	Cholomyia inæquipes.
1884	95	Ancylogaster armatus.
1884	xcvii	Euceratomyia Will., note.
1884	cxxxvi	Merapioidus; reply to Williston, Wien. Ent. Zeit., 1884, 282.
1885	clxvi (sep. 1)	Stictomyia longicornis, Dimorphomyia calliphoroides.
1885	sep. 1-7	Rhamphinina dubia, Rhynchodexia tenuipes, Siphoniomyia melas.
1886	clxvii, clxviii	Notes on Osten Sacken's Acanthomeridæ in Biologia.
1886	sep. 1-4	Rhabdopselaphus mus.
1887	lx	On Eclimus, Epibates and Thevenimyia.
1887	cxxi-cxxiii	Notes on Williston's Synopsis N. A. Syrphidæ.
1887	clxxii-clxxiv	(180-182) Diagnoses of Muscidæ, several species.
1888	xxiv et seq.	Psilopodinus, Spatichira, etc.
1888	cvi, cvii	Corrections.
1888	clxxxiii	Notes on Archilestes; Pseudarchilestes.
1892	xxxvi-xxxviii	Notes on Williston's synonymy in Biologia.

Note.—Bigot's main work, as will be seen from the tables above, is in the form of a long series of articles in the Annales Soc. ent. France (quoted herein merely as "Annales"), interspersed chronologically with fragments in the Bulletin of the same society. Owing to Bigot's peculiar, complicated and inconsistent system of numbering his contributions, it has been almost impossible for

me to find them all, but I believe I have succeeded. I have seen no correct collation. Sometimes his Roman numerals stop and remain the same for several papers, then again the numbering in "parts" becomes stationary while the other goes on, and in two cases two papers have both the same (XXXVII, part 29, and XLII, part 34).

In the Bulletin the confusion is worse confounded. This publication appears to have been for some time regularly published in two forms, one numbered in Arabic, and the other differently paged in Roman. I am unable to decipher all the peculiarities of this, but am obliged to refer partly to one, partly to the other, and occasionally to separates, as my copies run, or as I find indications in the references of others. I possess all the papers of the *Annales* series, and all but two small ones of the *Bulletin* series; but the accumulation was the work of ten years.

The work of Bigot should not be underestimated. He had a fine collection, and his types are now the property of Mr. G. H. Verrall. It is only a question of time until they will be elucidated; in fact, this has already been done for the *Calyptatæ* (excl. of *Anthomyidæ*) by Brauer, and for the *Pupipara* by Speiser. As the descriptions stand, it is often impossible to determine the species from them alone. It is not unlikely that some of them have been assigned to synonymy too hastily.

Biologia Centrali-Americana.

For convenience of reference, I give a complete collation of the parts of this great work.

Volume I. *Cecidomyidæ* to *Empidæ*. Pp. 1-216, 3 col. pl., by C. R. Osten Sacken.

Dates—pp. 1-24, July, 1886; 25-48, Aug., 1886; 49-72, Oct., 1886; 73-104 Nov., 1886; 105-128, Dec., 1886; 129-160, Jan., 1887; 161-176, Feb., 1887; 177-208, Mar., 1887; 209-216, April, 1887.

Volume I, Supplement. Pp. 217-378, 3 col. pl.

Mycetophilidæ to *Asilidæ*, pp. 217-332, by S. W. Williston.

Dates—pp. 217-248, Dec., 1900; 249-264, April, 1901; 265-272, May, 1901; 273-296, June, 1901; 297-328, Sept., 1901; 329-332, Dec., 1901.

Dolichopodidæ, pp. 333 to 366, Dec., 1901, by J. M. Aldrich.

Empididæ, pp. 366-376, Dec., 1901, by W. M. Wheeler and A. L. Melander.

List of Species Recorded since 1887, not enumerated in Suppl., 377, 378; Dec., 1901.

Volume II. *Oestridæ* to *Hippoboscidæ*. Pp. 1-432, 12 col. pl., by F. M. Van der Wulp.

Dates—pp. 1-40, April, 1888; 41-56, Jan., 1890; 57-88, Feb., 1890; 89-112, Mar., 1890; 113-144, May, 1890; 145-176, June, 1890; 177-200, Aug., 1890; 201-208, Nov., 1890; 209-224, April, 1891; 225-248, May, 1891; 249-264, July, 1891; 265-272, Dec., 1891; 273-280, Jan., 1896; 281-288, March, 1896; 289-304, May, 1896; 305-312, June, 1896; 313-320, Oct., 1896; 321-344, Dec., 1896; 345-360, Sept., 1897; 361-368, Nov., 1897; 369-376, Dec., 1897; 377-384, Oct., 1898; 385-392, Feb., 1899; 393-408, Sept., 1899; 409-416, Dec., 1899; 417-428, Feb., 1900; 429-432, Apr., 1903.

Volume II, Supplement. Pp. 433-486, 1 col. pl. *Oestridæ* and *Tachinidæ*, by F. M. Van der Wulp.

Dates—pp. 433-436, April, 1903; 437-486, May, 1903.

List of Species described since 1888, not enumerated in Vol. II., pp. 486-489, May, 1903.

Volume III. Syrphidae, Conopidae, Pipunculidae and Platypezidae. Pp. 1-89, 2 col. pl. By S. W. Williston.

Dates—pp. 1-56, Dec., 1891; 57-72, Feb., 1892; 73-89, May, 1892.

List of Species described since completion of volume, pp. 89-91, Aug., 1903.

Index to vols, 1-III, pp. 93-127, Aug., 1903.

The last issue for each volume includes title-page, introduction, and explanation of plates, which do not interfere with the regular pagination of the text.

Bilimek, Dominik.

Fauna der Grotte Cacahuamilpa in Mexico. Verhandl. Zool.-Bot. Ges., 1867, p. 901.

Pholcomyia leucozona, n. g. and sp.

Bosc D'Antic, Louis A. G.

Ceroplatus carbonarius, from Carolina, described in Dictionnaire d'Histoire Naturelle, Paris, 1802-04, pub. by Détéville et Roret; the same is in Nouveau Dict. D'Hist. Nat., Paris, 1816-19.

Brauer, Friedrich,

Monographie der Oestriden. Wien, 1863, 292 pp., with 10 plates.

This classic monograph contains descriptions of all the Oestridae at that time known from North America. Only one is new, *Cuterebra scutellaris*. Beschreibung neuer und ungenügend bekannter Phryganiden und Oestriden. Verhandlungen der Zool.-Bot. Ges. zu Wien, 1875, 75.

Hypoderma bonassi, on the American bison.

Die Zweiflügler des Kaiserlichen Museums zu Wien. In the Denkschriften der Mathematisch-Naturwissenschaftlichen Classe der Kaiserlichen Akademie der Wissenschaften.

I. In Band XLII, 1880.

1. Die Kaiserliche, Winthem'sche, Wiedmann'sche und Egger'sche Sammlung. Pp. 105-107.
2. Bemerkungen zur Systematik der Dipteren. Pp. 108-118.
3. Die Europäischen Arten der Gattung *Tabanus* L. s. str., etc. Pp. 119-210, six plates.

II. In Band XLIV, 1882.

1. Versuch einer Charakteristik der Gattung der Notacanthen (Ltr.), mit Rücksicht auf die . . . von J. R. Schiner aufgestellten neuen Gattungen. Pp. 59-80.
2. Vergleichende Untersuchungen der Flügelgeädern der Dipteren-Familien nach Adolph's Theorie. Pp. 90-97, two plates.
3. Charakteristik der mit *Scenopinus* verwandten Dipteren-Familien und Gattungen. Pp. 98-110.

III. In Band XLVII, 1883.

1. Systematische Studien auf Grundlage der Dipteren-Larven nebst einer Zusammenstellung von Beispielen aus der Literatur über dieselben und Beschreibung neuer Formen. Pp. 1-100, five plates.

The number on Notacantha contains *Cynipimorpha bilimeki* n. g. et sp. and *Myrosargus fasciatus* n. sp., from Mexico. The last number, on the dipterous larvæ, is a great work. The numbers on classification represent extensive research, and the system of Brauer seems to be widely accepted in Europe at present; but I agree with Osten Sacken that classification is not the field in which Brauer has done his best work.

See continuation of the series by Brauer and von Bergenstam

Systematische-zoologische Studien. Sitzungsberichte d. Kaiserl. Akad. d. Wissenschaften, xci, 237-414, 1 plate; 1885.

Asilus mydas and *Calobata ichneumonca*, n. sp. from Mexico.

Beiträge zur Kenntniss der Muscaria schizometopa. Sitzungsbericht. d. Kaiserl. Akad. der Wiss., Math.-Naturwiss. Classe, in three parts:

I. Band cvl, 329-382; July, 1897.

II. Band cvii, 493-546; June, 1898.

III. Band cviii, 495-529; June, 1899.

These articles give a report on the types of Bigot's species in the families of the Calyptratae, except Anthomyiidae. Nearly all of Bigot's species in this group are elucidated. There are a few notes also on types of Macquart and Desvoidy.

Brauer, Friedrich, and Bergenstam, J. Edlen von.

Die Zweiflügler des Kaiserlichen Museums zu Wien. Denkschriften d. Kaiserl. Akademie der Wissenschaften, Math.-Naturwiss. Classe. There are seven numbers of this series, of which the first three are by Brauer alone, noticed above. The last four constitute the following series:

Vorarbeiten zu einer Monographie der Muscaria schizometopa (exclusiv Anthomyiidae).

IV. Band lvi, pp. 69-180, 11 plates; 1889.

V. Band lviii, pp. 305-446; 1891.

VI. Band lx, pp. 89-240; 1893.

VII. Band lxi, pp. 537-624; 1894.

Many new genera of Tachinidae, Muscidae, Dexiidae and Sarcophagidae. A few North American species. As I have indicated at the beginning of the catalogue of Tachinidae, this work is defective in its conception, in that the characters used for generic definition are often of less than specific value. Nevertheless it is indispensable to the student of these families. It is referred to as "Zweifl. d. Kaiserl. Mus."

Brodie, Wm.

Canadian Galls and their Occupants. Biological Review of Ontario, I, 1894:

I. Pp. 13-15. *Diplosis erigeroni*.

II. Pp. 44-46. *Diplosis helianthi*.

III. Pp. 73-75. *Diplosis thurstoni* and *helianthi-bulla* Walsh.

IV. Pp. 109-111. *Diplosis monardæ*.

Brown, Barnum.

Two new Species of Asilids from New Mexico. Kans. Univ. Quarterly, vi, 103, 1897.

Nusa abdominalis and *similis*.

Brues, Chas. T.

Peculiar Tracheal Dilatations in *Bittacomorpha clavipes* Fabr. Biological Bulletin, I, 155-160, fig., 1900.

A New Species of *Dolichopus*. Entomological News, xii, 44, 45, fig.; Feb., 1901.

D. sphaeristes, from Texas.

Two New Myrmecophilous genera of aberrant Phoridae from Texas. American Naturalist, xxxv, 337-356, figs. and bibliography; May, 1901.

Commoptera solenopsisidis and *Ecitomyia whecleri*; notes on related genera and species.

New and little known Guests of the Texan Legionary Ants. American Naturalist, xxxvi, 365-378, figs.; 1902.

Acontistoptera melanderi and *Xainnotum hystrix*.

Notes on the Larvæ of some Texas Diptera. Psyche, ix, 351-354, figs.; June, 1902.

Phora cpeira n. sp., and several species of larvæ.

A dexiid Parasite of the Sowbug. Ent. News, xiv, 291; Nov., 1903.

Melanophora roralis Linn.; reared from *Porcellio* sp.

See also Melander and Brues.

Burgess, Edward.

Description of *Oscinis trifolii* and *malvæ*, in Report Comr. of Agriculture for 1879, 201, 202.

These are referred to *Agromyza trifolii* and *jucunda* by Coquillett.

Two Interesting American Diptera. Proc. Boston Soc. Nat. Hist., xix, 320-324, 1 plate; Feb. 27, 1878.

Glutops (n. g.) *singularis* and *Epibatcs osten-sackenii*, n. sp.

Cannon, W. A.

The Gall of the Monterey Pine. American Naturalist, xxv, Oct., 1900, 801-810, figs.

A botanical study of the gall of *Cecidomyia pini-radiatæ*.

Chagnon, G.

Études Préliminaires sur les Syrphides de la Province de Quebec. Chicotini, Quebec, 1901, 75 pp. Originally published in parts in "Le Naturaliste Canadien," 1901; I quote the separate edition.

No new species.

List of Canadian Diptera. The Entomological Student, Philadelphia. Vol. II, 5-8 and 13-15.

Mostly from Montreal and vicinity; no new species.

Chittenden, F. H.

Some Insects Injurious to the Violet, Rose, and other Ornamental Plants. Bull. 27, n. ser., Division of Entomology, U. S. Department of Agriculture; 114 pp., figs.; 1901.

Life history of *Diplosis violicola* and *Sciara inconstans*.

Some Insects Injurious to Vegetable Crops. Bulletin 33, new series, Division of Entomology, Dept. of Agriculture, 1902. 117 pp., many figs.

Life history of *Psila rosæ*, *Scaptomyza* (*Drosophila*) *flavcola*, *adusta* and *graminum*, and *Phorbia fusciceps*.

A Brief Account of the Principal Insect enemies of the Sugar Beet. Bull. 43, Division of Entomology, 1903, 71 pp.

Contains life history of *Pegomyia vicina* and *Phorbia fusciceps*.

Clark, Bracy.

Observations on the Genus *Oestrus*. Transactions of the Linnæan Society, III, 1797.

Oestrus cuniculi, n. sp., from Ga.

An Essay on the Bots of Horses and other Animals. London, 1815, with two plates.

Cuterebra horripilum and *Cephenomyia phobifer* from N. A.

Addenda to Essay on Bots, 1848, with 1 plate.

Cuterebra atrox, from Mexico.

Of the Insect called Oistros by the Ancients, etc. Trans. Linn. Soc., xv, 402, 1826.

Cuterebra fontinella, from Ill.

Note.—Austen has published notes on some of Clark's species; see his papers.

Cockerell, T. D. A.

Notes on some Species of Gall-Gnats. The Entomologist, London, 1890, 278.

Cecidomyia alticola and *frater*.

Trypeta bigeloviae n. sp. Entomologist's Monthly Magazine, December, 1890, 224.

A Cecid bred from Coccidæ. The Entomologist, London, 1892, 280.

Diplosis coccidarum, from Jamaica.

Cecidomyia atriplicis n. sp. American Naturalist, 1895, 766.

New Species of Insects taken on a Trip from the Mesilla Valley to the Sacramento Mts., N. M. Jour. N. Y. Ent. Soc., vi, 201-207, 1898.

Asphondylia neomexicana n. sp.; occurrence of some Diptera, p. 205, footnote.

Diplosis atriplicicola; *Lasioptera willistonii*, *ephedrae*, and *tertia*; *Asphondylia prosopis*. Annals and Mag. Nat. Hist., 1898, 321-331.

Diplosis parthenicola n. sp. The Entomologist, London, July, 1900, 201.

Asphondylia mentzeliae n. sp. The Entomologist, London; Nov., 1900, 302.

A New Cecidomyiid on *Gutierrezia*. Canadian Entomologist, xxxiii, 23; Jan., 1901.

Asphondylia gutierreziae, New Mexico.

Some Gall-Insects. Canadian Entomologist, xxxiv, 183, 184, 1902.

Lasioptera carbonitens and *ephedricola*, from New Mexico.

Some Insects of the Hudsonian Zone in New Mexico. Psyche, 1902, 346, 347.

No new Diptera.

Comstock, John H.

Report upon Cotton Insects. Department of Agriculture for 1879.

Phora aletia n. sp. (syn. of *nigriceps*), pp. 209-211. The same abridged in the Report of the Department of Agriculture for 1879, with the addition of *Tachina fraterna* n. sp. (syn. of *Frontina aletica*), p. 303.

Report of the Department of Agriculture for 1879, pp. 245, 266, 271.

Contains note on *Diastata* sp. mining leaves of corn; *Diplosis catalpa* n. sp., "The Catalpa Pod Diplosis"; and a bibliography of parasitic Cecidomyiidae.

Report on Miscellaneous Insects, in the Report of the Comr. of Agriculture for 1881 and 1882 (pub. Jan., 1893), 135-154.

Life history of *Trypeta* (*Rhagoletis*) *pomonella*, *Drosophila ampelophila* and *amana*, and *Sciara* (*Cecidomyia*) *ocellaris* O. S.; the last doubtless an error in rearing, as the species can hardly be a *Sciara*.

Comstock, John H. and Anna B.

A Manual for the Study of Insects. Ithaca, 1895. 701 pp., with plates and many figures.

The Diptera are on pp. 413-489. A useful table of families, and brief descriptions of all the lower families, with numerous illustrations. No new species.

Coquillett, D. W.

On the Early Stages of the Dipterous Fly, *Chrysophila freda* Loew. Canadian Entomologist, xv, 112, 113; June, 1883.

Monograph of the Lomatina of North America. Canadian Entomologist, xviii, 81-87; May, 1886.

Euccisia n. g.; several new species.

The North American Genera of Anthracina. Canadian Entomologist, xviii, 157-159; 1886.

Mancia nana new genus and species.

The North American Species of Toxophora. Entomologica Americana, i, 221, 222; March, 1886.

T. pellucida and *maxima* n. sp.

Notes on the Genus *Exoprosopa*. Canadian Entomologist, xix, 12, 13; Jan., 1887.

Exoptata divisa new genus and species.

Monograph of the Genus Anthrax north of Mexico. Transactions of the American Entomological Society, xiv, 159-182; Oct., 1887.

Many new species.

Synopsis of the North American Species of *Lordotus*. Entomologica Americana, iii, 115, 116; 1888.

L. miscellus, *zona* and *apicula*.

The Corn Worm or Boll Worm in California. Insect Life, i, 331, 332; May, 1889.

Tachina armigera n. sp.

The Dipterous Parasite of *Diabrotica soror*. Insect Life, ii, 233-236, figs.; Feb., 1890.

Cclatoria diabrotica n. sp.

A new Rhapsiomidas from California. West American Scientist, viii, 84-86, 1891.

Rhapsiomidas acton.

New Bombyliidæ from California. West American Scientist, vii, 197-200, 1891.

Lordotus junceus and *diversus*; *Toxophora vasta*.

New Bombyliidæ of the Group *Paracosmus*. West American Scientist, vii, 219-222, 1891.

Amphicosmus elegans, *Metacosmus exilis*, *Paracosmus insolens*.

A Revision of the Bombylid Genus *Aphæbantus*. West American Scientist, vii, 254-264; 1891.

Thirteen new species.

Revision of the Bombylid Genus *Epacmus* (*Leptocheilus*). Canadian Entomologist, xxiv, 9-11; Jan., 1892.

Concinuus, *pellucidus*, *fumosus* n. sp.

Notes and Descriptions of Bombyliidæ. Canadian Entomologist, xxiv, 123-126; May, 1892.

Exoprosopa grata; *Geron fasciola* and *capax*.

A New *Dalmannia* from California. Entomological News, iii, 150, 151; June, 1902.

D. vitiosa.

- Revision of the Species of Anthrax from America, north of Mexico. Transactions of the American Entomological Society, XIX, 168-187; July, 1892.
Nineteen new species; notes on many others; table of species.
- The Dipterous Parasite of *Melanoplus devastator* in California. Insect Life, v, 22-24; Sept., 1892.
Sarcophaga opifera n. sp.
- A New Genus of Diptera Allied to Rhapsiomidas. Canadian Entomologist, XXIV, 314, 315; Dec., 1892.
Apomidas trochilus new genus and species.
- Synopsis of the Asilid Genus Anisopogon. Canadian Entomologist, XXV, 20-22; Jan., 1893.
A. ladius, *rubidus* and *patruclis* n. sp.
- Synopsis of the Asilid Genus Blacodes. Canadian Entomologist, XXV, 33-34; Feb., 1893.
Bl. cristatus, *truncus*, *clausus*.
- Synopsis of the Asilid Genus Dioctria. Canadian Entomologist, XXV, 80; March, 1893.
D. parvulus and *rubidus*.
- Synopsis of the Asilid Genera Mallophora and Nicocles. Canadian Entomologist, XXV, 118-120; May, 1893.
Mallophora megachile and *Nicocles argentatus*.
- An Anomalous Empid. Entomological News, IV, 208-210, fig.; June, 1893.
Mythicomyia rileyi.
- A New Asilid Genus related to Erax. Canadian Entomologist, XXV, 175-177; July, 1893.
Efferia n. gen.; *E. rava*, *candida*, *pernicis*.
- Synopsis of the Dipterous Genus Thereva. Canadian Entomologist, XXV, 197-201; Aug., 1893.
Five new species.
- Synopsis of the Dipterous Genus Psilocephala. Canadian Entomologist, XXV, 222-229; Sept., 1893.
Ten new species.
- New North American Trypetidae. Canadian Entomologist, XXVI, 71-75; March, 1894.
Ten new species.
- Notes and Descriptions of North American Bombylidae. Transactions of the American Entomological Society, XXI, 89-112; March, 1894.
Two new genera; many new species; tables of genera and species.
- Two Interesting new Diptera from Washington. Entomological News, v, 125, 126; April, 1894.
Criorhina johnsoni and *Ceroplatus fasciola*.
- Brachycoma davidsoni* n. sp., in an article by Anstruther Davidson, "On the Parasites of Wild Bees in California"; Entomological News, v, 172; June, 1894.
- Synopsis of the Dipterous Genus Symphoromyia. Journal of the New York Entomological Society, II, 53-56; 1894.
Several new species.
- Revision of the Dipterous Family Therevidae. Journal of the New York Entomological Society, II, 97-101; Sept., 1894.
Metaphragma and *Nebritus*; six new species.

- A New Anthrax from California. *Journal of the New York Entomological Society*, II, 101, 102; Sept., 1894.
A. edwardsii.
- A Synopsis of the Dipterous Genus *Phora*. *Canadian Entomologist*, XXVII, 103-107; April, 1895.
Table and four new species.
- A New *Volucella* from Washington. *Entomological News*, VI, 131, 132; April, 1895.
V. kincaidii.
- New Tachinidæ with a slender Proboscis. *Canadian Entomologist*, XXVII, 125-128; May, 1895.
Isoglossa n. gen.; five new species.
- On the Occurrence of the Tachinid Genus *Heteropterina* Macq. in North America. *Entomological News*, VI, 207, 208; June, 1895.
H. nasoni.
- Notes and Descriptions of Tachinidæ. *Journal of the New York Entomological Society*, III, 49-58; June, 1895.
Three new genera and eighteen new species.
- On the Tachinid Genus *Acroglossa* Will. *Psyche*, VII, 261, 262; July, 1895.
No new species.
- New North American Mycetophilidæ. *Canadian Entomologist*, XXVII, 199-201; Aug., 1895.
Five new species.
- The Bombylid Genus *Acreotrichus* in America. *Psyche*, VII, 273, 274; Aug., 1895.
A. americana.
- New Genera and Species of Tachinidæ. *Journal of the New York Entomological Society*, III, 97-107; Sept., 1895.
Five new genera; sixteen new species.
- A Cecidomyiid that lives on Poison Oak. *Insect Life*, VII, 348, 1895.
Cecidomyia rhois n. sp.
- Two Dipterous Leaf-Miners in Garden Vegetables. *Insect Life*, VII, 381-384, figs.; 1895.
Drosophila flavicola MEIG. and *Trypeta fratria* LOEW; life histories.
- Two Dipterous Insects Injurious to Flowers. *Insect Life*, VII, 399-402, figs.; 1895.
Phytomyza chrysanthemi KOWARZ and *Diplosis caulicola* n. sp.; life histories.
- A New Wheat Pest. *Insect Life*, VII, 406-408, fig.; 1895.
Sciara tritici.
- Diptera of Florida. *Proceedings of the Academy of Natural Sciences of Philadelphia*; 1895, 303-340, in an article by C. W. Johnson.
Coquillett described *Pseudochata* n. gen., and thirteen new species.
- Revision of the North American Empidæ. *Proceedings of the United States National Museum*, XVIII, 387-440. Cover shows date 1896, but separates were distributed late in 1895.
Tables of genera and species; four new genera and many new species.
- New Culicidæ from North America. *Canadian Entomologist*, XXVIII, 43, 44; Feb., 1896.
Culex signifer and *tarsalis*; *Megarhina rutila*.

A New Sub-Family of Ephyridiæ. Entomological News, vii, 220, 221; Sept., 1896.

Lipochacta slossonæ new genus and species.

A New Dipterous Genus Related to Gnoriste. Proceedings of the Entomological Society of Washington, iii, 321, 322, fig.; Oct. 6, 1896.

Eugnoriste occidentalis new genus and species.

Parasites of Spiders' Eggs. By Anstruther Davidson. Ent. News, vii, 320; Dec., 1896.

Description of *Gaurax araneæ* n. sp., by Coquillett.

List of the Mosquitoes of the United States. Bulletin 4 new series, Division of Entomology, Dept. of Agriculture; 1896, pp. 22-24.

Synonymical list, with localities; no new species.

Diptera from the Mammoth Cave. American Naturalist, xxxi, 384-387; May, 1897.

Three new species.

The Raspberry-Cane Maggot. Canadian Entomologist, xxix, 162, 163; July, 1897. In an article by M. V. Slingerland.

Phorbia rubivora n. sp.

Revision of The Tachinidæ of America, north of Mexico. Bull. No. 7, Technical Series, Division of Entomology; 1897, 154 pp.

Many new species; twelve new genera.

On *Cuterebra emasculator*, with descriptions of several allied Species. Canadian Entomologist, xxx, 9-11; January, 1898.

Five new species of *Cuterebra*.

Synopsis of the Asilid Genus *Ospriocerus*. Entomological News, ix, 37; Feb., 1898.

O. ventralis.

On the Dipterous Genus *Eusiphona*. Canadian Entomologist, xxx, 53, note; March, 1898.

No new species.

Notes and Descriptions of Oscinidæ. Journal of the New York Entomological Society, vi, 44-49; March, 1898.

Table of genera and many new species.

Additions to my Synopsis of the Tachinidæ. Canadian Entomologist, xxx, 233-237; Sept., 1898.

Nine new species.

On the Dipterous Family Scatophagidæ. Journal of the New York Entomological Society, vi, 160-165; Sept., 1898.

Three new genera and about a dozen species.

A new Dipterous Genus Belonging to the Therevidæ. Journal of the New York Entomological Society, vi, 187, 188; Sept., 1898.

Henicomylia hubbardii.

New Species of Sapromyzidæ. Canadian Entomologist, xxx, 277-280; Nov., 1898.

Fourteen new species.

The Buffalo Gnats or Black-Flies of the United States. Bulletin 10, new series, Division of Entomology, 66-69, figs.; 1898.

Bracteatum and *griseum* n. sp.

- On the Habits of the Oscinidæ and Agromyzidæ Reared at the U. S. Dept. of Agriculture. Bull. 10, new series, Division of Entomology, 70-79; 1898.
Habits of many species; very valuable.
- A Cecidomyiid Injurious to Seeds of Sorghum. Bull. 18, new series, Div. of Entomology, Department of Agriculture; p. 81; 1898.
Diplosis sorghiola.
- Description of a New Psilopa. Canadian Entomologist, xxxi, 8; Jan., 1899.
Psilopa petrolei, from California.
- A New Dipterous Family Related to the Chironomidæ. Entomological News, x, 60, 61, fig.; March, 1899.
Stenæxenus johnsoni, which I place in the Chironomidæ.
- New Genera and Species of Dexidæ. Journal of the New York Entomological Society, vii, 218-222; Sept., 1899.
Eight new species; three new genera.
- New Genera and Species of Nycteribidæ and Hippoboscidæ. Canadian Entomologist, xxxi, 333-336; Nov., 1899.
Pterellepsis, *Aspidoptera* and *Pseudolfersia* n. gen.: four new species.
- Notes and Descriptions of Trypetidæ. Journal of the New York Entomological Society, vii, 259-268; Dec., 1899.
Paracantha n. gen., and 17 new species.
- Report on Diptera of the Commander Islands. Extracted from "The Fur Seals and Fur Seal Islands of the North Pacific Ocean," iv, 341-346, Washington, 1899.
Eutanypus n. gen.; eight new species.
- New Genera and Species of Ephydridæ. Canadian Entomologist, xxxii, 33-35; Feb., 1900.
Nostima and *Paratissa* n. gen.: five new species.
- Notes and Descriptions of Ortalidæ. Journal of the New York Entomological Society, viii, 21-25; March, 1900.
Paradoxa new genus; ten new species.
- Two New Genera of Diptera. Entomological News, xi, 429, 430, figs.; April, 1900.
Hesperodes johnsoni and *Traginops irrorata*, both from New Jersey.
- New Scenopinidæ of the United States. Entomological News, xi, 500, 501; June, 1900.
Metatrichia new genus; *Pseudatrichia unicolor* and *griseola*, both from New Mexico.
- Report on a Collection of Dipterous Insects from Puerto Rico. Proceedings of the United States National Museum, xxii, 249-270; 1900.
Three new genera and fifteen new species; many other species reported.
- Two New Cecidomyians Destructive to Buds of Roses. Bulletin 22, new series, Division of Entomology, Dept. of Agriculture; 1900, pp. 44-48, figs.
Diplosis rosivora and *Noccerata* (n. gen.), *rhodophaga*; life histories.
- A New Violet Pest. Bulletin 22, new series, Division of Entomology, Dept. of Agriculture; 1900, pp. 48-51, figs.
Diplosis violicola n. sp.; fuller life history in Bull. 27, 47-50; 1901.
- Synoptic Tables of North American Mosquitoes. Bulletin 25, new series, Division of Entomology, Dept. of Agriculture; 1900, pp. 19-22.

No new species; these tables are printed also in Circular No. 40, Division of Entomology, and with slight changes in a second edition of the same, and in Howard's book "Mosquitoes."

Diptera of the Harriman Alaska Expedition. Proceedings of the Washington Academy of Sciences, II, 389-464; Dec. 7, 1900.

One new genus, 63 new species; 276 species listed in all.

A New Genus of Ortalidæ. Entomological News, XII, 14; Jan., 1901.

Zacompsia fulva.

Three New Species of Diptera. Entomological News, XII, 16-18; Jan., 1901.

Chironomus halteralis, *Helicobia quadrisetosa*, *Drosophila buskii*.

Diptera of the Hudsonian Zone, New Mexico. Psyche, IX, 149, 150; Jan., 1901.

Limnophila costata and *Rhypholophus cockerellii* new; 21 other species.

The Ant-Decapitating Fly. Proceedings of the Entomological Society of Washington, IV, 501; July 2, 1901.

Apocephalus pergandei n. gen. and sp.; the biological part of the article is by Pergande.

A New Anthomyiid Injurious to Lupines. Entomological News, XII, 206, 207; Sept., 1901.

Phorbia lupini.

Three New Species of Culicidæ. Canadian Entomologist, XXXIII, 258-260; Sept., 1901.

Psorophora howardii, *Culex currici*, *Aedes smithii*.

Types of Anthomyiid Genera. Journal of the New York Entomological Society, IX, 134-146; Sept., 1901.

No new species.

Original Descriptions of New Diptera. Bulletin 47, New York State Museum, 585, 586; Sept., 1901.

Rocderioides juncta and *Zabrachia polita* new genera and species.

New Diptera in the United States National Museum. Proceedings of the United States National Museum, XXIII, 593-618; 1901.

Pycnoglossa and *Plethochata* n. gen.; many new species, especially of *Ceratopogon*.

A Systematic Arrangement of the Families of Diptera. Proceedings of the United States National Museum, XXIII, 653-658; 1901.

No new species.

Three New Species of Nematoceros Diptera. Entomological News, XIII, 84, 85; March, 1902.

Ceratopogon varicolor, *Tanypus dyari*, *Corethra brakeleyi*.

New Cyclorrhaphous Diptera from Mexico and New Mexico. Canadian Entomologist XXXIV, 195-202; Aug., 1902.

Comatacta and *Trixodes* n. gen.; 12 n. sp.; oc. of *Sicus* in N. A.

New Orthorrhaphous Diptera from Mexico and Texas. Journal of the New York Entomological Society, X, 136-141; Sept., 1902.

Eleven new species.

Three New Species of *Culex*. Canadian Entomologist, XXXIV, 292, 293; Nov., 1902.

C. atropalpus, *varipalpus* and *quadrivittatus*.

Diptera from Beulah, N. M. Transactions of the American Entomological Society, XXIX, 102-104; Nov., 1902.

Trochilodes skimmeri n. gen. and sp.; *Pegomyia nitidula* n. sp.

New Acalyprate Diptera from North America. Journal of the New York Entomological Society, x, 177-191; Dec., 1902.

Several new genera; many species.

New Forms of Culicidæ from North America. Journal of the New York Entomological Society, x, 191-194; Dec., 1902.

Corethrella n. gen.; several species of *Culex* and *Anopheles*.

New Diptera from North America. Proceedings of the United States National Museum, xxv, 83-126; 1902.

Meigeniella, *Paradmontia* and *Pseudapiuops* n. gen.; many new species.

The Occurrence of the Phorid Genus *Aenigmatias* in North America. Canadian Entomologist, xxxv, 20-22; Jan., 1903.

Aenigmatias schwarzi n. sp., from Ariz.

The Genera of the Dipterous Family Empididæ, with Notes and new Species. Proceedings of the Entomological Society of Washington, v, 245-272; May 7, 1903.

Sixteen new species; discussion of types of genera.

A New Culicid Genus Related to *Corethra*. Canadian Entomologist, xxxv, 189-190; July, 1903.

Sayomyia nom. nov.; *Corethra pictipes* n. sp.

Four New Species of *Culex*. Canadian Entomologist, xxxv, 255-257; Sept., 1903.

C. cantator, *aurifer*, *nanus*, *discolor*.

Notes on *Culex Kelloggii* Theobald. Canadian Entomologist, xxxv, 261; Sept., 1903.

Notes on synonymy.

Eucorethra, a Genus of Culicidæ. Canadian Entomologist, xxxv, 272; Oct., 1903.

"*E. underwoodi* UNDERWOOD."

A New *Anopheles* with Unspotted Wings. Canadian Entomologist, xxxv, 310; Nov., 1903.

A. barberi.

Curtis, John.

Description of the Insects brought Home by Commander J. Clark Ross. Appendix to Ross's Voyage to the Arctic Regions; 1831.

Chironomus borealis, *Tipula arctica*, *Helophilus bilineatus*, *Tachina hirta*, *Anthomyia dubia* and *Scatophaga apicalis* new.

Curtice, Cooper.

The Larvæ of *Hypoderma bovis* DeG. Insect Life, II, 207, 208; February, 1890.

The species now called *lineata* VILL. Curtice here advanced a new theory of the insect's habits.

Davidson, Anstruther.

The Nest and Parasites of *Xylocopa orpifex* Smith. Entomological News, IV, 151-153; May, 1893.

Argyramaba simson FAB., recorded as a parasite.

On the Parasites of Wild Bees in California. Entomological News, v, 170-172; June, 1894.

Habits of *Brachycoma davidsoni* COO.

The Habits of Californian Bees and Wasps. Entomological News, vi, 252, 253; Oct., 1895.

Physocephala affinis reared from nest of *Anthidium emarginatum*.

Parasites of Spider's Eggs. Entomological News, vii, 319, 320; Dec., 1896.

Habits of *Gaurax aranea* Coq.

Day, Loren T.

Notes on Sciomyzidae, with Descriptions of New Species. Canadian Entomologist, xiii, 85-89; April, 1881.

Four new species.

The Species of Odontomyia Found in the United States. Proceedings of the Academy of Natural Sciences of Philadelphia, 1882, 74-88.

Nine new species.

DeGeer, Charles.

Mémoires pour servir à l'Histoire des Insectes. Stockholm, 1752-78. 7 vols.

Several American species are described in the 6th volume.

Robineau-Desvoidy, J. B.

Essai sur la Tribu des Culicides. Mémoires de la Société d'Histoire Naturelle de Paris, iii, 390-413, 1 pl. Paris, 1827.

Five new species from North America.

Essai sur les Myodaires. Mémoires des Savants étrangers de l'Académie des Sciences de Paris, vol. ii. Paris, 1830, 813 pp.

This massive work contains an original systematic arrangement of all the Calyptrate and part of the Acalyptrate Muscidae. About eighty new North American species are described. Many of the genera, after being ignored for half a century, have of late been adopted and newly defined, especially in Tachinidae. The work is intrinsically valuable, and for its time wonderful. The characters now used for separating the genera of Tachinidae were mostly introduced in this volume. It is very rare and expensive.

Histoire Naturelle des Diptères des Environs de Paris. 2 vols. Paris, 1863. Vol. i, xvi and 1143 pp.; vol. ii, 920 pp.

This work was published after Desvoidy's death, and contains some defects due to imperfect editing of his materials. It is devoted almost wholly to European Tachinidae, Dexidae, Sarcophagidae and Muscidae. "Contains short descriptions of a few N. A. Diptera; no new ones."—O. S.

Note.—Osten Sacken, "Record of My Life Work in Entomology," 180-192, 1903, gives an interesting and lucid account of the two main works cited above.

Dimmock, Geo.

Anatomy of the Mouth-Parts and of the Sucking Apparatus of Some Diptera. Boston, 1881; 50 pp., 4 plates.

This is generally recognized as authoritative on the subject.

Doane, R. W.

A New Trypetid of Economic Importance. Entomological News, ix, 69-72, 1 pl.; March, 1898.

Rhagoletis ribicola.

Notes on Trypetidae, with Descriptions of New Species. Journal of the New York Entomological Society, vii, 177-193, 2 plates; Sept., 1899.

Twenty new species; notes on many others.

Additional Notes on Trypetidae. Journal of the New York Entomological Society, VIII, 47-48; March, 1900.

This is a defense of the preceding, Mr. Coquillett having erroneously relegated some of the species to synonymy.

New North American Tipulidæ. Journal of the New York Entomological Society, VIII, 182-198, 2 plates; Sept., 1900.

Polyangæus n. gen.; 44 new species of *brevipalpi*.

Descriptions of New Tipulidæ. Journal of the New York Entomological Society, IX, 97-127; Sept., 1901.

Fifty-four new species of *Tipula*.

Drury, Drew.

Illustrations of Natural History, wherein are exhibited upwards of two hundred and forty figures of Exotic Insects. London, 1770-82, 3 vols.

A new edition was published by Westwood in 1837, under the title, "Illustrations of Foreign Entomology."

"Eight N. American and West Indian species are figured."—O. S.

Dufour, Leon.

Révision et Monographie du Genre *Ceroplitus*. Annales des Sciences Naturelles, 2me ser., XI, 193 *et seq.*, figs.; 1839.

Ceroplitus carbonarius, from Carolina.

Dyar, Harrison G.

Illustrations of the Larvæ of North American Mosquitoes. Journal of the New York Entomological Society, (1) IX, 177-182, 1 plate; Dec., 1901. (2) X, 194-201, 4 plates; Dec., 1902. (3) XI, 23-27, 2 plates; March, 1903.

No new species; many species described and figured in the larval stage.

The Life-History of *Uranotenia sapphirina*. Journal of the New York Entomological Society, IX, 179-182, 1 plate; Dec., 1901.

Notes on the Mosquitoes on Long Island, N. Y. Proceedings of the Entomological Society of Washington, V, 45-51; Apr. 28, 1902.

No new species; mostly biological.

Notes on the Mosquitoes in New Hampshire. Proceedings of the Entomological Society of Washington, V, 140-148; Feb. 13, 1903.

No new species; mostly biological.

Culex restuans Theobald. Entomological News, XIV, 41, 42; Feb., 1903.

Larval structure, habits, etc.

Culex atropalpus Coquillett. Entomological News, XIV, 180; June, 1903.

Larval structure and habits.

Emerton, James H.

An Internal Dipterous Parasite of Spiders. Psyche, V, 404, 1890.

Eckel, Lida S.

The Resin-Gnat *Diplosis* and Three of Its Parasites. Entomological News, XIV, 279-284, 1 plate; November, 1903.

Diplosis resinicola O. S., biology.

Erichson, W. F.

Die Henopier. Eine Familie aus der Ordnung der Dipteren. Entomographien, Heft I, 135-174, 1 plate. Berlin, 1840.

Ocnæa micans, from Mexico.

Eschschoolz, J. F.

Entomographien. Dorpat. Naturwiss. Abhandl., I, 1823.

Empis lanicentris and *Musca obscura*, from Unalaska.

Fabricius, J. C.

Systema Entomologiæ. Flensburgi, 1775.

Mantissa Insectorum; 2 vols. Hafniæ, 1787.

Entomologia Systematica; 4 vols. Hafniæ, 1772-94; supplement; 1798.

Systema Antliatorum. Brunsvigæ, 1805.

Brief descriptions of a considerable number of North American Diptera, especially large species from the West Indies. Wiedemann has re-described most of them.

Fabricius, Otto.

Fauna Grœnlandica. Hafniæ et Lepsia, 1780.

Eighteen new species. Schiödte, "Tillæg til Rink: Grœnland," etc., has given the true interpretation of several species; Lundbeck, in "Diptera Grœnlandica," has unriddled a few more, leaving seven that cannot be recognized.

Felt, Ephraim P.

The Antennal Structure of Certain Diplosids. *Psyche*, VIII, 1-5, 1 plate; Jan., 1897.

Additional Notes on *Sciara*. 12th New York Report; 1897; 223-228, 1 plate.

Sciara multiseta, *pauciseta*, *agraria*, *prolifera* and *fulvicanda*. The preceding notes were published by Lintner, q. v.

Phora albidihalteris n. sp. 12th New York Report; 1897; 228, 229.

Reared from mushrooms in N. J.

Trypeta canadensis Loew. 14th Report New York State Entomologist; 1898; 160-163, biology.

Snakeworm (*Sciara* sp.). 16th Report New York State Entomologist, 922-994; March, 1901. Occurrence of snake-like masses of larvæ at Franklin, N. Y.

The Hessian Fly. 17th Report New York State Entomologist; 1902; 705-730, with figs. and extended bibliography.

Rhabdophaga salicis Schrank. 17th Report New York State Entomologist; 1902; 741-744, figs. Occurrence in N. A., and notes on biology.

Psila rosæ Fabr., the Carrot Rust Fly. 18th Report New York State Entomologist, 99-103, figs.; May, 1903.

Life history, remedies, etc.

Fitch, Asa.

An Essay upon the Wheat-fly and some Species Allied to it. Albany, 1845.

This is the first edition, which was published in the American Quarterly Journal of Agriculture and Science, vol. II, no. 2. It contains the descriptions of *Cecidomyia tritici* Kirby; *Cec. caliptera* n. sp.; *Cec. thoracica* n. sp.; *Cec. tergata* n. sp. A second edition appeared in 1846, in the Transactions of the N. Y. State Agricultural Society, vol. v. A new species, *Cec. cercalis*, is separated in this edition from *C. caliptera*, and full descriptions with figures of both are given.

The Hessian Fly. Albany, 1846 (second edition, 1847). With a plate.

Published originally in the American Journal of Agriculture and Science, vols. IV, V (1846). Reprinted with some additions in the Transactions of the N. Y. State Agricultural Society, vol. VI, pp. 316-376 (1846; in pamphlet form it bears the date of 1847).

Cecidomyia salicis n. sp., described in American Quarterly Journal of Agriculture and Science, vol. 1, p. 263.

Winter Insects of Eastern New York. In the American Journal of Agriculture and Science, vol. v, pp. 274-284. [Reprinted in Lintner's 2d N. Y. Rept., 235-244.]

N. sp.—*Culex hieimalis*, *Chironomus*, *nivoriundus*, *Trichocera brumalis*.

Survey of Washington County, New York. In the 9th vol. of the Transactions of the N. Y. State Agricultural Society.

Several species occurring in that locality are mentioned in a popular way.

First and Second Report on the Noxious, Beneficial and other Insects of the State of New York. Made to the State Agricultural Society, pursuant to an appropriation for this purpose from the Legislature of the State. Albany; 1856. With 4 plates.

Before the publication of the Second Report, the first had been distributed under the title of First Report, etc.; 1855. This work contains 21 new American Diptera.

Third, fourth and fifth Reports on the Noxious, Beneficial and other Insects of the State of New York, made to the State Agricultural Society, pursuant to an annual appropriation for this purpose from the Legislature of the State. Albany; 1859. With four plates and many wood-cuts.

Cuterebra emasculator n. sp. and several Cecidomyiæ.

Sixth, seventh, eighth and ninth Reports, etc., etc. Albany, 1865. With four plates and several wood-cuts.

Contains a new edition of the papers on *Cecid. tritici* and *destructor*.

All these reports appeared successively in the Transactions of the N. Y. State Agricultural Society, and were collected and issued afterwards as separate volumes: Volume I, containing Reports 1 and 2; Vol. II, Reports 3-5; Vol. III, Reports 6-9. Each volume has a title-page, as given above, and a complete index of the contents. In the first and third volumes the pagination runs through the whole volume; in the second volume, a new pagination begins with every report, but at the same time, the species successively discussed are numbered and these numbers run through the whole volume. For this reason, in quoting the second volume, I had to give the number of the species referred to, while in quoting the other two volumes, I give the page.—Dr. Fitch's following Reports, which I have seen up to the 12th (1867), do not contain any new species of N. A. Diptera.

Note.—The above account of Fitch's writings is quoted bodily from Osten Sacken's Catalogue. It remains to add that the Reports were continued to 1872. Lintner, in his First N. Y. Report, 1882, pp. 291-325, gives a fuller account of the writings of Fitch. As I have copied all of Osten Sacken's references, I necessarily quote his editions, although the others were often earlier.

Trupaica apicora (syn. *Promachus fitchii*) is inadvertently omitted above. It is described in the 9th Report.

Fletcher, James.

Reports of the Entomologist and Botanist, Central Experiment Farm, Canada Department of Agriculture.

A number of short references to the occurrence and habits of Diptera of economic importance are to be found in this series; the report for 1897 has a somewhat longer article on *Psila rosea*, "The Carrot Rust-Fly," 196-198, figs.

Recent Additions to the List of Injurious Insects of Canada. Transactions of the Royal Society of Canada, sec. series, 1899-1900; v, section IV, 209, 213, figs.

Occurrence and habits of *Oscinis carbonarius* LOEW and *Psila rosæ* FAB.

Forster, J. R.

Novæ Species Insectorum. Centuria I. London, 1771.

Tabanus americanus.

French, G. H.

A Parasite the Supposed Cause of Some Cases of Epilepsy. Canadian Entomologist, xxxii, 263, fig.; Sept., 1900.

Gastrophilus epilepsalis n. sp., described from small larvæ.

Fyles, T. W.

Description of a Dipterous Parasite of Phylloxera vastatrix. Canadian Entomologist, xiv, 237, fig., 1882; further note, xv, 83, 84, 1884.

Cecidomyia grassator n. sp.

Trypeta solidaginis Fitch, and Its Parasites. Canadian Entomologist, xxvi, 120-122; May, 1894.

No new Diptera.

Quebec Diptera. Canadian Entomologist, xxxv, 234; August, 1903.

45 species from the Province of Quebec; none new.

Garman, H.

The American Frit-Fly. Agricultural Science, v, 67-69, 1891.

Oscinis variabilis? LOEW (since referred to *O. carbonarius* LOEW); biology.

The Bot-Flies of the Horse. Annual Report Kentucky Experiment Station, 1894.

No new species.

The Hessian Fly. Dangerous Mosquitoes in Kentucky. Bulletin 96, Kentucky Experiment Station.

No new species; popular account.

Gerstaecker, A.

Beitrag zur Kenntniss der Henopier. Stett. Ent. Zeitung, 1856, 339-361.

Eulonchus smaragdinus.

Beitrag zur Kenntniss exotischer Stratiomyiden. Linnea Entom., xi, 261-350, 1 plate; 1857.

Six new species.

Beschreibung einiger ausgezeichneten neuen Dipteren aus der Familie Muscarie. Stett. Ent. Zeitung, 1860, 163-208, 1 plate.

Pyrgota vespertilio and *ptrophorina*, *Toxotrypana curvicauda*, *Diacrita costalis*.

"Die Zweite deutsche Nordpohlfahrt in der Jahren 1869-70. Leipzig, 1874. Hymenoptera and Diptera by Gerstaecker; the latter are represented by four species, collected in East Greenland, lat. 73-75 degrees; *Tipula truncorum* MEIG., *Echinomyia ænea* STAEG., *Cynomyia alpina* ZETT., and *Calliphora granlandica* ZETT."—O. S.

Giglio-Tos, Ermanno.

Bolletini dei Musei di Zoologia ed Anatomia comparata della R. Università di Torino:

- Vol. V, No. 84, July 18, 1890, 4 pp., 1 pl.
 VI, 102, May 28, 1891, 4 pp.
 VI, 108, Sept. 20, 1891, 6 pp.
 VII, 117, Mar. 18, 1892, 4 pp.
 VII, 118, Mar. 22, 1892, 3 pp.
 VII, 123, June 1, 1892, 7 pp.
 VII, 132, Oct. 20, 1892, 10 pp. (two parts).
 VIII, 147, May 20, 1893, 11 pp.
 VIII, 158, July 1, 1893, 14 pp.
 XI, 224, Jan. 27, 1896, 5 pp.
 XII, 276, Feb. 18, 1897, 3 pp.

Contents of the preceding, by number (all Mexican and Central American) :

- No. 84, *Ditomyia zonata* and *mexicana*.
 No. 102, Diagnoses of twelve Stratiomyidæ.
 No. 108, *Berismyia*, *Rhopalosyrphus*, *Omegasyrphus*, *Megamctopon* n. gen.
 No. 117, *Camerania* n. g. (see *Volucella macrocephala*).
 No. 118, Notes on *Rhopalosyrphus* and *Omegasyrphus*.
 No. 123, diagnoses of 31 species of Syrphidæ.
 No. 132 (two numbers exactly alike in title, but with different contents), 30 diagnoses of Syrphidæ and Conopidæ.
 No. 147, diagnoses of 47 species of Calyptatæ; 4 new genera.
 No. 158, seven genera, many species, of *Cyclorhapha*.
 No. 224, *Pityocera festæ*.
 No. 276, syn. of *Pityocera festæ* with *Dicrania cervus* WIED.

The preceding numbers, except the last two, are supposed to be superseded by the following :

Ditteri del Messico. Memoria della Reale Accademia delle Scienze di Torino, Serie II :

Parte I. Stratiomyidæ-Syrphidæ. Tom. XLIII, 72 pp., 1 plate; 1892.

Parte II. Syrphidæ-Conopidæ-Pipunculidæ. XLIII, 79 pp., 1 pl.; 1892.

Parte III. Muscidæ Calypteratæ. XLIV, 76 pp., 1 pl.; 1893.

Parte IV. Calypteratæ and Acalypteratæ. XLV, 73 pp., 1 pl.; 1895.

Many Mexican genera and species. I am unable to give the original pagination.

Giles, Geo. M.

A Handbook of Gnats or Mosquitoes. Second edition, London, 1902. 530 pp.; many plates and figures.

The systematic part of this is practically an abridgement of Theobald's Monograph, and contains descriptions of most of the North American species—all that were known at that time.

The first edition was a different book, with less systematic work. It contained one new North American species, *Culex willistonii*, which Coquillett has since referred to his *tarsalis*.

Gillette, C. P.

A New Cecidomyiid Infesting Box Elder. Psyche, 1800, 392, 393.

Cecidomyia negundinis.

Glover, Townsend.

Manuscript Notes from My Journal; or Illustrations of Insects Native and Foreign. Diptera or Two-Winged Flies. Washington, 1874, 4to, pp. iii, pl. I-XII and pl. A, pp. 120. Forty-five copies printed.

No new species; notes on the habits of some species.

Grænicher, S.

The Syrphidæ of Milwaukee Co., Wis. Bulletin of the Wisconsin Natural History Society, n. ser., 1, 3; July, 1900.

No new species (not seen).

Gray, G. R.

Diptera in E. Griffith's Animal Kingdom. London, 1824-33. 16 vols. Several N. A. species are figured in the 15th volume, 1832. "The descriptions by Gray are very incomplete."—O. S.

Grote, August R.

Description of Two New Species of North American Brachycerous Diptera. Proceedings of the Entomological Society of Philadelphia, vi, 445; 1866-67.

Sparnopolius coloradensis and *cumatilis*.

Guérin-Méneville, F. E.

"Note sur deux Insectes Parasites de la cochenille qui font un grand tort à cette culture en Amérique. (Read in the Academy of Sciences in Paris on the 13th of Nov., 1848. Conf. Guerin's Revue Zoologique, 1848, p. 350.)"—O. S.

Iconographie du Règne Animal de G. Cuvier, etc. Paris, 1829-44. The insects are in the seventh volume.

Leptis sercillei, *Calobata ruficeps*, *Toxophora americana*, *Cuterebra americana* (the last may be South American).

Hagen, Hermann A.

A New Species of Simulium, with a Remarkable Nymph Case. Proceedings of the Boston Society of Natural History, xx, 305; 1879.

Simulium pictipes.

List of Anthomyidæ Examined by R. H. Meade, Esq., Bradford, England. Canadian Entomologist, xiii, 43-51; 1881.

List of Sarcophagidæ Examined by R. H. Meade, Esq., Bradford, England. Canadian Entomologist, xiii, 146-150; 1881.

The two preceding papers contain only some rather off-hand comments on the collections sent to England by Hagen; no new species.

Entomological Notes. Canadian Entomologist, xxx, 37; 1881 (*Cecidomyia* sp.).

On Simulium. Canadian Entomologist, xiii, 150, 151; 1881.

Trypeta cerasi Linné. Canadian Entomologist, xv, 159, 160; 1883.

Simulium Feeding upon Chrysalids. Ent. Monthly, Mag., xix; 1883, 254, 255.

On the Hessian Fly in Italy. Canadian Entomologist, xvii, 129-131; 1885.

Cœlopa frigida Fall. Canadian Entomologist, xvii, 140, note.

On Cecidomyia liriodendri, Canadian Entomologist, xviii, 159; 1886.

Haldeman, S. S.

Description of several new and interesting Animals. American Quarterly Journal of Agriculture and Science, vi, 193, 1847. Reprinted in the Proc. Boston Soc. Nat. Hist., January, 1859.

Cecidomyia robiniaë n. sp.

Harrington, W. Hague.

Occupants of the Galls of Eurosta solidaginis Fitch. Canadian Entomologist, xxvii, 197-198, 1895.

No new species.

Harris, Thaddeus W.

"Catalogue of the Insects of Massachusetts. In Prof. Hitchcock's Report on the Geology, Botany and Zoology of Massachusetts.

Professor Hitchcock's Report had two editions; in the first (1833), Dr. Harris mentioned only the generic names of the insects, adding the number of species belonging to each genus. In the second edition (1835), the specific names are also given; many of them are mere collection names, never having been published.

"A Treatise on some of the Insects of New England, which are injurious to Vegetation. Second edition. Boston, 1852.

The first edition of this work was published in 1841, under the title of A Report on the Insects of Massachusetts, Injurious to Vegetation. The second edition contains many additions.

"A Treatise on Some of the Insects Injurious to Vegetation. Third edition. Boston, 1862. With 8 plates and 278 wood-cuts.

Was published at the expense of the Commonwealth of Massachusetts and is provided with notes by different authors; these on the Diptera are by C. R. Osten Sacken. The quotations in the present volume are from this edition.

"Entomological Correspondence. Edited by Samuel Scudder. Boston, 1869.

Contains on pp. 335, 336, descriptions of *Musca harpyia* HARRIS (syn. *Musca domestica* L.) and *Musca familiaris* HARRIS (apparently the same as the European *Pollenia rudis*)." Quoted from O. S.

Harris, H. F.

The Eggs of *Psorophora ciliata*. Entomological News, xiv, 232, 233; 1903.

Hart, Chas. A.

On the Entomology of the Illinois River and Adjacent Waters. First Paper. Bulletin of the Illinois State Laboratory of Natural History, iv, Article vi, pp. 149-280, with 14 plates. The Diptera extend from p. 184 to p. 270, with 10 plates. Springfield, Ill., 1895.

Contains a large amount of valuable and interesting information about the aquatic dipterous larvæ, many species being described and figured. No new species.

Harvey, F. L.

The Currant Fly. Bulletin 35, Maine Experiment Station; May, 1897. 8 pp. and plate.

Epochra canadensis LOEW, habits, etc.

Report Entomologist and Botanist, in the Annual Report Maine Experiment Station, 1889, 148-256, 1 plate and 11 figs.

Full life history of *Trypeta (Rhagoletis) pomonella*.

Hausmann, J. F. L.

Entomologische Bemerkungen. Braunschweig, 1769.

Syrphus trifasciatus n. sp. (syn. of *Milcsia ornata*). According to Hagen, Hausmann, who afterward became a professor in Göttingen, was only sixteen years old at the time of this publication.

Herrera, A. L.

El Gusano de la Fruta. Boletín de la Comisión de Parasitología Agrícola, I, No. 1. Mexico City, 1900.

A pamphlet of thirty pages on *Trypeta ludens*, the fruit-fly of the orange; figures and account of damage, etc.

Herrick, A.

Corethra appendiculata n. sp., in Minnesota Geol. and Nat. Hist. Survey, 1884, 10, pl. v. Larva only, and very vaguely described. (Data from Johansen.)

Hine, J. S.

Sciara inconstans Fitch—Reared from Carnations. Entomological News, x, 201, 202, figs.; Sept., 1899.

Pangonia chrysocoma O. S. Entomological News, xi, 392; March, 1900.
Synonymy of *Goniops hippoboscoides*.

Two New Species of Tabanidæ. Canadian Entomologist, xxxii, 247; Aug., 1900.

Tabanus pruinosus (afterward changed to *ohiocnsis*) and *thoracicus*.

Collecting Tabanidæ. Ohio Naturalist, ii, 167; Dec., 1901.

Habits of adults in several species.

Observations on Insects. Ohio Naturalist, ii, 169; Dec., 1901.

Notes on habits of *Agromyza setosa* Lw., *Bibio albipennis* and *Chrysopila ornata*.

New or Little-Known Diptera. Ohio Naturalist, ii, 228-230; March, 1902.

Pachygaster maculicornis and *Phoranthia bridwelli*; notes on several other species.

The genus *Pedicia*, with one new Species. Ohio Naturalist, iii, 416, 417; April, 1903.

P. magnifica.

Some Diptera from Arizona. Canadian Entomologist, xxxv, 244-246; Sept., 1903.

Tabanus hyalinipennis, *Myiolepta aurinota*; notes on three described species.

Tabanidæ of Ohio. Ohio Academy of Sciences, Special Papers, No. 5, 1903.

Also published as University Bulletin No. 19, series 7, Ohio State University. 63 pp., 2 plates.

Chrysops brunneus and *sackeni*; all the Ohio species redescribed.

On the life history of *Tabanus vivax*. Ohio Naturalist, iv, Nov., 1903, 2 pp.

Holmgren, A. E.

Insekten fra Nordgrönland. samlade af Prof. A. E. Nordenskiöld år 1870. Kongl. Vetenskap. Förhandlingar, 1872, No. 6, pp. 97-105.

Nine new species; thirty-nine in all.

Holstein, G. W.

Notes on *Hypoderma lineata* in Texas. Entomological News, iv, 299, 300; Nov., 1893.

Hood, Lewis E.

The Leptidæ and Bombylidæ of the White Mts. Psyche, vi, 283, 284; July, 1892.

Occurrence of about twenty species, with notes; none new.

Hopkins, A. D.

Notes on the Habits of Certain Mycetophilids, with Description of *Epidapus scabiei* n. sp. Proceedings of the Entomological Society of Washington, iii, 149-159, figs.; 1895.

Forms of So-Called Potato Scab Caused by Insects. Special Bulletin 2, West Virginia Experiment Station, 97-111, 1895; many figs.

Potato scab produced by *Epidapus scabici*.

The Hessian Fly in West Virginia. Bulletin 67, West Virginia Experiment Station, Aug., 1900; 14 pp., 2 plates and map.

Studies in the life history of *Mayetiola destructor*.

Hough, Garry deN.

Two New American Species of *Cynomyia*. Entomological News, ix, 105-111, figs.; May, 1898.

C. americana and *elongata*.

A Third American Species of *Cynomyia*. Entomological News, ix, 165, 166, figs.; Sept., 1898.

C. hirta.

The Muscidae Collected by Dr. A. Donaldson Smith in Somali Land. Proceedings of the Academy of Natural Sciences of Philadelphia, 1898, 165-167, figs.

An important discussion of chaetotaxy; no new North American species.

Parasitic Influence on *Melanoplus*. By S. J. Hunter. Kansas University Quarterly, vii, 207-210, figs.; Oct., 1898.

Description of *Sarcophaga hunteri* n. sp., by Dr. Hough.

Some North American Genera of Calliphorinae. Entomological News, x, 62-66; March, 1899.

Genera defined; no new species.

Some Muscinae of North America. Biological Bulletin 1, 19-33, figs.; 1899.

Muscina texana and *aurantiaca*; list of genera and species, etc.

Studies in Diptera Cyclorhapha. I. The Pipunculidae of the United States. Proceedings of the Boston Society of Natural History, xxix, 77-86; July, 1899.

Pipunculus atlanticus, *similis* and *flavomaculata*.

Synopsis of the Calliphorinae of the United States. Zoological Bulletin, ii, 283-290, figs.; 1899.

Chrysomya wheeleri, *Calliphora coloradensis* and *latifrons*, *Lucilia pilatei*.

South American Muscidae in the Collection of S. W. Williston. Kansas University Quarterly, ix, 203-232, 2 plates; July, 1900.

A few which occur also in Mexico and the United States are carefully redescribed.

Howard, Leland O.

Notes on a *Simulium* Common at Ithaca, N. Y. Insect Life, i, 99-101; Oct., 1888.

Life history; species not named, but probably *pictipes* HAGEN.

An Ortalid Fly Injuring Growing Cereals. Insect Life, vii, 352-354, figs.; March, 1895.

Chatopsis anca WIED.; life history.

The Beet-Leaf *Pegomyia*. Insect Life, vii, 379-381, figs.; July, 1895.

Pegomyia vicina LINTNER; life history.

Mosquitoes and Fleas. Circular No. 13, second series, Division of Entomology, Department of Agriculture; 6 pp. of general information; Feb. 1, 1896.

The Principal Household Insects of the United States. Bulletin 4, new series, Division of Entomology, Department of Agriculture, 130 pp.; 1896. By Howard and Marlatt; several articles on common household Diptera by Howard.

Further Notes on the House-fly. Bulletin No. 10, new series, Division of Entomology, Department of Agriculture, pp. 63-65; 1898.

Treatment of manure to kill the larvæ.

Notes on House-flies and Mosquitoes. Bulletin 17, new series, Division of Entomology, Department of Agriculture; pp. 55, 56; 1898.

How to distinguish the Different Mosquitoes of North America. Circular No. 40, second series, Division of Entomology, Department of Agriculture; 8 pp. The tables are by Coquillett.

Notes on the Mosquitoes of the United States. Bulletin 25, new series, Division of Entomology, Department of Agriculture, 70 pp.; 1900.

Remarks on *Psorophora ciliata*, with Notes on its Early Stages. Canadian Entomologist, xxxii, 353-357, figs.; Dec., 1900.

Life history, well illustrated.

A contribution to the Study of the Fauna of Human Excrement. Washington Academy of Sciences, II, 541-604, many illustrations; Dec. 28, 1900.

Life histories of many flies living in excrement; very valuable. Partially summarized in Bulletin 30, n. ser., Div. of Ent., 1901, 39-45.

Diptera Bred from Cow-Manure. Canadian Entomologist, xxxiii, 42-44; Feb., 1901.

A list of twenty species, none new.

Mosquitoes; how they live, how they carry Disease, etc. New York, 1901, with many illustrations.

Transformations, habits, etc.; table and list of species by Coquillett.

Hunter, W. D.

The Dipterous Enemies of Domestic Animals and Man. Nebraska State Board of Agriculture, 1895, 288-306.

Popular account; no new species.

A Contribution to the Knowledge of North American Syrphidæ. I. Canadian Entomologist, xxvii, 87-101; April, 1896.

Four new species; many little known species redescribed.

A New Species of *Tropidia*, and Note on the Generic Position of *Melanostoma rufipes* Will. Entomological News, vii, 215, 216; Sept., 1896.

T. nigricornis, changed on p. 308 to *montana*.

A Summary of the Members of the Genus *Chilosia* Meig. in North America, with Descriptions of New Species. Canadian Entomologist, xxviii, 227-233; Sept., 1896.

Ch. signatisceta, *cyanca* and *aldrichi*; table and list of species.

A Contribution to the Knowledge of North American Syrphidæ. II. Canadian Entomologist, xxix, 121-144, 1 plate; June, 1897.

Pyritis n. gen.; twelve new species.

Hunter, Samuel J.

Parasitic Influence on *Melanoplus*. Kansas University Quarterly, vii, 205-210; Oct., 1898.

Notes on *Sarcophaga cimbricis* TOWNSEND, and description by Dr. Hough of *Sarcophaga hunteri*.

Alfalfa, Grasshoppers, Bees. Bulletin of the Entomological Department of the University of Kansas, 1898; 152 pp.

The part on Diptera, pp. 32-37, is about the same as in the preceding.

Illiger, J. C. W.

Neue Insekten. Magazin für Insektenkunde, I, 206; 1802.

Midas fulvifrons n. sp., from Georgia.

Jaenicke, F.

Neue Exotische Dipteren. Abhandlungen der Senckenburgischen Gesellschaft, VI, 311-407, 2 plates; 1867. Also published separately, 100 pp., 4to. Frankfurt, 1867. The pagination of the latter is used by Osten Sacken and repeated here.

Many new exotic Diptera, of which thirty-four are from Mexico and the United States.

Johannsen, Oskar A.

Notes on Some Adirondaek Diptera Collected by MacGillivray and Houghton. Entomological News, XIV, 14-17; Jan., 1903.

Sciophila pulchra n. sp.; notes on several other species.

Aquatic Nematoceros Diptera. In Bulletin 68, New York State Museum, 328-448, 19 plates; Aug., 1903.

A very valuable work, monographic in the Simuliidae, and containing tables for determining larvæ, etc., in several families. *Pelorempis* (n. gen.) *americana*, *Corethra albipes*, *Thalassomyia obscura*, and *Dixa modesta* (the last a syn. of *D. clavula* WILL.—Ent. News, XIV, 302).

Johnson, Chas. W.

The Puparium of *Ceria signifera*. Entomological News, IV, 91; March, 1893.

List of Diptera of Jamaica, with Descriptions of New Species. Proceedings of the Academy of Natural Sciences of Philadelphia, 1894, 271-281.

About fifty species recognized; new are *Nemotelus flavicornis*, *Chrysophila jamaicensis*, *Calobata pleuritica*, and *Leptogaster longipes* (the last changed to *clavipes*, Ent. News, VIII, 120).

A Review of the Stratiomyiæ and Odontomyiæ of North America. Transactions of the American Entomological Society, XXII, 227-278, 2 plates; July, 1895.

Seven new species; the old ones are redescribed or former descriptions quoted.

Diptera of Florida. Proceedings of the Academy of Natural Sciences of Philadelphia, 1895, 303-340.

504 species recognized, six new; also several new, described by Coquillett.

Some Notes and Descriptions of New Leptidæ. Entomological News, VIII, 117-120, figs.; May, 1897.

Chrysophila griffithi, *Symphoromyia hirta*, new; other species redesc.

Notes and Descriptions of New Syrphidæ from Mt. St. Elias, Alaska. Entomological News, IX, 17, 18; Jan., 1898.

Syrphus bryantii and *Melanostoma glacialis*; notes on four others.

Catalogue of the Diptera of New Jersey. Supplement to 27th Annual Report of New Jersey State Board of Agriculture, 1890, pp. 615-690.

About 1200 species recorded from New Jersey, mostly with exact localities and many with dates; many species figured; no new ones. This was published as a part of John B. Smith's Catalogue of the Insects of New Jersey, and the occurrence of these species is cited by me as "N. J.—Smith Cat."

Notes and Descriptions of Seven New Species and One New Genus of Diptera. Entomological News, xi, 323-328; Jan., 1900.

Scpsisoma n. g.

New North American Ortalidæ. Canadian Entomologist, xxxii, 246, 247; Aug., 1900.

Pyrgota chagnoni, *Stenopteria bicolor*, *Rivellia floridana*.

Variation in the Venation of *Amalopis inconstans* O. S. Entomological News, xii, 305-307, figs.; Dec., 1901.

On the Validity of *Dasyllis affinis* Macq. Entomological News, xiii, 77, 78; March, 1902.

Remarks on *Tephronota ruficeps* and Description of a New Species. Entomological News, xiii, 143, 144, fig.; May, 1902.

Tephronota canadensis.

New North American Diptera. Canadian Entomologist, xxxiv, 240-242; Sept., 1902.

Macrocera immaculata, *Pluthinia coquilletti*, *Psiloccephala grandis*, and *Agromyza flavicentris*.

Some Notes, and Descriptions of Three New Leptidæ. Entomological News, xiv, 22-25, figs.; Jan., 1903.

Rhachicercus nitidus, *Xylomyia aterrima*, and *Symphoromyia cinerca*.

Diptera of Beulah, New Mexico. Transactions of the American Entomological Society xxix, 101, 102, fig.; Feb., 1903.

Chilosia skinneri, *Cuterebra similis*, and ?*Zonosema dubia*.

Two New Species of the Family Pipunculidæ. Entomological News, xiv, 107, 108; April, 1903.

Pipunculus pallipes and *Nephrocercus dæcki*.

A New Genus and Four New Species of Asilidæ. Psyche, x, 111-114; June, 1903.

Ceraturgopsis n. gen.; four species of other genera.

Descriptions of Three New Diptera of the Genus *Phthiria*. Psyche, Oct.-Dec., 1903, 184, 185.

Ph. cyanoceps, *aldrichi* and *quinque-notata*.

Johnson, Willis G.

The Hessian Fly in Maryland. Bulletin 58, Maryland Agricultural Experiment Station, pp. 117-122, figs.; Sept., 1898. A general discussion of habits and remedies.

Kahl, Hugo I.

New Species of the Syrphid Genera *Mixogaster* Macq. and *Ceria* Fabr. Kansas University Quarterly, vi, 137-146; July, 1897.

Mixogaster brevicentris and *Ceria willistonii*.

Karsch, F.

Die Spaltung der Dipteren-Gattung *Systropus* Wied. Zeitsch. d. Berliner Entomologischen Gesellschaft, 1881, 654-658.

Cephenus angulatus, *infuscatus* and *imbecillus* (I refer *Cephenus* to *Systropus*).

Keen, Eugene L.

Note on *Sphyracephala brevicornis*. Canadian Entomologist, xv, 200, 1883.

List of Syrphidae taken in Fairmount Park, Philadelphia, in the Summer of 1884. Canadian Entomologist, xvi, 145-147, 1884.

List of Diptera taken in the Vicinity of Philadelphia, from 1882 to 1884, inclusive. Canadian Entomologist, xvii, 51-55, 1885.

Note.—I overlooked the existence of the last two papers until it was too late to use the data in my catalogue, which I very much regret.

Kellogg, Vernon L.

The Mouthparts of Nematocerous Diptera. Psyche, viii, 1899: (I) Jan., 303-306; (II) Mar., 327-330; (III) Apr., 346-348; (IV) May, 355-359; (V) June, 363-365.

Notes on *Blepharocera capitata*. Entomological News, xi, 305-318, figs.; Jan., 1900.

An Extraordinary New Maritime Fly. Biological Bulletin, I, 81-87, figs.; March, 1900.

Eretmoptera broxeni n. gen. and sp.

A New Blepharocerid. Psyche, ix, 39-41, figs.; April, 1900.

Liponcura doanci.

Food of Larvæ of Simulium and Blepharocera. Psyche, ix, 166; Feb., 1901.

An Aquatic Psychodid. Entomological News, xii, 46-49, figs.; Feb., 1901.

Pericoma californiensis KINCAID. (Described by Kincaid as *californica*.)

The Histoblasts (Imaginal Buds) of the Wings of the Giant Crane-Fly, *Holorusia rubiginosa*. Psyche, Sept., 1901, 248, figs.

The Development and Homologies of the Mouth-parts of Insects. American Naturalist; 1902; 683-706, figs. Discussion of homology in *Simulium* and *Bibliocephala*.

The Net-Winged Midges (Blepharoceridae) of North America. Proceedings of the California Academy of Science, 3d series, iii, 187-224, 5 plates; Feb. 2, 1903. Also published as Contributions to Biology, xxx, Hopkins Seaside Laboratory of Leland Stanford Junior University.

A thorough revision of the family; life history of several species. New are *Blepharocera jordani* and *osten-sackeni*, and *Bibliocephala comstocki*.

The Rediscovery of *Philorus* (Blepharocera) Yosemite Osten Sacken. Psyche, Oct.-Dec., 1903, 186.

Kertész, Koloman.

Catalogus Tabanidarum Orbis Terrarum universi. A Museo Nat. Hungarico editus. Budapestini, 1900; 79 pp.

Catalogus Pipunculidarum usque ad Finem Anni 1900 Descriptarum. Természettudományi Füzetek, xxv, 157-168; Apr. 15, 1901.

Catalogus Dipterorum hucusque Descriptorum. Museum Nationale Hungaricum. Budapestini; typis G. Wesselenyi.

Vol. I. 1902. Sciaridae to Rhyphidae.

Vol. II. 1902. Cecidomyiidae to Cylindrotomidae.

Note.—The above catalogues contain references to the North American species up to the following dates respectively: Jan. 1, 1800; Jan. 1, 1901; Jan. 1, 1900, and Jan. 1, 1901.

Kincaid, Trevor.

The Psychodidæ of Washington. Entomological News, VIII, 143-146; June, 1897.

Psychoda pacifica, elegans, olympia.

Psychodidæ of the Pacific Coast. Entomological News, X, 30-37, 1 plate; Feb., 1899.

Ten new species; table of genera.

Notes on American Psychodidæ. Entomological News, XII, 193-196, 1 plate; Sept., 1901.

Pericoma ocellaris var. *americana*, and *P. californica*.

Kirby, William.

Fauna Boreali-Americana; or the Zoology of the Northern Parts of British North America, by J. Richardson, assisted by W. Swainson and Will. Kirby. London; 1829-37; 4 vols. The fourth volume contains the Diptera, which are by Kirby, nine in number. The descriptions are reprinted in Canadian Entomologist, XIII, 164-169, 1881.

Kirkpatrick, J.

The Army Worm. Ohio Agricultural Report for 1861.

Exorista leucania and *osten sackenii*, parasites of the army worm; both are supposed to be synonyms of *Winthemia quadripustulata*.

Kowarz, Ferdinand.

Phytomyza chrysanthemi, in Lintner's 7th New York Report, 243; 1891.

Lamarck, J. B.

Histoire Naturelle des Animaux sans Vertèbres, etc., 1ere ed.; 7 vols. Paris, 1815-22. Also 2ieme ed. Ibid., 1835-45.

"The insects form the third volume of the first, and the fourth of the second edition. I have quoted the first edition. Some typical forms only of American insects are mentioned in this work, and no new species described."—O. S.

Latreille, P. A.

Histoire Naturelle, générale et particulière des Crustacés et des Insectes; 14 vols. Paris, 1802-04. (Diptera in vols. III and XIV; 1802 and 1804.)

Genera Crustaceorum et Insectorum, etc.; 4 vols. Paris; 1806-7-9.

Both of these works "contain the mention or description of some typical forms from North America, but no new species." They are also important for genera.

Leach, W. E.

On the Genera and Species of Eproboscideous Insects. In the Wernerian Transaction, II, Edinburgh, 1817.

Olfersia americana and *Ornithomyia erythrocephala* from N. A.

LeBaron, William.

Second Annual Report on the Noxious Insects of the State of Illinois, 1872.

Tachina (Exorista) phycita, which has been referred by Coquillett to *Exorista pyste* WALK.

Linné, Carl Von.

Systema Naturæ per Regna Triâ Naturæ Secundum Classes, Ordines, Genera, etc., 10th edition, 1758.

Contains descriptions of sixteen species referred to America, some of which are South American.

Amœnitates Academicæ, etc., 7 vols., 1749-1769.

Contains *Asilus astuans*, from Pennsylvania.

Lintner, J. A.

Reports of the New York State Entomologist. Articles on Diptera, chiefly biological and economic, almost always with bibliography, occur as follows: First Report (for 1882, issued 1883).

On Some Species of Anthomyiidae, 168-202, with figs.

Notice of Some Anthomyiids Mining Beet Leaves. 203-211, figs.

Chortophila betarum and *Pegomyia vicina* n. sp.

Mallota posticata, 211-216, figs.

Drosophila ampelophila, 216-221, figs.

Meromyza americana, 221-227, figs.

Second Report, 1885.

The Emasculating Bot-fly, 45, 46.

Bibio albipennis, *Microdon globosus*, *Trypeta pomonella*, 110-125, figs.

Fourth Report, 1888.

Cecidomyia balsamicola n. sp., and Its Gall, 60-63, figs.

Lasioptera vitis O. S., 63-67, figs.

Chloropisca prolifica O. S. n. sp., and Its Winter Gathering in Dwellings, 67-72, fig.

Phytomyza lateralis FALL., 73-80, figs. The name is changed in 7th Report to *Ph. chrysanthemi* n. sp. Kowarz.

Fifth Report, 1889.

Hamatobia serrata DESV., 220-227, fig.

Sixth Report, 1889.

Hypodermia bovis DEG., 111-116, figs. The species is now considered to be *lineata* Vill.

Drosophila sp. (The Flour-paste Fly), 116, 117.

Seventh Report, 1891.

Helophilus latifrons LOEW, 228-234, figs.

Chloropisca prolifica O. S., 234-241, figs.

Phytomyza chrysanthemi KOWARZ n. sp., 242-246, figs.

Cecidomyia balsamicola, 307-310.

Cecidomyia sp., 308-310.

Eighth Report, 1893.

Diplosis pyricora RILEY, 140-151, figs.

Excchia sp., a Fungus Gnat, 172.

The Cow-Horn Fly in New York, 192-197.

The Apple Maggot, 245-249.

Ninth Report, 1893.

Pollenia rudis, the Cluster Fly, 309-314, figs.

Tenth Report, 1895 (with index to all preceding).

Diplosis pyricora RILEY, 386, 387, fig.

Notes on *Sciara*, 387-399, figs. and plate.

S. coprophila and *caldaria* n. sp.

Phora agaraci n. sp., 399, 406, plate and figs.

Eleventh Report, 1896.

The Birch-seed Midge, *Cecidomyia betule* Winn., 162-165, plate.

Diplosis cucumeris n. sp., 165-168, plate.

Diplosis setigera n. sp., 168-170, plate.

Anthomyia sp.? The Raspberry-Cane Maggot, 170-172. Afterward described as *Phorbia rubicora* Coq.

Twelfth Report, 1897.

Additional Notes on *Sciara*, by E. P. Felt, 223-228, plate.

Five n. sp.

Phora albidihalteris n. sp., by E. P. Felt, 228, 229.

Piophilila casei LINN., 229-234, figs.

A Cecidomyid in Choke-cherries (undet.), 313, note.

Lochhead, William.

The Hessian Fly in Ontario. Bulletin 116, Ontario Agricultural College and Experiment Station, 1901; 16 pp., figs., etc.

Loew, Hermann.

Beschreibungen einiger neuen Tipularia terricola. Linnæa Entomologica, v, 385-406, 1851.

Aporosa rufescens and *virescens*, *Toxorhina fragilis*, from West Indies.

Bemerkungen über die Gattung Beris. Stett. Entomol. Zeit., VII, 1846, in four instalments.

Several North American species mentioned; no new ones.

Helophilus. Stett. Entomol. Zeit., VII, 1846, in three instalments.

Monograph of the genus; *H. glacialis* n. sp., from Labrador.

Chauna genus novum. Stett. Entomol. Zeit., VIII, 370; 1847.

Chauna variabilis, from Cuba.

Über Tetanocera stictica Fab. und ihre nächsten Verwandten. Stett. Ent. Zeit., VIII, 114-124; 1847.

T. flavescens, from Carolina.

Über Tetanocera ferruginea Meig., und die ihr verwandten Arten. Stett. Ent. Zeit., VIII, 194-202; 1847.

Tet. plumosa, from Sitka.

Bemerkungen über die Familie der Asiliden. Programme der Realschule zu Meseritz, 1850; pp. 1-22.

Dasyopogon anthracinus, from Mexico.

Ceria and Conops. In the Series, Neue Beiträge zur Kenntniss der Dipteren, which were originally printed from year to year in the Program der Realschule zu Meseritz, and afterwards by Mittler, in Berlin. Beitrag 1, 1853, 38 pp.

Ceria pictula, *aristis*, and *signifera*; *Conops genualis*, *bulbirostris*, and *castanoptera*.

Neue Dipteren. Neue Beitr., II, 1854, 24 pp.

Pyrgota millepuncta (syn. of *P. valida* HARRIS).

Bombylius. Neue Beitr., III, 1855, 52 pp.

Monograph of the genus in Europe; no new N. A. species, but some synonymical references.

Dipterologische Notizen. Neue amerikanische Dolichopoden. Wiener Entomol. Monatschrift, I, 37, 1857.

Lyroneurus carulescens and *Plagioneurus unizittatus*.

Excursion nach dem Neusiedler See. Neue Beitr., IV, 1856, 58 pp.

"On p. 18 several European species also occurring in N. A. are mentioned, but a part of these statements is based on erroneous data about the locality. *Helophilus pendulus*, *versicolor*, *florus*, and *Chrysotoxum binctum* have never, as yet, been found in N. America."—O. S.

- Zur Kenntniss der Europäischen Tabanus-Arten. Verhandlungen der Zool.-Bot. Gesellsch. zu Wien, 1858, 573-612.
Tabanus septentrionalis, from Labrador.
- Über einige Fliegengattungen. Berlin Entomol. Zeitschr., II, 101-122, 1 plate; 1858.
Plecia longipes, from New Orleans.
- Die nordamerikanische Arten der Gattungen Tetanocera and Sepedon. Wiener Entomol. Monatschr., III, 289-300, 1859.
 Several species, afterward embodied in Monograph I.
- Diptera americana ab Osten-Sackenio collecta, decas prima. Wiener Entomol. Monatschr., IV, 79-84, 1860.
 Ten new species; all reproduced in later publications, except *Clinocera maculata* and *conjuncta*.
- Diptera aliquot in insula Cuba collecta. Wiener Entomol. Monatschrift, V, 33-43, 1861.
 Twenty new species.
- Die nordamerikanischen Dolichopoden. Neue Beitr., VIII, 1861, 100 pp.
 An extensive work, afterward embodied in Monograph II.
- Die amerikanischen Ulidina. Berl. Entomol. Zeitschr., XI, 283-326, 1 plate; 1867.
 Several new genera and species, which were all later embodied in Monograph III.
- Monographs of the Diptera of North America, vols. I, II, III, with 11 plates. Washington, Smithsonian Miscellaneous Collections.
 Vol. I, 1862.—General introduction, Trypetidae, Sciomyzidae, Ephyridae, and Cecidomyidae (the last by Osten Sacken.)
 Vol. II, 1864.—Dolichopodidae.
 Vol. III, 1872.—Ortalidae and additions to Trypetidae.
- Diptera americana septentrionalis indigena. In the Berliner Entomol. Zeitsch. Centuria I, 1861; II in 1862; III and IV in 1863; V in 1864; VI in 1865; VII in 1866; VIII and IX in 1869; X in 1872. Also published separately, in two volumes.
 One thousand North American Diptera! Referred to in the present work as "Loew, Cent."
- Diptera Common to Europe and America. Silliman's American Journal of Science and Arts, XXXVII, 317; May, 1864. This list is appended to a translation of Loew's lecture on "The Diptera of the Amber Fauna." Eighty-five species are mentioned as common to the two continents, most of them not previously reported from North America. The work is referred to herein as "Silliman's Jour."
- Bemerkungen über die von Hn. Van der Wulp in der Zeitsch. d. Niederländ. Entomol. Ges. für 1867 publicirten N. A. Dipteren. Zeitsch. f. Ges. Naturwissenschaften, XXXVI, 113-120, 1870.
 Remarks about the synonymy and generic position of the species in Van der Wulp's article.
- Über die Arten der Gattung Sphyracephala Say. Zeitsch. f. Ges. Naturwiss., XLII, 101, 1873.
 Remarks on *Sphyracephala brevicornis*.
- Neue nordamerikanische Dasygogonina. Berliner Entomologische Zeitschr., XVIII, 353-377, 1874.
 Fourteen new species.

Neue nordamerikanische Dipteren. Berliner Entom. Zeitsch., xviii, 378-384.
Six new species.

Beschreibungen neuer amerikanischen Dipteren. Zeitsch. f. Ges. Naturwiss.,
xlviii, 317-340, 1876.
Seventeen new species.

Revision der Epheroceridæ. Schles. Zeitschr. f. Entomol., Neue Folge, vi,
Breslau, 1877.

The description of *Bibiocephala grandis* is reproduced here, in German.

Neue nordamerikanischen Ephydrinen. Zeitsch. f. Gesammten Naturwiss.,
l, 192-203; March and April, 1878.

Fourteen new species.

Table of North American Species of Pachyrhina. Verh. Zool.-Bot. Ges.,
1879, 513-516.

No new species.

Note.—There are many other important papers of Loew, which should be
consulted. He rarely wrote anything unimportant. The above, however,
are all in which the North American fauna is directly referred to.

Long, Wm. H., Jr.

New Species of Ceratopogon. Biological Bulletin, iii, May and June, 1902.
C. brumalis, *stenammatis*, *texanus*, *wheeleri*.

Lugger, Otto.

Parasites of Man and the Domesticated Animals, in Second Report of the
State Entomologist of Minnesota, 1896 (published 1897).

Pages 145-182 and 209-230 are devoted to Diptera; *Simulium minutum*,
irritatum and *tribulatum* are named and figured, but not described.

Lundbeck, Will.

Entom. Unters. i Vest-Groenl. Medd. om Groenl., Heft vii, 1893.

A brief article, not seen by me; appears to be superseded by the following.

Diptera Groenlandica. I. Videnskabelige Meddelelser Naturhistoriske Forening
i Kjøbenhavn, 1898, 236-314, 2 plates. II. Ibid., 1900, 281-316, figs.

A number of new species; the old faunal lists of Staeger, Holmgren,
and Schiödte are carefully reviewed, and the species elucidated.

Lynch Arribalzaga, Felix.

Dipterologia Argentina. Culicidæ. Revista del Museo de la Plata, i, 345-413,
with five plates (two colored); 1891.

Dipterologia Argentina. Syrphidæ. Anales de la Sociedad científica Argen-
tina, xxxii, xxxiii, and xxxiv, in instalments; 1891-1893.

Dipterologia Argentina. Mycetophilidæ. Boletin de la Academia Nacional
de Ciencias, xii, 377-436 and 471-483; 1892.

El Genero Sapromyza en America, Anales de la Sociedad científica Argen-
tina, xxxiv, 253-301; 1893.

Important on account of the large number of tropical species, many of
which are found also in Mexico and Central America, or in the West
Indies.

McGillivray, A. D. and Houghton, C. O.

A List of Insects taken in the Adirondacks, N. Y. Diptera in Entomological
News, xiv, 12, 13; Jan., 1903.

About ninety species, determined by Johanssen. The exact locality is
Axton, N. Y.

Macquart, Jean.

Histoire Naturelle des Diptères. 2 vols., with 24 col. pl. Paris, 1834, 1835.
Forms part of the Suites à Buffon, published by Roret.

The species are mostly European; there are a few scattered throughout from North America.

Diptères Nouveaux ou peu Connus. Two volumes in five parts, and five supplements in six parts. Mémoires de la Société des Sciences et des Arts de Lille.

Vol.	I,	part 1	1838	pp.	9-225	25 plates.
	I,	"	2		121-323	14 "
	II,	"	1		282-414	21 "
	II,	"	2		63-200	22 "
	II,	"	3		162-460	36 "
Suppl.	I,		1845		133-364	20 "
	II,		1847		21-120	6 "
	III,		1847		161-240	7 "
	IV,	part 1	1850		309-479	14 "
	IV,	"	2		134-294	14 "
	V,		1855		25-156	7 "

This set contains an immense amount of material from North America, especially the larger flies of the southern regions. I give the dates of actual publication according to Hagen, although I observe that they do not agree exactly with Osten Sacken, nor with those penciled on my own set. The nominal date of publication was one year earlier, except with the first, second and eighth numbers. The work was also published separately, with different pagination, and this was used by Osten Sacken in his Catalogue; it is therefore continued by me. The parts without exception are indexed, so that any difficulty about the pages will readily be overcome.

Notice sur une nouveau Genre de la Famille des Pupipares, etc. Annales Soc. ent. de France, 1852, 331-333, pl. IV, f. 4.

Megistopoda pilatci, from Mexico and Cuba.

Notice sur une nouvelle Espèce d'Aricie. Annales Soc. ent. de France, 1853, 675, pl. XX, f. 2.

Aricia pici, from San Domingo.

Marlatt, C. L.

Report of a Trip to Investigate Buffalo Gnats. Insect Life, II, 7-11; July, 1889.

Notes on breeding habits of *Simulium meridionale*.

The Xanthium Trypeta. Insect Life, III, 312, 313, figs.; April, 1891.

Life history of *Euaresia aequalis*.

The Ox Warble. Circular No. 25, sec. ser., Div. of Entomology; July, 1897. 10 pp., figs.

Hypoderma lineata VILL.

The Principal Insect Enemies of Growing Wheat. Farmers' Bulletin No. 132, Division of Entomology, Dept. of Agriculture. 40 pp., 1901, figs.

Life history of *Mayetiola destructor*, *Contarinia tritici*, and *Meromyza americana*.

Marten, John.

New Tabanidæ. Canadian Entomologist, xv, 110-112; June, 1883.

Tabanus allynii, *tetricus*, *frenchii*, *susurrus*.

Description of *Asphondylia helianthi-globulus*. Psyche, Sept.-Oct., 1888, 102.

Description of a New Species of Gall-making Diptera. Bulletin of the Ohio Experiment Station, Technical series, 1, No. 3, 155, 156, 1893.

Lasioptera muhlenbergia.

Matas, Dr. R.

A Man-Infesting Bot. New Orleans, 1887; privately printed. Reviewed in Ins. Life, 1, 76-80, figs.

An undetermined species, supposed to be a *Dermatobia*.

Meade, R. H.

List of North American Anthomyiidae. Canadian Entomologist, XIII, 43-51, 1881.

No new species; several European recognized, with more or less doubt.

List of North American Sarcophagidae. Canadian Entomologist, XIII, 146-150, 1881.

Notes on a number of species; none new.

Meigen, J. W.

Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten. 7 vols., Achen and Hamn, 1818-1838.

The work contains only European species, but many are common to both continents.

Melander, Axel L.

A Decade of Dolichopodidae. Canadian Entomologist, XXXII, 134-144, figs.; May, 1900.

Ten new species.

Gynandromorphism in a New Species of *Hilara*. Psyche, IX, 213-215, figs.; June, 1901.

Hilara wheeleri.

Notes on the Acroceridae. Entomological News, XIII, 178-181, fig.; June, 1902.

Notes on twelve species; *Opsebius agalcnæ* n. sp., but according to Adams this is a synonym of *Op. pterodontinus* O. S.

Monograph of the North American Empididae. Part I. Transactions of the American Entomological Society, XXVIII, 195-367, five plates; July-Oct., 1902.

Many new species and several genera. Includes all the family except the genus *Rhamphomyia* "in its wide sense."

An Interesting New *Chrysotus*. Entomological News, XIV, 72, fig.; March, 1903.

C. philtrum.

A Review of the North American Species of *Nemotelus*. Psyche, 1903, Oct.-Dec., pp. 171-183, 1 plate.

arator, *bruesii*, *trinotatus*, *wheeleri* and *bellulus*, new.

See also Wheeler and Melander.

Melander, A. L. and Brues, C. T.

New Species of *Hygrocelethus* and *Dolichopus*. Biological Bulletin, 1, 123-148, many figures; 1900.

Fifteen new species; several others redescribed.

Guests and Parasites of the Burrowing Bee *Halictus*. Biological Bulletin, v, 1-27, figs.; June, 1903.

Ceratopogon hollensis; *Phora cata, rostrata* and *halictorum*; *Stethopathus occidentalis*.

Mik, Josef.

Ueber die dipterologischen Referate in den Jahrgängen 1882 bis inclusive 1890 der Wiener Entomologischen Zeitung. Wien. Entomol. Zeitung, ix, 281-308; Dec., 1890.

A résumé of the more important dipterological matters commented upon, corrected, etc., in the first nine years of the journal.

Ein Beitrag zur "Bibliotheca Entomologica." Wiener Entomologische Zeitung, x, 65-96; April, 1891.

A digest of the author's thirty years of published work in entomology, mainly in the Diptera.

Hypocharassus gladiator, eine neue Dolichopoden-Art aus Nordamerika. Vehr. Zool.-Bot. Ges. Wien, 1878, 617-632, 1 pl.

Ueber Tachiniden, deren drittes Fühlerglied gespalten ist. Wiener Entomologische Zeitung, xiv, 101-103, 1895.

Remarks on *Dichocera* WILL., and other genera.

Bemerkungen zu den Dipteren-Gattungen Pelecocera Meig. and Rhopalomera Wd. Wiener Entomologische Zeitung, xiv, 133-135, 1895.

Chamacyrrhus n. g.; *Willistoniella* for *Rhopalomyia* WILL.

Note.—Mik published an enormous number of small items on Diptera, among which were occasional remarks on North American genera and species. These will be found in their appropriate places in the body of the Catalogue, but need not be cited in detail here. The two articles first given above will guide to many of the earlier of these notes, comments, corrections, etc.

Morris, Miss.

Acidomyia culmicola n. sp. Proc. Acad. Nat. Sciences of Phil., iv, 194, 1849.

Notes; not described.

Motter, Murray G.

A Contribution to the Study of the Fauna of the Grave. Journal of the New York Entomological Society, vi, 201-231, 1898.

A number of species of Diptera are mentioned.

Morgan, H. A.

The Texas Screw-Worm. Bull. 2. La. Ex. Sta., 29-39, figs.; 1800.

Life history of *Chrysomyia macellaria*.

Observations upon the Mosquito *Conchylastes musicus* Say. Bulletin 37, n. ser., Division of Entomology, 113-114, fig.

Murtfeldt, Mary E.

Hominivorous Habits of the Screw-Worm in St. Louis. Insect Life, iv, 200, 201; Dec., 1891.

On the habits of *Chrysomyia macellaria* FABR.

The Cheese or Meat Skipper. Insect Life, vi, 170-175; Dec., 1893. Also in 24th Ann. Rept. Ontario Ent. Soc., 98.

Life history of *Piophilila casci*.

Needham, Jas. G.

A Remarkable Occurrence of the Fly *Bibio fraternus* Loew. American Naturalist, xxxvi, 181; March, 1902; with figs. of larva and pupa.

Food of Brook Trout in Bone Pond. Bulletin 68, N. Y. State Museum, 204-217; Aug., 1903.

Some dipterous larvæ mentioned.

Some New Life Histories of Diptera. Bull. 68, N. Y. State Museum, 279-287, plates IX and X; Aug., 1903.

Life histories of *Tipula flavicans* and *Epiphragma fascipennis*; two undetermined larvæ mentioned.

Needham, Jas. G. and Betten, Cornelius.

Aquatic Insects in the Adirondacks. Bulletin 47, N. Y. State Museum; Sept., 1901. Pp. 383-612, 36 plates.

Life histories of *Tipula abdominalis*, *Stratiomyia badia*, *Sepedon fuscipennis*, *Tetanocera pictipes*, and *Ræderioides juncta*; the last and *Zabrochia polita* described by Coquillett.

Newman, Edward.

Entomological Notes. Entomol. Mag., v, 373, 1838.

Dimcraspis podagra n. sp. (syn. of *Microdon globosus*).

Niles, E. P.

Animal Parasites. Bulletin 110, Virginia Experiment Station; March, 1900. Pp. 27-37.

A popular account of bots, with figures of several species.

Olivier, G. A.

"A portion of the entomological volumes of the Encyclopédie Méthodique is by him. In vol. VIII (1811) under the titles *Odontomyia*, *Ocyptera*, *Ornithomyia*, I found descriptions of several new North American species which had been overlooked by previous authors."—O. S.

Osborn, Herbert.

Insects Affecting Domestic Animals. Bulletin No. 5, new series, Division of Entomology, Department of Agriculture.

Contains notes on several species of Diptera.

The Hessian Fly in the United States. Bulletin No. 16, new series, Division of Entomology; 1898. Pp. 58, 8 figs., 3 plates.

Full account of habits; extensive bibliography.

An Insect occurring in Tanks and Reservoirs. In Bull. 32, Iowa Exp. Station, pp. 405-407, figs. (*Chironomus* sp.)

Osten Sacken, C. R.

Catalogue of the Described Diptera of North America. Washington, 1858. Smithsonian Miscellaneous Collections, vol. III.

Appendix to the Smithsonian Catalogue of the Described Diptera of North America. October, 1859, 3 pages.

New Genera and Species of North American Tipulidæ with short Palpi, with an Attempt at a New Classification of the Tribe. Proc. Acad. Nat. Sciences of Philadelphia, 1859, 197-256.

New genera and species, reproduced in a later monograph.

Appendix to the Paper entitled "New Genera and Species," etc. Proc. Acad. Nat. Sciences of Philadelphia, 1860, p. 16.

Description of Nine New Limnobiaceæ. Proc. Academy of Natural Sciences of Philadelphia, 1861, 287-292.

On the North American Cecidomyiæ. Monographs of North American Diptera, Smithsonian Institution. Vol. I, 173-205, with a plate and figs. Washington; April, 1862.

Four new species.

Characters of the Larvæ of Mycetophilidæ. Proceedings of the Entomological Society of Philadelphia, I, 151-172. 1 plate; 1862.

Sciara toxoncurea.

Lasioptera reared from the Gall of a Goldenrod. Proceedings Entomological Society of Philadelphia, I, 368-370, 1863; also in vol. II, 77.

Lasioptera solidaginis.

Description of several New North American Ctenophoræ. Proceedings of the Entomological Society of Philadelphia, III, 45-49, 1864.

Five new species.

Descriptions of some New Genera and Species of North American Limnobia. Proceedings of the Entomological Society of Philadelphia, IV, 224-242, 1865.

Six new species.

Two New North American Cecidomyiæ. Proceedings of the Entomological Society of Philadelphia, VI, 219, 220, 1866.

Cecidomyia gleditchie and *salicifolia*.

Description of a New Species of Culicidæ. Transactions of the American Entomological Society, II, 47, 48, 1868.

Aedes sapphirinus.

The North American Tipulidæ. Part I; brevipalpi, Cylindrotomina and Ptychopterina. Monographs of North American Diptera, No. IV, in Smithsonian Miscellaneous Collections, vol. VIII; Washington, Jan., 1869. Pp. xi and 345, with four plates and several wood-cuts.

Many new species. Additions and corrections to this volume will be found at the end of Monograph III, published after No. IV.

Biological Notes on Diptera. Article First. Galls on Solidago. Transactions of the American Entomological Society, II, 299-303, 1869.

Asphondylia monacha and *Cecidomyia anthophila*.

Biological Notes on Diptera. Article Second. (1) A New American Asphondylia. (2) On some Undescribed Galls of Cecidomyia. Transactions of the American Entomological Society, III, 51-54, 1870-71.

Asphondylia rudbeckia-conspicua; four new galls described and named.

Biological Notes on Diptera. Article Third. Transactions of the American Entomological Society, III, 345-347, 1870-71.

Diplosis resinicola; notes on several species.

A List of the Leptidæ, Mydæidæ and Dasypogonina of North America. Bulletin of the Buffalo Society of Natural Science, 1874, 169-187.

Mydas audax, *carbonifer* and *chrysostomus* n. sp.: the descriptions are reproduced in the Catalogue, 1878. Additions and corrections are given in the Bulletin, Nov., 1875, p. 71.

Prodrome of a Monograph of North American Tabanidæ. Memoirs of the Boston Society of Natural History, II, 365-397, 421-470, and 555-566, published in 1875-78.

Many new species.

Report on the Diptera Collected by Lieut. W. L. Carpenter in Colorado in the summer of 1873. Hayden's U. S. Geological and Geographical Survey of Colorado, 1873, 501-566. Washington, 1874.

Bibiocephala grandis n. g. and sp.

Three New Galls of Cecidomyiæ. Canadian Entomologist, Nov., 1875.

Cecidomyia ferrucicola, urnicola; Asphondylia recondita.

Note on Some Diptera from the Island Guadelupe, Pacific Ocean, Collected by Mr. Palmer. Proceedings of the Boston Society of Natural History, xviii, 133, 134; Oct., 1875.

No new species; *Musca domestica* is the only one specifically determined.

Note.—There is also an island *Guadaloupe*, in the *West Indies*, and a number of species of Diptera are reported from it.

On the North American Species of the Genus *Syrphus* (in the narrowest sense). Proceedings of the Boston Society of Natural History, xviii, 135-153; Oct., 1875.

Syrphus torvus, rectus, amalopis, contumax.

A List of North American Syrphide. Bulletin of the Buffalo Society of Natural Science, November, 1875, 38-71.

Nine new species described in the appendix. Additions and corrections are given in the Bulletin, May, 1876, p. 130. All the descriptions and notes are reproduced in the Catalogue, 1878.

Report on the Collection of Diptera made in portions of Colorado and Arizona during the year 1873. In Lieut. Geo. M. Wheeler's Report on the Explorations and Surveys West of the One Hundredth Meridian, vol. v, Zoology, 804-807. Washington; 1875.

Lasia klettii n. sp.

Blepharoptera defessa n. sp. In an article on "A New Cave-Fauna in Utah," by A. S. Packard. Bulletin of the U. S. Geological and Geographical Survey of the Territories, III, No. 1, p. 168; 1877.

Report on the Diptera Collected by Dr. E. Bessels during the Arctic expedition of the *Polaris* in 1872. Proceedings of the Boston Society of Natural History, Dec., 1876.

Tipula besselsi n. sp.

Western Diptera. Descriptions of New Genera and Species of Diptera from the Region West of the Mississippi, and especially from California. Bulletin of the U. S. Geological and Geographical Survey of the Territories, III, No. 2; April, 1877; pp. 189-354.

One hundred and thirty-six new species and several new genera.

Catalogue of the Described Diptera of North America (second edition). Smithsonian Miscellaneous Collections. Pp. xlvii and 276. Washington, 1878.

Two new genera and five new species are described in the notes, and a number of species redescribed. The work contains much more than an ordinary catalogue of so many species. It is in fact a mine of information on the order and its classification.

Bemerkungen über Blepharoceriden; ein Nachtrag zur "Revision" dieser Familie von Professor Dr. Loew. Deutsche Ent. Zeitsch., xxii, 405-416, 1878.

A review of the structural characters of the family; no new species.

An Essay of Comparative Chætotaxy, or the Arrangement of Characteristic Bristles of Diptera. Originally printed in Mittheil. d. Münchener Entomol. Vereins, v, 121-138, 1881; revised and republished in Trans. Entom. Society of London, 1884, pt. iv, pp. 497-517.

An attempt to locate and name the principal characteristic bristles (macrochætæ) of Diptera, as a means of classification; very important. No new species.

On Professor Brauer's Paper, "Versuch einer Charakteristik der Gattungen der Notacanthæ." Berl. Entom. Zeitsch., xxvi, 363-380, 1882.

Many notes on genera; no new species.

On the Genus Apiocera. Berl. Entom. Zeitsch., xxvii, 287-294, 1883; correction, xxx, 139, 1886; Second Notice on Apiocerina, xxxvi, 311-316, 1891.

No new species.

Synonymica Concerning Exotic Dipterology. II. Berl. Entom. Zeitsch., xxvii, 295-298, 1883.

Dialysis WALKER, and other genera mentioned.

A Singular North American Fly. Berl. Entom. Zeitsch., xxvii, 299-300, 1883.

Opsebius pterodontinus n. sp.

Studies on Tipulidæ. Part I. Review of the Published Genera of the Tipulidæ longipalpi. Berl. Entom. Zeitsch., xxx, 153-188, 1886.

Brachypremna n. gen., from Texas.

Studies on Tipulidæ. Part II. Review of the Published Genera of the Tipulidæ brevipalpi. Berl. Entom. Zeitsch., xxxi, 163-242, 1887.

Rhamphidia albitarsis n. sp., from Porto Rico.

Biologia Centrali-Americana. Vol. I. Cecidomyidæ-Empidæ. 216 pp., 3 col. plates. 128 pp. in 1886, the remainder in 1887.

Many new species, and a few genera.

On Mr. Portschinsky's publications on the larvæ of Muscide, including a detailed abstract of his last paper, "Comparative biology of the necrophagous and coprophagous larvæ." Berl. Entom. Zeitsch., xxxi, 17-28, 1887.

Although Portschinsky's work does not come within our faunal limits, relating to southern Russia, the subject is very interesting, and I cannot refrain from mentioning the paper. It forms a useful complement to Howard's paper on Diptera of excrement.

Some North American Tachinæ. Canadian Entomologist, xix, 161-166; Sept., 1887.

Five new species.

Chloropisca prolifica n. sp. Lintner's 4th New York Report, 60, 61, 1888.

See *Chlorops variceps*.

Suggestions Toward a Better Grouping of Certain Families of the Order Diptera. Entomologist's Monthly Mag., second series, II, 35-39, 1891.

Synopsis of the Described Genera and Species of the Blepharoceridæ. Berl. Entom. Zeitsch., xxxvi, 407-411, 1891.

Analytical tables of the genera and species, with references; no new species.

On the Characters of the Three Divisions of Diptera: Nemocera vera, Nemocera anomala, and Eremochæta. Berl. Entom. Zeitsch., xxxvii, 417-466, 1892.

- Explanatory Notice of my Views on the Sub-orders of Diptera. Entomologist's Monthly Magazine, second series, iv, 149, 150, 1893.
- On the So-called Bugonia of the Ancients, and Its Relation to *Eristalis tenax*. Bull. Soc. Ent. Italiani, xxv, 186-217; 1893.
- On the Oxen-born Bees of the Ancients (Bugonia), and their Relation to *Eristalis tenax*. Heidelberg, J. Hoerning, 1894, pp. xiv and 80.
This is a reprint and enlargement of the preceding. There is an additional article, pub. by J. Hoerning, 1895, 23 pp.
- On the Atavic Index-Characters. Berl. Entom. Zeitsch., xxxix, 69-76, 1894.
Western Pedicelæ, Bittacomorphæ and Trichoceræ. Psyche, vii, 229-231; April, 1895.
Notes on several species from the Western States; none new.
- Eristalis tenax* in Chinese and Japanese Literature. Berl. Ent. Zeitsch., xl, 142-147, 1895.
- Contributions to the Study of the Liponeuridæ. Berl. Ent. Zeitsch., xl, 148-160, 1895.
Blepharoceridæ; a study of generic characters, etc. A supplement to this paper is published in vol. xl, 351-355, 1895.
- Preliminary Notice of a Subdivision of the Suborder Orthorhapha Brachycera on Chaetotactic Principles. Berl. Entom. Zeitsch., xli, 365-373, 1896.
I have adopted for my catalogue almost the arrangement of this paper.
- Identification of Two Genera of Nemestrinidæ published by Bigot. Berl. Entom. Zeitsch., xlii, 145-149, 1897.
Dicrotrypa Big., and *Parasymmictus* Big.
- Amalopsis* Haliday (O. S.) versus *Tricyphona* Bergroth (not Zett.). Berl. Entom. Zeitsch., xlii, 150-154; 1897.
- On the Synonymy of *Anopheles maculipennis* Meigen. Entomol. Monthly Mag., sec. ser., xi, 281, 282; Dec., 1900.
Maculipennis vindicated as against *claviger* Fab.
- On the New Nomenclature of the Cecidomyidæ. Entomol. Monthly Mag., sec. ser., xii, 40-43, 1901.
Opposing the abandonment of the old genus *Cecidomyia*, as finally developed by Meigen and Latreille. For reasons explained at the beginning of the family, I have adopted the "new nomenclature."
- The Position of *Phora* in the System of Diptera. Entomol. Monthly Mag., xiii, 204, 205, 1902.
- On a Distinctive Character of the Imago of the Suborders of Diptera. Ent. Monthly Mag., xiii, 228, 1902.
- Record of My Life Work in Entomology. Parts I and II. Cambridge, Mass.; Oct., 1903, 204 pp. Part III, Heidelberg, 1904, pp. 205-240, with portrait.
Baron Osten Sacken's autobiographical volume contains so much information about the earlier work on North American Diptera, and the development of dipterological science in general, that every student of the order will find it extremely interesting and valuable. His rare and noble devotion to science throughout a long career should be an inspiring example.

Packard, Alpheus S.

- On Insects Inhabiting Salt Water. Proceedings of the Essex Institute, vi, 41; March, 1869.
Ephydra halophila and *Chironomus helophilus* n. spp.

On Insects Inhabiting Salt Water. No. 2. American Journal of Science and Arts, 3d series, i, 100, 1872.

Ephydra gracilis and *californica*, described from larvæ; adults unknown.

Report upon the Invertebrate Animals of Vineyard Sound, etc. Washington, 1874.

Several larvæ of Diptera; *Chironomus halophilus* n. sp.

On the Transformations of the common House-fly. Boston Society of Natural History, xvi, 136-150, 1 plate; 1874.

Insects affecting the Cranberry, with Remarks on other Injurious Insects. Report U. S. Geol. Survey for 1876 (pub. 1878), 527.

Diplosis pini-rigidæ n. sp., on *Pinus rigida*.

The Hessian Fly. Bull. No. 4, U. S. Entomological Commission, 1880, 43 pp., figs.

Bot-Fly Larvæ in a Turtle's Neck. American Naturalist, xvi, 508, fig.; July, 1882. Not determined; perhaps not an Oestrid.

Larvæ of a Fly in a Hot Spring in Colorado. American Naturalist, xvi, 599, 600; July, 1882.

Stratiomyia sp.; larvæ in water at 157 degrees Fahrenheit.

The Hessian Fly. In the Third Report of the U. S. Entomological Commission, 1883, 198-248, figs., etc.

Forest Insects. Being the Fifth Report of the United State Entomological Commission. Washington, 1890, 955 pp., with many plates and figures.

No new species of Diptera; life history of many species briefly given.

The Entomological Writings of Alphens S. Packard. A bibliography by Samuel Henshaw. Division of Entomology, 1887, 49 pp.

Palisot de Beauvois, A. M. F. J.

Insectes recueillis en Afrique et en Amérique, etc. Paris, 1805-21; with plates.

Several Tabani, one Chrysops, and one Syrphid are described and figured.

Pergande, Theodore.

The Ant-Decapitating Fly. Proceedings of the Entomological Society of Washington, iv, 408; July 2, 1901.

Life history of the species; described by Coquillett in same article as *Apocephalus pergandei* n. gen. et sp.

Pettit, Rufus H.

Bulletin 175, Michigan Exper. Station; July, 1899; pp. 350-361, notes on Hessian Fly and on the Beet-Leaf Miner, *Pegomyia vicina*.

Bulletin 186, Michigan Exper. Station, and also Annual Report of same for 1901, contains a list of Diptera collected in Northern Michigan, and an article with good figure on the Potato-Beetle Tachinid, *Phorocera doryphora*.

A Leaf-mining Chironomus sp. in Water-lilies. Mich. Acad. Science, 1900, p. 110, with plate. Habits of an undetermined species. Compare *Cricotopus sylvestris*.

Perty, Maximilian.

Delectus Animalium articulorum quæ in Itinere per Brasiliam Annis 1817-1820, etc., collegerunt Dr. Spix et Dr. Martius. Monachii, 1830-34, 4to, with 40 plates.

Several species described here occur also in Cuba and Mexico.

Poey, Felipe.

Memorias sobre la Historia Natural de la Isla de Cuba. Tomo I. Habana, 1851-54.

Occacta furens n. gen. et sp.

Reiche, L.

Description du cinque espèces nouvelles d'Insectes, provenant de l'Expédition aux Mers arctiques. Annales Soc. Ent. France, Bulletin, p. ix, 1857.

Anthomyia impudica (is a *Cordylura*—O. S.).

Riley, Charles V.

First Report of the State Entomologist of Missouri. Jefferson City, 1869.

Life history and description of *Anthomyia zeas* n. sp. (syn. of *Phorbia fusciceps*), *Lydella doryphoræ* n. sp. (see *Phorocera*), *Pipiza radicum* n. sp. (probably syn. of *P. femoralis*); also *Meromyza americana*, *Ocstrus ovis*, and *Trupanea apivora* FITCH (*Promachus fitchii* WILL.).

The Cecropia Moth. American Entomologist, II, 97-102; Feb., 1870.

Exorista cecropiæ n. sp. (syn. of *Winthemia quadripustulata*).

Second Missouri Report, 1870.

Life history and description of *Asilus missouriensis* n. sp. (*Proctacanthus milberti*), *Exorista flavicauda* n. sp. (*Belvosia unifasciata*), and of *Tabanus atratus*.

Fourth Missouri Report, 1872.

Tachina anonyma n. sp. (*Frontina frenchii*), and *T. phycitæ* LEBARON (*Exorista pyste*).

Fifth Missouri Report, 1873.

Descriptions of several galls of Cecidomyiidae on grape.

Descriptions and Natural History of two Insects which brave the Dangers of *Sarracenia variolaris*. Trans. Acad. Nat. Sci. St. Louis, III, 235-240; 1875.

Sarcophaga sarracenicæ n. sp.

The Clover-Seed Midge. Report of the Commissioner of Agriculture for 1878 (pub. Oct., 1879), 248-250.

Cecidomyia leguminicola LINTNER, life history.

Parasites of the Cotton Worm. Canad. Entomol., XI, 161-162, 1879.

Tachina aleticæ n. sp. (see *Frontina aleticæ*).

Natural Enemies of the Locust. Second Report of the U. S. Entomological Commission, 1880 (pub. 1881), 259-270.

Life history of *Systachus oreas* and *Triodites mus*, reared from locust eggs; some other Diptera mentioned.

Dipterous Enemies of Phylloxera vastatrix. Canadian Entomologist, xv, 39; Feb., 1883.

Mentions *Leucopis phylloxera* MS., which was never described.

Occurrence of a *Stratiomyia* larvæ in Sea-water. American Naturalist, xvii, 1287; Dec., 1883.

Not determined.

Report of the Entomologist. In the Report of the Commissioner of Agriculture for 1884 (pub. Jan. 31, 1885).

Contains articles on *Oscinis brassicæ* n. sp. (*Agromyza trifolii*), *Anthomyia* (*Phorbia*) *brassicæ*, and *Simulium* sp.

Natural Enemies of the Cotton-Worm. Fourth Report U. S. Entom. Com., 87-119; Feb. 3, 1886.

Phora aleticæ n. sp. (*nigriceps*).

The Pear Midge, *Diplosis pyrivora* n. sp. Report Comr. of Agriculture for 1885 (pub. 1886), 283-288. Life history, etc.

The Southern Buffalo-Gnat. Report Comr. of Agriculture for 1886 (pub. 1887), 492-517.

Simulium meridionale and *pecuarum* n. sp. (the latter a syn. of *invenustum*), with life histories.

Beschreibung einer den Birnen schädlichen Gall-Mücke (*Diplosis nigra* Meigen?). Wiener Entomol. Zeitung, vi, 201-206, figs.; Sept., 1887.

Diplosis pyrivora n. sp. proposed if distinct; it had already been so named by Riley more than a year before.

The Morelos Orange Fruit-Worm. Insect Life, i, 45-47, fig.; Aug., 1888. Life history of *Trypeta* (*Anastrepha*) *ludens* LOEW.

The Ox Bot in the United States. Insect Life, iv, 302-317, figs.; June, 1892. *Hypoderma lincata* VILL., life history.

Bibliography of the more important Contributions to American Economic Entomology of Charles Valentine Riley. By Samuel Henshaw. Division of Entomology, 1889, 379 pp.

Riley, Charles V. and Howard, Leland O.

The Corn-Feeding Syrphus Fly (*Mesogramma polita* Say). Insect Life, i, 5-8, figs.; July, 1888.

Life history of *Mesogramma polita* SAY.

On the Emasculating Bot-Fly. Insect Life, i, 214-216, fig.; Jan., 1889. *Cuterebra emasculator* FITCH.

Hermetia mucens Infesting Bee-hives. Insect Life, i, 353; May, 1889.

The Horn Fly. Insect Life, ii, 93-103, figs.; Oct., 1889. Life history of *Hamatobia serrata* DESV.

The Bot-Fly of the Ox. Insect Life, ii, 156-159, figs.; Nov., 1889.

The Ox Warble. Insect Life, ii, 172-177, figs.; Dec., 1889. Both on *Hypoderma lincata* VILL.

Anthrax Parasitic on Cut-Worms. Insect Life, ii, 353, 354; May and June, 1890.

No new species.

A Peach Pest in Bermuda (*Ceratitis capitata* Wied.). Insect Life, iii, 5-8, figs.; Aug., 1890. Additional notes, pp. 80, 81.

Bermuda is not within the range of this catalogue, but the species may easily be introduced into our fauna.

Robertson, Chas.

Some New Diptera. Canadian Entomologist, xxxiii, 284-286; Oct., 1901. Eight new species.

Roeder, Victor von.

Dipterologische Notizen. Berliner Entomol. Zeitsch., xxv, 210-216, 1881. *Eurycephala myopaeformis* n. g. and sp., from Cal.

Dipteren von der Insel Porto Rico, etc. Stettiner Entomol. Zeit., 1885, 337-349.

Eleven n. sp.; about eighty described species listed, many of which are redescribed.

Ueber die nordamerikanischen Lomatiina, etc. Wiener Entomol. Zeitung, v, 263; Oct., 1886.

Notes on several species of the group from N. A.; none new.

Ueber die Gattungen *Doryclus* Jæn. und *Megapoda* Macq. Berliner Entomol. Zeitschr., xxxi, 76-78, 1887.

Asyndulum montanum n. sp. Wiener Entomol. Zeitung, vi, 116; May, 1887. From New Hampshire.

Ueber *Myopa clausa* Loew. Wiener Entomol. Zeitung, viii, 5, 1889.

Zwei neue nordamerikanische Dipteren. Wiener Entomol. Zeitung, ix, 230; Oct., 1890.

Bittacomorpha sackenii and *Agathon elegantulus*, from Nevada; the latter a new genus, regarded by Kellogg as a synonym of *Bibiocephala*.

Ueber die Dipteren-Gattung *Stylogaster* Macq. Wiener Entomol. Zeitung, xi, 286; Nov., 1892.

Ueber *Trypeta amabilis* Loew. Wiener Entomol. Zeitung, xiii, 97; March, 1894.

Redesc. and figured; see *Hexacheta amabilis*.

Ueber *Mydas fulvipes* Walsh. Wiener Entomol. Zeitung, xiii, 169, 170, 1894.

Rondani, Camillo.

Diptera exotica, revisa et notata, novis nonnullis descriptis. Archivio Canestrini, iii, 1863.

Scatina estotilandica n. sp. from Labrador.

Osservazioni sopra alcune specie di esapodi ditteri del Museo Torinese. Nuovi Annali di Bologna, ser. 3, ii, 165-197, 1850.

Tabanus cheliopterus n. sp., from Carolina.

Hippoboscita exotica non vel minus cognita. Annali del Museo Civico di Storia Naturale di Genova, xii, 150-169, 1878.

Six new species of Hippoboscidae from Mexico.

Ruebsaamen, Ewald H.

Sciara striata n. sp. Berliner Entomol. Zeitschr., 1894, 37.

From Mexico.

Zoolog. Ergebnisse der . . . Grönland expedition. Grönlandische Mycetophiliden, Sciariden, Cecidomyiden, Psylliden, etc. In Bibliotheca Zoologica, xx, 103-119, 2 plates; 1898.

Six new species of *Sciara* from Greenland.

Saint Fargeau et Serville.

Encyclopédie Méthodique, vol. x. Paris, 1825.

A number of North American Diptera are mentioned; none new.

Say, Thomas.

Diopsis brevicornis n. sp. Journal of the Academy of Natural Sciences of Philadelphia, i, 23, 1817.

Some Account of the Insect known as the Hessian Fly, etc. Jour. Acad. Nat. Sci. Phil., i, 45-48 and 63, 64; 1817. *Cecidomyia destructor* first described.

Description of Dipterous Insects of the United States. Journal of the Academy of Natural Sciences in Philadelphia, iii, 9-54 and 73-104; 1823.

Description of North American Dipterous Insects. Journal Academy of Natural Sciences in Philadelphia, vi, 149-178 and 183-188; 1829-30.

Keating's Narrative of an Expedition to the Source of St. Peter's River, etc., under the Command of S. H. Long. 2 vols.; Philadelphia, 1824. Insects described by Say in the Appendix to the second volume, Diptera, pp. 357-378. Cited as "Long's Exped."

Description of new species of North American Insects found in Louisiana by Jos. Barabino. New Harmony, Ind., March, 1831 (not in the Complete Works; see Scudder, in Psyche, Jan., 1860, where the description of the single new species is quoted).

New Species of North American Insects found by Jos. Barabino in Louisiana. New Harmony, Ind., 1832.

American Entomology. 3 vols., with plates. Philadelphia, 1824-25-28.

The Complete Writings of Thomas Say on the Entomology of North America, with a Memoir of the Author by George Ord. Edited by John L. Leconte. New York: 1859; 2 vols., 8 vo; 1200 pp., with 30 plates.

There is also a French translation of Say's works, in vol. v of Annales Soc. Ent. de France, 1837.

There are about 250 new species of North American Diptera in Say's writings.

Say sent many of his species of Diptera to Wiedemann, who redescribed them in his Aussereropäische Zweifl. Ins. In many cases the latter description is more characteristic than Say's.

Shimer, Henry.

Description of a New Species of Cecidomyia. Transactions of the American Entomological Society, i, 281, 1868.

Cecidomyia aceris, n. sp.

A Summer's Study of Hickory-galls, with Descriptions of Supposed New Insects Bred from them. Transactions of the American Entomological Society, ii, 386, 1869.

Cecidomyia cossæ, n. sp.

Additional Notes on the Striped Squash-Beetle (*Diabrotica vittata*). American Naturalist, v, 217, 1871.

Melanosphora diabroticæ, n. sp., here placed in *Cclatoria*.

Schiner, J. R.

Fauna Austriaca. Diptera. Vienna, 2 vols., 1862-64.

Incomparably the best encyclopædic work on Diptera that was ever published. While it is intended to include only Austrian forms, many of the species occur in North America, and most of the genera.

Neue oder wenig bekannte Asiliden des kaiserl. Hofcabinet's in Wien. Verhandlungen der zoologischen-botanischen Gesellschaft zu Wien, xvii, 355-412, 1867.

Five new N. A. species.

Reise der Oesterr. Fregatte Novara um die Erde in den Jahren 1857-59. Zoologischer Theil. Diptera. Wien, 1868, 1 vol. 4to, with 4 plates.

Many South American species which also occur in North America are described; also some new genera occurring in North America.

Schnabl, Johann.

Limnospila nov. gen. Anthomyidarum. Wiener Ent. Zeitung, xxi, 111, 1902.

Type, *Canosia albifrons*, which occurs in North America.

Schwarz, E. A.

The Insect Fauna of the Great Salt Lake, Utah. Canadian Entomologist, xxiii, 235-241, 1891.

Extended notes on the larva of *Ephydra gracilis* PACK.

The Hippelates Plague in Florida. *Insect Life*, vii, 374-379, figs.; July, 1895.
Notes on *H. flavipes* and *plebeius*, annoying people in Florida.

Scudder, Samuel H.

Description of *Tachina theclarum*, in an article by Osten Sacken. *Canadian Entomologist*, xix, 166; Sept., 1887.

The species is referred by Coquillett to *Exorista confinis* FALL.

An Unknown Tract on American Insects by Thomas Say. *Psyche*, Jan., 1809, 306-308.

Contains reprint of *Trypeta trifasciata* SAY.

Note.—Mr. Scudder's work on fossil Diptera is not listed, not being within the scope of the present catalogue.

Schiödte, J. G.

Naturhistoriske Tillæg til Rink: "Grönland geographisk og statistisk beskrevet," 1857; a German translation of the "Tillæg" or appendix was printed in *Berliner Entomolog. Zeitschr.*, 1859, 134-157.

No new species; some synonymy, and a list of described Diptera from Greenland.

Sirrine, F. A.

The Spinach-leaf Maggot or Miner. *Bull.* 99, N. Y. Experiment Station; Jan., 1896; pp. 21-31, figs. Also in *Annual Report N. Y. Exp. Sta. for 1895* (pub. 1896), 625-633, 1 plate.

Life history of *Pegomyia vicina* LINT.

A Little-known Asparagus Pest (*Agromyza simplex* Lw.). *Bull.* 189, N. Y. Exp. Sta.; 1900.

Skinner, Henry.

Diptera of Beulah, New Mexico. *Trans. Amer. Entom. Society*, xxix, 104-106; Feb., 1903.

About 135 species listed. The new ones described by Coquillett and Johnson, *q. v.*

Slingerland, Mark Vernon.

The Cabbage Root Maggot, with Notes on the Onion Maggot and Allied Insects. *Bull.* 78, Cornell University Exp. Station; Nov., 1894, pp. 481-577, 18 figs.

Life history of *Phorbia brassica* BOUCHÉ, and notes on other species. An admirably thorough piece of work.

The Current-Stem Girdler and the Raspberry-Cane Maggot. *Bull.* 126, Cornell University Exp. Sta.; Feb., 1897, pp. 39-60, figs.

The Raspberry-Cane Maggot is described and its habits given, with bibliography, but the species is not determined. It is mentioned as *Phorbia* sp. See next article.

The Raspberry-Cane Maggot. *Canadian Entomologist*, xxix, 162, 163; July, 1897.

Life history; described in the article as *Phorbia rubivora* by Coquillett.

A New Cherry Pest. *Bull.* 172, Cornell University Exp. Sta., Sept., 1899; 19 pp., 15 figs.

Supposed to be *Rhagoletis cingulata* LOEW; the determination is confirmed from bred specimens in *Canad. Ent.*, xxxiv, 28, 1902.

Slosson, Annie Trumbull.

List of Diptera from the White Mountains, New Hampshire. In *Entomological News*, as follows: Vol. v, 6; vi, 6, 7 and 319, 320; vii, 263, 264; viii, 239, 240; ix, 252; xi, 320, 321; xiii, 7, 8 and 319, 320.

In all several hundred species, none described as new, but some European species and genera not hitherto reported from the United States. The determinations are almost all by Coquillett.

Mount Washington Again. Entomological News, v, 271-274, 1894.

Collecting notes; several Diptera mentioned.

Singular habit of a Cecidomyid. Entomological News, vii, 238, 1896.

An undetermined species riding on the wing of a flying Chrysopa.

Hunting Empids. Entomological News, xiv, 265-268, 1903.

Collecting notes; habits of several species.

Smith, John B.

Note on Habits of *Volucella fasciata*. Canadian Entomologist, xxiii, 242, 243, 1891.

The Horn Fly. Special Bulletin No. 62, New Jersey Experiment Station, Nov., 1889; 40 pp., 9 figs.

Life history of *Hæmatobia serrata* Desv.

The Insects Injuriouly affecting Cranberries. Special Bulletin K, N. J. Exp. Sta., Feb., 1890; 43 pp., 26 figs.

Cecidomyia vaccinii, n. sp.; the name was changed by Johnson to *oryzococcana*, on account of preoccupation.

A Contribution towards the Knowledge of the Mouth Parts of Diptera. Trans. Amer. Entom. Society, xxii, 319-339, 1890.

Notes on the Structure and History of *Hæmatobia serrata* Desv. Psyche, v, 343-347, figs., 1890.

An Essay on the Development of the Mouth Parts of Certain Insects. Transactions of the American Philosophical Society, xix, 175-198, 3 plates; 1896.

Treats of mouth parts of Diptera especially.

Life History of *Aedes smithii*. Jour. N. Y. Ent. Society, x, 10-15; Mar. 1902.

Notes on the early Stages of *Corethra brakeleyi*. Canadian Entomologist, xxxiv, 139; June, 1902.

The Salt-Marsh Mosquito. Special Bulletin T, N. J. Exp. Sta., 1902; 10 pp., figs.

Life history of *Culex sollicitans* WALK.

Notes on the Early Stages of *Culex canadensis* Theob. Entomological News, xiii, 267-273; Nov., 1902.

Characters of some Mosquito Larvæ. Entomological News, xiii, 299-303, 1 pl.; Dec., 1902.

Report of the Entomological Department of the N. J. Exp. Sta. for 1902.

A Report on Mosquito Investigations, pp. 511-556, mostly on the Salt-Marsh Mosquito, *Culex sollicitans* Walk. Also has an article on Mosquitoes and malaria, by Herbert Parlin Johnson.

Notes on *Culex serratus* Theob. Entomological News, xiv, 309-311, 1 pl.; Dec., 1903.

Snodgrass, R. E.

The Inverted Hypopygium of *Dasyllis* and *Lapliria*. Psyche, x, 399, 400, 1902. Purely morphological.

The Terminal Abdominal Segments of Female Tipulidæ. Jour. N. Y. Ent. Soc., xi, 177-188, 2 pl.; December, 1903.

Characters of several previously-known species described.

Snow, F. H.

Musca domestica L. versus *Vespa occidentalis* Cress. *Psyche*, III, 340; May, 1882.

Notes on the distribution of *Musca domestica*.

A Preliminary List of the Diptera of Kansas. *Kans. Univ. Sci. Bull.*, II, 211-223; Nov., 1903.

392 species listed; 6 new species are described by Adams. Unfortunately this reached me so late that I could add only the new species to the catalogue.

Snow, William A.

The Moose-fly—A New *Hæmatobia*. *Canadian Entomologist*, XXIII, 87-89, 1891.

Hæmatobia alcis, n. sp., from Northern Minnesota.

Notes and Descriptions of Syrphide. *Kans. Univ. Quarterly*, I, 33-40, 1 pl., 1892.

Four new species; many others mentioned.

Descriptions of North American Trypetide. *Kans. Univ. Quarterly*, II, 159-174, 2 plates, 1894.

Fourteen new species; *Xenocheta* and *Polymorphomyia* n. gen.

American Platypezide. *Kans. Univ. Quart.*, III, 143-152, 1 pl., 1894.

American Platypezide. II. *Op cit.*, III, 205-207; 1895.

In these papers eleven new species are described; there are also tables of genera and species.

Cnephalia and its Allies. *Kans. Univ. Quarterly*, III, 177-186, 1895.

A study of the genera in the neighborhood of *Gonia* and *Spallanzinia*; *Cnephalia pansa* and *fnitima*, n. sp.

A New Species of Pelecocera. *Kans. Univ. Quarterly*, III, 187, 1895.

P. willistonii, from New Mexico.

Diptera of Colorado and New Mexico. *Kans. Univ. Quarterly*, III, 225-247, 1895.

Confined to Syrphide. 13 n. spp.; notes on many other western species.

Supplementary List of North American Syrphide. *Kans. Univ. Quarterly*, III, 249-262, 1895.

List of species from 1878, with some changes in nomenclature.

On *Toxotrypana* of Gerstaecker. *Kans. Univ. Quart.*, IV, 117-119, fig., 1895.

A List of Asilide, Supplementary to Osten Sacken's Catalogue, etc. *Kans. Univ. Quarterly*, IV, 173-190, 1896.

Considerable changes in synonymy, especially of the tropical species.

Snow, W. A. and Mills, Helen.

The Destructive Diplosis of the Monterey Pine. *Entomological News*, XI, 490-494, 1 plate; June, 1900.

Diplosis pini-radiata n. sp.

Snyder, Mrs. A. J.

Trypeta solidaginis. *Canadian Entomologist*, XXX, 99, 100; Apr., 1898.

Description of the emergence of the adult.

Speiser, Paul.

Ueber die Nycteribiden. *Wiegmann's Archiv. für Naturgeschichte*, LXVII, 11-78, 1 plate; 1901.

Important for the classification; no new North American species.

Besprechung einiger Gattungen und Arten der Diptera pupipara. Termesz. Füzetek, xxv, 1902, 327-338.

Ornithomyia erythrocephala LEACH is made the type of a new genus, *Ornithoctona*; *Ornithoica confluenta* SAY redese.

Studien über Diptera Pupipara. Zeitschr. f. Syst. Hym. und Dipterologie, III, 145-180, 1903.

A very thorough work, referring to several North American species; *Lynchia pusilla* n. sp., from Cuba. Bigot's types in the family are elucidated, from examination.

Staeger, C.

Greenland's Anliater. In Kröyer's Naturhist. Tidsskrift, new ser., I, 346-369, 1845.

Eight new species; fifty-five species mentioned in all.

Stedman, J. M.

Thirty-fourth Report Board of Agriculture of Missouri, 1902.

Contains articles on Hessian Fly (p. 76) and Wheat Bulb-Worm (p. 85); no new species.

Stein, P.

Die Anthomyiden-Gruppe Homalomyia. Berliner Entom. Zeitsch., XL, 1-146, 1895.

Several North American species also occurring in Europe are redese.

Nordamerikanischen Anthomyiden. Berliner Entom. Zeitschr., XLII, 161-288, 1897.

Many new species, several new genera; the foundation of our knowledge of the North American fauna in this family.

Die Walker'schen Aussereuropäischen Anthomyiden in der Sammlung des British Museums zu London. Zeitschr. f. Syst. Hym. und Dipterologie, 1901, 185-221.

A reexamination of Walker's types, with descriptions of many. Three labeled but unpublished species of Walker are described—*Hydrotæa succedens*, *Hylemyia relata* and *Pegomyia debilis*, from North America. These of course are credited to Stein, not Walker.

Die Zetterstedt'schen, Holmgren'schen und Boheman'schen Anthomyidentypen des Stockholmer Museums. Wiener Entom. Zeitung, XXI, 29-66, 1902.

Holmgren's Greenland species are elucidated.

Summa, H.

The Pseudo-parasitism of Diptera in Man, or Myiasis. St. Louis Med. & Surg. Journal; April, May and June, 1889; sep., 16 pp., 5 figs.

Swederus, Samuel.

Et Nytt Genus och Femtio Nya Species af Insecter. In the Vetenskap. Acad. Nya Handl., 1787, p. 181 and 276.

"Two North American species: *Musca tomentosa*, which is probably *Brachypalpus verbosus*, and *Musca (Syrphus) monoculus*; I cannot make out the synonymy of the latter."—O. S.

Theobald, Fred. V.

A Monograph of the Culicidae of the World. London, British Museum, Vols. I and II and vol. of col. plates, 1901; Vol. III, 1903.

All the North American species known at the time of preparation are redescribed in this great work; there are also numerous new species, espe-

cially from along the southern limits of our field. In the 3d volume many new genera are introduced. The classification of Theobald is closely followed herein.

Description of a New N. A. Culex. Canadian Entomologist, xxxv, 211-213, 1903.

C. Kelloggii, which is a synonym of *C. tarsalis* Coq.

Notes on Culicidae and their Larvæ from Pecos, N. M., and Description of a New Grabhamia. Canadian Entomologist, xxxv, 311-316, 1903.

G. vittata.

Thomson, C. G.

Kongliga Svenska Fregatten Eugénies Resa Omkring Jordan. Diptera. Stockholm, 1868: 1 vol., 4to.

Forty-nine new species from California and Panama.

Thunberg, Carl P.

Description of Pantophthalmus tabaninus, in Acta Soc. Gotheburg, 1819, pars III, 7, pl. VII, f. 2. So quoted by Wiedemann, who reproduces the description in Auss. Zweifl., I, 110. The paper is not mentioned by Hagen in his Bibliotheca.

Townsend, C. H. Tyler.

Notes on Some Interesting Flies from the Vicinity of Washington. Proc. Ent. Society of Washington, I, 254, 255, 1890.

Notes on six species; none new.

On the Fall Occurrence of Bibio and Dilophus. Proc. Ent. Soc. Wash., I, 260-263, 1890.

Notes; no new species.

A Remarkable New Hippoboscid from Mexico. Entomological News, II, 105, 106; June, 1891, and note III, 177, 178, 1892.

Trichobius dugesi n. sp.

Two New Tachinidæ. Psyche, VI, 83-85; May, 1891.

Tachina clisiocampa (syn. of *mella*) and *Phorocera promiscua* (syn. of *Frontina frenchii*).

Description of a Muscid Bred from Swine Dung, with Notes on Two Muscid Genera. Canadian Entomologist, xxIII, 152-155; July, 1891.

Cleigastra suisterci n. sp. (syn. of *Scatophaga furcata* SAY).

A New Simulium from Southern New Mexico. Psyche, VI, 106, 107; July, 1891.

S. occidentale (syn. of *meridionale*).

A Tachinid Bred from a Chrysalis. Canadian Entomologist, xxIII, 206, 207; Oct., 1891.

Meigenia websteri n. sp. (syn. of *Frontina frenchii*).

An Exorista Parasitic on Lagoa opercularis. Entomological News, II, 159, 160; Oct., 1891.

Exorista lagoa n. sp., from Mexico.

A Parasite of the Fall Web-worm. Psyche, VI, 176, 177; Nov., 1891.

Meigenia hyphantriae n. sp.; afterwards referred to *Hyphantrophaga* n. gen. as type.

A Tachinid Parasite of Chrysophanus dione. Entomological News, II, 197-199; Dec., 1891.

Exorista chrysophani n. sp. (syn. of *E. confinis*).

- A Tachinid Parasite of the Oak Unicorn Prominent (*Schizura unicornis*).
Psyche, vi, 187, 188; Dec., 1891.
Masicera schizura n. sp. (syn. of *Frontina frenchii*).
- Note on the Genera *Triptotricha* and *Agnotomyia*. *Proc. Ent. Soc. Wash.*,
 II, 117, 118, 1891.
 No new species.
- The North American Genera of Calyprate Muscidae.
 I. *Proc. Ent. Soc. Wash.*, II, 89-100; 1891.
 II. *Trans. Amer. Ent. Soc.*, XIX, 133-144; 1892.
 III. *Trans. Amer. Ent. Soc.*, XIX, 273-278; 1892.
 IV. *Trans. Amer. Ent. Soc.*, XIX, 279-284; 1892.
 V. *Trans. Amer. Ent. Soc.*, XIX, 290-294; 1892.
 Tables of genera, with notes and references; no new species.
- Notes on North American Tachinidæ, with Descriptions of New Species.
 I. *Proc. Ent. Soc. Wash.*, II, 134-146; 1891.
 II. *Trans. Amer. Ent. Soc.*, XVIII, 249-382; 1891.
 III. *Trans. Amer. Ent. Soc.*, XIX, 88-132; 1892.
 IV. *Entomological News*, III, 80, 81 and 129, 130; 1892.
 V. *Canadian Entomologist*, XXIV, 64-70 and 77-82; 1892.
 VI. *Canadian Entomologist*, XXIV, 165-172; 1892.
 VII. *Trans. Amer. Ent. Soc.*, XIX, 284-289; 1892.
 Many new genera and species.
- Description of a Sarcophagid Bred from *Helix*. *Psyche*, vi, 220, 221; Feb.,
 1892.
Sarc. helcis n. sp.
- A Tachinid Bred from *Protoparce jamaicensis* Butler in Jamaica. *Jour.*
Inst. of Jamaica, I, No. 2, p. 70; Feb., 1892.
Masicera protoparcis n. sp. (syn. of *Sturmia distincta*).
- A New Genus of Tachinidæ. *Psyche*, vi, 247; Apr., 1892.
Hyphantrophaga n. gen.; type *hyphantriae* TOWNSEND.
- A Tachinid Parasite of *Eucaterva variaria* Grote, and Other Notes. *Psyche*,
 VI, 258, 259; Apr., 1892.
Hyphantrophaga hyphantriae TOWNS.; no new species.
- A Sarcophagid Parasite of *Cimbex americana*. *Canadian Entomologist*,
 XXIV, 126, 127; May, 1892.
Sarcophaga cimbicis, n. sp.
- New Jamaica Tachinidæ. I. *Entomological News*, III, 146, 147; June, 1892.
Pseudohsytiricia exilis, n. sp.
- The North American Genera of Nemocerous Diptera. *Trans. Amer. Ent.*
Soc., XIX, 144-160; June, 1892.
 Tables of genera, with notes and references; no new species.
- An *Aporia* Bred from *Limacodes* sp. *Psyche*, vi, 275, 276; June, 1892.
Aporia limacodis, n. sp. (syn. of *Macquartia pristis*).
- Descriptions of Oestrid Larvæ taken from the Jack-rabbit and the Cotton-
 tail. *Psyche*, vi, 298-300; June, 1892.
 Two species of larvæ, one identified (1893, 541 and 1897, 8, 9) as *Cutce-
 rebra fontinella* CLARK, and later as a new species, *C. lepusculi*; the other
 was described as *Dermatobia* sp., and afterward referred to *Bogeria*. See
 also *Ins. Life*, v, 137.

- Introduction to Brauer and von Bergenstamm's Vorarbeiten, etc. *Psyche*, vi, 313-316 and 329-332; 1892.
 A translation of the introduction mentioned. Contains some interesting generalizations; no species mentioned.
- On the So-Called Throat Bot. *Entomological News*, iii, 227; Nov., 1892.
 Notes on *Gastrophilus nasalis* LINN.
- Preliminary Grouping of Sapromyza, with one New Species. *Canadian Entomologist*, xxiv, 301-304; Dec., 1892.
S. ocellaris, n. sp. (syn. of *vulgaris* FITCH).
- A Dexiid Parasite of a Longicorn Beetle. *Journal of the Institute of Jamaica*, i, pt. 3, 1892.
Sarcodexia sternodontis n. gen. and sp., from Jamaica.
- A Scorpion Parasite. *Jour. Inst. of Jamaica*, i; Dec., 1892.
 Same species as preceding.
- A General Summary of the Known Larval Food-habits of the Acalyptrate Muscidae. *Canadian Entomologist*, xxv, 10-16; Jan., 1893.
 A useful compilation; no new species.
- An Interesting Blood-sucking Gnat. *Psyche*, vi, 369-371; Jan., 1893.
Tersesthes torrens n. gen. and sp., from New Mexico.
- The Pupa of *Argyrambeba cælipus*. *American Naturalist*, Jan., 1893, p. 60.
- A Trypetid Bred from Galls of *Bigelovia*. *Canadian Entomologist*, xxv, 48; Feb., 1893.
Eurosta bigeloviae n. sp.; on p. 112 Cockerell calls attention to the fact that the species had already been described by himself as *Trypeta bigelovia*.
- On the Geographic Range and Distribution of the Genus *Trichopoda*. *Entomological News*, iv, 69-71; March, 1893.
 No new species.
- Description of a new and Interesting Phasiid-like Genus of Tachinidae, s. str. *Psyche*, vi, 429, 430; April, 1893.
Hyalomyodes wecdii n. gen. and sp. (syn. of *H. triangulifera* Lw.).
- The Puparium of *Blepharipeza*. *American Naturalist*, April, 1893, 402.
- A New Trypetid from Chacaltianguis, Mex., with note on *Trypeta amabilis* Loew. *Zoe*, iv, 13-16; Apr., 1893.
Euaresta latipennis n. sp.
- On a Species of *Simulium* from the Grand Canyon of the Colorado. *Trans. Amer. Ent. Soc.*, xx, 45-48, figs.; Apr., 1893.
 Larva and pupa of *Simulium* sp., not determined.
- The Puparium and Pupa of *Subula pallipes* Loew. *Entomological News*, iv, 163; May, 1893.
- Description of the Pupa of *Toxophora virgata* O. S. *Psyche*, vi, 455-457; May, 1893.
- Note on *Atropharista jurinoides*. *Psyche*, vi, 461; May, 1893.
- A Nycteribid from a New Mexican Bat. *Journal of the New York Entomological Society*, i, 79, 80; June, 1893.
Nycteribia antrozoi n. sp.
- Hosts of North American Tachinidae, etc. Paper I. *Psyche*, vi, 466-468; June, 1893.

Breeding records of 27 species, reared by Professor S. A. Forbes; *Sarcophaga leucanica* n. sp. "if found to be undescribed."

Comments on Mr. Van der Wulp's Recent Diagnoses of New Species of Mexican Muscidae. Canadian Entomologist, xxv, 164-168; July, 1893.

An attempt to interpret Van der Wulp's too brief diagnoses, without the material to throw any particular light on them; an altogether superfluous piece of meddling. The changes of generic names are both uncalled for.

A Cabbage-like Cecidomyioid Gall on *Bigelovia*. Psyche, vi, 490; July, 1893. *Cecidomyia bigeloviae-brassicoides* n. sp.; gall only.

Further Notes on the Cotton-tail Bot. Insect Life, v, 317-320; July, 1893.

Cuterebra fontinella CLARK redescribed. This afterward proved to be a new species and was named *C. lepuseuli* in Psyche, Jan., 1897, 8, 9.

Notes on Some Jamaican Muscidae. Journal of the Institute of Jamaica, i, No. 7; Aug., 1893.

No new species.

Dipterous Parasites in Their Relation to Economic Entomology. Insect Life, vi, 201-204; Dec., 1893.

No new species.

Notes on some Cecidomyiidae of the Vicinity of Washington, D. C. Proc. Ent. Soc. Wash., ii, No. 4, pp. 388-390; 1893.

Three species mentioned; none new.

Notes on Certain Cecidomyioid Galls on *Cornus*. Proc. Ent. Soc. Wash., ii, 390, 1893.

Describes the gall of the species afterward named *Cecidomyia clavula* by Buentemüller.

Occurrence of *Oecacta furens* Poey in Jamaica. Jour. Inst. Jamaica, i, 381, 1893.

A Tachinid Reared from the Cells of a Mud-dauber Wasp. Bulletin Ohio Exp. Station, Technical series i, 165, 166; 1893.

Sarcomacronychia tryporylonis n. sp., from Ohio (syn. of *Pachyophthalmus floridensis* Towns.).

A very Remarkable and Anomalous Syrphid, with Peculiarly Developed Hind Tarsi. Canadian Entomologist, xxvi, 50-52, figs.; Feb., 1894.

Calotarsa ornatipes n. gen. and spec. It belongs to the Platypezidae, and the genus is but little different from *Platypeza*. Townsend published another note on same, p. 102.

New Santo Domingo Tachinidae. Jour. New York Entomological Society, ii, 78, 79; June, 1894.

Trichopoda subciliipes n. sp. and *Ocypterosiphon willistoni* n. gen. and species; the latter is a syn. of *Besikia alops*, according to Coquillett.

A Cone-like Cecidomyiid Gall on *Bigelovia*. Psyche, vii, 176; Dec., 1894.

Cecidomyia bigeloviae-strobiloides n. sp.; gall only.

On the Horse-Flies of New Mexico and Arizona. Kansas Academy of Science, 1894, 133-135.

Diachlorus guttatulus n. sp., afterward referred to *Tabanus*.

Note on a Peculiar Acalyptrate Muscid found near Turkey Tanks, Ariz. Kansas Acad. of Science, 1894, 135, 136.

Micropeza turcana n. sp.

Contributions to the Dipterology of North America.

I. Syrphide. Trans. Amer. Ent. Soc., xxii, 33-55; March, 1895.

Mentions 75 species of Syrphidae, 8 new.

II. Tabanidae, Conopidae, Tachinidae, etc. Ibid., 55-80.

Notes on many species of these families, 9 new.

Notes on The Diptera of Baja California. Proc. Cal. Acad. Acad. Sci., ser. 2, vol. iv, 593-620; Apr., 1895.

Occurrence and notes on many species; 14 new.

Note.—Baja California is Lower California, and is so cited in the catalogue. It is in Mexico.

On the Cabbage-shaped Gall of *Cecidomyia salicis-brassicoides*, and its Occupants. Canadian Entomologist, xxvii, 205-207; Aug., 1895.

Description of gall and its larva, etc.

On the Correlation of Habits in Nemocerous and Brachycerous Diptera between Aquatic Larvæ and Blood-sucking Adult Females. Jour. N. Y. Ent. Soc., iii, 134-136; Sept., 1895.

No new species.

On the Bio-geography of Mexico, Texas, New Mexico and Arizona. Texas Acad. Science, Dec., 1895, pp. 77-96 and June, 1897, pp. 33-86.

The second part contains some local lists of Diptera; all or nearly all are printed in other papers.

Notes on the Species of Exorista of Temperate North America. Psyche, vii, 329-331; Jan., 1896.

E. nigripalpis n. sp.

On a Collection of Diptera from the Lowlands of Rio Nautla in the State of Vera Cruz. Annals and Mag. of Nat. Hist., ser. 6, vol. xix, 15-34, and xx, 20-33 and 272-291; January, July and September, 1897.

16 new species; a few varieties named; notes on a number of species.

Diptera from the Sacramento and White Mountains in Southern New Mexico. Annals and Mag. of Nat. Hist., ser. 6, vol. xix; Feb., 1897.

Pipiza occidentalis, *Milesia bella*, *Echinomyia victoria* and *neglecta*, new; the last two are assigned by Coquillett to *Archytas lateralis* and *Peleteria tessellata*.

Diptera from Yucatan and Campeche. I. Canadian Entomologist, xxix, 197-199; Aug., 1897.

Tabanus campechianus and *yucatanus* n. spp.; notes on others.

Diptera from the Lower Rio Grande or Tamaulipan Region of Texas. Journal of the New York Entomological Society, v, 171-190; Dec., 1897.

Simulium tamaulipense, *Baccha tropicalis*, *Zodion albonotatum* n. spp.; notes on others.

Part II of same, vi, 50-52; 1898; contains one new sp., *Volucella tamaulipana*, with notes on other species.

Description of the Bot-fly of the Cotton-tail Rabbit in New Mexico. Psyche, viii, 8, 9; Jan., 1897.

Cuterebra lepusculi n. sp.

Diptera from the Head Waters of the Gila River. I. Psyche, viii, 38-41; Mar., 1897.

Chrysops ceras and *facialis*, *Myobia gilensis* n. spp., and a few notes.

II. Ibid., pp. 92-94; July, 1897.

Tabanus gilanus and *intensus* n. spp.; notes on three species.

Some characteristic maritime Diptera from the South End of Padre Island and the adjacent Texas Coast. I. Entomological News, ix, 167-169; Sept., 1898.

Tabanus maritimus and *Lipocheta texensis* (syn. of *glossonae*) n. spp.

Diptera from the Organ Mountains of Southern New Mexico.

I. Psyche, viii, 126-128; Oct., 1897.

Notes on four species, none new.

II. Psyche, viii, 267-269; Oct., 1898.

Notes on seven species; *Gadiopsis monticola*, new.

Diptera from the White Sands on the Tularosa Plains of Southern New Mexico. I. Psyche, viii, 138-140; Nov., 1897.

A few notes on variations of species, etc.; no new species.

Diptera from the Mesilla Valley of the Rio Grande in New Mexico.

I. Psyche, viii, 147-150; Dec., 1897.

Notes on a dozen species, none new.

II. Ibid., 211, 212; May, 1898.

Notes on three or four species, none new.

New and Little-known Diptera from the Organ Mountains and Vicinity in New Mexico. Transactions of the American Entomological Society, xxvii, 159-164; 1901.

Four new species; notes on a number of old ones.

A Bot-like Parasite of a Bird. Journal Institute of Jamaica.

Not seen; I am unable to complete the reference.

Van der Wulp, Frederick M.

Eenige noordamerikaansche Diptera. Tijdschrift voor Entomologie, x, 125-164, 3 pl.; 1867 (Also cited as vol. ii, sec. series; Osten uses this form, and I have followed him, but in later work Van der Wulp cites it as vol. x).

30 new N. A. spp., 18 European species recognized, and 24 described N. A. spp. identified, all from Wisconsin.

Nog iets over Noordamerikaansche Diptera. Tijdschrift v. Ent., xii (or iv, sec. ser.), 80-86; 1869.

Five new N. A. species.

Opmerkingen omtrent Uitlandische Asiliden. Tijdschrift v. Ent., xiii (or v, sec. ser.), sep. 11 pp., 1 pl.; 1870.

Stenopogon ochraceus n. sp., from North America.

Amerikaansche Diptera.

No. 1. Tijdsch. v. Ent., xxix, 141-168, 1 col. plate; 1881.

No. 2. Tijdsch. v. Ent., xxv, 77-136, 2 col. plates; 1883.

No. 3. Tijdsch. v. Ent., xxvi, 1-60, 2 col. plates; 1883.

These contain 14 new species from North America, with notes on about 127 other species.

Notes from the Leyden Museum. iv, 73-93, 1882.

Anthrax melasoma and *Jurinia nitida* n. spp., the former redesc. in Amer. Dipt., No. 2.

Chrysops geminata Wied. and Macq. Wiener Ent. Zeitung, iii, 139-141, 1884.

Chrysops crassicornis n. sp., from Guanajuato, Mex.

Quelques Diptères Exotiques. Comptes Rendus de la Soc. Ent. Belgique, xxvii, p. cxcxi, 1884.

Hystricia cyaneiventris n. sp., from Guanajuato, Mex.

Nalezing over Amerikaansche Diptera. Tijdsch. v. Ent., xxvii, 1884; sep. 3 pp.

Notes on four described species from New England.

Langwerpige Dexinen-Formen. Tijdsch. v. Ent., xxviii, 189-200, 1 col. plate; 1885.

Euantha and *Leptoda* n. gen.; the species were previously described.

Sarcophagula, een nieuw Geslacht der Sarcophaginæ. Tijdsch. v. Ent., xxx, 173, 174, 1887.

No new species.

Biologia Centrali-Americana. Diptera, vol. II. Pp. 1-489, 13 col. plates, title-page, introduction, and index of plate-figures. London; April, 1888, to May, 1903. The date is printed at the bottom of every eighth page.

Many new genera and species.

Eenige Uitlandische Diptera. Tijdschr. v. Ent., xxxiv, 193-218, 1891.

Volucella testacea n. sp., from Curaçao.

Diagnoses of New Mexican Muscidae. Tijdsch. v. Ent., xxxv, 183-195, 1892.

Four genera and about 60 species new; all described in full in subsequent parts of Biologia.

Vanhoffen, E.

Fauna und Flora Grönlands. Grönlands-Expedition der Gesell. für Erdkunde zu Berlin, 1891-93, unter Leitung v. Erich v. Drygalski. Vol. II, 1, 1897.

Contains a list of Greenland Diptera, compiled, pp. 156, 157. This is reproduced by Lundbeck, Dipt. Groenl., II, 314, correcting nomenclature.

Verrall, G. H.

British Flies. Vol. VIII: Platypezidæ, Pipunculidæ and Syrphidæ. London, Gurney and Jackson, 1901. With catalogue and bibliography in appendix. Pp. 691 and 121; many figures in the text.

This fine work contains descriptions of many genera and a considerable number of species, common to Great Britain and North America.

Walker, Francis.

List of the Specimens of Dipterous Insects in the Collection of the British Museum. Four parts and three supplements. London; 1848-55. The dates are as follows: Part I, 1848; II, III, and IV, 1849; Suppl. I, II, 1854; III, 1855.

Many new species.

Note.—In the Osten Sacken catalogue occur many species of Walker with the locality "Huds. B. Terr." These are cited by Walker as "St. Martin's Falls, Albany River, Hudson Bay." I requested Dr. Jas. Fletcher to find this locality for me on the modern maps; he found it now named Martin's Falls, and located in longitude 86.30, latitude 51.30.—in other words, about 200 miles north of the northern arch of Lake Superior.

Insecta Saundersiana. Diptera. Five Parts, with eight plates by Westwood. London, 1850-56. Dates as follows: Part I in 1850, II, in 1851, III and IV in 1852, and V in 1856.

Many species and a few genera.

Characters of Undescribed Diptera in the Collection of Wm. Saunders. Transactions of the Entomological Society [of London], new series, IV, 1857. pp. 119-158 and 190-235; V, 1858, 268-334.

Many new species, mostly described in a very brief and unsatisfactory manner.

On Some Insects of Nova Scotia and Canada. Canadian Entomologist, III, 141; Oct., 1871.

A short list of Diptera occurring in Nova Scotia; no new species.

In the appendix to "The Naturalist in Vancouver Island and British Columbia," by J. K. Lord (London, 1866, 2 vols.), Walker described four new species of Diptera from those regions—*Culex pinguis*, *Laphria columbica*, *Cuterebra approximata* and *Eurygaster septentrionalis*.

Note.—Walker's descriptions are notoriously bad. Osten Sacken, Catalogue, 1878, preface, p. xvi. has enlarged a little upon this subject. It was the policy of Osten Sacken and Loew not to adopt Walker's names unless, as is very rarely the case, the description contains some positive mark of identification. In their view, it was preferable to describe as a new species in doubtful cases. Some recent American workers have followed a different principle, and recognized Walker's species on mere preponderance of evidence; this I take it is especially true of Mr. Coquillett. It is desirable that each student of the order examine the descriptions for himself, and form his own conclusions as to the recognizability of any particular one. Furthermore, it is very desirable, in case that one of these specific names be resurrected, that the species be redescribed at the same time; otherwise in most cases other entomologists will be completely in the dark as to the species referred to, and confusion will be increased. This pending a fuller knowledge of the type, which must some time be arrived at.

Walsh, Benjamin D.

Insects Injurious to Vegetation in Illinois. Rock Island, 1861 (pamphlet).

Exorista (Senomctopia) militaris n. sp. (syn. of *Winthemia quadripustulata*).

On certain Remarkable or Exceptional Larvæ, etc. Boston Society of Nat. Hist., IX, 286-308, 1864.

Mydas fulvipes n. sp.

On the Insects, coleopterous, hymenopterous and dipterous, Inhabiting Galls of certain Species of Willow. Proceedings of the Entomological Society of Philadelphia, III, 543-644 and VI, 223-288; 1864 and 1868.

Numerous species of Cecidomyiæ and their galls, new.

First Annual Report on the Noxious Insects of the State of Illinois. Transactions of the Illinois State Horticultural Society, appendix. Chicago, 1868.

Trypeta pomonella n. sp., now referred to *Rhagoletis*.

Mr. Couper's Thorn-leaf Gall. Canadian Entomologist, I, 79, 1869.

Cecidomyia crategi-bcdguar n. sp.

Larvæ in the Human Body. American Entomologist, II, 137, 1870.

"Contains description of three larvæ of Homalomyia, designated as *H. wilsoni*, *leydii* and *prunicora*. Perfect insect not described." O. S.

Washburn, F. L.

Hessian Fly Reared in the Laboratory. Canadian Entomologist, XXXV, 316; Nov., 1903.

Existence of a second brood proved in Minnesota.

Gastrophilus epilepsalis. Canadian Entomologist, XXV, 320; Nov., 1903.

A species identified as this affecting man as a *subcutaneous* parasite;

evidently an error of determination, as stated by Banks in the succeeding number of the journal.

Webster, F. M.

Report on Buffalo Gnats. Bull. 14, Division of Entomology, Dept. of Agriculture, 29-39; 1887.

On the breeding-places, etc., of Simuliidæ in the south; no new species.

Notes on a species of Necrophagous Diptera. Insect Life, II, 356-358 and 370-372; 1890.

Habits of *Conicera* sp.

Larvæ of a Crane-fly Destroying Young Wheat in Indiana. Insect Life, III, 12-14; Aug., 1890.

An undetermined Tipulid.

Report on Several Species of Crane-Flies Infesting Meadows, etc. Bull. 26, Div. of Entomology, Dept. of Agriculture, 65-74; 1892.

Tipula costalis mentioned as one.

Methods of Oviposition in Tipulidæ. Bulletin Ohio Exp. Sta., Technical Ser., vol. 1, No. 3, p. 151-154, figs.; 1893.

Habits of *Tipula bicornis* LOEW MS. and *Pachyrhina* sp.

A Dipterous Gall-maker and Its Associates. Bull. Ohio Exp. Sta., Tech. ser., 1, 154, 155; 1893.

Gall and Associates of *Lasioptera muhlenbergiæ* MARTEN.

Notes and Observations on Several Species of Diptera. Canadian Entomologist, XXX, 18, 19; Jan., 1898.

Notes on seven species, mostly reared.

Species of Diptera Reared in Indiana in 1884-1889. Proc. Indiana Acad. Science, 1898, 2 pp.

These rearings had already been reported in Division of Entomology bulletins, No. 10, new ser., and 7, Technical ser.

Some Species of Diptera Inhabiting or Frequenting the Wheat Fields of the Middle West. Canadian Entomologist, XXXII, 212, 213; July, 1900.

18 species reared from wheat and 34 species collected by sweeping in wheat fields; no new species.

Some Insects attacking the Stems of Growing Wheat, Rye, Barley and Oats. Bull. 42, Division of Entomology, 1903, 62 pp.

Treats, among other insects, of *Meromyza americana*, *Oscinis carbonaria* and *soror*.

Weed, C. M.

Note on the Horn Fly. American Naturalist, Jan., 1893, 63.

Weed, H. E.

Note on the Natural Habitat of the Screw-Worm Fly. Canadian Entomologist, XXIII, 243, 1891.

Westcott, Oliver S.

The Distribution of Some North American Syrphidæ. Entomological News, VIII, 190, 191; October, 1897.

Locality of collection given for 56 species.

Westwood, John O.

On Diopsis, a Genus of Dipterous Insects, etc. Trans. of Linnæan Soc., XVII, 283-313 and 543-550, 2 col. plates; 1837.

Sphyrapcephala brevicornis is reproduced, description and figure, from Say.

Insectorum novorum exoticorum ex ordine dipterorum Descriptiones. London and Edinburgh Philosophical Magazine, ser. 3, vi, 280, 281 and 447-449; 1835.

Bittacomorpha n. g.; *Lepidophora ægeriformis* GRAY, *Pangonia macroglossa* and *Gynoplistia annulata*, all from North America.

Insectorum nonullorum novorum (ex ordine Dipterorum) Descriptiones. Annales Soc. Ent. de France, iv, 681-685; 1835.

Limnobiorynchus canadensis n. sp., from Canada.

Note.—I have not seen this and the preceding; from data in Osten Sacken, Hagen, etc., they seem to be the same article, the latter having one species added.

Description of Some New Exotic Acroceridæ. Transactions of the Entomological Society [of London], v, 91, 1848.

Six new species from North America.

Synopsis of the Dipterous Family Midasiidæ, with Descriptions of numerous Species. Arcana Entomologica, i, two col. plates; 1841-43.

Five new species from North America.

Generis Dipterorum Monographia Systropi. Guérin's Magazin de Zoologie, 1842.

Systropus favoides n. sp., from Mexico.

Diptera nonnulla exotica Descripta. Trans. Ent. Society, v, 231, 1850.

Ceria daphneus WALKER, from Jamaica, described and figured.

Note Dipterologica. Monogr. of the Genus *Systropus*, etc. Trans. Ent. Soc. London, 1876.

Reproduces description of *Systropus favoides*.

Note Dipterologica. Desc. of New Genera and Species of the Family Acroceridæ. Trans. Ent. Soc. London, 1876.

Pialoidea n. gen. for *Cyrtus magnus* from Georgia.

Wheeler, Wm. M.

On Two New Species of Cecidomyid Flies Producing Galls on *Antennaria plantaginifolia*. Proc. Wis. Nat. Hist. Society, April, 1889, 209-216.

Cecidomyia antennaria and *Asynapta antennaria* n. spp.; note on habits of adult, and on courtship of *Dolichopus plumipes*.

Descriptions of Some New North American Dolichopodidæ. Psyche, 1890, 337-343; 355-362; 373-379.

Aphantolimus and *Peloropcodes* n. gen. (the former syn. of *Thrypticus*); several new species.

The Supposed Bot-fly Parasite of the Box-turtle, Psyche, 1890, 403.

The Genus *Ochthera*. Entomological News, vii, 121-123, figs.; Apr., 1896.

O. lauta n. sp.

Two Dolichopodid Genera New to America. Entomological News, vii, 152-156; May, 1896.

Niphandrium americanum (syn. of *Chrysotus barbatus* Lw.) and *Thinophilus pectinifer* n. sp.

A New Genus and Species of Dolichopodidæ. Entomological News, vii, 185-189, figs.; June, 1896.

Parhydrophorus canescens; the genus is hardly distinct from *Hydrophorus*.

A New Empid with Remarkable Middle Tarsi. Entomological News, vii, 189-192, fig.; June, 1896.

Rhamphomyia scaurissima n. sp.

An antenniform Extra Appendage on *Dilophus tibialis* Loew. Archiv für Entwickelungsmechanik der Organismen, III, 261-268, 1 plate; Leipzig, 1896.

A New Genus of Dolichopodidæ. Zoological Bulletin, I, 217-222, figs; 1898.

Drepanomyia (syn. of *Hypocharassus* Mlk) *pruinosa* and *johnsoni* (the latter a syn. of *H. gladiator* Mlk).

New Species of Dolichopodidæ from the United States. Proc. Cal. Acad. Sci., 3d series, I, 1-80, 4 plates; 1899.

Many new species; two new genera, *Parasyntormon* and *Nothosympycnus*.

A Genus of Maritime Dolichopodidæ new to America. Proc. Cal. Acad. Sci., 3d ser., I, 145-152, 1 plate; 1899.

Aphrosylus predator, *dirctor* and *grassator*, new, from California.

Anemotropisms and Other Tropisms in Insects. Archiv für Entwickelungsmechanik der Organismen, VIII, 373-381; 1899.

Several Diptera mentioned as illustrations.

The Genus *Hypocharassus*. Entomological News, XI, 423, 1900.

Synonymy of *Drepanomyia*.

Microdon Larvæ in *Pseudomyrma* Nests. Psyche, July, 1901, 222, fig.

An undetermined species collected in Mexico.

An Extraordinary Ant-guest. American Naturalist, XXXV, 1007-1016, figs.; Dec., 1901.

Larva and puparium of an undetermined Phorid, commensal with the larva of *Pachycondyla harpar* at Austin, Tex.; one of the most interesting entomological articles I have ever seen.

Wheeler, Wm. M. and Melander, Axel L.

Biologia Centrali-Americana. Diptera, vol. I. Family Empidæ, pp. 366-376; Dec., 1901.

Eighteen new species.

Whitney, C. P.

New Species of Tabanidæ. Canadian Entomologist, XI, 35-38, 1879.

Six species; see also note by Burgess, same volume, p. 80.

Wiedemann, C. R. W.

Diptera Exotica. Vol. I, Kilia, 1821.

This is a Latin work; on the completion of this first volume, it was decided to change to German, and all of this part is incorporated, in German, in his principal work, "Ausereuropäische Zweifl. Insekten."

Analecta Entomologica. Kilia, 1824.

Not seen. Contains 154 Diptera in all, comparatively few from North America.

Ausereuropäische Zweiflügelige Insekten. 2 vols., with 12 plates; Hamm, 1828 and 1830.

This great work contains very many North American Diptera. One of its objects was to elucidate the species of Fabricius, and nearly all the Diptera of that entomologist are redescribed; the original descriptions are also quoted in full. Another valuable feature is the redescription of a large number of Say's species, from material set on by Say himself, presumably typical in most cases. Wiedemann changed some of the specific names of

these; where there seemed to be no valid reason for the alteration, I have followed Say in nomenclature. In most cases of redescription, I omit the locality, as it is the same as in Say's description.

Achias, Dipteronum Genus a Fabricio conditum. Kiliae, 1830; 16 pp., 1 plate.
Sphyracephala (Achias) brevicornis SAY, redesc. and figured.

Monographia Generis Midarum. Nova Acta Academiæ Naturæ Curiosorum, xv, 19-56, 3 col. plates; 1831.

Four new species from North America.

Williston, Samuel Wendell.

An Anomalous Bombylid. Canadian Entomologist, Nov., 1879, 215.

"*Anthrax* nov. sp., near *fuliginosa*."

Some Interesting New Diptera. Transactions of the Connecticut Academy of Arts and Sciences, iv, 243-246, 1880.

Rhynchocephalus sackenii, *Silvius pollinosus*, *Chrysops discalis*, new.

Eristalis tenax. Note on distribution, Canadian Entomologist, xiii, 76; Aug., 1881.

New or Little Known Genera of North American Syrphidæ. Canadian Entomologist, xiv, 77-82, 1882.

Three new genera, five species; superseded by his Synopsis of the Syrphidæ.

Drosophila ampelophila Loew. Canadian Entomologist, xiv, 138, 1882.

Note on habits and distribution.

Contribution to a Monograph of North American Syrphidæ. Proceedings of the American Philosophical Society, xx, 299-332, 1882.

23 new species, all reproduced in the Synopsis.

On the North American Asilidæ (Dasypogoninæ, Laplirinæ) with a New Genus of Syrphidæ. Transactions of the American Entom. Society, xi, 1-36, 3 pl.; 1883.

20 new species of Asilidæ; *Nausigaster punctulata* n. g. and sp. of Syrphidæ.

The North American Species of Nemestrinidæ. Canadian Entomologist, xv, 69-72, fig.; 1883.

Rhynchocephalus volaticus n. sp., from Fla.; table of species.

North American Conopidæ. Transactions of the Conn. Academy:

I. *Conops*. Vol. iv, 325-342, 1 plate; 1883.

II. *Stylogaster*, *Dalmannia*, *Oncomyia*. Vol. vi, 87-94; 1884.

III. Conclusion. Vol. vi, 377-394, 1 plate; 1885.

In these three numbers are tables of genera and species, old species re-described, and several new; practically a monograph of the family.

The Screw-worm Fly. Psyche, 1883, 132.

Notes on *Chrysomyia macellaria* FAB.

Eine Merkwürdige neue Syrphiden-Gattung. Wiener Entom. Zeitung, iii, 185, 186, 1884.

Eucreratomyia pergandei n. g. and sp., from D. C.

Note on the Genus *Merapioidis* Bigot. Wiener Entom. Zeitung, iii, 282, 1884.

Dipterous Larvæ from the Western Alkaline Lakes, and their Use as Food. Transactions Conn. Academy, vi, 83-86; July, 1884.

Ephydra californica PACK., described, larva figured.

- On the Collection and Preservation of Diptera. Psyche, 1884, 130-132.
- Notes on Injurious Insects. Entomological Laboratory, Michigan Agricultural College, 1884. By Professor A. J. Cook.
- Description of *Scopolia sequax* n. sp., by Williston; here referred to *Phorichata*.
- Article Diptera in Standard Natural History, Vol. v, pp. 403-433, many figs., 1884 (Later editions designated as Riverside Natural History).
- General treatment; no new species.
- On the North American Asilidæ. II. Transactions of the American Entomological Society, XII, 53-76, 1885.
- 17 new species.
- Exorista infesta* n. sp. In 14th Report State Entomol. of Ill., for the year 1884 (pub. 1885), p. 65.
- Herein referred to *H'inthemia quadripustulata*.
- On the Classification of North American Diptera. I. Bull. Brooklyn Entom. Society, VII, 129-131; Feb., 1885.
- II. Entomologica Americana, I, 10-13; Apr., 1885.
- III. Entomologica Americana, I, 114-118 and 152-155; 1885.
- Part II contains *Apatolestes comastes* n. g. and sp.; Part III contains *Scoliopelta luteipes* n. g. and sp.
- Notes and Descriptions of North American Xylophagidæ and Stratiomyidæ. Canadian Entomologist, XVII, 121-128; July, 1885.
- Nine new species.
- Ueber einige Leptiden-Characteren. Entomol. Nachrichten, LXVI, 400, 1885.
- On two Interesting New Genera of Leptidæ. Entomologica Americana, II, 105-108, 1886.
- Agnotomyia* (n. g.) *elongata* SAY and *Arthroceras pollinosum* n. g. and sp. The first genus is a synonym of *Dialysis*.
- Ueber *Mallota cimbiciformis*. Berliner Entom. Zeitschr., XXVI, 171, 172, 1886.
- Notes on synonymy and dimorphism.
- Dipterological Notes and Descriptions. Trans. Amer. Entom. Soc., XIII, 287-307, 1886.
- 21 new species; many notes on others.
- Synopsis of the North American Syrphidæ. Bulletin of the U. S. Natl. Museum, No. 31, Washington, 1886. Pp. xxx and 335, 12 plates.
- Contains descriptions of all the North American genera and species known at that time; many new. Indispensable for the family.
- North American Tachinidæ. *Gonia*. Canadian Entomologist, XIX, 6-12; Jan., 1887.
- G. scullis*, *porca*, *exul*, and *sequax*; some of these are perhaps synonyms of *capitata*, as indicated by Coquillett.
- Table of the Families of Diptera. Kansas Academy of Science, X, 122-128, 1887.
- Notes and descriptions of North American Tabanidæ. Kans. Acad. Sci., X, 129-142, 1887.
- 14 new species; tables of species, supplementary to Osten Sacken.
- An Australian Parasite of *Icerya purchasi*. Insect Life, I, 21, 22, fig.; July, 1888.

- Lestophonus icerye* n. g. and sp.; see also same volume, pp. 144, 190, and 328-331, figs.
- Hilarimorpha and Apiocera. Psyche, Sept.-Oct., 1888, 99-102.
- Hilarimorpha mikii* n. sp.; discussion of family position.
- Synopsis of the Families and Genera of North American Diptera. New Haven, Conn., 1888; J. T. Hathaway.
- A pamphlet of 84 pp., with tables of families and genera, and bibliography; on pp. 81 and 82 are reproduced the original descriptions of *Exoptata*, *Enoplempis*, *Megacyttarus* and *Hypocharassus*.
- Leucopis bellula* n. sp. Insect Life, 1, 258-259; Feb., 1880.
- Notes on Asilidæ. Psyche; Aug.-Dec., 1889, pp. 255-259.
- Atonia* n. g.; table of genera around *Atomosia*.
- The Horn-fly. Entomologica Americana, v, 180, 181; Sept., 1889.
- Hæmatobia cornicola* n. sp., a syn. of *H. serrata*.
- A New Cattle Pest. American Naturalist, 1889 (sep.), 7 pp. and plate.
- Notes on the preceding species.
- The Dipterous Parasites of North American Butterflies. In Scudder's "Butterflies of the Eastern United States and Canada." Cambridge, 1889.
- Six new species; *Acroglossa* n. g.
- Note on Syrphids Reared from Cactus. Entom. News, 11, 162; Oct., 1891.
- Copestylum marginatum* and *Volucella fasciata* so reared.
- Biologia Centrali-Americana. Diptera, Vol. III, 89 pp., 2 col. plates. London; Dec., 1891-May, 1892. In August, 1903, three more pages of text were added to complete the volume, along with index, etc.
- Vol. I. Supplement, pp. 217-332, 3 col. plates. London; Dec., 1900-Dec., 1901.
- Vol. III contains the Syrphidæ, Conopidæ, Pipunculidæ and Platypezidæ; the supplement to Vol. I contains additions to most of the families of Orthorhapha. There are many new species, and a few genera.
- A New Species of Criorhina, with notes on Synonymy. Entomological News, 11, 145, 146; June, 1892.
- C. coquilletti* n. sp.; notes on syn. of ten species of Syrphidæ.
- On the Apioceridæ and their Allies. Kans. Univ. Quarterly, 1, 101-118, 2 plates and text figs.; Jan., 1893.
- An important paper on anatomy; no new species.
- Diptera Brasiliæna. 111. Kans. Univ. Quarterly, 1, 119-122; Jan., 1893.
- Contains a discussion of *Stylogaster* and its species.
- Notes on Tachinidæ. Psyche, vi, 409, 410; March, 1893; also further notes, p. 492.
- Syn. of *Atropharista*; see Townsend, p. 461 and 492.
- North American Psychodidæ. Entomological News, iv, 113, 114; Apr., 1893.
- Psychoda albipuncta* and *slossoni* n. spp.
- Belvosia: A Study. Insect Life, v, 238-240, 1 plate; April, 1893.
- A discussion of the variability of generic and specific characters.
- Diptera of Death Valley, Cal. In "North American Fauna" (Bull. of Division of Ornithology and Mammalogy, Dept. of Agriculture), No. 7, part 2, pp. 253-259. Washington, May 31, 1893.
- 16 new species; *Melanodexia* and *Pelomyia* n. gen.

- A List of Species of Diptera from San Domingo. Canadian Entomologist, xxv, 170, 171; July, 1893.
43 species listed; none named as new.
- New or Little Known Diptera. Kansas Univ. Quarterly, II, 59-70; Oct., 1893.
Many new species, largely from state of Washington; *Orthoneuromyia* n. g. (syn. of *Psilocurus*).
- Description of a New Species of Chlorops Reared from Galls on Muhlenbergia. Bull. Ohio Exp. Sta., Technical series, vol. I. No. 3, pp. 156, 157; 1893.
Chlorops ingrata.
- Bibio tristis n. sp. In Kellogg's Insect Notes, Trans. Kans. Acad. Sci., XIII, 113, 1893.
- Notes on the Habits of Rhychocephalus sackenii Will. Entomological News, v, 47; Feb., 1894.
- On the Genus Erax. Entomological News, v, 136, 137; May, 1894.
Invalidity of *Efferia* Coq., etc.
- The American Genera of Sapromyzidæ. Entomological News, v, 196, 197; June, 1894.
Table of genera; notes on distribution of species.
- On the Genus Dolichomyia, with Description of a New Species from Colorado. Kans. Univ. Quarterly, III, 41-43; July, 1894.
D. gracilis; notes on other genera of Bombyliidæ.
- A New Tachinid with Remarkable Antennæ. Entomological News, VI, 29-32, figs.; Jan., 1895.
Dichocera lyrata n. g. and sp., from Idaho.
- On the Rhopalomeridæ. Psyche, VII, 183-187; Jan., 1895.
The material is all South American.
- Rhopalomera xanthops n. sp. Psyche, VII, 213; March, 1895.
From Yucatan.
- Dialysis and Triptotricha. Kansas Univ. Quarterly, III, 263-266, fig.; April, 1895.
Dialysis aldrichii n. sp., from Idaho.
- New Bombyliidæ. Kans. Univ. Quart., III, 267-269; Apr., 1895.
Desmatoncura argentifrons and *Desmatomyia anomala*, new genera and species.
- Two Remarkable New Genera of Diptera. Kans. Univ. Quart., IV, 107-109; Oct., 1895.
Toxensendia and *Arthrostylum*; the latter a syn. of *Phencus* WALK.
- Bibliography of North American Diptera. Kans. Univ. Quart., IV, 129-144 and 199-204; Jan. and Apr., 1896.
- Fissicorn Tachinidæ. Kans. Univ. Quart., IV, 171, 172, fig.; Jan., 1896.
Notes on *Dichocera* and others.
- A New Genus of Hippoboscidæ. Entomological News, VII, 184, 185; June, 1896.
Brachypteromyia femorata n. g. and sp., from Wyoming; in a note at end, 12 genera not previously reported from North America are mentioned.
- Manual of North American Diptera. Second edition, rewritten and enlarged. New Haven, Conn., 1896; James T. Hathaway. Pp. liv. and 167.

Anatomy of Diptera, bibliography, table of families, definition of each family, and table of North American genera for each family except Tachinidæ and Dexiidæ. A few generic names are altered, or new ones proposed, on account of preoccupation. I have omitted all references to this work, except where names are changed, because I assume that all workers with Diptera are familiar with it. To the beginner it is indispensable, and to the advanced worker a great convenience.

On the Diptera of St. Vincent. Transactions of the Entomological Society of London, 1896, pt. 3, pp. 253-446, 7 plates.

Many new genera and species from this island, which is far south in the Lesser Antilles.

Diptera Brasiliana. iv. Kans. Univ. Quarterly, vi, 1-12; Jan., 1897.

Notes on *Lipochata*; some new genera and species from Grenada, W. I.

On the Genus *Thlipsogaster* Rond. Psyche, March, 1899, 331, 332.

The American species are not of this genus.

Notes and Descriptions of Mydaiidæ. Kansas Acad. Science, 1897, 53-58.

Mydas quadrilineatus and *Ecthypus townsendi*, new North American species; a few South American species.

Note.—An admirable feature of Williston's work, which does not show fairly in the above list, is the attention he has given to identifying and redescribing the species of other writers. In all his longer papers this is a prominent part, frequently occupying as much space as the new descriptions, and requiring more time than they in preparation.

Woodworth, Chas. W.

Gonia senilis Will., Psyche, v, 43, 1889.

Zetterstedt, J. W.

Diptera Scandinaviæ, disposita et descripta. Lundæ, 1842-1860.

While this work treats only of Scandinavian species, there are many which are circum-polar. Zetterstedt's earlier work, *Insecta Lapponica*, is mostly reproduced in this.

CATALOGUE

TIPULIDÆ.

OSTEN SACKEN, Studies in Tipulidæ, I (longipalpi), Berl. Ent. Zeitsch., xxx, 153-188, 1886; II (brevipalpi), loc. cit., xxxi, 163-242, 1887. These papers are crowded with information regarding the genera of Tipulidæ; a few species are mentioned.

SNODGRASS, JOHR. N. Y. Ent. Soc., xi, 177-188, 2 pl., 1903; on the structure of the ovipositor, etc., in a number of species.

GERANOMYIA.

HALIDAY, Ent. Mag., i, 54, 1833.

MACQUART, Dipt. Exot., i, 1, 62, 1838 (*Aporosa*).

PHILIPPI, Verh. Zool.-Bot. Ges., 1865, 597, pl. xxxiii, f. 1 (*Plettusa*).

WESTWOOD, Trans. Ent. Soc. Lond., 1881, pl. xix, f. 10.

OSTEN SACKEN, Mon. N. A. Dipt., iv, 78, 1869; Stud. Tipul., ii, 173, 1887.

canadensis WESTWOOD, Annales Soc. Ent. France, 1835, 683 (*Limnobiahynchus*).—Canada.

OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 207 (*communis*); Mon. N. A. Dipt., iv, 80.—D. C., Wisconsin R., Ill. Cat. gives Cal.

HART, Bull. Ill. State Lab. N. H., iv, 200, oc. in Ill. and note on habits. Canada to Fla. Cal.—O. S. Cat.

distincta DOANE, JOHR. N. Y. Ent. Soc., viii, 186, pl. vii, f. 13.—New Bedford, Mass.

diversa OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 207; Mon. N. A. Dipt., iv, 80.—Trenton Falls, N. Y.

N. J.—Smith Cat.

intermedia WALKER, List, i, 47 (*Limnobia*).—Jamaica.

mexicana BELLARDI, Saggio, App., 4 (*Aporosa*).—Mex.

pallida WILLISTON, Trans. Ent. Soc. Lond., 1896, 284, pl. ix, f. 53.—St. Vincent, W. I.

rostrata SAY, JOHR. Acad. Sci. Phil., iii, 22; Compl. Works, ii, 47 (*Limnobia*).—Pa. and Md.

WIEDEMANN, AUSS. Zw., i, 35 (*Limnobia*).

OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 206; Mon. N. A. Dipt., iv, 79.—D. C., N. Y., Mass., Ill., Canada; perhaps Cuba.

St. Vincent, W. I.—Will.; Ill.—Hart; N. J.—Smith Cat.

rufescens LOEW, Linnaea Ent., v, 396, pl. ii, f. 9-12 (*Aporosa*).—Porto Rico. Roeder, Stett. Ent. Zeit., 1885, 339, note on male from same locality.

virescens LOEW, Linnaea Ent., v, 396 (*Aporosa*).—St. Thomas.

RHIPIDIA.

MEIGEN, Syst. Besch., i, 153, 1818.

SCHINER, Fauna Austr., ii, 504, 1864.

OSTEN SACKEN, Mon. N. A. Dipt., iv, 81, 1869; iii, in Additions and Corrections, 1873; Studies in Tipul., ii, 174, note.

- bipectinata** WILLISTON, Trans. Ent. Soc. Lond., 1896, 285, pl. IX, f. 54.—St. Vincent, W. I.
- costalis** WILLISTON, Trans. Ent. Soc. Lond., 1896, 286, pl. IX, f. 56.—St. Vincent, W. I.
- domestica** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 208; Mon. N. A. Dipt., IV, 84, pl. III, f. 5.—D. C., N. J.; perhaps Brazil.
Fla., Drayton Id. and Ormond—Johnson.
- fidelis** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 209; Mon. N. A. Dipt., IV, 83.—Sharon Spr., N. Y.; Ill. Canada—O. S. Cat.
- maculata** MEIGEN, Syst. Besch., I, 153, pl. V, f. 9-11.—Europe.
MACQUART, Hist. Nat. Dipt., I, 93, pl. II, f. 1.
STAEGER, Dipt. Dan., 27.
ZETTERSTEDT, Dipt. Scand., X, 4009.
SCHINER, Fauna Austr., II, 504.
OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 208; Mon. N. A. Dipt., IV, 82.—Huds. Bay Terr.; Me. to Ill.
Sitka—Bergroth.
- subjectinata** WILLISTON, Trans. Ent. Soc. Lond., 1896, 287, pl. IX, f. 57, and pl. X, f. 57a; Biologia, Dipt., Suppl., 226, oc.—St. Vincent, W. I., and Tabasco, Mex.
- unipectinata** WILLISTON, Trans. Ent. Soc. Lond., 1896, 286, pl. IX, f. 55.—St. Vincent, W. I.

DISCOBOLA.

- OSTEN SACKEN, Proc. Phil. Ent. Soc., 1865, 226; Mon. N. A. Dipt., IV, 97 (*Trochobola*, on account of supposed preoccupation of *Discoboli*); Stud. Tipul., II, 178; notes; Berl. Ent. Zeitsch., XXXIX, 256. "There is a group of fishes called *Discoboli* Cuv.;" this however, would not constitute preoccupation of the name, hence I use the original form, following Kertész.
- argus** SAY, Long's Exped., App., 358; Compl. Works, I, 243 (*Limnobia*).—N. W. Terr.
WIEDEMANN, Auss. Zw., I, 33 (*Limnobia*).
OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 217 (*Limnobia*); Mon. N. A. Dipt., IV, 98, pl. I, f. 4 (*Trochobola*).—Mass., Me., N. Y., N. J., Nova Scotia.
White Mts., N. H.—Slosson.
- elegans** DOANE, Jour. N. Y. Ent. Soc., VIII, 186, pl. VII, f. 14.—Tokeland, Wash.; Collins, Ida.

DICRANOMYIA.

- STEPHENS, Cat. Brit. Ins., 1829
- OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859; Mon. N. A. Dipt., IV, 53, 1869; Stud. Tipul., II, 172, 1887.
- badia** WALKER, List, I, 46 (*Limnobia*).—Nova Scotia.
OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 210 (*humidicola*); Mon. N. A. Dipt., IV, 72, pl. III, f. 2.—D. C., N. Y., Conn.; Cal. in Cat.
- brevivena** OSTEN SACKEN, Mon. N. A. Dipt., IV, 66.—N. Y., D. C.
- brunnea** DOANE, Jour. N. Y. Ent. Soc., VIII, 184, pl. VII, f. 6.—Nantucket, Mass.
- chorea** MEIGEN, Syst. Besch., I, 134 (*Limnobia*).—Europe.
SCHUMMEL, Beitr. z. Ent., I, 126 (id.).
SCHINER, Fauna Austr., II, 569 (id.).
BERGROTH, Wien. Ent. Zeit., VII, 194, oc. in Br. Col. (High Cascades).

- cinerea** DOANE, Jour. N. Y. Ent. Soc., VIII, 182, pl. VII, f. 2.—Pullman, Wash.
- citrina** DOANE, Jour. N. Y. Ent. Soc., VIII, 183, pl. VII, f. 3.—Wawawai, Wash.
- distans** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 211; Mon. N. A. Dipt., IV, 67.—Fla.
- diversa** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 212; Mon. N. A. Dipt., IV, 64.—D. C.
- duplicata** DOANE, Jour. N. Y. Ent. Soc., VIII, 185, pl. VII, f. 12.—Tokeland, Wash.
- floridana** OSTEN SACKEN, Mon. N. A. Dipt., IV, 67.—Fla.
- fulva** DOANE, Jour. N. Y. Ent. Soc., VIII, 185, pl. VII, f. 9.—Pullman, Wash.
- gladiator** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 212; Mon. N. A. Dipt., IV, 63, pl. III, f. 4.—D. C.
- globithorax** OSTEN SACKEN, Mon. N. A. Dipt., IV, 74.—White Mts., N. H.; D. C.
- gracilis** DOANE, Jour. N. Y. Ent. Soc., VIII, 184, pl. VII, f. 1.—Moscow, Ida.
- hæretica** OSTEN SACKEN, Mon. N. A. Dipt., IV, 70, pl. I, f. 3.—N. Y.; Ft. Resolution, Huds. Bay Terr.
N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- halterata** OSTEN SACKEN, Mon. N. A. Dipt., IV, 71.—Labrador.
BERGROTH, Wien. Ent. Zeit., VII, 194, oc. at Sitka, and note on male.
Alaska.—Coq.; Beulah, N. M.—Skinner.
- helva** DOANE, Jour. N. Y. Ent. Soc., VIII, 183, pl. VII, f. 4.—Col.
- immodesta** OSTEN SACKEN, Proc. Acad. Sci. Phil., 1859, 211; Mon. N. A. Dipt., IV, 62.—D. C., N. Y., Me.
- infuscata** DOANE, Jour. N. Y. Ent. Soc., VIII, 185, pl. VII, f. 11.—Collins, Ida.
COQUILLET, Proc. Wash. Acad. Sci., II, 398, oc. in Alaska.
- isabellina** DOANE, Jour. N. Y. Ent. Soc., VIII, 183, pl. VII, f. 5.—Pa.
- liberta** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 209; Mon. N. A. Dipt., IV, 69, pl. III, f. 3.—Ala., Ga.; N. Y., D. C., Wis. Cat. gives Canada.
N. J.—Smith Cat.
- longipennis** SCHUMMEL, Beitr. zur Ent., I, 104 (*Limnobia*).—Europe.
OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1861, 287 (*immemor*); Mon. N. A. Dipt., IV, 61, pl. I, f. 1.—N. Y. Cat. gives Mass. and Quebec.
- marmorata** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1861, 288; Mon. N. A. Dipt., IV, 77.—Cal. West. Dipt., 197, note.
- moniliformis** DOANE, Jour. N. Y. Ent. Soc., VIII, 184, pl. VII, f. 8.—Col., Long Id., Nantucket.
- morioides** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 212 (*morio*, preoc.); Mon. N. A. Dipt., IV, 73.—Trenton Falls, N. Y.
N. J.—Smith Cat.
- ochracea** DOANE, Jour. N. Y. Ent. Soc., VIII, 182, pl. VII, f. 1.—Moscow, Ida.
- pupipennis** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 211; Mon. N. A. Dipt., IV, 73, pl. I, f. 2.—D. C. Cat. gives N. Y.
VERRALL, Ent. Mo. Mag., XXIII, 158, says this is the same as the European *pilipennis* EGGER.
OSTEN SACKEN, Berl. Ent. Zeitsch., XXXIX, 254, should be compared with the European species before dropping name.
N. J.—Smith Cat.
- pubica** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 212; Mon. N. A. Dipt., IV, 64.—Ill.
White Mts., N. H.—Slosson.
- rara** OSTEN SACKEN, Mon. N. A. Dipt., IV, 75.—N. Y.
N. J.—Smith Cat.
- rostrifera** OSTEN SACKEN, Mon. N. A. Dipt., IV, 65.—N. Y.
- simulans** WALKER, List, I, 45 (*Limnobia*).—Martin Falls, Canada.

- OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 213 (*defuncta*); Mon. N. A. Dipt., iv, 76 (id.); Cat. 24, and note 26. [Synonymy Mon., iv, 41.]—D. C., N. Y., Me., Canada. Cat. adds Cal.
 N. J.—Smith Cat. Beulah, N. M.—Skinner.
- stigmata* DOANE, Jour. N. Y. Ent. Soc., viii, 185, pl. vii, f. 10.—Palo Alto, Cal.
- stulta* OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 210; Mon. N. A. Dipt., iv, 68.—Trenton Falls, N. Y.; Canada.
 N. J.—Smith Cat.
- venusta* BERGROTH, Wien. Ent. Zeit., vii, 193.—Sitka.
 Yakutat, Alaska.—Coq.
- vulgata* BERGROTH, Wien. Ent. Zeit., vii, 194.—Sitka.

LIMNOBIA.

- MEIGEN, Syst. Besch., i, 116, 1818.
- OSTEN SACKEN, Mon. N. A. Dipt., iv, 84, 1869; Stud. Tipul., ii, 177, 1887.
- borealis* DOANE, Jour. N. Y. Ent. Soc., viii, 187, pl. vii, f. 15 (*Dicranoptycha*; corrected by Doane *in litt.*).—Unalaska, Alaska.
- californica* OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1861, 288; Mon. N. A. iv, 96.—Cal.
- cinctipes* SAY, Jour. Acad. Sci. Phil., 1859, 214; Compl. Works, ii, 47.—Mo.
 WIEDEMANN, AUSS. ZW., i, 32.
 OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 214; Mon. N. A. Dipt., iv, 88.—Mass., D. C., Ill.
 N. J.—Smith Cat.; Montreal.—Chagnon; Chatham, Mich.—Pettit; Wash.—Will., K. U. Quart., ii, 61.
- concinna* WILLISTON, K. U. Quart., ii, 60.—Wash.
- hudsonica* OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1861, 289; Osten Sacken, Mon. N. A. Dipt., iv, 91.—Great Slave Lake, Hudson's Bay Terr.
- ignobilis* WALKER, Dipt. Saund., 437.—N. A.
 OSTEN SACKEN, Mon. N. A. Dipt., iv, 41, 327; Cat., 33, notes; desc. unrecognizable.
- immatura* OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 214; Mon. N. A. Dipt., iv, 89.—D. C., Wis., Me.
 N. J.—Smith Cat.
- indigena* OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 215; Mon. N. A. Dipt., iv, 94, pl. iii, f. 7.—Maine; Upper Wis. R.; D. C.; N. Y. Cat. gives Col. and Canada.
- insularis* WILLISTON, Trans. Ent. Soc. Lond., 1896, 287, pl. x, f. 58.—St. Vincent, W. I.
- livida* SAY, Jour. Acad. Sci. Phil., vi, 151; Compl. Works, ii, 349.—Mex.
- modesta* MEIGEN, Syst. Besch., i, 134.—Europe.
 SCHUMMEL, Beitr. zur Ent., i, 124.
 STAEGER, Kröyer's Tidsskr., iii, 51 (*Glochina autumnalis*).
 SCHINER, Fauna Austr., ii, 570.
 LUNDBECK, Dipt. Groenl., i, 269, oc. in Greenland; ii, 313, note.
- parietina* OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1861, 289; Mon. N. A. Dipt., iv, 93.—Trenton Falls, N. Y. Cat. gives White Mts., N. H.
- sciophila* OSTEN SACKEN, West. Dipt., 197.—Marin and Sonoma Cos., Cal.
 COQUILLET, Proc. Wash. Acad. Sci., ii, 398, oc. in Alaska and Col.
 HOWARD, Proc. Wash. Acad. Sci., ii, 559, note on habits.
- sociabilis* OSTEN SACKEN, Mon. N. A. Dipt., iv, 95.—Ill.
 N. J.—Smith Cat.

- solitaria** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1850, 215; Mon. N. A. Dipt., iv, 90, pl. III, f. 6.—N. Y.; White Mts., N. H.; Me.; N. W. part of Huds. Bay Terr.
- stupens** WALKER, Trans. Ent. Soc., v, 333.—Mex.
O. S. Cat., 33, note on position.
- triozellata** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1850, 216; Mon. N. A. Dipt., iv, 92.—D. C.; Trenton Falls, N. Y.; Upper Wis. R.
N. J.—Smith Cat.; Beulah, N. M.—Skinner.
- tripunctata** FABRICIUS, Spec. Ins., II, 405; Ent. Syst., iv, 241; Syst. Antl., 31 (all *Tipula*).—Europe.
GMELIN, Syst. Nat., v, 2817 (*Tipula*).
MEIGEN, Syst. Besch., i, 138.
SCHINER, Fauna Austr., II, 568.
BERGROTH, Wiener Ent. Zeit., VII, 239, oc. in British Columbia (*Limonia*).
- tristigma** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1850, 216; Mon. N. A. Dipt., iv, 94.—Ill., near Chicago.
N. J.—Smith Cat.
- turpis** WALKER, Dipt. Saund., 434.—Canada.
OSTEN SACKEN, Mon. N. A. Dipt., iv, 41, 327; Cat. 33; original is unrecognizable, erroneous, and preoccupied!

TOXORHINA.

- LOEW, Linnæa Ent., v, 400, 1851.
OSTEN SACKEN, Mon. N. A. Dipt., iv, 109, 1869.
- fragilis** LOEW, Linn. Ent., v, 401, pl. II, f. 16-18.—Porto Rico. Also reported from Porto Rico by Roeder.
- magna** OSTEN SACKEN, Proc. Phil. Ent. Soc., 1865, 232; Mon. N. A. Dipt., iv, 114.—N. J.
- muliebris** OSTEN SACKEN, Proc. Ent. Soc. Phil., 1865, 233; Mon. N. A. Dipt., iv, 115; III, App.—Princeton, Mass. Cat. adds N. Y.

RHAMPHIDIA.

- MEIGEN, Syst. Besch., vi, 281, 1830.
ST. FARGEAU, Encycl. Méth., x, 585, 1825 (*Leptorhina*); index, 831 (*Mcgarhina*).
STEPHENS, Cat., II, 243, 1829 (*Leptorhina*).
SCHINER, Fauna Austr., II, 558, 1864.
OSTEN SACKEN, Mon. N. A. Dipt., iv, 103, 1869; Stud. Tipul., II, 183, 1887, notes.
- albitarsis** OSTEN SACKEN, Berl. Ent. Zeitsch., XXXI, 184, 1887.—Porto Rico.
WILLISTON, Dipt. St. Vincent, 288, pl. x, f. 59, oc. in St. Vincent.
- flavipes** MACQUART, Dipt. Exot., Suppl., v, 17, pl. I, f. 4.—Baltimore.
WALKER, Dipt. Saund., 435 (*prominens*).—U. S. [O. S.]
OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 222, 1850 (*brevivirostris*); Mon. N. Dipt., iv, 105.—D. C.; N. Y.; White Mts., N. H.; Wis.; Ill.; S. C.
N. J.—Smith Cat.

ELEPHANTOMYIA.

- OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 220, 1850; Mon. N. A. Dipt., iv, 106, 1869; Stud. Tipul., II, 184, 1887, notes.
- longirostris** WILLISTON, Trans. Ent. Soc. Lond., 1896, 288.—St. Vincent, W. I.

westwoodi OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 221 (*Limnobia-rhynchus canadensis* WESTWOOD, mistaken reference); Mon. N. A. Dipt., iv, 109, pl. I, f. 5 and III, 8.—Trenton Falls, N. Y. Cat. gives "Quebec to Fla."

DIOTREPHA.

OSTEN SACKEN, Cat., 1878, 220.

WILLISTON, Trans. Ent. Soc. Lond., 1896, 291.

mirabilis OSTEN SACKEN, Cat., 220.—Ga., Tex., Cuba?

? WILLISTON, Trans. Ent. Soc. Lond., 1896, 291, pl. x, f. 65, doubtfully identified from St. Vincent, W. I.

ELLIPTERA.

SCHINER, Wien. Ent. Monatsch., vii, 222, 1863; Fauna Austr., II, 559, 1864.

OSTEN SACKEN, Mon. N. A. Dipt., vi, 123, 1869.

MIK, Wien. Ent. Zeit., v, 337, pl. vi, full desc. of early stages of a European species; larva in running water.

clausa OSTEN SACKEN, West. Dipt., 197.—Yosemite Valley, Cal.

ORIMARGA.

OSTEN SACKEN, Mon. N. A. Dipt., iv, 122, 1869.

arizonensis COQUILLET, Proc. U. S. N. M., xxv, 83.—Yavapai Co., Arizona.

ATARBA.

OSTEN SACKEN, Mon. N. A. Dipt., iv, 127, 1869.

picticornis OSTEN SACKEN, Mon. N. A. Dipt., iv, 128, pl. I, f. 13.—Del.; D. C.? Cat. gives D. C. and Trenton Falls, N. Y.

N. J.—Smith Cat.

pleuralis WILLISTON, Trans. Ent. Soc. Lond., 1896, 289, pl. x, f. 61.—St. Vincent, W. I.

COQUILLET, Proc. U. S. N. M., xxii, oc. in Porto Rico.

puella WILLISTON, Trans. Ent. Soc. Lond., 1896, 288, pl. x, f. 60.—St. Vincent, W. I.

DICRANOPTYCHA.

OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 217; Mon. N. A. Dipt., iv, 116, 1869.

borealis DOANE, see *Limnobia*.

germana OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 217; Mon. N. A. Dipt., iv, 117.—Trenton Falls, N. Y.

N. J.—Smith Cat.

nigripes OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 218; Mon. N. A. Dipt., iv, 119, pl. III, f. 11.—Dalton, Ga.

sobrina OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 218 (*sobrina* and *sororcula*); Mon. N. A. Dipt., iv, 118, pl. I, f. 8 and III, 12.—D. C.

TEUCHOLABIS.

OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 222; Mon. N. A. Dipt., iv, 129, 1869.

annulata WILLISTON, Trans. Ent. Soc. Lond., 1896, 290, pl. x, f. 63.—St. Vincent, W. I.

WILLISTON, Biologia, Dipt., Suppl., 225, oc. in Tabasco, Mex., and note.

- chalybeiventris** LOEW, Wien. Ent. Monatschr., 1861, 33 (*Rhamphidia*).—Cuba.
OSTEN SACKEN, Mon. N. A. Dipt., iv, 132, note.
WILLISTON, Biologia, Dipt., Suppl., 226, oc. in Morelos, Mex.
- complexa** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 223; Mon. N. A. Dipt., iv, 132.—D. C.; Trenton Falls, N. Y.; Ill.; Ga.?
JOHNSON, Ent. News, xi, 324, reared from larvæ under bark of decayed oak tree in N. J.
WILLISTON, Trans. Ent. Soc. Lond., 1896, 289, pl. x, f. 62, oc. in St. Vincent, W. I.
- gracilis** OSTEN SACKEN, Biologia, Dipt., 1, 7.—Orizaba, Mex.
- molesta** OSTEN SACKEN, Biologia, Dipt., 1, 6.—Orizaba, Mex.; may be the same as *Limnobia morionella* SCHINER, Novara, 47, from S. A., which is a *Teucholabis*.—O. S.

ANTOCHA.

OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 219; Mon. N. A. Dipt., iv, 125, 1869; Stud. Tipul., ii, 187, 1887, notes; Berl. Ent. Zeitsch., xxxvi, 407, 1891.

SCHINER, Fauna Austr., ii, 558, 1864.

MIK, Wien. Ent. Zeit., 1883, 198 (*Orimargula*) [O. S.].

- opalizans** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 220 (*opalizans* and *saricola*); Mon. N. A. Dipt., iv, 126, pl. 1, f. 11, and iii, f. 10.—Dalton, Ga.; D. C.; N. Y.; Montreal; Ill.; Huds. Bay Terr.; Europe.
?MEIGEN, Syst. Besch., vi, 279 (*Limnobia vitripennis*) [O. S., Stud. Tipul., with a doubt].
N. J.—Smith Cat.

CLADURA.

OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 229; Mon. N. A. Dipt., iv, 187, 1869.

- flavoferruginea** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 229; Mon. N. A. Dipt., iv, 188, pl. iv, f. 22.—D. C.

- indivisa** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1861, 291; Mon. N. A. Dipt., iv, 189 (and wing, p. 34).—Trenton Falls, N. Y.; Mass.

CRYPTOLABIS.

OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 224, 1859; Mon. N. A. Dipt., iv, 185, 1869.

- bisinuata** DOANE, Jour. N. Y. Ent. Soc., viii, 189, pl. vii, f. 22.—Spokane, Wash.

- paradoxa** OSTEN SACKEN, Proc. Acad. Nat. Sci., 1859, 225; Mon. N. A. Dipt., iv, 186, pl. ii, f. 11 and iii, f. 13.—White Sulphur Spr., Va.

RHYPHOLOPHUS.

KOLENATI, Wien. Ent. Monatschr., iv, 393, 1860.

SCHINER, Wien. Ent. Monatschr., vii, 221, 1863 (*Dasyptera*): Fauna Austr., ii, 536, 537, 1864 (*Rhypholophus* and *Dasyptera*).

OSTEN SACKEN, Mon. N. A. Dipt., iv, 141, 1869; Stud. Tipul., ii, 192, 1887.

- affinis** LUNDBECK, Dipt. Groenl., 1, 266.—Greenland.

COQUILLET, Proc. Wash. Acad. Sci., ii, 308, oc. in Alaska.

- cockerelli** COQUILLET, Psyche, Jan., 1901, 149.—N. M., high altitude.

- fascipennis** ZETTERSTEDT, Dipt. Scand., x, 3777 (*Erioptera*).—N. Norway and Greenland.

STAEGER, Groenl. Antliater, 355, oc. in Greenland.

- OSTEN SACKEN, *Mon. N. A. Dipt.*, iv, App. 1, 328, quotes Zetterstedt; *Stud. Tipul.*, II, 192, note.
- flaveolus** COQUILLET, *Proc. Wash. Acad. Sci.*, II, 398.—Orca, Alaska.
- fumatus** DOANE, *Jour. N. Y. Ent. Soc.*, VIII, 188, pl. VII, f. 19.—Collins, Ida.
- fusifformis** DOANE, *Jour. N. Y. Ent. Soc.*, VIII, 187, pl. VII, f. 16.—Collins, Ida.
- holotrichus** OSTEN SACKEN, *Proc. Acad. Nat. Sci. Phil.*, 1859, 227 (*Erioptera*); *Mon. N. A. Dipt.*, iv, 143.—D. C.; *Cat.* adds N. Y.
- innocens** OSTEN SACKEN, *Mon. N. A. Dipt.*, iv, 142.—D. C., N. J.
- lanuginosus** DOANE, *Jour. N. Y. Ent. Soc.*, VIII, 188, pl. VII, f. 18.—Collins, Ida.
- manicatus** DOANE, *Jour. N. Y. Ent. Soc.*, VIII, 187, pl. VII, f. 17.—Collins, Ida.
- meigenii** OSTEN SACKEN, *Proc. Acad. Nat. Sci. Phil.*, 1859, 226 (*Erioptera*); *Mon. N. A. Dipt.*, iv, 144.—Middle States; *Cat.* gives U. S. and Canada.
- monticola** OSTEN SACKEN, *Mon. N. A. Dipt.*, iv, 145.—White Mts., N. H.
- nigripilus** OSTEN SACKEN, *Mon. N. A. Dipt.*, iv, 142.—D. C.
- nubilus** OSTEN SACKEN, *Proc. Acad. Nat. Sci. Phil.*, 1859, 227 (*Erioptera*); *Mon. N. A. Dipt.*, iv, 141, pl. I, f. 14.—D. C., N. Y.
- rubellus** OSTEN SACKEN, *Mon. N. A. Dipt.*, iv, 144, pl. I, f. 15.—West Point, N. Y.; Del.

SIGMATOMERA.

- OSTEN SACKEN, *Mon. N. A. Dipt.*, iv, 137, 1869; *Stud. Tipul.*, II, 205, 1887.
- flavipennis** OSTEN SACKEN, *Mon. N. A. Dipt.*, III, App.—Mex.

ERIOPTERA.

- MEIGEN, *Hlig. Mag.*, II, 262, 1803; *Syst. Besch.*, I, 108, 1818.
- SCHINER, *Fauna Austr.*, II, 541, 1864.
- OSTEN SACKEN, *Mon. N. A. Dipt.*, iv, 146, 1869; *Stud. Tipul.*, II, 193, 1887, notes on subgenera, etc.
- MIK, *Wien. Ent. Zeit.*, XVII, 62, 1898, notes on larvæ.
- annulipes** WILLISTON, *Trans. Ent. Soc. Lond.*, 1896, 294.—St. Vincent, W. I.
- armata** OSTEN SACKEN, *Proc. Acad. Nat. Sci. Phil.*, 1859, 227; *Mon. N. A. Dipt.*, iv, 160, pl. I, f. 18 and iv, f. 14.—D. C., Ill., N. Y., Wis. *Cat.* gives Atlantic St. and Quebec.
- N. J.—Smith *Cat.*; White Mts., N. H.—Slosson.
- armillaris** OSTEN SACKEN, *Mon. N. A. Dipt.*, iv, 158.—Trenton Falls, N. Y.; D. C.; *Cat.* gives Quebec.
- bipartita** OSTEN SACKEN, *West. Dipt.*, 109; *Stud. Tipul.*, II, 193, refers to subg. *Acyphona*.—San Francisco, Cal.
- caloptera** SAY, *Jour. Acad. Sci. Phil.*, III, 17; *Compl. Works.*, II, 44 (*caliptera*).—Mo.
- WIEDEMANN, *Auss. Zw.*, I, 23 (*caloptera*).
- OSTEN SACKEN, *Proc. Acad. Nat. Sci. Phil.*, 1859, 226; *Mon. N. A. Dipt.*, iv, 161, pl. IV, f. 15.—U. S., common; west to Col.; Quebec; Cuba.
- St. Vincent, W. I.—Will.
- chlorophylla** OSTEN SACKEN, *Proc. Acad. Nat. Sci. Phil.*, 1859, 226; *Mon. N. A. Dipt.*, iv, 157, pl. I, f. 16.—Middle States. *Cat.* gives Quebec.
- N. J.—Smith *Cat.*; White Mts., N. H.—Slosson.
- chrysocoma** OSTEN SACKEN, *Proc. Acad. Nat. Sci. Phil.*, 1859, 226; *Mon. N. A. Dipt.*, iv, 156.—D. C., and farther north; *Cat.* gives Atl. St. and Quebec.
- White Mts., N. H.—Slosson.
- dulcis** OSTEN SACKEN, *West. Dipt.*, 198.—Sierra Nevadas, Cal.
- graphica** OSTEN SACKEN, *Proc. Acad. Nat. Sci. Phil.*, 1859, 227; *Mon. N. A. Dipt.*, iv, 159.—D. C.
- Ill.—Hart.

- parva** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1850, 227; Mon. N. A. Dipt., iv, 162.—D. C., N. J.
- septemtrionalis** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1850, 226; Mon. N. A. Dipt., iv, 155.—Me., N. Y., D. C.
N. J.—Smith Cat. Beulah, N. M.—Skinner.
- straminea** OSTEN SACKEN, Mon. N. A. Dipt., iv, 157.—No locality; Cat. gives Middle States.
N. J.—Smith Cat.
- venusta** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1850, 227; Mon. N. A. Dipt., iv, 158, pl. I, f. 17 and iv, f. 16.—Middle States, common.
- vespertina** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1850, 226; Mon. N. A. Dipt., iv, 157, pl. IV, f. 20.—D. C., Fla., Wis. Cat. gives Quebec.
N. J.—Smith Cat.
- villosa** OSTEN SACKEN, Proc. Acad. Nat. Sci., 1850, 229; Mon. N. A. Dipt., iv, 155.—Middle States.

MOLOPHILUS.

- CURTIS, Brit. Ent., 444, 1833.
- OSTEN SACKEN, Mon. N. A. Dipt., iv, 1869, 153; Stud. Tipul., II, 193, 1887
- colonus** BERGROTH, Wien. Ent. Zeit., VII, 195.—Sitka.
Alaska—Coq. Beulah, N. M.—Skinner.
- comatus** DOANE, Jour. N. Y. Ent. Soc., VIII, 188, pl. VII, f. 20 (*Erioptera*).—Pullman and Seattle, Wash.
- falcatus** BERGROTH, Wien. Ent. Zeit., VII, 196.—Sitka.
Alaska—Coq.
- forcipula** OSTEN SACKEN, Mon. N. A. Dipt., iv, 163; West. Dipt., 200, oc. in Cal., with a doubt.—South Orange, N. J.
- hirtipennis** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1850, 228; Mon. N. A. Dipt., iv, 163.—N. J., D. C., Md.
Beulah, N. M.—Skinner.
- paulus** BERGROTH, Wien. Ent. Zeit., VII, 196.—Sitka.
Alaska—Coq.
- pubipennis** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1850, 228; Mon. N. A. Dipt., iv, 162.—D. C.
N. J.—Smith Cat.
- ursinus** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1850, 228; Mon. N. A. Dipt., iv, 164; West. Dipt., 200, note.—D. C., Md.
N. J.—Smith Cat.

GONIOMYIA.

- OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1850, 229; Mon. N. A. Dipt., iv, 176, 1869, and III, 1873, Appendix; Stud. Tipul., II, 200, 1887.
- SCHINER, Fauna Austr., II, 542, 1864 (inclusive of *Empeda*).
- BELING, Verh. Zool.-Bot. Ges., 1866, 145, desc. of larva and pupa of European sp.; loc. cit., 1878, reports finding larva in sand of half-dried brook. [O. S.]
- blanda** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1850, 231; Mon. N. A. Dipt., iv, 182, pl. IV, f. 17.—D. C., N. Y., S. C.
N. J.—Smith Cat.
- caudata** LUNDBECK, Dipt. Groenl., I, 267.—Greenland.
- cognatella** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1850, 230; Mon. N. A. Dipt., iv, 181, pl. IV, f. 18.—D. C.
N. J.—Smith Cat.
- galactoptera** BERGROTH, Wien. Ent. Zeit., VII, 196.—Sitka.

- manca* OSTEN SACKEN, Mon. N. A. Dipt., iv, 178.—N. J.
subcinerea OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 231; Mon. N. A. Dipt., iv, 181, pl. II, f. 4.—Trenton Falls, N. Y.; D. C. Cat. gives Quebec.
sulphurella OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 230; Mon. N. A. Dipt., iv, 180, pl. II, f. 2.—D. C.; Trenton Falls, N. Y. Cat. gives Quebec. N. J.—Smith Cat.
virgata DOANE, Jour. N. Y. Ent. Soc., VIII, 189, pl. VII, f. 21.—Tokeland, Wash.

EMPEDA.

- OSTEN SACKEN, Mon. N. A. Dipt., iv, 183, 1869.
stigmatica OSTEN SACKEN, Mon. N. A. Dipt., iv, 184.—Trenton Falls, N. Y.

MONGOMA.

- WESTWOOD, Trans. Ent. Soc. Lond., 1881, 364.
 WILLISTON, Ent. News, VII, 185, 1896, reports the genus from N. A.; Trans. Ent. Soc. Lond., 1896, 291.
manca WILLISTON, Trans. Ent. Soc. Lond., 1896, 293.—St. Vincent, W. I.
pallida WILLISTON, loc. cit., and pl. x, f. 67.—St. Vincent, W. I.

PARATROPESA.

- SCHINER, Verh. Zool.-Bot. Ges., XVI, 932, 1866; Novara, 44, 1868.
præusta OSTEN SACKEN, Biologia, Dipt., i, 8.—Jalapa and Orizaba, Mex.

HELOBIA.

- ST. FARGEAU, Encycl. Méth., x, 585, 1825.
 MEIGEN, Syst. Besch., vi, 282, 1830 (*Symplecta*).
 SCHINER, Fauna Austr., II, 545, 1864 (id.).
 PHILIPPI, Verh. Zool.-Bot. Ges., 1865, 615 (*Idioncura*).
 OSTEN SACKEN, Mon. N. A. Dipt., iv, 170, 1869 (*Symplecta*); Stud. Tipul., II, 197, 1887, notes.
 MIK, Wien. Ent. Zeit., 1886, 318 (*Symplectomorpha*) [O. S.].
punctipennis MEIGEN, Syst. Besch., i, 147 (*Limnobia*); vi, 283 (*Symplecta*); Klassif., 57, 1804 (*Limonia hybrida*).—Europe.
 MACQUART, Hist. Nat. Dipt., i, 109.
 STAEGER, Dipt. Dan., 39, 1840 (*Symplecta*).
 SCHINER, Fauna Austr., II, 543 (id.).
 WALKER, List, i, 48 (*Limnobia caua*).—Martin Falls, Canada. [O. S.]
 OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 228; Mon. N. A. Dipt., iv, 171, pl. I, f. 20, and iv, f. 21 (*Symplecta*).—N. A. generally; D. C., Ala., N. Y., Canada, Ill.
 HART, Bull. Ill. State Lab. N. H., iv, 199, desc. and figs. of larva, which lives in sand of river bank.
 COQUILLET, Proc. Wash. Acad. Sci., II, 399, oc. in Alaska.
 Common in Idaho and Washington.—J. M. A.
Note.—I have not seen the description of *hybrida*, and Meigen himself abandoned it. There may be some reason, unknown to me, for not restoring it as the first name of the species.

CHIONEA.

- DALMAN, Kongl. Vetensk. Ak. Handl., 1816, 102, pl. II, f. 2.
 OSTEN SACKEN, Mon. N. A. Dipt., iv, 168, 1869; Stud. Tipul., II, 106.

SCHINER, Fauna Austr., II, 573, 1864.

nivicola DOANE, Jour. N. Y. Ent. Soc., VIII, 185.—Pullman, Wash., on snow.

scita WALKER, List, I, 82.—N. A.

valga HARRIS, Ins. Inj. Veg., 3d ed., 601, f. 260.—Mass.

WALKER, List, I, 82 (*asperosa*).—Martin Falls, Can. [O. S.].

LUGGER, 2d. Rept. Ent. Minn., 1896, 230, pl. XVI. notes on habits; figures both sexes; oc. in Minn.

TRIMICRA.

OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 290, 1861; Mon. N. A. Dipt., IV, 165, 1869.

VAN DER WULP, Ann. Soc. Ent. Belg., XXXVII, 1893, 499, notes on, and fig. of an abnormal specimen without discal cell.

anomala OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1861, 290; Mon. N. A. Dipt., IV, 167, pl. II, f. 1; West. Dipt., 200, note.—D. C.; New Rochelle, N. Y.; Newport, R. I. Also in Cal. and Oaxaca, Mex.—O. S. N. J.—Smith Cat.

GNOPHOMYIA.

OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 223; Mon. N. A. Dipt., IV, 172, 1869; Stud. Tipul., II, 198, 1887.

SCHINER, Fauna Austr., II, 535, 1864.

ferruginea WILLISTON, Biologia, Dipt., Suppl., 226.—Tabasco, Mex.

luctuosa OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 224; Mon. N. A. Dipt., IV, 174.—Fla.

WALKER, Trans. Ent. Soc. Lond., v, pt. 7, 66 (*Limnobia nigricola*).—U. S. [O. S.].

tristissima OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 224; Mon. N. A. Dipt., IV, 175, pl. II, f. 5 and IV, f. 19.—D. C., N. Y., Va., Upper Wis. R. Cat. gives Atlantic States and Canada. N. J.—Smith Cat.; White Mts., N. H.—Slosson.

POLYMERA.

WIEDEMANN, Dipt. Exot., 40, 1821; Auss. Zw., I, 57, 1828.

OSTEN SACKEN, Mon. N. A. Dipt., IV, 335, 1869 and III, Appendix, 1873; Stud. Tipul., II, 215, 1887.

WILLISTON, Ent. News, VII, 185, 1896, reports the genus from N. A.

albitarsis WILLISTON, Trans. Ent. Soc. Lond., 1896, 290, pl. X, f. 71.—St. Vincent, W. I.

PHYLLOLABIS.

OSTEN SACKEN, West. Dipt., 202, 1877; Stud. Tipul., II, 216, 1887.

claviger OSTEN SACKEN, West. Dipt., 203.—San Bernardino, Cal.

encausta OSTEN SACKEN, West. Dipt., 204.—Marin Co. and San Mateo, Cal.

obscura DOANE, Jour. N. Y. Ent. Soc., VIII, 102, pl. VIII, f. 7.—Pullman, Wash.

ULOMORPHA.

OSTEN SACKEN, Mon. N. A. Dipt., IV, 232, 1869.

pilosella OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 342 (*Limnophila*); Mon. N. A. Dipt., IV, 233.—Trenton Falls, N. Y.

ALDRICH, 21st Rept. Geol. Ind., 1868, 188.—Oc. in cavern in Ind. N. J.—Smith Cat.

TRICHOCCERA.

- MEIGEN, Illig. Mag., II, 262, 1803; Syst. Besch., I, 211, 1818.
 SCHINER, Fauna Austr., II, 546, 1864.
 OSTEN SACKEN, Mon. N. A. Dipt., IV, 233; Stud. Tipul., II, 217, 1887, notes on habits, etc.
- annulata** MEIGEN, Syst. Besch., I, 215.—Europe.
 SCHINER, Fauna Austr., II, 548.
 BERGROTH, Wien. Ent. Zeit., VII, 197, oc. in Sitka.
- bimacula** WALKER, List, I, 84.—Nova Scotia.
 OSTEN SACKEN, Mon. N. A. Dipt., IV, 236, 325, desc. quoted.
- brumalis** FITCH, Winter Insects, etc.; Amer. Quart. Jour. Ag. and Sci., V, 274; reprinted in Lintner's 2d N. Y. Rept., 243, Appendix.—N. Y.
 OSTEN SACKEN, Mon. N. A. Dipt., IV, 237, 323, desc. quoted.
- gracilis** WALKER, List, I, 84.—New York Factory, Huds. Bay Terr.
 OSTEN SACKEN, Mon. N. A. Dipt., IV, 325, quotes desc.
 White Mts., N. H.—Slosson; in spite of this identification, I consider the description quite unrecognizable.
- hiemalis** DEGEER, Ins., VI, 360, pl. XXI, f. 1, 2, 5 (*Tipula*).—Europe.
 LATREILLE, Gen. Crust. et Ins., IV, 258 (id.).
 MEIGEN, Syst. Besch., I, 213.
 MACQUART, Hist. Nat. Dipt., I, 114, pl. II, f. 16.
 SCHINER, Fauna Austr., II, 548.
 ZETTERSTEDT, Dipt. Scand., X, 4041.—N. Europe and Greenland.
 HOLMGREN, Ins. Nordgroenl., oc. Greenland.
 British Col. (High Cascades)—Bergroth.
- maculipennis** FABRICIUS, Ent. Syst., IV, 240; Syst. Antl., 30 (both *Tipula cinerea*).—Europe.
 MEIGEN, Klassif., 149 (*Limnobia cinerea*); Syst. Besch., I, 214.
 ZETTERSTEDT, Ins. Lapp., 853 (oc. in Greenland); Dipt. Scand., X, 4046.
 SCHINER, Fauna Austr., II, 547.
 STAEGER, Groenl. Antl., 1845, 356, oc. in Greenland.
 N. J.—Smith Cat.; Montreal—Chagnon.
- regelianis** LINNÉ, Fauna Succ., 1754 (*Tipula*).—Europe.
 FABRICIUS, Spec. Ins., II, 405; Ent. Syst., IV, 242; Syst. Antl., 32 (all *Tipula*).
 GMELIN, Syst. Nat., V, 2817 (id.).
 O. FABRICIUS, Fauna Groenl., 202 (id.), oc. in Greenland.
 SCHRANK, Austr. Spec., 873 (id.).
 MEIGEN, Syst. Besch., I, 214.
 SCHINER, Fauna Austr., II, 547.
 BERGROTH, Wien. Ent. Zeit., VII, 239, oc. in Brit. Col. N. A.
- scutellata** SAY, Long's Exped., App., 360; Compl. Works, I, 244.—“Falls of Kakabikka, beyond Lake Superior.”
 WIEDEMANN, Auss. Zw., I, 60.
 OSTEN SACKEN, Mon. N. A. Dipt., IV, 322, quotes orig. desc.
- trichoptera** OSTEN SACKEN, West. Dipt., 204.—Marin Co., Cal. See also Psyche, April, 1895, 230, note.

EPIPHRAGMA.

- OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 238; Mon. N. A. Dipt., IV, 193, 1869; Stud. Tipul., II, 208, 1887, notes.
 SCHINER, Fauna Austr., II, 550, 1864.
- circinata** OSTEN SACKEN, Biologia, Dipt., I, 9.—Costa Rica.

- fascipennis** SAY, Jour. Acad. Sci. Phil., III, 19; Compl. Works, II, 45 (*Limnobia*).—U. S.
 WIEDEMANN, AUSS. ZW., I, 21 (id.).
 OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 239 (*parvina*); Mon. N. A. Dipt., IV, 194.—Ga., Me., White Mts., N. H., D. C., Ill. Cat. gives Quebec. N. J.—Smith Cat.; Montreal—Chagnon.
 NEEDHAM, Bull. 68, N. Y. State Mus., 281, pl. VIII and IX, larva and pupa.—Lake Forest, Ill.
- ? **nebulosa** BELLARDI, Saggio, I, 206, pl. I, f. 4 (*Tipula*).—Mex.
 OSTEN SACKEN, Biologia, Dipt., I, 19, "seems to be allied to *Epiphragma*."
- picta** FABRICIUS, Ent. Syst., Suppl., 550 (*Tipula*); Syst. Anl., 29 (id.).—Europe.
 MEIGEN, Klassif., 60 (*Limonia*); Syst. Besch., I, 123 (*Limnobia*).
 CURTIS, Brit. Ent., 50 (*Limnobia ocellaris*).
 SCHINER, Fauna Austr., II, 551.
 BERGROTH, Wien. Ent. Zeit., VII, 239, oc. in Brit. Col., N. A.
- sackeni** WILLISTON, Trans. Ent. Soc. Lond., 1896, 294, pl. x, f. 68.—St. Vincent, W. I.
- solatrix** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 238; Mon. N. A. Dipt., IV, 195, pl. II, f. 8.—D. C.; perhaps also Brazil.

LIMNOPHILA.

- MACQUART, Hist. Nat. Dipt., I, 95, 1834.
 OSTEN SACKEN, Acad. Nat. Sci. Phil., 1859, 231; Mon. N. A. Dipt., IV, 196, 1869; Stud. Tipul., II, 209, 1887, notes.
- adusta** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 235; Mon. N. A. Dipt., IV, 215.—Maine to Ga. and Wis. Cat. gives Quebec. N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- aprilina** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 235; Mon. N. A. Dipt., IV, 223, pl. IV, f. 23.—D. C.; White Mts., N. H.
- areolata** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 237; Mon. N. A. Dipt., IV, 214.—Trenton Falls, N. Y.; Md.; D. C.
 White Mts., N. H.—Slosson.
- badia** DOANE, Jour. N. Y. Ent. Soc., VIII, 191, pl. VIII, f. 5.—Olympia, Wash.
- brevifurca** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 237; Mon. N. A. Dipt., IV, 221.—D. C. Cat. gives Quebec.
- contempta** OSTEN SACKEN, Mon. N. A. Dipt., IV, 218.—Middle States.
- carbonaria** MACQUART, Dipt. Exot., I, 1, 66.—Carolina.
 OSTEN SACKEN, Mon. N. A. Dipt., IV, 323, quotes orig. desc.
- costata** COQUILLET, Psyche, Jan., 1901, 149.—N. M., high altitude.
- cubitalis** OSTEN SACKEN, Mon. N. A. Dipt., IV, 229.—Va., Ohio.
- damula** OSTEN SACKEN, West. Dipt., 201.—San Bernardino, Cal.
- fasciolata** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 234 (*fasciata* Schum.); Mon. N. A. Dipt., IV, 206.—Mass.
- flavipilus** DOANE, Jour. N. Y. Ent. Soc., VIII, 190; pl. VIII, f. 1.—Pullman, Wash.
- fratria** OSTEN SACKEN, Mon. N. A. Dipt., IV, 220.—Either N. Y. or N. H.
- fulvocostalis** COQUILLET, Dipt. of Commander Ids., 342.—Bering Id.
- fuscovaria** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 240; Mon. N. A. Dipt., IV, 225.—D. C., and north to Quebec.
 N. J.—Smith Cat.
- gracilis** WIEDEMANN, AUSS. ZW., I, 28 (*Limnobia*).—Pa.
 OSTEN SACKEN, Mon. N. A. Dipt., IV, 322, quotes orig. desc.

- imbecilla* OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 237; Mon. N. A. Dipt., iv, 213.—Trenton Falls, N. Y.; Md.
N. J.—Smith Cat.
- indistincta* DOANE, Jour. N. Y. Ent. Soc., VIII, 191, pl. VIII, f. 6.—Collins, Idaho.
COQUILLET, Proc. Wash. Acad. Sci., II, 399, oc. in Alaska.
- inornata* OSTEN SACKEN, Mon. N. A. Dipt., iv, 219; III, appendix.—Mass.; Cat. gives Tarrytown, N. Y.
- lenta* OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 241; Mon. N. A. Dipt., iv, 231.—Va., Md., Ill.
- lutea* DOANE, Jour. N. Y. Ent. Soc., VIII, 191, pl. VIII, f. 4.—Pa.
- luteipennis* OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 236; Mon. N. A. Dipt., iv, 217, pl. II, f. 10, and iv, f. 25; Biologia, Dipt., I, 8.—D. C.; Fla.; S. C.; Mass.; Cal. and N. Sonora, Mex.
? WALKER, Dipt. Saund., 437 (*Limnobia biterminata*).—U. S. [O. S., with a ?]
HART, Bull. Ill. State Lab. N. H., iv, 200, desc. and figs. of larva, found in water among dead aquatic plants; Ill.
N. J.—Smith Cat.
- macrocera* SAY, Jour. Acad. Sci. Phil., III, 20; Compl. Works, II, 46 (*Limnobia*).—E. Fla.
WIEDEMANN, Auss. Zw., I, 34 (id.).
MACQUART, Hist. Nat. Dipt., I, 108 (*Cylindritoma*).
OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 234 (*Lasiomastix*); Mon. N. A. Dipt., iv, 204.—S. Va., Fla., Ill., Quebec.
JOHANNSEN, Ent. News, XIV, 14, oc. at Axton, N. Y., and notes.
N. J.—Smith Cat.; Montreal—Chagnon.
- montana* OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 240 (*Dactylolabis*); Mon. N. A. Dipt., iv, 227, pl. II, f. 7, and iv, f. 26.—Near New York City; Cat. gives Quebec and Cal.
- munda* OSTEN SACKEN, Mon. N. A. Dipt., iv, 226.—White Mts., N. H.; Cat. gives Quebec.
- nebulosa* BELLARDI, see *Epiphragma*.
- nigrilinea* DOANE, Jour. N. Y. Ent. Soc., VIII, 190, pl. VIII, f. 2.—Olympia, Wash.
- niveitarsis* OSTEN SACKEN, Mon. N. A. Dipt., iv, 209.—Del., Md.
- poetica* OSTEN SACKEN, Mon. N. A. Dipt., iv, 207.—Milton, Mass.
- quadrata* OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 241; Mon. N. A. Dipt., iv, 230; pl. II, f. 9.—N. Y., Va., Md.; Cat. gives Quebec.
- recondita* OSTEN SACKEN, Mon. N. A. Dipt., iv, 212.—N. Y., Pa., Ga.
N. J.—Smith Cat.
- rufibasis* OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 239 (*Prionolabis*); Mon. N. A. Dipt., iv, 225, pl. II, f. 3, and iv, f. 27.—D. C., N. Y., Mass.
DOANE, Jour. N. Y. Ent. Soc., VIII, 190, pl. VIII, f. 3.—Wawawai, Wash.
N. J.—Smith Cat.; Montreal—Chagnon.
- tenuicornis* OSTEN SACKEN, Mon. N. A. Dipt., iv, 208.—White Mts., N. H.
- tenuipes* SAY, Jour. Acad. Sci. Phil., III, 21; Compl. Works, II, 46 (*Limnobia*).—Pa.
OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 235; Mon. N. A. Dipt., iv, 41 and 210; Biologia, Dipt., I, 8.—D. C., Ga., Ill., Quebec, and N. Sonora, Mex.
WIEDEMANN, Auss. Zw., I, 33 (*Limnobia humeralis* Say) [O. S.].
- toxoneura* OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 236; Mon. N. A. Dipt., iv, 213.—Trenton Falls, N. Y.
N. J.—Smith Cat.

- ultima** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 238; Mon. N. A. Dipt., iv, 222, pl. iv, f. 24.—D. C.; Maine; Quebec; Yukon R., Alaska.
- undulata** BELLARDI, Saggio, App., 3, pl. 1, f. 2.—Mex.
- unica** OSTEN SACKEN, Mon. N. A. Dipt., iv, 205.—White Mts., N. H.
COQUILLET, Proc. Wash. Acad. Sci., 11, 399, oc. in Alaska.

GYNOPLISTIA.

- WESTWOOD, London and Edinb. Philos. Mag., vi, 280, 1835; Trans., Ent. Soc. Lond., 1881, 369, pl. xviii, f. 5, 6.
- OSTEN SACKEN, Stud. Tipul., 11, 210, 1887, full discussion; thinks is not a North American genus.
- annulata** WESTWOOD, Lond. and Edinb. Philos. Mag., vi, 280.—Newfoundland.
- OSTEN SACKEN, loc. cit., thinks there was an error of locality, and the species does not occur in N. A.

ANISOMERA.

- MEIGEN, Syst. Besch., 1, 210, 1818.
- MACQUART, Hist. Nat. Dipt., 1, 117, 1834.
- ZETTERSTEDT, Dipt., Scand., x, 4037, 1851.
- SCHINER, Fauna Austr., 11, 532, 1864.
- LOEW, Zeitsch. f. Ges. Naturwiss., xxvi, 1865.
- OSTEN SACKEN, Mon. N. A. Dipt., iv, 238, 1869; Stud. Tipul., 11, 219, 1887, notes.
- LATREILLE, Gen. Crust. et Ins., iv, 260, 1809 (*Hexatoma*) [O. S.].
- megacera** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 242; Mon. N. A. Dipt., iv, 243, pl. 11, f. 12.—D. C., Md.

ERIOCERA.

- MACQUART, Dipt. Exot., 1, 1, 74, 1838.
- OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 243 (*Eriocera* and *Arrhenica*); Mon. N. A. Dipt., iv, 244, 1869; Biologia, Dipt., 1, 10, table of Mexican and Central Amer. forms; Stud. Tipul., 11, 220, 1887.
- WALKER, List, 1, 78, 1848 (*Pterocosmus*) [O. S.].
- LOEW, Bernstein, etc., 38, 1850 (*Allarithmia*) [O. S.].
- BIGOT, Annales, 1859, 123 (*Physecrania*) [O. S.].
- antennaria** DOANE, Jour. N. Y. Ent. Soc., viii, 194, pl. viii, f. 12.—Columbus, O.
- aurata** DOANE, Jour. N. Y. Ent. Soc., viii, 194, pl. viii, f. 13.—N. C.
- austera** DOANE, Jour. N. Y. Ent. Soc., viii, 192, pl. viii, f. 9.—Olympia, Wash.
- brachycera** OSTEN SACKEN, West. Dipt., 204.—White Mts., N. H.
- brunneipes** WILLISTON, Biologia, Dipt., Suppl., 227, pl. iv, f. 5.—Orizaba, Mex.
- californica** OSTEN SACKEN, West. Dipt., 204.—Marin Co., Cal.
- eriphora** WILLISTON, Kans. Univ. Quart., 11, 61.—Wash.
- erythræa** OSTEN SACKEN, Biologia, Dipt., 1, 11.—Guatemala.
- fasciata** WILLISTON, Biologia, Dipt., Suppl., 226, pl. iv, f. 4.—Morelos, Mex.
- flavida** WILLISTON, Biologia, Dipt., Suppl., 227.—Morelos, Mex.
- fuliginosa** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 243; Mon. N. A. Dipt., iv, 255, pl. iv, f. 28.—Va., D. C.
N. J.—Smith Cat.
- gibbosa** DOANE, Jour. N. Y. Ent. Soc., viii, 193, pl. viii, f. 10.—Mich.
- gracilis** OSTEN SACKEN, Biologia, Dipt., 1, 12.—Orizaba, Mex.
- hæmorrhœa** OSTEN SACKEN, Biologia, Dipt., 1, 11.—Orizaba, Mex.
- lessepsi** OSTEN SACKEN, Biologia, Dipt., 1, 13.—Panama.

- longicornis** WALKER, List, 1, 82 (*Anisomera*).—Martin Falls, Canada.
 OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 245 (*Arrhenica*); Mon. N. A. Dipt., IV, 253.—Trenton Falls, N. Y.; Me.; Ill.; Mass.
- mesoxantha** OSTEN SACKEN, Biologia, Dipt., 1, 10.—Orizaba, Mex.
- obscura** WILLISTON, Kans. Univ. Quart., II, 61.—Wash., Cal.
- obsoleta** WILLISTON, Biologia, Dipt., Suppl., 227.—Honduras.
- parva** DOANE, Jour. N. Y. Ent. Soc., VIII, 192, pl. VIII, f. 8.—Stanford Univ., Cal.
- pretiosa** OSTEN SACKEN, Biologia, Dipt., 1, 12.—Orizaba, Mex.
- spinosa** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859 (*Arrhenica*); Mon. N. A. Dipt., IV, 252, pl. IV, f. 29 (the female belongs to *brachycera*.—See West. Dipt., 205).—Trenton Falls, N. Y.; Mass.
 N. J.—Smith Cat.; Beulah, N. M.—Skinner.
- trifasciata** ROEDER, Stett. Ent. Zeit., 1885, 338.—Porto Rico.
- velveta** DOANE, Jour. N. Y. Ent. Soc., VIII, 193, pl. VIII, f. 11.—Col.
- wilsonii** OSTEN SACKEN, Mon. N. A. Dipt., IV, 255.—Del.
 N. J.—Smith Cat.
- zonata** OSTEN SACKEN, Biologia, Dipt., 1, 10.—Orizaba, Mex.

PENTHOPTERA.

- SCHINER, Wien. Ent. Monatschr., VII, 220, 1863; Fauna Austr., II, 534, 1864.
 OSTEN SACKEN, Mon. N. A. Dipt., IV, 256, 1869.
- albitarsis** OSTEN SACKEN, Mon. N. A. Dipt., IV, 257.—New London, Conn.; Pa.

DICRANOTA.

- ZETTERSTEDT, Ins. Lapp., 851, 1840; Dipt. Scand., X, 4033, 1851.
 SCHINER, Fauna Austr., II, 530, 1864.
 OSTEN SACKEN, Mon. N. A. Dipt., IV, 278, 1869.
- argentea** DOANE, Jour. N. Y. Ent. Soc., VIII, 196, pl. VIII, f. 19.—Seattle, Wash.
 COQUILLET, Proc. Wash. Acad. Sci., II, 401, oc. in Alaska, at Berg Bay.
- eucera** OSTEN SACKEN, Mon. N. A. Dipt., IV, 281.—D. C.
- rivularis** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 249; Mon. N. A. Dipt., IV, 281, pl. II, f. 16.—D. C.

RHAPHIDOLABIS.

- OSTEN SACKEN, Proc. Ent. Soc. Phil., 1865, 225; Mon. N. A. Dipt., IV, 284, 1869.
- debilis** WILLISTON, Kans. Univ. Quart., II, 62.—Cal.
 COQUILLET, Proc. Wash. Acad. Sci., II, 401, oc. in Alaska, several places.
- flaveola** OSTEN SACKEN, Mon. N. A. Dipt., IV, 288.—Md., Mass.
- tenuipes** OSTEN SACKEN, Mon. N. A. Dipt., IV, 287, pl. II, f. 17.—Md.; Saratoga Spr., N. Y.

PLECTROMYIA.

- OSTEN SACKEN, Mon. N. A. Dipt., IV, 282, 1869 (mentioned without desc. as *Astrolabis* in Proc. Ent. Soc. Phil., 1865, 225).
- modesta** OSTEN SACKEN, Mon. N. A. Dipt., IV, 284, pl. II, f. 18.—White Mts., N. H.

ULA.

- HALIDAY, Ent. Mag., 1, 153, 1833.
 SCHINER, Fauna Austr., II, 531, 1864.
 OSTEN SACKEN, Mon. N. A. Dipt., IV, 274, 1869.
- elegans** OSTEN SACKEN, Mon. N. A. Dipt., IV, 276.—White Mts., N. H.
- pauper** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 251 (*pilosa*, preoc.); Mon. N. A. Dipt., IV, 277.—D. C.

AMALOPIS.

HALIDAY, in Walker's Ins. Brit., Dipt., III, addenda, p. xv, 1856.

SCHINER, Fauna Austr., II, 527, 1864.

KOLENATI, Wien. Ent. Monatschr., IV, 301, 1860 (*Crumobia*) [O. S.].

ZETTERSTEDT, Ins. Lapp., 852, 1840 (*Tricyphona*, in part); Dipt. Scand., X, 4035, 1851 (*id.*).

OSTEN SACKEN, Mon. N. A. Dipt., IV, 260, 1860.

Note.—The controversy between Osten Sacken and Bergroth as to the propriety of displacing the name *Amalopsis* for *Tricyphona* will be found in the following papers:

BERGROTH, Wien. Ent. Zeit., VII, 199.

OSTEN SACKEN, Berl. Ent. Zeitsch., XXXI, 224.

BERGROTH, Wien. Ent., Zeit., XVII, 267.

OSTEN SACKEN, Berl. Ent. Zeitsch., XLII, 150.

In my opinion Osten Sacken makes out a good case for the retention of *Amalopsis*.

- ampla** DOANE, Jour. N. Y. Ent. Soc., VIII, 195, pl. VIII, f. 17.—Seattle, Wash.
- auripennis** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 247; Mon. N. A. Dipt., IV, 268.—Mass.
- calcar** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 247; Mon. N. A. Dipt., IV, 268, pl. II, f. 14; West. Dipt., 205, note.—Wis., White Mts., N. H.; Quebec; Cal?
- constans** DOANE, Jour. N. Y. Ent. Soc., VIII, 196, pl. VIII, f. 18.—Olympia, Tokeland, and South Bend, all in Wash.
- diaphana** DOANE, Jour. N. Y. Ent. Soc., VIII, 195, pl. VIII, f. 16 (*disphana*, a misprint).—Pullman, Olympia, and Seattle, all in Wash.
- COQUILLET, Proc. Wash. Acad. Sci., II, 399, oc. in Alaska, several places.
- exoloma** DOANE, Jour. N. Y. Ent. Soc., VIII, 194, pl. VIII, f. 14.—Pullman, Wash.
- hyperborea** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 292; Mon. N. A. Dipt., IV, 269.—Labrador.
- inconstans** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 247; Mon. N. A. Dipt., IV, 266, pl. II, f. 15 and IV, f. 30.—Va.; White Mts., N. H.; D. C.; N. Y.
- EGGER, Verh. Zool. Bot. Ges., XIII, 1103, 1863 (*tipulina*).—Europe.
- SCHINER, Fauna Austr., II, 528 (*id.*).
- BERGROTH, Verh. Zool.-Bot. Ges., XXXVIII, 1888, 650, syn. and notes (*Tricyphona*).
- JOHNSON, Ent. News, XII, 305, figs. showing variation in venation.
N. J.—Smith Cat.; Quebec—O. S. Cat.
- septentrionalis** BERGROTH, Wien. Ent. Zeit., VII, 199 (*Tricyphona*).—Sitka.
- vernalis** OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 291; Mon. N. A. Dipt., IV, 270.—White Mts., D. C.
- vitripennis** DOANE, Jour. N. Y. Ent. Soc., VIII, 195, pl. VIII, f. 15.—Wawawai and Olympia, Wash.
- COQUILLET, Proc. Wash. Acad. Sci., II, 399, oc. in Lowe Inlet, Brit. Col. (*Tricyphona*).

PEDICIA.

LATREILLE, Gen. Crust. et Ins., IV, 255, 1809.

MACQUART, Hist. Nat. Dipt., I, 91, 1834.

SCHINER, Fauna Austr., II, 526, 1864.

OSTEN SACKEN, Mon. N. A. Dipt., IV, 273, 1860.

ALDRICH, Psyche, Feb., 1895, 201, notes.

- BELING, Verh. Zool. Bot. Ges., 1878, 45, desc. of larva and pupa of a European species.
 HINE, Ohio Naturalist, III, 416, 1903, table of species.
albivitta WALKER, List, I, 37; loc. cit., 38 (*contermina*) [O. S.].—Nova Scotia.
 OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 248; Mon. N. A. Dipt., IV, 273.—Trenton Falls, N. Y.; Conn.; Mass.
 ALDRICH, Psyche, Feb., 1895, 201, fig. of wing.—N. J.
 PETTIT, Bull. Mich. Ex. Sta., oc. at Chatham, in N. Mich.
 Quebec—Wulp.
magnifica HINE, Ohio Naturalist, III, 417.—Port Renfrew, B. C.
obtusa OSTEN SACKEN, West. Dipt., 205; Stud. Tipul., II, 224.—San Francisco.
 ALDRICH, Psyche, Feb., 1895, 202, redesc.—Wash.
 OSTEN SACKEN, Psyche, April, 1895, notes.
 COQUILLET, Proc. Wash. Acad. Sci., II, 401, oc. in Alaska.
Note.—The specimen I described has the dark mark on the wing extending to the hind border; Osten Sacken's had not. I have now another (broken) specimen which agrees with his. There may be three western species.
rivosa LINN., see *Tipula nodulicornis*.

ORNITHODES.

- COQUILLET, Proc. Wash. Acad. Sci., II, 400, 1900.
harrimani COQUILLET, loc. cit.—Virgin Bay, Prince William Sound, Alaska.

POLYANGÆUS.

- DOANE, Jour. N. Y. Ent. Soc., VIII, 196, 1900.
maculatus DOANE, Jour. N. Y. Ent. Soc., VIII, 197, pl. VIII, f. 20.—Seattle and Olympia, Wash.

CYLINDROTOMA.

- MACQUART, Hist. Nat. Dipt., I, 107, 1834.
 ZETTERSTEDT, Dipt. Scand., X, 3900, 1851.
 SCHINER, Fauna Austr., II, 562, 1864.
 OSTEN SACKEN, Mon. N. A. Dipt., IV, 296, 1869.
 MIALl and SHELFORD, Trans. Ent. Soc. Lond., 1897, 343-346, 4 plates, contains a discussion of the larva of a European species.
americana OSTEN SACKEN, Proc. Ent. Soc. Phil., 1865, 236; Mon. N. A. Dipt., IV, 299.—White Mts., N. H.
juncta COQUILLET, Proc. Wash. Ac. Sci., II, 401.—Virgin Bay, Alaska.
nodicornis OSTEN SACKEN, see *Liogma*.
splendens DOANE, Jour. N. Y. Ent. Soc., VIII, 197, pl. VIII, f. 21.—Unalaska.

TRIOGMA.

- SCHINER, Wiener Ent. Mon., VII, 223, 1863; Fauna Austr., II, 560, 1864.
 OSTEN SACKEN, Mon. N. A. Dipt., IV, 303, 1869.
exsculpta OSTEN SACKEN, Proc. Ent. Soc. Phil., 1865, 239; Mon. N. A. Dipt., IV, 304.—Pa.

LIOGMA.

- OSTEN SACKEN, Mon. N. A. Dipt., IV, 298, 1869; Stud. Tipul., II, 226, note.
nodicornis OSTEN SACKEN, Proc. Ent. Soc. Phil., 1865, 239 (*Triogma*); Mon. N. A. Dipt., IV, 301 (*Cylindrotoma*); Stud. Tipul., II, 226, note.—D. C.; N. Y.; White Mts., N. H.; Ill.; N. J. Cat. gives Quebec.

PHALACROCERA.

SCHINER, Wien. Ent. Mon., VII, 224, 1863; Fauna Austr., II, 1864.

OSTEN SACKEN, Mon. N. A. Dipt., IV, 305, 1869.

MIALl and SHELFORD, Trans. Ent. Soc. Lond., 1897, 343 360, 4 plates, gives full desc. of larva of *Ph. replicata*, a European species, etc.

tipulina OSTEN SACKEN, Proc. Ent. Soc. Phil., 1865, 241; Mon. N. A. Dipt., IV, 308.—White Mts., N. H.

IDIOPLASTA.

OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 252 (*Protoplasia*); Mon. N. A. Dipt., IV, 316, 1869 (*id.*); West. Dipt., 208 (amended to *Protoplasta*); Cat., 222, note 38, name changed to *Idioplasta* on account of preoccupation; Stud. Tipul., II, 230, notes on preoccupation, etc.; Verh. Zool.-Bot. Ges., XXIX, 517, review of relations.

Note.—Whether *Protoplasta* LEIDY, in Rhizopoda, was really published prior to 1877 is a question for investigation; see O. S., Stud. Tipul., II, 230.

fitchii OSTEN SACKEN, Proc. Acad. Nat. Sci. Phil., 1859, 252 (*Protoplasia*); Mon. N. A. Dipt., 319, fig. (*id.*); Cat., 222, note 38.—N. Y.; Cat. gives Ga.

vipio OSTEN SACKEN, West. Dipt., 208 (*Protoplasia*).—San Mateo, Cal.

BITTACOMORPHA.

WESTWOOD, Lond. and Edinb. Philos. Mag., VI, 281, 1835.

OSTEN SACKEN, Mon. N. A. Dipt., IV, 313, 1860; Verh. Zool.-Bot. Ges., XXIX, 517, notes.

ALDRICH, Psyche, Feb., 1895, 200, table of species.

clavipes FABRICIUS, Spec. Ins., 404 (*Tipula*); Mant. Ins., II, 323 (*id.*); Ent. Syst., IV, 239 (*id.*); Syst. Antl., 22 (*Ptychoptera*).—N. A.

WIEDEMANN, Auss. Zw., I, 59 (*Ptychoptera*).—Pa.

WESTWOOD, Lond. and Edinb. Philos. Mag., VI, 281.—Newfoundland.

OSTEN SACKEN, Mon. N. A. Dipt., IV, 315.—Nova Scotia, Wis., Fla.

BRUES, Biol. Bull., I, 155, note on tracheal dilatations in legs.

White Mts., N. H.—Slosson; N. J.—Smith Cat.; Saranac Inn, N. Y.—Needham.

occidentalis ALDRICH, Psyche, Feb., 1895, 201.—Seattle, Wash.

OSTEN SACKEN, Psyche, April, 1895, 230, note.

sackenii ROEDER, Wien. Ent. Zeitung, IX, 230.—Nevada.

ALDRICH, Psyche, Feb., 1895, 200, redesc.—Seattle, Wash.

PTYCHOPTERA.

MEIGEN, Illig. Mag., II, 262, 1803; Syst. Besch., I, 204, 1818.

MACQUART, Hist. Nat. Dipt., I, 76, 1834.

ZETTERSTEDT, Dipt. Scand., X, 4024, 1851.

SCHINER, Fauna Austr., II, 495, 1864.

OSTEN SACKEN, Mon. N. A. Dipt., IV, 309, 1860; Cat., 221, note 36, on larva and syst. position; Verh. Zool.-Bot. Ges., XXIX, 517, notes.

lenis OSTEN SACKEN, West. Dipt., 206.—Yosemite, Cal.

? WALKER, List, I, 80 (reproduced in Osten Sacken, Mon. IV, 324) (*metallica*).—Martin Falls, Canada. Synonymy by Osten Sacken, with a question; it seems to me very doubtful. Northern Ida.—J. M. A. Hudsonian zone, N. M.—Cockerell; he also mentions Col.

quadrifasciata SAY, Long's Exped. App., 350; Compl. Works, I, 244.—Pa.

WIEDEMANN, Auss. Zw., I, 60.

OSTEN SACKEN, Mon. N. A. Dipt., IV, 321, quotes Say.

rufocincta OSTEN SACKEN. Proc. Acad. Nat. Sci. Phil., 1859, 252; Mon. N. A. Dipt., IV, 313, pl. II, f. 19.—Quebec and White Mts. to Ill. N. J.—Smith Cat.

DOLICHOPEZA.

CURTIS, Brit. Ent., 1825, 62.

MEIGEN, Syst. Besch., VI, 283, pl. LXV, f. 10, 11 (called *Leptina* on plate), 1830.

ZETTERSTEDT, Dipt. Scand., X, 4038, 1851.

SCHINER, Fauna Austr., II, 525, 1864.

OSTEN SACKEN, Stud. Tipul., I, 157, 1886.

annulata SAY, Jour. Acad. Sci. Phil., III, 25 (*Tipula*); Compl. Works, II, 49 (*id.*).—Pa.

WIEDEMANN, Auss. Zw., I, 54 (*id.*).

OSTEN SACKEN, Cat., 40; Stud. Tipul., I, 157.

Middle States—O. S. Cat.; N. J.—Smith Cat.

Note.—Both Wiedemann and Osten Sacken erroneously refer to Say's desc. of *Tipula annulicornis*, an entirely different insect.

MEGISTOCERA.

WIEDEMANN, Dipt. Exot., 41, 1821 (*Mackistocera*); Auss. Zw., I, 55, 1828.

OSTEN SACKEN, Stud. Tipul., I, 158, 1886.

longipennis MACQUART, Dipt. Exot., I, I, 57, pl. V, f. 1 (*Tipula*).—Cuba.

OSTEN SACKEN, Stud. Tipul., I, 161, gen. ref.

Porto Rico—Roeder.

BRACHYPREMNA.

OSTEN SACKEN, Stud. Tipul., I, 161, 1886.

dispellens WALKER, Trans. Ent. Soc. Lond., n. s., V, 333 (*Tipula*).—Mex.

OSTEN SACKEN, Berl. Ent. Zeitsch., XXX, 162.—D. C., Tex.

WILLISTON, Biologia, Dipt., Suppl., 229, oc. in Tabasco and Vera Cruz, Mex.

similis WILLISTON, Biologia, Dipt., Suppl., 229.—Tabasco, Mex.

unicolor OSTEN SACKEN, Stud. Tipul., II, 239.—Porto Rico.

TANYPREMNA.

OSTEN SACKEN, Biologia, Dipt., I, 19, 1886.

opilio OSTEN SACKEN, loc. cit., fig.—Guatemala.

XIPHURA.

BRULLÉ, Annales Soc. Ent. France, 1832, 205.

OSTEN SACKEN, Stud. Tipul., I, 165, and early stages, 173, 1886.

atrata LINNÉ, Fauna Suec, 1749 (*Tipula*).—Europe.

FABRICIUS, Syst. Anth., 19 (*Ctenophora*).

MEIGEN, Syst. Besch., I, 158; VI, 285 (*id.*).

DEGEER, Insectes, VI, 138, pl. XIX, f. 10 (*Tipula icheumonca*).

BRULLÉ, Annales, I, 208, pl. V, f. 2, 1832 (*villaretiana*).

STAEGER, Dipt. Dan., 3 (*Ctenophora ruficornis*).

SCHINER, Fauna Austr., II, 499 (*Ctenophora*).

VAN DER WULP, Tijdsch. v. Ent., XXIV, 147, oc. in Quebec (*Ctenophora*).

OSTEN SACKEN, Stud. Tipul., I, 166, oc. in N. A.

frontalis OSTEN SACKEN, Proc. Ent. Soc. Phil., 1864, 48 (*Ctenophora*).—Mass.

? WALKER, List, I, 76 (*Ctenophora dorsalis*).—Newfoundland.

? WALKER, Dipt. Saund., 448 (*Ctenophora succedens*).—Canada. Syn. of both by O. S., with a doubt.

N. J.—Smith Cat.

fumipennis OSTEN SACKEN, Proc. Ent. Soc. Phil., 1864, 47 (*Ctenophora*).—Va. Also Stud. Tipul., 1, 167, gen. ref.

N. J.—Smith Cat.

topazina OSTEN SACKEN, Proc. Ent. Soc. Phil., 1864, 47 (*Ctenophora*); Stud. Tipul., 1, 167, gen. ref.—Va.

Montreal—Chagnon.

CTENOPHORA.

MEIGEN, Illig. Mag., II, 203, 1803; Syst. Besch., 1, 155, 1818.

MACQUART, Hist. Nat. Dipt., 1, 77, 1834.

SCHINER, Fauna Austr., II, 498, 1864.

OSTEN SACKEN, Stud. Tipul., 1, 164, and early stages, 173, 1886.

angustipennis LOEW, Cent., x, 3.—Cal.

OSTEN SACKEN, West. Dipt., 211.—Cal.

WILLISTON, Kans. Univ. Quart., II, 63.—Wash.

BERGROTH, Wien. Ent. Zeit., VII, 201.—Vancouver Id., Brit. Col.

apicata OSTEN SACKEN, Proc. Ent. Soc. Phil., 1864, 46.—Me., N. H. Montreal—Chagnon.

dorsalis WALKER, List, 1, 76.—Newfoundland.

nubecula OSTEN SACKEN, Proc. Ent. Soc. Phil., 1864, 45.—Ill.

N. J.—Smith Cat.

similis WILLISTON, Kans. Univ. Quart., II, 63.—Wash.

PACHYRHINA.

MACQUART, Hist. Nat. Dipt., 1, 88, 1834.

ZETTERSTEDT, Dipt. Scand., x, 3985, 1851.

SCHINER, Fauna Austr., II, 503, 1864.

OSTEN SACKEN, Biologia, Dipt., 1, 15, table of Mex. and C. A. spp.

WEBSTER, Insect Life, III, 12, mentions damage done to wheat by a species in Indiana; Bull. Ohio Ex. Station, Tech. Ser., 1, No. 3, 152, describes oviposition of an undetermined sp.

abbreviata LOEW, Cent., IV, 36.—Miss.

affinis BELLARDI, Saggio, I, 10 (*Tipula*).—Mex.

OSTEN SACKEN, Biologia, Dipt., 1, 15, note on the type.

altissima OSTEN SACKEN, West. Dipt., 210.—Pike's Peak, Col.; Taos Peak, N. M., above timber line.

circumscripta LOEW, Cent., IV, 38.—Cuba.

collaris SAY, Jour. Acad. Sci. Phil., III, 23; Compl. Works, II, 49 (*Tipula*).—Pa.

WIEDEMANN, Auss. Zw., 1, 52 (id.).

Mass. and D. C.—O. S.; N. J.—Smith Cat.

consularis OSTEN SACKEN, Biologia, Dipt., 1, 17.—Costa Rica, Nicaragua.

SCHINER, Novara, 34 (*elegans* FAB.).—Venezuela [O. S.].

WILLISTON, Biologia, Dipt., Suppl., 228, oc. in Tabasco, Mex.

elegantula WILLISTON, Trans. Ent. Soc. Lond., 1896, 205, pl. x, f. 70.—St. Vincent, W. I.

erythrophrys WILLISTON, Kans. Univ. Quart., II, 63.—Col.

JOHNSON, Trans. Amer. Ent. Soc., XXIX, 101.—N. M. and Col.

Beulah, N. M.—Skinner.

eucera LOEW, Cent., IV, 39.—D. C.

N. J.—Smith Cat.; White Mts., N. H.—Slosson.

- excelsior** BERGROTH, Wien. Ent. Zeit., VII, 239.—Cascade Mts., Brit. Col.
- ferruginea** FABRICIUS, Syst. Antl., 28 (*Tipula*).—N. A.
 WIEDEMANN, Dipt. Exot., 28; Auss. Zw., I, 55 (id.).—Pa.
 MACQUART, Dipt. Exot., I, I, 50 (*quadrilineata*).—Mex. [O. S.].
 MACQUART, Dipt. Exot., Suppl., IV, 13, pl. I, f. 3.—N. A.
 BELLARDI, Saggio, I, 9 (*proxima*).—Mex. [O. S.].
 OSTEN SACKEN, West. Dipt., 211, oc. in Cal. and Col.; Biologia, Dipt., I, 18, oc. in Durango, Mex., syn., etc.
 HART, Bull. Ill. State Lab. Nat. Hist., IV, 218, desc. and figs. larva and pupa; larva in the ground.
 WILLISTON, Biologia, Dipt., Suppl., 228, oc. in Morelos, Guerrero and Orizaba, Mex.
 Fla.—Johnson; White Mts., N. H.—Slosson; N. J.—Smith Cat.; Montreal—Chagnon. Beulah, N. M.—Skinner; Axton, N. Y.—M. & H.
- gracilicornis** LOEW, Cent., v, 32.—Western N. Y.
- histrion** FABRICIUS, see *lineata* SCOP.
- incurva** LOEW, Cent., IV, 32.—D. C.
 Atl. States—O. S.
 ? WALKER, List, I, 72 (*alterna*).—Nova Scotia [O. S., with a doubt].
- lineata** SCOPOLI, Ent. Carn., 320 (*Tipula*).—Europe.
 FABRICIUS, Ent. Syst., IV, 237; Syst. Antl., 28 (*Tipula histrion*).
 DEGEER, Ins., VI, 137, pl. XIX, f. 2, 3 (*Tipula flavomaculata*).
 MEIGEN, Klassif., 71 (*T. cornicina*) and 77; Syst. Besch., I, 198 (*Tipula*).
 WALKER, Ins. Brit., III, 332 (*flavescens*).
 SCHINER, Fauna Austr., II, 507 (*histrion*).
 BERGROTH, Wien. Ent. Zeit., VII, 239, oc. in Brit. Col.
 LUNDBECK, Dipt. Groenl., I, 263, oc. in Greenland (*histrion*).
- lugens** LOEW, Cent., v, 26.—White Mts., N. H.
 Canada—O. S.; Montreal—Chagnon. Province of Quebec—Fyles.
- macrocera** SAY, Jour. Acad. Sci. Phil., III, 24; Compl. Works, II, 48.—Pa.
 WIEDEMANN, Auss. Zw., I, 52.
 MACQUART, Hist. Nat. Dipt., I, 1108.—West. Fla.
 Atl. States—O. S.; N. J.—Smith Cat.; Kans.—J. M. A.
- mexicana** MACQUART, Dipt. Exot., Suppl., I, 12.—Mex.
- nigrolutea** BELLARDI, Saggio, I, 11 (*Tipula*).—Mex.
 WALKER, Trans. Ent. Soc., v, III.
 OSTEN SACKEN, Biologia, Dipt., I, 16, full desc.—Orizaba, Mex.; Costa Rica.
- nobilis** LOEW, Cent., v, 24.—White Mts., N. H.
 Jacksonville, Fla.—Johnson.
- occipitalis** LOEW, Cent., v, 30.—Yukon Riv.
- ordinaria** OSTEN SACKEN, Biologia, Dipt., I, 16.—Durango, Mex.
- pedunculata** LOEW, Cent., IV, 33.—Saskatchewan R., Canada.
 JOHANNSEN, Ent. News, XIV, 14, note.—Axton, N. Y.
 Ill. and Catskill, N. Y.—O. S.; White Mts., N. H.—Slosson.
- polymera** LOEW, Cent., IV, 40.—Ill.
 Ohio—O. S.
- proxima** BELLARDI, see *ferruginea*.
- punctum** LOEW, Cent., IV, 34.—Ill.
 Me.—O. S.
- quadrilineata** MACQUART, see *ferruginea*.
- sodalis** LOEW, Cent., v, 29.—Conn.

N. J.—Smith Cat.

suturalis LOEW, Cent., iv, 37.—Ga.

Fla.—O. S.

tenuis LOEW, Cent., iv, 41.—Sharon Spr., N. Y.

Va.—O. S.; N. J.—Smith Cat.

unifasciata LOEW, Cent., iv, 35.—D. C.

Middle States—O. S.; N. J.—Smith Cat.

unimaculata LOEW, Cent., v, 28.—N. Y.

usta OSTEN SACKEN, Biologia, Dipt., I, 17.—Costa Rica.

virescens LOEW, Cent., v, 25.—D. C.

N. J.—O. S. and Smith Cat.

vittula LOEW, Cent., v, 27.—Huds. Bay Terr.

COQUILLET, Proc. Wash. Acad. Sci., II, 405, oc. in Alaska.

White Mts., N. H.—Slosson.

wulpiana BERGROTH, Wien. Ent. Zeit., VII, 200.—Siskiyou Co., Cal.

xanthostigma LOEW, Cent., v, 31.—Ill.

STYGEROPIS.

LOEW, Stett. Ent. Zeit., 1844, 170 (*Prionocera*, preoc.); Cent., iv, 42, 1863, change of name.

OSTEN SACKEN, Stud. Tipul., I, 182, 1886.

Note.—Whether *Prionocera* is really preoccupied is a question for examination.

bergrothi WILLISTON, Kans. Univ. Quart., II, 64.—Alaska.

dimidiata LOEW, Cent., VI, 2.—Huds. Bay Terr.

fuscipennis LOEW, Cent., VI, 3.—Ill.

parrii KIRBY, see *Tipula*.

sordida LOEW, Cent., IV, 42.—L. Winnipeg.

HOLORUSIA.

LOEW, Cent., IV, I, 1863.

OSTEN SACKEN, Stud. Tipul., I, 183, 1886, quotes Loew in translation.

BERGROTH, Ent. Tidskr., IX, 140, 1888, asserts that this genus is not sufficiently distinct from *Tipula*, and can at best be regarded as a subgenus.

The acceptance of this view would make *rubiginosa* preoccupied; he therefore proposes to change its name to *grandis*.

rubiginosa LOEW, Cent., IV, I.—Cal.

COMSTOCK and KELLOGG, Elements of Insect Anatomy, chap. IV, on larva. Northern Idaho—J. M. A.

LONGURIO.

LOEW, Cent., VIII, 2, 1869.

OSTEN SACKEN, Stud. Tipul., I, 183, 1886, says looks like an ordinary *Tipula*.

testaceus LOEW, Cent., VIII, 2.—Mass.

JOHNSON, Ent. News., IX, 229, oc. in Philadelphia.

OSTEN SACKEN, Stud. Tipul., I, 183, note on type.

N. J.—Smith Cat.

TIPULA.

LINNÉ, Fauna Suecica, 2d edit., 430, 1761. (The name occurs in the first edition of Syst. Nat., in 1735.)

FABRICIUS, Syst. Antl., 22, 1805.

MEIGEN, Syst. Besch., I, 160, 1818.

- MACQUART, Hist. Nat. Dipt., i, 80, 1834.
 ZETTERSTEDT, Dipt. Scand., x, 3911, 1851.
 SCHINER, Fauna Austr., II, 509, 1864.
 LOEW, Besch. Europ. Dipt., III, 5-7, on the genital organs of the male.
 FORBES, Ill. Rept., 1888, 78, pl. VI, f. 4, larvæ in sod, called "meadow maggots" and "leather-jackets"; life hist. of *Tipula bicornis* LOEW MS., etc.
 HART, Bull. Ill. State Lab. Nat. Hist., IV, 208, mentions larva of *Tipula bicornis* again.
- abdominalis** SAY, Jour. Acad. Sci. Phil., III, 18; Compl. Works, II, 45 (*Ctenophora*).—Pa.
 WIEDEMANN, Auss. Zw., I, 37 (id.).
 WALKER, List, I, 65 (*albilatus*) [O. S.].—"North America?"
 NEEDHAM, Bull. 47, N. Y. State Mus., 575, pl. XXV, f. 2, describes and figures larva, which occurs in ponds in the Adirondacks; the same figure is printed on the cover of Ent. News for 1902.
- abluta** DOANE, Jour. N. Y. Ent. Soc., IX, 122.—Colo.
acuta DOANE, Jour. N. Y. Ent. Soc., IX, 116.—Paló Alto, Cal.
æqualis DOANE, Jour. N. Y. Ent. Soc., IX, 108.—Wash., Cal., several places.
affinis BELLARDI, see *Pachyrhina*.
albocaudata DOANE, Jour. N. Y. Ent. Soc., IX, 123.—Wawawai and Pullman, Wash.
albobincta DOANE, Jour. N. Y. Ent. Soc., IX, 110.—Col.
albofascia DOANE, Jour. N. Y. Ent. Soc., IX, 126.—Corvallis, Ore.
albonotata DOANE, Jour. N. Y. Ent. Soc., IX, 120.—Battle Creek, Mich.
albovittata DOANE, Jour. N. Y. Ent. Soc., IX, 119.—Pullman, Wash.
angustipennis LOEW, Cent., IV, 19.—Mass., Winnipeg.
 ? WALKER, List, I, 70 (*glomerata*).—N. A. [O. S., with a doubt.]
 Montreal—Chagnon.
- angulata** LOEW, Cent., V, 22.—Mass.
 White Mts., N. H.—Slosson.
- annulicornis** SAY, Jour. Acad. Sci. Phil., VI, 151; Compl. Works, II, 350.—Ind.
apicalis LOEW, Cent., IV, 2.—N. Y.
appendiculata LOEW, Cent., IV, 20.—Saskatchewan R., Canada.
 COQUILLET, Proc. Wash. Acad. Sci., II, 402, oc. in Alaska.
arctica CURTIS, Ross's Expedition, LXXVII, pl. A, f. 15.—Arctic America.
 HOLMGREN, Ins. Nordgroenl., 105, oc. in Greenland.
 O. FABRICIUS, Fauna Groenl., 156 (*ricosa* LINN., an erroneous identification).—Greenland. [Schiödte.]
 ZETTERSTEDT, Ins. Lapp., 841; Dipt. Scand., x, 3934 (*nodulicornis*).—N. Europe. [Schiödte.]
 STAEGER, Groenl. Antl., 355 (id.).
 OSTEN SACKEN, Cat., 37 and note 40, p. 222, synonymy.
- armata** DOANE, Jour. N. Y. Ent. Soc., IX, 119.—Seattle, Wash.
associans WALKER, Trans. Ent. Soc., n. ser., V, 333.—Mex.
atra LINNÉ, reported from Greenland by O. Fabricius, Fauna Groenl., is a mistaken identification; see O. S. Cat., 39, and Lundbeck, Dipt. Groenl., II, 309.
- australis** DOANE, Jour. N. Y. Ent. Soc., IX, 104.—Ga., Tex.
balioptera LOEW, Cent., IV, 15.—English R., Canada.
barbata DOANE, Jour. N. Y. Ent. Soc., IX, 105.—Col.
beatula OSTEN SACKEN, West. Dipt., 209.—Marin Co., Cal.

- bella** LOEW, Cent., IV, 29.—Conn., D. C. Osten Sacken gives Mass., N. Y., Canada, N. J.—Smith Cat.; Montreal—Chagnon.
- besselsi** OSTEN SACKEN, Proc. Bost. Soc. Nat. Hist., Dec. 6, 1878.—Polaris Bay, lat. 82 degrees.
COQUILLET, Proc. Wash. Acad. Sci., II, 402, oc. at Muir Inlet, Alaska.
- bicornis** LOEW MS. has been referred to in several publications, but not yet described. I note the following:
FORBES, Ill. Ent. Rept., 1888, 78, larval stages; Ill.
WEBSTER, Bull. Ohio Expt. Station, Tech. Ser., I, No. 3, extended account of manner of oviposition, with figures; Ohio.
DOANE, Jour. N. Y. Ent. Soc., IX, 113, notes from specimens sent him by Professor Forbes.
Beulah, N. M.—Skinner.
- bisetosa** DOANE, Jour. N. Y. Ent. Soc., IX, 111.—Pullman, Wash.; Collins, Ida.
- bituberculata** DOANE, Jour. N. Y. Ent. Soc., IX, 101.—Cal.
- borealis** WALKER, List, I, 66.—Nova Scotia.
- calcarata** DOANE, Jour. N. Y. Ent. Soc., IX, 107.—Mt. Rainier, Wash.
- caloptera** LOEW, Cent., IV, 30.—Red R. of the North; Mass. (Loew gives R. I., but I take Osten Sacken's change to be a correction).
N. J.—Smith Cat.
- calva** DOANE, Jour. N. Y. Ent. Soc., IX, 114.—Battle Creek, Mich.
- canadensis** LOEW, Cent., V, 19.—Huds. Bay Terr.
- carinata** DOANE, Jour. N. Y. Ent. Soc., IX, 103.—Pullman, Wash.
- centralis** LOEW, Cent., V, 21.—Huds. Bay Terr.
White Mts., N. H.—Slosson.
- cervicula** DOANE, Jour. N. Y. Ent. Soc., IX, 100.—Mt. Rainier, Wash.
- cincta** LOEW, Cent., IV, 24.—D. C. O. S. gives White Mts., N. H., as does Mrs. Slosson; N. J.—Smith Cat.
Province of Quebec—Fyles.
- cincticornis** DOANE, Jour. N. Y. Ent. Soc., IX, 110.—Pa.
- cineracea** COQUILLET, Proc. Wash. Acad. Sci., II, 404.—Alaska, several places.
- clara** DOANE, Jour. N. Y. Ent. Soc., IX, 107.—Wawawai and Pullman, Wash.
- cognata** DOANE, Jour. N. Y. Ent. Soc., IX, 123.—Seattle and Olympia, Wash.; Moscow, Idaho.
- concinna** DOANE, Jour. N. Y. Ent. Soc., IX, 115.—Olympia, Wash.
- contaminata** DOANE, Jour. N. Y. Ent. Soc., IX, 121.—Col.
- costalis** SAY, Jour. Acad. Sci. Phil., III, 23; Compl. Works, II, 48.—Pa., Md.
WIEDEMANN, AUSS. ZW., I, 51.
WEBSTER, Bull. 26, Div. of Ent., 1892, oc. in meadow:—injurious to sod; mode of ovipositing.—Ind.
Quebec—Wulp; Fla.—Johnson; N. J.—Smith Cat.; Montreal—Chagnon.
- craverii** BELLARDI, see *obliquifasciata*.
- cunctans** SAY, Jour. Acad. Sci. Phil., III, 23; Compl. Works, II, 48.—Pa.
WIEDEMANN, AUSS. ZW., I, 45.
LOEW, Cent., IV, 25 (*casta*).—Pa.
OSTEN SACKEN, Cat., 222, note 41, syn.
N. J.—Smith Cat.
- cuspidata** DOANE, Jour. N. Y. Ent. Soc., IX, 111.—Pa.; Battle Creek, Mich.
- decora** DOANE, Jour. N. Y. Ent. Soc., IX, 125.—Montreal, Canada.
- dejecta** WALKER, Dipt. Saund., 442.—U. S.
Atl. States—O. S. N. J.—Smith Cat.; Montreal—Chagnon.
- diluta** DOANE, Jour. N. Y. Ent. Soc., IX, 117.—Col.
- discolor** LOEW, Cent., IV, 12.—Mass.

- disjuncta* WALKER, Dipt. Saund., 442.—U. S.
- dispellens* WALKER, see *Brachyprcma*.
- dorsimacula* WALKER, List, 1, 69.—Nova Scotia.
- dorsolineata* DOANE, Jour. N. Y. Ent. Soc., IX, 98.—Keyport and Pullman, Wash.
- duplex* WALKER, List, 1, 66.—Nova Scotia.
- edwardsii* BELLARDI, Saggio, 1, 8, pl. 1, f. 2.—Mex.
SCHINER, Novara, 35, may be same as *obliquefasciata* Macq.
- eluta* LOEW, Cent., IV, 27.—D. C.
HART, Bull. State Lab. Nat. Hist., IV, 210, desc. and figs. of larva, which generally burrows in wet sand of river bank.—Ill.
Quebec—Wulp.
- fallax* LOEW, Cent., IV, 10.—Cal.
COQUILLET, Proc. Wash. Acad. Sci., II, 402, oc. in Alaska.
Beulah, N. M.—Skinner.
- fasciata* LOEW, Cent., IV, 6.—Sharon Spr., N. Y. O. S. gives N. J., as does Smith.
- filipes* WALKER, List, 1, 65.—St. John's Bluff, Fla.
Florida, several places—Johnson.
- flavicans* FABRICIUS, Syst. Antl., 24 (*flavescens*, corrected in erratis).—N. A.
WIEDEMANN, Dipt. Exot., 25; Auss. Zw., I, 48.—N. A.
NEEDHAM, Bull. 68, N. Y. State Mus., 280, pl. x, f. 3, pupa.—Lake Forest, Ill.
U. S. and Canada—O. S. Montreal—Chagnon.
- fragilis* LOEW, Cent., IV, 7.—Me.
White Mts., N. H.—Slosson.
- fraterna* LOEW, Cent., IV, 14.—D. C.
- frigida* WALKER, List, 1, 68.—Nova Scotia.
White Mts., N. H.—Slosson.
- fuliginosa* SAY, Jour. Acad. Sci. Phil., III, 18; Compl. Works, II, 44 (*Ctenophora*).
—Mo.
WIEDEMANN, Auss. Zw., I, 40 (id.).
Middle and North. States—O. S.; N. J.—Smith Cat.
- fumosa* DOANE, Jour. N. Y. Ent. Soc., IX, 99.—Columbus, Ohio.
- gelida* COQUILLET, Proc. Wash. Acad. Sci., II, 404.—Metlakahtla, Alaska.
- graphica* DOANE, Jour. N. Y. Ent. Soc., IX, 124.—Palo Alto, Cal.
- grandis* BERGROTH, see *Holorusia rubiginosa*.
- grata* LOEW, Cent., IV, 11.—D. C. N. Y.—O. S.
- hebes* LOEW, Cent., IV, 18.—Conn., Ill., Me.
N. J.—Smith Cat.; Montreal—Chagnon.
- helvociucta* DOANE, Jour. N. Y. Ent. Soc., IX, 101.—Mt. Rainier, Wash.
- hirsuta* DOANE, Jour. N. Y. Ent. Soc., IX, 113.—Battle Creek, Mich.
- illustris* DOANE, Jour. N. Y. Ent. Soc., IX, 97.—St. Anthony, Ida.; Olympia and Yakima, Wash.; Battle Creek, Mich.
- impudica* DOANE, Jour. N. Y. Ent. Soc., IX, 104.—Eastern Wash.
- incisa* DOANE, Jour. N. Y. Ent. Soc., IX, 118.—Wawawai and Pullman, Wash.
- inermis* DOANE, Jour. N. Y. Ent. Soc., IX, 112.—Battle Creek, Mich.; White Mts., N. H.; N. C.
- infuscata* LOEW, Cent., IV, 26.—N. Y.
D. C.—O. S.
- ignobilis* LOEW, Cent., IV, 9.—D. C.
White Mts., N. H.—O. S.
- lamellata* DOANE, Jour. N. Y. Ent. Soc., IX, 105.—Pullman, Wash.
- latipennis* LOEW, Cent., V, 20.—White Mts., N. H.
Canada—O. S.

- leucophæa** DOANE, Jour. N. Y. Ent. Soc., IX, 117.—Col.
- longipennis** MACQUART, see *Mcgistocera*.
- longiventris** LOEW, Cent., IV, 5.—Ill.
Maine and L. Winnipeg—O. S. N. J.—Smith Cat.
- lucida** DOANE, Jour. N. Y. Ent. Soc., IX, 126. Moscow and Collins, Idaho.
- macrolabis** LOEW, Cent., V, 17.—Huds. Bay Terr.
COQUILLET, Proc. Wash. Acad. Sci., II, 402, oc. in Alaska and White Mts., N. H.
- maculipennis** SAY, Long's Exped., App., 359 (*maculatipennis*); Compl. Works, I, 243 (id.).—N. W. Terr.
WIEDEMANN, Auss. Zw., I, 46, name emended.
WALKER, List, I, 67, oc. in Nova Scotia.
Northern States—O. S.
- megaura** DOANE, Jour. N. Y. Ent. Soc., IX, 112.—Battle Creek, Mich.
- microcephala** VAN DER WULP, Tijdschr. v. Ent., XXIV, 150, pl. XV, f. 4.—Guadeloupe.
- ? **monilifera** LOEW, Linn. Ent., V, 404, pl. II, f. 26, 27.—Brazil.
? OSTEN SACKEN, Biologia, Dipt., I, 13, oc. in Costa Rica; identity not certain.
? WILLISTON, Biologia, Dipt., Suppl., 227, oc. in Tabasco, Mex.; identity not certain.
- monoptera** LINNÉ, of O. Fabricius, Fauna Groenl., was an error of determination; see O. S. Cat., 39, and Lundbeck, Dipt. Groenl., II, 309.
- nebulosa** BELLARDI, see *Epiphragma*.
- nodulicornis** ZETTERSTEDT, see *arctica*.
- obliquefasciata** MACQUART, Dipt. Exot., Suppl., I, 15, pl. I, f. 10.—New Grenada, S. A.
BELLARDI, Saggio, I, 7, pl. I, f. I (*craverii*).—Mex.
SCHINER, Novara, 35, syn., etc.
OSTEN SACKEN, Cat., 39, notes; Biologia, Dipt., I, 15, doubtfully recognized from Mexico (*craverii*).
WILLISTON, Biologia, Dipt., Suppl., 227, doubtfully recognized from Mex. (*craverii*). Compare also *edwardsii* and *pubera*.
- pallida** LOEW, Cent., IV, 16.—Mass.
- parrii** KIRBY, Suppl. to Capt. Parry's First Voyage, 1824 (Ctenophora).—Arctic America.
OSTEN SACKEN, Cat., 40, refers to *Stygicropis*; Stud. Tipul., I, 183, note.
LUNDBECK, Dipt. Groenl., I, 264, oc. in Greenland and gen. ref.
- pennicornis** LINNÉ, of O. Fabricius, Fauna Groenl., is a mistaken identification; see Lundbeck, Dipt. Groenl., II, 309.
- platymera** WALKER, Dipt. Saund., 441.—Canada.
- præcisa** LOEW, Cent., X, 2.—Cal.
- pratorum** KIRBY, Fauna Boreali-Amer., Ins., 310; republished in Canad. Ent., XIII, 164.—Canada.
- pubera** LOEW, Cent., V, 16.—Cal. Marin and Sonoma Cos.—O. S. O. S. Cat., 39, says very like *obliquefasciata* Macq.
- puncticornis** MACQUART, Dipt. Exot., Suppl., IV, 15, pl. I, f. 6.—N. A.
- quadrimaculata** BELLARDI, Saggio, I, 9, pl. I, f. 3.—Mex.
- resurgens** WALKER, List, I, 67.—Newfoundland.
- retorta** VAN DER WULP, Tijdschr. v. Ent., XXIV, 109, pl. XV, f. 3.—Quebec.
- retusa** DOANE, Jour. N. Y. Ent. Soc., IX, 109.—Wash., several places.
- rostellata** DOANE, Jour. N. Y. Ent. Soc., IX, 100.—Col.
- septentrionalis** LOEW, Cent., IV, 4.—Labrador.

- COQUILLET*, Proc. Wash. Acad. Sci., II, 402, oc. in Alaska; female has rudimentary wings; occurs also in White Mts., N. H.
- serrulata* LOEW, Cent., v, 18.—Ft. Resolution, Huds. Bay Terr.
- serta* LOEW, Cent., IV, 14.—L. Winnipeg; Mass.
Montreal—Chagnon.
- simplex* DOANE, Jour. N. Y. Ent. Soc., IX, 103.—Palo Alto, Cal.
- simulata* WALKER, Dipt. Saund., 441.—Canada.
White Mts., N. H.—Slosson.
- speciosa* LOEW, Cent., IV, 22.—Ill.
D. C.—O. S.; N. J.—Smith Cat.
- spectabilis* DOANE, Jour. N. Y. Ent. Soc., IX, 120.—Collins, Idaho.
- spernax* OSTEN SACKEN, West. Dipt., 210.—Sierra Nevada, Cal.
COQUILLET, Proc. Wash. Acad. Sci., II, 405, oc. at Metlakahtla, Alaska.
Northern Ida.—J. M. A.
- splendens* DOANE, Jour. N. Y. Ent. Soc., IX, 107.—Olympia, Wash.
- stalactoides* DOANE, Jour. N. Y. Ent. Soc., IX, 102.—Unalaska, Alaska.
- strepsis* LOEW, Cent., IV, 28.—N. Y.
White Mts., N. H.—O. S.; N. J.—Smith Cat.; Axton, N. Y.—M. & H.
- streptocera* DOANE, Jour. N. Y. Ent. Soc., IX, 113.—Collins, Ida.; Olympia and Tokeland, Wash.
- strigata* COQUILLET, Proc. Wash. Acad. Sci., II, 402.—Metlakahtla, Sitka and Yakutat, Alaska.
- subcinerea* DOANE, Jour. N. Y. Ent. Soc., IX, 118.—Col.
- subfasciata* LOEW, Cent., IV, 13.—English R., Canada.
- subinfuscata* WILLISTON, Trans. Ent. Soc. Lond., 1896, 295, pl. x, f. 69.—St Vincent, W. I.
- submaculata* LOEW, Cent., IV, 23.—Mass.
N. Y.—O. S.; N. J.—Smith Cat.
- subtenuicornis* DOANE, Jour. N. Y. Ent. Soc., IX, 125.—Seattle, Wash.
- subtilis* DOANE, Jour. N. Y. Ent. Soc., IX, 106.—Cal.
- sulphurea* DOANE, Jour. N. Y. Ent. Soc., IX, 99.—Battle Creek, Mich.
- suspecta* LOEW, Cent., IV, 8.—D. C.
White Mts., N. H.—Slosson.
- tenebrosa* COQUILLET, Proc. Wash. Acad. Sci., II, 403.—Berg Bay and Muir Inlet, Alaska.
- tephrocephala* LOEW, Cent., v, 23.—White Mts., N. H.
N. J.—O. S. and Smith Cat.
- ternaria* LOEW, Cent., v, 15.—Huds. Bay Terr.
- tessellata* LOEW, Cent., IV, 3.—Labrador.
- translucida* DOANE, Jour. N. Y. Ent. Soc., IX, 109.—Pa.
- tricolor* FABRICIUS, Ent. Syst., IV, 235; Syst. Antl., 26.—N. A.
WIEDEMANN, Dipt. Exol., 22; AUSS. ZW., I, 44.—Ga.
Atlantic States—O. S.; N. J.—Smith Cat.
- triplex* WALKER, List, I, 66.—Nova Scotia.
- tristis* DOANE, Jour. N. Y. Ent. Soc., IX, 102.—Palo Alto, Cal.
- trivittata* SAY, Jour. Acad. Sci. Phil., III, 26; Compl. Works, II, 50.—Pa.
WIEDEMANN, AUSS. ZW., I, 42.—Pa.
Atlantic States—O. S.; N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- truncorum* MEIGEN, Syst. Besch., VI, 287.—Europe.
SCHUMMEL, Besch. Schles. Tipul., 51.
ZETTERSTEDT, Dipt. Scand., X, 3926.
SCHINER, Fauna Austr., II, 511.

GERSTAECKER, Zweite Deutsche nordophlfahrt, Leipzig, 1874, oc. in Greenland.

umbrosa LOEW, Cent., IV, 31.—La.

unicincta DOANE, Jour. N. Y. Ent. Soc., IX, 115.—Moscow and Collins, Ida.; Pullman and Keyport, Wash.

usitata DOANE, Jour. N. Y. Ent. Soc., IX, 124.—Tokeland, Wash.; Corvallis, Ore.

valida LOEW, Cent., IV, 21.—Mass., Ill.

N. Y.—O. S.; N. J.—Smith Cat.

varia DOANE, Jour. N. Y. Ent. Soc., IX, 122.—Olympia and Seattle, Wash

versicolor LOEW, Cent., IV, 17.—Ill.

virgatula WILLISTON, Biologia, Dipt., Dipt., Suppl., 228.—Morelos, Mex.

virgo OSTEN SACKEN, Biologia, Dipt., I, 14.—Durango, Mex.

vitrea VAN DER WULP, Tijdschr. v. Ent., XXIV, 150, pl. XV, f. 5.—Quebec.

DIXIDÆ.

DIXA.

MEIGEN, Syst. Besch., I, 216, 1818.

MACQUART, Hist. Nat. Dipt., I, 116, 1834.

ZETTERSTEDT, Dipt. Scand., X, 4048, 1851.

SCHINER, Fauna Austr., II, 641, 1864.

JOHANNSEN, Bull. 68, N. Y. State Mus., 429, 1903, table of species.

MEINERT, De Eucephale Myggelarver, 1886, 452, full discussion of transformations in European species.

centralis LOEW, Cent., III, 3.—N. Y.

? WALKER, List, I, 85 (nova) [O. S., with a doubt].—Martin Falls, Canada.

clavata LOEW, Cent., VIII, 1.—Mass.

clavulus WILLISTON, Trans. Ent. Soc. Lond., 1896, 298, pl. X, f. 73.—St. Vincent, W. I.

JOHANNSEN, Bull. 68, N. Y. State Mus., 429 (*modesta*); syn. in Ent. News, XIV, 302.—N. Y.

fusca LOEW, Cent., III, 5.—N. Y.

marginata LOEW, Lent., III, 1.—D. C.

notata LOEW, Cent., III, 4.—Md.

N. J.—Smith Cat.

terna LOEW, Cent., III, 2.—N. Y.

? WALKER, List, I, 85 (recens) [O.S., with a doubt].—N. Y. Factory, Huds. B. Terr.

venosa LOEW, Cent., X, 1.—Tex.

PSYCHODIDÆ.

TOWNSEND, Trans. Amer. Ent. Soc., XIX, 149, 1892, table of N. A. genera.

KINCAID, Ent. News, X, 30, 1899, table of genera.

KELLOGG, Ent. News, X, 46, 1899, desc. of an aquatic larva, and references to literature of immature stages.

PERICOMA.

WALKER, Ins. Brit., III, 256, 1856.

SCHINER, Fauna Austr., II, 632, 1864.

albitarsis WILLISTON, Trans. Ent. Soc. Lond., 1896, 284, pl. IX, f. 52.—St. Vincent, W. I.

bipunctata KINCAID, Ent. News, X, 34, f. 8.—Seattle, Wash.; Santa Cruz Mts., Cal.

- COQUILLET, Proc. Wash. Acad. Sci., II, 397, oc. in Alaska.
Beulah, N. M.—Skinner.
- californica* KINCAID, Ent. News, XII, 195.—Congress Springs, Cal.
KELLOGG, Ent. News, XII, 46, figures larva and pupa, found in streams near
Stanford University, Cal. (as *californiensis* KINCAID).
- furcata* KINCAID, Ent. News, X, 34, f. 13.—Pullman, Wash.
- ocellaris* MEIGEN, Klassif., 43, 1804 (*Trichoptera*); Syst. Besch., I, 105 (*Psychoda*). Europe.
- SCHINER, Fauna Austr., II, 633.
- KINCAID, Ent. News, XII, 194, describes var. *americana* from Maine.
- olympia* KINCAID, Ent. News, VIII, 144 (*Psychoda*); X, 31, f. 3.—Olympia, Wash.
- sitchana* KINCAID, Ent. News, X, 33.—Sitka, Alaska.
- tridactyla* KINCAID, Ent. News, X, 32, f. 2.—Seattle, Wash.
- triloba* KINCAID, Ent. News, X, 33, f. 6.—Seattle, Wash.
- truncata* KINCAID, Ent. News, X, 35, f. 10.—Palo Alto, Cal.
- variegata* KINCAID, Ent. News, X, 33, f. 7.—Seattle, Wash.

PSYCHODA.

- LATREILLE, Précis, 152, 1796; Hist. Nat. Crust. et Ins., XIV, 293, 1804.
- MEIGEN, Syst. Besch., I, 103, 1818.
- MACQUART, Hist. Nat. Dipt., I, 164, 1834.
- ZETTERSTEDT, Dipt. Scand., IX, 3701, 1850.
- SCHINER, Fauna Austr., II, 635, 1864.
- KINCAID, Ent. News, VIII, 145, 1897, anatomy, etc.
- BANKS, Canad. Ent., XXVI, 330, 1894, table of species; loc. cit., XXXIII, 273, 1901, table of eastern species.
- WILLISTON, Dipt. St. Vincent, in Trans. Ent. Soc. Lond., 1896, 283, table of St. Vincent spp.
- albipuncta* WILLISTON, Ent. News, IV, 113.—Cuba.
- albitarsis* BANKS, Canad. Ent., XXVII, 324.—Ithaca, N. Y.
- alternata* SAY, Long's Exped., 358; Compl. Works, I, 242.—Pa.
WIEDEMANN, Auss. Zw., I, 23.
- WILLISTON, Ent. News, IV, 113, part desc.—Conn., Mich., S. D., Tenn., Kans.
- BANKS, Canad. Ent., XXVI, 330 (N. Y.); XXXIII, 124, states that Eaton has admitted the synonymy of *serpunctata* HAL., a later European species (see Schiner, Fauna Austr., II, 636); oc. in N. Y. and Va.
White Mts.—Slosson; St. Vincent, with a doubt—Will.; Pullman, Wash.—Kincaid.
- angustipennis* WILLISTON, Dipt. St. Vincent, 284, pl. IX, f. 51.—St. Vincent, W. I.
- antennalis* Dipt. St. Vincent, 283.—St. Vincent, W. I.
- bicolor* BANKS, Canad. Ent., XXVI, 333.—Sea Cliff, N. Y.
- cinerea* BANKS, Canad. Ent., XXVI, 331.—Sea Cliff, N. Y.
KINCAID, Ent. News, VIII, 143 (*pacifica*).—Cal., Ore., Wash., Alaska to Pribylof Ids.
COQUILLET, Proc. Wash. Acad. Sci., II, 397, oc. in Br. Col. (*pacifica*).
KINCAID, Ent. News, XII, 193, synonymy.
D. C., Va.—Banks.
- degenera* WALKER, List, I, 33.—Martin Falls, Canada.
- elegans* KINCAID, Ent. News, VIII, 144.—Seattle, Wash.
- marginalis* BANKS, Canad. Ent., XXVI, 333.—Sea Cliff, N. Y.
JOHNSON, Ent. News, X, 220, oc. at Riverton, N. J.

- minuta* BANKS, Canad. Ent., xxvi, 331.—Sea Cliff, N. Y. Also occurs in N. M.—Banks.
ALDRICH, 21st Rept. Geol. Indiana, 1896, 188, oc. in a cavern. Ind.
HOWARD, Canad. Ent., xxxiii, 43, oc. in Va.; bred from cowdung.
White Mts., N. H.—Slosson.
- nigra* BANKS, Canad. Ent., xxvi, 331.—Sea Cliff, N. Y. Also reported from Va.—Banks.
- nitida* BANKS, Canad. Ent., xxxiii, 275.—D. C.
- opposita* BANKS, Canad. Ent., xxxiii, 274.—D. C.
- pallens* WILLISTON, Dipt. St. Vincent, 283, pl. ix, f. 50.—St. Vincent, W. I.
- punctatella* TOWNSEND, Annals and Mag. Nat. Hist., xix, 19.—Vera Cruz.
- schizura* KINCAID, Ent. News, x, 32, f. 9.—Seattle Wash.
- sigma* KINCAID, Ent. News, x, f. 1.—Olympia, Wash.
- signata* BANKS, Canad. Ent., xxxiii, 274.—D. C.
- slossoni* WILLISTON, Ent. News, iv, 114.—Watkins Glen, N. Y.
BANKS, Canad. Ent., xxvi, 324, male.—N. Y.
- superba* BANKS, Canad. Ent., xxvi, 332 (Sea Cliff, N. Y.); xxxiii, 275, oc. in D. C., "on the bark of large trees."

SYCORAX.

- CURTIS, Brit. Entomol., 745, 1839.
SCHINER, Fauna Austr., ii, 631, 1864.
KINCAID, Ent. News, x, 30, part. desc.
- lanceolata* KINCAID, Ent. News, x, 35, f. 11, 12.—Palo Alto and Santa Cruz Mts., Cal.; Almota, Wash.

TRICHOMYIA.

- CURTIS, Brit. Ent., 745, 1839.
SCHINER, Fauna Austr., ii, 631, 1864.
- cirrata* COQUILLET, Jour. N. Y. Ent. Soc., x, 137.—Frontera in Tabasco, Mex.

CHIRONOMIDÆ.

STENOXENUS.

- COQUILLET, Ent. News, x, 60, 1899.
- johnsoni* COQUILLET, loc. cit., fig.—Delaware Water Gap, N. J.
Note.—Mr. Coquillett has founded a new family upon this species, which he calls Stenoxenidæ. As but a single female specimen with the antennæ broken off has as yet come to light, and it is admittedly related to *Ceratopogon*, it would seem decidedly premature to recognize this family.

TERSESTHES.

- TOWNSEND, Psyche, Jan., 1893, 371.
- torrens* TOWNSEND, loc. cit., plate.—Socorro Co., N. M.; the females suck blood.

CERATOPOGON.

- MEIGEN, Hlig. Mag., ii, 261, 1803; Syst. Besch., i, 70, 1818.
ZETTERSTEDT, Dipt. Scand., ix, 3629, 1850.
WINNERTZ, Linnæa Ent., vi, 1851, pp. 1-80; this is the classic monograph of the European species.
SCHINER, Fauna Austr., ii, 574, 1864.

- Mik, Wien, Ent. Zeitung, 1888, 183, and 1894, 23, life history of European species.
- WILLISTON, Dipt. St. Vincent, in Trans. Ent. Soc. Lond., 1896, 276, table of species from St. Vincent.
- COQUILLET, Proc. U. S. N. M., XXIII, 599, table of new spp.
- HOWARD, Proc. Wash. Acad. Sci., II, 559, notes on larval habits; one species reared from human excrement.
- LUGGER, 2d Rept. Ent. Minn., 1896, 171, fig., notes on attacking man.
- MEINERT, Eucephale Myggelarver, 464, pl. IV, f. 128-137, an excellent study of the transformations of *C. circumdatum*, a European species.
- albarius** COQUILLET, Proc. Acad. Nat. Sci., 1895, 308.—Fla.
N. J.—Smith Cat.
- albiventris** LOEW, Cent., I, 7.—Ga.
N. J.—Smith Cat.
- ancorus** COQUILLET, Proc. U. S. N. M., XXV, 87.—Biscayne Bay, Fla.
- antennalis** COQUILLET, Proc. U. S. N. M., XXIII, 606.—D. C.
- arcticus** COQUILLET, Proc. Wash. Acad. Sci., II, 396.—Popoff Id., Alaska.
- argentatus** LOEW, Cent., I, 5.—D. C.
N. J.—Smith Cat.; Welaka, Fla.—Johnson.
- barberi** COQUILLET, Proc. U. S. N. M., XXIII, 601.—Chesapeake Beach, Md.
- basalis** WALKER, List, I, 27.—Trenton Falls, N. Y.
- bellus** COQUILLET, Proc. U. S. N. M., XXV, 87.—D. C.
- biguttatus** COQUILLET, Proc. U. S. N. M., XXIII, 604.—D. C.
- bimaculatus** LOEW, Cent., I, 6.—D. C.
- brumalis** LONG, Biol. Bull., 1902, 3; larva, pupa and adult. I have not seen this paper, and am unable to give the locality.
- cilipes** COQUILLET, Proc. Wash. Acad. Sci., II, 397.—Muir Inlet, Glacier Bay, Alaska.
- cinctus** COQUILLET, Proc. U. S. N. M., XXIII, 605.—Lake Worth and Biscayne Bay, Fla.; bites human beings.
- cockerelli** COQUILLET, Proc. U. S. N. M., XXIII, 603.—Custer Co., Col.
- decor** WILLISTON, Dipt. St. Vincent, 281, pl. IX, f. 45.—St. Vincent, W. I.
- diversus** COQUILLET, Proc. U. S. N. M., XXIII, 607.—Riverton, N. J.
- dimidiatus** ADAMS, Kans. Univ. Sci. Bull., II, 27.—Grand Canon, Ariz.
- elegans** COQUILLET, Proc. U. S. N. M., XXIII, 599.—Riverton, N. J.
- eriphorus** WILLISTON, Dipt. St. Vincent, 279, pl. IX, f. 40.—St. Vincent, W. I.
- exilis** COQUILLET, Proc. U. S. N. M., XXV, 86.—D. C.
- expolitus** COQUILLET, Proc. U. S. N. M., XXIII, 600.—Riverton, N. J.
- femoratus** MEIGEN, Klassif., II, 28, 1804; Syst. Besch., I, 83.—Europe.
FABRICIUS, Syst. Antl., 45, 1805 (*Chironomus*).
LATREILLE, Gen. Crust., IV, 250.
MACQUART, Hist. Nat. Dipt., I, 67.
STAEGER, Kröyer's Nat. Tidsskr., II, 1839, 598.
ZETTERSTEDT, Dipt. Scand., IX, 3665.
WINNERTZ, Mon., 68.
SCHINER, Fauna Austr., II, 584.
COQUILLET, Proc. Wash. Acad. Sci., II, 396, oc. in N. A.—Popoff Id., Alaska.
- festivus** LOEW, Cent., I, 13.—Pa.
N. J.—Smith Cat.
- fimbriatus** COQUILLET, Proc. U. S. N. M., XXIII, 601.—D. C.
- flavipes** MEIGEN, Syst. Besch., I, 82; loc. cit., I, 81 (*hortulanus*).—Europe.

- WINNERTZ, *MOH.*, 58. SCHINER, *Fauna Austr.*, II, 585.
N. J.—Smith Cat.
- flavus** WILLISTON, *Dipt. St. Vincent*, 280, pl. IX, f. 42.—St. Vincent, W. I.
- fuscus** COQUILLET, *Proc. U. S. N. M.*, XXIII, 605.—D. C., N. J., N. H., Me.
- genualis** LOEW, *Cent.*, VI, 1.—Cuba.
- glaber** COQUILLET, *Proc. U. S. N. M.*, XXV, 85.—Biscayne Bay, Fla.
- griseus** COQUILLET, *Proc. U. S. N. M.*, XXIII, 602.—D. C., Fla.
- guttipennis** COQUILLET, *Proc. U. S. N. M.*, XXIII, 603.—Medina, Ohio.
- hirtulus** COQUILLET, *Proc. Wash. Acad. Sci.*, II, 396.—Virgin Bay, Prince William Sound, Alaska.
- hollensis** MELANDER and BRUES, *Biol. Bull.*, V, 13, 1903.—Woods Holl, Mass.
- inermis** COQUILLET, *Proc. U. S. N. M.*, XXV, 86.—Yavapai Co., Ariz.
- johnsoni** COQUILLET, *Proc. U. S. N. M.*, XXIII, 600.—Riverton, N. J.
- lacteipennis** ZETTERSTEDT, *Ins. Lapp.*, 810; *Dipt. Scand.*, IX, 3639.—Europe.
WINNERTZ, *MOH.*, 49. SCHINER, *Fauna Austr.*, II, 584.
LUNDBECK, *Dipt. Groenlandica*, I, 270, oc. in Greenland.
- levis** COQUILLET, *Proc. U. S. N. M.*, XXIII, 604.—Marlboro, N. J.
- lineatus** MEIGEN, *Syst. Besch.*, I, 80.—Europe.
WINNERTZ, *MOH.*, 63. STAEGER, *Dipt. Dan.*, 595.
ZETTERSTEDT, *Dipt. Scand.*, IX, 3655.
SCHINER, *Fauna Austr.*, II, 587.
LOEW, *Silliman's Jour.*, oc. in N. A.
N. J.—Smith Cat.
- lituratus** WILLISTON, *Dipt. St. Vincent*, 281.—St. Vincent, W. I.
- longicornis** WILLISTON, *Dipt. St. Vincent*, 280, pl. IX, f. 43.—St. Vincent, W. I.
- longipennis** LOEW, *Cent.*, I, 10.—Pa.
N. J.—Smith Cat.
- lotus** WILLISTON, *Dipt. St. Vincent*, 282, pl. IX, f. 47.—St. Vincent, W. I.
- maculithorax** WILLISTON, *Dipt. St. Vincent*, 277, pl. IX, f. 36.—St. Vincent, W. I.
- melleus** COQUILLET, *Proc. U. S. N. M.*, XXIII, 604.—Lake Worth, Fla.
- mundus** COQUILLET, see *smithii*.
- mutabilis** COQUILLET, *Proc. U. S. N. M.*, XXIII, 602.—D. C., Fla.
- nebulosus** COQUILLET, *Proc. U. S. N. M.*, XXIII, 606.—Riverton, N. J.
- nocivum** HARRIS, *Ins. Inj. Vag.*, 602 (*Simulium*). Mass. 3 lines desc. Gen. ref. in O. S. Cat., 14.
- obscurus** WALKER, *List*, I, 26.—Martin Falls, Canada.
- opacus** LOEW, *Cent.*, I, 9.—D. C.
- pachymerus** WILLISTON, *Biologia, Dipt., Suppl.*, 224.—Vera Cruz, Mex.
- parvus** WALKER, *List*, I, 26.—Martin Falls, Canada.
- pergandei** COQUILLET, *Proc. U. S. N. M.*, XXIII, 602.—D. C.
- phlebotomus** WILLISTON, *Dipt. St. Vincent*, 281, pl. IX, f. 46.—St. Vincent, W. I.
- pilosulus** COQUILLET, *Proc. U. S. N. M.*, XXV, 87.—D. C.
- plebeius** LOEW, *Cent.*, I, 11.—Pa.
N. J.—Smith Cat.
- politus** COQUILLET, *Proc. U. S. N. M.*, XXIII, 606.—Cambridge, Mass.
- propinquus** WILLISTON, *Dipt. St. Vincent*, 279, pl. IX, f. 41.—St. Vincent, W. I.
- pulvereus** COQUILLET, *Proc. U. S. N. M.*, XXIII, 600.—Riverton, N. J., and D. C.
- punctipennis** WILLISTON, *Dipt. St. Vincent*, 278, pl. IX, f. 39.—St. Vincent, W. I.
COQUILLET, *Proc. U. S. N. M.*, XXII, 250, oc. in Porto Rico.
- pygmæus** WILLISTON, *Dipt. St. Vincent*, 278, pl. IX, f. 37.—St. Vincent, W. I.
- rufus** LOEW, *Cent.*, I, 12.—Pa.
N. J.—Smith Cat.

- sanguisuga** COQUILLET, Proc. U. S. N. M., xxiii, 604.—Marlboro, Md.; bites human beings.
- scutellatus** MEIGEN, Syst. Besch., vi, 262, 1830.—Europe.
WINNERTZ, Mon., 44.
SCHINER, Fauna Austr., ii, 582.
LUNDBECK, Dipt. Groenlandica, i, 270, oc. in Greenland.
- scutellatus** SAY, Jour. Acad. Sci. Phil., vi, 150, 1829; Compl. Works, ii, 349.—Ind.
- schwarzii** COQUILLET, Proc. U. S. N. M., xxiii, 605.—Sharpsburg, Tex.
- sequax** WILLISTON, Dipt. St. Vincent, 282, pl. ix, f. 48.—St. Vincent, W. I.
COQUILLET, Proc. U. S. N. M., xxii, 250, oc. in Porto Rico.
- setulosus** LOEW, Cent., i, 8.—D. C.
N. J.—Smith Cat.
- smithii** COQUILLET, Proc. U. S. N. M., xxiii, 600.—Riverton, N. J. Mentioned in Smith's Cat. as *C. mundus*, a manuscript name (Coquillett in litt.).
- sordidellus** ZETTERSTEDT, Ins. Lapp., 820; Dipt. Scand., ix, 3640.—N. Europe.
STAEGER, Groenl. Antliater, oc. in Greenland.
O. FABRICIUS, Fauna Groenlandica (*Culex pulicans*—misprint for *pulicaris*). [Schiödte.]
- specularis** COQUILLET, Proc. U. S. N. M., xxiii, 601.—Pa., D. C., Col.
HOWARD, Canad. Ent., xxxiii, 43, oc. in Va.; bred from cowdung.
LONG, Biol. Bull., 1902, 7; larva, pupa and adult.
- squamipes** COQUILLET, Proc. U. S. N. M., xxv, 88.—Las Vegas Hot Springs, N. M.
- stellifer** COQUILLET, Proc. U. S. N. M., xxiii, 604.—D. C.
- stenammatis** LONG, Biol. Bull., 1902, 10.
- stigmalis** COQUILLET, Proc. U. S. N. M., xxv, 86.—Las Vegas Hot Springs, N. M.
- subasper** COQUILLET, Proc. U. S. N. M., 603.—Marlboro, Md., and Mesilla Park, N. M.
- texanus** LONG, Biol. Bull., 1902, 10; larva, pupa and adult.—Texas.
- thersites** WILLISTON, Dipt. St. Vincent, 280, pl. ix, f. 44.—St. Vincent, W. I.
- tibialis** MEIGEN, Syst. Besch., i, 82.—Europe.
WINNERTZ, Mon., 65. SCHINER, Fauna Austr., ii, 586.
N. J.—Smith Cat.
- transiens** WALKER, List, i, 25.—Martin Falls, Canada.
N. J.—Smith Cat.
- trivialis** LOEW, Cent., i, 4.—D. C.
N. J.—Smith Cat.
- varicolor** COQUILLET, Ent. News, xiii, 84.—Bellport, Long Id., N. Y.
- variipennis** COQUILLET, Proc. U. S. N. M., xxiii, 602.—N. J., Va., and Mexico City.
- venustus** WILLISTON, Dipt. St. Vincent, 278, pl. ix, f. 38.—St. Vincent, W. I.
- viridis** COQUILLET, Proc. U. S. N. M., xxiii, 607.—Riverton, N. J.
- websteri** COQUILLET, Proc. U. S. N. M., xxiii, 603.—Ashwood, La.
- wheeleri** LONG, Biol. Bull., 1902, 12; larva and pupa only.

HETEROMYIA.

- SAY, N. A. Ent., ii, 1825; Compl. Works, i, 79, pl. xxv.
OSTEN SACKEN, note in Say's Compl. Works, i, 80; Cat., 23, observation on validity.
- clavata** WILLISTON, Biologia, Dipt. Suppl., 225.—Vera Cruz, Mex.
- fasciata** SAY, Amer. Ent., ii; Complete Works, i, 80, pl. xxxv.—No locality. Atl. States (O. S.); N. J. (Smith Cat.).
- prattii** COQUILLET, Proc. U. S. N. M., xxv, 88.—St. Elmo, Va.

CORYNONEURA.

WINNERTZ, Ent. Zeit. v. Stett., VII, 12, 1846.

SCHINER, Fauna Austriaca, II, 594, 1864.

atra WINNERTZ, Ent. Zeit. v. Stett., XIII, 50.—Europe.

SCHINER, Fauna Austr., II, 594.

LUNDBECK, Dipt. Groenl., I, 270, oc. in Greenland.

celeripes WINNERTZ, Ent. Zeit. v. Stett., XIII, 50.—Europe.

SCHINER, Fauna Austr., II, 594.

LUNDBECK, Dipt. Groenl., I, 271, oc. in Greenland.

CHIRONOMUS.

MEIGEN, Illig. Mag., II, 260, 1803; Syst. Besch., I, 19, 1818.

ZETTERSTEDT, Dipt. Scand., IX, 3475, 1850.

SCHINER, Fauna Austr., II, 595, 1864.

WILLISTON, Dipt. St. Vincent, 273, 1896, table of St. Vincent spp.

MEINERT, Eucephale Myggelarver, 435, 1886, gives the older literature of the transformations, with notes on same; also an excellent account of the different stages of *Ch. venustus* and *motillator*, European species.

JOHANNSEN, Bull. 68, N. Y. State Mus., 433, 1903, describes and figures a larva of an undet. species which is an important food for trout in the Adirondacks, N. Y.

OSBORN, Bull. 32, Iowa Experiment Station, 405-407, figures an undet. species occurring in water tanks and reservoirs.

albistria WALKER, List, I, 17.—Martin Falls, Canada.

anonymus WILLISTON, Dipt. St. Vincent, 274.—St. Vincent, W. I.

anticus WALKER, List, I, 21.—Ga.

aterrimus STAEGER, nec Meigen, see *ursinus*.

atomarius ZETTERSTEDT, see *Orthocladus*.

atratus ZETTERSTEDT, see *Metricnemus*.

atrimanus COQUILLET, Proc. U. S. N. M., xxv, 94.—Kansas City, Mo.

attenuatus WALKER, List, I, 20.—Martin Falls, Canada.

White Mts., N. H.—Slosson; but the original description is meaningless.

basalis STAEGER, Groenl. Antl., 351.—Greenland.

HOLMGREN, Ins. Nordgroenl., 105.

LUNDBECK, Dipt. Groenl., I, 279, oc.

bimacula WALKER, List, I, 15.—Martin Falls, Canada.

borealis CURTIS, Insects of Ross's Voyage, LXXVII.—Arctic America.

brachialis COQUILLET, Proc. U. S. N. M., xxiii, 607.—Westville, N. J.

brevitibialis ZETTERSTEDT, Dipt. Scand., IX, 3537.—N. Europe.

SCHINER, Fauna Austr., II, 605.

LUNDBECK, Dipt. Groenl., I, 273, oc. in Greenland.

brunneus WALKER, List, I, 21.—Martin Falls, Canada.

N. J.—Smith Cat.; White Mts., N. H.—Mrs. Slosson; Beulah, N. M.—Skinner. In spite of these identifications, I consider the description quite unrecognizable.

byssinus, see *Camptocladus*.

chloris MEIGEN, Syst. Besch., I, 28.—Europe.

STAEGER, Dipt. Dan., 1840, 564.

ZETTERSTEDT, Dipt. Scand., IX, 3511. SCHINER, Fauna Austr., II, 604.

VAN DER WULP, Tijdschr. v. Ent., sec. ser., II, 126, oc. in N. A.—Wis.

claripennis LUNDBECK, see *Orthocladus*.

confinis WALKER, List, I, 15.—Martin Falls, Canada.

crassicollis WALKER, List, I, 18.—Martin Falls, Canada.

- cristatus** FABRICIUS, Syst. Ant., 39.—N. Y.
 WIEDEMANN, AUSS. ZW., I, 14.
 MACQUART, Hist. Nat. Dipt., I, 50.
 N. J.—Smith Cat.; Montreal—Chagnon.
- debilipennis** LUNDBECK, see *Metriocnemus*.
- devinctus** SAY, Jour. Acad. Sci. Phil., VI, 150; Compl. Works, II, 349.—Ind.
- difficilis** LUNDBECK, see *Orthocladius*.
- dispar** MEIGEN, Syst. Besch., VI, 247.—Europe.
 ZETTERSTEDT, Dipt. Scand., IX, 3500; loc. cit., 3509 (*lucidus*).
 STAEGER, Kröyer's Tidsskr., II, 569.
 SCHINER, Fauna Austr., II, 604.
 N. J.—Smith Cat.
- dorsalis** MEIGEN, Syst. Besch., I, 25.—Europe.
 SCHINER, Fauna Austr., II, 605.
 MALL and HAMMOND, Trans. Linn. Soc. Lond., ser. 2, v, pl. XXIX-XXXI,
 1893.
 Identified from Market Lake, Idaho—Johannsen *in litt.*
- extremus** HOLMGREN, see *Camptocladius*.
- fascipennis** ZETTERSTEDT, Ins. Lapp., 813; Dipt. Scand., IX, 3505.—N. Europe.
 SCHINER, Fauna Austr., II, 599.
 N. J.—Smith Cat.; Montreal—Chagnon.
- festivus** SAY, Jour. Acad. Sci. Phil., III, 13; Compl. Works, II, 41.—Ill.
 WIEDEMANN, Analecta Ent., 10; AUSS. ZW., I, 16.
 White Mts., N. H.—Slosson.
- fimbriatus** WALKER, List, I, 20.—Martin Falls, Canada.
- flavicingula** WALKER, List, I, 20.—Martin Falls, Canada.
- frigidus** ZETTERSTEDT, of Staeger, see *Orthocladius pubitarsis*.
- fuscipes** MEIGEN, see *Metriocnemus*.
- geminatus** SAY, see *Cricotopus*.
- graminicola** LUNDBECK, see *Camptocladius*.
- halteralis** COQUILLET, Ent. News, XII, 17.—D. C.
 HOWARD, Proc. Acad. Sci. Wash., II, 559, adult collected on excrement.
- hyperboreus** STAEGER, Groenl. Antl., 349 (in part).—Greenland.
 SCHIÖLTE, Rink's Greenland, Suppl., 67 (*polaris*) [Lundbeck].
- incomptus** ZETTERSTEDT, see *Metriocnemus*.
- innocuus** WILLISTON, Dipt. St. Vincent, 274.—St. Vincent, W. I.
- intermedius** STAEGER, Kröyer's Tidsskr., II, 559.—Europe.
 ZETTERSTEDT, Dipt. Scand., IX, 3484.
 OSTEN SACKEN, Cat., 20, oc. in N. W. of N. A., and note.
- jucundus** WALKER, List, I, 16.—Ga.
 N. J.—Smith Cat.
- junci** MEIGEN, see *Tanytarsus*.
- lasiomerus** WALKER, List, I, 19.—Martin Falls, Canada.
- lasiopus** WALKER, List, I, 19.—Martin Falls, Canada.
- lineatus** SAY, Jour. Acad. Sci. Phil., III, 14; Compl. Works, II, 42.—Pa.
 WIEDEMANN, AUSS. ZW., I, 17 (name unnecessarily changed to *lincola*).
 N. J.—Smith Cat.; Montreal—Chagnon (both *lincola*).
- lobiferus** SAY, Jour. Acad. Sci. Phil., III, 12; Compl. Works, II, 41.—Pa.
 WIEDEMANN, AUSS. ZW., I, 16.
 MACQUART, Hist. Nat. Dipt., I, 50.
- longimanus** WILLISTON, Dipt. St. Vincent, 274, pl. IX, f. 33.—St. Vincent, W. I.
- lugubris** WILLISTON, Dipt. St. Vincent, 274.—St. Vincent, W. I.
- minimus** MEIG., see *Camptocladius*.

- minutus** ZETTERSTEDT, see *Orthocladius*.
- modestus** SAY, Jour. Acad. Sci. Phil., III, 13; Compl. Works, II, 41.—Pa.
WIEDEMANN, Auss. Zw., I, 18.
N. J.—Smith Cat.; Montreal—Chagnon; White Mts., N. H.—Slosson.
White Mts., N. H.—Slosson.
- nigritibia** WALKER, List, I, 16.—Martin Falls, Canada.
- nitidulus** COQUILLET, Proc. U. S. N. M., XXIII, 608.—Riverton, N. J.
- niveipennis** FABRICIUS, Syst. Antl., 42.—Europe.
MEIGEN, Syst. Besch., VI, 254 (*pilicornis*).
ZETTERSTEDT, Dipt. Scand., IX, 3566. SCHINER, Fauna Austr., II, 593.
JOHNSON, Proc. Acad. Nat. Sci. Phil., 1895, 320, oc. at Charlotte Harbor,
Fla.
- nivoriundus** FITCH, see *Orthocladius*.
- oceanicus** PACKARD, Proc. Essex. Inst., VI, 42, figs. larva, etc.—Salem, Mass.
- octopunctatus** LOEW, Wien. Ent. Monatschr., V, 33.—Cuba.
- palliatu**s COQUILLET, Proc. U. S. N. M., XXV, 95.—D. C.
- parvus** LUNDBECK, see *Camptocladius*.
- pedellus** LINNÉ, Fauna Suec., No. 1759 (var. of *Tipula littoralis*).—Europe.
DEGEER, Ins., VI, 378, pl. XIX, f. 12, 13 (*Tipula*).
FABRICIUS, Ent. Syst., IV, 247; Syst. Antl., 45 (both *Chir. cantans*).
MEIGEN, Syst. Besch., I, 23. STAEGER, Dipt. Dan., 564.
ZETTERSTEDT, Ins. Lapp., 814; Dipt. Scand., IX, 3535.
VAN DER WULP, Tijdsch. v. Ent., II, 126, oc. in N. A.
N. J.—Smith Cat.; Montreal—Chagnon.
- pedestris** MEIGEN, Syst. Besch., VI, 246.—Europe.
SCHINER, Fauna Austr., II, 606.
N. J.—Smith Cat.
- pellucidus** WALKER, List, I, 21.—Martin Falls, Canada.
- picipes** MEIG., see *Metricnemus fuscipes*.
- plumosus** LINNÉ, Fauna Suec., 434; Syst. Nat., II, 974 (*Tipula*).—Europe.
FABRICIUS, Ent. Syst., IV, 242 (*Tipula*); Syst. Antl., 37.
GEOFFROY, Ins., II, 560.
GOEDART, Ins., III, pl. X.
MEIGEN, Klassif., II, pl. I, f. 19; Syst. Besch., I, 20.
MACQUART, Hist. Nat. Dipt., I, 48.
STAEGER, Dipt. Dan., 557.
ZETTERSTEDT, Ins. Lapp., 809; Dipt. Scand., IX, 3481.
SCHINER, Fauna Austr., II, 601.
OSTEN SACKEN, Cat., 21, oc. in N. A. (Mackenzie Riv., Canada.)
RILEY, Rept. Dept. of Ag., 1886, oc. in N. Y.
- polaris** KIRBY, Suppl. to Parry's First Voyage; CURTIS, Ins. of Ross's Voyage,
LXXVII, pl. A, f. 2 and 14.—Arctic America; Greenland. (Unrecogniz-
able—Lundbeck.)
- pubitarsis** ZETTERSTEDT, see *Orthocladius*.
- pulchripennis** COQUILLET, Proc. U. S. N. M., XXV, 94.—Franconia, N. H.
- pumilio** HOLMGREN, see *Camptocladius*.
- redeuns** WALKER, Dipt. Saund., 422.—U. S.
COQUILLET, Proc. U. S. N. M., XXII, 250, oc. in Porto Rico.
- riparius** MEIGEN, Syst. Besch., I, 23.—Europe.
STAEGER, Groenl. Antliater, 350 (*turpis* ZETT.), oc. in Greenland [Ldbk.].
ZETTERSTEDT, Ins. Lapp., 810; Dipt. Scand., IX, 3489.
SCHINER, Fauna Austr., II, 603.

- VAN DER WULP, Tijdschr. v. Ent., II, 126, oc. in N. A.—Wis.
 LUNDBECK, Dipt. Groenl., I, 272, oc. in Greenland.
 White Mts., N. H.—Slosson; Charlotte Harbor, Fla.—Johnson.
- scalænus** SCHANK, Fauna Boica, III, 2324, 1803.—Europe.
 ZETTERSTEDT, Dipt. Scand., IX, 3501.
 SCHINER, Fauna Austr., II, 600.
 MRS. SLOSSON, Ent. News, XIII, 320, 1902, oc. in White Mts., N. H.
- spilopterus** WILLISTON, Trans. Ent. Soc. Lond., 1896, 273, pl. IX, f. 32.—St. Vincent, W. I.
- staegeri** LUNDBECK, Dipt. Groenl., I, 271.—Greenland.
 STAEGER, Groenl. Antliater, 394 (*hyperborcus* var.).—Greenland.
 ZETTERSTEDT, Ins. Lapp., 809 (*annularis*, the Greenland specimens); Dipt. Scand., IX, 3487 (*hyperborcus*).—Greenland.
- stercorarius** DEGEER, see *Orthocladius*.
- stigmaterus** SAY, Jour. Acad. Sci. Phil., III, 15; Compl. Works, II, 42.—U. S.
 WIEDEMANN, Auss. Zw., I, 15 (name changed unnecessarily to *glaucuruse*).
 Atlantic States—O. S.
- sylvestris** FABRICIUS, see *Cricotopus*.
- tæniapennis** COQUILLET, Proc. U. S. N. M., XXIII, 607.—Mass and N. J.
 Province of Quebec—Fyles.
- tæniotus** SAY, Jour. Acad. Sci. Phil., VI, 149; Compl. Works, II, 349.—Ind.
- tendens** FABRICIUS, Ent. Syst., IV, 243 (*Tipula*); Syst. Antl., 39.—Europe.
 MEIGEN, Classification, I, 33 (*Ceratopogon*); Syst. Besch., I, 34.
 ZETTERSTEDT, Dipt. Scand., IX, 3525.
 SCHINER, Fauna Austr., II, 605.
 N. J.—Smith Cat.; Montreal—Chagnon.
- tentans** FABRICIUS, Syst. Antl., 38.—Europe.
 SCHINER, Fauna Austr., II, 603.
 Identified from S. D., Ida. and Utah—Johannsen in litt.
- tenuis** MEIGEN, see *Tanytarsus*.
- tremulus** LINNÉ, see *Cricotopus*.
- trichomerus** WALKER, List, I, 21.—Martin Falls, Canada.
- tricinctus** MEIGEN, see *Cricotopus*.
- unicolor** WALKER, List, I, 19.—Nova Scotia.
- ursinus** HOLMGREN, see *Mctriocnemus*.
- variabilis** STAEGER, see *Orthocladius*.
- varipennis** COQUILLET, Proc. U. S. N. M., XXV, 94.—Las Vegas Hot Springs, N. M.
- velutinus** LUNDBECK, see *Camptocladius*.
- viridis** MACQUART, Hist. Nat. Dipt., I, 52.—Europe.
 STAEGER, Dipt. Dan., 565.
 ZETTERSTEDT, Ins. Lapp., 814 (*vulvcratus*); Dipt. Scand., IX, 3531.
 SCHINER, Fauna Austr., II, 605.
 White Mts., N. H.—Slosson; Charlotte Harbor, Fla.—Johnson.

TELMATOGETON.

- SCHINER, Novara, 25, 1868, pl. II, f. 1.
alaskensis COQUILLET, Proc. Wash. Acad. Sci., II, 395.—Yakutat, Alaska.
 Newport, Ore.—J. M. A.

ORTHOCLADIUS.

- VAN DER WULP, Tijdschr. v. Ent., XVII, 132, 1874.
atomarius ZETTERSTEDT, Dipt. Scand., IX, 3500 (*Chironomus*).—Europe.

- SCHINER, Fauna Austr., II, 609 (*id.*).
 LUNDBECK, Dipt. Groenl., I, 283, oc. in Greenland (*id.*).
- barbicornis** LINNÉ, Syst. Nat., 12th ed., II, 974 (*Tipula*).—Europe.
 SCHINER, Fauna Austr., II, 612 (*Chironomus*).
 Identified from U. S.—Johannsen in litt.
- claripennis** LUNDBECK, Dipt. Groenl., I, 281 (*Chironomus*).—Greenland.
- clepsydra** COQUILLET, Proc. U. S. N. M., XXV, 92.—Las Vegas Hot Springs, N. M.
- debilis** WILLISTON, Trans. Ent. Soc. Lond., 1896, pl. IX, f. 34.—St. Vincent, W. I.
- difficilis** LUNDBECK, Dipt. Groenl., I, 282 (*Chironomus*).—Greenland.
- frigidus** ZETTERSTEDT, of Staeger, see *pubitarsis*.
- minutus** ZETTERSTEDT, Dipt. Scand., IX, 3522 (*Chironomus*).—N. Europe.
 LUNDBECK, Dipt. Groenl., I, 281, oc. in Greenland (*id.*).
- nivoriundus** FITCH, see *Diamasa waltlii*.
- par** COQUILLET, Proc. U. S. N. M., XXIII, 608.—Riverton, N. J.
 AXIOM, N. Y.—M. & H.
- platypus** COQUILLET, Proc. U. S. N. M., XXV, 95.—Flagstaff, Ariz.
- politus** COQUILLET, Proc. U. S. N. M., XXV, 93.—D. C.
- pubitarsis** ZETTERSTEDT, Ins. Lapp., 811; Dipt. Scand., IX, 3514 (*Chironomus*).—N. Europe.
 STAEGER, Groenl. Antl., 351 (*Chironomus frigidus* ZETT.).—Greenland.
 LUNDBECK, Dipt. Groenl., I, 280, oc. in Greenland; correction of Staeger, etc. (*Chironomus*).
Note.—Holmgren also recognized a *Ch. frigidus* from Greenland, which I presume belongs here.
- stercorarius** DEGEER, Mém. pour Serv. Hist. Nat. Ins., VI, 388, pl. XXII and XXIII (*Tipula*).—N. Europe; larva and pupa also included.
 MEIGEN, Syst. Besch., I, 46 (*Chironomus*).
 STAEGER, Dipt. Dan., 578 (*id.*).
 ZETTERSTEDT, Ins. Lapp., 815; Dipt. Scand., IX, 3571 (*id.*).
 SCHINER, Fauna Austr., II, 612 (*id.*).
 HOLMGREN, Ins. Nordgroenl., 105, oc. in Greenland (*id.*).
 LUNDBECK, Dipt. Groenl., I, 277, oc. in Greenland (*id.*).
- variabilis** STAEGER, Dipt. Dan., 571 (*Chironomus*); Groenl. Antl., 351, oc. in Greenland (*id.*).—Denmark.
 ZETTERSTEDT, Dipt. Scand., IX, 3519 (*id.*).
 White Mts., N. H.—Slosson.

CAMPTOCLADIUS.

- VAN DER WULP, Tijdschr. v. Ent., XVII, 133, 1874.
- byssinus** SCHRANK, Fauna Boica, III, 2330 (*Tipula*).—Europe.
 MEIGEN, Syst. Besch., I, 46 (*Chironomus*).
 STAEGER, Dipt. Dan., 578; Groenl. Antl., 352 (*id.*).—Europe and Greenland.
 ZETTERSTEDT, Ins. Lapp., 815; Dipt. Scand., IX, 3572 (*id.*).
 SCHINER, Fauna Austr., II, 612 (*id.*).
 LUNDBECK, Dipt. Groenl., I, 273, oc. in Greenland (*id.*).
 HOWARD, Canad. Ent., XXXIII, 43, reared from cowdung.—Va. N. J.—Smith Cat.
- extremus** HOLMGREN, Kongl. Vet. Akad., 1869, 40 (*Chironomus*).—Europe.
 LUNDBECK, Dipt. Groenl., I, 176, oc. in Greenland (*id.*).
- graminicola** LUNDBECK, Dipt. Groenl., I, 278 (*Chironomus*).—Greenland.

- minimus** MEIGEN, Syst. Besch., 1, 47 (*Chironomus*).—Europe.
 ZETTERSTEDT, Dipt. Scand., IX, 3573 (id.).
 SCHINER, Fauna Austr., II, 612 (id.).
 HOWARD, Canad. Ent., XXXIII, 43, bred from cowdung.—Va. N. J.—Smith Cat.
- parvus** LUNDBECK, Dipt. Groenl., Dipt., 1, 275 (*Chironomus*).—Greenland.
- pumilio** HOLMGREN, Ins. Spetsb., 41; Ins. Nordgroenl., 105 (*Chironomus*).—Spitzbergen; Greenland.
 LUNDBECK, Dipt. Groenl., 1, 276, oc. in Greenland (id.).
- velutinus** LUNDBECK, Dipt. Groenl., 1, 274 (*Chironomus*).—Greenland.

METRIOCNEMUS.

- VAN DER WULP, Tijdschr. v. Ent., XVII, 136, 1874.
- atratus** ZETTERSTEDT, Dipt. Scand., IX, 3590 (*Chironomus*).—N. Europe.
 SCHINER, Fauna Austr., II, 608 (id.).
 LUNDBECK, Dipt. Groenl., 1, 285, oc. in Greenland (id.).
- debilipennis** LUNDBECK, Dipt. Groenl., 1, 286 (*Chironomus*).—Greenland.
- fuscipes** MEIGEN, Syst. Besch., 1, 49 (*Chironomus*); 52 (*Chir. picipes*).—Europe.
 ZETTERSTEDT, Dipt. Scand., IX, 3578 (*Ch. fuscipes*).
 SCHINER, Fauna Austr., II, 607 (id.).
 LUNDBECK, Dipt. Groenl., 1, 284, oc. in Greenland (id.).
- incomptus** ZETTERSTEDT, Ins. Lapp., 816 (*Chironomus*); Dipt. Scand., IX, 3586 (id.).—N. Europe.
 SCHINER, Fauna Austr., II, 607 (id.).
 LUNDBECK, Dipt. Groenl., 1, 285, oc. in Greenland.
- ursinus** HOLMGREN, Kongl. vet. Akad., 1869, 39 (*Chironomus*).—Europe.
 STAEGER, Groenl. Antl., 353 (*aterrimus* MEIG.), oc. in Greenland.
 LUNDBECK, Dipt. Groenl., 1, 284, oc. in Greenland, and cor. of Staeger.
Note.—Whether the *aterrimus* of Mrs. Slosson's List, from the White Mts., is the same, I am unable to state.

CRICOTOPUS.

- VAN DER WULP, Tijdsch. v. Ent., XVII, 132, 1874.
- geminatus** SAY, Jour. Acad. Sci. Phil., III, 14; Compl. Works, II, 42 (*Chironomus*).—Pa.
 N. J.—Smith Cat.; gen. ref. by Coquillett.
- sylvestris** FABRICIUS, Ent. Syst., IV, 252 (*Tipula*); Syst. Antl., 47 (*Chironomus*).—Europe.
 SCHINER, Fauna Austr., II, 611 (id.).
 Smith Cat., oc. in N. J., where the larvæ injure leaves of *Victoria regia*.
 JOHNSON, Ent. News, XII, 30, note on same case.
 PETTIT, Mich. Acad. Sci., 1900, 110, mentions a "*Chironomus* sp." devouring leaves of water lily (*Nymphaea odorata* and *advena*) at Lansing, Mich., and gives plate; it may be this species.
- tremulus** LINNÉ, Fauna Suecica, 1762 (*Tipula*).—Europe.
 MEIGEN, Syst. Besch., 1, 45 (*Chironomus*).
 ZETTERSTEDT, Dipt. Scand., IX, 3562 (id.).
 SCHINER, Fauna Austr., II, 611 (id.).
 N. J.—Smith Cat.; gen. ref. by Coquillett.
- tricinctus** MEIGEN, Syst. Besch., 1, 41 (*Chironomus*).—Europe.
 MACQUART, Hist. Nat. Dipt., 1, 56 (id.).
 STAEGER, Dipt. Dan., 576 (id.).

ZETTERSTEDT, Dipt. Scand., IX, 3555 (id.).

SCHINER, Fauna Austr., II, 610 (id.).

OSTEN SACKEN, Cat., 21, oc. in N. A., on authority of Loew.

White Mts., N. H.—Slosson.

varipes COQUILLET, Proc. U. S. N. M., XXV, 93.—Great Falls, Md.

TANYTARSUS.

VAN DER WULP, Tijdschr. v. Ent., XVII, 134, 1874.

junci MEIGEN, Syst. Besch., I, 50 (*Chironomus*).—Europe.

SCHINER, Fauna Austr., II, 597 (*cernus*). [Lundbeck.]

LUNDBECK, Dipt. Groenl., I, 283, oc. in Greenland (*Chironomus*).

tenuis MEIGEN, Syst. Besch., VI, 255 (*Chironomus*).—Europe.

STAEGER, Dipt. Dan., 581, 1840 (id.).

ZETTERSTEDT, Dipt. Scand., IX, 3581 (id.).

SCHINER, Fauna Austr., II, 598 (id.).

LUNDBECK, Dipt. Groenl., I, 284, oc. in Greenland (id.).

EURYCNEMUS.

VAN DER WULP, Tijdschr. v. Ent., XVII, 135, 1874.

scitulus COQUILLET, Proc. U. S. N. M., XXIII, 608.—Riverton, N. J.

DIAMESA.

MEIGEN, Syst. Besch., VII, 12, 1830.

ZETTERSTEDT, Dipt. Scand., IX, 3591, 1850.

SCHINER, Fauna Austr., II, 615, 1864.

JOHANNSEN, Bull. 68, N. Y. State Mus., 439, 1903.

aberrata LUNDBECK, Dipt. Groenl., I, 289.—Greenland.

STAEGER, Groenl. Antliater, oc. in Greenland (*waltlii* MEIGEN). [Ldbk.]

chorea LUNDBECK, Dipt. Groenl., I, 291.—Greenland.

waltlii MEIGEN, Syst. Besch., VII, 13.—Europe.

FITCH, Winter Insects of New York, in Amer. Quart. Jour. Agr. and Sci., v, 1846, 282 (*Chironomus nivoriundus*); reprinted in Lintner's Second N. Y. Rept., 242.—New York.

SCHINER, Fauna Austr., II, 615.

JOHANNSEN, Bull. 68, N. Y. State Mus., 439, pl. XLVIII, f. 9-13, larva, pupa and adult; syn.—New York.

Note.—The *Orthocladius nivoriundus* FITCH of Mrs. Slosson's White Mountain list is probably a different species; the one from New Jersey in the Smith Catalogue certainly is, according to JOHANNSEN.

For the *Diamesa waltlii* of Staeger, see *aberrata*.

THALASSOMYIA.

SCHINER, Verh. Zool.-Bot. Verein, VI, 216, 1856.

JOHANNSEN, Bull. 68, N. Y. State Mus., 436, 1903.

obscura JOHANNSEN, loc. cit., pl. I, f. 1-15, larva, pupa and adult.—Adirondacks, N. Y.

TANYPUS.

MEIGEN, Illig. Mag., II, 261, 1803; Syst. Besch., I, 55, 1818.

ZETTERSTEDT, Dipt. Scand., IX, 3592, 1850.

SCHINER, Fauna Austr., II, 615, 1864.

algens COQUILLET, Proc. U. S. N. M., XXV, 90.—Popof Id., Alaska.

- annulatus** SAY, see *Monilis*.
- baltimoreus** MACQUART, Dipt. Exot., Suppl., v, 15.—Baltimore.
N. J.—Smith Cat.
- barberi** COQUILLET, Proc. U. S. N. M., xxv, 90.—Las Vegas Hot Springs, N. M.
- bellus** LOEW, Cent., vii, 4.—D. C.
- bifasciatus** COQUILLET, Proc. U. S. N. M., xxiii, 609.—Riverton, N. J.; Boston, Mass.
- choreus** MEIGEN, Klassif., i, 23; loc. cit., 21 and 24 (*fasciatus* and *sylvaticus*) [SCHINER]; Syst. Besch., i, 62.—Europe.
STAEGER, Dipt. Dan., 585.
ZETTERSTEDT, Dipt. Scand., ix, 3009.
SCHINER, Fauna Austr., ii, 617.
LOEW, Silliman's Jour., oc. in N. A.
- concinnus** COQUILLET, Proc. Acad. Nat. Sci., 1895, 308.—Fla.
White Mts., N. H.—Slosson.
- crassinervis** ZETTERSTEDT, Ins. Lapp., 817; Dipt. Scand., ix, 3599.—Europe.
STAEGER, Groenl. Antl., 354, oc. in Greenland.
LUNDBECK, Dipt. Groenl., i, 204, oc.
- decedens** WALKER, List, i, 22.—Martin Falls, Canada.
White Mts., N. H.—Slosson; this is very doubtful, as Walker's desc. seems unrecognizable.
- discolor** COQUILLET, Proc. U. S. N. M., xxv, 89.—Franconia, N. H.
- dyari** COQUILLET, Ent. News, xiii, 85.—D. C.; Bellport, Long Id.; Cambridge, Mass.; and Detroit, Mich.
- flaveolus** WILLISTON, Dipt. St. Vincent, 275.—St. Vincent, W. I.
- flavicinctus** LOEW, Cent., i, 2.—Pa.
- futilis** VAN DER WULP, Tijdschr. v. Ent., x, 130.—Wis.
- guttularis** COQUILLET, Proc. U. S. N. M., xxv, 92.—Pullman, Wash.
- hirtipennis** LOEW, Cent., vii, 6.—Me.
Province of Quebec—Fyles.
- humeralis** LOEW, Cent., vii, 2.—Cuba.
- indecisus** WILLISTON, Dipt. St. Vincent, 276, pl. ix, f. 35.—St. Vincent, W. I.
- johsoni** COQUILLET, xxiii, 609.—Riverton, N. J.
- melanops** MEIGEN, Syst. Besch., i, 65.—Europe.
ZETTERSTEDT, Dipt. Scand., ix, 3621. SCHINER, Fauna Austr., ii, 621.
N. J.—Smith Cat.
- monilis** LINNÉ, Fauna Suec., 1763 (*Tipula*).—Europe.
DEGEER, Ins., vi, 394, pl. xxiv, f. 15-19 (*Tipula maculata*).
FABRICIUS, Syst. Antl., 44 (*Chironomus*).
MEIGEN, Syst. Besch., i, 60.
SAY, Jour. Acad. Sci. Phil., iii, 15; Compl. Works, ii, 43 (*annulatus*).—Pa. [Johannsen in litt.]
STAEGER, Dipt. Dan., 584.
ZETTERSTEDT, Dipt. Scand., ix, 3613.
VAN DER WULP, Tijdschr. v. Ent., x, 126, oc. in U. S.—Wis.
OSTEN SACKEN, Cat., 22, doubts occurrence, or else *annulatus* SAY is the same.
MEINERT, Die Eucephale Myggelarver 447, pl. iv, f. 101, transformations.—Europe.
N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- occidentalis** COQUILLET, Proc. U. S. N. M., xxv, 92.—Col.
- pallens** COQUILLET, Proc. U. S. N. M., xxv, 91.—Las Vegas Hot Springs, N. M.
- pticipennis** ZETTERSTEDT, Ins. Lapp., 818.

- STAEGER, Groenl. Antliater, oc. in Greenland.
 LUNDBECK, Dipt. Groenl., 1, 293, oc. in Greenland.
pilosellus LOEW, Cent., vi, 7.—D. C.
 N. J.—Smith Cat.
pinguis LOEW, Cent., i, 1.—N. Y.
posticalis LUNDBECK, Dipt. Groenl., 1, 295.—Greenland.
pulchripennis LUNDBECK, Dipt. Groenl., 1, 293.—Greenland.
pusillus LOEW, Cent., vii, 5.—D. C.
scapularis LOEW, Cent., vii, 1.—D. C. N. J.—Smith Cat.; Tick Id., Fla.—Johnson.
stellatus COQUILLET, Proc. U. S. N. M., xxv, 89.—Texas.
thoracicus LOEW, Cent., vii, 3.—D. C.
 N. J.—Smith Cat.; Tick Id., Fla.—Johnson.
tibialis SAY, Jour. Acad. Sci. Phil., 1823, III, 15; Compl. Works, II, 43.—Pa.
 WIEDEMANN, AUSS. ZW., I, 20.
tibialis STAEGER, Groenl. Antl., 1845, 354.—Greenland.
 LUNDBECK, Dipt. Groenl., 1, 294.—Greenland.
tricolor LOEW, Cent., i, 3.—N. Y.
turpis ZETTERSTEDT, see *riparius*; Mrs. Slosson's White Mts. list contains this name.
venustus COQUILLET, Proc. U. S. N. M., xxv, 91.—Las Vegas Hot Springs, N. M.

EUTANYPUS.

- COQUILLET, Dipt. of Commander Ids., 341, 1899.
borealis COQUILLET, loc. cit.—Bering Id.; Proc. Wash. Acad. Sci., II, 396, oc. in Alaska, N. M. and N. H.

CHASMATONOTUS.

- LOEW, Cent., v, 1, 1864.
bimaculatus OSTEN SACKEN, West. Dipt., 191.—N. Y. Canada.
unimaculatus LOEW, Cent., v, 1.—White Mts., N. H.
univittatus COQUILLET, Proc. Wash. Acad. Sci., II, 395.—Sitka, Alaska.

OECACTA.

- POEY, Memorias, etc., I, 1851.
furens POEY, loc. cit., 236, pl. xxvii.—Cuba.
 TOWNSEND, Jour. Inst. Jamaica, 1, 381, oc. in Jamaica; Annals and Mag. Nat. Hist., XIX, 17, oc. in Mexico, on the gulf coast.

ERETMOPTERA.

- KELLOGG, Biol. Bull., 1, 82, 1900.
browni KELLOGG, loc. cit., figs.—Monterey, Cal.
Note.—The family name Eretmopteridae was proposed for this species by Professor Kellogg, but he has since informed me that the larval stages are essentially the same as in Chironomidae, a family which already includes at least one genus with rudimentary wings; and I have his sanction in placing the species here.

CULICIDÆ.

The discovery that mosquitoes convey malaria, yellow fever, filariasis, and possibly still other diseases, from one human being to another, deserves to rank with the greatest achievements of science. The immediate result, very naturally, has been an immense increase of interest in this family of Diptera, so that new

work is at present being published very rapidly. Theobald's Monograph, noticed below, gives a bibliography up to Feb., 1903, including early articles on the relation of mosquitoes to malaria. I enumerate a few important publications.

On Malaria, etc.

- Riley, Amer. Nat., xvii, 549, May, 1883, mentions the theory of Dr. A. Kink, Columbia University, that mosquitoes cause malaria.
 Nuttall, Dr. Geo. H., Johns Hopkins Hospital Reports, viii.
 Finlay, Chas. J., M.D., Psyche, July, 1899.
 Berkeley, Dr. W. N., N. Y. Medical Record, Dec. 23, 1899.
 Woldert, Dr. Albert, Jour. Amer. Medical Assn., Feb. 10, 1900.
 Bums, Dr. Wm. B., Memphis Medical Monthly, March, 1900.
 Ross, Major Ronald, Nature, March 29, 1900.
 Manson, Dr. Patrick, Popular Science Monthly, July, 1900.
 Celli, "Malaria According to the New Researches," trans. by Eyre. Longmans, Green and Co. London, 1900.
 Howard, "Mosquitoes." McClure, Phillips & Co. New York, 1901.
 Howard, Yearbook of Dept. of Agriculture, 1901, 177-192: Farmers' Bulletin 155, Dept. of Agriculture.

On Classification.

- F. Lynch Arribalzaga, Revista Mus. de la Plata, I, 345-417, 4 pl., 1891; the Argentine species.
 Ficalbi, Bull. Soc. Ent. Ital., 1892-1896, a series of articles revising the European species; he published another general work in vol. xxxi, 1899.
 Lintner, 12th N. Y. Rept., 319-335, 1897, popular account.
 Coquillett, Circular No. 40, n. ser., Div. of Ent.—a brief synopsis of the species known in the United States; published in a second edition, with a slight addition; also published in Bull. 25, n. ser., Div. of Ent.
 Herrick, Bull. 74, Miss. Ex. Sta.
 Garman, Bull. 96, Ky. Ex. Sta.
 Luggar, 2d Rept. Ent. Minn., 182-195, with good figs.
 Giles, Handb. of Gnats. John Bale Sons and Danielsson, Limited. London, 1900.

A second edition, entirely rewritten, was published in 1902; in its new form, the systematic part is mainly an abridgement of the following.

- Theobald, A Monograph of the Culicidæ. Printed by the British Museum, 1901-3.
 Three volumes, with many figures and maps, and a fourth volume of plates, mostly colored. Contains a vast amount of information on distribution, habits in larval and mature stages, etc. The systematic part is based on the collections in the British Museum.
 Johannsen, Bull. 68, N. Y. State Mus., 388-429, 1903, tables of genera of larvæ, pupæ and adults, etc.

On Larvæ.

- Dyar, Proc. Ent. Soc. Wash., v, 51 and 145, 1902 and 1903, analytical tables of the known larvæ from the United States.
 Kellogg, Ent. News, x, 102, length of larval period.
 Smith, Ent. News, xiii, 198, notes on hibernating stage in various species.
 Morgan and Dupree, Bull. 40, n. ser., Div. of Ent., 88, notes on hibernation and development of several species.

See also recent smaller papers by Coquillett, Smith and Dyar, as mentioned under the various species.

Note.—The nomenclature adopted is generally that of Theobald.

ANOPHELES.

MEIGEN, Syst. Besch., I, 10, 1818.

DESVOIDY, Mem. Soc. Hist. Nat. Paris, III, 410, 1827.

MACQUART, Hist. Nat. Dipt., I, 32, 1834.

ZETTERSTEDT, Dipt. Scand., IX, 3466, 1850.

SCHINER, Fauna Austr., II, 624, 1864.

MEINERT, De Eucephale Myggetarver, 302, 1886, on literature of transformations.

COQUILLET, Circ. No. 40, Div. of Ent., 4, table of species; Bull. 25, Div. of Ent., 21, same.

THEOBALD, Monogr. of Culicidæ, I, 115, 1901; III, 11, 1903, the latter in the restricted sense.

JOHANNSEN, Bull. 68, N. Y. St. Mus., 405, 1903.

albimanus WIEDEMANN, Auss. Zweifl., II, 13.—Hayti or San Domingo.

ROEDER, Stett. Ent. Zeit., 1885, 338, oc. in Porto Rico.

THEOBALD, Monogr. of Culicidæ, I, 122, note, not seen.

GILES, Handb. of Gnats, 2d ed., 294.

COQUILLET, Bull. 25, 21, note.

annulimanus VAN DER WULP, Tijdschr. v. Ent., x, 129, pl. III, f. 2.—Wis.

COQUILLET, Bull. 25, 21, suspects that this is the male of *Culex consobrinus*.

THEOBALD, Monogr. of Culicidæ, I, 213, quotes desc.; probably distinct.

GILES, Handb. of Gnats, 2d ed., 325.

JOHANNSEN, Bull. 68, N. Y. State Mus., 388-429, 1903, tables of genera of larva, pupa and adult, with much other matter of value.

argyrotarsis DESVOIDY, see *Cellia*.

barberi COQUILLET, Canad. Ent., XXXV, 310.—Plummer's Id., Md.

crucians WIEDEMANN, Auss. Zweifl., I, 12, 1828.—Pa. and New Orleans; supposed to have been a redescription of Say's type of *punctipennis*, with the name arbitrarily changed, but both Coquillett and Theobald consider it a distinct species.

COQUILLET, Circ. No. 40, Div. of Ent., 4.

THEOBALD, Monogr. of Culicidæ, I, 204, pl. v, f. 23.—U. S.

GILES, Handb. of Gnats, 2d ed., 324.

DYAR, Proc. Ent. Soc. Wash., v, 46, oc. at Bellpart, Long Id.

HOWARD, "Mosquitoes," 113, note.—D. C., Va., Ga., La.

cubensis AGRAMONTE, see *Cellia albipes*.

eiseni COQUILLET, Jour. N. Y. Ent. Soc., x, 192.—Aguna in Guatemala.

hyemalis FITCH (*Culex*), see *punctipennis*.

ferruginosus WIEDEMANN, see *walkeri*.

grabhamii THEOBALD, see *Cyclolepteron*.

maculipennis MEIGEN, Syst. Besch., I, 11, pl. I, f. 17, 1818.—Europe.

? MEIGEN, Klassif. Dipt., I, 5 (*Culex bifurcatus* LINN.).

SAY, Long's Exped., App., 356, 1824 (*quadrifasciatus*); Compl. Works, I, 241 (id.).—N. W. Terr.

WIEDEMANN, Auss. Zweifl., I, 13 (*quadrifasciatus*).

HALIDAY, Entom. Mag., I, 148.

MACQUART, Hist. Nat. Dipt., I, 32.

LOEW, Dipt. Beitr., I, 4 (*pictus* and *maculipennis*).

ZETTERSTEDT, Ins. Lapp., 808; Dipt. Scand., IX, 3468.

SCHINER, Fauna Austr., II, 625.

LOEW, in Silliman's Jour., XXXVII, 317, oc. in N. A.

MEINERT, Eucephale Myggetarver, 303, pl. I, f. 20-31, larval stages.—Europe.

- HOWARD, Bull. 25, 32-41, full biology, figs., etc. (*quadrimaculatus*).—N. H. to Fla. and Tex.
- LUGGER, 2d Rept. Ent. Minn., 1896, 195, note and excellent fig. (*quadrimaculatus*).—Minn.
- HOWARD, Bull. 25, syn. of *maculipennis*, on authority of Theobald.
- FICALBI, Bull. Soc. Ent. Ital., 1896, 228 and 1899, 90 (*claviger* FABR.).
- GRASSI, Reale Acad. d. Lincei, S. d. u. Zool. sulla Malaria, 77.
- OSTEN SACKEN, Ent. Mo. Mag., 2d ser., XI, 281, shows invalidity of *claviger* FABR.
- THEOBALD, Monogr. of Culicidæ, I, 191, pl. v, f. 17, full discussion; the principal agent in conveying malaria in Italy.—Europe and N. A. Ontario to New Orleans and west to Idaho.
- GILES, Handb. of Gnats, 2d ed., 327.
- HOWARD, "Mosquitoes," 93-108, life history.
- GARMAN, Bull. 96, Ky. Ex. Sta., 205, brief desc.—Ky.
- DYAR, Proc. Ent. Soc. Wash., v, 46 and 141, notes on larvæ.—Long Id. and N. H.
- JOHANNSEN, Bull. 68, N. Y. St. Mus., 409.
- nigripes** STAEGER, Krøyer's Tidskr., II, 552, 1839.—Europe.
- ? HALIDAY, Zool. Jour., XII (*plumbicus*).
- ZETTERSTEDT, Dipt. Scand., IX, 3467.
- LOEW, Dipt. Beitr., I, 4.
- SCHINER, Fauna Austr., II, 625.
- LOEW, in Silliman's Jour., XXXVII, oc. in N. A.
- MEINERT, Encephale Myggelarver, 395, pl. I, f. 32-35, larval stages.—Europe.
- THEOBALD, Monogr. of Culicidæ, I, 201, pl. VI, f. 21.—Europe and N. A.
- GILES, Handb. of Gnats, 2d ed., 330.
- COQUILLET, Bull. 25, 21, note.
- pseudopunctipennis** THEOBALD, Monogr. of Culicidæ, II, 305.—Grenada, W. I.
- GILES, Handb. of Gnats, 2d ed., 323.
- punctipennis** SAY, Jour. Acad. Sci. Phil., III, 9; Compl. Works, II, 39 (*Culex*).—U. S.
- FITCH, Amer. Quart. Jour. Agr. and Sci., v, 274-284, May, 1847 (*Culex hycmalis*).—New York. This is reprinted in Lintner's 2d N. Y. Rept., 24r.
- THEOBALD, Monogr. of Culicidæ, I, 189, pl. VI, f. 24 and pl. XXXVII, f. 145.—Lake Simcoe, Ont.
- GILES, Handb. of Gnats, 2d ed., 323, pl. X, f. 6.—N. A.
- DYAR, Proc. Ent. Soc. Wash., v, 46 and 140, notes on larvæ, etc.—N. H.
- GARMAN, Bull. 96, Ky. Ex. Sta., 204, fig.—Ky.
- HERRICK, Bull. 74, Miss. Ex. 11-17, figs.; life hist. in Miss.
- HOWARD, "Mosquitoes," 113, note; Farmers' Bull. 155, Dept. Agr., figs.
- JOHANNSEN, Bull. 68, N. Y. St. Mus., 406, pl. XLII.—N. Y.
- quinquefasciatus** SAY, Jour. Acad. Sci. Phil., III, 10; Compl. Works, II, 39 (*Culex*).—Miss. R.
- WIEDEMANN, Anss. Zweifl., I, 12, redesc. as *Au. ferruginosus*.—New Orleans.
- COQUILLET, Bull. 25, 21, notes.
- THEOBALD, Mon. of Culicidæ, I, 199, perhaps *walkeri* is the same.
- N. J.—Smith Cat.
- walkeri** THEOBALD, Monogr. of Culicidæ, I, 199, pl. v, f. 20.—Lake Simcoe, Ont.
- GILES, Handb. of Gnats, 2d ed., 329.
- See *quinquefasciatus*.

CYCLOLEPTERON.

THEOBALD, Monogr. of Culicidæ, II, 312, 1901; III, 12, 1903.

GILES, Handb. of Gnats, 2d ed., 331, 1902.

grabhamii THEOBALD, Monogr. of Culicidæ, I, 205 (*Anopheles*); II, 312, gen. ref. and larva.—Jamaica.

GILES, Handb. of Gnats, 2d ed., 332.

ARRIBALZAGIA.

THEOBALD, Monogr. of Culicidæ, III, 13 and 81, 1903.

maculipes THEOBALD, Monogr. of Culicidæ, III, 81, pl. v. and figs.—Brazil and Trinidad, W. I.

CELLIA.

THEOBALD, Jour. Trop. Med., v, 181, 1902; Monogr. of Culicidæ, III, 14 and 107, 1903.

argyrotarsis DESVOIDY, Mém. Soc. Hist. Nat. Paris, III, 411 (*Anopheles*).—Brazil. F. LYNCH ARRIBALZAGA, Revista d. Mus. de la Plata, I, 378, pl. IV, f. 2 (*Anopheles albiparsis*).—Argentina.

THEOBALD, Monogr. of Culicidæ, I, 123, pl. I, f. 1 (*Anopheles*); III, 110, gen. ref., etc.—Jamaica, St. Lucia, Antigua, Grenada, Brit. Guiana; St. Vincent.

GILES, Handb. of Gnats, 2d ed., 295 (*Anopheles*).

albipes THEOBALD, Monogr. of Culicidæ, I, 125, pl. I, f. 3 (*Anopheles argyrotarsis*, subsp. *albipes*); III, pl. VII, oc. in Lesser Antilles, habits, etc.—Jamaica, Br. Guiana.

GILES, Handb. Gnats, 2d ed., 300 (*Anopheles albipes*).

AGRAMONTE, El Progreso Medico, x, 460, Dec. 1900 (*Anopheles cubensis*).—Cuba [Giles].

MEGARHINUS.

DESVOIDY, Mém. Soc. Nat. Hist. Paris, III, 412, 1827.

MACQUART, Dipt. Exot., I, 1, 1838.

THEOBALD, Monogr. of Culicidæ, I, 215, 218, and II, 351, 1901; table of species, remarks on larvæ, etc.

GILES, Handb. of Gnats, 2d ed., 265, 267, table of species, 1902.

ferox WIEDEMANN, Auss. Zweifl., I, 1.—Brazil.

WALKER, List, I, 1, oc. in Ga.

COQUILLET, Bull. 25, oc. in D. C.

THEOBALD, I, 237, says Walker's species was *portoricensis*.

grandiosus WILLISTON, Biologia, Dipt., I, 224.—Guerrero, Mex.

THEOBALD, Monogr. of Culicidæ, III, 113, quotes desc.

hæmorrhoidalis FABRICIUS, Ent. Syst., IV, 401 (*Culex*); Syst. Antl., 35 (id.).—S. A., Cayenne.

WIEDEMANN, Auss. Zweifl., I, 2; Dipt. Exot., I, 6 (*Culex*).

MACQUART, Dipt. Exot., I, 1, 32.

OSTEN SACKEN, Cat., oc. in Cuba.

WILLISTON, Biologia, Dipt., I, 224, oc. in Vera Cruz, Mex.

THEOBALD, Monogr. of Culicidæ, I, 222; III, 114.—Mex.; Guiana.

longipes THEOBALD, Monogr. of Culicidæ, I, 241, pl. IX, f. 34.—Mex.

GILES, Handb. of Gnats, 2d ed., 277.

portoricensis ROEDER, Stett. Ent. Zeit., 1885, 337.—Porto Rico.

WALKER, List, I, 1, oc. in Ga. (*ferox* Wd.). [Theobald.]

WILLISTON, Trans. Ent. Soc. Lond., 1866, 271, oc. in St. Vincent.

- THEOBALD, Monogr. of Culicidæ, I, 232, pl. VIII, f. 32; III, 119, notes.—San Domingo, Grenada, Para.
 GILES, Handb. of Gnats, 2d ed., 275.
 HOWARD, Bull. 25, 47, oc. at Benoit, Miss.
rutilus COQUILLET, see *Toxorhynchites*.

TOXORHYCHITES.

- THEOBALD, Monogr. of Culicidæ, I, 244, 1901.
rutilus COQUILLET, Canad. Ent., 1896, 43 (*Megarhinus*).—N. C., Ga., Fla.
 HOWARD, Bull. 25, n. ser., Div. Ent., 46, f. 21 (id.); "Mosquitoes," 154, fig.
 THEOBALD, Monogr. of Culicidæ, I, 244, quotes orig. desc. with note (*Megarhinus*); III, 124, gen. ref. by Coquillett.
 GILES, Handb. of Gnats, 2d ed., 275, quotes orig. desc.

JANTHINOSOMA.

- F. LYNCH ARRIBALZAGA, Revista d. Mus. de la Plata, I, 394, 1891.
 THEOBALD, Monogr. of Culicidæ, I, 253, 1901, modified.
 GILES, Handb. of Gnats, 2d ed., 337, 1902; table of species, 338.
 COQUILLET, in Howard's "Mosquitoes," 234 (*Conchyliastes* THEOB., which was a Ms. name).
discrucians WALKER, Dipt. Saund., 430 (*Culex*).—S. A.
 THEOBALD, Monogr. of Culicidæ, III, 126, figs.—Trinidad.
lutzi THEOBALD, Monogr. of Culicidæ, I, 257, pl. XII, f. 46; III, 128, oc.—Brazil, Trinidad.
 GILES, Handb. of Gnats, 2d ed., 340.
musica SAY, Johr. Acad. Sci. Phil., v, 149; Compl. Works, II, 348 (*Culex*).—Ind.
 ? BELLARDI, Saggio, I, 5 (*Culex mexicanus*).—Mexico.
 THEOBALD, Monogr. of Culicidæ, I, 255, pl. XI, f. 44; III, 124.—Brazil, Trinidad.
 GILES, Handb. of Gnats, 2d ed., 340.
 MORGAN, Bull. 37, n. ser., Div. of Ent., figs., habits (*Conchyliastes*).—La. Miss.—Herrick; Lansing, Mich.—Pettit.
posticata WIEDEMANN, Auss. Zweifl., I, 9, and Dipt. Exot., 43 (*Culex*).—Mex.
 THEOBALD, Monogr. of Culicidæ, I, 253, pl. XII, f. 45; III, 125, notes.—St. Lucia, W. I.
 GILES, Handb. of Gnats, 2d ed., 341.
 HOWARD, Bull. 25, 30, oc.—D. C., Va., Pa., Tex.

PSOROPHORA.

- DESVOIDY, Mém. Soc. Hist. Nat. Paris, III, 412, 1827.
 THEOBALD, Monogr. of Culicidæ, I, 259, 261, 45; II, 352,—table of species, larvæ, etc., 1901.
 GILES, Handb. of Gnats, 2d ed., 343, 1902.
 JOHANNSEN, Bull. 68, N. Y. St. Mus., 410, 1903.
ciliata FABRICIUS, Ent. Syst., IV, 401 (*Culex*); Syst. Antl., 38 (id.).—West Indies.
 WIEDEMANN, Dipt. Exot., 7 (*Culex molestus*); Auss. Zweifl., I, 3 (*Culex*).
 ? WIEDEMANN, Dipt. Exot., I, 7. Query by Theobald.
 DESVOIDY, Mém. Soc. Hist. Nat. Paris, III, 413 (*boscii* and *ciliata*).
 MACQUART, Dipt. Exot., Suppl., IV, II, pl. I, f. I.
 WALKER, Dipt. Saund., 427 and 431 (*Culex conterrens* and *perterrens*).—U. S. and S. A.

- F. LYNCH ARRIBALZAGA, Revista d. Museo de la Plata, I, 382, pl. IV, f. 3.—Argentina.
- HOWARD, Canad. Ent., XXXII, 353, larva and pupa desc. and fig.; "Mosquitoes," 144-152, figs., life hist., etc.; Bull. 25, 45, fig., etc.—Mass. to Fla. and Cal.
- COQUILLET, Bull. 4, 23, oc.; Circ. 40, notes; Bull. 25, 22, notes.
- THEOBALD, Monogr. of Culicidæ, I, 261, pl. X, f. 37; III, 130, notes.
- GILES, Handb. of Gnats, 2d ed., 345.
- H. F. HARRIS, Ent. News, XIV, 232, eggs desc.
- GARMAN, Ky. Ex. Sta. Bull. 96, 215, oc. in Ky.
- JOHANNSEN, Bull. 68, N. Y. St. Mus., 411.
- N. J.—Smith Cat.; Fla.—Johnson; Miss.—Herrick.
- howardii** COQUILLET, Canad. Ent., XXXIII, 258. —Hartsville, S. C.
- THEOBALD, Monogr. of Culicidæ, III, 131, quotes desc.
- JOHANNSEN, Bull. 68, N. Y. State Mus., 410, no desc.
- scintillans** WALKER, List, I, 1 (*Sabethes*).—Para, S. A.
- THEOBALD, Monogr. of Culicidæ, I, 265, redesc.; III, 130, oc. in Trinidad.

STEGOMYIA.

- THEOBALD, Monogr. of Culicidæ, I, 283, 1901, table of species, etc.
- GILES, Handb. of Gnats, 2d ed., 368, 1902, table of species, etc.
- fasciata** FABRICIUS, Syst. Antl., 36 (*Culex*).—W. Indies.
- MEIGEN, Syst. Besch., I, 3 (*Culex calopus*).—Europe.
- WIEDEMANN, AUSS. Zweifl., I, 8, 10 (*Culex fasciata* and *teniopus*).—W. I. and Savannah, Ga.
- DESVOIDY, Mém. Soc. Hist. Nat. Paris, III, 408 (*Culex frater*).—W. I.
- MACQUART, Dipt. Exot., Suppl., I, 8 (*Culex annulitarsis*).—Isle de France.
- WALKER, List, I, 3, 4 (*Culex viridifrons, excitans, formosus, incxorabilis*).
No. loc.; Sierra Leone; Ga. Also Dipt. Saund., 430 (*C. agitans*) from Para and Jour. Linn. Soc., IV, 91 (*C. impatibilis*), and V, 229 (*C. zonatipes*).
- SKUSE, Proc. Linn. Soc. New South Wales, III, 1740 (*C. bancroftii*).—N. Australia.
- FICALBI, Bull. Soc. Ent. Ital., 1889 (*C. elegans*), and 1896, 251 (*C. elegans* and *calopus* MEIG.).—Italy.
- F. LYNCH ARRIBALZAGA, Revista d. Museo de la Plata, I, 402, pl. III, f. 1 (*C. mosquito* DESV.).—Argentina.
- GILES, Jour. Trop. Med., 1899, 64 (*C. rossii*).
- HOWARD, "Mosquitoes," 121-140, life hist. and account of its relation to yellow fever; Bull. 25, 30, oc. in Ga., La., Tex. and W. I.
- WALTER REED, surgeon, and JAS. CARROLL, A. AGRAMONTE, and JESSE W. LAZEAR, assistant surgeons, in Phil. Med. Jour., Oct., 1900, preliminary paper on etiology of yellow fever, tracing it to the bite of this mosquito. This paper is noticed in Science, n. ser., XII, 602, Nov. 2, 1900.
- THEOBALD, Monogr. of Culicidæ, I, 289, pl. XIII, f. 49, 50.—S. Europe, E. and W. Africa; India to Japan and Australia; S. U. S. to Argentina. The Yellow Fever Mosquito; also conveys filariasis.
- THEOBALD, Mon., III, 141, additional notes.
- GARMAN, Bull. 96, Ky. Ex. Sta., 210, fig., etc.—Ky.
- var. **mosquito** DESVOIDY, Mém. Soc. Hist. Nat. Paris, III, 407 (*Culex mosquito*).—Cuba.
- GUÉRIN et PERCHERON, Gen., &c. Dipt., pl. II, f. 1 (id.).

- THEOBALD, Monogr. of Culicidæ, I, 295, pl. XIII, f. 50 (var. of *fasciata*).—
St. Lucia, Jamaica, Calcutta.
- var. **lucianis** THEOBALD, Monogr. of Culicidæ, I, 297.—St. Lucia, W. I., and
Demerara.
- sexlineata** THEOBALD, Monogr. of Culicidæ, I, 308.—Trinidad, W. I.
GILES, Handb. of Gnats, 2d ed., 377.
- ? **signifer** COQUILLET, Canad. Ent., XXVIII, 43 (*Culex*).—D. C.
THEOBALD, Monogr. of Culicidæ, I, 322, gen. ref., with a doubt, and note.
GILES, Handb. of Gnats, 2d ed., 379, note.
- SMITH, Ent. News, XIII, 299, pl. XV, f. 1, larval structure.—N. J.
- DYAR, Jour. N. Y. Ent. Soc., XI, 26, pl. III, f. 2, larva (*Culex*).—N. J.
Va.—Howard.
- tarsalis** COQUILLET, see *Culex*.

THEOBALDIA.

- NEVEU-LEMAIRE, Compt. Rend. Séances Soc. Biol., 29 Nov., 1902.
- THEOBALD, Monogr. of Culicidæ, III, 148, 1903.
- annulata** SCHRANK, Beiträge zur Naturgesch., 97, 1776 (*Culex*); Ins. Austr.,
984 (id.).—Europe.
- FABRICIUS, Syst. Antl., 35 (id.).
- MEIGEN, Klassif. 2; Syst. Besch., I, 4 (id.).
- STEPHENS, Zool. Jour., I, 1825 (*Culex affinis*).
- STAEGER, Dipt. Dan., 1840, 554 (id.).
- ZETTERSTEDT, Ins. Lapp., 806; Dipt. Scand., IX, 3460 (id.).
- SCHINER, Fauna Austr., II, 626 (id.).
- OSTEN SACKEN, Cat., 18, oc. on Mackenzie R., Canada.
- MEINERT, Eucephale Myggelarver, 376, pl. I, f. 1-16, larval stages (*Culex*).
Europe.
- OSTEN SACKEN, Biologia, Dipt., I, 5, oc. in Mex. (*Culex*).
- THEOBALD, Monogr. of Culicidæ, I, 331, pl. XV, f. 58 (id.); III, 148, gen. ref.,
etc.
- GILES, Handb. of Gnats, 2d ed., 391, note.
- COQUILLET, Circ. No. 40; Bull. 25, 20, note.
- HOWARD, "Mosquitoes," 80, oc. Mass. to Nebr., N. M., Cal. to Br. Col.
(*Culex*).
- LUDLOW, Jour. N. Y. Ent. Soc., X, 131, oc. at Ft. Baker, Cal. (*Culex*).
- incidens** THOMSON, Eugen. Resa, 443 (*Culex*).—Cal.
- THEOBALD, Canad. Ent., XXXV, 311, notes.—Pecos, N. M. Also Monogr.,
III, 151, pl. X and figs.—Moscow, Idaho; Corvallis, Ore.
Seattle and Pullman, Wash.—J. M. A.

LUTZIA.

- THEOBALD, Monogr. of Culicidæ, III, 155, 1903.
- bigoti** BELLARDI, Saggio, App., 3, f. 1 (*Culex*).—Mex.
- THEOBALD, Monogr. of Culicidæ, I, 343, pl. XVI, f. 62 (*Culex*, provisionally).
—Rio de Janeiro.
- GILES, Handb. of Gnats, 2d ed., 390, pl. XV, f. 6-11 (*Culex*).
- THEOBALD, Mon., III, 155, fig.—Brazil.

CULEX.

- LINNÉ, Fauna Suecica, 464, no. 1890, 1761.
- MEIGEN, Illig. Mag., II, 260, 1803; Syst. Besch., I, I, 1818.

- DESVOIDY, Mem. Soc. Hist. Nat. Paris, III, 403, 1827.
- ZETTERSTEDT, Dipt. Scand., IX, 3453, 1850.
- SCHINER, Fauna Austr., II, 625, 1804.
- MEINERT, Eucephale Myggelarver, in Vidensk. Seisk., 6 Række, Naturvidensk og Mathem., Afd. III, 4, 1880, p. 375; literature of transformations, etc.
- COQUILLET, Div. of Ent. Bull. 4, n. ser., 1896, list of species with localities; Circ. no. 40, sec. ser., Div. of Ent., 5, table of species; Bull. 25, n. ser., 1900, table of species, 19.
- THEOBALD, Monogr. of Culicidae, I, 326, 1901.
- GILES, Handb. of Gnats, 2d ed., 386, 1902.
- DYAR, Proc. Ent. Soc. Wash., v, 51, 1902, and 145, 1903, tables of species based on larvae.
- JOHANNSEN, Bull. 68, N. Y. St. Mus., 411, 1903, table of known species of larvae, etc.
- affinis** ADAMS, Kans. Univ. Sci. Bull., II, 25.—Ariz.
- COQUILLET, Canad. Ent., XXXV, 261, makes a syn. of *tarsalis* COQ.; but I am assured by Adams that this is an error.
- annulatus** SCHRANK, see *Theobaldia*.
- apicalis** ADAMS, Kans. Univ. Sci. Bull., II, 26.—Ariz.
- atratus** THEOBALD, see *Melanocnion*.
- atropalpus** COQUILLET, Canad. Ent., 1902, 292.—Va., Md., Pa., N. H.
- SMITH, Ent. News, XIII, 301, pl. xv, f. 9, larva.—Me.
- DYAR, Jour. N. Y. Ent. Soc., x, 195, pl. xvi, f. 2, larva; Proc. Ent. Soc. Wash., v, 144, notes on larvae; Ent. News, xiv, 180, eggs and larvae.—N. H. and Md.
- aurifer** COQUILLET, Canad. Ent., XXXV, 225.—Centre Harbor, N. H.; Lahaway, N. J.
- bigoti** BELLARDI, see *Lutzia*.
- bimaculatus** COQUILLET, Proc. U. S. N. M., xxv, 84.—Brownsville, Tex.
- DYAR, Jour. N. Y. Ent. Soc., xi, 27, pl. III, f. 3, larva.—Baton Rouge, La.
- canadensis** THEOBALD, Monogr. of Culicidae, II, 3, pl. XXI, f. 82, 83.—L. Simcoe, Ont.
- GILES, Handb. of Gnats, 2d ed., 422.
- SMITH, Ent. News, XIII, 267 and 299, pl. xv, f. 2, larva, etc.—Lahaway, N. J.
- DYAR, Jour. N. Y. Ent. Soc., x, 194, pl. xvi, f. 1, larval stages; Proc. Ent. Soc. Wash., v, 140, 141, notes on larvae.—Common in N. H.
- cantator** COQUILLET, Canad. Ent., XXXV, 255.—Summit, N. J.
- cantans** MEIGEN, Syst. Besch., I, 6.—Europe.
- ZETTERSTEDT, Ins. Lapp., 806; Dipt. Scand., IX, 3461.
- WALKER, List, I, 4 (*stimulans*); Ins. Brit., III, 246.—Nova Scotia.
- SCHINER, Fauna Austr., II, 627.
- FICALBI, Bull. Soc. Ent. Ital., 1896, 258.
- HOWARD, Bull. 25, 31, oc. New Eng., Md., Mich., to Col., N. M., and Mex. (*stimulans*); "Mosquitoes," 81, oc. (id.).
- THEOBALD, Monogr. of Culicidae, I, 401, pl. XX, f. 78; III, 197, notes.—Europe generally; L. Simcoe, Ont.; Manitoba; India.
- GILES, Handb. of Gnats, 2d ed., 416.
- SMITH, Ent. News, XIII, pl. xv, f. 3, larval structure.—N. J.
- DYAR, Proc. Ent. Soc. Wash., v, 47 and 141, notes.—Long Id. and N. H.
- JOHANNSEN, Bull. 68, N. Y. St. Mus., 419, pl. XLV, larva, pupa and adult.—Ithaca, N. Y.

confinis F. LYNCH A., see *Taniorhynchus*.

confirmatus F. LYNCH ARRIBALZAGA, Revista d. Mus. de la Plata, I, 388.—Argentina.

THEOBALD, Monogr. of Culicidæ, II, 42 and 355, pl. XXIV, f. 94; III, 191, note.—Jamaica and Brazil.

GILES, Handb. of Gnats, 2d ed., 443.

consobrinus DESVOIDY, Mém. Soc. Hist. Nat. Paris, III, 408.—Pa.

ALDRICH, Canad. Ent., XXXV, 268 and 264, synonymy.

COQUILLET, l. c., 218, same. See also *Culex inornatus*.

cubensis BIGOT, in Sagra's Cuba, 786.—Cuba.

curriei COQUILLET, see *Grabhamia*.

cyanescens COQUILLET, Jour. N. Y. Ent. Soc., X, 137.—Brownsville, Tex.

discolor COQUILLET, Canad. Ent., XXXV, 256.—Delair, N. J.

dyari COQUILLET, Jour. N. Y. Ent. Soc., X, 192.—Center Harbor, N. H.

DYAR, Jour. N. Y. Ent. Soc., X, 199, pl. XVIII, f. 2, larva; Proc. Ent. Soc. Wash., V, 143, notes.—N. H.

excitans WALKER, see *Stegomyia fasciata*.

excrucians WALKER, Dipt. Saund., 439.—Nova Scotia.

OSTEN SACKEN, Cat., Note 20.

HOWARD, Bull. 25, oc. at Ithaca, N. Y.

COQUILLET, Circ. 40, mention.

fatigans WIEDEMANN, Auss. Zweifl., I, 10 and II (*fatigans* and *æstuanus*; perhaps also *pungens*, p. 9).—East Indies; Brazil; New Orleans.

MEIGEN, Syst. Besch., VII, I (*pallipes*).—Europe.

BIGOT, Annales, 1858 (*anxifer*).

F. LYNCH ARRIBALZAGA, Revista d. Mus. de la Plata, I, 398 (*Heteronycha dolosa*).—Argentina.

HOWARD, Bull. 4, 10-17, figs. and biol. (*pungens*); Bull. 25, 22-28, figs. and biol. (id.).—N. H. to Mex. and W. I.; common.

HOWARD, "Mosquitoes," 66-76, life history (*pungens*).—Ottawa, Can., to Nicaragua.

? LUGGER, 2d Minn. Rept., 185-194, 1896, figs. all stages (*pungens*).—Minn.

THEOBALD, Monogr. of Culicidæ, II, 151, pl. XXIX, f. 114 and 115.—Mass. to Argentina; Africa, Spain and Portugal, India and Australia. Conveys filariasis and a blood disease of birds; for the former, see Ross, Trans. Linn. Soc., sec. ser., II, 367-388; for the latter, see Ross, Ind. Med. Gazette, Dec., 1898 and Jan., 1899.

GILES, Handb. of Gnats, 2d ed., 438.

THEOBALD, Mon., III, 225, additional notes.

SMITH, Ent. News, XIII, 302, pl. XV, f. 14, larval structure; 14th Rept. N. J. Ag. Coll. Ex. Sta., 1902, 559-561, breeding habits (*pungens*).—N. J.

flavipes MACQUART, Dipt. Exot., I, 1, 35.—Chili.

BLANCHARD, Hist. fis. y. polit. de Chile, Zool., VII, 332.—Chili.

PHILIPPI, Aufzähl. d. Chil. Dipt., 595 (*flavipes* and *serotinus*).—Chili.

KOLLAR, Bras. vorz. läst. Ins., 187, f. 13 (*molestus*).—Brazil. [F. L. Arrib.]

F. LYNCH ARRIBALZAGA, Revista d. Mus. de la Plata, I, 58, pl. IV, f. 2.—Buenos Aires.

THEOBALD, Monogr. of Culicidæ, II, 149; III, 224, notes.—Amazon; Br. Guiana and Trinidad.

fletcheri COQUILLET, Proc. U. S. N. M., XXV, 84.—Carnduff, Assiniboia, Canada.

frater DESVOIDY, see *Stegomyia fasciata*.

- hirsuteron** THEOBALD, Monogr. of Culicidae, II, 98.—Woodstock, Va.
GILES, Handb. of Gnats, 2d ed., 451 (*hirsuteros*).
- impatiens** WALKER, see *inornatus*.
- impiger** WALKER, see *nigripes*.
- implacabilis** WALKER, see *nigripes*.
- incidens** THOMSON, see *Theobaldia*.
- inflictus** THEOBALD, Monogr. of Culicidae, II, 115.—Grenada, W. I.
GILES, Handb. of Gnats, 2d ed., 462.
- inornatus** WILLISTON, Dipt. of Death Val. Exped., 253.—Argus Mts., Cal.
? WALKER, List, I, 5 (*impatiens*); Lord's "Naturalist," etc., II, 337, reprinted in Science Gossip, 1867, 79 (*pinguis*).—Martin Falls, Canada; Vancouver Id. Syn. by Theobald, with a doubt, as the type of *impatiens* does not entirely agree, and that of *pinguis* cannot be found.
COQUILLET, Bull. 4, n. ser., Div. of Ent., makes this a synonym of *consobrinus* DESV.
HOWARD, Bull. 25, 20, oc. from New England to S. Cal. and Saskatchewan R. (*consobrinus*).
COQUILLET, Proc. Wash. Acad. Sci., II, 395, oc. in Alaska (id.).
THEOBALD, Monogr. of Culicidae, II, 78 (id.).—Col.
GILES, Handb. of Gnats, 2d ed., 445 (id.).
THEOBALD, Canad. Ent., XXXV, 312, oc. at Pecos, N. M.
DYAR, Jour. N. Y. Ent. Soc., XI, 24, pl. II, f. 4, larva (id.).
Province of Quebec—Fyles.
See also references under *consobrinus*.
- jamaicensis** THEOBALD, see *Grabhamia*.
- janitor** THEOBALD, Monogr. of Culicidae, III, 183, pl. X, and figs.—Kingston, Jamaica.
- kelloggii** THEOBALD, see *tarsalis*.
- melanurus** COQUILLET, Jour. N. Y. Ent. Soc., X, 193.—Center Harbor, N. H.
DYAR, Jour. N. Y. Ent. Soc., X, 198, pl. XVII, f. 1, larva; Proc. Ent. Soc. Wash., V, 143, notes on larva.—N. H.
- mexicanus** BELLARDI, see *Janthinosa musica*.
- mosquito** DESVOIDY, see *Stegomyia fasciata*.
- musicus** SAY, see *Janthinosa*.
- nanus** COQUILLET, Canad. Ent., XXXV, 256.—Key West, Fla.
- nemorosus** MEIGEN, Syst. Besch., I, 4, 6 (*nemorosus*, *maculatus* and *sylvaticus*).—Europe.
? MEIGEN, Klassif., 3, 4 (*reptans* and *fasciatus*); Syst. Besch., VII, 1 (*sticticus*).—Europe. [Syn. by Theob., with doubt.]
ZETTERSTEDT, Ids. Lapp., 806; Dipt. Scand., IX, 3457.
SCHINER, Fauna Austr., II, 628.
WALKER, List, I, 7 (*provocans*).—Nova Scotia.
CURTIS, Brit. Ent., 537 (*guttatus*).
FICALBI, Nota sulla Zanz. Ital., no. IX, 1896 (*salinus*).—Italy.
MEINERT, Eucephale Myggelarver, 377, pl. I, f. 17-19, larval stages.—Europe.
THEOBALD, Monogr. of Culicidae, II, 80, pl. XXV, f. 97, 98; III, 170, note.—Europe and Toronto, Can.
GILES, Handb. of Gnats, 2d ed., 436.
? DYAR, Proc. Ent. Soc. Wash., V, 140, 141, oc. in N. H. (*reptans*).
? Beulah, N. M.—Skimmer (id.).
- nigripalpus** THEOBALD, Monogr. of Culicidae, II, 322; III, 221, oc.—St. Lucia; Barbadoes.
GILES, Handb. of Gnats, 2d ed., 468 (*nigripalpis*).

- nigripes** ZETTERSTEDT, Ins. Lapp., 807; Dipt. Scand., IX, 3458.—Europe.
 O. FABRICIUS, Fauna Groenl., 209 (*pipiens*).—Greenland [Ldbk].
 STAEGER, Dipt. Dan., 1840, 553; Groenl. Antl., 349, oc.—Denmark and Greenland.
 HOLMGREN, Ins. Spetsb.; Ins. Nordgroenl., 104, oc.—Spitzbergen and Greenland.
 PALLAS, in Curtis' Ins. Capt. Ross' Voy., LXXVI (*caspius*). [Schiodte.]
 WALKER, List, I, 7 (*impiger* and *implacabilis*).—Martin Falls, Canada.
 COQUILLET, Bull. 25, not seen.
 HOWARD, Bull. 25, 29, breeding in privy vaults in Alexandria, Va.; "Mosquitoes," 80 (both *impiger*).—City of Mexico to Saskatchewan R., and U. S. generally.
 THEOBALD, Monogr. of Culicidæ, II, 93; III, 193, note (doubts the more southern oc.).
 GILES, Handb. of Gnats, 2d ed., 444.
 LUNDBECK, Dipt. Groenl., I, 296; Entom. Unters. i West—Groenl., Heft 7, pl. VII, f. 14.—Greenland.
 Adirondack Mts., N. Y.—McGillivray and Houghton (*impiger*); Beulah, N. M.—Skinner (id.).
- nigritulus** ZETTERSTEDT, Dipt. Scand., IX, 3459.—Lapland.
 THEOBALD, Monogr. of Culicidæ, II, 140.—Scandinavia and England.
 SMITH, Ent. News, XIII, 303, pl. XV, f. 16, larval structure, habits, etc.—Elizabeth, N. J.
 DYAR, Jour. N. Y. Ent. Soc., XI, 24, pl. II, f. 3, larva.—N. J.
- palos** THEOBALD, Monogr. of Culicidæ, III, 194, figs.—St. Vincent and Barbadoes, W. I.
- particeps** ADAMS, Kans. Univ. Sci. Bull., II, 26.—Ariz.
- penafeli** WILLISTON, La Naturaleza, VII, 326, 1887.—Mexico.
Note.—I find this in Kertész's catalogue; it seems never to have been noticed elsewhere.
- perturbans** WALKER, see *Taniorhynchus*.
- pinguis** WALKER, in Lord's "Naturalist," etc., II, 337; reprinted in Science Gossip, 1867, 69.—Vancouver Id.
Note.—Theobald states that the type cannot be found; Coquillett would call this the same as *inornatus*, q. v.
- pipiens** LINNÉ, Fauna Suecica, 464, no. 1890; Syst. Nat., 12th ed. (the latter *ciliaris*, *vulgaris* and *alpinus*).—Europe.
 DEGEER, Mém. Hist. Nat. Ins., VI, 316 (*communis*).
 FABRICIUS, Spec. Ins., II, 469; Ent. Syst., IV, 400; Syst. Antl., 33.
 SCHRANK, Ins. Austr., 481; Fauna Boica, III, 2585.
 MEIGEN, Klassif., 5; Syst. Besch., I, 7 (*pipiens* and *rufus*).
 ZETTERSTEDT, Ins. Lapp., 807; Dipt. Scand., IX, 3455.
 SCHINER, Fauna Austr., II, 628 (*pipiens* and *ciliaris*).
 BIGOT, Bull. Soc. Ent. France, IX, 122 (*agilis*).
 FICALBI, Rev. Sist. Culic. Europ., 276 (*phytophagus*).
 VAN DER WULP, Dipt. Neerland., 328, 329 (*pipiens* and *ciliaris*).
 BERGROTH, Wien. Ent. Zeit., VIII, 295, oc. in British Columbia.
 THEOBALD, Monogr. of Culicidæ, II, 132, pl. XXIX, f. 113, syn., etc.—Europe generally; Malta; Algeria; N. A.
 GILES, Handb. of Gnats, 2d ed., 437.
 HERRICK, Bull. 74, Miss. Ex. Sta., 7-11, life hist. in Miss.
 DYAR, Jour. N. Y. Ent. Soc., X, 198, pl. XVII, f. 3, larva; Proc. Ent. Soc. Wash., V, 48 and 144, notes.—Durham, N. H.

- JOHANNSEN, Bull. 68, N. Y. St. Mus., 419, pl. XLIII, larva, pupa and adult.
—Saranac Inn., N. Y.
- posticatus** WIEDEMANN, see *Janthinosoma*.
- provocans** WALKER, see *ncmorosus*.
- punctor** KIRBY, Fauna Bor.-Amer., Ins., 309; reprob. in Canad. Ent., XIII, 164.—
Martin Falls, Canada.
THEOBALD, Monogr. of Culicidæ, II, 75, types redesc.
GILES, Handb. of Gnats, 2d ed., 435.
- pungens** WIEDEMANN, see *fatigans*.
- quadrivittatus** COQUILLET, Canad. Ent., XXXIV, 293.—Chacula, Guatemala.
- reptans** MEIGEN, see *ncmorosus*.
- restuans** THEOBALD, Monogr. of Culicidæ, II, 142.—Toronto, Can.
GILES, Handb. of Gnats, 2d ed., 429.
SMITH, Ent. News, XIII, pl. xv, f. 15, larval habits and structure.—N. J.
DYAR, Jour. N. Y. Ent. Soc., x, 199, pl. XVIII, f. 3, larva and pupa; Proc.
Ent. Soc. Wash., v, 144, note on larva, etc.; Ent. News, XIV, 41, larva,
etc.—N. H.
JOHANNSEN, Bull. 68, N. Y. St. Mus., 417, pl. XLII, larva, pupa and adult.
—Saranac Inn., N. Y.
- rubidus** DESVOIDY, Mém. Soc. Hist. Nat. Paris, III, 404, 1827.—Carolina.
THEOBALD, Monogr. of Culicidæ, II, 171, transl. of orig. desc. and notes;
not seen.
GILES, Handb. of Gnats, 2d ed., 471, same quoted.
- scholasticus** THEOBALD, Monogr. of Culicidæ, II, 120; III, 224, notes.—Grenada, St.
Vincent, and St. Lucia, W. I.
GILES, Handb. of Gnats, 2d ed., 459.
- secutor** THEOBALD, Monogr. of Culicidæ, II, 321; III, 183, notes on habits.—
Jamaica.
GILES, Handb. of Gnats, 2d ed., 406.
- serratus** THEOBALD, Monogr. of Culicidæ, II, 45, pl. XXIV, f. 95; III, 191, notes.—
Brazil, Guiana, Trinidad.
GILES, Handb. of Gnats, 2d ed., 457, pl. XVI, f. 18.
SMITH, Ent. News, XIV, 309, pl. xv, larva and adult.—N. J.
- signifer** COQUILLET, see *Stegomyia*.
- similis** THEOBALD, Monogr. of Culicidæ, III, 207. —Jamaica.
- sollicitans** WALKER, see *Grabhamia*.
- spencerii** THEOBALD, see *Grabhamia*.
- squamiger** COQUILLET, Proc. U. S. N. M., xxv, 85.—Palo Alto and San Lorenzo,
Cal.
- stimulans** WALKER, see *cantans*.
- stylvestris** THEOBALD, Monogr. of Culicidæ, I, 406, pl. XXXV, f. 138.—L. Simcoe
and Kent Co., Ont.; Stony Mt., Manitoba.
GILES, Handb. of Gnats, 2d ed., 417.
?SMITH, Ent. News, XIII, 301, pl. xv, f. 10, larval habits and structure;
doubtfully identified.—N. J.
DYAR, Jour. N. Y. Ent. Soc., x, 196, pl. XVI, f. 3, larval stages; Proc. Ent.
Soc. Wash., v, 47, larva (*cantans*); v, 142, cor. and notes.—Long, Id.
JOHANNSEN, Bull. 68, N. Y. St. Mus., 421, larva, pupa and adult.—Ithaca,
N. Y.
- tæniatus** WIEDEMANN, see *Stegomyia fasciata*.
- tæniorhynchus** WIEDEMANN, Dipt. Exot., 43; Auss. Zweifl., I, 8.—Mex., Pa.
SAY, Jour. Acad. Sci. Phil., III, 11; Compl. Works, II, 40 (*damnosus*—
Wiedemann's Dipt. Exot. is prior) [Wied.]

- THEOBALD, Monogr. of Culicidæ, I, 350, pl. XVII, f. 68; III, 158, notes.—Fla. and Mex. to Brazil.
- SMITH, Ent. News, XIII, 300, pl. XV, f. 5, larval structure.—N. J.
- DYAR, Proc. Ent. Soc. Wash., v, 48, oc. Long. Id.; Jour. N. Y. Ent. Soc., XI, pl. II, f. I, larva.—N. J.
- tarsalis** COQUILLET, Canad. Ent., XXVIII, 44; XXXV, 261, syn.—Argus Mts. and Folsom, Cal.
- WILLISTON, Dipt. of Death Val. Exped., 253 (*Culex* n. sp.).—Argus Mts., Cal.
- GILES, Handb. of Gnats, 1900, 281 (*willistonii*); merely a name for Williston's species.
- THEOBALD, Canad. Ent., XXXV, 211 and 311, larva figured (*kelloggii*).—Cal.; Pecos, N. M.
- THEOBALD, Monogr. of Culicidæ, II, 23, notes.
- GILES, Handb. of Gnats, 2d ed., 379, note.
- Miss.—Herrick; Corvallis, Ore.—Howard.
- Note*.—Coquillett also makes *affinis* Adams a synonym of this, but Adams writes me that this is certainly incorrect.
- territanus** WALKER, Ins. Saund., 428.—U. S.
- THEOBALD, Monogr. of Culicidæ, II, III, type redesc.
- GILES, Handb. of Gnats, 2d ed., 455, same.
- DYAR, Proc. Wash. Ent. Soc., v, 48, 142, larvæ, habits, etc.; Jour. N. Y. Ent. Soc., IX, 178, pl. X, f. 2, larva.—Bellport, L. I., and Center Harbor, N. H.
- SMITH, Ent. News, XIII, 302, pl. XV, f. 13, larval habits and structure.—N. J. The adult probably does not bite—Dyar.
- testaceus** VAN DER WULP, Tijdsch. v. Ent., 1869, 128, pl. III, f. I.—Wis.
- THEOBALD, Monogr. of Culicidæ, I, 409.—L. Simcoe, Ont.
- GILES, Handb. of Gnats, 2d ed., 418.
- triseriatus** SAY, Jour. Acad. Sci. Phil., III, 12; Compl. Works, II, 40.—Pa.
- WIEDEMANN, Auss. Zweifl., I, II.
- HOWARD, Bull. 25, 31, oc. in N. H., Pa., Md., D. C., Va., Conn., N. J.
- SMITH, Ent. News, XIII, 301, pl. XV, f. 8, note on larval habits and structure.—N. J.
- DYAR, Proc. Ent. Soc. Wash., v, 140, 143, 152, notes; Jour. N. Y. Ent. Soc., XI, 25, pl. II, f. I, larva.—N. H. and N. Y.
- JOHANNSEN, Bull. 68, N. Y. St. Mus., 423, pl. XLVI, larva, pupa and adult.—Ithaca, N. Y.
- trivittatus** COQUILLET, Jour. N. Y. Ent. Soc., X, 193.—Chester, N. Y.
- varipalpus** COQUILLET, Canad. Ent., XXXIV, 1902, 292.—Williams, Ariz.
- walkeri** THEOBALD, see *Howardina*.
- willistonii** GILES, see *tarsalis*.

MELANOCONION.

- THEOBALD, Monogr. of Culicidæ, III, 238, 1903.
- atratus** THEOBALD, Monogr. of Culicidæ, II, 55, pl. XXXIV, f. 125 (*Culex*); III, 238, notes on larva and pupa, etc.—Jamaica and Trinidad; S. A. and W. I.
- GILES, Handb. of Gnats, 2d ed., 238, notes.
- spissipes** THEOBALD, Monogr. of Culicidæ, III, 242, fig.—Trinidad, W. I.

GRABHAMIA.

- THEOBALD, Monogr. of Culicidæ, III, 243, 1903.
- curriei** COQUILLET, Canad. Ent., XXXIII, 259 (*Culex*).—N. D., Col., Ida., Cal.

- THEOBALD, *Canad. Ent.*, xxxv, 211, 312, notes, and oc.—Pecos, N. M.
- jamaicensis** THEOBALD, *Monogr. of Culicidæ*, i, 345, pl. xvi, f. 16 (*Culex*); iii, 244, male, figs.—Jamaica.
- GILES, *Handb. of Gnats*, 2d ed., 394, pl. xv, f. 5 (*Culex*).
- pygmæa** THEOBALD, *Monogr. of Culicidæ*, iii, 245, pl. xi.—Antigua and Jamaica.
- sollicitans** WALKER, *Dipt. Saund.*, 427 (*Culex*).—U. S.
- ? HOWARD, *Bull.* 25, 28, fig. and notes (*Culex teniorhynchus*); "Mosquitoes," 82, oc. (id.); *Farmers' Bull.* 155, fig. (id.).—Mass. to Fla. and Jamaica; Galapagos Ids. I mention these references with a query on account of Theobald, *Mon.* i, 351, and ii, 178.
- THEOBALD, *Monogr. of Culicidæ*, i, 368, pl. xvi, f. 64; ii, 178, note; iii, 247, fig. and habits.—N. J. to Fla. and Jamaica.
- GILES, *Handb. of Gnats*, 2d ed., 398 (*Culex*).
- SMITH, *Special Bull. T. of N. J. Ex. Sta.*, 1902, 10 pp., biol., etc.; *Rept. of Ent. for 1902*, 515-556, studies of breeding-places, etc.; *Science*, 1902, 391-394, habits; *Ent. News*, xiii, 300, pl. xv, f. 4, larval structure (all *Culex*).—N. J.; the Salt Marsh Mosquito.
- DYAR, *Proc. Ent. Soc. Wash.*, v, 47, notes on habits (*Culex*); *Jour. N. Y. Ent. Soc.*, x, 197, pl. xvii, f. 2, larva (id.).—N. J. and Long Id.
- spencei** THEOBALD, *Monogr. of Culicidæ*, ii, 99, pl. xxxvi, f. 104 (*Culex*).—Stony Point and St. Boniface, Manitoba.
- GILES, *Handb. of Gnats*, 2d ed., 431 (*Culex*).
- var. **idahoensis** THEOBALD, *Monogr. of Culicidæ*, iii, 250.—Market Lake, Idaho.
- vittata** THEOBALD, *Canad. Ent.*, xxxv, 313, fig. and desc. of larva.—Pecos, N. M.

TÆNIORHYNCHUS.

- F. LYNCH ARRIBALZAGA, *Revista d. Mus. de la Plata*, i, 389, 1891.
- THEOBALD, *Monogr. of Culicidæ*, ii, 190, 1901, modified; table of species.
- GILES, *Handb. of Gnats*, 2d ed., 358, 1902; table of species.
- confinis** F. LYNCH ARRIBALZAGA, *Revista d. Mus. de la Plata*, i, 391.—Chaco in Argentina.
- THEOBALD, *Monogr. of Culicidæ*, i, 382; iii, 250, figs.—Argentina; Guiana and Trinidad.
- GILES, *Handb. of Gnats*, 2d ed., 401.
- DYAR, *Jour. N. Y. Ent. Soc.*, ix, 179, pl. x, f. 3, 1901, larva.—Cabin John Bridge, Md.
- SMITH, *Ent. News*, xiii, 300, pl. xv, f. 7, larval habits and str.—N. J.
- HERRICK, *Bull.* 74, *Miss. Ex. Sta.*, 17, larva in sewage in Miss.
- fasciolatus** F. LYNCH ARRIBALZAGA, *Revista d. Mus. de la Plata*, i, 392, 1891.—Argentina.
- THEOBALD, *Monogr. of Culicidæ*, ii, 192, pl. xxxi, f. 121; iii, 260, oc. and note.—Brazil; Guiana and Trinidad.
- perturbans** WALKER, *Dipt. Saund.*, 428 (*Culex*).—U. S.
- THEOBALD, *Monogr. of Culicidæ*, ii, 201, type redesc.
- GILES, *Handb. of Gnats*, 2d ed., 366.
- ? HOWARD, *Bull.* 25, 30, oc. in Md., D. C., Va., Fla., Tex., Porto Rico, Cuba. It is not quite clear that this is the same species.
- ? SMITH, *Ent. News*, xiii, 300, pl. xv, f. 6, larval structure (*Culex*); doubtfully ident.—N. J.
- DYAR, *Proc. Ent. Soc. Wash.*, v, 144, oc. in N. H. (*Culex*).
- richardii** FICALBI, *Bull. Soc. Ent. Ital.*, 1890, 261.—Italy.

THEOBALD, Monogr. of Culicidæ, II, 194, pl. XXXI, f. 122.—England and Toronto, Canada.

GILES, Handb. of Gnats, 2d ed., 364, mentions oc. in Palestine.

MANSONIA.

BLANCHARD, Compt. Rend. Soc. Biol., No. 37, LIII, 1901, 1046.

THEOBALD, Monogr. of Culicidæ, II, 173, 1901 (*Panoplites*); III, 269, 1903, syn.

titillans WALKER, List, I, 5 (*Culex*).—Brazil.

F. LYNCH ARRIBALZAGA, Revista d. Mus. de la Plata, I, 390 (*Taniorhynchus taniorhynchus* WIED.).—Argentina.

THEOBALD, Monogr. of Culicidæ, II, 175, pl. XXX, f. 117, and pl. B (*Panoplites*); III, 273, oc.—Rio Janeiro and Br. Guiana; Trinidad, Antigua and Jamaica.

JOBLOTIA.

BLANCHARD, Compt. Rend. Soc. Biol., No. 37, LIII, 1043, 1901.

THEOBALD, Monogr. of Culicidæ, II, 283, 1901 (*Trichoprosopon*).

GILES, Handb. of Gnats, 2d ed., 367, 1902 (id.).

niveipes THEOBALD, Monogr. of Culicidæ, II, 285, pl. XXXV, f. 131 (*Trichoprosopon*); III, 334, figs., larvæ.—Trinidad; Brazil.

GILES, Handb. of Gnats, 2d ed., 367 (*Trichoprosopon*).

DEINOCERITES.

THEOBALD, Monogr. of Culicidæ, II, 215 and 343, 1901 (*Deinocerites* and *Brachiomyia*); III, 275, 1903, combined.

GILES, Handb. of Gnats, 2d ed., 472, 473 (*Deinocerites* and *Brachiomyia*), 1902.

cancer THEOBALD, Monogr. of Culicidæ, II, 215, pl. XXXII, f. 125, and pl. D; III, 276, figs. and extended notice—larva and pupa; breeds in crab-holes near seashore.—Jamaica, St. Lucia; St. Vincent, Barbadoes, Br. Guiana.

GILES, Handb. of Gnats, 2d ed., 472, figs.

magna THEOBALD, Monogr. of Culicidæ, II, 344 (*Brachiomyia*).—St. Lucia, W. I.

ÆDES.

MEIGEN, Syst. Besch., I, 13, 1818.

DESVOIDY, Mém. Soc. Hist. Nat. Paris, III, 403, 1827.

MACQUART, Hist. Nat. Dipt., I, 37, 1834.

ZETTERSTEDT, Dipt. Scand., IX, 3460, 1850.

SCHINER, Fauna Austr., II, 630, 1864.

THEOBALD, Monogr. of Culicidæ, II, 224, 1901; III, 286, 1903, table of species and of related genera.

GILES, Handb. of Gnats, 2d ed., 480, 1902.

JOHANNSEN, Bull. 68, N. Y. St. Mus., 424, 1903, tables of species by adults and larvæ.

fuscus OSTEN SACKEN, West. Dipt., 191.—Cambridge, Mass.

HOWARD, "Mosquitoes," 153, fig.

THEOBALD, Monogr. of Culicidæ, II, 226, pl. XXXII, f. 126; III, 286, notes.—High Park, Toronto.

GILES, Handb. of Gnats, 2d ed., 481.

DYAR, Proc. Ent. Soc. Wash., V, 145, larva, etc.; Jour. N. Y. Ent. Soc., X, 197, pl. XVII, f. 1, larva.—N. H.

- JOHANNSEN, Bull. 68, N. Y. St. Mus., 425, compiled desc. of larva.
- nigricorpus** THEOBALD, Monogr. of Culicidæ, II, 231.—Lower Amazon.
- GILES, Handb. of Gnats, 2d ed., 482, oc. in St. Lucia, W. I.
- pertinans** WILLISTON, see *Wycomyia*.
- perturbans** WILLISTON, Trans. Ent. Soc. Lond., 1896, 271, pl. VIII, f. 30.—St. Vincent, W. I.
- THEOBALD, Monogr. of Culicidæ, II, 235, quoted; *Wycomyia grayii* may be the same.
- GILES, Handb. of Gnats, 2d ed., 484.
- sapphirina** OSTEN SACKEN, see *Uranotænia*.
- smithii** COQUILLET, Canad. Ent., XXXIII, 260, 1901.—Lahaway, N. J.
- SMITH, Ent. News, XII, 189, note on habits—reared from water standing in pitcher plants (*fuscus*); XII, 254, notes and spec. ref.; Jour. N. Y. Ent. Soc., X, 10, biology—larvæ found only in pitcher plants, and can winter there.—N. J.
- DYAR, Jour. N. Y. Ent. Soc., IX, 178, figs., larva desc.
- JOHANNSEN, Bull. 68, N. Y. St. Mus., 425, pl. XLVII, f. 1-6, larva and pupa.—N. J.
- THEOBALD, Monogr. of Culicidæ, III, 295, quotes desc., and refers doubtfully to his new genus *Verrallina*, same page.

HOWARDINA.

- THEOBALD, Monogr. of Culicidæ, III, 287, 1903.
- walkeri** THEOBALD, Monogr. of Culicidæ, I, 424 (*Stegomyia?*); III, 288, fig.—Jamaica.

URANOTÆNIA.

- F. LYNCH ARRIBALZAGA, Revista d. Mus. de la Plata, I, 405, 1891.
- THEOBALD, Monogr. of Culicidæ, II, 241, 1901.
- GILES, Handb. of Gnats, 2d ed., 485, 1902.
- JOHANNSEN, Bull. 68, N. Y. St. Mus., 427, 1903.
- apicalis** THEOBALD, Monogr. of Culicidæ, III, 298, pl. XIV.—Antigua, W. I.
- lowii** THEOBALD, Monogr. of Culicidæ, II, 339; III, 301, notes.—St. Lucia; Trinidad, St. Vincent, and Para.
- GILES, Handb. of Gnats, 2d ed., 492.
- pulcherrima** F. LYNCH ARRIBALZAGA, Revista d. Mus. de la Plata, I, 407, pl. IV, f. 4.—Buenos Aires.
- THEOBALD, Monogr. of Culicidæ, II, 241, pl. XXXII, f. 128, and text figs.; III, 303, note.—Brazil; Antigua, W. I.
- sapphirina** OSTEN SACKEN, Trans. Amer. Ent. Soc., II, 47 (*Ædes*).—N. Y., D. C. HOWARD, Bull. 25, 47, fig. (*Ædes*).
- SMITH, Ent. News, XII, 153, under name of *Culex pungens*, reared from water contained in pitcher plants; see also p. 189, same vol.—N. J.
- THEOBALD, Monogr. of Culicidæ, II, 249.—D. C., Brooklyn, Ithaca, N. Y.
- GILES, Handb. of Gnats, 2d ed., 492.
- DYAR, Proc. Ent. Soc. Wash., v, 49 and 145, larvæ, etc.; Jour. N. Y. Ent. Soc., IX, 179, pl. XI, f. 1-4, life hist.—N. H. and Bellport, L. I.: in marshy pool.
- JOHANNSEN, Bull. 68, N. Y. St. Mus., 427, pl. XLVI, f. 8-15.
- socialis** THEOBALD, Monogr. of Culicidæ, II, 340.—Jamaica.
- GILES, Handb. of Gnats, 2d ed., 494.

ÆDEOMYIA.

- THEOBALD, Monogr. of Culicidæ, II, 218, 1901.
 GILES, Handb. of Gnats, 2d ed., 478, 1902 (*Ædomyia*).
squamipennis F. LYNCH ARRIBALZAGA, El Nat. Arg., I, 151, 1878 (*Ædcs*); Revista d. Mus. de la Plata, I, 404, pl. III, f. 8 (id.).—Buenos Aires.
 THEOBALD, Monogr. of Culicidæ, II, 219, pl. XXXI, f. 124, and pl. E; III, 307, oc.—Br. Guiana, Brazil, Trinidad, India.
 GILES, Handb. of Gnats, 2d ed., 478, oc. in W. I.

HÆMAGOGUS.

- WILLISTON, Trans. Ent. Soc. Lond., 1896, 271.
 THEOBALD, Monogr. of Culicidæ, II, 238, 1901.
 GILES, Handb. of Gnats, 2d ed., 485, 1902.
cyaneus FABRICIUS, Syst. Anth., 35 (*Culex*).—S. A.
 WIEDEMANN, Dipt. Exot., 8 (*Culex*); Auss. Zweifl., I, 6 (id.).
 WILLISTON, Trans. Ent. Soc. Lond., 1896, 272, pl. IX, f. 31 (*splendens*).—St. Vincent, W. I.
 THEOBALD, Monogr. of Culicidæ, II, 239, pl. XXXII, f. 127; III, 308, notes.—Brazil; Br. Guiana and Trinidad.

WYEOMYIA.

- THEOBALD, Monogr. of Culicidæ, II, 67, 1901; table of species, p. 268.
 GILES, Handb. of Gnats, 2d ed., 495, 1902.
grayii THEOBALD, Monogr. of Culicidæ, II, 269, pl. XXXVI, f. 144; III, 311, notes.—St. Lucia, Grenada; Barbadoes.
 GILES, Handb. of Gnats, 2d ed., 498.
pertinans WILLISTON, Trans. Ent. Soc. Lond., 1896, 271, pl. VIII, f. 29 (*Ædcs*).—St. Vincent, W. I.
 THEOBALD, Monogr. of Culicidæ, II, 272.
 GILES, Handb. of Gnats, 2d ed., 483, 498.

PHONIOMYIA.

- THEOBALD, Monogr. of Culicidæ, III, 311, 1903.
longirostris THEOBALD, Monogr. of Culicidæ, II, 275 and 277, pl. XXXI, f. 123 (*Wyeomyia longirostris* and *trinidadensis*); III, 311, figs.—Rio Janeiro and Trinidad.

DENDROMYIA.

- THEOBALD, Monogr. of Culicidæ, III, 313, 1903.
luteoventralis THEOBALD, Monogr. of Culicidæ, II, 348 (*Wyeomyia*); III, 318, fig.—Brazil, Br. Guiana and Trinidad.

CORETHRA.

- MEIGEN, Illig. Mag., II, 260, 1803; Syst. Besch., I, 14, 1818.
 LOEW, Stett. Ent. Zeit., 1844, 121, divided the genus, erroneously assigning to this, the typical part of *Corethra*, the name *Mochlonyx*.
 ZETTERSTEDT, Dipt. Scand., IX, 3470, 1850, in Meigen's sense.
 SCHINER, Fauna Austr., II, 622, 1864 (*Mochlonyx*).
 MEINERT, Overs. Kon. Danske Vid. Selsk. Forh., 1883, I, relations of *Corethra* and *Mochlonyx*; Eucephale Myggelarver, 422, 1886, biology of a European species, *culiciformis*.
 ROEDER, Ent. Nachricht., 1885, 217, syn. of *Mochlonyx*.

THEOBALD, Mon. of Culicidæ, II, 303, 1901 (*Mochlonyx*).

GILES, Handb. of Gnats, 2d ed., 500, 1902 (id.).

COQUILLET, Canad. Ent., XXXV, 189, 1903, discussion of synonymy.

albipes JOHANNSEN, see *Sayomyia*.

appendiculata HERRICK, see *Sayomyia*.

brakeleyi COQUILLET, see *Corethrella*.

cinctipes COQUILLET, Canad. Ent., XXXV, 190.—Franconia, N. H.; Mt. Vernon, Va.

plumicornis FABRICIUS, see *Sayomyia*.

punctipennis SAY, see *Sayomyia*.

trivittata LÖEW, see *Sayomyia punctipennis*.

SAYOMYIA.

COQUILLET, Canad. Ent., XXXV, 190, 1903, new name.

LÖEW, Stett. Ent. Zeit., 1844, 121 (*Corethra* MEIGEN, restricted, but this was a mistake, as he placed the type of *Corethra* in his *Mochlonyx*).

SCHINER, Fauna Austr., II, 623, 1864 (*Corethra*).

THEOBALD, Monogr. of Culicidæ, II, 288, 1901 (id.).

GILES, Handb. of Gnats, 2d ed., 500, 1902 (id.).

JOHANNSEN, Bull. 68, N. Y. St. Mus., 392, 1903, table of species, etc. (*Corethra*).

albipes JOHANNSEN, Bull. 68, N. Y. State Mus., 399 (*Corethra*).—Ithaca, N. Y.

appendiculata HERRICK, Geol. and Nat. Hist. Surv. Minnesota, 1884, 10, pl. 5, larva only, vaguely described (*Corethra*).—Lake of the Isles, Minn.

JOHANNSEN, Bull. 68, N. Y. St. Mus., 394, quotes part of desc. (id.).

plumicornis FABRICIUS, Ent. Syst., IV, 246 (*Tipula*); Syst. Antl., 42 (*Chironomus*).—Europe.

MEIGEN, Klassif., I, 8, pl. 1, f. 12 (*Corethra lateralis*); 34 (*Ceratopogon plumicornis*); Syst. Besch., I, 15 (*Corethra*).

SCHINER, Fauna Austr., II, 624, syn., etc. (*Corethra*).

THEOBALD, Monogr. of Culicidæ, II, 299 (id.).—Europe.

GILES, Handb. of Gnats, 2d ed., 503 (id.).

JOHANNSEN, Bull. 68, N. Y. St. Mus., 395, pl. XXXIX, var. *americana*; larva and pupa also desc. and fig. (id.).—N. J., Ill., N. Y., Minn.

MEINERT, Die Eucephale Myggelarver, 398-421, pl. II, f. 35-56, full and delightful account of biology, with history of its study by old writers (*Corethra*).—Europe.

White Mts., N. H.—Mrs. Slosson's List (id.).

punctipennis SAY, Jour. Acad. Sci. Phil., III, 16; Compl. Works, II, 43 (*Corethra*).—Pa.

WIEDEMANN, Auss. Zweifl., I, 14 (id.).

LÖEW, Cent., II, I (*Corethra trivittata*).—Me.

ROEDER, Stett. Ent. Zeit., 1885, 338, oc. in Porto Rico (id.).

THEOBALD, Mon. Culicidæ, II, 296 (id.).

GILES, Handb. of Gnats, 2d ed., 502 (id.).

DYAR, Jour. N. Y. Ent. Soc., X, 201, pl. XIX, f. 2, larva in detail (*Corethra trivittata*).

JOHANNSEN, Bull. 68, N. Y. St. Mus., 397, quotes Say's and Loew's desc.; pl. XXXIX, f. 11, larva (*Corethra*).—Ithaca, N. Y.

Yukon R. Alaska—O. S. Cat.; N. J.—Smith Cat.

PELOREMPIS.

JOHANNSEN, Bull. 68, N. Y. St. Mus., 402, 1903 (Aug. 11).

UNDERWOOD, Science, Aug. 7, 1903, mentioned as *Eucorethra*, an undescribed genus of Coquillett.

COQUILLET, Canad. Ent., Oct., 1903, 272 (*Eucorethra* UNDERWOOD). [Joh. *in litt.*]

americana JOHANNSEN, Bull. 68, N. Y. St. Mus., 403, pl. xli, larva and pupa desc. and fig.—Saranac Inn, N. Y.

UNDERWOOD, Science, Aug. 7, 1903, notes on habits (mentioned as *Eucorethra underwoodi*, an unpublished species of Coquillett).—Me. [Joh.]

COQUILLET, Canad. Ent., xxxv, 1903, 272 (*Eucorethra underwoodi* UNDERWOOD—sic).—Kaslo, B. C., and woods of Maine.

CORETHRELLA.

COQUILLET, Jour. N. Y. Ent. Soc., x, 191, 1902.

JOHANNSEN, Bull. 68, N. Y. St. Mus., 399, 1903.

brakeleyi COQUILLET, Ent. News, xiii, 85 (*Corethra*); Jour. N. Y. Ent. Soc., x, 192, note.—Lahaway, N. J.

SMITH, Canad. Ent., xxxiv, 139, notes on larval stages (*Corethra*).—N. J.

DYAR, Jour. N. Y. Ent. Soc., x, 200, pl. xix, f. 1, larva (*Corethra*).

JOHANNSEN, Bull. 68, N. Y. St. Mus., 399, pl. xl, larva, pupa and adult.—N. J.

MYCETOPHILIDÆ.

MYCETOBIA.

MEIGEN, Syst. Besch., i, 229, 1818.

ZETTERSTEDT, Dipt. Scand., x, 4069, 1851.

WINNERTZ, Mon., 666, 1863.

SCHINER, Fauna Austr., ii, 426, 1864.

divergens WALKER, Dipt. Saund., 418.—United States.

OSTEN SACKEN, Cat., 1878, p. 8, could not find the type in the British Museum.

marginalis ADAMS, Kans. Univ. Sci. Bull., ii, 21.—Atherton, Mo.

DITOMYIA.

WINNERTZ, Stett. Ent. Zeit., vii, 15, 1846; Mon., 668, 1863.

SCHINER, Fauna Austr., ii, 427, 1864.

euzona LOEW, Cent., ix, 1.—N. Y.

PLESIASTINA.

WINNERTZ, Stett. Ent. Zeit., vii, 15, 1846; Mon., 670, 1863.

SCHINER, Fauna Austr., ii, 428, 1864.

annulata MEIGEN, Syst. Besch., vi, 294 (*Mycetobia*).—Europe.

ZETTERSTEDT, Dipt. Scand., ix, 3447 (*Cecroplatus flavus*); x, 4072 (*Mycetobia*).

WALKER, List, i, 88 (*Symmerus ferrugineus*).

WINNERTZ, Mon. Pilzm., 670.

SCHINER, Fauna Austr., ii, 429.

SMITH, Cat. Ins. N. J., oc. in N. A.

bifasciata WILLISTON, Biologia, Dipt., Suppl., 217, pl. iv, f. 1.—Guerrero, Mex.

lauta LOEW, Cent., ix, 3.—N. Y.

tristis LOEW, Cent., ix, 2.—D. C.

ASINDULUM.

LATREILLE, Hist. Nat. Crust. et. Ins., XIV, 290, 1804.

WINNERTZ, Mon., 705, 1863.

SCHINER, Fauna Austr., II, 440, 1864.

coxale LOEW, Cent., IX, 4.—Huds. B. Terr.

montanum ROEDER, Wien. Ent. Zeit., VI, 116.—Wh. Mts.; N. H.

N. J.—Smith Cat.; Wh. Mts.—Slosson List.

CEROPLATUS.

BOSC, Actes Soc. d'Hist. nat. de Paris, I, 1, 42, 1792.

WINNERTZ, Mon., 684, 1863.

SCHINER, Fauna, II, 433, 1864.

apicalis ADAMS, Kans. Univ. Sci. Bull., II, 22.—Douglass Co., Kans.

bellulus WILLISTON, Biologia, Dipt., Suppl., 219, pl. IV, f. 3.—Tabasco, Mex.

carbonarius BOSC, Nouv. Dict. d'Hist. Nat., 1st ed., IV, 543; 2d ed., V, 585, pl. B, 21, f. 4.—Carolina.

FABRICIUS, Syst. Antl., 16.

WIEDEMANN, Auss. Zw., I, 61 (*Platyura*).

DUFOUR, Ann. des Sci. nat., 2d ser., XI, 202.

MACQUART, Dipt. Exot., I, 1, 77, pl. XI, f. 1.—All give Carolina as the locality.

clausus COQUILLET, Proc., U. S. N. M., XXIII, 594.—N. H.; N. J.

Wh. Mts.—Slosson List.

fasciola COQUILLET. See *Platyura*.

longimanus WILLISTON, Dipt. St. Vincent, 258, pl. VIII, f. 12.—St. Vincent, W. I.

PLATYURA.

MEIGEN, Illig. Mag., II, 264, 1803; Syst. Besch., I, 231, 1818.

ZETTERSTEDT, Dipt. Scand., X, 4076, 1851.

WINNERTZ, Mon., 689, 1863.

SCHINER, Fauna Austr., II, 435, 1864.

WILLISTON, Dipt. St. Vincent, 256, 1890, table of W. Indian species.

clausa COQUILLET (of Smith's N. J. Cat.), see *Ccroplatus*.

diluata LOEW, Cent., IX, 9.—D. C. Also N. J.—Smith Cat.

divaricata LOEW, Cent., IX, 8.—Ga.

elegans COQUILLET, Proc. Acad. Nat. Sci. Phil., 1895, 307.—Fla., N. C.

N. J.—Smith Cat.; White Mts., N. H.—Slosson.

elegantula WILLISTON, Biologia, Dipt., Suppl., 218, pl. IV, f. 2.—Gurrero, Mex.

fasciola COQUILLET, Ent. News, V, 126 (*Ccroplatus*).—Wash. Can. Ent., XXVIII, 200, refers to this genus.

fascipennis SAY, Long's Exped., Appendix, 360; Compl. Works, I, 244.—N. W. Terr.

WIEDEMANN, Auss. Zw., I, 61.—N. W. Terr.

fasciventris WILLISTON, Dipt. St. Vincent, 258, pl. VIII, f. 11.—St. Vincent, W. I.

gracilis WILLISTON, Kans. Univ. Quart., II, 60.—Wash.

ignobilis WILLISTON, Dipt. St. Vincent, 257, pl. VIII, f. 9.—St. Vincent, W. I.

inops COQUILLET, Proc. U. S. N. M., XXIII, 594.—Del. Water Gap, N. J.

lurida COQUILLET, Can. Ent., XXVII, 199.—Wash.

maudæ COQUILLET, Can. Ent., XXVII, 199.—Wash.

melasoma LOEW, Cent., IX, 12.—D. C.

- mendica* LOEW, Cent., IX, 10.—N. Y.
mendosa LOEW, Cent., IX, 11.—D. C., Tenn. Also N. J.—Smith Cat.
notabilis WILLISTON, Kans. Univ. Quart., II, 59.—Wash.
parva WILLISTON, Dipt. St. Vincent, 257.—St. Vincent, W. I.
pectoralis COQUILLET, Can. Ent., XXVII, 199.—Nev.
pictipennis WILLISTON, Dipt. St. Vincent, 257, pl. VIII, f. 10 (St. Vincent, W. I.);
 Biologia, Diptera, Suppl., 218, oc. in Guerro, Mex.
pulchra WILLISTON, Kans. Univ. Quart., II, 59.—Wash.
subterminalis SAY, Jour. Acad. Sci. Phil., VI, 152; Compl. Works, II, 430.—Ind.
tæniata WINNERTZ, Mon., 701.—Europe.
 SCHINER, Fauna Austr., II, 438.
 Identified from N. J. by Coquillett—Smith Cat.

TETRAGONEURA.

- WINNERTZ, Stett. Ent. Zeit., 1846, 5; Mon., 764, 1863.
 SCHINER, Fauna Austriaca, II, 451, 1864.
 LOEW, Mon. N. A. Dipt., I, 14, oc. III N. A., 1862.
bicolor COQUILLET, Proc. U. S. N. M., XXIII, 595.—Franconia, N. H.
nitida ADAMS, Kans. Univ. Sci. Bull., II, 23—Atherton, Mo.
pimpla COQUILLET, Proc. U. S. N. M., XXIII, 595.—Montgomery Co., Pa.

SCIOPHILA.

- MEIGEN, Syst. Besch., I, 245, 1818.
 ZETTERSTEDT, Dipt. Scand., XI, 4096, 1852.
 WINNERTZ, Mon., 707, 1863.
 SCHINER, Fauna Austr., II, 441, 1864.
angulata ADAMS, Kans. Univ. Sci. Bull., II, 22.—Manitou Park, Col.
appendiculata LOEW, Cent., IX, 19.—N. Y.
bifasciata SAY, Long's Exped., Appendix, 363; Compl. Works, I, 246.—N. W. Terr.
 WIEDEMANN, AUSS. ZW., I, 62.
 "Perhaps a *Ncoempheria*." Loew, quoted by Osten Sacken, Cat., 9.
 Wh. Mts., N. H.—Slosson.
biseriata LOEW, Cent., IX, 20.—Red R. of the North.
diluta WILLISTON, Dipt. St. Vincent, 263, pl. VIII, f. 17.—St. Vincent, W. I.
flavohirta COQUILLET, Proc. U. S. N. M., XXIII, 596.—Franconia, N. H.
grisea WALKER, see *Polylepta*.
hirticollis SAY, Long's Exped., Appendix, 362; Compl. Works, I, 246.—N. W. Terr.
 WIEDEMANN, AUSS. ZW., I, 64.
 Wh. Mts., N. H.—Slosson.
littoralis SAY, Long's Exped., Appendix, 361; Compl. Works, I, 245.—Lake Superior.
 WIEDEMANN, AUSS. ZW., I, 64.
 N. J.—Smith Cat.
nigricauda ADAMS, Kans. Univ. Sci. Bull., II, 23.—Colorado City, Colo.
obliqua SAY, Long's Exped., Appendix, 363; Compl. Works, I, 247.—N. W. Terr.
 WIEDEMANN, AUSS. ZW., I, 63.
 Wh. Mts.—Mrs. Slosson.
obtruncata LOEW, Cent., IX, 18.—D. C.
onusta LOEW, Cent., IX, 17.—D. C.
popocatapetli BELLARDI, Saggio, I, 11.—Mex., Mt. Popocatapetli.

- pulchra** JOHANNSEN, Ent. News, xiv, 14.—Axton, N. Y.
subcærulea COQUILLET, Proc. U. S. N. M., xxiii, 595.—N. H., Pa., and Ottawa, Can.
tantilla LOEW, Cent., ix, 21.—D. C.

LASIOSOMA.

- WINNERTZ, Mon., 748, 1863.
 SCHINER, Fauna Austr., ii, 448, 1864.
fasciata SAY, Jour. Acad. Sci. Phil., iii, 20; Compl. Works, ii, 50 (*Sciophila*).
 —Pa. and Md.
 WIEDEMANN, Auss. Zw., i, 62 (id.).
 OSTEN SACKEN, Cat., 10, gen. ref.
 Beulah, N. M.—Skinner.
hirta MEIGEN, Syst. Besch., i, 251 (196) (*Sciophila*).—Europe.
 ZETTERSTEDT, Ins. Lapp., 800 (*Sciophila pilosula*); Dipt. Scand. xi, 4133 (*Sciophila*).
 WINNERTZ, Mon., 749.
 SCHINER, Fauna Austr., ii, 449.
 LUNDBECK, Dipt. Groenlandica, 257, oc. in Greenland.
pallipes SAY, Long's Exped., Appendix, 361; Compl. Works, i, 245 (*Sciophila*).
 —N. W. Terr.
 WIEDEMANN, Auss. Zw., i, 62 (id.).
 OSTEN SACKEN, Cat., 10, gen. ref.
quadratura LOEW, Cent., ix, 22.—Me.

NEOEMPHERIA.

- OSTEN SACKEN, Cat., 9, change of name, 1878.
 WINNERTZ, Mon. 738, 1863 (*Empheria*, preoc.)
 SCHINER, Fauna Austr., ii, 446, 1864 (id.).
balioptera LOEW, Cent., ix, 13.—Ill. Also N. J.—Smith Cat.
didyma LOEW, Cent., vii, 9 (*Sciophila bimaculata*, preoc.); ix, 14, change of name and redescr.—English Riv., Canada.
 N. J.—Smith Cat., and Montreal—Chagnon.
kincaidii COQUILLET, Proc. Wash. Acad. Sci., ii, 391.—Popoff Id., Alaska.
maculipennis WILLISTON, Dipt. St. Vincent, 262, pl. viii, f. 16.—St. Vincent, W. I.
nepticula LOEW, Cent., ix, 15.—Ga. Also N. J.—Smith Cat.

POLYLEPTA.

- WINNERTZ, Mon., 745, 1863.
 SCHINER, Fauna Austr., ii, 447, 1864.
fragilis LOEW, Cent., ix, 16.—Mass.
grisea WALKER, List, i, 92 (*Sciophila*).—Huds. Bay Terr.
 White Mts., N. H.—Slosson.
leptogaster WINNERTZ, Mon., 746.—Europe.
 SCHINER, Fauna Austr., ii, 448.
 COQUILLET, Ent. News, Jan., 1902, oc. in White Mts., N. H.
tibialis COQUILLET, Proc. U. S. N. M., xxiii, 596.—White Mts., N. H.
 N. J.—Smith Cat.

DIOMONUS.

- WALKER, List, i, 87, 1848.
 TOWNSEND, Trans. Amer. Ent. Soc., xix, 155, 1892; notes—doubts validity.
nebulosus WALKER, loc. cit.—Martin Falls, Canada.

ACNEMIA.

- WINNERTZ, Mon., 798, 1863.
 SCHINER, Fauna Austr., II, 461, 1864.
flaveola COQUILLET, Proc. U. S. N. M., XXIII, 598.—Delaware Water Gap, N. J.
 N. J.—Smith Cat.
psylla LOEW, Cent., IX, 34.—Md.

GNORISTE.

- MEIGEN, Syst. Besch., I, 243, 1818.
 ZETTERSTEDT, Dipt. Scand., XI, 4091, 1852.
 WINNERTZ, Mon., 777, 1863.
 SCHINER, Fauna Austr., II, 455, 1864.
grønlandica LUNDBECK, Dipt. Grønlandica, I, 259.—Greenland.
megarrhina OSTEN SACKEN, West. Dipt., 193.—Yosemite, Cal.
 N. J.—Smith Cat.

PROBOLÆUS.

- WILLISTON, Dipt. St. Vincent, 261, 1896.
singularis WILLISTON, loc. cit., pl. VIII, f. 15.—St. Vincent, W. I.

SYNTEMNA.

- WINNERTZ, Mon., 767, 1863.
 SCHINER, Fauna Austr., II, 452, 1864.
mutor ADAMS, Kans. Univ. Sci. Bull., II, 24.—Atherton, Mo.
polyzona LOEW, Cent., IX, 24.—Mid. States. Also N. J.—Smith Cat.

ANACLINIA.

- WINNERTZ, Mon., 770, 1863.
 SCHINER, Fauna Austr., II, 453, 1864.
nemoralis MEIGEN, Syst. Besch., I, 265 (*Mycetophila*).—Europe.
 WINNERTZ, Mon., 771.
 SCHINER, Fauna Austr., II, 454.
 COQUILLET, Proc. Wash. Acad. Sci., II, 394, oc. at Sitka, Alaska.

BOLETINA.

- STAEGER, Kröyer's Tidskr., III, 234, 1840.
 WINNERTZ, Mon., 762, 1863.
 SCHINER, Fauna Austr., II, 454, 1864.
abdominalis ADAMS, Kans. Univ. Sci. Bull., II, 24.—Atherton, Mo.
arctica HOLMGREN, Ins. Nordgroenl., in Oefv. kongl. vetensk. Akad. Förh., 1872,
 100.—North Greenland.
 ?RÜBSAAMEN, Bibl. Zoolog., 1898, 104, notes, etc., with a doubt.—Green-
 land.
 LUNDBECK, Dipt. Groenl., I, 258, notes.
beringensis COQUILLET, Dipt. of Commander Ids., 342 (*Ncoglyphoptera*).—
 Bering Id. Gen. ref. corrected in Proc. U. S. N. M., XXIII, 599.
grønlandica STAEGER, Groenl. Antliater, 17.—Greenland.
 ZETTERSTEDT, Dipt. Scand., XI, 4154.
 SCHIÖDTE, in Rink's Greenland, 68.
 HOLMGREN, Ins. Nordgroenl., 105.
 ZETTERSTEDT, Ins. Lapp., 862 (*Leia trivittata*, in part; from Greenl.)
 LUNDBECK, Dipt. Groenl., I, 258.—Various parts of Greenland.

- inops** COQUILLET, Proc. Wash. Acad. Sci., II, 391.—Alaska.
sciarina STAEGER, Kröyer's Tidskr., III, 336.—Europe.
 ZETTERSTEDT, Ins. Lapp., 866 (*Mycetophila obscurella*); Dipt. Scand., XI, 4159.
 SCHINER, Fauna Austr., II, 454.
 RÜBSAAMEN, Bibl. Zool., 1898, 106, note, pl. VI, f. 27, 29.
 LUNDBECK, Dipt. Groenl., I, 258, oc. in Greenland.
 White Mts., N. H.—Slosson.
tricincta LOEW, Cent., IX, 25.—Md., Wis. Also N. J.—Smith Cat.

LEPTOMORPHUS.

- CURTIS, Brit. Ent., 365, 1831.
 WINNERTZ, Mon., 769, 1863.
 SCHINER, Fauna Austr., II, 453, 1864.
hyalinus COQUILLET, Proc. U. S. N. M., XXIII, 598.—White Mts., N. H.
parvulus COQUILLET, loc. cit., 597.—Del. Water Gap, N. J.

LEIA.

- MEIGEN, Syst. Besch., I, 253, 1818.
 ZETTERSTEDT, Dipt. Scand., XI, 4139, 1852.
 WINNERTZ, Mon., 792, 1863.
 SCHINER, Fauna Austr., II, 459, 1864.
abbreviata LOEW, Cent., IX, 33.—Mid. States.
hopkinsii COQUILLET, Can. Ent., XXVII, 200 (*Mycetophila*).—W. Va. Refers to *Leia* in Proc. U. S. N. M., XXIII, 599.
punctata BELLARDI, Saggio, Appendix, 5, pl. III, f. 3.—Mex.
sororcula LOEW, Cent., IX, 32.—N. Y. Also N. J.—Smith Cat.
unicolor WALKER, List, I, 93.—Hudson's Bay Terr.

EPICYPTA.

- WINNERTZ, Mon., 909, 1863.
 SCHINER, Fauna Austr., II, 482, 1864.
pulicaria LOEW, Cent., IX, 41.—Pa.
punctum STANNIUS, Observ. de Mycet. 16, f. 4, 1831.—Europe.
 WINNERTZ, Mon., 910.
 SCHINER, Fauna Austr., II, 483.
 Occurs in N. J.—Smith Cat.

DOCOSIA.

- WINNERTZ, Mon., 802, 1863.
 SCHINER, Fauna Austr., II, 462, 1864.
dichroa LOEW, Cent., IX, 35.—D. C.
longicornis COQUILLET, Proc. U. S. N. M., XXIII, 597.—White Mts., N. H.
obscura COQUILLET, loc. cit., 597.—White Mts., N. H.
vittata COQUILLET, loc. cit., 597.—Franconia, N. H.

PHTHINIA.

- WINNERTZ, Mon., 779, 1863.
 SCHINER, Fauna Austr., II, 456, 1864.
fraudulenta WILLISTON, Dipt. St. Vincent, 263, pl. VIII, f. 18.—St. Vincent, W. I.
tanypus LOEW, Cent., IX, 26.—N. Y.

PHRONIA.

- WINNERTZ, Mon., 875, 1863.
 SCHINER, Fauna Austr., II, 1864.
rustica WINNERTZ, Mon., 875.—Europe.
 SCHINER, Fauna Austr., II, 472.
 LUNDBECK, Dipt. Groenl., I, 262, oc. in Greenland.

ZYGOMYIA.

- WINNERTZ, Mon., 901, 1863.
 SCHINER, Fauna Austr., II, 480, 1864.
ignobilis LOEW, Cent., IX, 39.—Mid. States.
ornata LOEW, Cent., IX, 40.—Pa.

NEOGLAPHYROPTERA.

- OSTEN SACKEN, Catalogue, 1878, change of name.
 WINNERTZ, Mon., 781, 1863 (*Glaphyroptera*, preoc.).
 SCHINER, Fauna Austr., II, 456, 1864 (id.).
amabilis WILLISTON, Biologia, Dipt., Suppl., 219.—Mexico, several places.
beringensis COQUILLET, see *Boletina*.
bivittata SAY, Jour. Acad. Sci. Phil., VI, 152; Compl. Works, II, 351 (*Lcia*).—Indiana.
 VAN DER WULP, Tijdschr. v. Ent., XI, 131, pl. III, f. 3, 4 (*lateralis*).—Wis. [Syn. by Loew, in O. S. Cat.]. Also N. J.,—Smith Cat. I have seen the species from Kans., Ia., and Wis.
cincta COQUILLET, Proc. Acad. Nat. Sci., 1895, 308.—Fla.
concinna WILLISTON, Dipt. St. Vincent, 259.—St. Vincent, W. I.
cuneola ADAMS, Kans. Univ. Sci. Bull., II, 25.—Colorado Spr., Colo.
decora LOEW, Cent., IX, 28.—Ga.
lineola ADAMS, Kans. Univ. Sci. Bull., II, 25.—Kern Co., Calif.
melæna LOEW, Cent., IX, 27.—N. Y.
nitens WILLISTON, Dipt. St. Vincent, 259, pl. VIII, f. 13.—St. Vincent, W. I.
oblectabilis LOEW, Cent., IX, 31.—Mid. States.
opima LOEW, Cent., IX, 29.—Conn. Also N. J.—Smith Cat.
striata WILLISTON, Kans. Univ. Quart., II, 60.—Wash.
sublunata LOEW, Cent., IX, 30.—N. Y.
varia WALKER, List I, 93 (*Lcia*).—Huds. Bay Terr.
ventralis SAY, Long's Exped., Appendix, 364; Compl. Works, I, 247 (*Lcia*).—N. W. Terr.
 WIEDEMANN, AUSS. ZW., I, 65 (id.). Also N. J.—Smith Cat. (*Lcia*), and White Mts., N. H.—Slosson, the last referred to this genus by Coquillett.
winthemii LEHMANN, Ins. Spec. Nonnullæ, etc., 18, 1822 (*Lcia*).—Europe.
 MEIGEN, Syst. Besch., VI, 296 (id.)
 SAY, Long's Exped., Appendix, 365; Compl. Works, I, 248 (*Mycctophila maculipennis*).—N. W. Terr. [Loew, in O. S. Cat.].
 WIEDEMANN, AUSS., ZW., I, 66 (id.).
 WALKER, List I, 93 (*Lcia trifasciata*).—Huds. Bay Terr. [Loew, in O. S. Cat.]. Also White Mts., N. H.—Slosson.
 WINNERTZ, Mon., 789. SCHINER, Fauna Austr., II, 457.

ODONTOPODA.

- ALDRICH, 21st Report Geol. Ind., 1896, 187 (published 1897).
sayi ALDRICH, loc. cit., 187, fig.—Marengo Cave, Ind.

TRICHONTA.

- WINNERTZ, Mon., 847, 1863.
 SCHINER, Fauna Austr., II, 469, 1864.
fœda LOEW, Cent., IX, 38.—Mid. States.
obesa WINNERTZ, Mon., 854.—Europe.
 SCHINER, Fauna Austr., II, 469.
 LUNDBECK, Dipt. Groenlandica, I, 261, oc. in Greenland.
perspicua VAN DER WULP, Tijdschr. v. Ent., XXIV, 142.—Quebec.
 N. J.—Smith Cat.
vulgaris LOEW, Cent., IX, 37.—D. C.

RHYMOSIA.

- WINNERTZ, Mon., 810, 1863.
 SCHINER, Fauna Austr., II, 463, 1864.
filipes LOEW, Cent., IX, 36.—Conn.

ALLODIA.

- WINNERTZ, Mon., 826, 1863.
 SCHINER, Fauna Austr., II, 466, 1864.
crassicornis STANNIUS, Observ. de Mycetophil., 1831, 22 (*Mycetophila*).—Europe.
 ZETTERSTEDT, Dipt. Scand., XI, 4223 (*Mycetophila spinicora*) [Schiner].
 WINNERTZ, Mon., 828.
 SCHINER, Fauna Austr., II, 467.
 Oc. in N. A. reported by Loew in O. S. Cat.—Md., Pa.

BRACHYCAMPTA.

- WINNERTZ, Mon., 833, 1863.
 SCHINER, Fauna Austr., II, 468, 1864.
unicolor LUNDBECK, Dipt. Groenlandica, I, 260.—Greenland.

MYCOTHERA.

- WINNERTZ, Mon., 913, 1863.
 SCHINER, Fauna Austr., II, 483, 1864.
paula LOEW, Cent., IX, 42.—Mid. States.

EXECHIA.

- WINNERTZ, Mon., 879, 1863.
 SCHINER, Fauna Austr., II, 475, 1864.
analis COQUILLET, Proc. U. S. N. M., XXIII, 598.—Del. Water Gap, N. J.
fungorum DEGEER, Ins., VI, 142 (*Tipula*).—Europe.
 LATREILLE, Gen. Crust., IV, 264 (*Mycetophila fusca*) [Meigen].
 MEIGEN, Syst. Besch., I, 266 (208) (id.).
 MACQUART, Hist. Nat. Dipt., I, 134 (id.).
 ZETTERSTEDT, Dipt. Scand., XI, 4235 (id.).
 WINNERTZ, Mon., 886.
 SCHINER, Fauna Austr., II, 478.
 LUNDBECK, Dipt. Groenlandica, I, 262, oc. in Greenland.
interrupta ZETTERSTEDT, Dipt. Scand., XI, 4240 (*Mycetophila*).—Europe.
 WINNERTZ, Mon., 896.
 SCHINER, Fauna Austr., II, 477.
 LUNDBECK, Dipt. Groenlandica, I, 262, oc. in Greenland.

MYCETOPHILA.

- MEIGEN, Illig. Mag., II, 263, 1803; Syst. Besch., I, 260, 1818.
 ZETTERSTEDT, Dipt. Scand., X, 4170, 1852.
 WINNERTZ, Mon., 915, 1863.
 SCHINER, Fauna Austr., II, 484, 1864.
- bifasciata* WALKER, List I, 96—Martin Falls, Canada.
 White Mts., N. H.—Slosson.
- bipunctata* LOEW, Cent., IX, 44.—Wis. Also N. J.—Smith Cat.
contigua WALKER, List I, 96.—Nova Scotia. Also N. J.—Smith Cat.
despecta WALKER, List I, 101.—Martin Falls, Canada.
discoidea SAY, Jour. Acad. Sci. Phil., VI, 153; Compl. Works, II, 351.—Indiana.
dolosa WILLISTON, Dipt. St. Vincent, 264.—St. Vincent, W. I.
extincta LOEW, Cent., IX, 43.—Mid. States.
fallax LOEW, Cent., IX, 50.—Mid. States.
hopkinsii COQUILLET, see *Leia*.
- ichneumonea* SAY, Jour. Acad. Sci. Phil., III, 16; Compl. Works, II, 43.—Pa.
 WIEDEMANN, AUSS. ZW., I, 67.
 Beulah, N. M.—Skinner.
- inculta* LOEW, Cent., IX, 46.—Mid. States.
insipiens WILLISTON, Dipt. St. Vincent, 264, pl. VIII, f. 19.—St. Vincent, W. I.
læta WALKER, List I, 97.—Nova Scotia.
monochæta LOEW, Cent., IX, 54.—D. C.
mutica LOEW, Cent., IX, 45.—Mid. States.
- nodulosa* WILLISTON, Dipt. St. Vincent, 264, pl. VIII, f. 20.—St. Vincent, W. I.
nubila SAY, Jour. Acad. Sci. Phil., VI, 153; Compl. Works, II, 351.—Ind.
obscura WALKER, List I, 101.—Martin Falls, Canada. Also N. J.—Smith Cat.,
 and White Mts., N. H.—Slosson.
- parva* WALKER, List I, 97.—Martin Falls, Canada.
pinguis LOEW, see *Dynatosoma*.
- plebeja* WALKER, List I, 100.—Martin Falls, Canada.
polita LOEW, Cent., IX, 53.—N. Y.
procera LOEW, Cent., IX, 55.—N. Y.
propinqua WALKER, List I, 96.—Nova Scotia.
- punctata* MEIGEN, Klassifikation, 91; Syst. Besch., I, 264 (the latter as *punctata*,
semicineta and *cunctans*); VI, 30 (*trivialis*); VII, 43 (*unicolor*), 44 (*rufa*
 MACQ.).—Europe. [Winnertz.]
 FABRICIUS, Syst. Antl., 58 (*Sciara striata*). [Winnertz.]
 ZETTERSTEDT, Dipt. Scand., XI, 4200.
 WINNERTZ, Mon., 916.
 SCHINER, Fauna Austr., II, 484.
 LUNDBECK, Dipt. Groenl., I, 262, oc. in Greenland.
 AXTON, N. Y.—M. & H.; N. J.—Smith Cat.; White Mts., N. H.—Slosson;
 Montreal—Chagnon.
- Note*.—The authorities all omit Meigen's description in his Klassifikation, thus giving Fabricius priority; Coquillett, however, gives me this reference, the work being inaccessible to me.
- quatuornotata* LOEW, Cent., IX, 52.—Md.
sericea SAY, Long's Exped., Appendix, 365; Compl. Works, I, 248.—N. W. Terr.
 WIEDEMANN, AUSS. ZW., I, 66.
sigmoides LOEW, Cent., IX, 51.—Mid. States. Also N. J.—Smith Cat.; White
 Mts., N. H.—Slosson.
- trichonota* LOEW, Cent., IX, 49.—D. C.
umbratica ALDRICH, 21st Rept. Geol. Indiana, 1896, 186, fig.—Shiloh Cave, Ind.

DYNATOSOMA.

- WINNERTZ, Mon., 947, 1863.
 SCHINER, Fauna Austr., II, 491, 1864.
 COQUILLET, Can. Ent., XXVII, 201, 1895.
fulvida COQUILLET, Can. Ent., XXVII, 200.—Wash.
 Beulah, N. M.—Skinner.
pinguis LOEW, Cent., IX, 47 (*Mycetophila*).—English Riv., Br. Amer.
 White Mts., N. H.—Slosson (determined and referred to this genus by
 COQUILLET, as is the following species).
scalaris LOEW, Cent., IX, 48 (*Mycetophila*).—Mid. States.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson.
thoracica COQUILLET, Proc. U. S. N. M., XXIII, 598.—Ill. and White Mts., N. H.

BOLITOPHILA.

- MEIGEN, Syst. Besch., I, 220, 1818.
 ZETTERSTEDT, Dipt. Scand., X, 4053, 1851.
 WINNERTZ, Mon., 672, 1863.
 SCHINER, Fauna Austr., II, 429, 1864.
cinerea MEIGEN, Syst. Besch., I, 221, pl. VIII, f. 1, 2.—Europe.
 MACQUART, Hist. Nat. Dipt., I, 126.
 ZETTERSTEDT, Dipt. Scand., X, 4057.
 WINNERTZ, Mon., 674.
 SCHINER, Fauna Austr., II, 430.
 OSTEN SACKEN, Cat., 8, occurrence in N. A., authority of Loew.
disjuncta LOEW, in O. S. Cat., is a MS. species.
fusca MEIGEN, see *hybrida*.
hybrida MEIGEN, Klassifikation, I, 47 (*Macrocera*); Syst. Besch., I, 221, pl. VIII,
 f. 1, 2 (*fusca*).—Europe.
 DUFUR, Ann. d. Sc. Nat., 1839, 20 (*Macrocera*).
 CURTIS, Brit. Ent., VIII, 581 (*Messala saundersii*).
 WALKER, Ent. Mag., III, 179 (*maculifemnis*).
 WINNERTZ, Mon., 673.
 SCHINER, Fauna Austr., II, 430.
 White Mts.—Slosson (det. Coquillett).
montana COQUILLET, Proc. U. S. N. M., XXIII, 593.—Mt. Wash., N. H.

MACROCERA.

- MEIGEN, Illig. Mag., II, 261, 1803; Syst. Besch., I, 222, 1818.
 WINNERTZ, Mon., 675, 1864.
 SCHINER, Fauna Austr., II, 430, 1864.
clara LOEW, Cent., IX, 6.—D. C. Also N. J.—Smith Cat.
concinna WILLISTON, Dipt. St. Vincent, 255, pl. VIII, f. 7.—St. Vincent, W. I.
 WILLISTON, Biologia, Dipt., I, 217, oc. in Guerrero, Mex.
diluta ADAMS, Kans. Univ. Sci. Bull., II, 22.—Arizona.
formosa LOEW, Cent., IX, 8.—N. Y. Also N. J.—Smith Cat.
hirsuta LOEW, Cent., IX, 5.—D. C. Also N. J.—Smith Cat.
 ALDRICH, 21st Rept. Geol. Indiana, 1896.—Truit's Cave, Ind.
immaculata JOHNSON, Canad. Ent., 1902, 240.—Pa., N. Y.
inconcinna LOEW, Cent., IX, 7.—D. C. Also White Mts., N. H.—Slosson.
nebulosa COQUILLET, Proc. U. S. N. M., XXIII, 594.—N. H., N. J.

DIADOCIDIA.

- RUTHE, Isis, XI, 1210, 1831.
 WINNERTZ, Mon., 665, 1863.
 SCHINER, Fauna Austr., II, 426, 1864.
borealis COQUILLET, Proc. Wash. Acad. Sci., II, 390.—Lowe Inlet, Br. Col.
ferruginosa MEIGEN, Syst. Besch., VI, 294 (*Mycetobia*).—Europe.
 SCHINER, Fauna Austr., II, 426.
 COQUILLET, Proc. Wash. Acad. Sci., II, 390, oc. in White Mts., N. H.

EPIDAPUS.

- HALIDAY, Ins. Brit., Dipt., I, 7, 1851.
 SCHINER, Fauna Austr., II, 416, 1864.
 WINNERTZ, Mon. Sciarinen, 182, 1867.
scabiei HOPKINS, Proc. Ent. Soc. Wash., III, 149-159, full life hist., etc.; 20 figs.—
 West Va.; larva causes a form of scab in potatoes.
 HOPKINS, Special Bull. W. Va. Exp. Station, No. 2, 97-106, figs., life hist.,
 etc. Both papers issued in 1895.
 HOWARD, Ins. Life, VII, 279, oc. in Missouri.

EUGNORISTE.

- COQUILLET, Proc. Ent. Soc. Wash., III, 321, 1896.
 MIK, Wien. Ent. Zeitung, 1896, 300, doubts relation to *Gnoriste*; 1897, 39,
 says is entirely different, and quotes Osten Sacken's opinion (*in litt.*)
 that it is a *Sciara*.
occidentalis COQUILLET, loc. cit.—Las Cruces, N. M.
Note.—The species is common on golden-rod in fall at Moscow, Idaho;
 I consider it a distinct genus of the Sciarinæ, not closely related to *Gnor-*
iste.

ZYGONEURA.

- MEIGEN, Syst. Besch., VI, 304, 1830.
 SCHINER, Fauna Austr., II, 416, 1864.
 WINNERTZ, Mon. Sciarinen, 186, 1867.
sciastica WILLISTON, Dipt. St. Vincent, 286, pl. VIII, f. 24.—St. Vincent, W. I.
toxoneura OSTEN SACKEN, Proc. Ent. Soc. Phil., 1862, 165 (*Sciara*).—D. C. Gen.
 ref. in Cat., 13.

TRICHOSIA.

- WINNERTZ, Mon. Sciarinen, 173, 1867.
hebes LOEW, Cent., IX, 58.—N. Y.

SCIARA.

- MEIGEN, Illig. Mag., II, 263, 1803; Syst. Besch., I, 276, 1818.
 LATREILLE, Hist. nat. Crust. et Ins., XIV, 288 (*Molobrus*), 1804.
 ZETTERSTEDT, Dipt. Scand., X, 3711, 1851.
 SCHINER, Fauna Austr., II, 417, 1864.
 WINNERTZ, Mon. Sciarinen, II, 1867; a classic monograph of the European
 species of the subfamily.
 WILLISTON, Dipt. St. Vincent, 265, table of St. Vincent species.
 LINTNER, 10th N. Y. Rept., 387, 391, extended bibliographical notes.
Note.—For the occurrence in this country of the march of masses of
 larvæ, called "Heerwurm" in Germany, and "Snake-worm" in the United
 States, see

GLOVER, Rept. Dept. Ag., 1872, 115; two cases in Va., with figs. of larva and fly.

RILEY and HOWARD, Insect Life, iv, 1891, 214.

WEBSTER, Science, Feb. 23, 1894, 109.

E. D. COPE, letter to Osten Sacken, published in Psyche, 1897, 75.

FELT, 10th N. Y. Rept., 992-994, 1901, at Franklin, N. Y.

For *Sciara* sp. infesting roots of grass, see FORBES, Ill. Report, 1883, 57, pl. iv, f. 5-9.

For occurrence of *Sciara* in caves, see ALDRICH, 21st Report Geol. Ind., 1896, 186; also below.

abbreviata WALKER, List 1, 109.—Martin Falls, Canada. Also N. J.—Smith Cat., and White Mts., N. H.—Slosson.

I consider Walker's three-line description quite unrecognizable.

agraria FELT, in Lintner's 12th N. Y. Report, 225, pl. vi, f. 5, 6, 10. N. Y.; collected in a mushroom cellar.

alternata RÜBSAAMEN, Bibl. Zool., xx, Lief. 4, 106.—Greenland.

americana WIEDEMANN, Auss. Zw., 1, 68.—Brazil.

SCHINER, Novara, II, Brazil and Columbia; would include *atra* Mcq. and *cognata* and *precipua* WALKER, all South American, in the synonymy.

OSTEN SACKEN, Biologia, Dipt., 1, 1, oc. in Mexico and Central America; remarks on the synonymy.

RILEY, Amer. Nat., 1881, 150 (The Yellow Fever Fly), biology.

WILLISTON, Biologia, Dipt., Suppl., 221, oc. in several places in Mex.

aprilina MEIGEN, Syst. Besch., 1, 285 (223).—Europe.

ZETTERSTEDT, Dipt. Scand., x, 3754.

SCHINER, Fauna Austr., II, 424.

LUNDBECK, Dipt. Groenl., 1, 250, oc. in Greenland.

atra MACQUART, Dipt. Exot., 1, 1, 78.—Brazil.

BELLARDI, Ditt. Mess., 1, 12, oc. in Mexico.

See *americana*.

atrata SAY, Long's Exped., App., 366; Compl. Works, 1, 249.—N. W. Terr.

WIEDEMANN, Auss. Zw., 1, 70.

attenuata RÜBSAAMEN, Bibl. Zool., 1898, Heft xx, Lief. 4, 106.—Greenland.

LUNDBECK, Dipt. Groenl., 1, 242, pl. v, f. 1 (*latipennis*) [Lundbeck]. Greenland.

biformis LUNDBECK, Dipt. Groenl., 1, 256.—Greenland.

borealis RÜBSAAMEN, Bibl. Zool., 1898, Lief. 4, 109, pl. vi, f. 14.—Greenland.

COQUILLET, Proc. Wash. Sci., II, 392, oc. in Sitka, Alaska.

caldaria LINTNER, Lintner, 10th N. Y. Report, 397, figs.—Boise, Idaho; larvae in greenhouse pots.

cochleata RÜBSAAMEN, Bibl. Zool., 1898, Lief. 4, 108, pl. vi, f. 22.—Greenland

?RÜBSAAMEN, loc. cit., 107 (*marginata*) [Lundbeck, with ?] Greenland.

LUNDBECK, Dipt. Groenl., 1, 247, pl. v, f. 6 (*hemorrhoidalis*) [Lundbeck].—Greenland.

concinna WILLISTON, Dipt. St. Vincent, 266.—St. Vincent, W. I.

coprophila LINTNER, 10th N. Y. Rept., 391.—New York. The Manure Fly; desc. of habits, etc.

debilis WILLISTON, Dipt. St. Vincent, 266, pl. viii, f. 22.—St. Vincent, W. I.

delectata WILLISTON, Dipt. St. Vincent, 267.—St. Vincent, W. I.

dimidiata SAY, Species of American Insects found by Jos. Barabino, sec. ed., 15; Compl. Works, 1, 308.—New Orleans, La.

exigua SAY, Long's Exped., App., 367; Compl. Works, 1, 249.—N. W. Terr.

WIEDEMANN, Auss. Zw., 1, 60.

- exilis* SAY, Jour. Acad. Sci. Phil., vi, 154; Compl. Works, ii, 352.—Ind.
expolita COQUILLET, Proc. Wash. Acad. Sci., ii, 392.—Sitka, Alaska.
femorata SAY, Jour. Acad. Sci. Phil., iii, 78; Compl. Works, ii, 70.—Pa.
 WIEDEMANN, AUSS. ZW., i, 70.
flavipes PANZER, Fauna Germ., ciii, 15, 1806.—Europe.
 MEIGEN, Syst. Besch., i, 283; vi, 306.
 STAEGER, Dipt. Dan., 1840, 286; Groenl. Antl., 1845, 357, oc. in Greenland.
 ZETTERSTEDT, Dipt. Scand., x, 3762.
 SCHINER, Fauna Austr., ii, 424.
 MACQUART, Hist. Nat. Dipt., i, 149.
 WALKER, Dipt. Brit., iii, 55.
 WINNERTZ, Mon. Sciariinen, 133.
forecipulata LUNDBECK, Dipt. Groenl., i, 244.—Greenland.
fraterna SAY, Long's Exped., App., 367; Compl. Works, i, 249.—N. W. Terr.
 WIEDEMANN, AUSS. ZW., i, 69.
fuliginosa FITCH, 2d N. Y. Rept., 487 (*Molobrus*).—N. Y.
 N. J.—Smith Cat.
fulvicauda FELT, in Lintner's 12th N. Y. Rept., 227, pl. vi, f. 7, 13.—Reared from
 decaying blackberry roots, New Jersey.
fumatella LUNDBECK, Dipt. Groenl., i, 249.—Greenland.
germana WILLISTON, Dipt. St. Vincent, 266, pl. viii, f. 21.—St. Vincent, W. I.
gigantea MACQUART, Dipt. Exot., Suppl. i, 19.—Colombia.
 BELLARDI, Saggio, i, 13, oc. in Mexico.
 OSTEN SACKEN, Biologia, Dipt., i, 2, oc. in Guatemala and Costa Rica.
glacialis RÜBSAAMEN, Bibl. Zool., 1898, Lief. 4, 109, pl. vi, f. 16.—Greenland.
glacialis LUNDBECK, Dipt. Groenl., i, 254.—Greenland.
 The one by RÜBSAAMEN is prior.
 See *humicola*.
gröenlandica HOLMGREN, Ins. Nordgroenl., 104.—Greenland.
 COQUILLET, Proc. Wash. Acad. Sci., ii, 392, oc. in Popoff Ids., Alaska.
hæmorrhoidalis LUNDBECK, see *cochleata*.
humicola LUNDBECK, Dipt. Groenl., i, 252.—Greenland. Op. cit., ii, 313, perhaps
 is same as *glacialis*.
inconstans FITCH, 2d N. Y. Report, 487 (*Molobrus*).—N. Y.
 COQUILLET, Amer. Nat., xxxi, 385, oc. in Mammoth Cave, Ky.; comp. with
 type; larva in decaying apple in the cave.
 CHITTENDEN, Bull. 27, n. s., Div. of Ent., 108, figs.; habits,—injurious in
 greenhouses.—N. Y.; Ottawa; Me.; Pa.; N. J.; Va.; Ill.; O.; Nebr.
 HINE, Ent. News, Sept. 1899, 201, figs., no desc.; larva bores inside stems
 of carnations (Det. by Dept. of Agric.).
iridipennis ZETTERSTEDT, Ins. Lapp., 827.—Lapland. Dipt. Scand., x, 3740.
 STAEGER, Groenl. Antl., 357, 1845, oc. in Greenland.
 COQUILLET, Proc. Wash. Acad. Sci., ii, 392, oc. in Alaska.
latipennis LUNDBECK, see *attenuata*.
lurida WALKER, List, i, 106.—Trenton Falls, N. Y. Dipt. Samd., 418.
mali FITCH, 2d N. Y. Report, 485 (*Molobrus*).—New York. In burrows of cod-
 ling moth in apple.
marginata RÜBSAAMEN, see *cochleata*.
multisetata FELT, in Lintner's 12th N. Y. Report, 223, pl. vi, f. 11.—N. J. Larva
 reared from mushrooms.
nigra WIEDEMANN, Dipt. Exot., 44; AUSS. ZW., i, 68.—Savannah, Ga.
 BEULAH, N. M.—Skinner.
ocellaris OSTEN SACKEN, of Comstock, see *Cecidomyia*.

- ochrolabis** LOEW, *Cent.*, ix, 57.—N. Y. Also White Mts., N. H.—Slosson.
- pauciseta** FELT, in Lintner's 12th N. Y. Report, 224, pl. vi, f. 12.—N. J. Larva bred from decaying potatoes.
- perpusilla** WALKER, *List.*, i, 106.—Martin Falls, Canada.
- polita** SAY, Long's Exped., App., 306; *Compl. Works*, i, 249.—N. W. Terr. WIEDEMANN, *Auss. Zw.*, i, 70. Also N. J.—Smith Cat.
- prolifera** FELT, in Lintner's 12th N. Y. Report, 226.—Mass. In greenhouses.
- punctata** WALKER, *List.*, i, 106.—N. Amer.
- robusta** WALKER, *List.*, i, 105.—Martin Falls, Canada.
- rotundipennis** MACQUART, *Dipt. Exot.*, i, 2, 178.—Carolina. BELLARDI, *Saggio*, i, 13, oc. in Mexico.
- sciophila** LOEW, *Cent.*, ix, 56.—D. C.
- septemtrionalis** RÜBSAAMEN, *Bibl. Zool.*, 1898, Lief. 4, 109, pl. vi, f. 12.—Greenland. LUNDBECK, *Dipt. Groenl.*, ii, 312, note.
- striata** RÜBSAAMEN, *Berl. Ent. Zeitsch.*, 1894, 37.—Mex.
- tilicola** OSTEN SACKEN, quoted by Comstock, *Ag. Report*, 1881, with gall, and this by Packard, 5th Report U. S. Ent. Comm., 412. I do not find the original desc.—it may not have been previously described.
- tridentata** RÜBSAAMEN, *Bibl. Zool.*, 1898, Lief. 4, 107, pl. vi, f. 13, 24.—Greenland. COQUILLET, *Proc. Wash. Acad. Sci.*, ii, 392, oc. in Lowe Inlet, Br. Col. LUNDBECK, *Dipt. Groenl.*, i, 243, pl. v, f. 2 (*validicornis*). [Lundbeck.]
- tritici** COQUILLET, *Ins. Life*, vii, 406, figs., life hist., etc.—D. C. Larvæ live at the roots of young wheat plants.
- unicolor** SAY, *Jour. Acad. Sci. Phil.*, vi, 153; *Compl. Works*, ii, 351.—Mex.
- validicornis** LUNDBECK, see *tridentata*.
- vulgaris** FITCH, 2d N. Y. Report, 487 (*Molobrus*).—N. Y. Also White Mts.,—Slosson.
- zygoneura** WILLISTON, *Dipt. St. Vincent*, 267, pl. viii, f. 23.—St. Vincent, W. I.

MANOTA.

WILLISTON, *Dipt. St. Vincent*, 260, 1896.

Note.—The wing having a very incomplete venation, I cannot place the genus in any of the established subfamilies.

- defecta** WILLISTON, *loc. cit.*, pl. viii, f. 14.—St. Vincent, W. I.

HESPERODES.

COQUILLET, *Ent. News*, 1900, 429.

Note.—This genus is said to be "near *Hesperinus*," which Osten Sacken, after seeing the type, placed in the Bibionidæ.

- johnsoni** COQUILLET, *loc. cit.*—Delaware Water Gap, N. J.

CECIDOMYIDÆ.

There are peculiar difficulties in the task of properly representing this family in the present Catalogue. On account of the fact that many species make galls on plants, we encounter here a mixture of botanical and zoological science, which has tended to separate the study of the Cecidomyidæ from that of the other Diptera. Only those who have made a special study of the family are at all informed about it. Unfortunately, not one of the present generation of American entomologists has given this special attention.

To make matters ten-fold worse, the European specialists in Cecidomyidæ

have come to a practical unanimity in accepting certain principles of nomenclature which radically change the generic names used by Osten Sacken, who followed Loew. The change hinges on the application of the name *Cecidomyia* (disregarding for the time being the new genera which have naturally come into existence), and will be found fully discussed in the following papers:

KARSCH, Revision der Gallmücken, Münster, 1878, 10-20.

OSTEN SACKEN, Catalogue, 215, note 1, 1878.

RÜBSAAMEN, Berl. Ent. Zeitsch., XXXVII, 324-327, 1892.

KIEFFER, Annales Soc. Ent. France, 1900, 436.

OSTEN SACKEN, Ent. Mo. Mag., 1901, 40-43.

The practical effect of the changes adopted by Karsch, Rübsaamen and Kieffer is to apply the name *Cecidomyia* to the *Diplosis* of Osten Sacken's Catalogue, and to divide up his *Cecidomyia* between *Rhabdophaga* and *Dasyncura*. As nearly all the species in the family were referred to *Cecidomyia* and *Diplosis* in Osten Sacken's Catalogue, the adoption of the changed nomenclature will leave few members of the family in the same genera to which Osten Sacken referred them.

Realizing the immense practical disadvantage of such an overturning of names, I should have been well content to let the problems of nomenclature lie in abeyance; but they have been already threshed out in Europe, and the conclusions reached and put in use there cannot be ignored.

After much consideration, I can find no better course to follow than to adopt the generic distribution of Kertész, in his *Catalogus Dipteriorum*, vol. II. Not having much knowledge of the family myself, and not being able to consult an American authority on it, I have carried out this plan. I take occasion to remark, however, that Osten Sacken thoroughly disapproves of the changes, and has given, in the last reference above, his reasons for his views.

Some of the species still included under *Cecidomyia* doubtless belong to other established genera, but are not yet sufficiently described to allow of a positive reference; in fact, many of the species need further study, and at best the present scheme must be considerably modified by more thorough investigation. No family of the Diptera offers greater inducements to a worker who will patiently carry on the biological and systematic study of it conjointly.

The status of those names which have been applied to larvæ and galls only, or to pupæ, larvæ and galls, or even to galls alone, need not be settled at the present time. I have placed all such names in a division by themselves. My opinion is that when the adult is at last described, the same old specific name should be used, unless impracticable, but that thenceforth the description of the adult should be regarded as the real description of the species. Meanwhile, it is very convenient, and thoroughly in accord with the objects of nomenclature, that the provisional name should stand.

A few species described since Kertész have been added, in harmony with his general distribution.

Cross-references have not been thought necessary, considering the small size of the family.

The European literature is voluminous; Kieffer gives over 800 references. His *Monographie des Cécidomyides d'Europe et d'Algerie*, in *Annales Soc. Ent. France*, 1900, 181-472, 30 plates, is indispensable to any student of the family. I add here only a few references.

COMSTOCK, Dept. Agric. Rept., 1880, 270, 271, list of references on parasitic and inquiline species.

BRAUER, *Zweifl. d. Kaiserl. Mus.*, III, 1883, 20 and 53, references to descriptions of larvæ.

- MIK, Wien. Ent. Zeit., xvi, 284-289, on mounting and describing specimens.
- OSTEN SACKEN, Western Dipt., 192, 1877, describes several galls without naming them.
- MRS. SLOSSON, Ent. News, vii, 238, a species attaching itself to wing of a lace-wing fly to be carried about.
- SMITH, Dept. Agric. Rept., 1884, 396-398, a species infesting pears in Conn.
- RILEY and HOWARD, Ins. Life, iii, 294, note on a species destroying buds of roses grown under glass—see *Neocerata rhodophaga*.

TRICHOPTEROMYIA.

WILLISTON, Trans. Ent. Soc. Lond., 1896, 255.

modesta WILLISTON, loc. cit., pl. viii, f. 6.—St. Vincent, W. I.

CAMPYLOMYZA.

MEIGEN, Syst. Besch., i, 101, 1818.

LOEW, Mon. N. A. Dipt., i, 178, 1862.

SCHINER, Fauna Austr., ii, 411, 1864.

atra MEIGEN, Syst. Besch., i, 102; vi, 271.—Europe.

ZETTERSTEDT, Dipt. Scand., ix, 3670.

SCHINER, Fauna Austr., ii, 412.

WINNERTZ, Verh. Zool.-Bot. Ges., xx, 25.

LUNDBECK, Dipt. Grœnl., i, 239, oc. in Greenland.

scutellata SAY, Jour. Acad. Sci. Phil., iii, 17; Compl. Works, ii, 44.—Mo.

WIEDEMANN, Auss. Zweifl., i, 22.

LESTREMIA.

MACQUART, Dipt. Nord. de la France, i, 123, 1826; Hist. Nat. Dipt., i, 157, 1834.

LOEW, Stett. Ent. Zeit., v, 324, 1844 (*Cecidogona*).

SCHINER, Fauna Austr., ii, 413, 1864.

leucophæa MEIGEN, Syst. Besch., i, 281 (*Sciara*); vi, 308, pl. LXV, f. 16.—Europe.

ZETTERSTEDT, Dipt. Scand., x, 3768.

SCHINER, Fauna Austr., ii, 413.

COQUILLET, Ent. News, 1896, 263, records from White Mts., N. H.

LASIOPTERA.

MEIGEN, Syst. Besch., i, 88, 1818.

WINNERTZ, Mon. Gallmücken, 191, 1853.

OSTEN SACKEN, Mon. N. A. Dipt., i, 175, 1862.

SCHINER, Fauna Austr., ii, 406, 1864.

carbonitens COCKERELL, Canad. Ent., xxxiv, 183.—Las Valles, N. M.; larvæ in "aborted shoots of grass."

ephedræ COCKERELL, Ann. & Mag. Nat. Hist., ser. vii, vol. ii, 327.—N. M.; bred from *Ephedra trifurca*.

ephedricola COCKERELL, Canad. Ent., xxxiv, 184.—Mesilla Park, N. M.; gall on *Ephedra trifurca*, a swelling of the twig.

muhlenbergiæ MARTEN, Bull. Ohio Ex. Sta., Technical ser., i, No. 3, p. 155—Ohio; gall in tip of *Muhlenbergia mexicana*, shown in pl. ii, f. 6.

parva WALKER, List, i, 29.—Martin Falls, Canada.

- solidaginis** OSTEN SACKEN, Proc. Ent. Soc. Phil., I, 370.—D. C.; larvæ probably inquilinous in galls on Solidago.
- tertia** COCKERELL, Ann. and Mag. Nat. Hist., ser. VII, vol. II, 328.—N. M.
- ventralis** SAY, Long's Exped., App., 357; Compl. Works, I, 242.—Philadelphia.
WIEDEMANN, AUSS. ZW., I, 21.
- vitis** OSTEN SACKEN, MoB. N. A. Dipt., I, 201.—D. C.; larvæ in "swellings of the stem and leafstalks of the wild grape."
WALSH and RILEY, Amer. Ent., I, 1869, 247, fig. of gall.
RILEY, 5th Mo. Rept., 1873, 117, fig. of gall.—Mo.
REED, 13th Rept. Ent. Soc. Ontario, 1883, 49, fig.—Canada.
SAUNDERS, Insects. Inj. to Fruits, 295, fig.
LINTNER, Country Gentleman, XLIV, 407, 1879; LIII, 511, 1888; Fourth N. Y. Rept., 63-67.—N. Y.
N. J.—Smith Cat.
- willistonii** COCKERELL, Ann. and Mag. Nat. Hist., ser. VII, vol. II, 327.—N. M.; bred from *Atriplex canescens*.

RHABDOPHAGA.

- WESTWOOD, Gardener's Chronicle, 1847, 588.
H. LOEW, Dipt. Beitr., IV, 21, 1850 (*Cecidomyia* MEIG., in part).
RONDANI, Atti Soc. Sc. Nat. Milano, II, 286, 1860 (id.).
RÜBSAAMEN, Berl. Ent. Zeitsch., XXXVII, 346 (*Dichelomyia*, in part).
KIEFFER, Bull. Soc. Ent. France, 1896, 189 (*Bertieria*).
- batatas** WALSH, Proc. Ent. Soc. Phil., III, 601; VI, 225 (both *Cecidomyia salicis-batatas*).—Rock Id., III; makes a potato-like, polythalamous gall on *Salix humilis* and other species.
BERGENSTAMM and LOEW, Synopsis, 71, note.
N. J.—Smith Cat.
- brassicoides** WALSH, Proc. Ent. Soc. Phil., III, 577; Amer. Entomologist, I, 105, f. 84 (both *Cecidomyia salicis-brassicoides*).—Rock Id., III; makes a cabbage-like gall on *Salix longifolia*.
PACKARD, Guide to the Study of Insects, 377, f. 282 (id.).—Ill., etc.
TOWNSEND, Canad. Ent., XXVII, 205, oc. in Arizona; parasites, etc. (id.).
N. J.—Smith Cat.
- cornu** WALSH, Proc. Ent. Soc. Phil., III, 590, gall and larva (*Cecidomyia salicis-cornu*); VI, 224, adult (id.).—Rock Id., III; gall a deformed, hornlike lateral bud of *Salix humilis*.
- gnaphaloides** WALSH, Proc. Ent. Soc. Phil., III, 583, all stages (*Cecidomyia salicis-gnaphaloides*).—Rock Id., III; gall a rather open cone on *Salix humilis*.
Additional notes, op. cit., VI, 223.
- rhodoides** WALSH, Proc. Ent. Soc. Phil., III, 586, all stages (*Cecidomyia salicis-rhodoides*).—Rock Id., III; rose-like single gall on tip of twig of *Salix humilis*.
Additional note, VI, 224.
- salicis** SCHRANK, Fauna Boica, III, 69, 1803 (*Tipula*).—Europe.
LOEW, Dipt. Beitr., IV, 37 (*Cecidomyia*).
WINNERTZ, Linnæa Ent., VIII, 215 (id.).
SCHINER, Fauna Austr., II, 370 (id.).
RÜBSAAMEN, Berl. Ent. Zeitsch., XXXVII, 347, pl. VIII, XII, XV, and XVIII (*Dichelomyia*).
FELT, 17th N. Y. Rept., 1902, 750, figs. and pl. II, oc. in N. Y.; "produces many-celled galls in the stems of small willows."

- siliqua** WALSH, Proc. Ent. Soc. Phil., III, 591; VI, 224 (both *Cecidomyia salicis-siliqua*).—Rock Id., Ill.; makes a pod-like gall on *Salix humilis*, *cordata*, and *discolor*.
BAKER, Ent. News, VI, 173, oc. at Fort Collins, Col., on *S. amygdaloides*.
- strobiliscus** WALSH, Proc. Ent. Soc. Phil., III, 582, gall only; VI, 223 (both *Cecidomyia salicis-strobiliscus*).—Winnebago Co., Ill.; a pine cone-like gall on *Salix rostrata*.
- strobiloides** WALSH, Proc. Ent. Soc. Phil., III, 580, all stages (*Cecidomyia salicis-strobiloides*).—Rock Id., Ill.; makes a pine-cone-like gall on *Salix rostrata*.
OSTEN SACKEN, Mon. N. A. Dipt., I, 203, gall (id.).
RILEY and WALSH, Amer. Entomologist, I, 105, f. 82 (id.).
BERGENSTAMM and LÖW, Synopsis, 71, suggest that *rhodoicles*, *gnaphaloides*, *strobiliscus* and *coryloides* may all be the same as this; quoted by Osten Sacken, Cat., 215.
PETTIT, Bull. 186, Mich. Ex. Sta., oc. at Chatham, Northern Mich. (id.).
N. J.—Smith Cat.

DASYNEURA.

- RONDANI, Nuovi Annal. Sc. Nat. Bologna, ser. 2, VI, 12, 1846; op. cit., 371, note (*Perrisia*).
- LOEW, Dipt. Beitr., IV, 21, 1850 (*Cecidomyia* MEIG., in part).
RÜBSAAMEN, Berl. Ent. Zeitsch., XXXVII, 346, 1892 (*Dichelomyia*, in part).
- grossulariæ** FITCH, Trans. N. Y. State Agl. Soc., 1854, 880; 1st N. Y. Rept., 176; 2d Rept., 150; 3d Rept., 437 (all *Cecidomyia*).—N. Y.; larvæ in gooseberries
- hirtipes** OSTEN SACKEN, Mon. N. A. Dipt., I, 195 (*Cecidomyia*).—D. C., on *Solidago*.
- leguminicola** LINTNER, Canad. Ent., 1879, 44 and 121; Amer. Nat., 1879, 100 (*trifolii*); Rept. Ent. Soc. Ont., 1879, 128; 5th N. Y. Rept., 262; 13th Rept., 359 (all *Cecidomyia*).—N. Y.; larvæ in clover heads, destroying the seed; "The Clover-seed Midge."
COMSTOCK, Rept. Dept. Agric., 1870, 103 (id.).
SAUNDERS, Rept. Ent. Soc. Ont., 1881, 38, fig. (id.).
FORBES, Ill. Rept., 1888, 15, note on first oc. in Ill. (id.).
RILEY and HOWARD, Ins. Life, I, 142, notes; oc. in Ohio (id.).
ORMEROD, Ins. Life, III, 293, oc. in England; Rept. on Inj. Ins., 1890, 23 (id.).
- pseudacaciæ** FITCH, 2d N. Y. Rept., 331 (*Cecidomyia*); 5th N. Y. Rept., 833 (id.).—N. Y.; the larvæ in young leaflets of locust, *Robinia pseudacacia*.
PACKARD, 5th Rept. U. S. Ent. Comm., 368, abstract of Fitch.
N. J.—Smith Cat.
- rhois** COQUILLET, Ins. Life, VII, 348 (*Cecidomyia*).—N. Y.; galls on the roots of poison ivy, *Rhus toxicodendron*.
- serrulata** OSTEN SACKEN, Mon. N. A. Dipt., I, 198 (*Cecidomyia*).—D. C., on *Alnus serrulata*.
TOWNSEND, Proc. Ent. Soc. Wash., II, 388, desc. of gall (*Cecidomyia*).—Va.
N. J.—Smith Cat.
- solidaginis** LOEW, Mon. N. A. Dipt., I, 104, pl. 1, f. 8 (*Cecidomyia*).—D. C., on *Solidago*.
N. J.—Smith Cat.
- ? **spongivora** WALKER, List, I, 30 (*Cecidomyia*).—Martin Falls, Canada.
Gen. ref. by Kertész, but very doubtful.

- strobiloides** TOWNSEND, Psyche, 1894, 176 (*Cecidomyia bigeloviae-strobiloides*).—N. M.; makes galls on *Bigelovia*.
trifolii LÖW, Verh. Zool.-Bot. Ges., 1874, 143 (*Cecidomyia*).—Europe; larvæ in fold of the leaf of white clover.
 COMSTOCK, Dept. Agric. Rept., 1879, 197-199, pl. 1, f. 5, oc. in U. S., life hist., etc. (id.).

NEOCERATA.

- COQUILLET, Bull. 22, n. ser., Div. of Ent., 1900, 47.
rhodophaga COQUILLET, loc. cit., with fig.—D. C.; infests buds of roses grown under glass.

ASPHONDYLIA.

- LOEW, Dipt. Beitr., iv, 21, 1850.
 WINNERTZ, Mon. Gallmücken, 187, 1853.
 OSTEN SACKEN, Mon. N. A. Dipt., 1, 176, 1862; Trans. Amer. Ent. Soc., 1869, 299.
 SCHINER, Fauna Austr., II, 395, 1864.
atriplicis TOWNSEND, Ann. and Mag. Nat. Hist., xxvii, 1893, 1021 (*Cecidomyia*).—N. M.; on *Atriplex canescens*. Gall only described.
 COCKERELL, op. cit., xxix (id.).—N. M.
 Gen. ref. by Cockerell *in litt.*, and doubtfully in footnote in Jour. N. Y. Ent. Soc., vi, 204.
conspicua OSTEN SACKEN, Trans. Amer. Ent. Soc., III, 51 (*rudbeckiae-conspicua*).—Pa., on *Rudbeckia triloba*.
globulus OSTEN SACKEN, Trans. Amer. Ent. Soc., II, 301 (*helianthi-globulus*).—Rock Id., Ill., on *Helianthus*.
 MARTEN, Psyche, 1888, 102 (id.).—Ill.
gutierreziae COCKERELL, Canad. Ent., xxxiii, 23.—Las Vegas, N. M., on *Gutierrezia sarothra*.
mentzeliae COCKERELL, Entomologist, Nov., 1900, 302.—Raton, N. M., breeding in ovaries of *Mentzelia multiflora*.
monacha OSTEN SACKEN, Trans. Amer. Ent. Soc., II, 300; III, 347; Biologia, Dipt., I, 1 (oc. and biology).—N. Y.; Mexico; bred in N. Y. from *Solidago altissima*.
neomexicana COCKERELL, Jour. N. Y. Ent. Soc., iv, 204 (*Cecidomyia*).—N. M.; makes galls on *Atriplex canescens*. Gen. ref. by Cockerell *in litt.*, and also doubtfully in footnote under description.
prosopidis COCKERELL, Ann. and Mag. Nat. Hist., 1898.—N. M., on *Prosopis juliflora* var. *glandulosa*.
recondita OSTEN SACKEN, Canad. Ent., Nov., 1875.—Long Id., N. Y., on *Aster patens*.

RHOPALOMYIA.

- RÜBSAAMEN, Berl. Ent. Zeitsch., xxxvii, 370, 1892.
tridentata RÜBSAAMEN, Ent. Nachricht., xix, 163, 1893.—N. A., on *Artemisia tridentata*.

OLIGOTROPHUS.

- LATREVILLE, Hist. Nat. Crust. et Ins., xiv, 288, 1805.
 H. LOEW, Dipt. Beiträge, iv, 21, 1850 (*Cecidomyia* MEIG., in part).
 RÜBSAAMEN, Berl. Ent. Zeitsch., xxxvii, 376, 1892.
betulae WINNERTZ, Linnæa Ent., viii, 234 (*Cecidomyia*).—Europe; the larvæ infest the catkins of white birch, *Betula alba*.
 SCHINER, Fauna Austr., II, 381 (id.).

- F. Löw, Verh. Zool.-Bot. Ges., 1878, 15, pl. iv, f. 4 (id.).
 WACHTL, Entom. Biol. Stud., ser. 1, 1878, 9-11, on var. of *Betula pendula* (id.).
 LINTNER, Country Gentleman, LI, 287, 1886, oc. in N. A.; 3d N. Y. Rept., 85, 86, 141, 143; 4th Rept., 27, 205, 206 (parasites); 11th Rept., 162-165, pl., life hist., etc. (all *Cecidomyia*).
 RÜBSAAMEN, Berl. Ent. Zeitsch., xxxvii, 377, pl. vii and xii.

MAYETIOLA.

KIEFFER, Miscellanea Entomologica, Jan., 1896; Wien. Ent. Zeit., xv, 89, 1896.

Note.—The only North American representative is the well-known "Hessian Fly," so-called from the supposition that it was introduced from Europe along with the Hessian soldiers in the Revolution. It has uniformly been referred to the genus *Cecidomyia* in the past by American writers. The larva injures young wheat plants; it is found between the stalk and the sheathing portion of one of the lower leaves.

The literature is very voluminous. Kertész, in his Catalogue, II, 76, gives three pages of references; Osborn, in Bull. 16, mentioned below, gives a far more lengthy list. I give a few of the early references, paying more attention to the newer publications, since the time of Osborn's paper. From the first, the articles are biological and economic in their scope. The European references are omitted here.

destructor SAY, Jour. Acad. Sci. Phil., 1, 45, pl. III, f. 1-3; Compl. Works, I, 4—Eastern U. S.

FITCH, Amer. Quart. Jour. Ag. and Sci., iv, 244-264, 1846; v, 1-27, 1847; revised and republished, Trans. N. Y. State Ag. Soc., 1846, 316-373, 1 pl.; 3d N. Y. Rept., 133-144; 7th Rept., 819-830, pl. III, f. 2, 3; 8th Rept., 685, note.

PACKARD, Bull. 4, U. S. Ent. Comm.; full life hist. and figs.; the same with additions, 3d Rept. U. S. Ent. Comm., 198-248, pl. iv, v; also in the appendix to the third Report is a transl. of an article by Löw and Wagner.

FORBES, Ill. Rept., 1885, 14; 1886, 21-34; 1890, 54-63.—Ill. and Mississippi Valley generally.

LINTNER, 5th N. Y. Rept., 263, notes.

RILEY, Ins. Life, 1, 32, 107, 131, 322; Dept. Agric. Rept., 1891, 235; 1892, 158; 1893, 211,—various notes on life history, parasites, etc.

MARTEN, Ins. Life, III, 265, notes on habits.

RILEY and HOWARD, Ins. Life, III, 306, affecting grasses in Cal.

WEBSTER, Ins. Life, VI, 146, general article.

LOGGER, 2d Rept. Ent. Minn. Ex. Sta., 1896, 11-15, good figure.

OSBORN, Bull. 16, n. ser., Div. of Ent., 1896; full discussion, bibliog., etc.

ASHMEAD, Psyche, 1897, 135, parasites.

JOHNSON, Bull. 58, Md. Ex. Sta., 1898, 117-122, figs.

MARLATT, Farmers' Bull. 132, Dept. of Agric.

FLETCHER, Rept. Ent. and Bot., 1898, 173; 1899, 163.

PETTIT, Bull. 175, Mich. Ex. Sta., 1890, 358; repeated in the Annual Rept. for same year, 137.

STEDMAN, 34th Annual Rept. Bd. of Agric. of Mo., 75-86.

HOPKINS, Bull. 67, W. Va. Ex. Sta., 1900.

LOCHEAD, Bull. 116, Ont. Ag. Coll. and Ex. Sta., 1901.

FELT, 17th N. Y. Rept., 1902, 705-730, figs. and pl.

GARMAN, Bull. 103, Ky. Ex. Station, 1902, experiments.

WASHBURN, Bull. 77, Minn. Ex. Sta., 1-7, figs.; Canad. Ent., xxv, 317, notes.

Note.—The species occurs in Europe and New Zealand.

BREMIA.

RONDANI, Atti Soc. Sci. Nat. Milano, II, 287, 1860.

cucumeris LINTNER, 11th N. Y. Rept., 165-168, pl. II (*Diplosis*).—Mass.; the larva transforms smaller leaves of musk-melon into hairy galls. Called "The Melon-vine Midge."

CONTARINIA.

RONDANI, Atti Soc. Sci. Nat. Milano, II, 287, 1860.

KIEFFER, Bull. Soc. Ent. France, LXIII, 28, 1894 (*Eudiplosis* and *Stictodiplosis*); Wien. Ent. Zeit., xv, 94, 1896, syn., etc.

pyrivora RILEY, Dept. Agric. Rept., 1885, 283, pl. VII, f. 2-4 (*Diplosis*).—E. U. S.; larvæ in fruit of pears.

? MEIGEN, Klassifikation, I, 39, pl. II, f. 8 (*Cecidomyia nigra*); Syst. Besch., I, 95, pl. III, f. II (id.).—Europe.

? NORDLINGER, Die Kleine Feinde d. Landwirthschaft, 622, 1869 (*Cecidomyia pyricola*).—Europe.

RILEY, Wien. Ent. Zeit., VI, 203, f. 1-3 (*Diplosis*).

MEADE, Entomologist, XXI, 123-131, 1888 (id.).

LINTNER, 8th N. Y. Rept., 140-151, full discussion, bibliog., etc. (id.); 10th Rept., 386, 387, notes (id.); Canad. Ent., XXIII, 223, abstract of habits and oc. (id.).—N. Y.

SMITH, Ent. News, IV, 297-299, experiments for destruction of (id.).

KIEFFER, Synops. Cécid. Europe et Alg., 33, 1898, oc. in Europe.

setigera LINTNER, 11th N. Y. Rept., 168-170, pl. III.—Mass.; affects young leaves of musk-melons the same as *Contarinia cucumeris*; "The Hairy Melon-vine Midge."

tritici KIRBY, Trans. Linn. Soc., IV, 246 (*Tipula*).—England; larvæ in wheat heads.

HARRIS, Ins. Inj. to Veg., 592 (*Cecidomyia*).—Mass.

FITCH, Essay on the Wheat Fly, 1845 (*Cecidomyia*); 3d N. Y. Rept., 1-88, pl. II, f. I, 4 (id.).—N. Y. Called "The Wheat Midge."

AMYOT, Bull. Soc. Ent. France, CIV, 1855 (id.).

LINTNER, 1st N. Y. Rept., 6, republishes Fitch's cut. etc. (id.).

WEBSTER, Dept. Agric. Rept., 1884, 389; 1885, 318 (*Diplosis*).

KIEFFER, Wien. Ent. Zeit., xv, 99, gen. ref.; Synops. Cécid. Europe et Alg., 34.

FLETCHER, Rept. Ent. and Bot., 1898, 172 (*Diplosis*).

MARLATT, Farmers' Bull. 132, Dept. of Agric. (id.).

LOCHHEAD, Bull. 116, Ont. Ag. Coll. and Ex. Sta., 7, 8, fig. (id.).

violicola COQUILLET, Bull. 22, n. ser., Div. of Ent., 47-50, fig. (*Diplosis*).—Va., N. Y., D. C.; infesting and folding leaves of violets.

HOWARD, Amer. Florist, Jan. 21, 1899 (id.).

GALLOWAY, "Commercial Violet Culture," 211-215, fig. (id.).

CHITTENDEN, Bull. 27, n. ser., Div. of Ent., 47-50, pl. and figs. (id.).

CECIDOMYIA.

MEIGEN, Illig. Mag., II, 261, 1803; Klassifikation, 1804.

- LOEW, Dipt. Beitr., IV, 20, 1850 (*Diplosis*).
- OSTEN SACKEN, Mon. N. A. Dipt., I, 175, 1862; Ent. Mo. Mag., sec. ser., XII, 40, 1901 (id.).
- KARSCH, Revis. d. Gallmücken, 19, 1878.
- RÜBSAAMEN, Berl. Ent. Zeitsch., XXXVII, 324, 1892.
- aceris** SHIMER, Trans. Amer. Ent. Soc., I, 281.—Ill.; larva on surface of leaves of *Acer dasycarpum*.
- albovittata** WALSH, Proc. Ent. Soc. Phil., III, 620; VI, 227.—Rock Id., Ill.; in-quinulous in galls of *strobiloides*, *strobiliscus*, *brassicoides* and *rhodoides*.
- alticola** COCKERELL, The Entomologist, 1860, 281.—Col.
BAKER, Ent. News, VI, 173, oc. at Ft. Collins, Col., affecting *Artemisia dracunculoides*.
- amyotii** FITCH, 3d N. Y. Rept., 31.—N. Y.
- ananassi** RILEY, Amer. Ent., II, 244, 273, f. 153 (gall) (*cupressi-ananassi*).—Teml., on *Taxodium distichum*.
- annulipes** WALSH, Proc. Ent. Soc. Phil., III, 629 (*Diplosis*).—Rock Id., Ill.; in-quinulous in galls of *strobiloides*.
- antennariæ** WHEELER, Proc. Wis. Nat. Hist. Soc., Apr., 1899, 209-212, all stages.—Wis.; galls in terminal buds of *Antennaria plantaginifolia*.
- anthophila** OSTEN SACKEN, Trans. Amer. Ent. Soc., II, 302.—N. Y.; larvæ on *Solidago*.
- atricornis** WALSH, Proc. Ent. Soc. Phil., III, 628 (*Diplosis*).—Rock Id., Ill.; in-quinulous in galls of *strobiloides*.
- atriplicicola** COCKERELL, Ann. Mag. Nat. Hist., ser. 7, II, 236 (*Diplosis*).—N. M., on *Atriplex*.
- atrocularis** WALSH, Proc. Ent. Soc. Phil., III, 626; VI, 227 (*Diplosis*).—Rock Id., Ill.; bred from galls of *strobiliscus* and from a Cynipid gall.
- bigeloviæ** COCKERELL, West Amer. Scientist, VI, 106; Ent. Mo. Mag., 1890, 324.—Col.; bred from gall of *Eurosta bigeloviæ*—from some knowledge of the various gall-insects of Bigelovia, I think this may be an error, and that it is much more likely to be one of the species with an independent gall.
- bulia** WALSH, Proc. Ent. Soc. Phil., VI, 228 (*Diplosis helianthi-bulla*).—Rock Id., Ill.; makes a globular gall on leaves of *Helianthus*.
BRODIE, Biol. Rev. of Ont., I, 1894, 74, oc. in Ont.
- caryæ** OSTEN SACKEN, Mon. N. A. Dipt., I, 191 (*Diplosis*).—D. C.; forms galls on leaves of hickory.
- catalpæ** COMSTOCK, Rept. Dept. Agric., 1880, 266 (*Diplosis*).—D. C.; larvæ in pods of Catalpa. They have the power of jumping.
- caulicola** COQUILLET, Ins. Life, VII, 401 (*Diplosis*).—N. H.; larvæ in stems of garden poppy, *P. nudicaule*.
- chrysopsidis** LOEW, Mon. N. A. Dipt., I, 203, pl. i, f. 1.—D. C.; on *Chrysopsis mariana*.
? TOWNSEND, Proc. Ent. Soc. Wash., II, 389, notes on gall, perhaps not the same.
- coccidarum** COCKERELL, The Entomologist, 1892, 181; Proc. Acad. Nat. Sci. Phil., 1894, 419 (both *Diplosis*).—Jamaica.
COQUILLET, Proc. U. S. N. M., XXII, 249, oc. in Porto Rico; "Bred from larvæ associated with *Dactylopius citri* . . . and bred from *Lecanium hemisphaericum*."
- cornuta** WALSH, Proc. Ent. Soc. Phil., III, 625.—gall, pupa, imago.—Rock Id., Ill., on *Salix longifolia*
- cosæ** SHIMER, Trans. Amer. Ent. Soc., II, 305.—Ill.; on hickory.
- frater** COCKERELL, The Entomologist, 1890, 280.—Colo.

- gleditchiæ** OSTEN SACKEN, Proc. Ent. Soc. Phil., vi, 219.—R. I., on *Gleditchia triacanthos*. N. J.—Smith Cat.
- graminis** FITCH, 6th N. Y. Rept., 832, pl. II, f. 2, name changed and redesc.; Essay on the Wheat-fly (*cercalis*, preoc.).—N. Y.
- ? **grassator** FYLES, Canad. Ent., xiv, 237, fig.; Rept. Ent. Soc. Ont., 1883, 30 (both ? *Diplosis*).—Ontario.
- inimica** FITCH, 6th N. Y. Rept., 830-832.—N. Y.; in wheat heads with tritici.
- maccus** LOEW, Mon. N. A. Dipt., 1, 187, pl. 1, f. 11, 12 (*Diplosis*).—D. C.
- negundinis** GILLETTE, Psyche, 1890, 392, figs.—Iowa; larvæ produce galls in terminal buds of *Acer negundo*.
- orbitalis** WALSH, Proc. Ent. Soc. Phil., III, 623; VI, 227.—Rock Id., Ill.; inquilinous in galls of *batatas*, *strobiloides* and *brassicoides*; also in those of *Euura salicis-ovum*, a sawfly.
- oxycoccana** JOHNSON, Ent. News, x, 80, 1899, change of name; Ent. News, xi, 324, quotes orig. desc.; "infests the terminal buds of cranberry and loose-strife (*Lysimachia terrestris*)."—N. J.
- SMITH, Special Bull. K. N. J. Ex. Sta., 31-37, figs., 1890 (*caccinii*, preoc.).—N. J.
- parthenicola** COCKERELL, The Entomologist, July, 1900, 201 (*Diplosis*).—N. M.
- pictipes** WILLISTON, Trans. Ent. Soc. Lond., 1896, 253 (*Diplosis*).—St. Vincent, W. I.
- pilulæ** WALSH, Amer. Ent., II, 29, gall only (*quercus-pilulæ*).—Ill., on laurel-leaved oak.
- PACKARD, 5th Rept. U. S. Ent. Comm., 206, 207, fig. of gall, and notes on adult.
- radiatæ** SNOW, Ent. News, xi, 489, figs. (*Diplosis*).—Palo Alto, Cal.; larva in young shoots of *Pinus radiata* and other *Pinus*.
- CANNON, Amer. Nat. Oct., 1900, 801-810, figs.,—a botanical study of the gall.
- resinicola** OSTEN SACKEN, Trans. Amer. Ent. Soc., III, 345 (*Diplosis*).—N. Y.; in the resin of *Pinus inops*. The description is reprinted in Ent. Nachrichten, 1896, 343-345.
- SANBORN, Proc. Bost. Soc. Nat. Hist., XII, 93, larva only.
- COMSTOCK, Rept. Dept. Agric., 1879, 256, pl. VI, f. 5, life history; larva in resin of *Pinus inops*, *rigida* and *tada*.
- PACKARD, 5th Rept. U. S. Ent. Comm., 797, figs., quotes Comstock.
- TOWNSEND, Proc. Ent. Soc. Wash., II, 389, notes on relation to *Retinia comstockiana*, a twig-borer of *P. inops*.
- PACKARD, Rept. U. S. Geol. Surv. of the Terr., x, 1876, 527 (*Diplosis pini-rigide*); 5th Rept. U. S. Ent. Comm., 798-800, fig.; larvæ make galls in needles of *P. rigida*. [Syn. taken from Kertész, Catalogue.]
- MIK, Wien. Ent. Zeit., XVI, 290-292 (id.).
- ECKEL, Ent. News, XIV, 279-284, pl., habits, etc. (*Diplosis*).
- robiniaë** HALDEMAN, Amer. Jour. Agr. and Sci., VI, 193, figs.; reprinted in Proc. Boston Soc. Nat. Hist., VI, 401.
- HARRIS, Ins. Inj. to Veget., 3d edit., 567.
- FITCH, 2d N. Y. Rept., 332.
- On leaves of locust, *Robinia pseudacacia*, in Atlantic States.
- sorghicola** COQUILLET, Bull. 18, n. ser., 82 (*Diplosis*).—Ala., Tex.; larvæ in seeds of sorghum.
- togata** FITCH, Amer. Quart. Jour. Agr. and Sci., II, 233-264, 1845.
- thoracica** FITCH, Essay on the Wheat-fly, f. 5, 6.—N. Y.
- OSTEN SACKEN, Cat., 5, note on genus.

thurstoni BRODIE, Biol. Rev. of Ontario, 1, 1894, 73-75.—Toronto; gall in stem of *Helianthus divaricata*.

CLINODIPLOSIS.

KIEFFER, Feuille jeune Natural., XXIV, 121, 1894.

rosivora COQUILLET, Bull. 22, n. ser., Div. of Ent., 46 (*Diplosis*).—East. U. S.; infests buds of roses grown under glass.

LESTODIPLOSIS.

KIEFFER, Bull. Soc. Ent. France, LXIII, 28, 1894; Feuille jeun. Natural., XXIV, 84, 1894 (the latter as *Coprodiplosis*).

caliptera FITCH, Essay on the Wheat-fly (first edition in Amer. Quart. Jour. Agric. and Sci., II, No. 2, 1845, pl. v, f. 2; second edit. in Trans. N. Y. State Agl. Soc., 1846, vol. v. Mentioned as *Cecidomyia* in both. *Cercalis* is separated in the second only.) Also in 3d N. Y. Rept., 90, pl. II, f. 18 (id.).—N. Y.; affects wheat like *tritici*.

decemmaculata WALSH, Proc. Ent. Soc. Phil., III, 631 (*Diplosis*).—Rock Id., Ill.; inquilinous in galls of *strobiloides*.

septemmaculata WALSH, Proc. Ent. Soc. Phil., III, 630; VI, 228 (both *Diplosis*).—Rock Id., Ill.; inquilinous in galls of *brassicoides*, bred from black knot on plum, and "from the coccidian gall *vitifolia* Fitch."

? SAY, Long's Exped., App., 357 (*ornata*); Compl. Works, I, 242 (id.).—Pa. [Walsh, with a doubt.]

? WIEDEMANN, Auss. Zw., I, 22 (id.).

ASYNAPTA.

LOEW, Dipt. Beitr., IV, 39, 1850.

OSTEN SACKEN, Mon. N. A. Dipt., I, 177, 1862.

RÜBSAAMEN, Berl. Ent. Zeitsch., XXXVII, 400, 1892.

KIEFFER, Annales Soc. Ent. France, 1900, 446.

antennariæ WHEELER, Proc. Wis. Nat. Hist. Soc., Apr., 1889, 212-216, all stages and habits; galls in terminal buds of *Antennaria plantaginifolia*; courtship mentioned.—Wis.

CECIDOMYIDÆ OF WHICH THE ADULT IS UNDESCRIBED.

These have all been referred to as belonging to the genus *Cecidomyia*, except as noted.

agrostis OSTEN SACKEN, Mon. N. A. Dipt., I, 204.—N. Y.

FITCH, The Hessian Fly, 2d edit., 38, original mention as "imbricated gall on *Agrostis laterifolia*."

balsamicola LINTNER, 4th N. Y. Rept., 60-63, figs.—N. Y.; larvæ make swellings in base of leaves of balsam fir, *Abies balsamea*.

LINTNER, 7th N. Y. Rept., 307, oc. in *Abies fraseri* in N. C.

coryloides WALSH, Proc. Ent. Soc. Phil., III, 588; VI, 224 (*salicis-coryloides*).—Rock Id., Ill., on *Salix discolor*.

BERGENSTAMM und LOEW, Synopsis Cecid., 71, quoted by O. S., Cat., 215.

coryloides WALSH, Proc. Ent. Soc. Phil., III, 588; VI, 224 (*vitis-coryloides*).—Ill.; galls on wild grapes—*Vitis cordifolia* and *riparia*.

WALSH and RILEY, Amer. Ent., I, 107, fig. of gall.

RILEY, 5th Mo. Rept., 116, same fig. and note.

PACKARD, Guide to Study of Ins., 376, fig.

- bedeguar** WALSH, *Canad. Ent.*, I, 79; *Proc. Ent. Soc. Phil.*, VI, 266 (*cratægi-bedeguar*).—Ill.; on *Cratægus tomentosa*, the thorn-apple.
- brachyteroides** OSTEN SACKEN, *Mon. N. A. Dipt.*, I, 198.—D. C.; on *Pinus inops*.
- brassicoides** TOWNSEND, *Psyche*, 1893, 490 (*bigelovia-brassicoides*).—N. M., on *Bigelovia graveolens*.
- carbonifera** OSTEN SACKEN, *Mon. N. A. Dipt.*, I, 195.—D. C., on leaves of *Solidago*. N. J.—Smith Cat.
- caryæcola** OSTEN SACKEN, *Mon. N. A. Dipt.*, I, 192.—D. C., on *Carya*. N. J.—Smith Cat.
- citrina** OSTEN SACKEN, *Trans. Amer. Ent. Soc.*, III, 53.—N. Y., on *Tilia americana*.
- clavula** BEUTENMÜLLER, *Bull. Amer. Mus. Nat. Hist.*, IV, 1892, 269, pl. xv, f. 5.—N. Y., on *Cornus* sp. N. J.—Smith Cat.
- TOWNSEND, *Proc. Ent. Soc. Wash.*, II, 390, gall.—Va.
- culmicola** MORRIS (Miss), *Proc. Acad. Nat. Sci. Phil.*, IV, 194.—Pa.; in wheat stalks.
- HARRIS, *Inj. to Veget.*, 582.
- cynipsea** OSTEN SACKEN, *Mon. N. A. Dipt.*, I, 193.—D. C., on *Carya*.
- deserta** PATTON, *Canad. Ent.*, XXIX, 247 (*Cecidomyia-celtis-deserta*).—Conn.
- erigerontis** BRODIE, *Biol. Rev. of Ont.*, I, 1894, 13-15 (*Diplosis*—gen. ref. taken from adult).—Toronto, Can.; on *Erigeron canadense*.
- erubescens** OSTEN SACKEN, *Mon. N. A. Dipt.*, I, 193.—D. C.; on *Quercus*.
- farinosa** OSTEN SACKEN, *Mon. N. A. Dipt.*, I, 204.—D. C.; on leaves of blackberry, *Rubus*.
- BRODIE, *Biol. Rev. of Ont.*, I, 1894, 110, oc. at Toronto (*Diplosis*).
N. J.—Smith Cat. (*Lasioptera*).
- glutinosa** OSTEN SACKEN, *Mon. N. A. Dipt.*, I, 193.—D. C.; on *Carya*.
- hageni**, n. sp.: I apply this term to the gall described, but not named, by Hagen, *Canad. Ent.*, 1881, 37, on *Aristolochia siphon*.
- helianthi** BRODIE, *Biol. Rev. of Ont.*, I, 1894, 44-46.—Toronto, Can.; in axils of leaves of *Helianthus decapetalus* and *divaricatus*.
- holotricha** OSTEN SACKEN, *Mon. N. A. Dipt.*, I, 193; *Cat.*, 216, note.—D. C., on *Carya*. N. J.—Smith Cat.
- hordoides** WALSH, *Proc. Ent. Soc. Phil.*, III, 599 (*salicis-hordoides*).—Rock Id., Ill.; on *Salix humilis*.
- impatiens** OSTEN SACKEN, *Mon. N. A. Dipt.*, I, 204; *Amer. Ent.*, II, 63, fig. of gall.—D. C.; deforms flowers of *Impatiens*. N. J.—Smith Cat.
- inopis** OSTEN SACKEN, *Mon. N. A. Dipt.*, I, 196 (*pini-inopis*).—D. C.; forms a resinous cocoon on *Pinus virginiana* (*inopis*).
N. J.—Smith Cat. (*Diplosis*).
- liriodendri** OSTEN SACKEN, *Mon. N. A. Dipt.*, I, 204.—D. C.; on leaves of *Liriodendron*.
- HAGEN, *Canad. Ent.*, XVIII, 159, note on pædogenesis.
N. J.—Smith Cat.
- monardæ** BRODIE, *Biol. Rev. of Ont.*, I, 1894, 109-111 (*Diplosis monardi*, or perhaps a *Lasioptera*).—Toronto, Canada; gall on *Monarda fistulosa*.
- majalis** OSTEN SACKEN, *Trans. Amer. Ent. Soc.*, III, 53 (*quercus-majalis*); *Mon. N. A. Dipt.*, I, 204 (id.).—D. C.
- PACKARD, 5th Rept. U. S. Ent. Comm., 207 (id.), gall and larva; on pin-oak, *Quercus palustris*.
- niveipila** OSTEN SACKEN, *Mon. N. A. Dipt.*, I, 199, gall.—D. C.; on oak of several species. N. J.—Smith Cat.

- nodulus** WALSH, Proc. Ent. Soc. Phil., III, 599 (*salicis-nodulus*).—Rock Id., III.; gall on *Salix longifolia*.
- nucicola** OSTEN SACKEN, Trans. Amer. Ent. Soc., III, 53.—N. Y.; in the husks of nuts of *Hicoria*.
- ocellaris** OSTEN SACKEN, Mon. N. A. Dipt., I, 199.—D. C.; larva in depression on under side of leaf of *Acer rubrum*.
Note.—Comstock, Rept. Dept. Agric., 1881-2, 202, pl. XVII, describes the adult as a *Sciara*. But Mik, in Verh. Zool.-bot. Ges., 1883, 190-192, considers this an error of rearing, the *Sciara* coming from the earth in the breeding cage. The same view is held by Brauer, Zweifl. d. Kaiserl. Mus., III, 46, and by Osten Sacken, 2d edit. of his Characters of Larvæ of Mycetophilidae, Heidelberg, 1886, postscript, p. 27.
 N. J.—Smith Cat.; Mich.—J. M. A.
- pellex** OSTEN SACKEN, Mon. N. A. Dipt., I, 199.—D. C.; galls on leaves of *Fraxinus americana*. N. J.—Smith Cat.
- persicoides** OSTEN SACKEN, Mon. N. A. Dipt., I, 193; Cat., 216, note.—D. C.; on *Hicoria*. N. J.—Smith Cat.
- poculum** OSTEN SACKEN, Mon. N. A. Dipt., I, 201; Cat., 216, note (probably inquilinous in the gall of a Cynipid of *Quercus*).—D. C.
 FITCH, 2d N. Y. Rept., No. 40, "Oak Spangles."
 N. J.—Smith Cat.
- pomum** WALSH and RILEY, Amer. Ent., I, 106, f. 85, gall (*vitis-pomum*).—Ill.; on *Vitis cordifolia*.
 RILEY, 5th Mo. Rept., 114-116, figs. and notes.
 N. J.—Smith Cat.
- pubibunda** OSTEN SACKEN, Mon. N. A. Dipt., I, 202.—D. C.; on leaves of *Carpinus caroliniana*.
- racemicola** OSTEN SACKEN, Mon. N. A. Dipt., I, 196.—D. C.; larvæ among racemes of *Solidago*.
- rigidæ** OSTEN SACKEN, Mon. N. A. Dipt., I, 189, gall desc. and name changed.
 FITCH, Amer. Quart. Jour. Agric. and Sci., I, 263 (*salicis, preoc.*).—N. Y.; makes a swelling at the tip of twig of *Salix rigida* and *lucida*.
 WALSH, Proc. Ent. Soc. Phil., III, 595, abstr. of Fitch.
 N. J.—Smith Cat.
- salicifoliæ** OSTEN SACKEN, Proc. Ent. Soc. Phil., VI, 220.—Canada; on *Spiræa salicifolia*.
- salicum** COCKERELL—the gall so mentioned is that of a sawfly of the genus *Pontania*, with "little or no doubt";—Ckll. *in litt.*
- sanguinolenta** OSTEN SACKEN, Mon. N. A. Dipt., I, 192.—D. C.; on *Hicoria*.
 N. J.—Smith Cat.
- serotinæ** OSTEN SACKEN, Trans. Amer. Ent. Soc., III, 346.—N. Y.; on *Prunus serotina*. N. J.—Smith Cat.
- symmetrica** OSTEN SACKEN, Mon. N. A. Dipt., I, 200.—D. C.; on *Quercus*.
- triticoïdes** WALSH, Proc. Ent. Soc. Phil., III, 598; VI, 225 (*salicis-triticoïdes*).—Rock Id., III.; on *Salix cordata*.
- tubicola** OSTEN SACKEN, Mon. N. A. Dipt., I, 192; Cat., 216, note.—D. C.; on *Hicoria*.
 N. J.—Smith Cat.
- tulipiferæ** OSTEN SACKEN, Mon. N. A. Dipt., I, 202.—D. C.; on *Liriodendron*.
 N. J.—Smith Cat.
- umbellicola** OSTEN SACKEN, Trans. Amer. Ent. Soc., III, 52 and 347.—N. Y.; N. J.; on *Sambucus racemosa*, among the umbels.

- urnicola* OSTEN SACKEN, *Canad. Ent.*, Nov., 1875.—Trenton Falls, N. J.; on *Urtica gracilis*.
- verruca* WALSH, *Proc. Ent. Soc. Phil.*, III, 606 (*salicis-verruca*); VI, 226.—Rock Id., Ill.; on leaf of *Salix humilis* and *discolor*.
- verrucicola* OSTEN SACKEN, *Canad. Ent.*, Nov., 1875.—New England; on *Tilia americana*. N. J.—Smith Cat.
- viticola* OSTEN SACKEN, *Mon. N. A. Dipt.*, I, 202.—D. C.; on *Vitis*.
RILEY, *Amer. Ent.*, II, 28 and 113, fig. (both as *vitis-litans*).
N. J.—Smith Cat.

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- WALKER, *List*, I, 81, 1848.
- LOEW, *Berl. Ent. Zeit.*, II, 101, pl. I, f. 1-15, 1858 (*Spodius*).
- brevifrons* WALKER, *List*, I, 81.—Martin Falls, Canada.
White Mts., N. H., and Rocky Mts., Col.—O. S. Cat.
COQUILLET, *Proc. Wash. Acad. Sci.*, II, 290, oc. on Popoff Id., Alaska.

PLECIA.

- WIEDEMANN, *Auss. Zw.*, I, 72, 1828.
- LOEW, *Berl. Ent. Zeit.*, II, 101.
- bicolor* BELLARDI, see *collaris*.
- collaris* FABRICIUS, *Syst. Antl.*, 54 (*Hirtca*).—S. A.
WIEDEMANN, *Dipt. Exot.*, 32; *Auss. Zw.*, I, 74.—S. A.
SCHINER, *Novara*, 21.—S. A.
BELLARDI, *Saggio*, I, 16 (*bicolor*).—Mex.
OSTEN SACKEN, *Biologia, Dipt.*, I, 3 (*bicolor*).—Presidio, Mex.
WILLISTON, *Biologia, Dipt.*, *Suppl.*, 222, syn. and oc. at Teapa, Mex.
- heros* SAY, *Jour. Acad. Sci. Phil.*, VI, 154; *Compl. Works*, II, 352 (*Penthetria*).—Mex.
- heteroptera* SAY, *Jour. Acad. Nat. Sci. Phil.*, III, 77; *Compl. Works*, II, 69 (*Bibio*).
Md.
WIEDEMANN, *Auss. Zw.*, I, 80 (id.).
? MACQUART, *Hist. Nat. Dipt.*, I, 175 (*Penthetria atra*); *Dipt. Exot.*, I, I, 85, pl. XII, f. 3 (*Eupoitenus ater*, n. gen.).—Philadelphia. [Osten Sacken; I use a question mark on account of the very different figure accompanying the second desc.]
LOEW, *Berl. Ent. Zeitsch.*, II, 109.
VAN DER WULP, *Tijdschr. v. Ent.*, XII, 81, ref. to Macq.
Montreal, Quebec, N. H., Mich., New Orleans. S. D.—J. M. A.
- heteroptera* MACQUART, see *plagiata*.
- nigerrima* BELLARDI, *Saggio*, I, 14.—Mex.
WILLISTON, *Biologia, Dipt.*, *Suppl.*, 221, oc. in Mex., several places.
- plagiata* WIEDEMANN, *Analecta Ent.*, II; *Auss. Zw.*, I, 175.—Brazil.
MACQUART, *Dipt. Exot.*, *Suppl.*, I, 21, pl. II, f. 10, female (*heteroptera*).—Colombia.
BELLARDI, *Saggio*, *App.*, 7, f. 4 (*vittata*).—Mex.
SCHINER, *Novara*, 22.—Colombia; notes and syn. preceding.
OSTEN SACKEN, *Biologia, Dipt.*, I, 2; oc. in Vera Cruz and Tabasco, Mex.
- rostellata* LOEW, *Berl. Ent. Zeitsch.*, 1858, 109, fig.
BELLARDI, *Saggio*, I, 15 (*rostrata*) [Schiner].—Mex.
SCHINER, *Novara*, 21, notes.

- OSTEN SACKEN, *Biologia*, Dipt., 1, 2, notes and syn.; Mex. and Nicaragua.
- ruficollis** FABRICIUS, *Spec. Ins.*, II, 410 (*Tipula*; from Cape of Good Hope!); *Ent. Syst.*, IV, 249 (id.); *Suppl.*, 552 (*Hirtca*); *Syst. Antl.*, 53 (*Hirtca*, from South America).
- WIEDEMANN, *Dipt. Exot.*, I, 31; *Auss. Zw.*, I, 72.—S. A.
- MACQUART, *Hist. Nat. Dipt.*, I, pl. IV, f. 17 [O. S.].
- BELLARDI, *Saggio*, I, 15.—Mex.
- OSTEN SACKEN, *Biologia*, Dipt., I, 3, oc. in Mex. and Fla., and notes. Florida—Johnson.
- VAN DER WULP, *Tijdschr. v. Ent.*, XXIV, 143, oc. in Guadeloupe.
- WILLISTON, *Biologia*, Dipt., I, 221, additional Mexican localities.
- rufithorax** WALKER, *List*, I, 116.—Jamaica.
- vittata** BELLARDI, see *plagiata*.

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- MEIGEN, *Syst. Besch.*, I, 309, 1818.
- MACQUART, *Hist. Nat. Dipt.*, I, 177, 1834.
- ZETTERSTEDT, *Dipt. Scand.*, IX, 3367, 1850 (*Hirtca*).
- SCHINER, *Fauna Austriaca*, II, 357, 1864.
- OSTEN SACKEN, *Cat.*, note 12, explains status of *Hirtca*.
- abbreviatus** LOEW, *Cent.*, V, 9.—D. C.
- albipennis** SAY, *Jour. Acad. Sci. Phil.*, III, 77; *Compl. Works*, II, 69.—Pa.
- WIEDEMANN, *Auss. Zw.*, I, 80.
- MACQUART, *Dipt. Exot.*, I, I, 88, pl. XIII, f. 2.—N. A.
- LINTNER, 2d N. Y. Report, 110-115, figs., biology, etc. Larvæ in colonies under fallen logs, boards, etc., where there is much decaying vegetable matter.—New York.
- OSTEN SACKEN, *Biologia*, Dipt., I, 4, doubtfully recognized from N. Sonora, Mex.
- N. J.—Smith *Cat.*: Montreal—Chagnon; Axton, N. Y.—M. and H.; Michigan, S. D., Idaho.—J. M. A.
- HINE, *Ohio Naturalist*, II, 170, note on larval habits; oc. in Ohio.
- articulatus** SAY, *Jour. Acad. Sci. Phil.*, III, 77; *Compl. Works*, II, 69.—Pa.
- WIEDEMANN, *Auss. Zw.*, I, 81.
- OSTEN SACKEN, *Cat.*, note 13, says unrecognizable.
- baltimoricus** MACQUART, *Dipt. Exot.*, *Suppl.*, V, 17.—Baltimore.
- Quebec—V. d. Wulp.
- basalis** LOEW, *Cent.*, V, 11.—N. H.
- brunneipes** FABRICIUS, *Ent. Syst.*, IV, 250 (*Tipula*); *Mantis-a Ins.*, II, 327 (*Tipula rufipes*); *Syst. Antl.*, 54 (*Hirtca*).—Newfoundland. [Syn. by Fabr., *Syst. Antl.*]
- WIEDEMANN, *Auss. Zw.*, I, 81, quotes Fabr.
- canadensis** MACQUART, *Dipt. Exot.*, I, 2, 79.—Canada.
- ? BELLARDI, *Saggio*, I, 18, oc. in Mex., with a ?.
- castaneipes** JÆNNICKE, *Neue Exot. Dipt.*, 10.—Ill.
- criorhinus** BELLARDI, *Saggio*, I, 17.—Mex.
- WALKER, *Trans. Ent. Soc.*, n. ser., V, 331.—Mex.
- dubius** BELLARDI, *Saggio*, 18.—Mex.
- OSTEN SACKEN, *Biologia*, Dipt., I, 3, notes.
- WILLISTON, *op. cit.*, *Suppl.*, 222, oc. in Jalisco, Mex.

- femoratus** WIEDEMANN, Dipt. Exot., 35; Auss. Zw., 1, 79.—N. A.
 MACQUART, Dipt. Exot., 1, 1, 87 (*fuscipennis*).—N. A. [Loew.]
 TOWNSEND, Ins. Life, II, 43, oc. in Mich. in numbers.
 Atl. States (O. S.); N. J. (Smith Cat.); White Mts., N. H. (Slosson);
 Axton, N. Y. (M. and H.).
- fraternus** LOEW, Cent., v, 8.—D. C.
 NEEDHAM, Amer. Nat., XXXVI, 181, oc. at Lake Forest, Ill. Larvæ at base
 of rotting stumps. Figs. larva and pupa.
- fuliginosus** BELLARDI, Saggio, 1, 19.—Mex.
- fumidus** COQUILLET, Dipt. of Commander Ids., 343.—Copper Island, Alaska.
- fumipennis** WALKER, List, 1, 122.—Martin's Falls, Canada.
- gracilis** WALKER, List, 1, 123.—Nova Scotia.
 Quebec (Wulp); Montreal (Chagnon); White Mts., N. H. (Slosson).
- hirtus** LOEW, Cent., v, 2.—Cal.
 OSTEN SACKEN, West. Dipt., 211, note; Biologia, 1, 4, notes.
- humeralis** WALKER, List, 1, 121.—Nova Scotia.
- inequalis** LOEW, Cent., v, 3.—Sitka.
- longipes** LOEW, Cent., v, 12.—D. C.
 N. J. (Smith Cat.); Montreal (Chagnon).
- lugens** LOEW, Cent., v, 6.—Winnipeg.
- nervosus** LOEW, Cent., v, 4.—Cal.
- nigripilus** LOEW, Cent., v, 10.—Winnipeg.
 Montreal—Chagnon.
- obscurus** LOEW, Cent., v, 5.—Huds. Bay Terr.
 Alaska—Coq.
- pallipes** SAY, Jour. Acad. Sci. Phil., III, 76; Compl. Works, II, 68.—Pa.
 WIEDEMANN, Auss. Zw., 1, 89.
 VAN DER WULP, Tijdschr. v. Ent., XII, 81, notes.
 Ohio (Webster; N. J. (Smith Cat.); Montreal (Chagnon); White Mts.,
 N. H. (Slosson).
- piceus** BELLARDI, Saggio, 1, 17.—Mex.
- rufithorax** WIEDEMANN, Auss. Zw., 1, 78.—Pa.
 St. Augustine Fla.—Johnson; "The thorax of the male is black."
- scitus** WALKER, List, 1, 122.—Nova Scotia.
- senilis** VAN DER WULP, Tijdschr. v. Ent., XII, 81.—Wis.
- striatipes** WALKER, List, 1, 122.—Nova Scotia.
- tennipes** COQUILLET, Proc. U. S. N. M., XXV, 95.—Williams, Ariz.
- thoracicus** SAY, Long's Exped., App., 368; Compl. Works, 1, 250.—East Fla.
 WIEDEMANN, Auss. Zw., 1, 78.
- tristis** WILLISTON, Trans. Kans. Acad. Sci., XIII, 115, fig.—Kans.
 KELLOGG, l. c. 112, biol., with figs.
- variabilis** LOEW, Cent., v, 7.—Sitka and N. H.
 COQUILLET, Proc. Wash. Acad. Sci., II, 394, oc. in Alaska and Ore.
- vestitus** WALKER, List, 1, 122.—Nova Scotia.
 White Mts., N. H.—Slosson.
- xanthopus** WIEDEMANN, Auss. Zw., 1, 80.—N. Y.
 MACQUART, Dipt. Exot., 1, 1, 88.—N. A.
 OSTEN SACKEN, Biologia, Dipt., 1, 4, oc. in N. Sonora, Mex., with a doubt.
 N. J.—Smith Cat.; Axton, N. Y.—M. and H.
- sp.** KELLOGG, Ins. Life, v, 116, larvæ abundant in wheatfield, causing alarm, but
 no damage.

DILOPHUS.

MEIGEN, Illig. Mag., II, 264, 1803; Syst. Besch., I, 237, 1818.

MACQUART, Hist. Nat. Dipt., I, 176, 1834.

ZETTERSTEDT, Dipt. Scand., IX, 3389, 1850.

SCHINER, Fauna Austr., II, 355, 1864.

bimaculatus WALKER, Dipt. Saund., 422 (*Plecia*).—U. S.

OSTEN SACKEN, Cat., 16, refers here.

breviceps LOEW, Cent., IX, 59.—N. H. N. J.—Smith Cat.

dimidiatus LOEW, Cent., VIII, 3.—N. Y. N. J.—Smith Cat.

fulvicoxa WALKER, List, I, 117.—Martin Falls, Canada.

longiceps LOEW, Cent., I, 14.—Ill.

maculatus BELLARDI, Saggio, I, 19, pl. I, f. 5.—Mex.

melanarius VAN DER WULP, Tijdschr. v. Ent., XXIV, 146.—Mex.

OSTEN SACKEN, Biologia, Dipt., I, 4, note.

WILLISTON, Biologia, Dipt., I, 223, oc. in Mex., several places.

minutus BELLARDI, Saggio, App., 7.—Mex.

WILLISTON, Biologia, Dipt., I, 223, oc. in Orizaba and Tuxpango, Mex.; probably same as *stigmaterus* SAY.

obesulus LOEW, Cent., IX, 60.—D. C.

orbatus SAY, Jour. Acad. Sci. Phil., III, 77; Compl. Works, II, 69 (*Biblio*).—Pa.

WIEDEMANN, Auss. Zw., I, 77.

BELLARDI, Saggio, I, 19, oc. in Mex.

WILLISTON, Biologia, Dipt., I, 223, oc. in Mex., several places.

Fla.; several places—Johnson.

serotinus LOEW, Cent., I, 15.—Ill.

serraticollis WALKER, List, I, 117.—Martin Falls, Canada.

COQUILLET, Proc. Wash. Acad. Sci., II, 394, oc. in Alaska and Col.

JOHANNSEN, Ent. News, XIV, 15, notes.—Axtou, N. Y.

Montreal—Chagnon.

spinipes SAY, Jour. Acad. Sci. Phil., II, 79; Compl. Works, II, 71.—Mo.

WIEDEMANN, Auss. Zw., I, 75.

stigmaterus SAY, Jour. Acad. Sci. Phil., III, 78; Compl. Works, II, 70.—Mo.

WIEDEMANN, Auss. Zw., I, 76. See *minutus*.

Beulah, N. M.—Skinner.

stygius SAY, Jour. Acad. Sci. Phil., VI, 155; Compl. Works, II, 352.—Mex.

TOWNSEND, Pr. Cal. Acad. Sci., IV, 593, notes.—Lower Cal.

thoracicus SAY, Jour. Acad. Sci. Phil., III, 80; Compl. Works, II, 71.—Pa. and Md.

WIEDEMANN, Auss. Zw., I, 77.

Occurs also in S. America—Wulp.

tibialis LOEW, Cent., IX, 61.—Sitka.

Note.—Wheeler has published in Archiv. für Entwicklungsmechanik der Organismen, III, 261–268, pl. XVI, an account of a most interesting "antenniform extra appendage," branching from a fore coxa in this species; locality Wyoming.

ASPISTES.

MEIGEN, Syst. Besch., I, 310, 1818.

KIRBY, Fauna Bor. Amer., Ins., 311, 1837 (*Arthria*).

ZETTERSTEDT, Dipt. Scand., IX, 3410, 1850.

SCHINER, Fauna Austr., II, 347, 1864.

analis KIRBY, Fauna Bor. Amer., Ins., 311, pl. v, f. 8 (*Arthria*).—Canada.

Republished in Canad. Ent., XIII, 165.

- LOEW, Stett. Ent. Zeit., 1847, 69 (*borcalis*). [Loew.]
 OSTEN SACKEN, Cat., 17 and note, about the synonymy.
 JOHNSON, Trans. Amer. Ent. Soc., XXIX, 101, oc. at Beulah, N. M.

SCATOPSE.

- GEOFFROY, Hist. Nat. Ins., II, 545, 1764.
 MEIGEN, Syst. Besch., I, 299, 1818.
 MACQUART, Hist. Nat. Dipt., I, 181, 1834.
 LOEW, Linnæa Ent., I, 324, 1846; Zeitsch. f. Ges. Naturwiss., XXXV, 1870.
 ZETTERSTEDT, Dipt. Scand., IX, 3395, 1850.
 SCHINER, Fauna Austr., II, 348, 1864.
- atrata** SAY, Long's Exped., App., 367; Compl. Works, I, 250.—Philadelphia.
 WIEDEMANN, Auss. Zw., I, 71.
 LOEW, Linnæa Ent., I, 330, pl. III. f. 4 (*recurva*).—Europe. [Loew.]
 N. J.—Smith Cat.
- brevicornis** MEIGEN, Syst. Besch., VI, 314.—Europe.
 SCHINER, Fauna Austr., II, 351.
 White Mts., N. H.—Slosson.
- nitens** WALKER, List, I, 114.—Martin Falls, Canada.
 OSTEN SACKEN, Cat., says is unrecognizable.
- notata** LINNÉ, Fauna Suec., No. 1773 (*Tipula*).—Europe.
 FABRICIUS, Ent. Syst., IV, 250 (*Tipula albipennis*); Suppl., 353 (refers to *Hirtea*); Syst. Antl., 55 (*albipennis*).
 GMELIN, Syst. Nat., V, 2825 (*Tipula*).
 MEIGEN, Klassif. Zw., I, 105 (*latrinarum*); Syst. Besch., I, 300; *id. loc.*, 301 (*punctata*). [Schiner.]
 ZETTERSTEDT, Dipt. Scand., IX, 3397.
 SCHINER, Fauna Austr., II, 351.
 OSTEN SACKEN, Cat., 17, oc. in N. A.
 LUNDBECK, Dipt. Grœnlandica, oc. in Greenland.
 COQUILLET, Proc. Wash. Acad. Sci., II, 394, oc. in Alaska and Greenland, to Alabama. N. J.—Smith Cat.
- obscura** WALKER, List, I, 114.—Martin Falls, Canada.
 Unrecognizable. [O. S.]
- pulicaria** LOEW, Linnæa Ent., I, 338, pl. III. f. 10.—Europe.
 VAN DER WULP, Tijdschr. v. Ent., XII, 80, oc. in Wis.
 SCHINER, Fauna Austr., II, 351.
 HOWARD, Proc. Wash. Acad. Sci., II, oc. in Va.; bred from human excrement. White Mts., N. H.—Slosson.
- pusilla** WALKER, List, I, 114.—Martin Falls, Canada.
- pygmæa** LOEW, Cent., V, 13.—D. C.
 WILLISTON, Dipt. St. Vincent, 269, pl. 333, f. 26.—St. Vincent, W. I.
 COQUILLET, Proc. U. S. N. M., XXII, 250, oc. in Porto Rico.
 N. J.—Smith Cat.
- varicornis** COQUILLET, Proc. U. S. N. M., XXV, 96.—D. C.

SIMULIIDÆ.

SIMULIUM.

- LATREILLE, Hist. Nat. d. Crust. et d. Ins., III, 426, 1802.
 MEIGEN, Syst. Besch., I, 288, 1818 (*Simulia*).
 MACQUART, Hist. Nat. Dipt., I, 173, 1834.
 ZETTERSTEDT, Dipt. Scand., IX, 3414, 1850 (*Simulia*).

SCHINER, Fauna Austr., II, 303, 1864 (*Simulia*).

OSTEN SACKEN, Amer. Entomologist, II, 229, 1870, transformations; Berl. Ent. Zeitschr., XXXVII, 1892, 452, discussion of family characters.

COQUILLET, Bull. 10, new series, Div. of Ent., 66-69, table and brief desc. of N. A. species.

MEINERT, Eucephale Myggelarver, 458, 1886, bibliog. of transformations and study of same in *S. ornatum*, with pl. IV, f. 115-127.

Note.—The following references relate to biology, etc., of species which were not specifically determined:

RILEY, Dept. Ag. Rept., 1884, 340-345, pl. IX, f. 1, 2, 3.

RILEY and HOWARD, Insect Life, brief items and extracts from correspondence, Vol. I, 15, 61, 143, 224, 314; II, 7-11; IV, 143; VII, 426.

HOWARD, Insect Life, I, 99, habits of a species at Ithaca, N. Y.

TOWNSEND, Trans. Amer. Ent. Soc., XX, 45, describes early stages and habits of a species inhabiting Grand Canon of the Colorado; figs.

HAGEN, Can. Ent., XIII, 150, notes on a larva; Ent. Mo. Mag., 1883, 254, note.

LUGGER, 2d Rept. Ent. Minn., 1896, 172-182.

KELLOGG, Psyche, Feb., 1901, 166, says larvæ live largely on diatoms.

argus WILLISTON, Dipt. of Death Valley Exped., 253.—Argus Mts., Cal.

COQUILLET, Proc. Wash. Acad. Sci., II, 394, regards as a synonym of *vittatus*. JOHANNSEN, *in litt.*, does not.

WILLISTON, Biologia, Dipt., I, 223, oc. in Guerrero, Mex.

bracteatum COQUILLET, Bull. 10, n. ser., Div. Ent., 69.—Mass., Cal.

cinereum BELLARDI, Saggio, I, 13.—Mex.

TOWNSEND, Proc. Cal. Acad. Sci., IV, 593, note on oc. in Lower Cal. (Mex.).

decorum WALKER, List, I, 112.—Martin Falls, Canada.

COQUILLET, Bull. 10, n. ser., Div. Ent., makes this a synonym of *vittatum* ZETTERSTEDT; but the description seems to contradict this.

fulvum COQUILLET, Proc. U. S. N. M., XXV, 96. Mentioned in the following as *ochraceum* WALKER:

COQUILLET, Bull. 10, n. ser., Div. Ent., oc. in Col. and Mont., etc.; Proc. Wash. Acad. Sci., II, 393, oc. in Alaska and British Col.

COCKERELL, Ent. News, VIII, 100, oc. in N. M.

BAKER, Ent. News, VIII, 172, oc. in Col., and notes.

glaucum COQUILLET, Proc. U. S. N. M., XXV, 97.—Kansas City, Mo.

griseum COQUILLET, Bull. 10, n. ser., Div. Ent., 69.—Col.

hirtipes FRIES, Mon. Simular., 17, pl. I, f. 1, 1824.—Europe.

MEIGEN, Syst. Besch., VI, 311 and 312 (*rufipes* and *hirtipes*).

ZETTERSTEDT, Dipt. Scand., IX, 3426.

SCHINER, Fauna Austr., II, 368.

JOHANNSEN, Ent. News, XIV, 14, oc. in N. Y.

Idaho—Johannsen *in litt.*

invenustum WALKER, List, I, 112.—Martin Falls, Canada. See also *pecuarum*.

irritatum LUGGER, 2d Rept. Ent. Minn., 1896, 177, f. 145, 146, no description.—Minn.

meridionale RILEY, Rept. Dept. Agriculture, 1886, 513, pl. VII and VIII. Same distribution and habits as *pecuarum*; called the Turkey Gnat.

TOWNSEND, Psyche, July, 1891, 107 (*occidentale*).—New Mex. [Coq.]

COQUILLET, Bull. 10, n. ser., Div. Ent., 68, fig.—Mass., Nebr., Texas.

RILEY and HOWARD, Insect Life, I, 14; said to cause the death of thousands of chickens and turkeys yearly in Va.

- MARLATT, *Ins. Life*, III, 7; breeding on raft of logs in bayou in La. White Mts., N. H.—Slosson; Axton, N. Y.—M. & H.
- metallicum** BELLARDI, *Saggio*, I, 14.—Mex.
- mexicanum** BELLARDI, *Saggio*, App., 6.—Mex.
- minutum** LUGGER, 2d Rept. Ent. Minn., 1896, 175, f. 143, no desc.—Minn.
- molestum** HARRIS, see *venustum*.
- occidentale** TOWNSEND, see *venustum*.
- ochraceum** WALKER, *Trans. Ent. Soc.*, n. ser., v, 332.—Mex. See also references under *fulvum*.
- pecuarum** RILEY, Rept. Dept. Agriculture, 1886, 512, pl. VI, VII, VIII. The Southern Buffalo Gnat. Full biology. Occurs in La., Miss., Ark., Tenn., Mo., Ky., Ill., Ind., Kans.; attacks mules, horses, cattle, sheep, setting hens and turkeys, hogs, dogs and cats, killing many of these animals.
- COQUILLET, *Bull.* 10, n. ser., Div. Ent., 68, fig.—N. H., N. Y., Mass., Conn., D. C., Mich.
- HERRICK, *Bull.* 53, Miss. Agl. Expt. Station, brief notes.
- N. J.—Smith Cat.; White Mts., N. H.—Slosson; Alaska—Coquillett.
- Note*.—Coquillett regards this species as the same as *incenustum* WALKER. Johannsen *in litt.* does not.
- pictipes** HAGEN, *Proc. Boston Soc. Nat. Hist.*, xx, 305.
- COQUILLET, *Bull.* 10, n. ser., Div. Ent., 69.—N. Y., Texas, Cal.
- MISS R. O. PHILLIPS, thesis at Cornell Univ., abstract by Howard in *Bull.* 10, n. ser., Div. Ent., 66, 67, life history.
- quadrivittatum** LOEW, *Cent.*, II, 2.—Cuba.
- reptans** LINNÉ, *Fauna Suec.*, No. 1893, p. 465 (*Culex*).—Sweden.
- DEGEER, *Hist. Nat. Ins.*, VI, 161 (*Tipula erythrocephala*).
- SCHINER, *Fauna Austr.*, II, 365, fuller bibliography.
- LUNDBECK, *Dipt. Grœnl.*, I, 238, oc. in Greenland.
- tamaulipense** TOWNSEND, *Jour. N. Y. Ent. Soc.*, v, 171.—Tamaulipas, Mex.
- tarsale** WILLISTON, *Trans. Ent. Soc. Lond.*, 1896, 268, pl. VIII, f. 25.—St. Vincent, W. I.
- HUNTER, *Trans. Amer. Ent. Soc.*, xxvi, 297, would make this a synonym of *pulchrum* PHILIPPI (*Aufzählung d. Chilen. Dipt.*, 633), from Chili.
- tribulatum** LUGGER, 2d Rept. Ent. Minn., 1896, 178-181, figs. 146-151; life hist.; no description.—Minn.
- venustum** SAY, *Jour. Acad. Sci. Phil.*, III, 28; *Compl. Works*, II, 51.—Shippingsport, Ohio River.
- WIEDEMANN, *Auss. Zw.*, I, 71.
- HARRIS, *Ins. Inj. Vegetation*, 3d ed., 601 (*molestum*).—Mass. [Coq.]
- RILEY, *Amer. Ent.*, II, 367 (*piscicidium*) [Coq.].
- COQUILLET, *Bull.* 10, n. ser., Div. Ent., 68.—Can., N. H., N. Y., Mich., Minn., Wyo., Br. Col., Tex., La., Miss., Fla.
- Axton, N. Y.—M. & H.
- virgatum** COQUILLET, *Proc. U. S. N. M.*, xxv, 97.—Las Vegas Hot Springs, N. M.
- vittatum** ZETTERSTEDT, *Ins. Lapp.*, 803; *Dipt. Scand.*, IX, 3423.—Europe.
- STAEGER, *Grœnl. Antl.*, oc. in Greenland.
- HOLMGREN, *Ins. Nordgr.*, 104, same.
- O. FABRICIUS, *Fauna Grœnl.*, 211, same (*Culex reptans* LINN.).
- STAEGER and SCHIÖDTE, *Berl. Ent. Zeit.*, 1859, 112.
- COQUILLET, *Bull.* 10 n. ser., Div. Ent., 69.—N. Y., Minn., Nebr., Kans., Col.

LUNDBECK, Dipt. Grœnl., 238, oc. in Greenland.

AXTON, N. Y.—M. & H.

See also *Simulium argus* WILL.

BLEPHAROCERIDÆ.

LOEW, Boll. Soc. Ent. Ital., 1, 85, 1869, monograph; Revis. der Blepharoceriden, Schles. Zeit. f. Ent., Neue Folge, vi, 54-93, 1 pl., 1877.

OSTEN SACKEN, Bemerkungen über Blepharoceriden, Deutsche Ent., 1878, 405-416, an appendix to Loew's revision; Synopsis of the Blepharoceridæ, Berl. Ent. Zeitsch., xxxvi, 1891, 407-411; Contributions to the Study of the Liponeuridæ, Berl. Ent. Zeitsch., xl, 1895, 148-169; suppl. to same, l. c., 351, where the old family name is used (he had already published a note in Ent. Mo. Mag., May, 1895, restoring the name).

JOHANNSEN, Bull. 68, N. Y. State Mus., 332, 1903.

TOWNSEND, Trans. Amer. Ent. Soc., xix, 155, table of N. A. genera.

KELLOGG, Proc. Cal. Acad. Sci., 3d ser., iii, 187-224, 5 pl., 1903, an elegant family revision for the species of the United States, with description and figures of early stages of six species (two undescribed, being unknown in the adult).

PALTOSTOMA.

SCHINER, Verh. Zool.-Bot. Ges., 1866, 931.

OSTEN SACKEN, Cat., 1878, note 19; Berl. Ent. Zeitsch., 1891, 410.

schineri WILLISTON, Trans. Ent. Soc. Lond., 1896, 269, pl. viii, f. 27.—St. Vincent, W. I.

? *superbiens* SCHINER, Novara, 28, pl. ii, f. 4.—S. A.

OSTEN SACKEN, Biologia, Dipt., 1, 5, doubtful oc. in Mexico.

BIBIOCEPHALA.

OSTEN SACKEN, Geol. Surv. of the Territories, 1873; Berl. Ent. Zeitsch., 1891, 409.

LOEW, Revision, 95, 1877.

ROEDER, Wien. Ent. Zeit., ix, 230, 1890 (*Agathon*, in part). [Kellogg.]

KELLOGG, Proc. Cal. Acad. Sci., 3d ser., iii, 199, 200, table of species, etc.

comstocki KELLOGG, Proc. Cal. Acad. Sci., 3d ser., iii, 192, figs. all stages.—Near Stanford University, Cal.

doanei KELLOGG, Psyche, April, 1900, 39 (*Liponcurea*); Proc. Cal. Acad. Sci., 3d ser., iii, 194, figs. all stages; Amer. Nat., 1902, 704-706, homology of mouth-parts, with figs.—Near Stanford University, Cal.

elegantula ROEDER, Wien. Ent. Zeit., ix, 230, 1890 (*Agathon*).—Nevada.

KELLOGG, Proc. Cal. Acad. Sci., 3d ser., iii, 193, figs. all stages.—Col. Northern Idaho—J. M. A.

grandis OSTEN SACKEN, Geol. Surv. of the Territories, 1873, 564.—Col.

LOEW, Revision, 95, transl. orig. desc.

BLEPHAROCERA.

MACQUART, Annales Soc. Ent. France, ii, 1, 61, 1843 (*Blepharicera*).

WESTWOOD, Guérin's Magasin Zool., Ins., pl. 04, 1842 (*Asthenia*, preoc.).

SCHINER, Fauna Austr., ii, 637, 1864.

OLDENBERG, Zeitsch. f. Hym. und Dipterol., 1901, would add *Liponcurea* as a synonym.

KELLOGG, Proc. Cal. Acad. Sci., 3d ser., iii, 199-200, 1903, table of species, etc.

- JOHANNSEN, Bull. 68, N. Y. State Mus., 333, 1903.
americana WALKER, List, 1, 28 (*Asthenia*).—Martin Falls, Canada.
 OSTEN SACKEN, Cat., 217, note 18, says is unrecognizable, and does not belong to this family, and the type cannot be found.
jordani KELLOGG, Proc. Cal. Acad. Sci., 3d ser., III, 189, figs. all stages.—Stanford University, Cal., and vicinity.
osten-sackeni KELLOGG, Proc. Cal. Acad. Sci., 3d ser., III, 191, figs. all stages.—California, several places.
tenuipes WALKER, List, 1, 86 (*Asyndulum*).—Martin Falls, Canada.
 LOEW, Cent., iv, 43 (*capitata*).—D. C. [O. S., from Walker's type.]
 KELLOGG, Ent. News, xi, 305, figs., on structure and habits (id.); larval stages.—Ithaca, N. Y.
 JOHANNSEN, Bull. 68, N. Y. State Mus., 333, life hist.—Axton and Ithaca, N. Y.
 Wh. Mts., N. H.—O. S. Cat.: Axton, N. Y.—M. & H.

PHILORUS.

- KELLOGG, Proc. Cal. Acad. Sci., 3d ser., III, 199, 1903.
ancilla OSTEN SACKEN, Cat., 1878, 266 (*Blepharocera*).—Cal.
yosemite OSTEN SACKEN, West. Dipt., 195 (*Blepharocera*).—Yosemite Valley, Cal.
 KELLOGG, Psyche, 1903, 186, oc. and note.—Grand Canon of King's Riv., Cal.

RHYPHIDÆ.

- TOWNSEND, Trans. Amer. Ent. Soc., XIX, 155, 1892, table of N. A. genera.
 OSTEN SACKEN, Berl. Ent. Zeitsch., XXXVII, 456, 1892, discussion of adult and larval characters.

RHYPHUS.

- LATREILLE, Hist. Nat. Crust. et Ins., XIV, 291, 1804.
 MEIGEN, Syst. Besch., I, 320, 1818.
 SCHINER, Fauna Austr., I, 494, 1864.
alternatus SAY, Jour. Acad. Sci. Phil., III, 27; Compl. Works, II, 51.—Pa.
 WIEDEMANN, AUSS. ZW., I, 82.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson; Axton, N. Y.—M. & H.
dolorosus WILLISTON, Dipt. St. Vincent, 298, pl. x, f. 74.—St. Vincent, W. I.
fenestralis SCOPOLI, Ent. Carn., 322 (*Tipula*).—Europe.
 MEIGEN, Syst. Besch., I, 323.
 ZETTERSTEDT, Dipt. Scand., IX, 3436.
 SCHINER, Fauna Austr., II, 495.
 LOEW, Silliman's Jour., oc. in N. A.
 VAN DER WULP, Dipt. Neerl., 438; Tijdschr. v. Ent., XXIV, 153, oc. at Quebec.
 OSTEN SACKEN, Berl. Ent. Zeitsch., XXXVII, 457, 1892, notes on larva.
 White Mts., N. H.—Slosson.
punctatus FABRICIUS, Mant. Ins., II, 333 (*Rhagio*); Ent. Syst., IV, 274 (id.); Syst. Antl., 59 (*Sciara*).—Europe.
 MEIGEN, Syst. Besch., I, 322.
 ZETTERSTEDT, Dipt. Scand., IX, 3434.
 SCHINER, Fauna Austr., II, 495.
 SAY, Jour. Acad. Sci. Phil., III, 27; Compl. Works, II, 50 (*marginatus*).—Pa. [Loew, Silliman's Jour.]
 WIEDEMANN, AUSS. ZW., I, 82 (*marginatus*).

VAN DER WULP, Dipt. Neerl., 438; Tijdschr. v. Ent., xxiv, 153, oc. at Quebec.

HOWARD, Canad. Ent., xxxiii, 43, oc. in Va.; bred from cowdung. N. J.—Smith Cat.; White Mts.—Slosson.

scalaris WIEDEMANN, Auss. Zw., ii, 618.—Ga.

OLBIOGASTER.

OSTEN SACKEN, Biologia, Dipt., i, 20, 1886.

cognatus OSTEN SACKEN, loc. cit., 21.—Irazu, Costa Rica.

tæniatus BELLARDI, Saggio, App., 5, f. 15 (*Rhyphus*).—Mex.

TOWNSEND, Annals and Mag. Nat. Hist., xx, 21.—Vera Cruz.

ORPHNEPHILIDÆ.

ORPHNEPHILA.

HALIDAY, Zool. Jour., v, 350, pl. xv, f. 1—9, 1831.

RUTHE, Isis, 1831 (*Thaumaba*).

MACQUART, Hist. Nat. Dipt., i, 152, 1834, pl. iv, f. 3, 4, 5 (*Chenesia*).

SCHINER, Fauna Austr., ii, 643, 1864.

OSTEN SACKEN, Berl. Ent. Zeitsch., xxxvii, 458, 1892.

testacea RUTHE, Isis, 1211, 1831.—Europe.

HALIDAY, Zool. Jour., v, pl. xv, f. 2; Ent. Mag., i, 156 (*devia*).

MACQUART, Hist. Nat. Dipt., i, 152 (*Chenesia*).

ZETTERSTEDT, Ins. Lapp., 868; Dipt. Scand., ix, 3452 (*Chenesia obscura*).

SCHINER, Fauna Austr., ii, 643.

LOEW, Mon. N. A. Dipt., i, 6, oc. in New York.

N. Y.—Johannsen *in litt.*

STRATIOMYIDÆ.

BERIS.

LATREILLE, Hist. Nat. Crust. et Ins., iii, 447, 1802; xiv, 340, 1804.

MEIGEN, Syst. Besch., ii, 1, 1820.

SCHINER, Fauna Austr., i, 23, 1862.

LOEW, Stett. Ent. Zeit., 1846, 219.

RONDANI, Archivio per la Zool., 1863, 87 (*Oplacantha*).

GIGLIO-TOS, Ditt. del Mess., i, 5, 1892, syn. of *Oplacantha*.

annulifera BIGOT, Annales, 1887, 21 (*Oplacantha*).—Ga.

COQUILLET, Proc. Wash. Acad. Sci., ii, 406, oc. in Alaska, N. H., and Col.

limbata BIGOT, Annales, 1879, 196 (*Oplacantha*).—Mex.

GIGLIO-TOS, Ditt. del Mess., i, 6, pl. i, f. 1.—Orizaba, Mex.

mexicana BELLARDI, Saggio, i, 20, pl. i, f. 6.—Mex.

? WILLISTON, Canad. Ent., 1885, 123, oc. in Col., with a doubt.

WILLISTON, Trans. Amer. Ent. Soc., xv, 245 (*bellula*).—Rio Janeiro.

GIGLIO-TOS, Ditt. del Mess., i, 5, syn., etc.—Orizaba.

morrisii DALE, Annals and Mag. Nat. Hist., 1842.—England.

LOEW, Stett. Ent. Zeit., 1846, 284 (*pallipes*). [Schiner.]

SCHINER, Fauna Austr., i, 24.

VAN DER WULP, Tijdschr. v. Ent., xxiv, 153, oc. in N. A.—Quebec.

viridis see *Actina*.

HETERACANTHIA.

MACQUART, Dipt. Exot., Suppl., iv, 43, 1851.

BRÄUER, Zweifl. d. Kaiserl. Mus., 16, 1882.

mexicana GIGLIO-TOS, Boll. R. Univ. Torino, vi, 102, 1891; Ditt. del Mess., I, 8.—Mex.

ALLOGNOSTA.

OSTEN SACKEN, Berl. Ent. Zeitsch., 1883, 297. Loew had erroneously referred the species to *Mctoponia* McQ., which is not a synonym.

fuscitarsis SAY, Jour. Acad. Sci. Phil., III, 29; VI, 155; Compl. Works, II, 52 and 353 (all *Beris*).—Pa. and Ind.

SAY, Long's Exped., App., 377; Compl. Works, I, 257 (*Sargus dorsalis*).—Ky.

WIEDEMANN, AUSS. ZW., I, 540 (*Beris dorsalis*); II, 41 (*Sargus pallipes*).—Pa.

WALKER, List, I, 127 (*Beris lata* and *brevis*).—Trenton Falls, N. Y.

OSTEN SACKEN, Cat., 43, syn.

Atlantic States and Canada—O. S.; N. J.—Smith Cat.; Montreal—Chagnon.

obscuriventris LOEW, Cent., IV, 45 (*Mctoponia*).—D. C. Conn.—O. S. Cat.

LOEW, Besch. Europ. Dipt., III, 72, mentions the possible occurrence of this species in Siberia.

N. J.—Smith Cat.; Montreal—Chagnon; White Mts., N. H.—Slosson.

similis LOEW, Cent., IV, 44 (*Mctoponia*).—N. Y.

ACTINA.

MEIGEN, Klassifikation, 117, 1804.

SCHINER, Fauna Austr., I, 25, 1862.

BRÄUER, Zweifl. d. Kaiserl. Mus., II, 16, 1882.

viridis SAY, Long's Exped., App., 368; Compl. Works, I, 251 (*Beris*).—Pa.

WIEDEMANN, AUSS. ZW., I, 83 (id.).

Atlantic States and British Poss.—O. S.; N. J.—Smith Cat.; Montreal—Chagnon; Axton, N. Y.—M. & H.

Notc.—The generic reference is by Mr. Kahl.

NEOEXAIRETA.

OSTEN SACKEN, Cat., 1878, 44, change of name.

SCHINER, Verh. Zool.-Bot. Ges., 1867, 309; Novara, 71, 1869 (*Exaireta*, *preoc.*)

MACQUART, Dipt. Exot., I, I, 172, 1838 (*Diphysa*, in part).

NOWICKI, Beitr. zur Kenntniss d. Dipterenfauna Neuseelands, 1875, 12.

BRÄUER, Zweifl. d. Kaiserl. Mus., II, 16, 1882.

OSTEN SACKEN, Berl. Ent. Zeitsch., XXVI, 370, 1882.

rufipalpis WIEDEMANN, AUSS. ZW., II, 619 (*Xylophagus*).—Mex.

MACQUART, Dipt. Exot., I, I, 172 (*Diphysa*).—Mex.

BERISMYIA.

GIGLIO-TOS, Bull. Mus. Zool., Univ. Torino, VI, 108, p. 2, 1891; Ditt. del Mess., I, 6, 1892.

fusca GIGLIO-TOS, Ditt. del Mess., I, 7, pl. I, f. 2.—Mex.

nigrofemorata WILLISTON, Biologia, Dipt., I, 230, pl. IV, f. 7.—Guerrero, Mex.

SCOLIOPELTA.

WILLISTON, Entom. Americana, I, 119, 1885.

luteipes WILLISTON, op. cit., 119.—N. H.

CAMPEPROSOPA.

MACQUART, Dipt. Exot., Suppl., III, 46, 1850.

WILLISTON, Ent. News, VII, 185, reports from N. A.; Biologia, Dipt., 1, 239, 1900.

longicornis WILLISTON, op. cit., 239, pl. IV, f. II.—Guerrero, Mex.

HERMETIA.

LATREILLE, Dict. d'Hist. Nat., XXIV, 1804; Hist. Nat. Crust. et Ins., XIV, 338, 1804.

MACQUART, Hist. Nat. Dipt., 1, 228, 1834.

BRAUER, Zweifl. d. Kaiserl. Mus., II, 10, 1882.

OSTEN SACKEN, Biologia, Dipt., 1, 27, 1886, partial table of species.

æneipennis WILLISTON, Biologia, Dipt., 1, 241.—Yucatan.

GIGLIO-TOS, Ditt. del Mess., 1, 11 (var. of *flavipes*).—Mex.

albitarsis FABRICIUS, Syst. Antl., 63.—S. A.

WIEDEMANN, Auss. Zw., II, 24, pl. VII, f. 4.—S. A.

MACQUART, Hist. Nat. Dipt., 1, 228 (*bimaculata*); 229 (*sexmaculata*); Dipt. Exot., Suppl., 1, 50 (*pauifrons*).—Brazil; Porto Rico; Yucatan; Colombia. [Syn. by Will., with a doubt as to *bimaculata* and *sexmaculata*.]

WILLISTON, Trans. Amer. Ent. Soc., XV, 246, oc. in Brazil; Biologia, Dipt., 1, 240.—Teapa, Mex.

aurata BELLARDI, Saggio, 27, fig.—Mex., Morelia.

OSTEN SACKEN, Biologia, Dipt., 1, 28.—Texas; N. Sonora, Mex.

TOWNSEND, Proc. Cal. Acad. Sci., IV, 594.—Lower Cal.

WILLISTON, Biologia, Dipt., 1, 240, notes.

ceria WILLISTON, Biologia, Dipt., 1, 242, pl. IV, f. 13.—Durango, Mex.

chrysopila LOEW, Cent., X, II.—Texas.

WILLISTON, Canad. Ent., 1885, 125, syn. of *aurata*; oc. in N. M.; Biologia, Dipt., 1, 240, may be distinct.

OSTEN SACKEN, Biologia, Dipt., 1, 28, syn. of *aurata*.

coarctata MACQUART, Dipt. Exot., Suppl., 1, 50, fig.—Mex.

BELLARDI, Saggio, 1, 24.—Mex.

SCHINER, Novara, 70.—S. A.

OSTEN SACKEN, Biologia, Dipt., 1, 32.—Merida, Yucatan.

comstocki WILLISTON, Canad. Ent., 1885, 125.—Ariz.

OSTEN SACKEN, Biologia, Dipt., 1, 28, pl. I, f. 3.—N. Sonora, Mex.

concinna WILLISTON, Canad. Ent., 1885, 125 (*lativentris* BELLARDI, an erroneous identification); Biologia, Dipt., 1, 241.—N. M.; Arizona.

crabro OSTEN SACKEN, Biologia, Dipt., 1, 29, pl. I, f. 4.—Guatemala.

eiseni TOWNSEND, Proc. Cal. Acad. Sci., IV, 594.—Lower Cal.

flavipes WIEDEMANN, Auss. Zw., II, 26.—Brazil.

WALKER, Lisu, III, 515 (*Sargus andreas*); V, 21, syn. of *andreas*.—Para.

GIGLIO-TOS, Ditt. del Mess., 1, 11 (var. *æneipennis*).

See *æneipennis* WILL.

flavoscutata BIGOT, Annales, 1879, 201.—Mex.

formica OSTEN SACKEN, Biologia, Dipt., 1, 32.—Panama.

illucens LINNÉ, Syst. Naturæ, 12th ed., II, 979 (*Musca illucens* and *leucopa*).—S. A.

DEGEER, Mém. pour serv. Hist. Ins., VI, 205, pl. XXIX, f. 8 (*Nemotelus*).

- FABRICIUS, Mantissa Ins., II, 327 (*Bibio*); Ent. Syst., IV, 253 (*Mydas*); Syst. Antl., 62.—West Indies
- LATREILLE, Dict. d'Hist. Nat., XXIV, 194; Hist. Nat. Crust. et Ins., XIV, 338; Gen. Crust. et Ins., IV, 271.
- LAMARCK, Hist. Anim. sans Vert., III, 355 (*Xylophagus*).
- GUÉRIN et PERCHERON, Gén. des Insectes, Dipt., pl. IV.
- WIEDEMANN, Auss. Zw., II, 22, pl. VII, f. 3.
- MACQUART, Hist. Nat. Dipt., I, 228; Dipt. Exot., I, 1, 177, pl. XXI, f. 2.
- BIGOT, in Sagra's Cuba, 799.
- BELLARDI, Saggio, I, 26.—Mex.
- RILEY and HOWARD, Insect Life, I, 353, habits—larvæ live in beehives, on wax, etc., in Alabama. (Mentioned as *H. mucens*.)
- BIGOT, Annales, 1879, 200 (*nigrifacies*).—Mex.
- OSTEN SACKEN, Biologia, Dipt., I, 32, oc. in Mexico, Guatemala, Costa Rica, and Panama.
- JOHNSON, Ent. News, IX, 56, oc. at Philadelphia.
- MORGAN, Bull. 48, N. Ser., La. Ex. Station,—larvæ supposed to be of this species in alimentary canal of man; figs., larva and adult. Also bred from potatoes.
- WILLISTON, Biologia, Dipt. I, 240, syn. and notes.
- Porto Rico—Roeder and Coquillett; Jamaica—Johnson.
- lativentris** BELLARDI, Saggio, I, 27, pl. I, f. 9; App., 8.—Mex.
- ? WILLISTON, Canad. Ent., XVII, 125, doubtfully recognized from N. M.
- WILLISTON, Biologia, Dipt., I, 241, notes; the N. M. species is different.
- Oc. in Mexico, several places.
- mucens**, see *illucens*.
- nigrifacies** BIGOT, see *illucens*.
- planifrons** MACQUART, see *albitarsis*.
- ptero-causta** OSTEN SACKEN, Biologia, Dipt., I, 33, pl. I, f. 5.—Panama.
- relicta** OSTEN SACKEN, Biologia, Dipt., I, 30.—Panama.
- sexmaculata** MACQUART, see *albitarsis*.

ANALCOCERUS.

- LOEW, Verh. Zool.-Bot. Ges., 1855, 10.
- BRAUER, Zweifl. d. Kaiserl. Mus., II, 12, 1882.
- hortulanus** WILLISTON, Biologia, Dipt., I, 238, pl. IV, f. 10.—Yucatan.

ACROCHÆTA.

- WIEDEMANN, Auss. Zw., II, 42, 1830.
- BRAUER, Zweifl. d. Kaiserl. Mus., II, 12, 1882.
- GIGLIO-TOS, Ditt. del Mess., I, 17, 1892.
- fasciata** WIEDEMANN, Auss. Zw., II, 42.—Brazil.
- MACQUART, Hist. Nat. Dipt., I, 260.—Brazil.
- WALKER, List, v, 68.—Brazil.
- LOEW, Verh. Zool.-Bot. Ver., v, 1855, 131.
- GIGLIO-TOS, Ditt. del Mess., I, 16.—Orizaba, Mex.
- WILLISTON, Biologia, Dipt., I, 232, oc. in Orizaba and Teapa, Mex.

RHAPHIOCERA.

- MACQUART, Hist. Nat. Dipt., I, 253, 1834.
- BRAUER, Zweifl. d. Kaiserl. Mus., II, 14, 1882.
- caloptera** OSTEN SACKEN, Biologia, Dipt., I, 26.—Paso del Macho, Mex.

HISTIODROMA.

SCHINER, Novara, 68, 1868.

BRAUER, Zweifl. d. Kaiserl. Mus., II, 14, 1882.

flaveola BIGOT, Annales, 1879, 205.—Mex.

PTECTICUS.

LOEW, Verh. Zool.-Bot. Ges., v, 142, 1855.

BRAUER, Zweifl. d. Kaiserl. Mus., II, 14, 1882.

concinus WILLISTON, Biologia, Dipt., I, 238.—Guerrero, Mex.

cyanifrons RONDANI, Esame di var. sp., etc., 43 (*Sargus*).—Brazil.

GIGLIO-TOS, Ditt. del Mess., I, 118 (as a var. of *testaceus*).—Mex.

WILLISTON, Biologia, Dipt., I, 237.—Mex., several places.

figlinus OSTEN SACKEN, Biologia, Dipt., I, 24.—Guatemala.

WILLISTON, Biologia, Dipt., I, 236.—Guerrero and Jalisco, Méx.

flaviceps BIGOT, Annales, 1879, 230.—Mex.

GIGLIO-TOS, Ditt. del Mess., I, 23.—Mex.

maculatus WILLISTON, Biologia, Dipt., I, 238.—Yucatan.

? **nitidipennis** LOEW, Verh. Zool.-Bot. Ges., 1855, 13.—Venezuela.

? WILLISTON, Biologia, Dipt., I, 237, doubtful oc. in Guerrero, Mex.

sackeni WILLISTON, Canad. Ent., XVII, 124.—Fla.

OSTEN SACKEN, Cat., 45 (*testaceus* Fabricius). [Will.]

LYNCH, A., Catalogos, etc., 125, oc. in S. A.

WILLISTON, Biologia, Dipt., I, 237.—Guerrero, Mex.

Fla.—Johnson; N. J.—Smith Cat.

similis WILLISTON, see *trivittatus*.

testaceus FABRICIUS, Syst. Antl., 257 (*Sargus*).—S. A.

WIEDEMANN, Auss. Zw., II, 35 (id.).—Brazil.

MACQUART, Dipt. Exot., I, 1, 203 and Suppl. I, 57 (id.).—Brazil and Guiana;

Merida, Yucatan.

BELLARDI, Saggio, I, 45 (id.).—Mex.

RONDANI, Esame di . . . Ins. Ditt. Brasil., 1848, 43 and 75.

LOEW, Verh. Zool.-Bot. Ver., v, 147 (*Ptecticus*).

SCHINER, Novara, 64.

VAN DER WULP, Tijdschr. v. Ent., XXIV, 1881, 156.

GIGLIO-TOS, Ditt. del Mess., I, 22, places *cyanifrons* as a variety.—Mex.

WILLISTON, Biologia, Dipt., I, 236, oc. in Mexico generally.

West. N. Y.—O. S. Cat.; N. J.—Smith Cat.

trivittatus SAY, Jour. Acad. Sci. Phil., VI, 159; Compl. Works, II, 355 (*Sargus*).

—Ind.

WILLISTON, Canad. Ent., 1885, 124 (*similis*).—Va., Ga. [Kahl]

N. J.—Smith Cat.

trivittatus GIGLIO-TOS, Boll. R. Univ. Torino, VI, No. 102, 1891; Ditt. del Mess.,

I, 24, pl. I, f. 8.—Mex.

MEROSARGUS.

LOEW, Verh. Zool.-Bot. Ver., 1855, 144.

BRAUER, Zweifl. d. Kaiserl. Mus., II, 15, 1882.

bulbifrons WILLISTON, Biologia, Dipt., I, 235, pl. IV, f. 8, 8a.—Guerrero, Mex.

calceolatus BIGOT, Annales, 1879, 229.—Mex.

cingulatus SCHINER, Novara, 62.—S. A.

? FABRICIUS, Syst. Antl., 253 (*Scava staminea*).—S. A. [G.-T., with ?]

WIEDEMANN, Auss. Zw., II, 39 (*Sargus stamineus*).—S. A. [Will.]

- WALKER, List, v, 92 (*Sargus stamineus* F.).—S. A.
 GIGLIO-TOS, Ditt. del Mess., i, 18, syn.—Orizaba, Mex.
 WILLISTON, Biologia, Dipt., i, 234 (*stamineus* Wd.).—Mexico, sev. places.
concinatus WILLISTON, Biologia, Dipt., i, 235, pl. iv, f. 9.—Guerrero, Mex.
coriaceus GIGLIO-TOS, Boll. R. Univ. Torino, vi, No. 102, 1891; Ditt. del Mess., i, 21.—Orizaba, Mex.
dissimilis GIGLIO-TOS, Boll. R. Univ. Torino, vi, No. 102, 1891; Ditt. del Mess., i, 20, pl. i, f. 7.—Orizaba, Mex.
fraternus BIGOT, Annales, 1879, 228.—Mex.
hyalopterus GIGLIO-TOS, Boll. R. Univ. Torino, vi, No. 102, 1891; Ditt. del Mess., i, 19.—Orizaba, Mex.
orizabæ GIGLIO-TOS, Boll. R. Univ. Torino, vi, No. 102, 1891; Ditt. del Mess., i, 20.—Orizaba, Mex.
spatulatus WILLISTON, Biologia, Dipt., i, 235.—Guerrero, Mex.
stamineus FABRICIUS, see *cingulatus*.
subinterruptus BELLARDI, Saggio, i, 44, pl. i, f. 22 (*Sargus*).—Mex.
 WALKER, Trans. Ent. Soc., v, 271 (id.).—Mex.
 GIGLIO-TOS, Ditt. del Mess., i, 19.—Mex.

CHRYSOCHROMA.

- WILLISTON, Manual N. A. Dipt., 47, 1896, change of name.
 LOEW, Verh. Zool.-Bot. Ver., 1855, 146 (*Chrysonotus*, preoc.).
 BRAUER, Zweifl. d. Kaiserl. Mus., ii, 15, 1882 (id.).
 WILLISTON, Biologia, Dipt., i, 233, 1900, notes.
æneiventris GIGLIO-TOS, Ditt. del Mess., i, 25 (*Chrysonotus*).—Orizaba, Mex.
albipes TOWNSEND, published by Adams, Kans. Univ. Sci. Bull., ii, 31.—Guito, Mex.
anale WILLISTON, Trans. Amer. Ent. Soc., xv, 251 (*Chrysonotus*).—Brazil.
 GIGLIO-TOS, Ditt. del Mess., i, 24 (id.).—Mex.
flavopilosum BIGOT, Annales, 1879, 227 (*Chrysonotus*).—Mex.
 WILLISTON, Biologia, Dipt., i, 233, oc. in Mexico, several places.
nigricornis LOEW, Cent., vii, 14 (*Chrysonotus*).—D. C.
 West. N. Y.—O. S.
latifrons WILLISTON, Biologia, Dipt., i, 234.—Guerrero, Mex.
pulchrum WILLISTON, Biologia, Dipt., i, 233.—Guerrero, Mex.

SARGUS.

- FABRICIUS, Ent. Syst., Suppl., 566, 1798.
 MEIGEN, Syst. Besch., iii, 104, 1822.
 MACQUART, Hist. Nat. Dipt., i, 260, 1834.
 SCHINER, Fauna Austr., i, 20, 1862.
 BRAUER, Zweifl. d. Kaiserl. Mus., ii, 15, 1882.
Note.—Probably some of the following species do not belong to *Sargus* in the narrow sense.
alchidas WALKER, see *Macrosargus*.
aureus BELLARDI, Saggio, i, 42, pl. i, f. 20.—Mex.
bagosas WALKER, List, iii, 518.—Jamaica.
bicolor WIEDEMANN, Auss. Zw., ii, 41.—Porto Rico.
cæruleifrons JOHNSON, Ent. News, xi, 325.—Delaware Water Gap, N. J.
cæsius BELLARDI, Saggio, i, 40, pl. i, f. 18.—Mex.
 GIGLIO-TOS, Ditt. del Mess., i, 28 (*filiformis*).—Mex. [Will.]
 WILLISTON, Biologia, Dipt., i, 232.—Guerrero, Mex.

- ? **clavatus** WALKER, List, v, 93.—Brazil.
 BELLARDI, Saggio, i, 41, doubtful oc. in Mexico.—Morelia.
- coarctatus** MACQUART, Dipt. Exot., i, 1, 202, pl. xxv, f. 2.—Brazil and Guiana.
 WALKER, List, v, 92.—Brazil or Chili.
 WILLISTON, Trans. Amer. Ent. Soc., xv, 249.—Brazil.
 GIGLIO-TOS, Ditt. del Mess., i, 26.—Mex.
 WILLISTON, Biologia, Dipt., i, 231, oc. in Amula in Teapa, Mex.; is probably the same as *S. notatus* WIED., Auss. Zw., ii, 34, from Brazil.
- concinus** OSTEN SACKEN, Biologia, Dipt., i, 23.—Guatemala and Brazil.
- cuprarius** LINNÉ, Fauna Suecica, 1853 (*Musca*).—Europe.
 DEGEER, Mém. pour Serv. Hist. Ins., vi, 81, pl. xii, f. 4 (*Nemotelus*).
 SCOPOLI, Entom. Carniolica, 340 (*Musca violacea*).
 MEIGEN, Syst. Besch., iii, 106 and 107 (the latter *caeruleicollis*).
 WALKER, Ins. Brit., i, 30, pl. 1, f. 9.
 SCHINER, Fauna Austr., i, 21.
 Smith Cat., oc. in New Jersey.
 Montreal—Chagnon (*cuprinus*, a mistake).
- debilis** WALKER, Dipt. Saund., 83.—U. S.
- decorus** SAY, Long's Exped., App., 376; Compl. Works, i, 257.—Pa. and E. Fla.
 WIEDEMANN, Auss. Zw., ii, 38 and 40 (the latter *xanthopus*, given by Will. as a doubtful syn.).
 VAN DER WULP, Tijdschr. v. Ent., x, 134 (*marginatus*).—Wis. [Lw.]
 Eastern North America, common. Beulah, N. M.—Skinner.
- elegans** LOEW, Cent., vii, 10.—Fla., Mass., N. Y. Ky.—O. S.
- filiformis** GIGLIO-TOS, see *casius*.
- lateralis** MACQUART, Macquart, Hist. Nat. Dipt., i, 262.—Cuba.
 BIGOT, in Sagra's Cuba, 800.
- latus** BELLARDI, Saggio, 41, pl. 1, f. 10.—Mex.
- linearis** WALKER, List, v, 328.—Mex.
- lucens** LOEW, Cent., vii, 11.—Cuba.
 GIGLIO-TOS, Ditt. del Mess., i, 27.—Orizaba, Mex.
 WILLISTON, Biologia, Dipt., i, 231, notes on G. T.'s species, which is said to be different from *lucens*.
- nigribarbis** BIGOT, see *viridis*.
- nigrifemoratus** MACQUART, see *Merosargus*.
- nubeculosus** ZETTERSTEDT, Dipt. Scand., i, 157.—Europe.
 SCHINER, Fauna Austr., i, 21.
 JOHNSON, Ent. News, vii, 94, oc. in Pa.
- pallipes** BIGOT, Annales, 1887, 28.—Mt. Hood, Ore.
 WILLISTON, Biologia, Dipt., iii, 23, says is preoccupied twice.
- picticornis** BIGOT, Annales, 1887, 27.—Wash.
- pleuriticus** LOEW, Cent., vii, 13.—Cuba.
- punctifer** BIGOT, Annales, 1887, 27.—Col.
- sallei** BELLARDI, Saggio, i, 43, pl. 1, f. 21.—Mex.
- sapphireus** BIGOT, Annales, 1887, 28.—Cuba.
- speciosus** MACQUART, Dipt. Exot., Suppl., i, 56.—Merida, Yucatan.
 BELLARDI, Saggio, i, 40.—Jalapa and Merida, Mex.
- splendens** BIGOT, Annales, 1879, 224.—Mex.
- stamineus** FABRICIUS, see *Merosargus cingulatus*.
- subinterruptus** BELLARDI, see *Merosargus*.
- tricolor** LOEW, Cent., vii, 12.—Cuba.
 St. Augustine and Tick Id., Fla.—Johnson.

trivittatus SAY, see *Plecticus*.

versicolor BELLARDI, Saggio, App. 13, f. 8.—Oaxaca, Mex.

viridis SAY, Jour. Acad. Sci. Phil., III, 87; Compl. Works, II, 77.—Cincinnati; Atlantic States.

WIEDEMANN, Auss. Zw., II, 39.

OSTEN SACKEN, Cat., 45 (*Chloromyia*).

BIGOT, Annales, 1879, 224 (*nigribarbis*).—Cal. [Will.]

WILLISTON, Canad. Ent., XVII, 123, note on genus.

N. J.—Smith Cat.; Montreal—Chagnon; Beulah, N. M.—Skinner.

xanthopus WIEDEMANN, see *decorus*.

MYIOCHRYSA.

RONDANI, Dipt. Ital. Prod., IV, 11, 1861, change of name.

MACQUART, Hist. Nat. Dipt., I, 262, 1834 (*Chrysomyia*, preoc.).

BRAUER, Zweifl. d. Kaiserl. Mus., II, 15, 1882.

cærulea BIGOT, Annales, 1887, 29.—N. A.

MICROCHRYSA.

LOEW, Verh. Zool.-Bot. Ver., V, 131, 1855.

BRAUER, Zweifl. d. Kaiserl. Mus., II, 15, 1882.

nova GIGLIO-TOS, Boll. R. Univ. Torino, VI, No. 102, 1891; Ditt. del Mess., I, 16.—Mex.

polita LINNÉ, Fauna Suecica, 1854 (*Musca*).—Europe.

FABRICIUS, Syst. Antl., 257 (*Sargus*).

MEIGEN, Syst. Besch., III, 111 (*Sargus*).

MACQUART, Dist. Nat. Dipt., I, 263 (*Chrysomyia*).

SCHINER, Fauna Austr., I, 22 (id.).

LOEW, Verh. Zool.-Bot. Ver., V, 135.

VAN DER WULP, Diptera Neerlandica, I, 163 (*Chrysomyia*); Tijdschr. v. Ent., XXIV, 156, oc. at Quebec.

N. J.—Smith Cat.; Montreal—Chagnon.

MACROSARGUS.

BIGOT, Annales, 1879, 187, 225.

BRAUER, Zw. d. Kaiserl. Mus., II, 15, 1882, probably is same as *Merosargus* Lw.

alchidas WALKER, List, III, 17 (*Sargus*).—Jamaica.

JOHNSON, Proc. Acad. Nat. Sci. Phil., 1894, 271.—Jamaica.

clavis WILLISTON, Canad. Ent., XVII, 123.—Va., N. C.

smaragdiferus BIGOT, Annales, 1879, 226.—Mex.

CHRYSOCHLORA.

LATREILLE, Familles Nat. du Règne Animal, 1825.

MACQUART, Dipt. Exot., I, I, 198, 1838.

LOEW, Verh. Zool.-Bot. Ver., V, 1855.

BRAUER, Zweifl. d. Kaiserl. Mus., II, 9, 1882.

WILLISTON, Biologia, Dipt., I, 242, 1900.

pulchra WILLISTON, Biologia, Dipt., I, 242.—Tabasco, Mex.

purpurea WALKER, Trans. Ent. Soc., V, 271.—Mex.

quadrilineata BIGOT, Annales, 1887, 26.—Cuba.

CHORDONOTA.

GERSTÆCKER, Linnæa Ent., XI, 311, 1857.

BRAUER, Zweifl. d. Kaiserl. Mus., II, 12, 1882.

- carbonaria** BELLARDI, Saggio, App., II.—Mex., Tuxpungo and Orizaba.
fuscipennis BELLARDI, Saggio, App., II. f. 6.—Playa Vicente, Mex.
leiophthalma WILLISTON, Dipt. St. Vincent, 302.—St. Vincent, W. I.

CYPHOMYIA.

- WIEDEMANN, Zool. Mag., I, 3, 55, 1819; Analecta Ent., 1824.
 MACQUART, Hist. Nat. Dipt., I, 241, 1834.
 GERSTAECKER, Linnæa Ent., XI, 263, 1857.
 BRAUER, Zweifl. d. Kaiserl. Mus., II, 12, 1882.
- albitarsis** FABRICIUS, Syst. Antl., 80 (*Stratiomys*).—S. A.
 MACQUART, Dipt. Exot., Suppl., I, 48 (*fenestrata*).—Yucatan. [Gerst.]
 GERSTAECKER, Linnæa Ent., XI, 300.
 BELLARDI, Saggio, I, 22.—Mex.
 OSTEN SACKEN, Biologia, Dipt., I, 35.—Costa Rica, Panama.
 GIGLIO-TOS, Ditt. del Mess., I, 9.
 WILLISTON, Biologia, Dipt., I, 243, oc. in Mexico, several places.
- androgyna** OSTEN SACKEN, Biologia, Dipt., I, 34.—Panama.
- auriflamma** WIEDEMANN, Zool. Mag., I, 3, 54; Auss. Zw., II, 54, pl. VIII, f. 1.—Brazil.
 MACQUART, Hist. Nat. Dipt., I, 242 (*cyanca* and *auriflamma*).—Cayenne; Brazil. [Gerst.]
 GUÉRIN, Iconographie du Règne Animal, pl. XXVIII, f. 5.
 PERTY, Delectus Animalium Articulatorum, 184, pl. XXXVI, f. 14 (*Chryso-dota*). [Gerst.]
 GERSTAECKER, Linnæa Ent., XI, 276.
- bicarinata** WILLISTON, Biologia, Dipt., I, 244.—Guerréro, Morelos, Jalisco and Vera Cruz,—all in Mex.
- lasiophthalma** WILLISTON, Dipt. St. Vincent, 301, 1896.—St. Vincent, W. I.
- lasiophthalma** WILLISTON, Biologia, Dipt., I, 244, pl. IV, f. 15; 1900.—Jalisco and Guerrero, Mex.
- marginata** LOEW, Cent., VI, 31.—Cuba.
- ochracea** GIGLIO-TOS, Boll. R. Univ. Torino, VI, no. 102, 1891; Ditt. del Mess., I, 10, pl. I, f. 4.—Mex.
- pilosissima** GERSTAECKER, Linnæa Ent., XI, 292.—Mex.
 WILLISTON, Biologia, Dipt., I, 244.—Mexico City and Morelos, Mex.
- rubra** LOEW, Cent., VI, 30.—Cuba.
- similis** BELLARDI, Saggio, I, 23, pl. I, f. 7.—Mex.
- scalaris** BIGOT, Annales, 1875, 487.—Mex.
 GIGLIO-TOS, Ditt. del Mess., I, 9, pl. I, f. 3.—Orizaba.
- simplex** WALKER, Trans. Ent. Soc., V, 268.—Mex.
- tomentosa** GERSTAECKER, Linnæa Ent., XI, 294.—Mex.
 BELLARDI, Saggio, I, 22.—Mex.
- varipes** GERSTAECKER, Linnæa Ent., XI, 283.—Mexico.
 SCHINER, Novara, 52, oc. in Colombia, etc.
 OSTEN SACKEN, Biologia, Dipt., I, 34, oc. in Guatemala, Nicaragua and Panama.
 WILLISTON, Biologia, Dipt., I, 243, oc. in Vera Cruz.

NEORONDANIA.

- OSTEN SACKEN, Cat., 50, 1878, change of name.
 JENNICKE, Neue Exot. Dipteren, 1867, 324 (*Rondania*, preoc.).
 BRAUER, Zweifl. d. Kaiserl. Mus., II, 12, 1882.

- chalybea** WIEDEMANN, *Analecta Ent.*, 30; *Auss. Zw.*, II, 49 (*clitellaria*).—St. Thomas.
 JENNICKE, *Neue Exot. Dipteren*, 324, pl. XLIII, f. 4.—Mex.
obscura JENNICKE, *Neue Exot. Dipteren*, 325 (*Rondania*).—Mex.

STRATIOMYIA.

- GEOFFROY, *Hist. Nat. d. Ins.*, II, 475, 1764 (*Stratiomys*).
 FABRICIUS, *Syst. Antl.*, 77, 1805 (id.).
 MEIGEN, *Syst. Besch.*, III, 132, 1822 (id.).
 ZETTERSTEDT, *Dipt. Scand.*, I, 134, 1842 (id.).
 GERSTÄCKER, *Linnaea Ent.*, XI, 317, 1857 (id.).
 SCHINER, *Fauna Austr.*, I, 14, 1862 (id.).
 LOEW, *Cent.*, VI, 4, 1865, amended as above.
 BRAUER, *Zweifl. d. Kaiserl. Mus.*, II, 13, 1882 (*Stratiomys*).
 JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 227, 1895, larval habits, table of species, etc.
 PACKARD, *Amer. Nat.*, XVI, 1882, 599, 600, larva of undet. sp. in hot spring, at 157 degrees.
 RILEY, *Amer. Nat.*, XVII, 1883, 1287, oc. of larva of undet. sp. in sea-water.
apicula LOEW, *Cent.*, VI, 13.—Ill.
 JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 239, pl. III, f. 23, 24.—Ia., Ill., Kans., Nebr. Montreal—Chagnon; Ill.—Hart.
badia WALKER, *List*, III, 529 (*badius* and *ischiaca* HARRIS).—N. H.
 Synonymy and correction of locality in *List*, IV, 1157.
 LOEW, *Cent.*, VII, 21 (*picipes*).—English R., Canada. [O. S.]
 JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 243, pl. III, f. 11, 12.—N. H., Mass.
 NEEDHAM, *Bull.* 47, N. Y. State Mus., 576, pl. XXXV, f. 1, desc. of larva supposed to belong here and figs. of adult.—Adirondacks, N. Y.
 Montreal—Chagnon; White Mts., N. H.—Slosson.
barbata LOEW, *Cent.*, VI, 9.—Cal.
 BIGOT, *Annales*, 1887, 23 (*diademata* and *calopus*).—Ga. and Col. [Johnson.]
 JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 231, pl. III, f. 1.—Wash., Ore., Ida., Wyo., Col., Brit. Col. Montreal—Chagnon; Beulah, N. M.—Skinner.
bimaculata BELLARDI, *Saggio*, App., 10, f. 7.—Cosamalcoapam, Mex.
 JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 245, transl. orig. desc.
 WILLISTON, *Biologia*, *Dipt.*, I, 248, oc. in Yucatan, Mex.
bruneri JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 233, pl. III, f. 7, 8.—Custer, S. D., in the Black Hills.
calopus BIGOT, see *barbata*.
constans LOEW, *Cent.*, X, 8.—Texas.
 JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 244, pl. IV, f. 1, 2.—Blanco Co., Tex.
constricta WALKER, *Trans. Ent. Soc.*, V, 268.—Mex.
 JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 245, quotes orig. desc.
dentata BIGOT, see *maculosa*.
diademata BIGOT, see *barbata*.
discalis LOEW, *Cent.*, VI, 14.—Ill.
 JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 240, pl. III, f. 27, 28.—Utah, Nebr., Minn., Ill., Mich., Pa., W. Va., Mass., Col.
 N. J.—Smith Cat.; Utah—Hart; Montreal—Chagnon.
euchlora GERSTÄCKER, see *Odontomyia lefebvrei*.

- fenestrata** GERSTÄCKER, *Linnaea* EML., XI, 327.—Mex.
- gerstäckeri** BELLARDI, *Saggio*, I, 31, pl. I, f. 10.—Mexico.
JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 245, transl. orig. desc.
- goniophora** SAY, *Jour. Acad. Sci. Phil.*, VI, 161; *Compl. Works*, II, 356.—Mex.
JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 247, quotes orig. desc.
- lacerata** BIGOT, see *maculosa*.
- laticeps** LOEW, *Cent.*, VII, 20.—Huds. Bay Terr.
? WALKER, *List*, III, 530 (*nymphis*).—Martin Falls, Canada. [O. S., with a ?]
JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 234, pl. III, f. 9.—Mont., Utah, Nev., Cal., Ore., Wash., Col.
- lativentris** LOEW, *Cent.*, VI, 8 and 11 (the latter as *obesa*).—Lake Superior; Ill. [Johnson.]
JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 233, pl. III, f. 5, 6.—Ontario, N. Y., Pa., Mich., Ill., S. D.
Montreal—Chagnon; Province of Quebec—Fyles.
- maculosa** LOEW, *Cent.*, VII, 19; X, 7 (the latter as *insignis*).—Cal.
BIGOT, *Annales*, 1870, 210 and 211 (*dentata* and *lacerata*).—Cal.
OSTEN SACKEN, *West. Dipt.*, 213, part. syn.
JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 241, syn. and desc.—Cal., Utah, N. Idaho—J. M. A.
- meigenii** WIEDEMANN, *Auss. Zw.*, II, 61, pl. VIII, f. 7.—Savannah, Ga.
? MACQUART, *Dipt. Exot. Suppl.*, IV, 48, pl. III, f. 5 (*lincolata*).—Va. [Johnson, with a doubt.]
LOEW, *Cent.*, VI, 16 (*angularis*); 17 (*marginalis*).—Philadelphia. [Johnson.]
JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 238, pl. III, f. 21, 22.—Pa., N. J., Nebr., Kans., Tex., Mich., Ill. Montreal—Chagnon.
- melanostoma** LOEW, *Cent.*, VI, 10.—Cal.
JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 232, pl. III, f. 3, 4.—Cal., Ore.
- mutabilis** FABRICIUS, *Ent. Syst.*, IV, 266; *Syst. Antl.*, 81 (in both cases as *mutabilis* and *fasciata*).—Cayenne, S. A.
WIEDEMANN, *Auss. Zw.*, II, 63, pl. VIII, f. a-d.—Cayenne and Brazil.
PERTY, *Delectus Animal.*, pl. XXXVIII, f. 14.
BELLARDI, *Saggio*, I, 30.—Cuantla, Mezillan, Cuernavaca, in Mexico.
SCHINER, *Novara*, 61.
OSTEN SACKEN, *Biologia*, *Dipt.*, I, 37.—Mexico, several places; Guatemala; Costa Rica.
JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 243, pl. IV, f. 3.
WILLISTON, *Biologia*, *Dipt.*, I, 248, oc. in Guerrero, Vera Cruz and Yucatan. See also *subalba*.
- nevadæ** BIGOT, *Annales*, 1887, 24.—Nev.
JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 237, transl. orig. desc.; doubtfully recognized from Cal.
- nigrifrons** WALKER, *List*, III, 531.—Martin Falls, Canada.
JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 247, quotes orig. desc.
- norma** WIEDEMANN, *Auss. Zw.*, 62.—N. A.
JOHNSON, *Trans. Amer. Ent. Soc.*, XXII, 236, pl. III, f. 17, 18.—Pa., Mich., Ind., Ill., Ia., Nebr.
HART, *Bull. Ill. State Lab. Nat. Hist.*, IV, 249, full study of larva and pupa, with figs.
Montreal—Chagnon; N. J.—Smith Cat.

- normula** LOEW, Cent., VI, 4, 5 and 18 (*quadrigemina*, *normula* and *notata*).—
Conn., N. Y., Nebr. [Johnson, who recognizes *quadrigemina* and *notata*
as varieties.]
JOHNSON, Trans. Amer. Ent. Soc., XXII, 235, pl. III, f. 16.—Ontario, N.
Y., Mich., Ill., S. D., Nebr.
Quebec—Wulp; Montreal—Chagnon.
- obesa** LOEW, see *lativentris*.
- pinguis** WALKER, Trans. Amer. Ent. Soc., v, 270.—Mex.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 246, quotes orig. desc.
- quaternaria** LOEW, Cent., VI, 12.—Ill.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 241, pl. III, f. 25, 26.—Pa., Mich.,
Ill., Conn.
- robusta** WALKER, List, v, 37.—N. A.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 247, quotes orig. desc.
- senaria** LOEW, Cent., VI, 7.—Fla.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 237.—St. Augustine, Fla.
- simplex** BIGOT, Annales, 1887, 24.—Tex., Col.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 248, quotes orig. desc.
- subalba** WALKER, List, v, 43.—Para, S. A.
BELLARDI, Saggio, I, 231.—Tampico, Mex.
OSTEN SACKEN, Biologia, Dipt., I, 37.—Presidio, Mex.; Guatemala;
Panama.
WILLISTON, Trans. Amer. Ent. Soc., XV, 256 (*mutabilis* Fabr., from S.
A.); Biologia, Dipt., I, 248, notes and oc. in Vera Cruz, Mex., and
Chapada, Brazil.
- trivittata** SAY, Jour. Acad. Sci. Phil., VI, 160; Compl. Works, II, 356, Mex.
- unilimbata** LOEW, Cent., VI, 6.—Wis.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 236, pl. III, f. 19, 20.—Mont., Wis.,
S. D., Nebr., Wyo., Col., Ill.

ODONTOMYIA.

- MEIGEN, Klassifikation, 128, 1804.
MACQUART, Hist. Nat. Dipt., I, 245, 1834.
GERSTÄCKER, Linnæa Ent., XI, 317, 1857 (sub *Stratiomys*).
SCHINER, Fauna Austr., I, 16, 1862.
BRAUER, Zweifl. d. Kaiserl. Mus., II, 13, 1882.
DAY, Proc. Acad. Nat. Sci. Phil., 1882, 74, partial table of species, etc.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 248, complete revision, table of
species, etc., 1895.
HART, Bull. Ill. State Lab. Nat. Hist., IV, 255, table of species.
- affinis** BELLARDI, Saggio, I, 35, pl. I, f. 12.—Puebla, Mex.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 274, transl. orig. desc.
- albomaculata** MACQUART, Dipt. Exot., I, 1, 189.—Hayti.
WALKER, List, v, 40 (*Stratiomys*).—San Domingo.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 276, transl. orig. desc.
- aldrichi** JOHNSON, Trans. Amer. Ent. Soc., XXII, 262, pl. IV, f. 17.—Riley Co.,
Kans.; Sand Hills and West Point, Nebr.
- americana** DAY, Proc. Acad. Nat. Sci. Phil., 1882, 77.—Cal.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 261.—Wash.
- arcuata** LOEW, Cent., X, 4.—Cal.
DAY, Proc. Acad. Nat. Sci. Phil., 1882, 80, transl. orig. desc.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 255, pl. III, f. 35 and IV, f. 7, 8.—
Cal., Tex., Col., S. D., Nev.

binotata LOEW, see *truquii*.

? **calocephs** BIGOT, Annales, 1879, 217 (*E. rochostoma*).—Col.

OSTEN SACKEN, Berl. Ent. Zeitsch., 1882, 369, gen. ref., with a doubt.

canadensis WALKER, List, v, 310.—Canada.

JOHNSON, Trans. Amer. Ent. Soc., XXII, 277, quotes orig. desc.

cincta OLIVIER, Encycl. Méthodique, VIII, 432.—Carolina.

MACQUART, Dipt. Exot., I, 2, 189, type redesc.

DAY, Proc. Acad. Nat. Sci. Phil., 1882, 80 (*extremis*); 87, quotes orig. desc. of *cincta*.—Conn., Cal.

WILLISTON, Canad. Ent., XVII, 128, syn.

JOHNSON, Trans. Amer. Ent. Soc., XXII, 253.—Fla. to Conn., and west to S. D. and Kans.

HART, Bull. Ill. State Lab. Nat. Hist., IV, 256, egg, larva, pupa, with figs.; larve aquatic.

Montreal—Chagnon; White Mts., N. H.—Slosson.

? **comma** WILLISTON, Biologia, Dipt., I, 247.—Guerrero, Mexico; gen. ref. with a doubt.

concinata WILLISTON, Biologia, Dipt., I, 247.—Guerrero, Mexico.

dissimilis BELLARDI, Saggio, I, 35, pl. I, f. 13, 14.—Mexico.

JOHNSON, Trans. Amer. Ent. Soc., XXII, 274, transl. orig. desc.

dorsalis FABRICIUS, Syst. Antl., 82 (*Stratiomys*).—West Indies.

WIEDEMANN, Auss. Zw., II, 66 (id.).—S. A.

JOHNSON, Trans. Amer. Ent. Soc., XXII, 254, pl. IV, f. 9.—San Domingo.

COQUILLET, Proc., U. S. N. M., XXII, 251, oc. in Porto Rico.

emarginata MACQUART, Dipt. Exot., I, I, 190.—Mex.

WALKER, List, v, 40 (*Stratiomys*).—Mex.

JOHNSON, Trans. Amer. Ent. Soc., XXII, 275, transl. orig. desc.

fallax JOHNSON, Trans. Amer. Ent. Soc., XXII, 257.—S. Ga.

femorata BELLARDI, Saggio, I, 37.—Toluca, Mex.

JOHNSON, Trans. Amer. Ent. Soc., XXII, 275, transl. orig. desc.

flava DAY, Proc. Acad. Nat. Sci. Phil., 1882, 76.—Wyo.

WILLISTON, Canad. Ent., XVII, 128, type redesc.

JOHNSON, Trans. Amer. Ent. Soc., XXII, 256, quotes both desc.

flavicornis OLIVIER, Encycl. Méthodique, VIII, 433.—N. A.

MACQUART, Hist. Nat. Dipt., I, 248, type redesc.; 245 (*Stratiomys flaviceps*, from Philadelphia); Dipt. Exot., I, 1, 180, pl. XXII, f. 2 (*Str. pulchella*, from Ga.); I, 1, 181 (*Str. vicina*, from Philadelphia).

GUÉRIN, Iconographie, Text, 544, pl. XXVIII, f. 5 (*Str. coronata*).

LOEW, Cent., VI, 23 (*lasiophthalma*).—N. Y.

DAY, Proc. Acad. Nat. Sci. Phil., 1882, 81, transl. orig. desc.

JOHNSON, Trans. Amer. Ent. Soc., XXII, 269, pl. IV, f. 21, preceding syn., etc.—Pa., Ill., N. Y., N. J., N. C.

Fla.—Johnson.

flavifasciata MACQUART, Dipt. Exot., Suppl., IV, 53.—Mex.

JOHNSON, Trans. Amer. Ent. Soc., XXII, 275, transl. orig. desc.

fratella WILLISTON, Biologia, Dipt., I, 246.—Jalisco, Mex.

hieroglyphica OLIVIER, Encycl. Méthodique, VIII, 434.—Carolina.

DAY, Proc. Acad. Nat. Sci. Phil., 1882, 87, quotes orig. desc.

JOHNSON, Trans. Amer. Ent. Soc., XXII, 267, pl. IV, f. 4, 5.—Mass., Va.,

D. C., Pa., N. J.

HART, Bull. Ill. State Lab. Nat. Hist., IV, 256 (*suovi*).—Champaign Co., Ill. [Johnson.]

- hoodiana** BIGOT, *Annales*, 1887, 25.—Mt. Hood, Ore.
 JOHNSON, *Trans. Amer. Ent. Soc.*, xxii, 266.—Cal., Brit. Col., Idaho.
- hydroleonoides** JOHNSON, *Trans. Amer. Ent. Soc.*, xxii, 261, pl. iv, f. 10.—Toronto, Canada; Mich., Ill., Utah. Montreal—Chagnon.
- inæqualis** LOEW, *Cent.*, vi, 24.—Huds. Bay Terr.,—Fort Resolution.
 JOHNSON, *Trans. Amer. Ent. Soc.*, xxii, 254, quotes orig. desc.
- interrupta** OLIVIER, *Encycl. Méthodique*, viii, 433.—Carolina.
 WIEDEMANN, *Auss. Zw.*, ii, 64 (*intermedia*).—N. A. [Johnson.]
 WALKER, *List*, v, 38 (*Stratiomys intermedia* Wied.).—N. A.
 DAY, *Proc. Acad. Nat. Sci. Phil.*, 1882, 88, 85, quotes Olivier and Wiedemann.
- JOHNSON, *Trans. Amer. Ent. Soc.*, xxii, 265, pl. iv, f. 29, 30.—Pa., Mass., N. H., N. Y., Ill., Nebr., Minn., S. D. Montreal—Chagnon.
- lefebvrei** MACQUART, *Dipt. Exot.*, i, 1, 189.—Mex.
 BELLARDI, *Saggio*, i, 33.—Orizaba and Toluca, Mex.
 WALKER, *List*, v, 40, 311 (*Stratiomys*).—Mex.
 GERSTECKER, *Linnaea Ent.*, xi, 328 (*Strat. cuchlora*).—Mex. [Will.]
 JENNICKE, *Neue Exot. Dipt.*, 16 (*prasina*).—Mex. [Will.]
 JOHNSON, *Trans. Amer. Ent. Soc.*, xxii, 272, quotes Macquart and transl. Bellardi.
 WILLISTON, *Biologia, Dipt.*, i, 245, syn. and oc. at Morelia, Mex.
- ? **limbipennis** MACQUART, *Dipt. Exot., Suppl.*, ii, 30.—“America?”
 WALKER, *List*, v, 39 (*Stratiomys*).—America.
 OSTEN SACKEN, *Cat.*, 225, note 57, on locality;—doubtful if North American.
- maculifrons** WALKER, *List*, iii, 536.—Honduras.
 JOHNSON, *Trans. Amer. Ent. Soc.*, xxii, 277, quotes orig. desc.
- mexicana** JOHNSON, *Trans. Amer. Ent. Soc.*, xxii, 271.—Tehuantepec, Mex.
- microstoma** LOEW, *Cent.*, vi, 28.—Mass. and N. Y.
 DAY, *Proc. Acad. Nat. Sci. Phil.*, 1882, 77.
 JOHNSON, *Trans. Amer. Ent. Soc.*, xxii, 264, pl. iv, f. 20.—N. J., Md., N. Y., Mass.
- nigerrima** LOEW, *Cent.*, x, 6.—Middle States.
 DAY, *Proc. Acad. Nat. Sci. Phil.*, 1882, 82, transl., orig. desc.
 ? JOHNSON, *Trans. Amer. Ent. Soc.*, xxii, 258, pl. iv, f. 25.—Kans.; recognized with a doubt.
- nigrirostris** LOEW, *Cent.*, vi, 19.—N. Wis.
 DAY, *Proc. Acad. Sci. Phil.*, 1882, 83, transl. orig. desc.
 JOHNSON, *Trans. Amer. Ent. Soc.*, xxii, 257, pl. iii, f. 36, 37.—Mich., Col., S. D., Wyo.
 COCKERELL, *Jour. N. Y. Ent. Soc.*, vi, 206, oc. at Agency, Wyo.
- obscura** OLIVIER, *Encycl. Méthodique*, viii, 433, 434 (the latter as *brevipennis*).—Carolina. [Johnson.]
 MACQUART, *Dipt. Exot.*, i, 2, 189, type redesc.
 ? WALKER, *List*, v, 38 (*Stratiomys*). Query by Johnson.
 DAY, *Proc. Acad. Nat. Sci. Phil.*, 1882, 86, 88 (*brevipennis*).
 JOHNSON, *Trans. Amer. Ent. Soc.*, xxii, 270.—Fla., Car., Va.
- occipitalis** JOHNSON, *Trans. Amer. Ent. Soc.*, xxii, 268, pl. iv, f. 23, 24.—Pa., Va.
- pilimanus** LOEW, *Cent.*, vi, 27.—Ill.
 DAY, *Proc. Acad. Nat. Sci. Phil.*, 1882, 83, transl. orig. desc.
 JOHNSON, *Trans. Amer. Ent. Soc.*, xxii, 263, pl. iv, f. 11, 12.—Ill., Nebr., S. D.

- pilosa** DAY, Proc. Acad. Nat. Sci. Phil., 1882, 76 (*pilosus*).—Cal.
BIGOT, Annales, 1887, 25 (*pyrrhostoma*).—Mt. Hood, Ore. [Johnson.]
JOHNSON, Trans. Amer. Ent. Soc., XXII, 258, pl. iv, f. 13, 14.—Cal.: Los Angeles, Santa Clara and Kern Cos.
- prasina** JENNICKE, see *lefebvrei*.
- pubescens** DAY, Proc. Acad. Nat. Sci. Phil., 1882, 77.—Mass., Cal.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 264, pl. iv, f. 15, 16.—Col., Nebr., S. D., Ariz., Cal., Can., Mich., Mass., N. H., Me. Montreal—Chagnon.
- pyrrhostoma** BIGOT, see *pilosa*.
- quadrinaculata** BELLARDI, Saggio, I, 37, pl. I, f. 15.—Mex.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 274, transl. orig. desc.
WILLISTON, Biologia, Dipt., I, 246, oc. in Guerrero, Mex.
- rubricornis** MACQUART, Dipt. Exot., Suppl., I, 53.—Yucatan.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 276, transl. orig. desc.
WILLISTON, Biologia, Dipt., I, 247, oc. in Tabasco, Mex.
- rufipes** LOEW, Cent., VI, 25 and 26 (the latter as *scalaris*).—Cuba. [Coq.]
JOHNSON, Trans. Amer. Ent. Soc., XXII, 253, transl. orig. desc.
- similis** JOHNSON, Trans. Amer. Ent. Soc., XXII, 267, pl. iv, f. 6.—Col.
- snowi** HART, see *hieroglyphica*.
- texana** JOHNSON, Trans. Amer. Ent. Soc., XXII, 259 (*texasiana*).—Waco, Texas.
- trivittata** SAY, Jour. Acad. Sci. Phil., VI, 160; Compl. Works, II, 356 (*Stratiomys*).—Mex.
BELLARDI, Saggio, I, 38, pl. I, f. 17 (*tritantiata*).—Cuantla, Mex. [Johnson.]
OSTEN SACKEN, Biologia, Dipt., I, 36 (id.).—Guatemala.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 259, pl. iv, f. 19.—Fla., Col.
WILLISTON, Biologia, Dipt., I, 245, oc. in Jalisco, Mex.
- truquii** BELLARDI, Saggio, I, 34, pl. I, f. 11.—Cuernavaca, Mex.
LOEW, Cent., VI, 20 and 22 (*megacephala* and *binotata*).—Cal. and Ill.
DAY, Proc. Acad. Nat. Sci. Phil., 1882, 78 (*bicolor*).—Cal.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 251 (*binotata*).—U. S. generally.
WILLISTON, Biologia, Dipt., I, 246, syn., etc.—Guerrero and Morelos, Mex.
- varipes** LOEW, Cent., VI, 21.—Carolina.
DAY, Proc. Acad. Nat. Sci. Phil., 1882, 84, transl. orig. desc.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 252, type redesc.
- vertebrata** SAY, Long's Exped., App., 369; Compl. Works, I, 251.—N. W. Terr.
WIEDEMANN, Auss. Zw., II, 73.
WALKER, List, V, 39 (*Stratiomys*).—N. A.
? BELLARDI, Saggio, I, 38.—Morelia, Mex.; query by Johnson.
DAY, Proc. Acad. Nat. Sci. Phil., 1882, 78 and 85 (the former as *willistonii*).—N. Y. [Johnson.]
JOHNSON, Trans. Amer. Ent. Soc., XXII, 260, pl. iv, f. 26-28.—Pa., N. J., S. D., Mich., Mass., Mo.
HART, Bull. Ill. State Lab. Nat. Hist., IV, 262, desc. and figs. of eggs, larva and pupa.
Montreal—Chagnon.
- vicina** MACQUART, Dipt. Exot., I, I, 188.—Cuba. *Note*.—There is another *vicina* of Macquart, D. E. I, I, 181, which is a synonym of *O. flavicornis*.
WALKER, List, V, 40.
JOHNSON, Trans. Amer. Ent. Soc., XXII, 276, transl. orig. desc.
- virgo** WIEDEMANN, Auss. Zw., II, 60 (*Stratiomys*).—Savannah, Ga.
WALKER, List, III, 536 (*paron*); V, 30 (*Stratiomys*).—Trenton Falls, N. Y.; N. A. [Johnson.]

- LOEW, Cent., x, 5 (*plebeia*).—Conn. [Johnson.]
 DAY, Proc. Acad. Nat. Sci. Phil., 1882, 75 (*uigra*).—Kans. [Johnson.]
 JOHNSON, Trans. Amer. Ent. Soc., XXII, 262, pl. iv, f. 31-35.—N. H. and
 Ga. to Texas and Col. Montreal—Chagnon.
viridis BELLARDI, Saggio, I, 36, pl. I, f. 16.—Cnautla, Mex.
 JOHNSON, Trans. Amer. Ent. Soc., XXII, 270, pl. iv, f. 18.—Waco, Texas.
 WILLISTON, Biologia, Dipt., I, 246, oc. in Teapa, Mex., and notes.

MYXOSARGUS.

- BRAUER, Zweifl. d. Kaiserl. Mus., II, 21, 1882.
fasciatus BRAUER, op. cit., 22.—Orizaba, Mex.
 OSTEN SACKEN, Berl. Ent. Zeitsch., 1882, 368.—Texas.
 ROEDER, Entom. Nachrichten, XII, 139, 1886.—Ga.
 GIGLIO-TOS, Ditt. del Mess., I, 13.—Mex.
 WILLISTON, Trans. Amer. Ent. Soc., XV, 254, oc. in N. C.; Biologia, Dipt.,
 I, 251, note.
scutellatus WILLISTON, Biologia, Dipt., I, 251.—Teapa, Mex.

NOTHOMYIA.

- LOEW, Cent., VIII, 4, 1869.
 BRAUER, Zweifl. d. Kaiserl. Mus., II, 13, 1882.
calopus LOEW, Cent., VIII, 5.—Cuba.
scutellata LOEW, Cent., VIII, 4.—Cuba.

EUPARYPHUS.

- GERSTÆCKER, Linnæa Ent., XI, 314, 1857.
 BRAUER, Zweifl. d. Kaiserl. Mus., II, 11, 1882.
 OSTEN SACKEN, Biologia, Dipt., I, 39, tables of N. A. species.
 ADAMS, Kans. Univ. Sci. Bull., II, 28, 1903, table of species.
albipilus ADAMS, Kans. Univ. Sci. Bull., II, 30.—Flagstaff, Ariz., and Colorado
 Springs, Colo.
amplus COQUILLET, Proc. U. S. N. M., XXV, 100.—Chimney Gulch, Col.
apicalis COQUILLET, Proc. U. S. N. M., XXV, 99.—Siskyou Co., Cal.
atriventris COQUILLET, Proc. U. S. N. M., XXV, 100.—Greeley, Col.
bellus LOEW, Cent., VII, 18.—Mass.
 WILLISTON, Canad. Ent., XVII, 127.—Pa.
 Montreal—Chagnon.
brevicornis LOEW, Cent., VII, 16.—D. C.
carbonarius GIGLIO-TOS, Boll. R. Univ. Torino, VI, no. 102, 1891; Ditt. dei Mess.,
 I, 12, pl. I, f. 5.—Mex.
crucigerus COQUILLET, Pr. U. S. N. M., XXV, 99.—Colo.
 ? **decemmaculatus** OSTEN SACKEN, Biologia, Dipt., I, 40.—N. Sonora, Mex.;
 gen. ref. with a doubt.
elegans WIEDEMANN, Auss. Zw., II, 58 (*Cyphomyia*).—Mex.
 GERSTÆCKER, Linnæa Ent., XI, 316.—Mex.
elongatulus WILLISTON, Biologia, Dipt., I, 249.—Guerrero, Mex.
limbocutris WILLISTON, published by Adams, Kans. Univ. Sci. Bull., II, 31.
 WILLISTON, Canad. Ent., XVII, 126 (*Euparyphus* sp.).—Wash.
mutabilis ADAMS, Kans. Univ. Sci. Bull., II, 29.—Lusk, Wyo., and Colorado Spr.,
 Colo.
niger BIGOT, Annales, 1879, 204.—Cal.
ornatus WILLISTON, Canad. Ent., XVII, 126.—Wash.

- septemmaculatus** ADAMS, Kans. Univ. Sci. Bull., II, 31.—Palo Alto, Calif.
stigmatalis LOEW, Cent., VII, 17.—D. C. West. N. Y.—O. S.
tahoensis COQUILLET, Pr. U. S. N. M., XXV, 98.—L. Tahoe, Cal.
tetraspilus LOEW, Cent., VII, 15.—New York. Quebec—O. S.
tricolor OSTEN SACKEN, Biologia, Dipt., I, 40.—N. Sonora, Mex.

EURYNEURA.

- SCHINER, Verh. Zool.-Bot. Ges., 1867, 308; Novara, 56, 1868.
 BRAUER, Zweekl. d. Kaiserl. Mus., II, 11, 1882.
 WILLISTON, Biologia, Dipt., I, 250, notes, 1900.
propinqua SCHINER, Novara, 57.—Colombia.
 GIGLIO-TOS, Ditt. del Mess., I, 15.—Orizaba, Mex.
pygmæa BELLARDI, Saggio, App., 12, f. 5 (*Clitellaria*).—Tuxpango, Mex.
 SCHINER, Novara, 56, gen. ref.
 GIGLIO-TOS, Ditt. del Mess., I, 15, note on types.

CLITELLARIA.

- MEIGEN, Illig. Mag., II, 265, 1803; Syst. Besch., III, 119, 1822.
 ZETTERSTEDT, Dipt. Scand., IX, 3709, 1850.
 SCHINER, Fauna Austr., I, 8, 1862.
anchialis WALKER, List, III, 522; IV, 1157, says may be var. of *chalybea* WIED., for which see *Neorondania*.—Jamaica.
argentata WILLISTON, Canad. Ent., XVII, 127.—Ariz.
fenestrata MACQUART, Dipt. Exot., Suppl., I, 54 (*Ephippium*).—Yucatan; gen. ref. in O. S. Cat.
halala WALKER, List, III, 523.—Honduras.
lata LOEW, Cent., X, 9.—Cal. Wash.—Williston.
obesa WALKER, Trans. Ent. Soc., V, 270.—Mex.
rustica OSTEN SACKEN, West. Dipt., 213.—Sonoma, Marin and Sierra Cos., Cal. N. Ida.—J. M. A.
stigma GIGLIO-TOS, Boll. R. Univ. Torino, VI, no. 102; Ditt. del Mess., I, 13.—Mex.
subulata LOEW, Cent., VI, 29.—Va.

NEMOTELUS.

- GEOFFROY, Hist. Nat. Ins., II, 542, 1764.
 MEIGEN, Syst. Besch., III, 113, 1822.
 ZETTERSTEDT, Dipt. Scand., I, 146, 1842.
 SCHINER, Fauna Austr., I, 3, 1862.
 MELANDER, Psyche, 1903, 171-174, table of species.
abdominalis ADAMS, Kans. Univ. Sci. Bull., II, 221.—Englewood, Kans.
acutirostris LOEW, Cent., III, 13.—Cuba.
 MELANDER, Psyche, 1903, 181, transl. of desc.
 St. Augustine, Fla.—Johnson.
albirostris MACQUART, Dipt. Exot., Suppl., IV, 55, pl. III, f. 8.—Va.
 MELANDER, Psyche, 1903, 182, pl. IV, transl. of desc.
arator MELANDER, Psyche, 1903, 179, pl. IV.—San Diego Co., Cal.
bellulus MELANDER, Psyche, 1903, 183, pl. IV.—Galveston, Tex.
bruesii MELANDER, Psyche, 1903, 179, pl. IV.—Austin, Tex.
canadensis LOEW, Cent., III, 12.—Ft. Resolution, Huds. Bay Terr.
 MELANDER, Psyche, 1903, 175, transl. of desc.

- carbonarius** LOEW, Cent., VIII, 6.—Mass.
MELANDER, Psyche, 1903, 177, transl. of desc.
N. J.—Smith Cat.; St. Augustine and Charlotte Harbor, Fla.—Johnson.
- carneus** WALKER, List, III, 521.—Martin Falls, Canada.
MELANDER, Psyche, 1903, 178, quotes desc.
- crassus** LOEW, Cent., III, 10.—R. I.
MELANDER, Psyche, 1903, 175, pl. iv, transl. of desc.
W. Kansas—Williston; N. J.—Smith Cat.
- flavicornis** JOHNSON, Proc. Acad. Nat. Sci. Phil., 1894, 272.—Jamaica.
MELANDER, Psyche, 1903, 180, quotes desc.
- glaber** LOEW, Cent., X, 10.—Texas.
MELANDER, Psyche, 1903, 177, transl. of desc.
- immaculatus** JOHNSON, Proc. Acad. Nat. Sci. Phil., 1895, 304.—St. Augustine, Fla.
MELANDER, Psyche, 1903, 181, quotes desc.
- kansensis** ADAMS, Kans. Univ. Sci. Bull., II, 221.—Englewood, Kans.
- nigrinus** FALLÉN, Stratiomydæ, 6.—Europe.
CURTIS, British Ent., 729.
MEIGEN, Syst. Besch., III, 117.
MACQUART, Hist. Nat. Dipt., I, 266.
ZETTERSTEDT, Ins. Lapp., 575; Dipt. Scand., I, 151.
SCHINER, Fauna Austr., I, 5.
VAN DER WULP, Tijdschr. v. Ent., X, 126, oc. in Wis.
Montreal—Chagnon.
- pallipes** SAY, Jour. Acad. Sci. Phil., III, 29; Compl. Works, II, 52.—Pa.
WIEDEMANN, Auss. Zw., II, 45.
MELANDER, Psyche, 1903, 178, quotes Say.
- polyposus** SAY, Jour. Acad. Sci. Phil., VI, 160; Compl. Works, II, 356.—Mex.
WILLISTON, Biologia, Dipt., I, 251, oc. at Mexico City, and note.
MELANDER, Psyche, 1903, 178, quotes desc.
- slossonæ** JOHNSON, Proc. Acad. Nat. Sci. Phil., 1895, 304.—Charlotte Harbor, Fla.
MELANDER, Psyche, 1903, 181, quotes desc.
- trinitatus** MELANDER, Psyche, 1903, 180, pl. iv.—Austin, Texas.
- tristis** BIGOT, Annales, 1887, 30.—Cal.
MELANDER, Psyche, 1904, 177, transl. of desc.
- unicolor** LOEW, Cent., III, 11.—Ill.
WILLISTON, Canad. Ent., XVII, 128, oc. in Pa.; Biologia, Dipt., I, 251, oc. in Teapa, Mex., with a doubt.
MELANDER, Psyche, 1903, 176, pl. iv.—Ill.
- wheeleri** MELANDER, Psyche, 1903, 182, pl. iv.—Galveston, Texas.

OXYCERA.

- MEIGEN, Illig. Mag., II, 265, 1803; Syst. Besch., III, 123, 1822.
MACQUART, Hist. Nat. Dipt., I, 249, 1834.
ZETTERSTEDT, Dipt. Scand., I, 141, 1842.
SCHINER, Fauna Austr., I, 9, 1862.
BRAUER, Zweekl. d. Kaiserl. Mus., II, 11, 1882.
- centralis** LOEW, Cent., III, 14.—Red R. of the North.
- crotchi** OSTEN SACKEN, West. Dipt., 212.—Cal.
- liburna** WALKER, List, III, 528.—Jamaica.

maculata OLIVIER, Encycl. Méthodique, viii, 600.—Carolina.

MACQUART, Dipt. Exot., i, 2, 190, type redesc.

D. C. and Mass.—O. S.; N. J.—Smith Cat.

metallica WIEDEMANN, Auss. Zw., ii, 60.—St. Thomas, W. I.

Perhaps a *Nothomyia*—Loew, in O. S. Cat.

picta VAN DER WULP, Tijdschr. v. Ent., x, 133.—Wis.

LOEW, Zeitsch. f. Ges. Naturwiss., xxxvi, 117.

unifasciata LOEW, Cent., iii, 15.—Pa.

variegata OLIVIER, Encycl. Méthodique, vii, 600.—Carolina.

MACQUART, Dipt. Exot., i, 2, 191.—Carolina.

AOCHLETUS.

OSTEN SACKEN, Biologia, Dipt., i, 38, 1886.

WILLISTON, Dipt. St. Vincent, 300, 1896.

bistriatus WILLISTON, Dipt. St. Vincent, 300, pl. x, f. 76.—St. Vincent, W. I.

cinctus OSTEN SACKEN, Biologia, Dipt., i, 38.—N. Sonora, Mex.

obscurus COQUILLETT, Pr. U. S. N. M., xxv, 98.—S. Cal. and Ariz.

PELAGOMYIA.

WILLISTON, Manual of N. A. Dipt., 48, 1896.

albitalus WILLISTON, Dipt. St. Vincent, 299, pl. x, f. 75.—St. Vincent, W. I.

NEOCHAUNA.

WILLISTON, Manual of N. A. Dipt., 48, change of name.

LOEW, Stett. Ent. Zeit., viii, 370, 1847 (*Chauna*, preoc.).

GERSTÆCKER, Linnaea Ent., xi, 338, 1857 (*id.*).

BRAUER, Zweifl. d. Kaiserl. Mus., ii, 7, 1882.

variabilis LOEW, Stett. Ent. Zeit., viii, 370, pl. i, f. 11-15.—Cuba.

GERSTÆCKER, Linnaea Ent., xi, pl. iii, f. 7 (*ferruginea*).—Cuba.

Syn. by Loew, Berl. Ent. Zeitsch., ii, 349.

ACANTHINA.

WIEDEMANN, Auss. Zw., ii, 50, 1830.

GERSTÆCKER, Linnaea Ent., xi, 335, 1857.

BRAUER, Zweifl. d. Kaiserl. Mus., ii, 7, 1882.

argentea OSTEN SACKEN, Biologia, Dipt., i, 41.—Costa Rica, Colombia.

WILLISTON, Biologia, Dipt., i, 249, oc. in Atoyac, Mex.

? **bellardii** GIGLIO-TOS, Boll. R. Univ. Torino, vi, no. 102, 1891; Ditt. del Mess.,

i, 14.—Tehuacan, Mex.; gen. ref. with a doubt.

inornata WILLISTON, Biologia, Dipt., i, 249, pl. iv, f. 17.—Atoyac, Mex.

nana BELLARDI, Saggio, App., 9.—Tuxpango, Mex.

ornata MACQUART, Dipt. Exot., Suppl., i, 51, pl. v, f. 5.—Mex.

BELLARDI, Saggio, i, 28.—Mexico City.

CYNIPIMORPHA.

BRAUER, Zweifl. d. Kaiserl. Mus., ii, 19, 1882.

bilimeki BRAUER, op. cit., 19.—Cuernavaca and Orizaba, Mex.

minuta WILLISTON, Biologia, Dipt., i, 252, pl. iv, f. 19, 19a.—Chilpancingo, Mex.

PACHYGASTER.

MEIGEN, Illig. Mag., II, 266, 1803; Syst. Besch., III, 102, 1822.

MACQUART, Hist. Nat. Dipt., I, 264, 1834.

ZETTERSTEDT, Dipt. Scand., I, 151, 1842.

SCHINER, Fauna Austr., I, 3, 1862.

BRAUER, Zweifl. d. Kaiserl. Mus., II, 9, 1882.

maculicornis HINE, Ohio Naturalist, II, 228, 1902.—Onaga, Kans.; generic ref. slightly doubtful.

pulcher LOEW, Cent., III, 16.—D. C.

TOWNSEND, Trans. Amer. Ent. Soc., XXII, 55, oc. at Las Cruces, N. M., and notes.

N. J.—Smith Cat.; White Mts., N. H.—Slosson.

Note.—Loew's description of the female should be ignored. I examined the types at the request of Mr. Kahl, and as he expected, found one female of a *Pachygaster*, and both the male and female of a species belonging to a different genus, the eyes of the male being separated. These are all referred to in one way or another under the description of the female, which consequently becomes useless to science.

LOPHOTELES.

LOEW, Berl. Ent. Zeitsch., 1858, 110.

WILLISTON, Ent. News, VII, 185, reports the genus from N. A. (*Lophoteles*, a misprint.)

pallidipennis WILLISTON, Biologia, Dipt., I, 250, pl. IV, f. 16.—Atoyac, Mex.

ZABRACHIA.

COQUILLET, Bull. 47, N. Y. State Museum, 585, 1901.

polita COQUILLET, op. cit.—Saranac Inn, N. Y.

TABANIDÆ.

LOEW, Dipterenfauna Südafrika's, 14, extended discussion of family and genera.

BIGOT, Bull. Soc. Zool. France, XII, 412, extensive table of genera of the world.

HART, Bull. Ill. State Lab. Nat. Hist., IV, 225, keys to some genera by eggs, larvæ and pupæ.

HOWARD, Bull. 20, n. ser., Div. Ent., 24, a Russian method of destroying.

HINE, Tabanidæ of Ohio (Ohio Acad. Sci. special papers, no. 5, 1903). 63 pp., 2 pl.; redescribes all Ohio species; considerable biological matter; table of N. A. genera.

DICLISA.

SCHINER, Verh. Zool.-Bot. Ges., 1867, 311.

maculipennis SCHINER, Novara, 102, pl. II, f. 17.—S. A.

OSTEN SACKEN, Biologia, Dipt., I, 47.—Panama, Vera Cruz; oc. and note.

miseria OSTEN SACKEN, Biologia, Dipt., I, 47.—Guatemala.

PANGONIA.

LATREILLE, Hist. Nat. Crust. et Ins., III, 437, 1802.

MEIGEN, Syst. Besch., II, 15, 1820.

MACQUART, Hist. Nat. Dipt., I, 191, 1834.

SCHINER, Fauna Austr., I, 43, 1862.

BELLARDI, Saggio, I, 46, partial table of species.

OSTEN SACKEN, Prodrôme, I, 365, partial table of species.

- BIGOT, Bull. Ent. Soc. France, 1879, No. 6 (*Sackenimyia*, in part).
 WILLISTON, Biologia, Dipt., 1, 252, table of Mexican species.
 HINE, Tabanidæ of Ohio, 45, 1903, table of three eastern spp.
- atrifera** WALKER, Trans. Ent. Soc., v, 272.—Mex.
aurulans WIEDEMANN, AUSS. ZW., II, 620.—Mex.
californica BIGOT, Mém. Soc. Zool. France, v, 618 (*Diatomincura*).—Cal.
caustica OSTEN SACKEN, Biologia, Dipt., 1, 44.—Durango, Mex.
chrysocoma OSTEN SACKEN, see *Goniops*.
dives WILLISTON, KANS. Acad. Sci., x, 130.—Cal.
fera WILLISTON, KANS. Acad. Sci., x, 130.—Mt. Hood, Ore.
flavohirta BELLARDI, Saggio, 1, 49.—Mex.
 WILLISTON, Biologia, Dipt., Suppl., 254, oc. in Guerrero, Mex.; note.
fulvithorax WIEDEMANN, AUSS. ZW., 1, 80.—Brazil.
 BIGOT, R. de la Sagra, 797, oc. in Cuba; this identification should be verified.
- fusiformis** WALKER, Dipt. Saund., 19.—N. A.
hera OSTEN SACKEN, West. Dipt., 214.—San Francisco.
illota WILLISTON, Biologia, Dipt., 1, 254.—Ruatan Id., Honduras.
incerta BELLARDI, Saggio, 1, 52.—Mex.
incisuralis SAY, Jour. Acad. Sci. Phil., III, 31; Amer. Ent., pl. xxxiv; Compl. Works, 1, 75.—Arkansas.
 WIEDEMANN, AUSS. ZW., 1, 90 (name changed to *incisa*).
 WILLISTON, KANS. Acad. Sci., x, 130.—Col., N. M.
isabellina WIEDEMANN, AUSS. ZW., 1, 112 (*Silvius*).—N. A.
 OSTEN SACKEN, Cat., 225.—may be a pale *pigra*.
macroglossa WESTWOOD, Lond. and Edinb. Philosoph. Mag., 1835.—Ga.
 OSTEN SACKEN, Prodrôme, 368, quoted.
nigronotata MACQUART, Dipt. Exot., Suppl., IV, 27, pl. II, f. 5.—Mex.
 BELLARDI, Saggio, 1, 51, 52 (the latter *P. certa*) [Will.].
 WILLISTON, Biologia, Dipt., Suppl., 254.—Guerrero and Orizaba, Mex.
- pavida** WILLISTON, Biologia, Dipt., 1, 253.—Guerrero, Mex.
pigra OSTEN SACKEN, Prodrôme, 1, 367.—N. Y., Ky. N. J.—Smith Cat.
planiventris MACQUART, Dipt. Exot., Suppl., IV, 26.—Mex.
prasiniiventris MACQUART, Dipt. Exot., Suppl., 1, 29, pl. III, f. 9.—Colombia.
 SCHINER, Novara, 100.—S. A.
 OSTEN SACKEN, Biologia, Dipt., 1, 45, oc. in Panama.
pyrausta OSTEN SACKEN, Biologia, Dipt., 1, 43.—Panama.
 WILLISTON, KANS. Univ. Quart., III, 189, oc. in Mazatlan, Mex.; Biologia, Dipt., 1, 253, oc. in Tepic, Mex., and note.
- rasa** LOEW, Cent., VIII, 7.—N. Wis.
 OSTEN SACKEN, Prodrôme, 1, 366.—Ill., N. Y.
 WILLISTON, KANS. Acad. Sci., x, 130, oc. in Conn. and notes.
 HINE, Ohio Nat., II, 169, oc. in Medina, O., and note on male.
 HINE, Tabanidæ of Ohio, 45.—Ohio.
- rhizophora** BELLARDI, Saggio, 1, 46, pl. II, f. 1.—Mex.
rostrifera BELLARDI, Saggio, 1, 47.—Mex.
 WILLISTON, Biologia, Dipt., Suppl., 253, oc. in Misantla and Teapa, Mex.
ruficornis BIGOT, Mém. Soc. Zool. France, v, 615 (*Corizoncurea*).—Cal.
sallei BELLARDI, Saggio, 1, 50.—Mex.
saussurei BELLARDI, Saggio, 1, 49, pl. II, f. 4.—Mex.
 WILLISTON, Biologia, Dipt., 1, 254, oc. in Guerrero and Orizaba, Mex.
semiflava WIEDEMANN, AUSS. ZW., II, 622.—Mex.

- MACQUART, Dipt. Exot., Suppl., iv, 27 (*bicolor*).—Mex. [Bellardi.]
 WILLISTON, Biología, Dipt., Suppl., 253, oc. in Guerrero, several places.
seminuda COQUILLET, Jour. N. Y. Ent. Soc., x, 137.—Chihuahua, Mex.
tenuirostris WALKER, Trans. Ent. Soc., v, 272.—Mex.
tranquilla OSTEN SACKEN, Prodrôme, i, 367.—Pa., Mass., N. H., Quebec.
 WILLISTON, Kans. Acad. Sci., x, 130, oc. in N. Y.; notes.
velutina BIGOT, Mém. Soc. Zool. France, v, 615 (*Corizoncurea*).—Cal.
wiedemanni BELLARDI, Saggio, i, 48.—Mex.
 WIEDEMANN, Auss. Zw., ii, 621 (*basilaris*, preoc.).—Mex.
 WALKER, List, v, 120 (id.).—Mex.
 WILLISTON, Biología, Dipt., Suppl. 254, oc. in Guerrero; note.

GONIOPS.

- ALDRICH, Psyche, March, 1892, 236.
 HINE, Tabanidæ of Ohio, 45, 1903, note.
chrysocoma OSTEN SACKEN, Prodrôme, i, 368 (*Pangonia*).—Trenton Falls, N. Y.; Delaware.
 WILLISTON, Kans. Acad. Sci., x, 130, notes (*Pangonia*).
 ALDRICH, Psyche, March, 1892, 236, figs. (*hippoboscoides*).—Pa.
 HINE, Ent. News, xi, 392, synonymy and habits; oc. in Ohio.
 ALDRICH, Ent. News, xi, 531, acknowledges synonymy.
 HINE, Ohio Nat., ii, 168, habits; Tabanidæ of Ohio, 45.—Ohio.
 N. J.—Smith Cat.
Note.—The validity of the genus *Goniops* is a question which should be taken up in connection with the status of a considerable number of other related genera of Pangoninæ; I allow it to stand pending such an investigation.

APATOLESTES.

- WILLISTON, Entom. Americana, i, 12, 1885.
comastes WILLISTON, loc. cit.—Cal.
 ?TOWNSEND, Proc. Cal. Acad. Sci., iv, 596, oc. in Lower Cal., with a doubt.
 ?**eiseni** TOWNSEND, Proc. Cal. Acad. Sci., iv, 596.—Lower Cal.; generic reference with a doubt.

SILVIUS.

- MEIGEN, Syst. Besch., ii, 27, 1820.
 MACQUART, Hist. Nat. Dipt., i, 213, 1834.
 LOEW, Wien. Ent. Monat., 1858, 350.
 SCHINER, Fauna Austr., i, 43.
gigantulus LOEW, Cent., x, 12 (*Chrysops*).—Cal.
 OSTEN SACKEN, Prodrôme, i, 395 (*trifolium*); West. Dipt., 215.—Vancouver Id. and Wash.; Cal. and Col., and synonymy.
 TOWNSEND, Proc. Cal. Acad. Sci., iv, 595.—Cal.
 WILLISTON, Kans. Acad. Sci., x, 131, notes; adds Idaho and N. M. to the localities.
pollinosus WILLISTON, Trans. Conn. Acad. Sci., iv, 244; Kans. Acad. Sci., x, 131, notes and generic characters.—Western Kans.
quadrivittatus SAY, Jour. Acad. Sci. Phil., iii, 33; Compl. Works, ii, 54 (*Chrysops*).—Near Rocky Mts.
 WIEDEMANN, Auss. Zw., i, 200.
 WILLISTON, Kans. Acad. Sci., x, 131.—Cal.

BIGOT, Mém. Soc. Zool. France, v, 623 (*Diachlorus notatus*) [J. M. A.].—Cal.

TOWNSEND, Trans. Amer. Ent. Soc., XXII, 57.—notes; S. D., N. M., Kans.

CHRYSOPS.

MEIGEN, Illig. Mag., II, 1803, 267; Syst. Besch., II, 50, 1820.

MACQUART, Hist. Nat. Dipt., I, 214, 1834.

ZETTERSTEDT, Dipt. Scand., I, 123, 1842.

LOEW, Verh. Zool.-Bot. Ges., 1858, 613.

SCHINER, Fauna Austr., I, 39, 1862.

OSTEN SACKEN, Prodrôme, I, 369, 1875, table of U. S. species.

WILLISTON, Kans. Acad. Sci., X, 131, table of species, supplementary to O. S.

HINE, Tabanidæ of Ohio, 32, 1903. Tables of males and females of Ohio species.

æstuans VAN DER WULP, Tijdsch. v. Ent., X, 135; pl. III, f. 8, 9.—Wis.

? WALKER, List, I, 201 (*marcens*).—Nova Scotia [O. S., with a doubt].

OSTEN SACKEN, Prodrôme, I, 378.—Red R. of the North, Ill., Dak.

LUGGER, 2d Rept., Ent. Minn., 169, mention and good figure.—Minn.

HART, Bull. Ill. State Lab. Nat. Hist., IV, 227, egg described.—Ill.

HINE, Ohio Nat., II, 168, oc. in Ohio.

HINE, Tabanidæ of Ohio, 41 (*marcens*).—Ohio.

Montreal—Chagnon.

affinis BELLARDI, Saggio, I, 70, pl. II, f. 14.—Mex.

altivagus OSTEN SACKEN, Biologia, Dipt., I, 45, pl. I, f. 6, 7.—Durango, Mex.

apicalis BELLARDI, Saggio, I, 73.—Mex.

atricornis BIGOT, see *proclivis*.

atropis OSTEN SACKEN, Prodrôme, I, 372.—Florida, Wekiva and Indian Rivers.

? WALKER, List, I, 204 (*divisus*) [O. S., with a doubt].—Fla.

Florida, several places—Johnson.

brunneus HINE, Tabanidæ of Ohio, 34.—Sandusky, O.

callidus OSTEN SACKEN, Prodrôme, I, 379.—N. J., Del., Conn., Mich., Ill.

TOWNSEND, Trans. Amer. Ent. Soc., XXII, 56, notes.—Va.

HINE, Tabanidæ of Ohio, 35.—Ohio; egg-laying mentioned, p. 4.

Wash.—Williston; Ill.—Hart; Montreal—Chagnon; Fla.—Johnson.

celer OSTEN SACKEN, Prodrôme, I, 376.—Middle States, Mass.

HINE, Tabanidæ of Ohio, 36.—Ohio.

Quebec—Wulp; N. J.—Smith Cat.; Montreal—Chagnon.

ceras TOWNSEND, Psyche, March, 1897, 38.—Gila R., N. M.

coloradensis BIGOT, Mém. Soc. Zool. France, v, 605.—Col.

costatus FABRICIUS, Ent. Syst., IV, 373 (*Tabanus*); Syst. Antl., 112.—S. A.

PALISOT, Ins. Dipt., 223, pl. III, f. 7.

WIEDEMANN, Dipt. Exot., 104; Auss. Zw., I, 198.—S. A.

MACQUART, Dipt. Exot., I, I, 160.—Cuba.

BIGOT, Sagra's Cuba, 798.—Cuba.

GUÉRIN, Iconog., text, III, 542; pl. XCVII (called *molestus* on the plate—O. S.).

? DEGEER, Mémoires, IV, pl. XXX, f. 7 (*Tabanus variegatus*). [O. S. with a doubt.]

RONDANI, Esame, etc., 44 (*vulneratus*). [O. S.]

WILLISTON, Kans. Acad. Sci., X, 134.—San Domingo, Cuba, Jamaica.

OSTEN SACKEN, Biologia, Dipt., I, 46, oc. in Guatemala and Nicaragua.

WILLISTON, Biologia, Dipt., I, 255, oc. Vera Cruz and Tabasco.

- TOWNSEND, Trans. Amer. Ent. Soc., xxii, 56; Annals and Mag. Nat. Hist., xix, 18.—Jamaica and Vera Cruz.
- Porto Rico—Roeder.
- crassicornis** VAN DER WULP, Wien. Ent. Zeit., iii, 141, 1884.—Guanaxuato, Mex.
- crucians** WIEDEMANN, Auss. Zw., i, 211.—Brazil.
- JENNICKE, Neue Exot. Dipt., 41.—Cuba.
- cuclux** WHITNEY, Canad. Ent., xi, 35.—Milford, N. H.
- cursum** WHITNEY, see *puclius*.
- delicatulus** OSTEN SACKEN, Prodrôme, i, 380.—N. Conway, N. H.
- discalis** WILLISTON, Trans. Conn. Acad. Sci., iv, 245.
- excitans** WALKER, Dipt. Saund., 72.—Cape Breton.
- OSTEN SACKEN, Prodrôme, i, 373.—Anticosti to Yukon R., N. Y., N. H.
- WILLISTON, Kans. Acad. Sci., x, 132, oc. Wash.
- Ill.—Hart; Montreal—Chagnon; Axton, N. Y.—M. & H.
- facialis** TOWNSEND, Psyche, March, 1897, 39.—Gila R., N. M.
- fallax** OSTEN SACKEN, Prodrôme, i, 392.—Mass., N. Y., Del., Md.
- HINE, Tabanidæ of Ohio, 36.—Ohio.
- N. J.—Smith Cat.
- flavidus** WIEDEMANN, Dipt. Exot., i, 105; Auss. Zw., i, 199.—Savannah.
- BELLARDI, Saggio, i, 73, pl. II, f. 16 (*pallidus*) [O. S.].—Mex.
- ? WALKER, List, i, 197 (*canifrons*) [O. S., with a doubt].—Fla.
- OSTEN SACKEN, Prodrôme, i, 385.—R. I., Md., Brit. Amer., N. Y.
- HINE, Tabanidæ of Ohio, 37.—Ohio.
- N. J.—Smith Cat.; Ill.—Hart; Florida, several places—Johnson.
- frazari** WILLISTON, Kans. Acad. Sci., x, 133.—San Domingo.
- frigidus** OSTEN SACKEN, Prodrôme, i, 384; II, 474.—Quebec to Great Slave Lake, N. Y., Mass.
- HINE, Tabanidæ of Ohio, 37.—Ohio.
- frontalis** MACQUART, Dipt. Exot., i, 1, 160.—San Domingo.
- WALKER, List, v, 284, oc. in Brazil.
- fugax** OSTEN SACKEN, Prodrôme, i, 375.—Maine, N. H., Canada, divide between Idaho and Montana; Yukon R.
- ? WALKER, List, i, 203 (*carbonarius*, in part) [O. S., with a doubt].—Nova Scotia.
- ? MACQUART, Dipt. Exot., Suppl., iv, 40 (*ater*) [O. S., with a doubt].—Newfoundland.
- WILLISTON, Kans. Acad. Sci., x, 132, notes; oc. in Anticosti, Mass., and Col.
- N. J.—Smith Cat.; Montreal—Chagnon; Axton, N. Y.—M. & H.
- fulvaster** OSTEN SACKEN, West. Dipt., 221.—Col., Utah.
- WILLISTON, Kans. Acad. Sci., x, 134.—Cal., Col., Mont.
- geminatus** WIEDEMANN, Auss. Zw., i, 205, no locality.
- MACQUART, Dipt. Exot., Suppl., iv, 39.—Mex.
- hilaris** OSTEN SACKEN, Prodrôme, i, 391.—Pa., Mass., N. H., Can., Kans.
- indus** OSTEN SACKEN, Prodrôme, i, 383.—Cayuga Lake, N. Y., Montreal.
- HINE, Ohio Nat., II, 168, habits of male; oc. in Ohio.
- HINE, Tabanidæ of Ohio, 38.
- N. J.—Smith Cat.: White Mts., N. H.—Slosson.
- inornatus** WALKER, List, i, 198.—Brazil; in his Prodrôme and Catalogue, Osten Sacken adds "West Indies," but I know not on what authority.
- lateralis** WIEDEMANN, Auss. Zw., i, 209, no locality.
- WALKER, List, i, 200; v, 286, oc. in Honduras and S. A.: this needs confirmation.

- latifasciatus** BELLARDI, Saggio, 1, 71, pl. II, f. 15.—Mex.
OSTEN SACKEN, Biologia, Dipt., 1, 46, oc. in Mex., Guatemala, Costa Rica.
? WILLISTON, Biologia, Dipt., 1, 256, oc. in Jalapa, Mex., with a query.
- lugens** WIEDEMANN, Dipt. Exot., 1, 109; Auss. Zw., 1, 212.—Ga.
HINE, Tabanidæ of Ohio.—Medina, Ohio.
- megaceras** BELLARDI, Saggio, 1, 74, pl. II, f. 18.—Mex.
- mitis** OSTEN SACKEN, Prodrôme, 1, 374.—Canada to Yukon R.; Lake Superior.
? WALKER, Dipt. Saund., 73 (*provocans*) [O. S., with a doubt].—Cape Breton.
Ill.—Hart; Axton, N. Y.—M. & H.
- mæchus** OSTEN SACKEN, Prodrôme, 1, 387.—D. C., Ga., Ky., Mo.
HINE, Ohio Nat., II, 168, habits and oc. in Ohio.
HINE, Tabanidæ of Ohio, 39.
N. J.—Smith Cat.
- montanus** OSTEN SACKEN, Prodrôme, 1, 382.—Catskills, N. Y.
TOWNSEND, Trans. Amer. Ent. Soc., XXII, 57, notes and oc. in Vt.
HINE, Tabanidæ of Ohio, 40, Ohio.
N. J.—Smith Cat.; Ill.—Hart.
- morosus** OSTEN SACKEN, Prodrôme, 1, 389; II, 474.—Md., Fla., Tex.
? MACQUART, Dipt. Exot., 1, 1, 161 (*trinotatus*) [O. S., with a doubt].—Philadelphia.
N. J.—Smith Cat.; St. Augustine and Georgiana, Fla.—Johnson.
- neglectus** WILLISTON, Biologia, Dipt., 1, 156, pl. IV, f. 20.—Tabasco, Mex.
- niger** MACQUART, Dipt. Exot., 1, 1, 161.—N. A.
? WALKER, List, 1, 203 (*carbunarius*, var. B) [O. S., with a doubt].—Nova Scotia.
OSTEN SACKEN, Prodrôme, 1, 377.—Middle and Northern States and British Possessions.
TOWNSEND, Trans. Amer. Ent. Soc., XXII, 57, notes, Va.
HINE, Tabanidæ of Ohio, 41.—Ohio.
N. J.—Smith Cat.; Ill.—Hart; Montreal—Chagnon; Quebec—Wulp; Axton, N. Y.—M. & H.
- nigribimbo** WHITNEY, Canad. Ent., XI, 35.—Milford, N. H.
- nigripes** ZETTERSTEDT, Ins. Lapp., 519; Dipt. Scand., 1, 125.—N. Europe.
LOEW, Verh. Zool.-Bot. Ges., 1858, 623, oc. in N. A.—Sitka.
OSTEN SACKEN, Prodrôme, 1, 394, note.
Alaska—Coq.
- nigriventris** BIGOT, Mém. Soc. Zool. France, v, 604.—Wash.
- noctifer** OSTEN SACKEN, West. Dipt., 220.—Sierra Nevada, Cal.
Beulah, N. M.—Skinner.
- obsoletus** WIEDEMANN, Dipt. Exot., 1, 168; Auss. Zw., 1, 211.—N. A.
OSTEN SACKEN, Prodrôme, 1, 393; Cat., 225, note 68, on types.—Pa., Md., N. Y., Mass., N. H.
HINE, Tabanidæ of Ohio, 42.—Ohio.
N. J.—Smith Cat.; Montreal—Chagnon.
- pachycera** WILLISTON, Kans. Acad. Sci., x, 134.—Cal.
TOWNSEND, Proc. Cal. Acad. Sci., IV, 596, notes on male; oc. in Lower Cal.
- pertinax** WILLISTON, Kans. Acad. Sci., x, 132.—Wash.
- plangens** WIEDEMANN, Dipt. Exot., 1, 109, Auss. Zw., 1, 210 (both *fuliginosus*; the female is described as *plangens*, Auss. Zw., 1, 210. I do not know any reason for discarding *fuliginosus*, which is undoubtedly prior, but I follow Osten Sacken, leaving the question open).—Savannah, Ga.

- N. J.—Smith Cat.; Fla.—Johnson.
- proclivis** OSTEN SACKEN, West. Dipt., 222, Marin Co., Cal.
BIGOT, Mém. Soc. Zool. France, v, 604 (*atricornis*).—Col. [Hine.]
HINE, Canad. Ent., xxxv, 244, oc. at Oak Creek Canyon, Ariz.
Wash. and Mt. Hood, Ore.—Williston.
- pudicus** OSTEN SACKEN, Prodrôme, I, 381; II, 474.—Mass., Fla.
WHITNEY, Canad. Ent., XI, 36 (*cursim*) [Williston].—Milford, N. H.
N. J.—Smith Cat.
- sackeni** HINE, Tabanidæ of Ohio, 42.—Sandusky, Ohio.
- scalaratus** BELLARDI, Saggio, I, 72, pl. II, f. 19.—Mex.
- sepulchralis** FABRICIUS, of Kirby, see Osten Sacken's note, Cat., 54.
- sequax** WILLISTON, Kans. Acad. Sci., x, 133.—W. Kans.
- sordidus** OSTEN SACKEN, Prodrôme, I, 376.—White Mts., N. H.
WALKER, List, I, 202 (*niger* Macquart) [O. S.].—N. Y.
WILLISTON, Kans. Acad. Sci., x, 134, note and correction.
Aston, N. Y.—M. & H.
- striatus** OSTEN SACKEN, Prodrôme, I, 391.—D. C., Ill.
? WALKER, List, I, 199 (*furcatus*) [O. S., with a doubt].—Martin Falls,
Canad.
? BELLARDI, Saggio, I, 74 (*vittatus* Wied.) [O. S., with a doubt].—Mex.
HINE, Tabanidæ of Ohio, 43.—Ohio.
N. J.—Smith Cat.
- subcæcutiens** BELLARDI, Saggio, I, 69, pl. II, f. 13.—Mex.
- surdus** OSTEN SACKEN, West. Dipt., 223.—Sierra Nevada.
WILLISTON, Kans. Acad. Sci., x, 134, notes.—Wash.
- tanycerus** OSTEN SACKEN, Biologia, Dipt., I, 46.—Costa Rica.
- univittatus** MACQUART, Dipt. Exot., Suppl., v, 36.—N. A.
? MACQUART, Hist. Nat. Dipt., I, 216 (*fascipennis*) [O. S., with a doubt].
—Philadelphia.
PETTIT, Bull. 186, Mich. Ex. Sta., oc. at Chatham, Mich.
HINE, Tabanidæ of Ohio, 44.—Ohio.
Ill.—Hart; N. J.—Smith Cat.; Fla.—Johnson.
- virgulatus** BELLARDI, Saggio, I, 71, pl. II, f. 17.—Cuantla, Mex.
VAN DER WULP, Wien. Ent. Zeit., III, 141 (*crassicornis*). [Will.]
MACQUART, Dipt. Exot., Suppl., IV, 39 (*geminatus*, preoc.) [Will.].—Mex.
WILLISTON, Biologia, Dipt., I, 255.—Jalisco and Guerrero, Mex.
- vittatus** WIEDEMANN, Dipt. Exot., 106; Auss. Zw., I, 200.—N. A.
MACQUART, Dipt. Exot., Suppl. v, 37.—Baltimore.
WALKER, List, I, 107 (*arcolatus*) [O. S.].—N. Y.
JENNICKE, Neue Exot. Dipt., 26 (*lineatus*) [O. S.].—Ill.
OSTEN SACKEN, Prodrôme, I, 390.—Middle and Northern States.
TOWNSEND, Trans. Amer. Ent. Soc., XXII, 57, note.—Kans.
HART, Bull. Ill. State Lab. N. H., IV, 228, figs. and desc. of larva and
pupa.
HINE, Tabanidæ of Ohio, 44.—Ohio.
N. J.—Smith Cat.; Fla., several places—Johnson; Montreal—Chagnon.

LEPIDOSELAGA.

- MACQUART, Dipt. Exot., I, 1, 153, 1838 (*Lepiselaga*).
PERTY, Delectus Anim., 182, 1834 (*Hadrus*, preoc.).
LOEW, Dipt. Südafrika's, 31, 1860.
WILLISTON, Biologia, Dipt., I, 262, 1901.

lepidota WIEDEMANN, Auss. Zw., 1, 193 (*Tabanus*).—Brazil.

FABRICIUS, Syst. Antl., 108 (*Hamatopota crassipes*) [Loew].—S. A.

PERTY, Delectus Anim., 183, pl. XXXVI. f. 9 (*Hadrus*).—Brazil.

MACQUART, Dipt. Exot., 1, 1, 154, pl. XVIII. f. 3.—Guiana and Brazil.

BELLARDI, Saggio, 1, 75 (*Hadrus*).—Mex.

LOEW, Cent., VIII, 8 (*recta*) [Will.].—Mex.

SCHINER, Novara, 96 (*Hadrus*).—S. A.

OSTEN SACKEN, Biologia, Dipt., 1, 57 (*recta*).—Guatemala.

WILLISTON, Kans. Univ. Quart., III, 192 (*Hadrus*); Biologia, Dipt., 1, 262, oc. in Jalisco, Mex.

TOWNSEND, Annals and Mag. Nat. Hist., XIX, 19, oc. in Vera Cruz.

HÆMATOPOTA.

MEIGEN, Illig. Mag., II, 267, 1803; Syst. Besch., II, 58, 1820.

SCHINER, Fauna Austr., 1, 37, 1862.

americana OSTEN SACKEN, Prodrôme, 1, 395.—Fort Resolution, Huds. Bay Terr.; Lake Superior, Dakota, Mont., Br. Col.

WILLISTON, Kans. Acad. Sci., X, 135, probably same as *punctulata*.

punctulata MACQUART, Dipt. Exot., 1, 1, 163.—Carolina.

N. J.—Smith Cat.

DIACHLORUS.

OSTEN SACKEN, Prodrôme, II, 475, 1876, change of name.

MACQUART, Hist. Nat. Dipt., 1, 207, 1834; Dipt. Exot., 1, 1, 150, 1838 (both *Diabasis*, preoc.).

ferrugatus FABRICIUS, Syst. Antl., III (*Chrysops*).—Carolina.

PALISOT DE BEAUVAIS, Dipt., pl. III, f. 6 (*Tabanus americanus*).

WIEDEMANN, Dipt. Exot., 94 (*Tabanus*); Auss. Zw., 1, 186 (id.).—Carolina.

MACQUART, Dipt. Exot., 1, 1, 152 (*Diabasis atenia*).—Carolina and Brazil.

WALKER, List, 1, 198 (*Chrysops approximatus* and *convergens*).—Fla. and Honduras.

BELLARDI, Saggio, 1, 68, pl. II. f. 11 (*Tabanus rondanii*).—Mex.

OSTEN SACKEN, Prodrôme, 1, 396; II, 475; Cat., 55, synonymy.

WILLISTON, Biologia, Dipt., Suppl., 263, oc. in Teapa, Mex.

guttatulus TOWNSEND, see *Tabanus*.

notatus BIGOT, see *Silvius quadricittatus*.

STIBASOMA.

SCHINER, Verh. Zool.-Bot. Ges., XVII, 310, 1867; Novara, 93, 1868.

fulvohirtum WIEDEMANN, Auss. Zw., 1, 155 (*Tabanus*).—Brazil.

SCHINER, Novara, 94.—Colombia.

WALKER, List, v, 222 (*Tabanus compactus*) [O. S.].—Amazon.

OSTEN SACKEN, Biologia, Dipt., 1, 57.—Panama.

pachycephalum BIGOT, Mém. Soc. Zool. France, v, 636.—Mex.

DICHELACERA.

MACQUART, Dipt. Exot., 1, 1, 112, 1838.

abiens WALKER, List, 1, 191.—W. Indies.

cervicornis FABRICIUS, Syst. Antl., 100 (*Tabanus*).—S. A.

WIEDEMANN, Dipt. Exot., 79; Auss. Zw., 1, 157 (*Tabanus*).—S. A.

OSTEN SACKEN, Biologia, Dipt., 1, 58, oc. in Cent. Am. and Panama.

WILLISTON, Biologia, Dipt., 1, 263, oc. in Guerrero, Mex., several places.

- fasciata** WALKER, is South American; see Osten Sacken, Cat., 55.
pachypalpus BIGOT, Mém. Soc. Zool. France, v, 631.—Mex.
pulchra WILLISTON, Biologia, Dipt., i, 263, pl. iv, f. 22.—Guerrero, Mex., several places.
scapularis MACQUART, Dipt. Exot., Suppl. II, 15.—Mex.
 BELLARDI, Saggio, i, 53, pl. II, f. 12.—Mex.

PITYOCERA.

- GIGLIO-TOS, Boll. R. Univ. Torino, XI, No. 224, 1896.
festæ GIGLIO-TOS, loc. cit., page 4.—Darlen. Same, XII, No. 276, 1897.

TABANUS.

- LINNÉ, Fauna Suec., 2d ed., 462, 1761.
 FABRICIUS, Syst. Antl., 92, 1805.
 MEIGEN, Syst. Besch., II, 22, 1820.
 MACQUART, Hist. Nat. Dipt., i, 197, 1834.
 ZETTERSTEDT, Dipt. Scand., i, 105, 1842.
 LOEW, Verh. Zool.-Bot. Ges., 1858, 573; Dipt. Südafrika's, 31.
 SCHINER, Fauna Austr., i, 28, 1862.
 OSTEN SACKEN, Prodrôme, II, 421, 1875, table of species; Biologia, Dipt., i, 51, brief table of black species.
 BRAUER, Zweifl. d. Kaiserl. Mus., i, 15-112, 6 pl.; a modern revision of the European species.
 WILLISTON, Kans. Acad. Sci., x, 135, table of species, supplementary to O. S.; Biologia, Dipt. Suppl., 257, table of Mexican spp.
 HART, Bull. Ill. State Lab. N. H., iv, 230, keys to part of the species by larvæ and pupæ.
 HINE, Tabanidæ of Ohio, 46, 1903, table of Ohio species.
Note.—For the reasons set forth by Brauer and Williston, loc. cit., I have not preserved Osten Sacken's subgeneric or quasi-generic terms *Atylotus* and *Theriopectes*.
- abdominalis** FABRICIUS, Syst. Antl., 96.—Carolina.
 ? PALISOT DE BEAUVAIS, Ins., 101, pl. II, f. 4. [O. S., with a doubt.]
 OSTEN SACKEN, Prodrôme, II, 434; Suppl., 557; Cat., 227, note 76, on types.—Ill., Ky., Ga.
 Ill., common—Hart; N. J.—Smith Cat.; Fla.—Johnson.
- actæon** OSTEN SACKEN, Prodrôme, II, 443.—Mass., Conn., Wis., Minn., Can.
- acutus** BIGOT, Mém. Soc. Zool. France, v, 660.—New Orleans.
- ægrotus** OSTEN SACKEN, West. Dipt., 219.—Cal.
 WILLISTON, Kans. Acad. Sci., x, 139, notes; Ore.
- affinis** KIRBY, Fauna Boreali-Amer., iv, 313.—Canada. Republished in Canad. Edt., XIII, 166.
 WALKER, List, v, 183 (*triligatus*) [O. S.]—Arctic Amer.
 OSTEN SACKEN, Prodrôme, II, 466.—N. U. S. and Br. Amer.
 WILLISTON, Kans. Acad. Sci., x, 137, note.—Col.
 N. J.—Smith Cat.; Montreal—Chagnon; Ohio—Hine.
- albiscutellatus** MACQUART, Dipt. Exot., Suppl. IV, 34, pl. II, f. 9.—Mex.
- albonotatus** BELLARDI, Saggio, i, 56, pl. II, f. 5.—Mex.
 WALKER, List, i, 157 (*oculus*); 158 (*bipartitus*) [O. S.]—Honduras and Colombia.
 OSTEN SACKEN, Biologia, Dipt., i, 55.—Brit. Honduras.
 WILLISTON, Biologia, Dipt., i, 260, oc. in Teapa, Mex.

- alcis** WILLISTON, Dipt. St. Vincent, 302, pl. x, f. 77.—St. Vincent, W. I.
- alene** TOWNSEND, Trans. Amer. Ent. Soc., xxii, 59.—Jamaica.
- allynii** MARTEN, Canad. Ent., xv, 110.—N. C.
WILLISTON, Kans. Acad. Sci., x, 136, pt. desc.
- alteripennis** WALKER, Trans. Ent. Soc., v, 274.—Mex.
- americanus** FORSTER, Nov. Spec., Cent., i, 100, 1771.
DRURY, Ins., i, pl. XLIV, f. 2 (*plumbicus*).
FABRICIUS, Syst. Ent., 789; Ent. Syst., iv, 365; Syst. Antl., 96 (*ruficornis*).—America.
WIEDEMANN, Dipt. Exot., 62; Auss. Zw., i, 112 (*ruficornis*).—N. A.
PALISOT DE BEAUVAIS, Ins. Dipt., pl. i, f. 2 (*limbatus*).
OSTEN SACKEN, Prodrôme, II, 457.—Middle and Southern States.
III.—Hart; N. J.—Smith Cat.; Fla.—Johnson.
- angustifrons** TOWNSEND, Trans. Amer. Ent. Soc., xxii, 59.—Jamaica.
- annulatus** SAY, Jour. Acad. Sci. Phil., III, 32; Compl. Works, II, 53.—Mo.
WIEDEMANN, Auss. Zw., i, 185.
OSTEN SACKEN, Prodrôme, Suppl., 555.—Ky., Ga., Kans., La.
WILLISTON, Kans. Acad. Sci., x, 142, note.
- astutus** OSTEN SACKEN, Prodrôme, II, 471.—N. Y., Conn., White Mts., N. H. Montreal—Chagnon.
- atratus** FABRICIUS, Syst. Ent., 789; Ent. Syst., iv, 366; Syst. Antl., 96.—W. I.
PALISOT DE BEAUVAIS, Ins. Dipt., 54, pl. i, f. i (*niger*).
DRURY, Ins., i, pl. XLIV, f. 3 (*americanus*, preoc.).
WIEDEMANN, Dipt. Exot., 63; Auss. Zw., i, 114; loc. cit., 113 (*validus*).—N. A.; Pa.
MACQUART, Dipt. Exot., i, 1, 142.—Mex., Ga.
BELLARDI, Saggio, i, 58.—Mex.
HARRIS, Ins. of New Eng., 3d ed., 602.
WALSH, Proc. Bost. Soc. N. H., IX, 304, desc. of larva, which feeds on snails (undetermined).
RILEY, 2d Mo. Rept., 128, figs., desc. of larval habits, etc., and identification of Walsh's larva.
OSTEN SACKEN, Prodrôme, II, 454.—Southern Canada to Mexico, east of the Rocky Mts.
HART, Bull. Ill. State Lab. N. H., iv, 242, desc. and figs. of larva and pupa.
TOWNSEND, Trans. Amer. Ent. Soc., xxii, 60, notes; Jour. N. Y. Ent. Soc., VI, 50, oc. in Texas.
WILLISTON, Biologia, Dipt., i, 259, oc. in Chihnahua, Mex.
HINE, Tabanidae of Ohio, 45, egg-laying; 48, desc.—Ohio.
- aurantiacus** BELLARDI, Saggio, i, 67, pl. II, f. 9.—Mex.
WILLISTON, Biologia, Dipt., i, 259.—Guadalajara, San Blas, and Orizaba, Mex.
- baal** TOWNSEND, Trans. Amer. Ent. Soc., xxii, 58.—Dixie Landing, Va.
- bicolor** WIEDEMANN, Dipt. Exot., 96; Auss. Zw., i, 188.—N. A.
MACQUART, Dipt. Exot., Suppl. v, 35 (*ruficeps*).—Baltimore.
WALKER, List, i, 171 (*fulvescens*).—Mass.
OSTEN SACKEN, Prodrôme, II, 460.—N. Y., Pa., Ill., Quebec.
HINE, Tabanidae of Ohio, 48.—Ohio.
N. J.—Smith Cat.; Montreal—Chagnon.
- bifenestratus** OSTEN SACKEN, Biologia, Dipt., i, 52, pl. i, f. 9.—Durango, Mex.
- bigoti** BELLARDI, Saggio, i, 58.—Mex.
MACQUART, Dipt. Exot., Suppl. II, 20 (*apicalis*, preoc.). [Bell.]

- SCHINER, Novara, 89, changes Macquart's name to *macquarti*.—Colombia.
 OSTEN SACKEN, Biologia, Dipt., 1, 48.—Nicaragua.
calens LINNÉ, is unrecognizable; O. S. Cat., 61.
caliginosus BELLARDI, Saggio, 1, 68, pl. II, f. 10.—Mex.
 WILLISTON, Biologia, Dipt., Suppl., 259, oc. in Vera Cruz and Omealca, Mex.; see *T. cbrius*.
campechianus TOWNSEND, Canad. Ent., XXIX, 197.—Campeche, Mex.
carneus BELLARDI, Saggio, 1, 62.—Mex.
carolinensis MACQUART, Dipt. Exot., 1, 1, 145.—Carolina.
 OSTEN SACKEN, Prodrôme, II, 473, note; Cat. 226, note 72, on type.
 HINE, Tabanidæ of Ohio, 49.—Ohio, several places.
cerastes OSTEN SACKEN, see *hirtioculatus*.
chionostigma OSTEN SACKEN, Biologia, Dipt., 1, 54, pl. I, f. 11.—Guatemala.
 WILLISTON, Biologia, Dipt., 1, 259.—Teapa, Mex.
cinctus FABRICIUS, Ent. Syst., IV, 366; Syst. Antl., 97.—Va.
 MEIGEN, Syst. Besch., II, 42, erroneously supposed to be from Europe.
 WIEDEMANN, Dipt. Exot., 67; AUSS. ZW., 1, 119.—Va.
 HARRIS, Ins. New Eng., 3d ed., 602, f. 261.
 OSTEN SACKEN, Prodrôme, II, 464.—White Mts., N. H., to Ga.
 WILLISTON, Kans. Acad. Sci., x, 138, notes.
cingulatus MACQUART, Dipt. Exot., 1, 1, 144.—Phil.
circumfusus WIEDEMANN, AUSS. ZW., II, 624.—Mex.
coffeatus MACQUART, Dipt. Exot. Suppl., II, 23.—Philadelphia.
 ? WIEDEMANN, AUSS. ZW., 1, 142 (*nigripes*) [O. S., with a doubt].—Savannah.
 OSTEN SACKEN, Prodrôme, II, 441.—Mass. to Fla.
 N. J.—Smith Cat.
comastes WILLISTON, Kans. Acad. Sci., x, 137.—Wash.; Mt. Hood, Ore.
 TOWNSEND, Trans. Amer. Ent. Soc., XXII, 58 (Col., Cal.): Proc. Cal. Acad. Sci., IV, 397, notes.—Lower Cal.
comes WALKER, List, 1, 172 (*inscitus*, preoc.): v, 173, change of name.—Martin Falls, Canada. Unrecognizable—O. S.
commixtus WALKER, see *lincola*.
completus WALKER, List, 1, 185.—St. Thomas, W. I.
confusus WALKER, List, 1, 147.—Ga. Unrecognizable—O. S.
conterminus WALKER, Dipt. Saund., 24.—U. S. Unrecognizable—O. S.
corone OSTEN SACKEN, Biologia, Dipt. 1, 57.—Guatemala.
costalis WIEDEMANN, AUSS. ZW., 1, 173.—Ky.
 MACQUART, Dipt. Exot., Suppl. v, 34 (*baltimorcensis*).—Baltimore.
 WALKER, List, 1, 137 (*vicarius*).—Honduras and Mass.
 ? BELLARDI, Saggio, 1, 63.—Mex. (Query by O. S.)
 OSTEN SACKEN, Prodrôme, II, 450.—Eastern and Middle States; Fla.
 HART, Bull. Ill. State Lab. N. H., IV, 236, desc. and figs. of larva and pupa.
 HINE, Tabanidæ of Ohio, 50.—Ohio.
craverii BELLARDI, Saggio, 1, 60.—Mex.
cribellum OSTEN SACKEN, Biologia, Dipt., 1, 52, pl. I, f. 10.—Presidio, Mex.
cymatophorus OSTEN SACKEN, Prodrôme, II, 444.—Ky. Ill.—Hart.
de filippii BELLARDI, Saggio, 1, 57.—Mex.
derivatus WALKER, List, 1, 151.—N. A.
 OSTEN SACKEN, Cat., 62, note.
dodgei WHITNEY, Canad. Ent., XI, 37.—Glencoe, Nebr.
 WILLISTON, Kans. Acad. Sci., x, 135, pt. desc.
dorsifer WALKER, Trans. Ent. Soc., v, 273.—Mex.

- dorsonotatus** MACQUART, Dipt. Exot., Suppl., II, 22.—Carolina. Unrecognizable—O. S.
- duplex** WALKER, List, I, 173 (*imitans*, preoc.); V, 173, change of name.—Martin Falls, Canada. Unrecognizable—O. S.
- ebrius** OSTEN SACKEN, Biologia, Dipt., I, 49, pl. 1, f. 8.—Costa Rica, Panama.
WILLISTON, Biologia, Dipt., Suppl., 259, thinks may be only a pale var. of *caliginosus* BELL.
- endymion** OSTEN SACKEN, Prodrôme, Suppl., 556.—Ga.
- epistates** OSTEN SACKEN, Prodrôme, II, 467 (*socius*, preoc.); Suppl., 555, name changed.—Fort Simpson, Northwest Canada.
HIXE, Tabanidæ of Ohio, 50.—Ohio.
N. J.—Smith Cat.
- erebus** OSTEN SACKEN, Biologia, Dipt., I, 50.—Nicaragua, Panama.
- erythræus** BIGOT, Mém. Soc. Zool. France, V, 661.—Mex.
- erythrocephalus** BIGOT, Mém. Soc. Zool. France, V, 668.—Panama.
- exul** OSTEN SACKEN, Prodrôme, Suppl., 557.—D. C., Md., Pa., N. J.
WIEDEMANN, Auss. Zw., I, 116; Dipt. Exot., 65 (*abdominalis* Fabr.).
[O. S.]
WILLISTON, Kans. Acad. Sci., X, 138, note.
JOHNSON, Ent. News, IX, 126, may be a synonym of *abdominalis*.
TOWNSEND, Trans. Amer. Ent. Soc., XXII, 60, notes. III.—Hart.
- fenestra** WILLISTON, Kans. Acad. Sci., X, 141.—San Domingo.
- ferrifer** WALKER, Dipt. Saund., 30.—W. I. ("Barbadoes?")
- ferrugineus** PALISOT DE BEAUVAIS, Ins. Recu., pl. III, f. 221.
- filiolus** WILLISTON, Biologia, Dipt., I, 261.—N. Yucatan.
? MACQUART, Dipt. Exot., I, 1, 141 (*rufiventris*, preoc.) [Will., with a ?].
—Cuba.
- flavipes** WIEDEMANN, Auss. Zw., I, 137.—Labrador.
OSTEN SACKEN, Prodrôme, II, 462.—Labrador.
BRAUER, Zw. Kaiserl. Mus., I, 37.—East Siberia.
- fratellus** WILLISTON, Kans. Acad. Sci., X, 140.—Wash.
- frenchii** MARTEN, Canad. Ent., XV, 111.—Mont.
WILLISTON, Kans. Acad. Sci., X, 136, note.
- frontalis** WALKER, List, I, 172.—Nova Scotia. Unrecognizable—O. S.
- fronto** OSTEN SACKEN, Prodrôme, II, 431.—Ga.
? RONBANI, Nuovo Ann. d. Sci. Nat. di Bologna (*cheilopterus*): reproduced by OSTEN SACKEN, Prodrôme, II, 472; see also O. S. Cat., note 79, on type.—Carolina.
WILLISTON, Kans. Acad. Sci., X, 138.—Fla.
St. Augustine and Charlotte Harbor, Fla.—Johnson.
- fulvofrater** WALKER, List, I, 181.—Ill. Unrecognizable—O. S.
- fulvulus** WIEDEMANN, Auss. Zw., I, 153.—"Amerika?"
OSTEN SACKEN, Prodrôme, II, 451.—Mid. States, Ky.
N. J.—Smith Cat.; Ill.—Hart.
- fur** WILLISTON, Kans. Acad. Sci., X, 139 (Fla.); Biologia, Dipt., I, 261, oc. in Misantla, Mex.
- furunculus** WILLISTON, Biologia, Dipt., I, 260.—Guerrero and Jalisco, Mex.
- fuscicrura** BIGOT, Mém. Soc. Zool. France, V, 662.—Mex.
- fuscipalpis** BIGOT, Mém. Soc. Zool. France, V, 681.—Wash.
- fuscopunctatus** MACQUART, Dipt. Exot., Suppl. IV, 34.—Ga.
WALKER, List, I, 146 (*imitans*).—Ga.
OSTEN SACKEN, Prodrôme, II, 432; Suppl. 550; Cat., 228, note 80, on Walker's desc.—Fla., S. C., Ga.

- giganteus** DEGEER, Ins., VI, 226, pl. XXX, f. 1.
 FABRICIUS, Spec. Ins., II, 455; Ent. Syst., IV, 363; Syst. Antl., 94 (*lineatus*).
 —N. A.
 WIEDEMANN, Dipt. Exot., 63; Auss. Zw., I, 115 (*lineatus*).—N. A.
 MACQUART, Dipt. Exot., Suppl. II, 21 (*bicolor*); v, 32 (*casiofasciatus*)
 [O. S.].—S. C. and Baltimore.
 WILLISTON, Kans. Acad. Sci., X, 139, oc. and injury to cattle at Vandalia,
 Ill.
 Fla.—Johnson; N. J.—Smith Cat.
 HINE, Tabanidae of Ohio, 51.—Ohio.
- gilanus** TOWNSEND, Psyche, 1897, 92.—N. M.
- gracilis** WIEDEMANN, Auss. Zw., I, 156.—Ga.
 OSTEN SACKEN, Cat., note 81, on type.
 WILLISTON, Kans. Acad. Sci., X, 140.—Fla.
- guttatulus** TOWNSEND, Kans. Acad. Sci., XIII, 134 (*Diachlorus*); Psyche, Dec.,
 1897, 148, refers to *Tabanus*.—Las Cruces, N. M.
- hæmagogus** WILLISTON, Biologia, Dipt., 261.—N. Yucatan.
- hæmatopotoides** BIGOT, Mém. Soc. Zool. France, v, 224 (*Diatomineura?*).—
 Wash. I refer to this genus, from the description.
- hirtiocolatus** MACQUART, Dipt. Exot., Suppl., v, 33.—Baltimore.
 OSTEN SACKEN, Prodrôme, II, 462 and 473 (*cerastes*); Cat., 227, note 79,
 on types of Macq.—Ky., Wis. Ill.—Hart.
 HINE, Tabanidae of Ohio, 49 (*cerastes*).—Ohio.
- hirtulus** BIGOT, Mém. Soc. Zool. France, v, 641.—Wash.
- hyalinipennis** HINE, Canad. Ent., XXXV, 244.—Oak Creek Canyon, Ariz.
- illotus** OSTEN SACKEN, Prodrôme, II, 469.—Canada, Labrador to Yukon R.
- incisus** WALKER, Dipt. Saund., 26.—Cape Breton. Unrecognizable—O. S.
- insuetus** OSTEN SACKEN, West. Dipt., 219.—Webber Lake, Cal.
 COQUILLET, Proc. Wash. Acad. Sci., II, 407, oc. in Alaska.
- intensivus** TOWNSEND, Psyche, 1897, 93.—West Fork Gila R., N. M.
- intermedius** WALKER, List, I, 173.—Martin Falls, Canada. Unrecognizable—
 O. S.
- lasiophthalmus** MACQUART, Dipt. Exot., I, I, 143; Suppl., II, 23 (the latter *puc-*
tipennis).—Carolina and Philadelphia.
 WALKER, List, I, 166 (*notabilis*).—N. Y. and Ga.
 OSTEN SACKEN, Prodrôme, II, 465, 473.—Quebec; Maine to Ill.
 PETTIT, Bull. 186, Mich. Ex. Sta., oc. at Chatham, N. Mich.
 HINE, Tabanidae of Ohio, 51.—Ohio.
 Ill.—Hart; N. J.—Smith Cat.; White Mts.—Slosson; Montreal—Chag-
 non; Axton, N. Y.—M. & H.
- leucomelas** WALKER, List, I, 175.—Ga. Unrecognizable—O. S.
- leucophorus** BIGOT, Mém. Soc. Zool. France, v, 640.—Mt. Hood, Ore.
- lineola** FABRICIUS, Ent. Syst., IV, 369; Syst. Antl., 102.—N. A.
 COQUEBERT, Illust. Iconographica, 112, pl. XXV, f. 6.
 WIEDEMANN, Dipt. Exot., 81; Auss. Zw., I, 170.—N. A.
 ? PALISOT DE BEAUVAIS, Dipt., pl. II, f. 6 [O. S., with a doubt].
 HARRIS, Ins. New Eng., 3d ed., 602, f. 262.
 WALKER, List, I, 182 (*simulans*); Dipt. Saund., 27 (*scutellaris*); Trans.
 Ent. Soc., v, 273 (*compactus*).—Nova Scotia, N. A., and Mexico, re-
 spectively; the synonymy is by Osten Sacken, the last two being some-
 what doubtful; see Biologia, Dipt., I, 56.
 OSTEN SACKEN, Prodrôme, II, 448.—Canada, U. S., Mex.; common.

- HART, Bull. Ill. State Lab. N. H., iv, 235, figs. and desc. of larva and pupa.
- LUGGER, 2d Rept. Ent. Minn., 1896, 168, mention and good figure.
- WILLISTON, Biología, Dipt., i, 260, oc. in Guerrero, Mex.; *propinquus* BELLARDI may be the same.
- HINE, Tabanidæ of Ohio, 51.—Ohio.
- longiappendiculatus** MACQUART, Dipt. Exot., Suppl., v, 32.—Honduras.
- longus** OSTEN SACKEN, Prodrôme, ii, 447; Suppl., 559.—Middle States.
- HINE, Tabanidæ of Ohio, 52.—Ohio.
- Fla.—Johnson.
- lucidulus** WALKER, List, i, 188.—Jamaica.
- lugubris** MACQUART, Dipt. Exot., i, 1, 145.—Carolina.
- PALISOT DE BEAUVAIS, Ins. Dipt., pl. II, f. 5 (*ater*, preoc.). [O. S.]
- WIEDEMANN, Dipt. Exot., 74; Auss. Zw., i, 136 (*ater*; the latter only in part—O. S.).—Savannah.
- OSTEN SACKEN, Prodrôme, ii, 456.—S. C.
- luteoflavus** BELLARDI, Saggio, i, 60.—Mex.
- maculifer** BIGOT, Mém. Soc. Zool. France, v, 641.—Wash.
- maculosus** COQUILLET, Jour. N. Y. Ent. Soc., x, 138.—Chihuahua, Mex.
- maritimus** TOWNSEND, Ent. News, ix, 167.—Padre Id., Texas; may be same as *nanus* MCQ.
- megerlei** WIEDEMANN, Auss. Zw., i, 132, no locality.
- OSTEN SACKEN, Prodrôme, ii, 457.—Fla.
- WILLISTON, Kans. Acad. Sci., x, 138, female.—Fla.
- melanocerus** WIEDEMANN, Auss. Zw., i, 122.—Ky.
- ? LINNÉ, Syst. Nat., ii, 1000 (*cercatuans*) [O. S., with a doubt].—Surinam.
- OSTEN SACKEN, Prodrôme, ii, 440.—Fla. to Ky.
- N. J.—Smith Cat.
- ? WILLISTON, Kans. Acad. Sci., x, 139, notes.
- melanorhinus** BIGOT, Mém. Soc. Zool. France, v, 642.—Wash.
- mexicanus** LINNÉ, Syst. Nat., ii, 1000.—Mex.
- DEGEER, Ins., vi, 230, pl. xxx, f. 6 (*olivaceus*) [Fab.].
- FABRICIUS, Spec. Ins., ii, 457; Ent. Syst., iv, 367 and 368 (the latter *punctatus* and *inanis*); Syst. Antl., 98.—Cayenne, S. A., and synonymy.
- WIEDEMANN, Dipt. Exot., 76; Auss. Zw., i, 147.—S. A.
- PALISOT DE BEAUVAIS, Ins., 222, pl. III, f. 3 (*sulphureus*).
- MEIGEN, Syst. Besch., ii, 62 (*ochroleucus*; by mistake as a European species—Wied.).
- MACQUART, Hist. Nat. Dipt., i, 200 (*flavus*); Dipt. Exot., i, 1, 143.—U. S.
- GUÉRIN and PERCHERON, Genera, Dipt., ii (*flavus*).
- WALKER, Newman's Zoology, viii, App. LXVI (*viridiflavus*; thus quoted "fide Walker," by Bellardi, Saggio, i, 59).
- OSTEN SACKEN, Prodrôme, ii, 459.—Fla., S. C., N. J., Mo.
- TOWNSEND, Annals and Mag. Nat. Hist., xx, 21, with table of varieties.—Vera Cruz.
- microcephalus** OSTEN SACKEN, Prodrôme, ii, 470.—N. Y., Mass., N. H.
- molestus** SAY, Jour. Acad. Sci. Phil., iii, 31; Compl. Works, ii, 53.—Mo.
- WIEDEMANN, Auss. Zw., i, 125.
- OSTEN SACKEN, Prodrôme, ii, 438.—D. C., Ky., Ga., Mo.
- N. J.—Smith Cat.; Fla., Tick Id.—Johnson.
- mutatus** WALKER, Dipt. Saund., 23.—U. S. Unrecognizable—O. S.
- nanus** MACQUART, Dipt. Exot., Suppl., i, 42.—Texas. Unrecognizable—O. S.

- nebulosus** PALISOT DE BEAUVAIS, Ins. Recu., 222, pl. II, f. 4 and 5.
Unrecognizable—O. S.
- nigrescens** PALISOT DE BEAUVAIS, Dipt., 100, pl. II, f. 2.—N. A.
WIEDEMANN, Auss. Zw., 1, 116, translates desc.
OSTEN SACKEN, Prodrôme, II, 453.—Va., N. Y., Mass., N. J., Pa., Md.,
Tenn., Can.
HART, Bull. Ill. State Lab. N. H., IV, 238, desc. of pupa.—Ill.
- nigrovittatus** MACQUART, Dipt. Exot., Suppl. II, 24.—Nova Scotia.
OSTEN SACKEN, Prodrôme, II, 449.—Mass., R. I., N. Y., N. J.
N. J.—Smith Cat., "The common 'greenhead' of the seashore"; Mon-
treal—Chagnon; Fla., St. Augustine—Johnson.
- nivosus** OSTEN SACKEN, Prodrôme, II, 445.—N. J.
HINE, Tabanidæ of Ohio, 52.—Ohio.
- novæ-scotiæ** MACQUART, Dipt. Exot., Suppl. II, 24.—Nova Scotia.
OSTEN SACKEN, Cat., 61, note on type.
- obesus** BIGOT, Mém. Soc. Zool. France, v, 660.—Mex.
- obliquus** WALKER, Dipt. Saund., 28.—Jamaica.
- ohioensis** HINE, Canad. Ent., 1900, 248 (*pruinus*, preoc.); 1901, 28, change of
name; Tabanidæ of Ohio, 53.—Ohio.
- orion** OSTEN SACKEN, Prodrôme, II, 442.—Mass., Conn., N. Y., Quebec.
N. J.—Smith Cat.; Montreal—Chagnon.
- pallidus** PALISOT DE BEAUVAIS, Ins. Recu., 100, pl. III, f. 3.—N. A.
Unrecognizable—O. S.
- palpinus** PALISOT DE BEAUVAIS, Ins. Recu., 221, pl. III, f. 1.—N. A.
Unrecognizable—O. S.
- parallelus** WALKER, List, I, 187.—W. I.
- parvidentatus** MACQUART, Dipt. Exot., I, 1, 142.—Antilles.
- parvulus** WILLISTON, Kans. Acad. Sci., x, 141.—San Domingo.
- patulus** WALKER, List, I, 175.—Ga.
- phænops** OSTEN SACKEN, West. Dipt., 217.—Sierra Nevadas, Cal.
TOWNSEND, Proc. Cal. Acad. Sci., IV, 597, notes.
- picticornis** BIGOT, Mém. Soc. Zool. France, v, 662.—Hayti.
- politicus** JOHNSON, Ent. News, XI, 325.—Merchantville, N. J.
- procyon** OSTEN SACKEN, West. Dipt., 216.—Marin and Sonoma Counties, Cal.
- propinquus** BELLARDI, Saggio, I, 65.—Mex. Preoccupied; Williston thinks this
may be the same as *lincola*.
- proximus** WALKER, List, I, 147.—Fla. Unrecognizable—O. S.
- pruinus** BIGOT, Mém. Soc. Zool. France, v, 683.—Mex.
- pruinus** HINE, see *ohioensis*.
- psammophilus** OSTEN SACKEN, Prodrôme, II, 445.—Ft. Capron, Fla.
Lake Worth, Fla.—Johnson.
- pumilioides** WILLISTON, Biologia, Dipt., I, 260, pl. IV, f. 21.—Guerrero, Mex.
- pumilus** MACQUART, Dipt. Exot., I, 1, 146.—Carolina.
OSTEN SACKEN, Prodrôme, II, 448.—Md., N. Y., Fla.
HINE, Tabanidæ of Ohio, 53.—Ohio.
N. J.—Smith Cat.; Fla., several places—Johnson.
- punctifer** OSTEN SACKEN, Prodrôme, II, 453; West. Dipt., 220.—Utah, Cal., Col.,
and Sonora, Mex.
WILLISTON, Kans. Acad. Sci., x, 139, notes.
TOWNSEND, Trans. Amer. Ent. Soc., XXII, 60, oc. in N. M. and Lower Cal.
Idaho and Wash.—J. M. A.
- purus** WALKER, Trans. Ent. Soc., v, 274.—Mex.
- pygmæus** WILLISTON, Kans. Acad. Sci., x, 141.—Fla.

- quadripunctatus** FABRICIUS, Syst. Antl., 99.—S. A.
 WIEDEMANN, Dipt. Exot., 77; AUSS. ZW., 1, 151.—Brazil.
 BELLARDI, Saggio, 1, 67, pl. II, f. 8 (*nigropunctatus*).—Mex. [O.S.]
 SCHINER, Novara, 86, additional desc.—S. A.
 OSTEN SACKEN, Biologia, Dipt., 1, 48.—Mex., Guatemala, Costa Rica.
 WILLISTON, Biologia, Dipt., 1, 259, oc. in Guerrero and Guanajuato, Mex.
- quinquevittatus** WIEDEMANN, Dipt. Exot., 84; AUSS. ZW., 1, 173.—Mex.
 BELLARDI, Saggio, 1, 65.—Mex.
 OSTEN SACKEN, Cat., 228, note 88.
- recedens** WALKER, List, 1, 147.—Fla.
 OSTEN SACKEN, Prodrôme, II, 433 (*catenatus* Walk.)—Conn., N. Y., Pa.,
 Md., S. C. Catalogue, 227, note 77, explains the mistake about Walk-
 er's types, and calls the species *catenatus* O. S.
 WILLISTON, Kans. Acad. Sci., x, 138, prefers *recedens*.
 N. J.—Smith Cat.
- reinwardtii** WIEDEMANN, AUSS. ZW., 1, 130.—Pa.
 WALKER, Dipt. Saund., 25, pl. II, f. 1 (*erythrotelus*).—Bolton, U. S.
 [O. S.]
 OSTEN SACKEN, Prodrôme, II, 461.—Canada; Vt. to Ia.
 TOWNSEND, Psyche, 1897, 92, note.
 LUGGER, 2d Rept. Ent. Minn., 1896, 168, mention and good figure.—Minn.
 HINE, Tabanide of Ohio, 54.—Ohio.
 N. J.—Smith Cat.; Montreal—Chagnon; Ill.—Hart.
- rhombicus** OSTEN SACKEN, Prodrôme, II, 472; West. Dipt., 218, notes.—Col.
 WILLISTON, Kans. Acad. Sci., x, 137, notes.—Col.
 N. M.—Coq.; Beulah, N. M.—Skinner.
- rubescens** BELLARDI, Saggio, App., 15.—Mex.
- rufiventris** MACQUART, Dipt. Exot., 1, 1, 141.—Cuba.
 WALKER, List, 1, 180, oc. in Jamaica.
 BIGOT, in Sagra's Cuba, 798, oc.
 See *filiohis*.
- rufrofrater** WALKER, Dipt. Saund., 26.—Ga. Unrecognizable—O. S.
- rufus** PALISOT DE BEAUVAIS, Dipt., 100, pl. II, f. 1.
 WIEDEMANN, AUSS. ZW., 1, 117, transl. desc.; 119 (*fumipennis*). [O. S.]
 OSTEN SACKEN, Prodrôme, II, 456; Suppl., 559.—S. C., Ga., Fla.
 Fla., several places—Johnson.
- sagax** OSTEN SACKEN, Prodrôme, II, 452.—Ill., Minn.
 N. J.—Smith Cat.
- sallei** BELLARDI, Saggio, 1, 61, pl. II, f. 7.—Mex.
- sicitus** WALKER, List, 1, 181.—Ga. Unrecognizable—O. S.
- septentrionalis** LOEW, Verh. Zool.-Bot. Ges., 1858, 593.—Labrador.
 OSTEN SACKEN, Prodrôme, II, 467.—Labrador.
 COQUILLET, Proc. Wash. Acad. Sci., II, 406, oc. in Alaska.
 Montreal—Chagnon.
- sequax** WILLISTON, Kans. Acad. Sci., x, 137.—Mt. Hood, Ore.
- sexvittatus** BIGOT, Mém. Soc. Zool. France, v, 682.—Mex.
- sodalis** WILLISTON, Kans. Acad. Sci., x, 139.—U. S., no locality.
 N. J.—Smith Cat.
- sonomensis** OSTEN SACKEN, West. Dipt., 216; Marin and Sonoma counties, Cal.
 COQUILLET, Proc. Wash. Acad. Sci., II, 407, oc. in Alaska.
- sparus** WHITNEY, Canad. Ent., XI, 38.—Milford, N. H.
 WILLISTON, Kans. Acad. Sci., x, 140.—Conn., Mass.
 N. J.—Smith Cat.; Inverness, Fla.—Johnson.

- stigma** FABRICIUS, Syst. Antl., 104.—W. I.
 WIEDEMANN, Dipt. Exot., 92; Auss. Zw., 1, 180.—S. A. and St. Thomas.
- stygius** SAY, Jour. Acad. Sci. Phil., III, 33; Compl. Works, II, 54.—Ark.
 WIEDEMANN, Auss. Zw., 1, 131.
 OSTEN SACKEN, Prodrôme, II, 454.—Conn. to Ia.; Fla.
 HART, Bull. Ill. State Lab. N. H., IV, 239, desc. and figs. of larva and pupa;
 oc. in III.
 HINE, Tabanidæ of Ohio, 4, 5, egg-laying; 54, desc.—Ohio.
 Georgiana, Fla.—Johnson; N. J.—Smith Cat.
- subruber** BELLARDI, Saggio, I, 55, change of name; Mex.
 MACQUART, Dipt. Exot., Suppl. I, 42 (*ruber*, preoc.).—Mex.
 WILLISTON, Biologia, Dipt., I, 260, oc. in Teapa, Amula, and Atoyac, Mex
- subs similis** BELLARDI, Saggio, I, 66.—Mex.
- subtilis** BELLARDI, Saggio, App., 14, f. 9.—Mex.
- sulcifrons** MACQUART, Dipt. Exot., Suppl., v, 33.—Baltimore.
 OSTEN SACKEN, Prodrôme, II, 436 (*tectus*) [O. S.].—Md., Pa.
 WILLISTON, Kans. Acad. Sci., X, 138, notes; oc. in La.
 RILEY and HOWARD, Ins. Life, VI, 34, extr. cor. on habits.—Mo. (*tectus*).
 HINE, Ohio Nat., II, 168, oc. in O.; note on male.
 HINE, Tabanidæ of Ohio, 9, anatomy, with plate; 54, desc.—Ohio.
 N. J.—Smith Cat.; Ill.—Hart.
- sumichrasti** BELLARDI, Saggio, I, 56.—Mex.
- superjumentarius** WHITNEY, Canad. Ent., XI, 37.—Milford, N. H.
 HINE, Tabanidæ of Ohio, 55, redesc.—Akron and Cincinnati, Ohio.
- susurrus** MARTEN, Canad. Ent., XV, 111.—Mont.
- tener** OSTEN SACKEN, Prodrôme, II, 440.—Ga., Fla.
 ? MACQUART, Dipt. Exot., Suppl., II, 22.—Carolina (*unicolor*; the type is
 unrecognizable, and the name preoccupied—O. S.).
 Ormond and Indian River, Fla.—Johnson.
- tennessensis** BIGOT, Mém. Soc. Zool. France, v, 660.—Tenn.
- tetricus** MARTEN, Canad. Ent., XV, 111.—Mont.
- tetropsis** BIGOT, Mém. Soc. Zool. France, v, 681.—Ga.
- thoracicus** HINE, Canad. Ent., 1900, 248.—Oswego, N. Y.
- tinctus** WALKER, Dipt. Saund., 29.—"St. Thomas?" West Indies—O. S.
- trijunctus** WALKER, List, v, 182.—Fla.
 OSTEN SACKEN, Prodrôme, II, 432.—Ft. Capron, Fla.
- trilineatus** LATREILLE, in Humboldt et Bonpland's Recueil d'obs., Fasc. X, 116,
 pl. XI, f. 6.—Brazil.
 WIEDEMANN, Dipt. Exot., 84; Auss. Zw., 1, 168.—Brazil.
 BELLARDI, Saggio, I, 63.—Mex.
- trimaculatus** PALISOT DE BEAUVAIS, Dipt., 56, pl. I, f. 5.—S. A.
 WIEDEMANN, Auss. Zw., 1, 137 (transl. desc.); 132 (his own description,
 perhaps not of the same species).
 MACQUART, Hist. Nat. Dipt., I, 200 (*quinquelincatus*); Dipt. Exot., I, 1,
 142.—Ga., Carolina.
 OSTEN SACKEN, Prodrôme, II, 439.—Delaware to Ill. and Miss.
 HINE, Tabanidæ of Ohio, 55.
 N. J.—Smith Cat.; Ill.—Hart.
- trispilus** WIEDEMANN, Auss. Zw., 1, 150.—Ky.
 OSTEN SACKEN, Prodrôme, II, 464.—White Mts., N. H.; Mass., Conn., N.
 Y., Ill.
 N. J.—Smith Cat.; Montreal—Chagnon.
- truquii** BELLARDI, Saggio, I, 64, pl. II, f. 6.—Mex.

- turbidus** WIEDEMANN, AUSS. ZW., I, 124.—Ky.
 ? MACQUART, Dipt. Exot., I, 1, 147 (*fuscoeruvosus*).—No locality. [O. S., with a doubt.]
 WALKER, List, I, 148 (*catenatus*; Osten Sacken found that one of the two type specimens belongs here, and the other to *giganteus*;—Cat. 227, note 77).
 OSTEN SACKEN, Prodrôme, II, 430; Cat., 78, note 84, on type.—Ga., Ky., Ill.
 WILLISTON, Kans. Acad. Sci., X, 138, notes; Ala.
- variegatus** FABRICIUS, Syst. Antl., 95.—N. A.
 WIEDEMANN, Dipt. Exot., 67; AUSS. ZW., I, 120.—N. A.
 OSTEN SACKEN, Prodrôme, II, 437; Cat., 228, note 86, on type.—D. C., Md.
 HINE, Tabanidæ of Ohio, 56.—Ohio.
- venenatus** OSTEN SACKEN, Biología, Dipt., I, 54.—Guatemala, Panama.
- venustus** OSTEN SACKEN, Prodrôme, II, 444.—Dallas, Tex.
 HINE, Tabanidæ of Ohio, 56.—Ohio.
 Ill.—Hart; Kans.—J. M. A.
- vicinus** MACQUART, Dipt. Exot., I, 1, 143.—Carolina.
- villosulus** BIGOT, Mém. Soc. Zool. France, V, 684.—Cal.
- vivax** OSTEN SACKEN, Prodrôme, II, 446.—N. Y., Me.
 ? FABRICIUS, Syst. Antl., 99 (*marginalis*). [O. S., with a doubt.]
 WIEDEMANN, AUSS. ZW., I, 166, redesc. of Fabricius's type, and additions.—N. A.
 OSTEN SACKEN, Cat., 228, note 87—types of Fabricius and Wiedemann cannot be found.
 HINE, Tabanidæ of Ohio, 56; Ohio Nat., IV, Nov., 1903, life history.—Ohio.
- wiedemannii** OSTEN SACKEN, Prodrôme, II, 455; Suppl., 559.—Fla., Ga., Ky.
 WIEDEMANN, AUSS. ZW., I, 136 (*ater* Pal. Beauv.).—Savannah.
 Fla., several places—Johnson.
- yucatanus** TOWNSEND, Canad. Ent., XXIX, 198.—Yucatan.
- zonalis** KIRBY, Fauna Bor.-Amer., IV, 314.—Canada. Republished in Canad. Ent., XIII, 167.
 WALKER, List, I, 156 (*tarandi*).—Martin Falls, Can.; Newfoundland.
 MACQUART, Dipt. Exot., Suppl. IV, 35 (*terra-nova*).—Newfoundland.
 BELLARDI, Saggio, I, 61 (*flavocinctus*, but probably not from Mex.;—O. S.).
 OSTEN SACKEN, Prodrôme, II, 463.—Newfoundland to N. W. Brit. Amer.; Me., Wash.
 TOWNSEND, Trans. Amer. Ent. Soc., XXII, 58, notes.
 Axton, N. Y.—M. & H.

ACANTHOMERIDÆ.

See an important discussion of this family by Osten Sacken, Biología, Dipt., I, 63-66. Also Bigot, Annales Soc. ent. de France, 1882, 452, synopsis of genera and species.

ACANTHOMERA.

- WIEDEMANN, Dipt. Exot., 60, 1821; AUSS. ZW., I, 107, 1828.
 THUNBERG, Acta Gothob., III, 1810 (*Pantophthalmus*).
 MACQUART, Hist. Nat. Dipt., I, 217, 1834.
 BIGOT, Bull. Soc. ent. de France, 1880, no. 1, p. 5; Annales, 1882, 455 (*Megalomyia*, in part). [O. S.]

- argyropasta** BIGOT, Bull. Soc. ent. de France, 1880, no. 1, p. 5; Annales, 1882, 455 (*Megalemyia*).—Panama.
- OSTEN SACKEN, Biologia, Dipt. 1, 64, says this is the male of *Acanthomera seticornis*, but as Bigot, in Bull. Soc. ent. France, 1886, CLXVIII, still maintains both the species and the genus *Megalemyia*, I allow the former to stand.
- bellardii** BIGOT, described by Bellardi, Saggio, App., 16, f. 11, from Mexico, seems never to have been published by Bigot.
- bigoti** BELLARDI, Saggio, App., 16, f. 10.—Oaxaca, Mex.
- championi** OSTEN SACKEN, Biologia, Dipt., 1, 67, pl. III, f. 16.—Nicaragua and Panama.
- BELLARDI, Saggio, 1, 76 (*picta* WIEDEMANN).—Mexico. [O. S.]
- TOWNSEND, Proc. Cal. Acad. Sci., IV, 595.—Costa Rica.
- crassipalpis** MACQUART, Dipt. Exot., Suppl. II, 27, pl. I, f. 3.—Guatemala.
- picta** WIEDEMANN, is not known from North America; for Bellardi's reference see *A. championi*.
- rubriventris** BIGOT, Bull. Soc. ent. de France, no. 1, p. 5; Annales, 1882, 456.—Guatemala.
- seticornis** WIEDEMANN, Auss. Zw., 1, 108.—Brazil.
- MACQUART, Dipt. Exot., 1, 1, 168, pl. XX, f. 1; Suppl. II, 27.—Brazil; Guatemala; may be the male of *crassipalpis*. See also *argyropasta*.
- tabanus** THUNBERG, Acta Soc. Gothob., III, 1819, III, pl. VII, f. 2 (*Pantophthalmus*).—West Indies.
- WIEDEMANN, Auss. Zw., 1, 110, quotes orig. desc.

RHAPHIORHYNCHUS.

- WIEDEMANN, Dipt. Exot., 59, 1821; Auss. Zw., 1, 105, 1828.
- planiventris** WIEDEMANN, Dipt. Exot., 60; Auss. Zw., 1, 106, pl. I, f. 4; II, 622.—Surinam, Guiana.
- MACQUART, Dipt. Exot., 1, 1, 170, pl. XX, f. 3; Suppl. II, 27, pl. I, f. 3 (*Ac. crassipalpis*, in the latter place).—Brazil and Guatemala. [O. S.]
- BELLARDI, Saggio, App., 16, f. 10 (*Ac. bigoti*).—Oaxaca, Mex. [O. S.]
- BIGOT, Annales, 1882, 458 (*crassipalpis* MACQ.).
- OSTEN SACKEN, Biologia, Dipt., 1, 66.—Panama.

Note to the Family Acanthomeridae.—There exists no reason known to me for maintaining the name *Acanthomera* against the apparently prior name *Pantophthalmus*, the adoption of which would involve a change of the family name to correspond. But I have not access to Thunberg's work, and it seems a very good rule to give the benefit of the doubt to current names.

LEPTIDÆ.

(Inclusive of Xylophagidæ and Ctenomyidæ.)

- BIGOT, Bull. Soc. Zool. France, XII, 4, 1887, table of genera of the world, restricted sense.
- JOHANSEN, Bull. 68, N. Y. State Mus., fig. and desc. of undet. larva.

CHIROMYZA.

- WIEDEMANN, Dipt. Exot., 114, 1821; Auss. Zw., 1, 237, 1828.
- SCHINER, Novara, 76, 1868.
- BRÄUER, Zweiflüger d. Kaiserl. Mus., II, 15, 1882.
- OSTEN SACKEN, Berl. Ent. Zeitsch., XXV, 296, 1883; Biologia, Dipt., 1, 60, 1886.

- fuscana** WIEDEMANN, Dipt. Exot., 115; Auss. Zw., 1, 238.—Brazil.
OSTEN SACKEN, Biologia, Dipt., 1, 60, oc. in Guatemala and Costa Rica.

CENOMYIA.

- LATREILLE, Précis. d. Caract. gén. Ins., 1797; Hist. Nat. Crust. et Ins., III, 439, 1802; XIV, 326, 1804.
FABRICIUS, Syst. Antl., 75, 1805, and earlier writings (*Sicus*, proec.).
FALLÉN, Xylophagei, 1817 (*Sicus* F.).
MEIGEN, Syst. Besch., II, 18, 1820.
MACQUART, Hist. Nat. Dipt., 1, 225, 1834.
ZETTERSTEDT, Dipt. Scand., 1, 130, 1842 (*Sicus* F.).
SCHINER, Fauna Austr., 1, 27, 1862.
OSTEN SACKEN, Cat., 223, note on *Sicus*.
cinereibarbis BIGOT, Annales, 1879, 194.—Md.
WILLISTON, Canad. Ent., XVII, 122.—Conn.
ferruginea SCOPOLI, Ent. Carniolica, 913, 1763 (*Musca*).—Europe.
FABRICIUS, Spec. Ins., II, 459 (*Tabanus bidentatus* and *bispinosus*); Ent. Syst., IV, 263 (*Stratiomys errans*); 264 (*Stratiomys crucis*, from West Indies); Suppl., 555 (*Sicus ferrugineus* and *bicolor*); Syst. Antl., 75, 76 (*Sicus testaceus*, *ferrugineus*, *bicolor*, *errans*, and *crucis*).—South America, West Indies, Europe.
PANZER, Fauna Insect. Germanicæ, IX, 20 (*Stratiomys macroleon*); XII, 22 (*Stratiomys unguiculata*); LVIII, 17 (*S. errans*).
SCHRANK, Fauna Boica, III, 2373-75 (*Strat. grandis*, *major*, and *palatina*).
MEIGEN, Klassifikation, 122, 1804 (*Sicus unicolor*, *bicolor* and *aureus*); Syst. Besch., II, 19, pl. XII, f. 25, syn.
FALLÉN, Xylophagei, 12 (*Sicus*).
SAY, Long's Exped., App., 339; Compl. Works, 1, 42, pl. XX; Amer. Entomol., pl. XX (*pallida*).—Upper Mississippi Valley.
WIEDEMANN, Auss. Zw., 1, 86 (id.).
HARRIS, Ins. New England, 407 (id.).
MACQUART, Hist. Nat. Dipt., 1, 225; Dipt. Exot., Suppl. v, 38 (the latter as *pallida*).
SCHINER, Fauna Austr., 1, 27.
LOEW, Silliman's Jour., XXXVII, 317, syn. of *pallida*.
HART, Bull. Ill. State Lab. Nat. Hist., IV, 267, desc. of pupa-skin, and ref. to Beling, Verh. Zool.-Bot. Ges., 1880, 343, for desc. of larva.
Atlantic States—O. S.: Montreal—Chagnon; Minn. and Pa.—J. M. A.

ARTHROPEAS.

- LOEW, Stett. Ent. Zeit., 1850, 302.
BRAUER, Zweifl. d. Kaiserl. Mus., II, 17, 1882; Offenes Schreiben, 6.
OSTEN SACKEN, Berl. Ent. Zeitsch., XXVI, 369, 1882.
americana LOEW, Cent., 1, 16.—N. Wis. Mass.—O. S. See *Xylomyia fasciata*.
leptis OSTEN SACKEN, Cat., 1878, note 48; Berl. Ent. Zeitsch., 1882, 365, discusses generic relations—should form a new genus.—White Mts. White Mts., N. H.—Slosson (*Arthroceras*).

RHACHICERUS.

- HALIDAY, in Walker's List, v, 103, 1854.
BRAUER, Zweifl. d. Kaiserl. Mus., II, 17, 1882.
bellus OSTEN SACKEN, Biologia, Dipt., 1, 62.—Panama.

fulvicollis HALIDAY, in Walker's List, I, 124; v, 104.—Ga.

Tick Id., Fla.—Johnson.

honestus OSTEN SACKEN, West. Dipt., 211.—Cal.

nigripalpus LOEW, Berl. Ent. Zeit., 1874, 379.—Mex.

nitidus JOHNSON, Ent. News, 1903, 22.—Overbrook, Pa. Early stages briefly mentioned: larvæ in a decayed log.

obscuripennis LOEW, Cent., III, 6.—Ill. Mich.—O. S.

varipes LOEW, Cent., III, 7.—Cuba.

XYLOPHAGUS.

MEIGEN, Illig. Mag., II, 266, 1803; Syst. Besch., II, 7, 1820.

ZETTERSTEDT, Dipt. Scand., I, 127, 1842.

SCHINER, Fauna Austr., I, 26, 1862.

BRAUER, Zweifl. d. Kaiserl. Mus., II, 73, 1882.

abdominalis LOEW, Cent., IX, 64.—Texas.

JOHNSON, Ent. News, IX, 158, records rearing larvæ found under bark of decaying pine at Riverton, N. J.; XIV, 22, desc. of larva and pupa, with figures.

decorus WILLISTON, Canad. Ent., XVII, 121.—Wash.

fasciatus WALKER, List, I, 128.—Martin Falls, Canada.

Montreal—Chagnon.

gracilis WILLISTON, Canad. Ent., XVII, 121.—Wash., Ore.

longicornis LOEW, Cent., IX, 62.—Mass.

lugens LOEW, Cent., III, 8.—Ill.

JOHNSON, Ent. News, XIV, 23, bred from decayed oak and chestnut trees at Riverton, N. J.; notes on larvæ and pupæ.

Pa. and N. H.—O. S. Cat.

persequus WALKER, Dipt. Saund., I.—N. A.

N. J.—Smith Cat.; Axton, N. Y.—M. & H. ("=*rufipes* Lw.?").

reflectens WALKER, List, I, 129.—N. Y.

rufipes LOEW, Cent., IX, 63.—Mass.

Canada—O. S. Cat.; Montreal—Chagnon; White Mts., N. H.—Slosson.

See *persequus*.

triangularis SAY, Jour. Acad. Sci. Phil., III, 30; Compl. Works, II, 52.—Mo.

WIEDEMANN, Auss. Zw., I, 85.

MACQUART, Dipt. Exot., I, 171, suspects this to be a *Subula*.

XYLOMYIA.

RONDANI, Dipt. Ital. Prod., IV, 11, 1861, change of name.

MEIGEN, Syst. Besch., II, 15, 1820 (*Subula*, preoc.).

SCHINER, Fauna Austr., I, 25, 1862 (*Subula*).

BRAUER, Zweifl. d. Kaiserl. Mus., II, 17, 1882 (*Subula*).

OSTEN SACKEN, Biologia, Dipt., I, 22 (*Subula*).

WILLISTON, Biologia, Dipt., I, 230.

BIGOT, Annales, 1879, 187 (*Macroccromys*). [O. S.]

americana WIEDEMANN, Dipt. Exot., 51; Auss. Zw., I, 84 (*Xylophagus*).—N. A.

WILLISTON, Biologia, Dipt., I, 230, oc. in Mexico, several places.

JOHNSON, Ent. News, XIV, 24.—Ill. and Pa.

aterrima JOHNSON, Ent. News, XIV, 24.—N. Ill. and Franconia, N. H.

elongata OSTEN SACKEN, Biologia, Dipt., I, 22 (*Subula*).—Guatemala.

fasciata SAY, Jour. Acad. Sci. Phil., VI, 155; Compl. Works, II, 353 (*Xylophagus*).—Ind. Perhaps same as *Arthropceas americana*—O. S.

- fulviventris** BIGOT, Annales, 1879, 187 (*Macroceromys*).—Mex.
pallipes LOEW, Cent., III, 9 (*Subula*).—Ill., Wis.
 WILLISTON, Canad. Ent., XVII, 122, oc. in Mont. and S. Cal. (id.).
 TOWNSEND, Ent. News, IV, 163, puparium, habits, etc. (id.).
 BAKER, Ent. News, VI, 173, note on habits—larvæ in numbers under bark of fallen cottonwood tree.—Trinidad, Col. (id.).
 Atlantic States—O. S.; N. J.—Smith Cat.
parens WILLISTON, Canad. Ent., XVII, 122 (*Subula*).—Wash.
tenthredinoides VAN DER WULP, Tijdsch. v. Ent., X, 132, pl. III, f. 5 (*Subula*).—Wis.
 JOHNSON, Ent. News, XIV, 24.—Ill. and Pa.

BOLBOMYIA.

- LOEW, Bernstein und Bernstein-fauna, 39, 1850, transl. in Silliman's Jour., XXXVII, 313, and O. S. Cat., 223, note 46.
nana LOEW, Cent., II, 5.—D. C.

GLUTOPS.

- BURGESS, Proc. Bost. Soc. Nat. Hist., 1878, 320.
 BRAUER, Zweifl. d. Kaiserl. Mus., II, 17, 1882.
singularis BURGESS, op. cit., figs.—Springfield, Mass.

ARTHROCERAS.

- WILLISTON, Ent. Americana, II, 107, 1886.
leptis, of Mrs. Slosson's List, see *Arthropes*.
pollinosum WILLISTON, Ent. Americana, II, 108.—Wash., Col.

DIALYSIS.

- WALKER, Dipt. Saundersiana, 4, 1856.
 OSTEN SACKEN, Cat., 43, notes, 1878.
 WILLISTON, Entomologica Americana, II, 106, 1886; Kans. Univ. Quart., III, 263, 1895, full discussion.
 BERGROTH, Wien. Ent. Zeit., VIII, 296, 1889, tables of N. A. spp., but not in Williston's sense.
 TOWNSEND, Proc. Ent. Soc. Wash., II, 117, 1891.
aldrichi WILLISTON, Kans. Univ. Quart., III, 105.—Craig's Mt., Idaho (not Craig Mts.).
dispar BIGOT, Annales, 1879, 197.—Cal.
 OSTEN SACKEN, Berl. Ent. Zeitschr., XXVII, 295, note on type; refers to *Triptotricha*.
elongata SAY, Jour. Acad. Sci. Phil., III, 41; Compl. Works, II, 58 (*Stygia*).—Pa.
 WIEDEMANN, Auss. Zw., I, 315 (*Anthrax*); 561 (*Lomatia*).
 WALKER, List, I, 128 (*Xylophagus americanus* WIED., with a doubt); Dipt. Saund., 4, syn. (*Dialysis dissimilis*).—N. A. [Will.]
 OSTEN SACKEN, Berl. Ent. Zeitsch., XXVII, 295 (*Triptotricha dissimilis*).
 JOHNSON, Ent. News, VIII, 117, variation in venation.
 N. J.—Smith Cat.; Montreal—Chagnon.
fasciventris LOEW, Berl. Ent. Zeitschr., 1874, 380 (*Triptotricha*).—Pa.
 JOHNSON, Ent. News, VIII, 118.—N. C.

- rufithorax** SAY, Jour. Acad. Sci. Phil., III, 36; Compl Works, II, 56 (*Leptis*).—Pa.
 WIEDEMANN, Auss. Zw., I, 223 (id.).
 JOHNSON, Ent. News, VIII, 118, variation in venation. N. J.—Smith Cat.

TRIPTOTRICHA.

- LOEW, Cent., X, 15, 1872; Berl. Ent. Zeitschr., 1874, 381, note.
 OSTEN SACKEN, Berl. Ent. Zeitschr., 1883, 295.
 WILLISTON, Kans. Univ. Quart., III, 263, 1895.
discolor LOEW, Berl. Ent. Zeitschr., 1874, 379.—San Francisco, Cal.
disparilis BERGROTH, Wien. Ent. Zeit., VIII, 296 (*Dialysis*).—Vancouver Id.
lauta LOEW, Cent., X, 15; Berl. Ent. Zeitschr., 1874, 382.—Cal.

PHENEUS.

- WALKER, Dipt. Saund., 155, 1856.
 WILLISTON, Kans. Univ. Quart., IV, 108, 1895 (*Arthrostylum*); Biologia, Dipt., I, 264, 1901.
tibialis WALKER, Dipt. Saund., 156, pl. IV, f. 3.—Jamaica.
 OSTEN SACKEN, Cat., 63, note.
 WILLISTON, Kans. Univ. Quart., IV, 108 (*Arthrostylum fascipennis*); Biologia, Dipt., I, 264, syn., etc.—Guerrero, Mex.

LEPTIS.

- FABRICIUS, Syst. Antl., 69, 1805.
 MEIGEN, Syst. Besch., II, 65, 1820.
 MACQUART, Hist. Nat. Dipt., I, 425, 1834.
 SCHINER, Fauna Austr., I, 171, 1862.
albibarbis BIGOT, Bull. Soc. Zool. France, XII, 18.—Wash.
albicornis SAY, Jour. Acad. Sci. Phil., III, 38; Amer. Entomology, pl. XIII; Compl. Works, I, 27.—No locality.
 WIEDEMANN, Auss. Zw., I, 223.—Pa.
 S. C.—O. S.; St. Augustine, Fla.—Johnson.
bitæniata BELLARDI, Saggio, App., 26, f. 14.—Mex.
boscii MACQUART, Dipt. Exot., II, I, 30.—Carolina.
 Province of Quebec—Fyles.
 ? **cinerea** BELLARDI, Saggio, II, 95.—Mex.
 OSTEN SACKEN, Cat. 229, note 94;—not a *Leptis*, type nearly destroyed.
costata LOEW, Cent., II, 4.—Cal.
 OSTEN SACKEN, West. Dipt., 223, oc. in Marin and Sonoma Cos., Cal.
dimidiata LOEW, Cent., III, 17.—Sitka, Alaska.
 COQUILLET, Proc. Wash. Acad. Sci., II, 406, oc. at Juneau, Alaska.
hirta LOEW, Cent., I, 21.—III. N. J.—Smith Cat.; Quebec—Wulp; White Mts., N. H.—Slosson; Montreal—Chagnon.
hoodiana BIGOT, Bull. Soc. Zool. France, XII, 19.—Mt. Hood, Ore.
incisa LOEW, Cent., X, 16.—Cal.
 OSTEN SACKEN, West. Dipt., 223.—Marin Co., Cal.
 White Mts., N. H.—Slosson.
intermedia WALKER, List, I, 212 (*Rhagio*).—Martin Falls, Canada.
limbipennis BIGOT, Bull. Soc. Zool. France, XII, 10 (*Leptipalpus*).—Rocky Mts.
maculifer BIGOT, Bull. Soc. Zool. France, XII, 17.—Wash.

- mystacea** MACQUART, Dipt. Exot., II, 1, 30, pl. III *bis*, f. 2.—N. A.
 ? WALKER, List, I, 212; IV, 1153.—Nova Scotia; Trenton Falls, N. Y.;
 ident. doubtful.
 N. J.—Smith Cat.; Montreal—Chagnon; White Mts., N. H.—Slosson;
 Axton, N. Y.—M. & H.
- obscuripennis** BIGOT, Bull. Soc. Zool. France, XII, 11 (*Leptipalpus*).—Rocky
 Mts.
- ochracea** LOEW, Cent., II, 3.—N. Y. N. J.—Smith Cat.
- plumbea** SAY, Jour. Acad. Sci. Phil., III, 39; Compl. Works, II, 50.—Pa.
 WIEDEMANN, AUSS. ZW., I, 228.
 VAN DER WULP, Tijdschr. v. Ent., X, 142, pl. IV, f. 5 (*griseola*).—Wis.
 [Lw.] N. J.—Smith Cat.
- polytæniata** BELLARDI, Saggio, App., 27.—Mex.
- pruinosa** BIGOT, Bull. Soc. Zool. France, XII, 19.—Mt. Hood, Ore.
 COQUILLET, Proc. Wash. Acad. Sci., II, 406, oc. on Popoff Id., Alaska.
- punctipennis** SAY, Jour. Acad. Sci. Phil., III, 34; Compl. Works, II, 55.—Pa.
 WALKER, List, I, 219 (*Atherix filia*; "either *pictipennis* or *plumbea*"—
 O. S.).—N. Y. and Trenton, N. J.
 WIEDEMANN, AUSS. ZW., I, 227.
- scapularis** LOEW, Cent., I, 22.—Ill. N. J., D. C.—O. S.
- stigmatias** BIGOT, Bull. Soc. Zool. France, XII, 10 (*Leptipalpus*).—Cuba.
- terminalis** LOEW, Cent., I, 20.—N. Y.
- vertebrata** SAY, Jour. Acad. Sci. Phil., III, 38; Amer. Entomology, pl. XIII;
 Compl. Works, I, 27.—Fla. Montreal—Chagnon; Province of Quebec
 —Fyles.
- vertebrata** BIGOT, Bull. Soc. Zool. France, XII, 12 (*Leptipalpus*).—Havti.

CHRYSOPILA.

- MACQUART, Dipt. du Nord de la France, 403, 1827; Hist. Nat. Dipt., I, 429,
 1834.
 SCHINER, Fauna Austr., I, 175, 1862.
- anthracina** BIGOT, Bull. Soc. Zool. France, XII, 9.—Cal.
- aterrima** WILLISTON, Biologia, Dipt., I, 264.—Guerrero, Mex.
- atra** WILLISTON, Dipt. St. Vincent, 304, pl. X, f. 78 bis.—St. Vincent, W. I.
- apicalis** VAN DER WULP, Tijdschr. v. Ent. XXV, 119.—Guadeloupe.
- basilaris** SAY, Jour. Acad. Sci. Phil., III, 36; Compl. Works, II, 55 (*Leptis*).—
 Pa.
 WIEDEMANN, AUSS. ZW., I, 228.
 ? WILLISTON, Biologia, Dipt., I, 265, oc. in Vera Cruz, with a doubt.
 N. J.—Smith Cat.; St. Augustine and Charlotte Harbor, Fla.—Johnson.
- basalis** WALKER, Trans. Ent. Soc., v, 285.—Mex.
- fasciata** SAY, Jour. Acad. Sci. Phil., III, 37; Amer. Entomology, pl. XIII; Compl.
 Works, I, 28 (*Leptis*).—Pa.
 WIEDEMANN, AUSS. ZW., I, 225 (id.).
 WALKER, List, I, 215 (*Leptis par*).—N. A. [O. S.]
 N. J.—Smith Cat.
- flavida** BIGOT, Bull. Soc. Zool. France, XII, 8.—Canada. Montreal—Chagnon.
- fœda** LOEW, Cent., I, 18.—Ill.
 COQUILLET, Canad. Ent., XV, 112, describes larva and pupa; larva lives
 in the earth.
- griffithi** JOHNSON, Ent. News, VIII, 119.—Boykins, Va.; Hertford Co., N. C.;
 Tifton, Ga.

- humilis* LOEW, Berl. Ent. Zeitschr., 1874, 379.—San Francisco.
OSTEN SACKEN, West. Dipt., 223, transl. of orig. desc.
- invalida* WILLISTON, Biologia, Dipt., 1, 265.—Guerrero, Mex.
- jamaicensis* JOHNSON, Proc. Acad. Nat. Sci., 1894, 273.—Jamaica.
- latifrons* WILLISTON, Biologia, Dipt., 1, 266.—Guerrero, Mex.
- ludens* LOEW, Wien. Ent. Monatschr., v, 34.—Cuba.
WILLISTON, Dipt. St. Vincent, 303, notes.—St. Vincent, W. I.
- mexicana* BELLARDI, Saggio, II, 96.—Mex.
- modesta* LOEW, Cent., x, 14.—Texas.
JOHNSON, Ent. News, VIII, 120, oc. in Indiana.
- nana* WILLISTON, Biologia, Dipt., 1, 265.—Teapa, Mex.
- nigra* BELLARDI, Saggio, App., 27.—Mex.
- ornata* SAY, Jour. Acad. Sci. Phil., III, 34; Amer. Entomology, pl. XIII; Compl. Works, I, 26, and II, 54 (*Leptis*).—No locality.
WIEDEMANN, Auss. Zw., I, 221 (id.).—Pa.
? WALKER, List, I, 213.—Trenton Falls, N. Y.; identification with a doubt.
GUÉRIN, Iconographie du règne animal, etc., III, 541, pl. xcvi, f. 3 (*Leptis serveillei*). [O. S., Cat., 229, note 92.]
HINE, Ohio Naturalist, II, 170, notes on larva and pupa, found under rotten wood. A common species from the Mississippi Valley east—J. M. A.
- plebeia* WILLISTON, Biologia, Dipt., 1, 264.—Guerrero, Mex.
- propinqua* WALKER, List, I, 215 (the male as *simillima*, with a query as to the identity).—Trenton Falls, N. Y.
N. J.—Smith Cat.; Montreal—Chagnon.
- proxima* WALKER, List, I, 214 (*Leptis*).—Nova Scotia. Montreal—Chagnon.
- puella* WILLISTON, Biologia, Dipt., 1, 265.—Teapa, Mex.
- quadrata* SAY, Jour. Acad. Sci. Phil., III, 35; Compl. Works, II, 55 (*Leptis*); the female.—U. S.
WIEDEMANN, Auss. Zw., I, 226 (id.).—Pa.
WALKER, List, I, 216 (*Leptis reflexa*).—Ohio, Nova Scotia. [O. S.]
VAN DER WULP, Tijdsch. v. Ent., x, 143, pl. IV, f. 6-11 (*dispar.*).—Wis. [O. S.]
SAY, Jour. Acad. Sci. Phil., III, 37 (*Leptis fumipennis*); Compl. Works, II, 56; the male.—Pa. [J. M. A.]
WIEDEMANN, Auss. Zw., I, 227.—Pa.
WALKER, List, I, 217 (id.).—Nova Scotia to Ga.
A very common species from the Mississippi Valley to the Atlantic.—J. M. A.
- rotundipennis* LOEW, Cent., I, 19.—Ga.
JOHNSON, Ent. News, VIII, 120, oc. in Pa., N. C., Va. N. J.—Smith Cat.
- testaceipes* BIGOT, Bull. Soc. Zool. France, XII, 9.—Wash.
- thoracica* FABRICIUS, Syst. Antl., 70 (*Leptis*).—Carolina.
WIEDEMANN, Auss. Zw., I, 222 (id.).
MACQUART, Dipt. Exot., II, I, 32, pl. III, bis., f. 3.—N. A.
"Eastern North America, common."—O. S.
- tomentosa* BIGOT, Bull. Soc. Zool. France, XII, 8.—Col., Wash.
- trifasciata* WALKER, Trans. Ent. Soc., v, 284.—Mex.
- velutina* LOEW, Cent., I, 17.—Ill.
Ky.—O. S.; St. Augustine, Fla.—Johnson.

SPANIA.

- MEIGEN, Syst. Besch., VI, 335, 1830.
 MACQUART, Hist. Nat. Dipt., I, 430, 1834.
 ZETTERSTEDT, Dipt. Scand., I, 226, 1842 (*Ptiolina*).
 FRAUENFELD, Verh. Zool.-Bot. Ges., 1867, 495 (*Ptiolina*).
 STROBL, Wiener Ent. Zeit., XI, 121, 1892, syn., etc.
edeta WALKER, List, III, 489.—Martin Falls, Canada.
 OSTEN SACKEN, Cat., 229, note 95.
 COQUILLET, Proc. Wash. Acad. Sci., II, 406, oc. at Muir Inlet and Sitka,
 in Alaska, and in White Mts., N. H.
fasciata LOEW, Cent., IX, 65 (*Ptiolina*).—Canada.
majuscula LOEW, Cent., IX, 66 (*Ptiolina*).—Canada.

ATHERIX.

- MEIGEN, Illig. Mag., II, 271, 1803; Syst. Besch., II, 79, 1820.
 MACQUART, Hist. Nat. Dipt., I, 431, 1834.
 ZETTERSTEDT, Dipt. Scand., I, 225, 1842.
 SCHINER, Fauna Austr., I, 177, 1862.
 RILEY and HOWARD, Insect Life, II, 386, note on eggs of *Atherix* sp.
concinna WILLISTON, Biologia, Dipt., I, 266.—Guerrero, Mex.
latipennis BELLARDI, Saggio, II, 93.—Mex.
 WILLISTON, Biologia, Dipt., I, 166.—Mexico, several places.
longipes BELLARDI, Saggio, II, 94, pl. II, f. 17.—Mex.
 ? OSTEN SACKEN, Biologia, Dipt., I, 62.—Costa Rica, Panama.
pachypus BIGOT, Bull. Soc. Zool. France, XII, 21.—Wash.
varicornis LOEW, Cent., X, 13.—Cal.
variegata WALKER, List, I, 218.—Martin Falls, Canada.
 IVES, Ent. News, I, 39, egg-laying habits.
 "Northern States and British Possessions."—O. S.; Montreal—Chagnon.
vidua WALKER, List, IV, 1153.—Martin Falls, Canada.

SYMPHOROMYIA.

- FRAUENFELD, Verh. Zool.-Bot. Ges., 1867.
 COQUILLET, Jour. N. Y. Ent. Soc., II, 53, table of species.
cinerea JOHNSON, Ent. News, XIV, 25.—Long Branch, N. J.
cruenta COQUILLET, Jour. N. Y. Ent. Soc., II, 55.—S. Cal.
fera COQUILLET, Jour. N. Y. Ent. Soc., II, 56.—Col.
fulvipes BIGOT, see *latipalpis*.
hirta JOHNSON, Ent. News, VIII, 120.—Pa.
johnsoni COQUILLET, Jour. N. Y. Ent. Soc., II, 54.—Wash.; Brit. Col.
latipalpis BIGOT, Bull. Soc. Zool. France, XII, 13.—Wash.
 BIGOT, op. cit., 14 (*fulvipes*).—Mt. Hood, Ore. [Coq.]
 Beulah, N. M.—Skinner (*fulvipes*).
modesta COQUILLET, Jour. N. Y. Ent. Soc., II, 54.—Cal.
pachyceras WILLISTON, Trans. Amer. Ent. Soc., XIII, 287.—Col.
 BIGOT, Bull. Soc. Zool. France, XII, 13 and 15 (*trivittata*, *atripes* and *comata*).—Col.; Mt. Hood, Ore.; Cal. Syn. of first by Bigot, the others
 by Coquillett.
plangens WILLISTON, Trans. Amer. Ent. Soc., XIII, 287.—Wash.; Mt. Hood, Ore.
 BIGOT, Bull. Soc. Zool. France, XII, 13 (*picticornis*).—Wash. [Bigot.]

- pullata** COQUILLET, Jour. N. Y. Ent. Soc., II, 56.—Col. and N. H. Also at Sitka—Coq.
trucis COQUILLET, Jour. N. Y. Ent. Soc., II, 55.—S. Cal.

HILARIMORPHA.

- SCHINER, Wien. Ent. Monatsch., IV, 54, 1860; Fauna Austr., I, 116, 1862.
 MIK, Verh. Zool.-Bot. Ges., 1881, 327.
 WILLISTON, Psyche, 1888, 99.
 OSTEN SACKEN, Berl. Ent. Zeitsch., XXXV, 303, 1890.
 COQUILLET, Revision Empidæ, 388, note.
 MELANDER, Mon. Empidæ, 338, 1902, note on position.
mikii WILLISTON, Psyche, 1888, 100.—Ill.
obscura BIGOT, Annales, 1889, 129.—Cal.

MYTHICOMYIA.

- COQUILLET, Ent. News, IV, 209, 1893; Revis. Empid., 409, 1896, table of species.
 WILLISTON, Manual, 73, note, would place in Leptidæ.
 MELANDER, Mon. Empid., I, 337, 1902, places in Leptidæ.
pictipes COQUILLET, Revis. Empidæ, 103.—Williams, Ariz.
rileyi COQUILLET, Ent. News, IV, 209, fig.—Cal.
 MELANDER, Mon. Empid., I, 338.—Mesilla Park, N. M.
scutellata COQUILLET, Proc. U. S. N. M., XXV, 102.—Williams, Ariz.
tibialis COQUILLET, Revis. Empid., 409.—Los Angeles Co., Cal.
 MELANDER, Mon. Empid., I, 338.

NEMESTRINIDÆ.

- BIGOT, Annales, 1881, 15, table of genera of the world.
 WILLISTON, Canad. Ent., XV, 69, 1883, synopsis of the North American species.

HIRMONEURA.

- MEIGEN, Syst. Besch., II, 132, 1820.
 SCHINER, Fauna Austr., I, 46, 1862.
 PHILIPPI, Verh. Zool.-Bot. Ges., 1865, 655 (*Hermoneura*).
 BIGOT, Bull. Soc. Ent. France, 1879, no. 8; Annales, 1881, 15 (*Parasymictus*) [Will.].
brevirostris MACQUART, Dipt. Exot., Suppl., I, 101, pl. XX, f. 1.—Yucatan, Mex.
 WILLISTON, Canad. Ent., XV, 69.
clausa OSTEN SACKEN, West. Dipt., 225.—Texas.
 BIGOT, Bull. Soc. Ent. France, 1879, no. 8; Annales, 1881, 15 (*Parasymictus*).
 BRAUER, Offenes Schreiben, 8, refers to *Rhynchocephalus*.
 OSTEN SACKEN, Berl. Ent. Zeitsch., XLII, 1897, corrects Brauer.
flavipes WILLISTON, Trans. Amer. Ent. Soc., XIII, 292.—U. S.
psilotes OSTEN SACKEN, Biologia, Dipt., I, 74.—Mex.

RHYNCHOCEPHALUS.

- FISCHER, Mém. Soc. Imp. de Moscow, I, 217, 1806.
 SCHINER, Fauna Austr., I, 45, 1862.
 WILLISTON, Canad. Ent., XXIV, 70, 1892.

- sackeni** WILLISTON, Trans. Conn. Acad. Sci., iv, 243; Canad. Ent., xv, 71; Ent. News, v, 47, habits.—Wash.
- volaticus** WILLISTON, Canad. Ent., xv, 71; Trans. Amer. Ent. Soc., xiii, 293, correction.—Fla.
St. Augustine, Fla.—Johnson.
- OSTEN SACKEN, Biologia, Dipt., i, 73 (*Rhynch.* sp.).—Guatemala. [Will.]
- WILLISTON, Biologia, Dipt., i, 269, oc. in Guerrero, Mex.

CYRTIDÆ.

- BIGOT, Annales, 1889, 315, table of all genera.
- OSTEN SACKEN, Berl. Ent. Zeitsch., xli, 1896, 323, discussion of generic characters, etc.
- WILLISTON, Manual N. A. Dipt., 70, on habits—parasitic on spiders and their eggs.

PTERODONTIA.

- GRAY, in Griffith's Animal Kingd., xv, 779, pl. cxxvii, f. 3, 1832.
- ERICHSON, Entomographien, 1840, 161.
- SCHINER, Fauna Austr., i, 72, 1862.
- MELANDER, Ent. News, xiii, 179, 1902, table of species.
- analis** WESTWOOD, Trans. Ent. Soc., v, 97.—Ga. (Preoc.—Osten Sacken.)
- MELANDER, Ent. News, xiii, 179, oc. at Wood's Hole, Mass.; notes.
- flavipes** GRAY, in Griffith's Animal Kingd., pl. cxxviii, f. 3.
- WESTWOOD, Trans. Ent. Soc., v, 96.—Ga.
Montreal—Chagnon; Province of Quebec—Fyles.
- misella** OSTEN SACKEN, West. Dipt., 277.—Ore.
- WILLISTON, Trans. Amer. Ent. Soc., xiii, 295, probably same as *flavipes*.
Alameda Co., Cal.—Melander; Wash.—in coll. O. B. Johnson.
- vix** TOWNSEND, Proc. Cal. Acad. Sci., iv, 607.—S. Cal.

NOTHRA.

- WESTWOOD, Trans. Ent. Soc. Lond., 1876, 514.
- americana** BIGOT, Annales, 1889, 320.—Wash.

ONCODES.

- LATREILLE, Précis d. Caract. génér. d. Ins., 154, 1796 (*Ogcodes*).
- MEIGEN, Klassifikation, 150, 1804 (*Hcnops*).
- ERICHSON, Entomographien, 169, 1840; Archiv. f. Naturgeschichte, Berlin, 1846, 288;—reprinted by Roeder, Wien. Ent. Zeit., ii, 95.
- GERSTAECKER, Stett. Ent. Zeit., 1856, 353.
- SCHINER, Fauna Austr., i, 73, 1862.
- ædon** TOWNSEND, Proc. Cal. Acad. Sci., iv, 608.—Baja Pisisima, Lower Cal.
- costatus** LOEW, Cent., ix, 67.—Mass.
- MELANDER, Ent. News, xiii, 178, notes; oc. in Wis. and Ont.
N. J.—Smith Cat.; Montreal—Chagnon.
- dispar** MACQUART, Dipt. Exot., Suppl., v, 67, pl. II. f. 12 (*Hcnops*).—Baltimore.
- eugonatus** LOEW, Cent., x, 18.—Texas.
- MELANDER, Ent. News, xiii, 178, oc. at Austin, Tex., and notes.
- humeralis** OSTEN SACKEN, Biologia, Dipt., i, 164.—N. Sonora, Mex.
- incultus** OSTEN SACKEN, West. Dipt., 170.—White Mts., N. H.
N. J.—Smith Cat.

melampus LOEW, Cent., x, 17.—Cal.

TOWNSEND, Proc. Cal. Acad. Sci., iv, 609.—San Francisco Mts., Ariz., fir zone.

pallidipennis LOEW, Cent., vi, 32.—Pa.

TOWNSEND, Proc. Cal. Acad. Sci., iv, 609, notes; oc. in Va. and D. C. N. J.—Smith Cat.

PHILOPOTA.

WIEDEMANN, Auss. Zw., II, 17, pl. 1X, f. 1, 1830.

ERICHSON, Entomographien, 152, 1840.

truquii BELLARDI, Saggio, I, 77, pl. II, f. 20.—Cuazimalpa, Mex.

OPSEBIUS.

COSTA, Rendiconto d. Soc. R. Borbon d. Sc., v, 20, 1856.

LOEW, Wien. Ent. Monatschr., I, 33, 1857 (*Pithogaster*); Besch. Europ. Dipt., II, 64, 1871.

SCHINER, Fauna Austr., I, 75, 1862.

OSTEN SACKEN, Cat., 240, 1878, table of species.

MELANDER, Ent. News, XIII, 180, 1902, table of species.

agelenæ MELANDER, see *pterodontinus*.

diligens OSTEN SACKEN, West. Dipt., 278.—Vancouver Id.

gagatinus LOEW, Cent., vi, 34.—Pa.

paucus OSTEN SACKEN, West. Dipt., 279.—Cal.

pterodontinus OSTEN SACKEN, Berl. Ent. Zeitsch., xxvii, 299, 1883.—Dallas, Texas. Montreal—Chagnon.

MELANDER, Ent. News, XIII, 6 (*agelenæ*).—Austin, Tex., and Rochester, Wis.; parasitic on *Agelena navia* Bosc. [Adams, Kans. Univ. Sci. Bull., II, 32.]

sulphuripes LOEW, Cent., ix, 68.—Sharon Spr., N. Y.

MELANDER, Ent. News, XIII, 180, oc. in Alameda Co., Cal., and notes.

ACROCERA.

MEIGEN, Illig. Mag., II, 266, 1803; Syst. Besch., III, 94, 1822.

ERICHSON, Entomographien, 164, 1840.

GERSTÄCKER, Stett. Ent. Zeit., 1856, 347.

SCHINER, Fauna Austr., I, 72, 1862.

MONTGOMERY, Proc. Acad. Nat. Sci. Phil., 1903, 68; note on habits.

EMERTON, Psyche, v, 404, 1890, fig.; note on habits.

bimaculata LOEW, Cent., vi, 33.—D. C.

bullata WESTWOOD, Trans. Ent. Soc., v, 98.—N. Y.

fasciata WIEDEMANN, Auss. Zw., II, 16.—Ga.

ERICHSON, Entomographien, 166, 1840.

JOHNSON, Ent. News, XIV, 64, mentions the rearing of this from *Lycosa stonei*.

fumipennis WESTWOOD, Trans. Ent. Soc., v, 98.—Ga.

liturata WILLISTON, Trans. Amer. Ent. Soc., XIII, 294.—Wash.

nigrina WESTWOOD, Trans. Ent. Soc., v, 98.—Ga.

obsoleta VAN DER WULP, Tijdschr. v. Ent., x, 139, pl. III, f. 17.—Wis.

subfasciata WESTWOOD, Trans. Ent. Soc., v, 98.—N. Y.

unguiculata WESTWOOD, Trans. Ent. Soc., v, 98.—Ga.

APPELEIA.

BELLARDI, Saggio, App., 19, 1862.

vittata BELLARDI, op. cit., fig. 12.—Playa Vicente, Mex.

OCNÆA.

ERICHSON, Entomographien, 155, 1840.

grossa OSTEN SACKEN, Biologia, Dipt., 1, 163, pl. III, f. 7.—Costa Rica.

helluo OSTEN SACKEN, West. Dipt., 278.—Dallas, Texas.

WILLISTON, Trans. Amer. Ent. Soc., XIII, 294, note.

MELANDER, Ent. News, XIII, 182, oc. at Marble Falls, Texas, and notes.

micans ERICHSON, Entomographien, 155, 1840.—Mex.

trichocera OSTEN SACKEN, Biologia, Dipt., 1, 164.—Panama.

LASIA.

WIEDEMANN, Analecta Ent., II, 1824; Auss. Zw., I, 329, 1828.

ERICHSON, Entomographien, 142, 1840.

kletti OSTEN SACKEN, in "Explorations and Surveys west of the One Hundredth Meridian," vol. v, Zoology, 804 (Washington, 1875), woodcuts.—Camp Apache, Ariz.

WILLISTON, Trans. Amer. Ent. Soc., XIII, 294, oc. in N. M.; doubts if it be a Lasia.

scribæ OSTEN SACKEN, Biologia, Dipt., 1, 166.—Guatemala.

EULONCHUS.

GERSTÆCKER, Stett. Ent. Zeit., 1856, 359.

marginatus OSTEN SACKEN, West. Dipt., 277.—Napa Val., Cal.

sapphirinus OSTEN SACKEN, West. Dipt., 276.—Webber L. and Calaveras, Cal. Marin Co., Cal.—Melandar.

smaragdinus GERSTÆCKER, Stett. Ent. Zeit., 1856, 360.—Cal.

OSTEN SACKEN, West. Dipt., 276, oc. at San Francisco, and notes.

Marin Co., Cal., Melandar; Utah—J. M. A.

tristis LOEW, Cent., x, 19.—Coast Mts., Cal.

MELANDER, Ent. News, XIII, 181, oc. in N. Idaho, and in Marin Co., Cal.; part. desc.

PIALOIDEA.

WESTWOOD, Trans. Ent. Soc. Lond., 1876, 514.

magna WALKER, List, III, 511 (*Cyrtus*).—Ga.

metallica WILLISTON, Biologia, Dipt., 1, 165.—Guatemala.

BOMBYLIIDÆ.

COQUILLETIA.

WILLISTON, Manual N. A. Dipt., 65, 1896.

vandykei COQUILLET, Trans. Amer. Ent. Soc., XXI, 94 (*Spogostylum*).—Mariposa Co., Cal.

SPOGOSTYLUM.

MACQUART, Dipt. Exot., II, 1, 53, 1841.

SCHINER, Wien. Ent. Monatsch., IV, 51, 1860 (*Argyromaba*); Fauna Austr., I, 52, 1862 (id.).

LOEW, Besch. Europ. Dipt., I, 228, 1860 (*Argyromaba*); Cent., vol. II, p. 290. amends to *Argyromaba*.

- WILLISTON, Manual N. A. Dipt., 65, 1896.
 OSTEN SACKEN, West. Dipt., 241, 1877, table of species; Biologia, Dipt.,
 i, 98, 1886, table and full discussion (*Argyramaba*).
 WILLISTON, Manual, 65, 1896; Biologia, Dipt., i, 275, 1901.
 COQUILLET, Trans. Amer. Ent. Soc., XXI, 95, table of species (*Argyramaba*).
 BEZZI, Zeitschr. f. Hymenopt. und Dipterologie, 1902, 192, proposes a revolution in the nomenclature of this and other genera of the family, with which I do not agree, as it seems based too much on guess-work as to the types.
- acroleuca** WIEDEMANN, Auss. Zw., i, 312, note (*Anthrax*).—S. A.
 MACQUART, Dipt. Exot., i, 1, 64, pl. XX. f. 11 (*Anthrax gidcon* FABR.).—S. A.
 SCHINER, Novara, 122 (id.).
 OSTEN SACKEN, Biologia, Dipt., i, 101, syn., etc. (*Argyramaba*).—Guatemala.
 WILLISTON, Biologia, Dipt., i, 275, oc. in Atoyac, Mex. (*Argyramaba*).
- albofasciatum** MACQUART, Dipt. Exot., II, 1, 67 (*Anthrax*).—Ga.
 LOEW, Cent., VIII, 47 (*Arg. obsolcta*).—Mo. [Coq.]
 N. J.—Smith Cat.; Lake Worth, Fla.—Johnson.
- albosparsum** BIGOT, see *argyropyga*.
- anale** SAY, Jour. Acad. Sci. Phil., III, 45; Compl. Works, II, 60 (*Anthrax*).—Ga.
 WIEDEMANN, Auss. Zw., i, 313 (id.).
 ? MACQUART, Hist. Nat. Dipt., i, 406 (*Anthrax georgica*); Dipt. Exot., II, 1, 68 (id.); Dipt. Exot., II, 1, 67, doubtful oc. of *analis* in Brazil. [O. S. with a doubt.]
 OSTEN SACKEN, Biologia, Dipt., i, 101, doubtful oc. in Mex.
 N. J.—Smith Cat.; St. Augustine, Fla.—Johnson; Montreal—Chagnon; Atlantic States and Canada—O. S. Cat.
- ? **angustipennis** MACQUART, Dipt. Exot., II, 1, 64, pl. XXI, f. 9 (*Anthrax*).—Guiana.
 ? WILLISTON, Biologia, Dipt., i, 275, doubtful oc. in Acapulco, Mex.
- argyropyga** WIEDEMANN, Auss. Zw., i, 313 (*Anthrax*).—No locality.
 LOEW, Cent., VIII, 50 (*Arg. contigua*).—Va. [O. S.]
 ? BIGOT, Annales, 1892, 348 (*Arg. albosparsa*).—Col. [Coq., with a doubt.]
 Ga.—O. S. Cat.; N. J.—Smith Cat.; Fla.—Johnson.
- cephus** FABRICIUS, Syst. Antl., 124 (*Anthrax*).—S. A.
 WIEDEMANN, Auss. Zw., i, 297 (id.).
 MACQUART, Dipt. Exot., II, 1, 59 (id.).—Ga.
 Va.—O. S. Cat.; St. Augustine, Fla.—Johnson.
- cybele** COQUILLET, Trans. Amer. Ent. Soc., XXI, 96 (*Argyramaba*).—Ariz.
- daphne** OSTEN SACKEN, Biologia, Dipt., i, 104, pl. II, f. 6 (*Argyramaba*).—N. Sonora, Mex.
 ? WILLISTON, Dipt. of Death Valley Exped., 254, note, doubtful oc. in Panamint Val., Cal.
- delila** LOEW, Cent., VIII, 45 (*Argyramaba*).—Cal.
- ? **disjunctum** WIEDEMANN, Auss. Zw., II, 639 (*Anthrax*).—Mex. Query in O. S. Cat.
- euplanes** LOEW, Cent., VIII, 49 (*Argyramaba*).—Cuba.
- fur** OSTEN SACKEN, West. Dipt., 244 (*Argyramaba*); Biologia, Dipt., i, 105 (id.).—Texas; N. Sonora, Mex.

- ? **gideon** FABRICIUS, Syst. Antl., 125 (*Anthrax*).—S. A.
 WIEDEMANN, AUSS. ZW., 311 (id.).—S. A.
 ? WALKER, List, II, 257, doubtful oc. in Jamaica.
- latelimbata** BIGOT, of Johnson, Dipt. Fla., see *Anthrax*.
- leucothoa** WIEDEMANN, see *Anthrax*.
- limatulus** SAY, Jour. Acad. Sci. Phil., VI, 157; Compl. Works, II, 354 (*Anthrax*).
 —Ind.
 WALKER, Dipt. Saund., 103 (*Anth. antecedens*).—U. S. [Coq.]
 ? OSTEN SACKEN, West. Dipt., 243, doubtful oc. in Col. and Cal.
 N. J.—Smith Cat.; Lake Worth, Fla.—Johnson.
- melanopogon** BIGOT, Annales, 1892, 348 (*Argyramaba*).—N. A.
- œdipus** FABRICIUS, Syst. Antl., 123 (*Anthrax*).—West Indies.
 WIEDEMANN, Dipt. Exot., 124; AUSS. ZW., I, 262 (id.).—Ky. and Pa.
 SAY, Jour. Acad. Sci. Phil., III, 46; Compl. Works, II, 61 (*Anthrax irrorata*).—Rocky Mts.
 MACQUART, Dipt. Exot., II, I, 60, pl. XX, f. 6 (*Anthrax irrorata*).—Car. and Ga.
 SCHINER, Novara, 121 (*Argyromaba*).—S. A.
 WALKER, Dipt. Saund., 192 (*Anthrax œqua*).—S. A.
 WALKER, List, II, 253 (*Anthrax punctum*).—Brazil.
 F. LYNCH A., El Nat. Argentina, I, 243, oc. in Argentina.
 OSTEN SACKEN, Biologia, Dipt., I, 101, syn., etc. (*Argyramaba*); oc. from Brit. Possessions to Argentine Republic.
 TOWNSEND, Amer. Naturalist, Jan., 1893, desc. of puparium (id.).
 BAKER, Ent. News, VI, 173, reared from nests of *Odynerus*, several species, at Ft. Collins, Col.; "a true external parasite."
 Beulah, N. M.—Skinner.
- pauper** LOEW, Cent., VIII, 48 (*Argyramaba*).—Ill. N. J.—Smith Cat.
- pluto** WIEDEMANN, AUSS. ZW., I, 261 (*Anthrax*).—Ky.
 OSTEN SACKEN, West. Dipt., 244 (*Argyramaba*).—Canada to Texas.
 VAN DER WULP, Tijdschr. v. Ent., XXV, 85, pl. IX, f. 10.
 OSTEN SACKEN, Biologia, Dipt., I, 102, quotes West. Dipt., etc. (*Argyramaba*).
- seriepunctatum** OSTEN SACKEN, Biologia, Dipt., I, 103, pl. II, f. 5 (*Argyramaba*).
 —N. Sobora and Tehuacan, Mex.
- simson** FABRICIUS, Syst. Antl., 49 (*Anthrax*).—S. A.
 DEGEER, Mém. pour Serv. Hist. Nat. Ins., VI, pl. XXIX, f. 11 (*Nemotelus tigrinus*). [Wied.]
 SAY, Jour. Acad. Sci. Phil., III, 43; Compl. Works, II, 59 (*Anthrax scripta*).—Pa. [Wied.]
 WIEDEMANN, Dipt. Exot., 122; AUSS. ZW., I, 259, pl. III, f. 2 (id.).—Pa.
 SCHINER, Novara, 120, oc. in Colombia.
 OSTEN SACKEN, Biologia, Dipt., I, 100, syn., etc.; "said to be a parasite in nests of *Xylocopa virginica* in U. S."
 WILLISTON, Biologia, Dipt., I, 275, oc. in Guerrero, Mex.
 DAVIDSON, Ent. News, IV, 153, in nests of *Xylocopa opifera*.—Los Angeles, Cal.
 N. J.—Smith Cat.; St. Augustine, Fla.—Johnson.
- stellans** LOEW, Cent., VIII, 46 (*Argyramaba*).—Ore.
- varium** FABRICIUS, Ent. Syst., IV, 259 (*Anthrax*); Syst. Antl., 122 (id.).—France.
 MEIGEN, Syst. Besch., II, 124 (*Anthrax*).

SCHINER, Fauna Austr., 1, 54 (id.).

COQUILLET, Trans. Amer. Ent. Soc., XXI, 96, oc. in Cal.; compared with European specimens.

? *varicolor* BIGOT, Annales, 1892, 347 (*Argyramaba*).—"Amérique du Nord; Colombie, 1 spécimen." [I take this to mean South America.]

ALDRICHIA.

COQUILLET, Trans. Amer. Ent. Soc., XXI, 93, 1894.

ehrmanni COQUILLET, loc. cit.—Pa.

HYPERALONIA.

RONDANI, Archivio per la Zool. Modena, III, p. 1, 1864.

OSTEN SACKEN, Biologia, Dipt., 1, 89, 1886.

COQUILLET, Canad. Ent., 1886, 158 (*Velocia*). [Coq.]

WILLISTON, Biologia, Dipt., 1, 273, 1901, notes.

albiventris MACQUART, Dipt. Exot., Suppl., III, 33, pl. III, f. 15 (*Exoprosopa*).—Rio Negro, Brazil.

VAN DER WULP, Tijdschr. v. Ent., XXIV, 164, pl. xv, f. 11.—Venezuela.

ERICHSON, in Schomburgk's Reise in Brit. Guiana (*Anthrax hela*).

OSTEN SACKEN, Biologia, Dipt., 1, 89, desc. and extended notes.—N. Sonora, Mex.

cerberus FABRICIUS, Ent. Syst., IV, 256 (*Anthrax*); Syst. Antl., 118 (id.).—West Indies.

WIEDEMANN, Dipt. Exot., 118; Auss. Zw., 1, 258 (id.).—S. A.

Porto Rico—Roeder; Jamaica—Johnson.

didò OSTEN SACKEN, Biologia, Dipt., 1, 91, pl. 1, f. 17.—Tres Marias Ids., Mex.

gazophylax LOEW, Cent., VIII, 18 (*Exoprosopa*).—Cal.

COQUILLET, Trans. Amer. Ent. Soc., XXI, 93, corrects orig. desc. and refers to this genus.

kaupii JÆNNICKE, Neue Exot. Dipt., 32, pl. II, f. 17.—Mex.

OSTEN SACKEN, Biologia, Dipt., 1, 94, note.—Tehuacan, Mex.

WILLISTON, Biologia, Dipt., 1, 273, oc. in Anula, Mex.

latreillei WIEDEMANN, Auss. Zw., II, 633 (*Anthrax*).—Mex.

OSTEN SACKEN, Biologia, Dipt., 1, 94, pl. 1, f. 18, and pl. II, f. 1.—Guatemala and Panama.

pilatei MACQUART, Dipt. Exot., Suppl., 1, 110, pl. XX, f. 2 (*Anthrax*).—Yucatan, Merida.

OSTEN SACKEN, Biologia, Dipt., 1, 90, pl. 1, f. 16.—Tres Marias Ids., Mex.

proserpina WIEDEMANN, Auss. Zw., 1, 257 (*Anthrax*); II, 632 (*Anthrax klugii*).

—No locality; Cassapava, Brazil. [Schiner.]

MACQUART, Dipt. Exot., II, 1, 38, pl. XVI, f. 5 (*Exoprosopa cerberus* FAB.).

—Brazil. [Will.]

BIGOT, in Sagra's Cuba, 793.

WALKER, List, III, 238 (*Anthrax rufescens*).—No locality. [O. S.]

SCHINER, Novara, 117 (*Exoprosopa*).

F. LYNCH A., El. Nat. Argentina, 1, 266 (*Exoprosopa*), oc. in Argentina.

VAN DER WULP, Tijdschr. v. Ent., XXIV, 165, pl. xv, f. 12 (*Exoprosopa*).

—S. A.

OSTEN SACKEN, Biologia, Dipt., 1, 92.—Guatemala; Costa Rica.

WILLISTON, Biologia, Dipt., 1, 273, oc. in Teapa, Mex.

Jamaica—Johnson.

[*serveillei* MACQUART, identified by Coquillett from Porto Rico and Bahamas in Proc. U. S. N. M., XXII, 251, was never described; Macquart has a figure of a wing with the name *Exoprosopa serveillei*, on pl. XVI, Dipt. Exot., II. As there is no locality, and the other figures on the plate are from all parts of the world, it seems to me undesirable to try to resurrect the species.]

EXOPROSOPA.

- MACQUART, Dipt. Exot., II, I, 35, 1840; op. cit., 78 (*Litorhynchus*).
 MULSANT, Mém. Acad. de Lyon., 1852, 18 (*Trinaria*).
 RONDANI, Dipt. Ital. Prod., I, 156, 1856; Archivio per la Zool. Modena, III, 1864 (*Argyrosphila*).
 SCHINER, Fauna Austriaca, I, 54, 1862.
 COQUILLETT, Canad. Ent., XIX, 13, 1887 (*Exoptata*, in part); XXIV, 123, 1892, table of species.
 OSTEN SACKEN, Biologia, Dipt., I, 77, 1886, full discussion.
 WILLISTON, Biologia, Dipt., I, 269, 1901, syn. of *Exoptata*, etc.
- agasizii** LOEW, Cent., VIII, 24.—Cal.
anthracoides JÆNNICKE, Neue Exot. Dipt., 32, pl. II, f. 18.—Mex.
 LOEW, Cent., VIII, 20 (*trabalis*).—Jalapa, Mex. [O. S.]
 OSTEN SACKEN, Biologia, Dipt., I, 85, notes.
- bifurca** LOEW, Cent., VIII, 23.—Cal.
blanchardiana JÆNNICKE, Neue Exot. Dipt., 33, pl. II, f. 20.—Mex.
brevirostris WILLISTON, Biologia, Dipt., I, 272.—Jalisco, Mex.
brevistylata WILLISTON, Biologia, Dipt., I, 272.—Acapulco, Mex.
caliptera SAY, Jour. Acad. Sci. Phil., III, 46; Compl. Works, II, 62 (*Anthrax*).—Ark.
 OSTEN SACKEN, West. Dipt., 233; Biologia, Dipt., I, 81, pl. I, f. 12.—Wyo and N. M.; N. Sonora, Mex.; *capucina* may be the female.
 COCKERELL, Jour. N. Y. Ent. Soc., VI, 206, oc. at Agency, N. M.
- capucina** FABRICIUS, Ent. Syst., IV, 259; Mantissa Ins., II, 329 (*Bibio*); Syst. Antl., 123 (*Anthrax*).—N. A.
 OSTEN SACKEN, West. Dipt., 231 (*dorcadion*); Cat., 85, note.—Cal., Wash., Col., N. H., Me.
 ? WALKER, Dipt. Saund., 172 (*Anthrax californiæ*).—Cal. [O. S., with a doubt.]
- cerberus** FABRICIUS, see *Hyperalonia*.
 For Macquart, see *Hyperalonia proserpina*.
- clotho** WIEDEMANN, Auss. Zw., II, 635 (*Anthrax*).—Mex.
cubana LOEW, Cent., VIII, 22.—Cuba. Porto Rico—Roeder.
decora LOEW, Cent., VIII, 19.—Wis. O. S. Cat. gives Ga., Tex., Ill., Ia., Red. R. of the North.
- divisa** COQUILLETT, Canad. Ent., XIX, 13 (*Exoptata*).—Cal., Ariz.
dodrans OSTEN SACKEN, West. Dipt., 234.—Col. Springs, Col.
doris OSTEN SACKEN, West. Dipt., 235.—Humboldt Station, Nev.; Ore.
 See *iota*.
- emarginata** MACQUART, Dipt. Exot., II, I, 51.—Philadelphia, Pa.
 N. J.—Smith Cat.; Lake Worth, Fla.—Johnson.
- eremita** OSTEN SACKEN, West. Dipt., 236 (from Shasta district, Cal.); Cat., 237, and Biologia, Dipt., I, 82, notes; may be a var. of *puclensis*.
 St. Augustine and Lake Worth, Fla.—Johnson.
- fascipennis** SAY, Long's Exped., App., 373; Compl. Works, I, 254 (*Anthrax*).—Red R. of the North ("of Winnepeek").

- WIEDEMANN, AUSS. ZW., I, 284 (id.); II, 635 (*A. noctula*).—Ky. and Red R.; N. A. [O. S.]
- MACQUART, DIPT. EXOT., II, 1, 52 (*philadelphica*); Suppl., IV, 108 (*coniceps*).—Philadelphia; Va. [O. S.]
- BIGOT, in Sagra's Cuba, 793 (*coniceps* MACQ.).—Cuba.
Atlantic and Middle States—O. S. Cat.; N. J.—Smith Cat.; Fla., several places—Johnson.
- fasciata** MACQUART, DIPT. EXOT., II, 1, 51, pl. XVIII, f. 6; Suppl., IV, 108 (the latter *longirostris*).—U. S.; Va. [O. S.]
- VAN DER WULP, TIJDSCHR. V. ENT., X, 141, pl. IV, f. 1-4 (*Mulio americana*).—Wis.
- OSTEN SACKEN, West. Dipt., 231, notes.
N. J.—Smith Cat.; St. Augustine and Ormond, Fla.—Johnson.
- filia** OSTEN SACKEN, Biologia, Dipt., 1, 86.—Durango, Mex.
WILLISTON, Biologia, Dipt., 1, 272, oc. in Jalisco, Mex., and note.
- gazophylax** LOEW, see *Hypercalonia*.
- grata** COQUILLET, Canad. Ent., XXIV, 124.—Cal., Wash.
- ignifer** WALKER, List, II, 243.—Jamaica.
OSTEN SACKEN, Cat., 237, note; Biologia, Dipt., 1, 82, *puublensis* may be the same.
- iota** OSTEN SACKEN, Biologia, Dipt., 1, 82, pl. I, f. 13.—Tehuacan, Mex.
COQUILLET, Canad. Ent., XXIV, 125, says is same as *doris*.
WILLISTON, Biologia, Dipt., 1, 270, considers distinct; oc. in Guerrero, Mex.
- lacera** WIEDEMANN, AUSS. ZW., II, 633 (*Anthrax*).—Mex.
- latreillei** WIEDEMANN, AUSS. ZW., II, 633 (*Anthrax*).—Mex.
- limbipennis** MACQUART, DIPT. EXOT., Suppl., I, 110, pl. XX, f. 3.—Yucatan.
OSTEN SACKEN, Biologia, Dipt., 1, 84.—Venteñas, Mex.
WILLISTON, Biologia, Dipt., 1, 271.—Guerrero and Yucatan, Mex.; *procne* may be the same.
- melanura** BIGOT, Annales, 1892, 344.—Rocky Mts.
- nubifera** LOEW, Cent., VIII, 25.—Cuba.
- orcus** WALKER, List, II, 237 (*Anthrax*).—Mex.
- pallens** BIGOT, Annales, 1892, 345.—Cal.
- pardus** OSTEN SACKEN, Biologia, Dipt., 1, 88, pl. I, f. 15.—N. Sonora, Mex.
- parva** LOEW, Cent., VIII, 26.—Cuba. Jamaica—Johnson.
- pavida** WILLISTON, Biologia, Dipt., 1, 273.—Chilpancingo, Mex.
- pilatei** MACQUART, see *Hypercalonia*.
- procne** OSTEN SACKEN, Biologia, Dipt., 1, 85.—Guatemala.
WILLISTON, Biologia, Dipt., 1, 271, may not be distinct from *limbipennis*.
- proserpina** WIEDEMANN, see *Hypercalonia*.
- puublensis** JENNICKE, Neue Exot. Dipt., 34, pl. II, f. 21.—Mex.
OSTEN SACKEN, Biologia, Dipt., 1, 82, notes; oc. in Tehuacan, Mex., and Guatemala.
WILLISTON, Biologia, Dipt., 1, 270, oc. in Guerrero, Jalisco, and Guanajuato, Mex. See *ignifer* and *cremita*.
- rhea** OSTEN SACKEN, Biologia, Dipt., 1, 83, pl. I, f. 14.—Mex.
- rostrifera** JENNICKE, Neue Exot. Dipt., 33, pl. II, f. 19.—Mex.
OSTEN SACKEN, Biologia, Dipt., 1, 86, notes.
WILLISTON, Biologia, Dipt., 1, 271, oc. in Guerrero, Mex.
- rubiginosa** MACQUART, DIPT. EXOT., II, 1, 51; Suppl., I, 111.—Philadelphia; Colombia, S. A. Unrecognizable—O. S. Cat.

- sackeni** WILLISTON, *Biologia*, Dipt., I, 271.—Guerrero, Mex.
 OSTEN SACKEN, *Biologia*, Dipt., I, 86 (*Exoprosopa*, species No. 1).
 [**satyrus** FABRICIUS, recognized by Walker, see O. S. Cat., 87; it is almost certainly not North American.]
- sima** OSTEN SACKEN, *West. Dipt.*, 231.—Humboldt Desert, Nev.
- socia** OSTEN SACKEN, *Biologia*, Dipt., I, 87.—Durango, Mex.
 Amula, Mex.—Williston.
- sordida** LOEW, *Cent.*, VIII, 21.—Metamoras, Mex.
- subfascia** WALKER, *List*, II, 249 (*Anthrax*).—Jamaica.
- thomæ** FABRICIUS, *Syst. Antl.*, 135 (*Anthrax*).—St. Thomas, W. I.
 WIEDEMANN, *Dipt. Exot.*, 129 (id.); *Auss. Zw.*, I, 271 (id.).
- titubans** OSTEN SACKEN, *West. Dipt.*, 233.—Denver, Col.
- trimacula** WALKER, see *Anthrax*.

ASTROPHANES.

- OSTEN SACKEN, *Biologia*, Dipt., I, 106, 1886.
- adonis** OSTEN SACKEN, *op. cit.*, 107.—N. Sonora, Mex.

MANCIA.

- COQUILLET, *Canad. Ent.*, XVIII, 159, 1886.
- WILLISTON, *Synopsis Fam. and Gen. Dipt.*, 1888, 37, quoted.
- nana** COQUILLET, *Canad. Ent.*, XVIII, 159.—Cal.

DIPALTA.

- OSTEN SACKEN, *West. Dipt.*, 236, 1877; *Biologia*, Dipt., I, 98, note.
- COQUILLET, *Canad. Ent.*, 1886, 157, unites to *Anthrax*; *Trans. Amer. Ent. Soc.*, XIV, 159, retains as a subgenus; XIX, 169, discards.
- WILLISTON, *Biologia*, Dipt., I, 275, 1901, considers a distinct genus.
- junctura** COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 163; XIX, 177, notes on variation.—Cal.
- keenii** COQUILLET, see *Anthrax cclia*.
- serpentina** OSTEN SACKEN, *West. Dipt.*, 237.—Ga., Col., Cal., Mex.
 COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 164.—Fla.
 WILLISTON, *Biologia*, Dipt., I, 275, oc. in Guerrero and Vera Cruz, Mex.
 St. Augustine, Fla.—Johnson.

LEPIDANTHRAX.

- OSTEN SACKEN, *Biologia*, Dipt., I, 107, 1886.
- COQUILLET, *Trans. Amer. Ent. Soc.*, XIX, 169, 1892.
- agrestis** COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 171 (*Anthrax*); XIX, 169, gen. ref.—Cal.
- angulus** OSTEN SACKEN, *Biologia*, Dipt., I, 111, pl. II, f. 9.—Cal.; N. Sonora, Mex.
- campestris** COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 171 (*Anthrax*); XIX, 171, gen. ref.—Cal.
- disjuncta** WIEDEMANN, *Auss. Zw.*, II, 639 (*Anthrax*).—Mex.
 OSTEN SACKEN, *Biologia*, Dipt., I, 108, pl. II, f. 7.—Orizaba and Tuxpango, Mex.
 WILLISTON, *Biologia*, Dipt., I, 276, oc. in Guerrero, Mex.
- inaurata** COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 170 (*Anthrax*); XIX, 169, ref.—Cal.

- lauta** COQUILLET, Trans. Amer. Ent. Soc., XIV, 171 (*Anthrax*); XIX, 169, gen. ref.—Cal.
proboscidea LOEW, Cent., VIII, 27 (*Anthrax*).—Sonora, Mex.
 COQUILLET, Trans. Amer. Ent. Soc., XIV, 168.—Ariz., Mex.
 OSTEN SACKEN, Biologia, Dipt., I, 109, pl. II, f. 8.—N. Sonora, Mex.
 WILLISTON, Biologia, Dipt., I, 276, oc. in Guerrero, Mex.

ANTHRAX.

- SCOPOLI, Ent. Carniolica, 358, 1763.
 FABRICIUS, Syst. Antl., 118, 1805.
 MEIGEN, Syst. Besch., II, 107, 1820.
 SCHINER, Fauna Austr., I, 48, 1862.
 COQUILLET, Trans. Amer. Ent. Soc., XIV, 159, 1887, synopsis of the genus in the U. S.; revised, XIX, 170-177, 1892; partial table of species, XXI, 97, 1895.
 OSTEN SACKEN, Biologia, Dipt., I, 111-140, full treatment of the southern fauna, with subgenera, etc.; also includes the genera *Stonyx*, p. 94, and *Isopenthes*, p. 96, which are not recognized as valid by Coquillett, and the latter not by Williston.
 ? **abbreviata** WIEDEMANN, Auss. Zw., II, 637.—Mex. Gen. ref. questioned in O. S. Cat.
adumbrata COQUILLET, Trans. Amer. Ent. Soc., XIV, 176.—Cal.
adusta LOEW, Cent., VIII, 41.—Cuba.
ænea COQUILLET, Trans. Amer. Ent. Soc., XIV, 165.—Cal.
agrestis COQUILLET, see *Lepidanthrax*.
agrippina OSTEN SACKEN, Biologia, Dipt., I, 139, pl. III, f. 3.—N. Sonora, Mex.
 COQUILLET, Trans. Amer. Ent. Soc., XIX, 182, oc. in Cal., Wash., Col., N. M.
 Suwanee, Fla.—Johnson.
albipectus MACQUART, Dipt. Exot., Suppl., III, 34, pl. III, f. 12.—N. A.
 Unrecognizable—O. S.
alpha OSTEN SACKEN, West. Dipt., 239.—Cheyenne, Wyo.; Webber L., Cal.
 COQUILLET, Trans. Amer. Ent. Soc., XIV, 180.—Wyo. *Fuliginosa* is said to be probably an immature form of the same species.
alternata SAY, Jour. Acad. Sci. Phil., III, 45; Compl. Works, II, 61.—Pa., Mo.
 WIEDEMANN, Auss. Zw., I, 303.
 MACQUART, Dipt. Exot., II, 1, 69, pl. XXI, f. I (*consanguinea*).—Philadelphia. [O. S.]
 LOEW, Cent., VIII, 39 and 40 (*scrobiculata* and *stenozona*).—Ill. [Coq.]
 ? OSTEN SACKEN, Biologia, Dipt., I, 138 (*stenozona*); oc. in Sonora, with a doubt.
 COQUILLET, Trans. Amer. Ent. Soc., XIV, 166.—N. Y., Md., Fla., Mont., Nebr.
 RILEY and HOWARD, Insect Life, II, 353, reared by Gillette from undet. cut-worm larvæ in Ia. (*scrobiculata*).
 N. J.—Smith Cat.; Montreal—Chagnon; Fla.—Johnson; Beulah, N. M.—Skinner.
 var. **perimele** WIEDEMANN, Auss. Zw., I, 583.—Brazil.
 COQUILLET, Trans. Amer. Ent. Soc., XIV, 166.—Cal.
anna COQUILLET, Trans. Amer. Ent. Soc., XIV, 169; XIX, 180, notes.—Cal.
arenosa COQUILLET, Trans. Amer. Ent. Soc., XIX, 187.—N. M.
arethusa OSTEN SACKEN, Biologia, Dipt., I, 116, pl. II, f. 11.—N. Sonora, Mex., to Costa Rica; Col.

- WILLISTON, *Biologia*, Dipt., 1, 277, oc. in Col., N. M., and in Guerrero, Mex.
- arizonensis** COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 182.—Ariz.
- astarte** WIEDEMANN, *Auss. Zw.*, II, 637.—Mex.
OSTEN SACKEN, *Biologia*, Dipt., 1, 122, note.
WILLISTON, *Biologia*, Dipt., 1, 279.—Guerrero and Tabasco, Mex.
- atrata** COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 171.—Cal.
? WALKER, *Dipt. Saund.*, 190 (*cedens*).—U. S. [Coq., with a doubt.]
- bifenestrata** BIGOT, see *nugator*.
- bigradata** LOEW, *Cent.*, VIII, 37.—Cuba.
? MACQUART, *Dipt. Exot.*, *Suppl.*, IV, 113 (*alborittata*).—N. A.? [Coq., with a doubt; it is probably not North American.]
COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 174.—Cal.
Porto Rico—Roeder; Jamaica—Johnson.
- campestris** COQUILLET, see *Lepidanthrax*.
- caprea** COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 170.—Cal.
- castanea** JÄNNICKE, *Neue Exot. Dipt.*, 30, pl. II, f. 15.—Mex.
OSTEN SACKEN, *Biologia*, Dipt., 1, 127.—Guatemala.
- castanipes** BIGOT, *Annales*, 1892, 350.—N. A.
- catulina** COQUILLET, *Trans. Amer. Ent. Soc.*, XXI, 100.—Wash. and N. Cal.
Hudsonian Zone, N. M.—Cockerell; Beulah, N. M.—Skinner.
- cautor** COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 175.—Cal.
- cedens** WALKER, see *atrata*.
- celer** WIEDEMANN, *Auss. Zw.*, I, 310.—Ky.
MACQUART, *Dipt. Exot.*, II, I, 69; *Suppl.*, IV, 112, pl. x, f. 14 (the latter *floridana*).—Philadelphia; Fla. [Coq.]
COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 173.—Venezuela.
St. Augustine, Fla.—Johnson.
- ceria** WILLISTON, *Biologia*, Dipt., 1, 283.—Guerrero, Mex.
- ceyx** LOEW, *Cent.*, VIII, 30.—Va.
? WALKER, *List.*, II, 265 (*demogorgon*).—Fla. [O. S., with a doubt.]
MACQUART, *Dipt. Exot.*, II, I, 68 (*halcyon* SAY).—Car. [O. S.]
COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 181.—N. C.
Ga.—O. S. Cat.; N. J.—Smith Cat.
- chimæra** OSTEN SACKEN, *Biologia*, Dipt., 1, 131.—N. Sonora, Mex.
- cinefacta** COQUILLET, *Trans. Amer. Ent. Soc.*, XIX, 180.—San Diego Co., Cal.
- clelia** OSTEN SACKEN, *Biologia*, Dipt., 1, 95, pl. II, f. 3 (*Stonyr*).—N. Sonora, Mex.
COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 164 (*keenii*); XIX, 168, syn.—Ariz.
- clotho** WIEDEMANN, *Auss. Zw.*, II, 635.—Oaxaca, Mex.
OSTEN SACKEN, *Biologia*, Dipt., 1, 95, quotes orig. desc. (*Stonyr*).
WILLISTON, *Biologia*, Dipt., 1, 274, oc. in Morelos, Mex. (*Stonyr*).
- connexa** MACQUART, *Dipt. Exot.*, *Suppl.*, V, 76.—Baltimore, Md.
BIGOT, in Sagra's Cuba, 794.—Cuba.
Unrecognizable—O. S.
- consessor** COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 165.—Cal.
- consul** OSTEN SACKEN, *Biologia*, Dipt., 1, 125.—Guatemala.
COQUILLET, *Trans. Amer. Ent. Soc.*, XXI, 98, doubtful oc. in S. D.
WILLISTON, *Biologia*, Dipt., 1, 280, oc. in Guerrero, Mex.
- costata** SAY, *Long's Exped.*, App., 373; *Compl. Works*, I, 254.—N. W. Terr.
WIEDEMANN, *Auss. Zw.*, I, 314. See *inops*.

- crocina** COQUILLET, Trans. Amer. Ent. Soc., XIX, 183.—San Bernardino, Co., Cal.
- cuniculus** OSTEN SACKEN, Biologia, Dipt., I, 125, pl. II, f. 16.—N. Sonora, Mex.
- curta** LOEW, Cent., VIII, 35.—Cal.
COQUILLET, Trans. Amer. Ent. Soc., XIV, 172, transl. orig. desc.
WILLISTON, Biologia, Dipt., I, 281, oc. in N. Yucatan, etc.
- cyanoptera** WIEDEMANN, Auss. Zw., II, 638.—Mex.
OSTEN SACKEN, Biologia, Dipt., I, 115.—Mex.
WILLISTON, Biologia, Dipt., I, 276, oc. in Guerrero, Mex.
- delicatula** WALKER, List, II, 266.—Jamaica.
- diagonalis** LOEW, Cent., VIII, 33.—Cal.
- diana** WILLISTON, Biologia, Dipt., I, 280.—Guerrero, Mex.
- dispar** COQUILLET, Trans. Amer. Ent. Soc., XIV, 177.—Fla.
? BIGOT, Annales, 1892, 354 (*fissus*).—N. A. [Coq., with a doubt.]
St. Augustine, Fla.—Johnson.
- edititia** SAY, Jour. Acad. Sci. Phil., VI, 157; Compl. Works, II, 353.—No locality.
COQUILLET, Trans. Amer. Ent. Soc., XIV, 177 (*impiger*).—Ariz. [Will.]
OSTEN SACKEN, Biologia, Dipt., I, 119, pl. II, f. 13.—N. Sonora and Tehuacan, Mex.; Texas. May be same as *A. gorgon*.
WILLISTON, Biologia, Dipt., I, 278, oc. in Guerrero, Mex.; important notes.
- edwardsii** COQUILLET, Jour. N. Y. Ent. Soc., II, 102.—San Francisco, Cal., and Vancouver Id., Br. Col.
- effrena** COQUILLET, Trans. Amer. Ent. Soc., XIV, 182.—Ariz.
- ephebus** OSTEN SACKEN, Biologia, Dipt., I, 124.—Tehuacan, Mex.
- eudora** COQUILLET, Trans. Amer. Ent. Soc., XIV, 169.—Cal.
- eumenes** OSTEN SACKEN, Biologia, Dipt., I, 131, pl. II, f. 19.—N. Sonora, Mex.
Cal.—Coquillett.
- eurhinata** BIGOT, Annales, 1892, 355.—Mex.
- extremities** COQUILLET, Jour. N. Y. Ent. Soc., X, 138.—Chihuahua, Mex.
- faunus** FABRICIUS, Syst. Antl., 126.—W. I.
WIEDEMANN, Dipt. Exot., 139; Auss. Zw., I, 292.—S. A.
MACQUART, Dipt. Exot., II, I, 75, pl. XXI, f. 1.—Cuba.
COQUILLET, Trans. Amer. Ent. Soc., XIX, 187, oc. in Fla.
Porto Rico—Roeder; St. Augustine, Fla.—Johnson.
- faustina** OSTEN SACKEN, Biologia, Dipt., I, 136.—N. Sonora, Mex.
- fenestratoides** COQUILLET, Trans. Amer. Ent. Soc., XIX, 185.—San Bernardino Co., Cal.
Panamint Val., Cal.—Williston, Death Val. Exped.
- fissa** BIGOT, see *dispar*.
- flaviceps** LOEW, Cent., VIII, 29.—Tamaulipas, Mex.
- floridana** MACQUART, see *ccler*.
- fuliginosa** LOEW, Cent., VIII, 31.—Cal.
COQUILLET, Trans. Amer. Ent. Soc., XIV, 181, oc. in Cal. and Texas; *alpha* is probably the same.
- fulviana** SAY, Long's Exped., App., 372; Compl. Works, I, 253.—Pembina, Minn., etc.
WIEDEMANN, Auss. Zw., I, 290.
COQUILLET, Trans. Amer. Ent. Soc., XIV, 167.—N. M., Wash.
Montreal—Chagnon; Beulah, N. M.—Skinner.
- var. **nigricauda** LOEW, Cent., VIII, 38.—Mass.
COQUILLET, Trans. Amer. Ent. Soc., XIV, 167.—Canada.

- fulvicoma** COQUILLET, Trans. Amer. Ent. Soc., xiv, 176.—Cal., Kans., Mont.
Described as a var. of *edititia*, but as the latter was incorrectly identified (Will., Biol., I, 278), I let this stand as a species.
- fulvohirta** WIEDEMANN, Dipt. Exot., 149; Auss. Zw., I, 308.—Ga.
MEIGEN, Syst. Besch., II, 158, pl. XVII, f. II (*cybris*).—Europe, a mistake.
[Wied.]
MACQUART, Dipt. Exot., II, I, 69; Suppl., IV, 112, pl. X, f. 13 (the latter as *confacis*).—Carolina; Virginia. [O. S.]
WALKER, Dipt. Saund., 177 (*separata*).—N. A. [O. S.]
COQUILLET, Trans. Amer. Ent. Soc., xiv, 174.—N. J., Ga., Kans.
OSTEN SACKEN, Biologia, Dipt., I, 122, common in Texas.
WILLISTON, Biologia, Dipt., I, 280, oc. in Guerrero, Mex.
N. J.—Smith Cat.; Fla.—Johnson.
- fumida** COQUILLET, Trans. Amer. Ent. Soc., xiv, 177.—Cal.
- funebria** MACQUART, Dipt. Exot., II, I, 66, pl. XXI, f. 10.—San Domingo.
- fuscipennis** MACQUART, Hist. Nat. Dipt., I, 410.—N. A. Unrecognizable!
- galathea** OSTEN SACKEN, Biologia, Dipt., I, 123, pl. II, f. 15.—Costa Rica.
- gemella** COQUILLET, Trans. Amer. Ent. Soc., xix, 182.—San Diego Co., Cal.
- gorgon** FABRICIUS, Syst. Antl., 126.—West Indies.
WIEDEMANN, Auss. Zw., I, 303.—W. I.
OSTEN SACKEN, Biologia, Dipt., I, 110, *edititia* may be a synonym.
Porto Rico—Roeder and Coquillett.
- gracilis** MACQUART, Dipt. Exot., II, I, 76, pl. XXI, f. 1.—Philadelphia.
Unrecognizable—O. S.
- halcyon** SAY, Long's Exped., App., 371; Compl. Works, I, 252 (*alcyon*).—N. W. Terr.
WIEDEMANN, Auss. Zw., I, 288, pl. III, f. 6.
WILLISTON, Canad. Ent., 1879, XI, 216, notes.
VAN DER WULP, Tijdschr. v. Ent., xxv, 1882, 79, pl. IX, f. 1.—(Ariz.) May be *pacilogaster*.—O. S.
COQUILLET, Trans. Amer. Ent. Soc., xiv, 181.—Kans., Nebr.
MACQUART, see *cyr.*
- hircina** COQUILLET, Trans. Amer. Ent. Soc., xix, 182.—San Diego Co., Cal.
- hirsuta** WILLISTON, Biologia, Dipt., I, 279.—Guerrero, Mex.
- hypomelas** MACQUART, Dipt. Exot., II, I, 76, pl. XXI, f. 1.—N. A.
VAN DER WULP, Tijdschr. v. Ent., xxv, 84, 1882, oc. Ariz.; Notes from the Leyden Mus., IV, 75, notes.
COQUILLET, Trans. Amer. Ent. Soc., xiv, 166; xix, 160.—Can., Pa., Wis.
RILEY and HOWARD, Insect Life, II, 353, record rearing from *Agrotis herilis* by Webster, giving figs. of larva, adult, etc.—Ind.
N. J.—Smith Cat.; Montreal—Chagnon; Beulah, N. M.—Skinner.
- impiger** COQUILLET, see *edititia*.
- inaurata** COQUILLET, see *Lepidanthrax*.
- inculta** COQUILLET, Trans. Amer. Ent. Soc., xix, 181.—San Bernardino Co., Cal.
- inops** COQUILLET, Trans. Amer. Ent. Soc., xiv, 169.—Cal. May be same as *costata*.
- keenii** COQUILLET, see *clelia*.
- lacera** WIEDEMANN, Auss. Zw., II, 633.—Oaxaca, Mex.
WILLISTON, Biologia, Dipt., I, 274, oc. in Guerrero, Mex. (*Stonyr*).
- lacunaris** COQUILLET, Trans. Amer. Ent. Soc., xix, 185.—San Bernardino Co., Cal.

- latelimbata** BIGOT, Annales, 1892, 351 (*Hemipenthes*).—Carolina. St. Augustine, Fla.—Johnson (*Argyamaba*).
- lateralis** SAY, Jour. Acad. Sci. Phil., III, 42; Compl. Works, II, 59.—Pa. and Md. WIEDEMANN, Auss. Zw., I, 318. MACQUART, Dipt. Exot., II, 1, 60 (*bastardi*).—N. A. [O. S.] OSTEN SACKEN, Biologia, Dipt., I, 137.—White Mts., N. H. COQUILLET, Trans. Amer. Ent. Soc., XIV, 166; XIX, 169.—N. J., Fla., Canada, Wash. WILLISTON, Biologia, Dipt., I, 283, oc. in Guerrero, Mex. Jamaica—Johnson.
- var. **fulvipes** COQUILLET, Trans. Amer. Ent. Soc., XIV, 166; XIX, 178, note.—Ariz.
- lauta** COQUILLET, see *Lepidanthrax*.
- lelia** WILLISTON, Biologia, Dipt., I, 274, pl. v, f. 1 (*Stonyr*).—Guerrero, Mex.
- lepidota** OSTEN SACKEN, Biologia, Dipt., I, 130, pl. II, f. 18.—N. Sonora, Mex. COQUILLET, Trans. Amer. Ent. Soc., XIX, 185, oc. in Cal. WILLISTON, Biologia, Dipt., I, 281, note.
- leucothoa** WIEDEMANN, Auss. Zw., II, 638.—Mex. WILLISTON, Biologia, Dipt., I, 279.—Guerrero, Mex.
- levicula** COQUILLET, Trans. Amer. Ent. Soc., XXI, 99.—S. Cal.
- livia** OSTEN SACKEN, Biologia, Dipt., I, 139, pl. III, f. 2.—N. Sonora, Mex.
- lucifer** FABRICIUS, Mantissa Ins., II, 329 (*Bibio*); Syst. Antl., 126.—West Indies. WIEDEMANN, Dipt. Exot., 142; Auss. Zw., I, 294.—W. I. BIGOT, in Sagra's Cuba, 794. WALKER, Dipt. Saund., 184 (*fumiflamma*).—Jamaica. OSTEN SACKEN, Biologia, Dipt., I, 116.—Cuantla, Mex. COQUILLET, Trans. Amer. Ent. Soc., XIV, 180.—Cal., La. WILLISTON, Biologia, Dipt., I, 277, oc. in Atoyac, Mex. Porto Rico—Roeder; Jamaica and Fla.—Johnson.
- maria** WILLISTON, Biologia, Dipt., I, 283.—Guerrero, Mex.
- melasoma** VAN DER WULP, Tijdschr. v. Ent., XXV, 80, pl. IX, f. 2.—Ariz. OSTEN SACKEN, Biologia, Dipt., I, 140.
- melia** WILLISTON, Biologia, Dipt., I, 274, pl. v, f. 1, 1a (*Stonyr*).—Rio Papagaio and Acapulco, Mex.
- mercedis** COQUILLET, Trans. Amer. Ent. Soc., XIV, 166.—Cal.
- mira** COQUILLET, Trans. Amer. Ent. Soc., XIV, 179; XIX, 180, note.—Cal. St. Augustine, Fla.—Johnson.
- miscella** COQUILLET, Trans. Amer. Ent. Soc., XIV, 171.—Wash., Cal.
- mobilis** COQUILLET, Trans. Amer. Ent. Soc., XXI, 100.—S. Cal.
- molitor** LOEW, Cent., VIII, 42.—Cal. COQUILLET, Trans. Amer. Ent. Soc., XIV, 168.—Cal., Ariz. RILEY and HOWARD, Insect Life, II, 353, reared by Coquillett from noctuid pupæ, perhaps *Taniocampa rufula* Grote.
- moneta** OSTEN SACKEN, Biologia, Dipt., I, 138.—N. Sonora, Mex.
- morio** LINNÉ, Fauna Suecica, 1785 (*Musca*).—Europe. MEIGEN, Syst. Besch., II, 157, pl. XVII, f. 14 (*semiatra*). SAY, Jour. Acad. Sci. Phil., III, 42; Compl. Works, II, 58 (*morioides*).—Merrimac R., in Mo. [Coq.] WIEDEMANN, Auss. Zw., I, 309 (id.). SCHINER, Fauna Austr., I, 49. ? LOEW, Cent., VIII, 44 (*Hemipenthes seminigra*).—Saskatchewan R., Canada. [O. S., probably same as *morioides*.]

- COQUILLET, Trans. Amer. Ent. Soc., XXI, 98, oc. in Me., N. H., and Mont.; compared with European specimens.
Suwanee, Fla.—Johnson.
- mucorea** LOEW, Cent., VIII, 43.—Nebr.
OSTEN SACKEN, Biologia, Dipt., I, 139, note.
- muscaria** COQUILLET, Trans. Amer. Ent. Soc., XIX, 178.—S. Cal.; referred to *mucorea* LOEW in Coquillett's earlier paper, XIV, 167.
- nebulo** COQUILLET, Trans. Amer. Ent. Soc., XIV, 165.—Wash.
- nebulosa** COQUILLET, Trans. Amer. Ent. Soc., XXI, 99.—S. Cal.
- nero** FABRICIUS, Syst. Antl., 127.—W. I.
WIEDEMANN, Dipt. Exot., 149; Auss. Zw., I, 316.—W. I.
- nigrofimbriata** WILLISTON, Biologia, Dipt., I, 282.—Guerrero, Mex.
- nudiuscula** THOMSON, Eugénies Resa, 482.—Panama.
- nugator** COQUILLET, Trans. Amer. Ent. Soc., XIV, 178; XIX, 180, note.—Cal.
? BIGOT, Annales, 1892 (*bifenestratus*).—Cal. [Coq., with a doubt.]
var. **pallida** COQUILLET, Trans. Amer. Ent. Soc., XIV, 179.—Cal., Ariz.
- obscura** COQUILLET, Trans. Amer. Ent. Soc., XXI, 99.—S. Cal.
- orbitalis** WILLISTON, Biologia, Dipt., I, 281, pl. v, f. 4.—Guerrero, Tabasco, and Jalisco, Mex.
- otiosa** COQUILLET, see *selene*.
- palliata** LOEW, Cent., VIII, 32.—Ill.
? WALKER, Dipt. Saund., 187 (*incisa*).—N. A. [O. S., with a doubt.]
COQUILLET, Trans. Amer. Ent. Soc., XIV, 176.—Ill., Nebr.
OSTEN SACKEN, Biologia, Dipt., I, 126, transl. orig. desc., etc.
WILLISTON, Biologia, Dipt., I, 281, oc. in Guerrero, Mex., and notes.
- pallidula** COQUILLET, Trans. Amer. Ent. Soc., XXI, 99.—S. Cal.
- paradoxa** JENNICKE, Neue Exot. Dipt., 31, pl. II, f. 16.—Mex.
VAN DER WULP, Tijdschr. v. Ent., XXI, 189, refers to *Diplocampta* SCHINER.
OSTEN SACKEN, West. Dipt., 237; Biologia, Dipt., I, 120.—Texas, Mex., Porto Rico.
WILLISTON, Biologia, Dipt., I, 278, oc. in Guerrero, Mex., and important notes. Porto Rico—Roeder.
- parvicornis** LOEW, Cent., VIII, 36.—Ill.
OSTEN SACKEN, Biologia, Dipt., I, 128, notes.
COQUILLET, Trans. Amer. Ent. Soc., XIV, 178.—La.
- perplexa** COQUILLET, Trans. Amer. Ent. Soc., XIV, 176.—Cal.
- pertusa** LOEW, Cent., VIII, 28.—N. M.
COQUILLET, Trans. Amer. Ent. Soc., XIV, 179, transl. orig. desc.; XXI, 97, corrects errors in orig. desc.
- plagosa** COQUILLET, see *rex*.
- pleuralis** WILLISTON, Biologia, Dipt., I, 282, pl. v, f. 5.—Guerrero, Mex.
- pluricella** WILLISTON, Biologia, Dipt., I, 277, pl. v, f. 3.—Vera Cruz, Mex.
- pæcilogaster** OSTEN SACKEN, Biologia, Dipt., I, 118, pl. II, f. 12.—N. Sonora and Tehuacan, Mex.; Cal.
VAN DER WULP, see *halcyon*.
- pretiosa** COQUILLET, Trans. Amer. Ent. Soc., XIV, 168; XIX, 169, 179.—Cal.
- proboscidea** LOEW, see *Lepidanthrax*.
- pullata** COQUILLET, Trans. Amer. Ent. Soc., XXI, 98.—S. Cal.
- pusio** MACQUART, Dipt. Exot., II, 1, 76, pl. XXI, f. 1.—Cuba.
BIGOT, in Sagra's Cuba, 794.
- quinquepunctata** THOMSON, Eugénies Resa, 484.—Panama.
- rex** OSTEN SACKEN, Biologia, Dipt., I, pl. II, f. 17.—N. Sonora, Mex.
COQUILLET, Trans. Amer. Ent. Soc., XIV, 178 (*plagosa*).—Ariz. [Coq.]

- sabina* OSTEN SACKEN, *Biologia*, Dipt., 1, 137.—N. Sonora, Mex.
- sabulosa* COQUILLET, *Trans. Amer. Ent. Soc.*, XIX, 186.—San Bernardino Co., Cal.; N. M.
- sackeniana* WILLISTON, *Biologia*, Dipt., 1, 276 (*Isopenthes*).—Guerrero, Mex.
- sagata* LOEW, *Cent.*, VIII, 34.—Metamoras, Mex.
- scitula* COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 172.—Cal.
- scrobiculata* LOEW, see *alternata*.
- scylla* OSTEN SACKEN, *Biologia*, Dipt., 1, 132, pl. III, f. 1.—N. Sonora, Mex.
- selene* OSTEN SACKEN, *Biologia*, Dipt., 1, 122, pl. II, f. 14.—N. Sonora, Mex.
COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 182 (*otiosa*).—Ariz. [Coq.]
- seminigra* LOEW, see *morio*.
- sinuosa* WIEDEMANN, *Dipt. Exot.*, 147; *Auss. Zw.*, I, 301.—Ga.
MACQUART, *Dipt. Exot.*, II, 1, 67 (*nycthemera* HOFFMANNSEGG); 68 (*con-*
cisa); *Suppl.*, I, 114 (*assimilis*).—Ga.; Car.; Galveston, Texas. [O. S.]
OSTEN SACKEN, *Biologia*, Dipt., 1, 133.—N. Sonora, Mex.; Texas.
COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 159 (*Hemipenthes*), ref.
N. J.—Smith Cat.; St. Augustine, Fla.—Johnson; Beulah, N. M.—Skinner.
- squamigera* COQUILLET, *Trans. Amer. Ent. Soc.*, XIX, 181.—San Diego Co., Cal.
- stenozona* LOEW, see *alternata*.
- supina* COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 169.—Cal.
- syrtis* COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 173.—Cal.
COCKERELL, *Jour. N. Y. Ent. Soc.*, VI, 206, oc. at Agency, N. M.
- tantilla* COQUILLET, *Trans. Amer. Ent. Soc.*, XIX, 184.—San Diego Co., Cal.
- tegminipennis* SAY, *Long's Exped.*, App., 371; *Compl. Works*, I, 253.—N. W. Terr.
WIEDEMANN, *Auss. Zw.*, I, 289.
COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 180.—Me., Mont., Ariz., Canada.
N. J.—Smith Cat.; Montreal—Chagnon; Fla., Johnson.
var. *sackenii* COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 180.—Ariz., Col.
- telluris* COQUILLET, *Trans. Amer. Ent. Soc.*, XIX, 182.—Los Angeles Co., Cal.
- terrena* COQUILLET, *Trans. Amer. Ent. Soc.*, XIX, 181.—Los Angeles and Kern Cos., Cal.
- translata* WALKER, *Dipt. Saund.*, 182.—West Indies.
- trifigurata* WALKER, *Trans. Ent. Soc.*, V, 285.—Hayti.
- trimacula* WALKER, *List*, II, 250.—Jamaica.
OSTEN SACKEN, *Catalogue*, 237, note (*Exoprosopa*).
JOHNSON, *Proc. Acad. Nat. Sci. Phil.*, 1894, 274, gen. ref.; recognized from Jamaica.
- turbata* COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 168.—Cal.
- vacans* COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 168; XIX, 169, 179.—Wash.
- vana* COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 173; XIX, 180, notes.—Cal.
- variata* COQUILLET, *Trans. Amer. Ent. Soc.*, XIX, 184.—Los Angeles and Kern Cos., Cal.
- vasta* COQUILLET, *Trans. Amer. Ent. Soc.*, XIX, 184.—San Diego Co., Cal.
- vestita* WALKER, *List*, II, 258.—Nova Scotia.
- vigilans* COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 176; XIX, 18, placed as a syn. of *edititia*.—Kans., Col., Mont.
WILLISTON, *Biologia*, Dipt., 1, 278, not the same as *edititia*.
- vulpina* COQUILLET, *Trans. Amer. Ent. Soc.*, XIX, 183.—San Bernardino Co., Cal.
- willistonii* COQUILLET, *Trans. Amer. Ent. Soc.*, XIV, 181.—Cal., N. M., Col.
WILLISTON, *Canad. Ent.*, XI, 216 (n. sp. near *fuliginosa*).—Col. [Coq.]

PANTARBES.

- OSTEN SACKEN, West. Dipt., 254, 1877; Biologia, Dipt., I, 151, 1886.
capito OSTEN SACKEN, West. Dipt., 256.—Sonoma Co., Cal.
 Argus Mts., Cal.—Riley.
pusio OSTEN SACKEN, Biologia, Dipt., I, 153, pl. III, f. 15a-d.—N. Sonora, Mex.
willistoni OSTEN SACKEN, Biologia, Dipt., I, 153.—Ariz.

TRIPLASIUS.

- LOEW, Neue Beiträge, III, 7, 1855.
 WILLISTON, Dipt. of Death Val. Exped., 255, 1893.
novus WILLISTON, op. cit., 254.—Panamint Val., Cal.

ANISOTAMIA.

- MACQUART, Dipt. Exot., Suppl., III, 115, 1850.
 WILLISTON, Biologia, Dipt., I, 284, 1901.
fasciata WILLISTON, Biologia, Dipt., I, 284, pl. v, f. 6.—Jalisco, Mex.
valida WIEDEMANN, Auss. Zw., II, 636 (*Anthrax*).—Mex.
 MACQUART, Dipt. Exot., Suppl. IV, 114, pl. XI, f. 2 (*cximia*).—Mex.
 ROEDER, Wien. Ent. Zeit., v, 264 (*Oncodocera*).
 OSTEN SACKEN, Biologia, Dipt., I, 141, 142 (*Oncodocera*).—Guatemala.
 COQUILLET, Canad. Ent., XVIII, 87, transl. orig. desc.
 WILLISTON, Biologia, Dipt., I, 284, oc. in Guerrero and Yucatan, Mex.

BOMBYLIUS.

- LINNÉ, Fauna Suecica, 1918, 1761.
 LETREILLE, Hist. Nat. Crust. et Ins., III, 429, 1802; XIV, 298, 1804.
 FABRICIUS, Syst. Antl., 128, 1805.
 MEIGEN, Syst. Besch., II, 141, 1820.
 MACQUART, Hist. Nat. Dipt., I, 377, 1834.
 SCHINER, Fauna Austr., I, 58, 1862.
 OSTEN SACKEN, West. Dipt., 247, 1877, table of species.
æqualis FABRICIUS, Mantissa Ins., II, 365; Syst. Antl., 128.—N. A.
 OSTEN SACKEN, Cat., 238, note 158; is unrecognizable, etc.
albicapillus LOEW, Cent., x, 42.—Cal.
 OSTEN SACKEN, West. Dipt., 249, oc. in Marin and Sonoma Cos., and Yosemite Val., Cal. Quebec—Wulp.
albopenicillatus BIGOT, Annales, 1892, 363.—Mex.
 WILLISTON, Biologia, Dipt., I, 286.—Guerrero, Mex.
atriceps LOEW, Cent., IV, 49.—Fla., Va.
 MACQUART, Dipt. Exot. Suppl., v, 82 (*fulvibasis*); see O. S. Cat., note 159, p. 238.
 N. J.—Smith Cat.; Fla., several places—Johnson; N. Y., Conn.—O. S. Cat.
aurifer OSTEN SACKEN, West. Dipt., 249.—Webber L., Cal.
bicolor LOEW, Wien. Ent. Monatsch., v, 34.—Cuba.
cachinnans OSTEN SACKEN, West. Dipt., 250.—Sonoma Co., Cal.
cinereus BIGOT, Annales, 1892, 364.—Cal.
clio WILLISTON, Biologia, Dipt., I, 286.—Guerrero, Mex.
coquilletti WILLISTON, see *atcr*, at end of this genus.
dolorosus WILLISTON, Biologia, Dipt., I, 286, pl. v, f. 8.—Guerrero, Mex.
hæmorrhœicus LOEW, Cent., IV, 46.—Cuba.
helvus WIEDEMANN, Dipt. Exot., 164; Auss. Zw., I, 336.—Mex.
io WILLISTON, Biologia, Dipt., I, 285, pl. v, f. 7.—Guerrero, Mex.

- lancifer** OSTEN SACKEN, West. Dipt., 251.—San Francisco and Yosemite Val., Cal. N. J.—Smith Cat.; Fla.—Johnson.
- laticeps** BIGOT, Annales, 1892, 363.—Cal.
- major** LINNÉ, Fauna Suecica, 1918, 1761; Syst. Nat., 12th ed., II, 1009.—Europe. FABRICIUS, Spec. Ins., II, 472; Ent. Syst., IV, 407; Syst. Antl., 128. GMELIN, Syst. Nat., V, 2902. DEGEER, Mém. pour Serv. Hist. Nat. Ins., VI, 107, pl. XV, f. 10 (*variegatus*). MIKAN, Monogr. Bombyl. Bohemiæ, 35, pl. II, f. 4 (*sinuatus*). MEIGEN, Klassifikation, 179 (*sinuatus*); Syst. Besch., II, 144, with extensive bibliography. MACQUART, Hist. Nat. Dipt., I, 377. ZETTERSTEDT, Dipt. Scand., I, 188. SCHLINER, Fauna Austr., I, 60. WIEDEMANN, AUSS. ZW., I, 583 (*fratellus*).—Ga. MACQUART, Dipt. Exot., II, I, 98 (*vicinus*); Suppl., V, 82, pl. IV, f. 10 (*albipectus*).—Philadelphia; Baltimore. KIRBY, Fauna Boreali-Amer., Ins., 312 (*major*); reproduced in Canad. Ent., XIII, 166.—Northern N. A. LOEW, Neue Beiträge, III, 14, notes. HARRIS, Ins. Inj. Vegetation, 3d ed., 606, f. 263 (*aqualis*, preoc.). OSTEN SACKEN, West. Dipt., 248, oc. Cal.; relation of *fratellus* and *Bombylus* discussed, but not settled. COQUILLET, Trans. Amer. Ent. Soc., XXI, 110, 1894, syn. of *fratellus*.—U. S. generally.
- metopium** OSTEN SACKEN, West. Dipt., 249.—Marin Co., Cal.
- mexicanus** WIEDEMANN, Dipt. Exot., 166; AUSS. ZW., I, 338.—Mexico, and Savannah, Ga. MACQUART, Dipt. Exot., II, I, 99, pl. VI, f. 3 and VII, f. 3 (*philadelphicus*).—Philadelphia. [Loew, in O. S. Cat.] N. J.—Smith Cat. (*philadelphicus*); Fla.—Johnson; Middle and S. States.—O. S.
- plumipes** DRURY, Illustr. of Nat. Hist., II, pl. XXXIX, f. 3.—Jamaica. WIEDEMANN, AUSS. ZW., I, 351, describes from the plate.
- pulchellus** LOEW, Cent., IV, 47.—Ill. N. J.—Smith Cat.
- pygmæus** FABRICIUS, Mantissa Ins., II, 367; Ent. Syst., IV, 411; Syst. Antl., 135.—N. A. OLIVIER, Encycl. Méth., I, 328. LAMARCK, Anim. sans vert., III, 407. WIEDEMANN, AUSS. ZW., I, 351. KIRBY, Fauna Boreali-Amer., Ins., 312; reproduced in Canad. Ent., XIII, 166.—Northern N. A. Atlantic States and Br. Amer.; Va.—O. S. Cat. Montreal—Chagnon; Fla.—Johnson.
- ravus** LOEW, Cent., IV, 50.—Matamoras, Mex.
- recurvus** COQUILLET, Proc. U. S. N. M., XXV, 100.—San Bernardino and San Diego Cos., Cal.
- semirufus** LOEW, Cent., X, 41.—San Domingo.
- syndesmus** COQUILLET, see below.
- validus** LOEW, Cent., IV, 48.—Ill., Va. N. Y., Ga.—O. S. Montreal—Chagnon.
- varius** FABRICIUS, Syst. Antl., 132.—N. A. WIEDEMANN, Dipt. Exot., 163; AUSS. ZW., I, 335.—N. A.

LOEW, Neue Beiträge, III, 29, notes.

Middle States—O. S.; N. J.—Smith Cat.; Fla.—Johnson.

ater COQUILLET, Trans. Amer. Ent. Soc., XXI, 108 (*Thlipsogaster*).—La.

WILLISTON, Psyche, VIII, 331, refers to *Bombylius*, and changes name to *coquilletti* on account of preoccupation; oc. in Mex.; Biologia, Dipt., I, 286, oc. in Guerrero, Mex.

syndesmus COQUILLET, Trans. Amer. Ent. Soc., XXI, 108 (*Thlipsogaster*).—S. Cal.

WILLISTON, Psyche, VIII, 331, oc. in Kans. (*Bombylius*).

Note.—As Mr. Coquillett assures me very positively that the two preceding species do not belong to *Bombylius*, while apparently also admitting that they differ from *Thlipsogaster*, I am compelled to place them provisionally as an appendix to *Bombylius*.

HETEROSTYLUM.

MACQUART, Dipt. Exot., Suppl. III, 35, 1848.

OSTEN SACKEN, West. Dipt., 256, 1877 (*Comastes*); Biologia, Dipt., I, 151, 1886 (id.).

ferrugineum FABRICIUS, Syst. Antl., 132 (*Bombylius*).—West Indies.

WIEDEMANN, Auss. Zw., I, 334 (id.).—West Indies? and Brazil.

OSTEN SACKEN, Cat., 238, oc. at St. Thomas, and gen. ref. (*Comastes*).

pallipes BIGOT, Annales, 1892, 361.—Hayti.

robustum OSTEN SACKEN, West. Dipt., 256 (*Comastes*).—Texas, Mexico.

rufum OLIVIER, Encycl. Méth., I, 327 (*Bombylius*).—West Indies.

WIEDEMANN, Zool. Mag., III, 46; Dipt. Exot., 164; Auss. Zw., I, 335 (all *Bombylius basilaris*).—Brazil.

LOEW, Neue Beitr., III, 29, syn., etc. (*Comastes*).

sackeni WILLISTON, Dipt. of Death Val. Exped., 255 (*Comastes*).—Argus Mts., Cal.

ANASTÆCHUS.

OSTEN SACKEN, West. Dipt., 251, 1877.

nitidulus FABRICIUS, Ent. Syst., IV, 409; Syst. Antl., 132 (*Bombylius*).—Europe.

MEIGEN, Klassifikation, 189; Syst. Besch., II, 154 (id.).

SCHINER, Fauna Austr., I, 63 (*Systæchus*).

OSTEN SACKEN, West. Dipt., 252 (*barbatus*).—Cheyenne, Wyo.; Cal.; Col.; Mass.

COQUILLET, Trans. Amer. Ent. Soc., XXI, 110, syn. of *barbatus*—compared with European specimens.

Beulah, N. M.—Skinner (*barbatus*).

SYSTÆCHUS.

LOEW, Neue Beitr., III, 34, 1855.

OSTEN SACKEN, West. Dipt., 250, 1877.

RILEY, 9th Mo. Report, 96, undet. larva in egg-masses of the Rocky Mountain Locust; figured, etc.

candidulus LOEW, Cent., IV, 51.—Wis.

OSTEN SACKEN, West. Dipt., 253.—Ill. and Kans.

oreas OSTEN SACKEN, West. Dipt., 254.—Webber L., Cal.

RILEY, PACKARD and THOMAS, 2d Rept. of the U. S. Entom. Commission, 266, larvæ in egg-pods of locusts; col. figs., etc.—West. Mississippi Val. vulgaris LOEW, Cent., IV, 52.—Nebr.

OSTEN SACKEN, West. Dipt., 253.—Col., Utah, N. Y.
N. J.—Smith Cat.; Montreal—Chagnon.

AMPHICOSMUS.

COQUILLET, West. Amer. Scientist, 1891, 219.

cincturus WILLISTON, Biologia, Dipt., I, 296, pl. v, f. 11, 11a.—Guerrero, Mex.
elegans COQUILLET, West. Amer. Scientist, 1891, 220.—Cal.

EXEPACMUS.

COQUILLET, Trans. Amer. Ent. Soc., XXI, 101, 1894.

johnsoni COQUILLET, Trans. Amer. Ent. Soc., XXI, 101.—Cal.

PLOAS.

LATREILLE, Dist. d'Hist. Nat., XXIV, 1804; Hist. Nat. Crust. et Ins., XIV, 299, 1804.

MEIGEN, Illig. Mag., II, 268, 1803 (*Conophorus*); Syst. Besch., II, 174, 1820.

SCHINER, Fauna Austr., I, 65, 1862 (states in footnote that *Ploas* was used by Latreille before 1803; I can find no indication of an earlier date than 1804).

OSTEN SACKEN, West. Dipt., 300, 1877, table of species.

COQUILLET, Trans. Amer. Ent. Soc., XXI, 101, 1894, table of species.

amabilis OSTEN SACKEN, West. Dipt., 261.—Yosemite Val., Cal.

atratala LOEW, Cent., X, 44.—Cal.

fenestrata OSTEN SACKEN, West. Dipt., 260.—Sonoma Co., Crafton, and San Rafael, Cal. Death Val., Cal.—Riley.

limbata LOEW, Cent., VIII, 51.—N. M.

melanocerata BIGOT, Annales, 1892, 361 (*Conophorus*).—Cal.

nigripennis LOEW, Cent., X, 45.—Cal.

obesula LOEW, Cent., X, 46.—Cal.

pictipennis MACQUART, Dipt. Exot., II, I, 107, pl. IX, f. 3.—Carolina.

rufula OSTEN SACKEN, West. Dipt., 261.—San Geronimo, Cal.

serrata COQUILLET, Trans. Amer. Ent. Soc., XXI, 102.—S. Cal.

GEMINARIA.

COQUILLET, Trans. Amer. Ent. Soc., XXI, 109, 1894.

pellucida COQUILLET, op. cit., 109.—S. Cal.

LORDOTUS.

LOEW, Cent., IV, 53, 1863.

COQUILLET, Entomologica Amer., III, 115, 1888, table of species; West Amer. Scientist, 1891, 197, table of species; Trans. Amer. Ent. Soc., XXI, 109, table of species, 1894.

OSTEN SACKEN, Biologia, Dipt., I, 154, 1886.

apicula COQUILLET, Entomol. Amer., III, 116.—Cal.

buceros COQUILLET, Trans. Amer. Ent. Soc., XXI, 110.—S. Cal.

canalis COQUILLET, Entom. Amer., III, 115.—Cal.

- diversus** COQUILLET, West Amer. Scientist, 1891, 198.—Cal.
 COCKERELL, Jour. N. Y. Ent. Soc., vi, 206. oc. at Agency, N. M.
- gibbus** LOEW, Cent., iv, 53.—Matamoros, Mex.
 JENNICKE, Neue Exot. Dipt., 39 (*Adelidca flava*).—Mex. [O. S.]
 OSTEN SACKEN, West. Dipt., 258; Biologia, Dipt., i, 154, notes.—West. States; N. Sonora and Tehuacan, Mex.
 WILLISTON, Biologia, Dipt., i, 288, notes.
- juncus** COQUILLET, West Amer. Scientist, 1891, 198.—Cal.
- miscellus** COQUILLET, Entom. Amer., iii, 116.—Cal.
- ? **planus** OSTEN SACKEN, West. Dipt., 258.—Marin Co., Cal. Query by O. S.
- puella** WILLISTON, Kans. Univ. Quart., ii, 64.—Cal.
- pulcherrimus** WILLISTON, Kans. Univ. Quart., ii, 64.—Nev.
- sororcula** WILLISTON, Dipt. of Death Valley Exped., 255.—Coso Val. and Kern Co., Cal.
- zona** COQUILLET, Entom. Amer., iii, 116.—Cal.

ONCODOCERA.

- MACQUART, Dipt. Exot., ii, 1, 83, 1840 (*Ogcodocera*).
 COQUILLET, Canad. Ent., xviii, table of species, 1886.
 OSTEN SACKEN, Biologia, Dipt., i, 141, 1886.
 WILLISTON, Biologia, Dipt., i, 284, 1901, amends to exclude *valida*.
- analis** WILLISTON, Biologia, Dipt., i, 283.—Guerrero, Mex.
- leucoprocta** WIEDEMANN, Auss. Zw., i, 330 (*Mulio*); ii, 639 (*Anthrax terminatis*).—No locality; Mex. [O. S.]
 MACQUART, Dipt. Exot., ii, 1, 84, pl. xv, f. 1 (*Ogcodocera dimidiata*).—N. A. [O. S.]
 COQUILLET, Canad. Ent., xviii, 87.—N. C., Fla.
 ROEDER, Wien. Ent. Zeit., v, 263.
 OSTEN SACKEN, Biologia, Dipt., i, 142. oc. in S. States and Mex.
 N. J.—Smith Cat.; Suwanee, Fla.—Johnson.
- valida** WIEDEMANN, see *Anisotamia*.

ACREOTRICHUS.

- MACQUART, Dipt. Exot., Suppl., iv, 121, 1849.
 COQUILLET, Psyche, Aug., 1895, 272
- americanus** COQUILLET, Psyche, Aug., 1895, 273.—Wash.

PHTHIRIA.

- MEIGEN, Illig. Mag., ii, 268, 1803; Syst. Besch., ii, 165, 1820.
 MACQUART, Hist. Nat. Dipt., i, 392, 1834; Dipt. Exot., ii, 1, 114, 1840 (*Cyclorhynchus*). [Will.]
 SCHINER, Fauna Austr., i, 66, 1862.
 JENNICKE, Neue Exot. Dipt., 43, 1867 (*Pacilogathus*). O. S.
 COQUILLET, Trans. Amer. Ent. Soc., xxi, 102, table of species.
 WILLISTON, Biologia, Dipt., i, 288, 1901, table of C. A. species; doubts distinctness of *Acreotrichus*.
- albida** WIEDEMANN, Auss. Zw., i, 356.—Brazil.
 MACQUART, Dipt. Exot., ii, 1, 115.—Brazil.
 WILLISTON, Biologia, Dipt., i, 290.—Guerrero, Mex.
- aldrichi** JOHNSON, Psyche, 1903, 184.—Caldwell, Ida.
- alterans** WILLISTON, Biologia, Dipt., i, 291.—Guerrero, Mex.
- cingulata** LOEW, Linnaea Ent., i, 383.—Oaxaca, Mex.

- OSTEN SACKEN, *Biologia*, Dipt., 1, 156, quotes orig. desc.
 ? WILLISTON, *Biologia*, Dipt., 1, 290, doubtful oc. in Guerrero, Mex.
- consors** OSTEN SACKEN, *Biologia*, Dipt., 1, 155.—Durango, Mex.
 WILLISTON, *Biologia*, Dipt., 1, 289, oc. in Magdalena Mts., N. M. and notes.
- coquilletti** JOHNSON, *Canad. Ent.*, 1902, 240.—Jamesburg and Riverton, N. J.
- cyaniceps** JOHNSON, *Psyche*, 1903, 184.—Colhasset, Mass.
- diversa** COQUILLET, *Trans. Amer. Ent. Soc.*, XXI, 103.—S. Cal.
 COCKERELL, *Jour. N. Y. Ent. Soc.*, VI, 206, oc. at Agency, N. M.
- dolorosa** WILLISTON, *Biologia*, Dipt., 1, 290.—Guerrero, Mex.
- egerminans** LOEW, *Cent.*, X, 47.—Cal.
- floralis** COQUILLET, *Trans. Amer. Ent. Soc.*, XXI, 103.—S. Cal.
- humilis** OSTEN SACKEN, *West. Dipt.*, 264.—Sonoma Co., Cal.
 COQUILLET, *Trans. Amer. Ent. Soc.*, XXI, 104, desc. of female; no locality.
- notata** LOEW, *Cent.*, III, 19.—Cal.
- pulchella** WILLISTON, *Biologia*, Dipt., 1, 289.—Guerrero, Mex.
- punctipennis** WALKER, *List*, II, 294.—Ga.
 St. Augustine, Fla.—Johnson.
- quinquenotata** JOHNSON, *Psyche*, 1903, 185.—Grand Junction, Utah.
- similis** COQUILLET, *Trans. Amer. Ent. Soc.*, XXI, 103.—S. Cal.
 WILLISTON, *Biologia*, Dipt., 1, 289, note.
- scolopax** OSTEN SACKEN, *West. Dipt.*, 263.—Manitou, Col.
- sororia** WILLISTON, *Biologia*, Dipt., 1, 291.—Guerrero, Mex.
- sulphurea** LOEW, *Cent.*, II, 18.—N. J.
 OSTEN SACKEN, *West. Dipt.*, 262.—Tex., Col., Ill.
 COCKERELL, *Psyche*, Jan., 1895, 188.—N. M.
 Fla., several places—Johnson.
- thlipsomyzoides** JENNICKE, *Neue Exot. Dipt.*, 43, pl. 1, f. 11 (*Pacilognathus*).—Mex.
 WILLISTON, *Biologia*, Dipt., 1, 291.—Guerrero, Mex.

LEPIDOPHORA.

- WESTWOOD, *London and Edinb. Philos. Mag.*, 1835.
- OSTEN SACKEN, *Biologia*, Dipt., 1, 160, table of known species.
- ægeriiformis** WESTWOOD, *London and Edinb. Philos. Mag.*, 1835, VI, 447.
 MACQUART, *Dipt. Exot.*, Suppl., 1, 115, pl. x, f. 1.—Ga.
 GRAY, in Griffith's *Animal Kingdom*, XV, Ins. 2, 779, pl. CXXVI, f. 6 (*Ploas*).
 Ga., Ill., Kans.—O. S. Cat.; N. J.—Smith Cat.; Georgiana, Fla.—Johnson.
- appendiculata** MACQUART, *Dipt. Exot.*, Suppl. I, 118, pl. XX, f. 4 (*Toxophora*).—Galveston, Tex.; may be the male of Wiedemann's *Toxophora lepidocera* (*Auss. Zw.*, 1, 360, pl. v, f. 4; no locality).
- ? **vetusta** WALKER, *Trans. Ent. Soc. Lond.*, 1857, 145.—Brazil.
 ? OSTEN SACKEN, *Biologia*, Dipt., 1, 160, doubtfully rec. from Mex. and Guat.
 ? WILLISTON, *Biologia*, Dipt., 1, 294, same species in Vera Cruz.

SPARNOPOLIUS.

- LOEW, *Neue Beitr.*, III, 43, 1855.
- apertus** MACQUART, *Dipt. Exot.*, Suppl., II, 54 (*Bombylius*).—Guadeloupe.
 OSTEN SACKEN, *Cat.*, 43, note.

brevicornis LOEW, Cent., x, 43.—Texas.

OSTEN SACKEN, West. Dipt., 259.—Waco, Tex.

coloradensis GROTE, Proc. Ent. Soc. Phil., vi, 445.—Col.

OSTEN SACKEN, West. Dipt., 259, male.—Colorado Spr., Col.

Beulah, N. M.—Skinner.

cumatilis GROTE, Proc. Ent. Soc. Phil., vi, 445.—Col.

diversus WILLISTON, Biologia, Dipt., i, 287.—Guerrero, Mex.

fulvus WIEDEMANN, Dipt. Exot., 172 (*Bombylius*); Auss. Zw., i, 347 (id.).—N. A.

MACQUART, Dipt. Exot., ii, i, 103 (*Bombylius Therminieri* and *brevirostris*).—Carolina. [O. S.]

LOEW, Neue Beitr., iii, 43.

WILLISTON, Biologia, Dipt., i, 287, notes.

N. J.—Smith Cat.; Agency, N. M.—Cockerell; Atlantic States—O. S. Cat.

ECLIMUS.

LOEW, Stett. Ent. Zeit., 1884, 154; Deutsche Ent. Zeit., 1876, 209.

BIGOT, Bull. Soc. Ent. France, 1875, p. 196 (*Thevenimyia*); Annales, 1892, 339 (*Thevenctimyia*).

OSTEN SACKEN, West. Dipt., 268, 1877 (*Epibates*).

WILLISTON, Kans. Univ. Quart., ii, 65, 1893, syn.

auratus WILLISTON, Kans. Univ. Quart., ii, 66.—Wash.

auripilus OSTEN SACKEN, Biologia, Dipt., i, 161, pl. iii, f. 5.—Durango, Mex.

? **auripilus** BIGOT, Annales, 1892, 372 (*Amictus*).—Wash.

COQUILLET, Trans. Amer. Ent. Soc., xxi, 90, gen. ref., with a doubt.

californicus BIGOT, Bull. Soc. Ent. France, 1875, 197 (*Thevenimyia*).—Cal.

fascipennis WILLISTON, Biologia, Dipt., i, 295, pl. v, f. 9.—Guerrero, Mex.

funestus OSTEN SACKEN, West. Dipt., 271 (*Epibates*).—White Mts., N. H.

harrisii OSTEN SACKEN, West. Dipt., 272 (*Epibates*).—"Atl. States?"

lotus WILLISTON, Kans. Univ. Quart., ii, 66.—Cal.

lucifer OSTEN SACKEN, West. Dipt., 271 (*Epibates*).—Vancouver Id., Br. Col.

magnus OSTEN SACKEN, West. Dipt., 272 (*Epibates*).—Vancouver Id., Br. Col.

marginatus OSTEN SACKEN, West. Dipt., 272 (*Epibates*).—San Francisco, Cal.

melanopogon BIGOT, Annales, 1892, 370 (*Thevenctimyia*).—Wash.

melanosus WILLISTON, Kans. Univ. Quart., ii, 65.—Cal.

muricatus OSTEN SACKEN, West. Dipt., 272 (*Epibates*).—Sierra Nevada Mts., Cal.

WILLISTON, Kans. Univ. Quart., ii, 65, supposed female of this species.—Cal., Wash.

Rocky Mts., Col., 9000 ft.—O. S. Cat.

niger MACQUART, Hist. Nat. Dipt., i, 390 (*Apatomyza*); Dipt. Exot., ii, i, iii, pl. xi, f. i (id.).—Ga.

WALKER, List, ii, 296 (*Cyllenia aegiale*); iv, 1154, syn.—Ga.

OSTEN SACKEN, West. Dipt., 273 (*Epibates*); Cat., 230, correction (id.).

ostensackenii BURGESS, Proc. Bost. Soc. Nat. Hist., 1878, 323, pl. ix, f. i (*Epibates*).—S. Col., Kans.

quadratus WILLISTON, Biologia, Dipt., i, 295.—Guerrero, Mex.

sodalis WILLISTON, Kans. Univ. Quart., ii, 65.—Wash.

SPHENOIDOPTERA.

WILLISTON, Biologia, Dipt., i, 295, 1901.

varipennis WILLISTON, op. cit., 296, pl. v, f. 10.—Guerrero, Mex.

DESMATONEURA.

- WILLISTON, Kans. Univ. Quart., III, 267, 1895.
argentifrons WILLISTON, op. cit., III, 267.—Albuquerque, N. M.

EUCESSIA.

- COQUILLET, Canad. Ent., XVIII, 82, 1886.
 WILLISTON, Synops. Fam. and Gen., 1888, 37, quoted.
rattus OSTEN SACKEN, Biologia, Dipt., 1, 147 (*Aphabantus*).—Tex.
 COQUILLET, Trans. Amer. Ent. Soc., XXI, 105, gen. ref.
rubens COQUILLET, Canad. Ent., XVIII, 82.—Cal.

EPACMUS.

- OSTEN SACKEN, Biologia, Dipt., 1, 142, 1886, change of name.
 LOEW, Cent., x, 40, 1872 (*Leptochilus*, prec.).
 COQUILLET, Canad. Ent., XXIV, 9, 1892, table of species; Trans. Amer. Ent. Soc., XXI, 90 and 104, notes and corrections, 1894.
 WILLISTON, Biologia, Dipt., 1, 285, 1901, considers hardly distinct from *Aphabantus*.
modestus LOEW, Cent., x, 40 (*Leptochilus*).—Texas.
 OSTEN SACKEN, Biologia, Dipt., 1, 142, oc. in Tehuacan and N. Sonora, Mex., and notes.
 WILLISTON, Biologia, Dipt., 1, 284, note.
nebritus COQUILLET, Trans. Amer. Ent. Soc., XXI, 104.—S. Cal.
 COQUILLET, Canad. Ent., XVIII, 83 (*Leptochilus modestus* Lw.).—Cal., Tex. [Coq.]
rufolimbatus BIGOT, Annales, 1892, 359.—Cal.
 COQUILLET, Trans. Amer. Ent. Soc., XXI, 104, may be an *Aphabantus*.

APHÆBANTUS.

- LOEW, Cent., x, 39, 1872.
 OSTEN SACKEN, West. Dipt., 245, 1877 (*Triodites*). [Coq. and O. S.]
 OSTEN SACKEN, Biologia, Dipt., 1, 143-146, full discussion; table of species, 1886.
 COQUILLET, Canad. Ent., XVIII, 84, table of species, 1886; West. Amer. Scientist, 1891, 256, table of species; Trans. Amer. Ent. Soc., XXI, 104, definition, table, etc., 1894.
 WILLISTON, Biologia, Dipt., 1, 285, 1901, notes.
abnormis COQUILLET, West. Amer. Scientist, 1891, 262.—Orange Co., Cal.
bisulcus OSTEN SACKEN, Biologia, Dipt., 1, 148.—N. Sonora, Mex.
brevistylus COQUILLET, West. Amer. Sci., 1891, 264.—Los Angeles Co., Cal.
capax COQUILLET, West. Amer. Scientist, 1891, 261.—San Diego Co., Cal.
carbonarius OSTEN SACKEN, Biologia, Dipt., 1, 149.—Wash.; W. Kans.; N. Sonora, Mex.
catulus COQUILLET, Trans. Amer. Ent. Soc., XXI, 107.—S. Cal.
cervinus LOEW, Cent., x, 39.—Texas.
 COQUILLET, Canad. Ent., XVIII, 1886, 86.—Cal., Ariz., Col., Tex.
 OSTEN SACKEN, Biologia, Dipt., 1, 144, 148, notes.
 See *parvidus*.
concinus COQUILLET, Canad. Ent., XXIV, 10 (*Epacmus*).—San Diego Co., Cal.
conurus OSTEN SACKEN, Biologia, Dipt., 1, 148.—Cal., Kern Co.
 WILLISTON, Biologia, Dipt., 1, 285, oc. in Guerrero, and notes.

- cyclops** OSTEN SACKEN, *Biologia*, Dipt., 1, 146, pl. III, f. 4 a-c.—N. Sonora, Mex.
- desertus** COQUILLET, *West. Amer. Scientist*, 1891, 261.—San Diego Co., Cal.
- fucatus** COQUILLET, *Trans. Amer. Ent. Soc.*, XXI, 168.—S. Cal.
- fumidus** COQUILLET, *West. Amer. Scientist*, 1891, 263.—San Bernardino Co., Cal.
- fumosus** COQUILLET, *Canad. Ent.*, XXIV, II (*Epacmus*).—San Diego Co., Cal.
- hirsutus** COQUILLET, *Canad. Ent.*, XVIII, 85.—Cal.
- interruptus** COQUILLET, *West. Amer. Scientist*, 1891, 259.—Los Angeles Co., Cal.
- leviculus** COQUILLET, *Trans. Amer. Ent. Soc.*, XXI, 107.—S. Cal.
- litus** COQUILLET, *Canad. Ent.*, XVIII, 84.—Cal.
- marcidus** COQUILLET, *West. Amer. Scientist*, 1891, 258.—San Diego and Kern Cos., Cal.
COQUILLET, *West. Amer. Scientist*, 1891, 262 (*squamosus*); *Trans. Amer. Ent. Soc.*, XXI, 105, syn.—Orange Co., Cal.
- mixtus** COQUILLET, *West. Amer. Scientist*, 1891, 259.—San Bernardino Co., Cal.
- mus** OSTEN SACKEN, *West. Dipt.*, 245 (*Triodites*).—Salt Lake, Utah; Sonoma Co. and Shasta District, Cal.
RILEY, PACKARD and THOMAS, 2d Rept. U. S. Entomol. Comm., 1880, 262-269, pl. XVI, col. figs.; life history, etc. The larvæ live in egg-pods of locust in the West (*Triodites*).
OSTEN SACKEN, *Biologia*, Dipt., 1, 147, oc. and notes.—N. Sonora; West. U. S.
COQUILLET, *Canad. Ent.*, XVIII, 85.—Cal., Ariz.
- pavidus** COQUILLET, *West. Amer. Scientist*, 1891, 257; *Canad. Ent.*, XVIII, 87, as a var. of *cervinus*.—Los Angeles, San Diego and Kern Cos., Cal.
- pellucidus** COQUILLET, *Canad. Ent.*, XXIV, 10 (*Epacmus*).—Los Angeles Co., Cal.
- peodes** OSTEN SACKEN, *Biologia*, Dipt., 1, 149.—N. Sonora, Mex.
- rattus** OSTEN SACKEN, see *Eucessia*.
- scriptus** COQUILLET, *West. Amer. Scientist*, 1891, 260.—S. Cal.
- squamosus** COQUILLET, see *marcidus*.
- tardus** COQUILLET, *West. Amer. Scientist*, 1891, 258.—Los Angeles, San Diego and Kern Cos., Cal.
- transitus** COQUILLET, *Canad. Ent.*, XVIII, 83 (*Epacmus*).—Cal.
- varius** COQUILLET, *West. Amer. Scientist*, 1891, 256.—San Diego Co., Cal.
- vittatus** COQUILLET, *Canad. Ent.*, XVIII, 86.—Cal.
? WILLISTON, *Dipt. of Death Val. Exped.*, 254, doubtful oc. in Panamint Val., Cal.
- vulpecula** COQUILLET, *Trans. Amer. Ent. Soc.*, XXI, 107.—S. Cal.

METACOSMUS.

- COQUILLET, *West. Amer. Scientist*, 1891, 220.
- exilis** COQUILLET, *West. Amer. Sci.*, 1891, 221.—Orange Co., Cal.

DESMATOMYIA.

- WILLISTON, *Kans. Univ. Quart.*, III, 268, 1895.
- anomala** WILLISTON, *op. cit.*—Garden of the Gods, Col.

PARACOSMUS.

- OSTEN SACKEN, *West. Dipt.*, 262, 1877, name changed.
- LOEW, *Cent.*, X, 48, 1872 (*Allocotus*, *prococ.*).

- edwardsii* LOEW, Cent., x, 48 (*Allocotus*).—San Francisco, Cal.
insolens COQUILLET, West. Amer. Scientist, 1891, 221.—Los Angeles and San Diego Cos., Cal.
morrisoni OSTEN SACKEN, Biologia, Dipt., I, 155.—N. Sonora, Mex.

SYSTROPUS.

- WIEDEMANN, Dipt. Nov. Gen., 1820; Auss. Zw., I, 359, 1828.
 LATREILLE, Fam. Naturelles, 1825, 496 (*Cephenus*).
 MACQUART, Hist. Nat. Dipt., I, 391, 1834.
 KARSCH, Zeitsch. Berl. Ent. Ges., 1881, 657, attempts to revive *Cephenus*, to include all the American species. The characters do not seem sufficient.
 OSTEN SACKEN, Biologia, Dipt., I, 157, 1886, notes, and table of American species.
 WANDOLLECK, Entom. Nachrichten, xxiii, 198, gives characters of *Cephenus*; I have not seen this paper.
 TOWNSEND, Trans. Amer. Ent. Soc., xxvii, 160, 1901, table of species.
 WILLISTON, Biologia, Dipt., I, 292, partial table of species, 1901.
ammophiloides TOWNSEND, Trans. Amer. Ent. Soc., xxvii, 1901, 159.—Organ Mts., N. M.
angulatus KARSCH, Zeitsch. Berl. Ent. Ges., 1881, 657 (*Cephenus*).—Dallas, Tex.
cerdo OSTEN SACKEN, Biologia, Dipt., I, 158.—Panama.
dolorosus WILLISTON, Biologia, Dipt., I, 293.—Jalisco and Yucatan, Mex.
fœnoides WESTWOOD, Guérin's Mag. Zool., 1842; Ins., pl. xc, text p. 3 (*fœnoides*); Trans. Ent. Soc. Lond., 1876, 578 (*fœnoides*).—Mex.
 COSTA, Annuario Mus. Zool. R. Univ. Napoli, 1864, 151 (*funereus*). [O. S. Cat.]
imbecillus KARSCH, Zeitsch. Berl. Ent. Ges., 1881, 658 (*Cephenus*).—Ga.
infuscatus KARSCH, Zeitsch. Berl. Ent. Ges. 1881, 657 (*Cephenus*).—Dallas, Texas.
lugubris OSTEN SACKEN, Biologia, Dipt., I, 159.—Mex.
macer LOEW, Cent., iv, 56.—Wis., Pa.
 WALSH, Proc. Boston Soc. Nat. Hist., ix, 300, 1864, reared from pupa of *Limacodes* (*Conops*).
 OSTEN SACKEN, West. Dipt., 265, notes.
 N. J.—Smith Cat.: Atl. States to Kans.—O. S. Cat.
Note.—Prof. Otto Lugger reared it from *Limacodes* in Minn.; he gave me a bred specimen.
pulcher WILLISTON, Biologia, Dipt., I, 294.—Guerrero, Mex.
quadripunctatus WILLISTON, Biologia, Dipt., I, 293.—N. Yucatan.
rogersi OSTEN SACKEN, Biologia, Dipt., I, 158.—Costa Rica.
 WILLISTON, Biologia, Dipt., I, 293, note.
rufiventris OSTEN SACKEN, Biologia, Dipt., I, 159.—Mex.
sallei COSTA, Annuario d. Mus. Zool. R. Univ. d. Napoli, 1864, 151.—Mex.
 OSTEN SACKEN, Cat., 265, quotes diagnosis; Biologia, Dipt., I, 159, oc. in Mex.
similis WILLISTON, Biologia, Dipt., I, 294.—Guerrero, Mex.

DOLICHOMYIA.

- WIEDEMANN, Auss. Zw., II, 642, 1830.
 LOEW, Dipterenfauna Südafrika's, 175, note, 1860.

SCHINER, Novara, 134, 1868.

WILLISTON, Kans. Univ. Quart., III, 175, 1894.

gracilis WILLISTON, Kans. Univ. Quart., III, 41.—Estes Park, Col.

GERON.

MEIGEN, Syst. Besch., II, 223, 1820.

SCHINER, Fauna Austr., I, 68, 1862.

COQUILLET, Trans. Amer. Ent. Soc., XXI, III, table of species, 1894.

MIK, Wien. Ent. Zeit., XIV, 106, rearing a European species from a Pyralid larva.

calvus LOEW, Cent., IV, 54, female; IX, 76, male (*macropterus*).—N. Y.; Geneseo, N. Y.

COQUILLET, Trans. Amer. Ent. Soc., XXI, 110, syn. N. J.—Smith Cat.

capax COQUILLET, Canad. Ent., XXIV, 126.—Cal. N. J.—Smith Cat.

cinctura COQUILLET, Trans. Amer. Ent. Soc., XXI, III.—Cal.

fasciola COQUILLET, Canad. Ent., XXIV, 125.—Cal., Merced Co.

holosericeus WALKER, List, II, 295.—Ga.

hybos COQUILLET, Trans. Amer. Ent. Soc., XXI, 112 (*hybus*).—S. Cal.

insularis BIGOT, in Sagra's Cuba, 792 (*Bombylius*).—Cuba.

rufipes MACQUART, Dipt. Exot., Suppl., I, 119.—Yucatan.

WILLISTON, Biologia, Dipt., I, 292, oc. in Guerrero, Mex.

senilis FABRICIUS, Ent. Syst., IV, 411 (*Bombylius*); Syst. Antl., 135 (id.).—West Indies.

WIEDEMANN, Auss. Zw., I, 357.

MACQUART, Dipt. Exot., Suppl., I, 119.

LOEW, Cent., IX, 77 and 78 (*vitripennis* and *albidipennis*).—Mid. States; Cal. [Coq., Tr. Am. Ent. Soc., XXI, 110.]

WILLISTON, Dipt. St. Vincent, 306, pl. XI, f. 81.—St. Vincent, W. I.

N. J.—Smith Cat.; Jamaica—Johnson.

sigma COQUILLET, Proc. U. S. N. M., XXV, 101.—Ala., Col.

subauratus LOEW, Cent., IV, 55; see also IX, 77, note.—Pa. N. J.—Smith Cat.

trochilides WILLISTON, Biologia, Dipt., I, 292.—Guerrero, Mex.

trochilus COQUILLET, Trans. Amer. Ent. Soc., XXI, III.—S. Cal.

TOXOPHORA.

MEIGEN, Illig. Mag., II, 270, 1802; Klassifikation, 1804; Syst. Besch., II, 178, 1820.

SCHINER, Fauna Austr., I, 69, 1862.

COQUILLET, Entomol. Amer., I, 1886, 221, table of species; West. Amer. Sci., 1891, 199, table of species.

GLOVER, Entomol. Rept., 1866, 45, reports rearing *Toxophora* sp. from mud "pot" of *Eumenes* sp.; loc. cit., 1870, 78, same with bad figs.; 1877, 105, refers to European sp. preying upon *Bembex*.

amphitea WALKER, List, II, 298.—St. John's Bluff, Fla.

OSTEN SACKEN, West. Dipt., 267.—Middle and Southern States.

COQUILLET, Entomol. Amer., I, 222, note.—Fla.

WILLISTON, Biologia, Dipt., I, 294, oc. in Guerrero, Mex.

N. J.—Smith Cat.; Fla., several places—Johnson.

fulva OSTEN SACKEN, West. Dipt., 267.—Ga. Also Cat. 238, note.

Fla.—Johnson.

leucopyga WIEDEMANN, Auss. Zw., I, 361.—No locality.

- MACQUART, Dipt. Exot., II, 1, 117.—Carolina.
 GRAY, Griffith's Anim. Kingd., xv, Ins., II, 779 (*fulva*). [O. S.]
 WALKER, List, II, 298, note.
maxima COQUILLET, Entomol. Amer., I, 222.—Cal.
pellucida COQUILLET, Entomol. Amer., I, 222.—Cal.
varipennis WILLISTON, Biologia, Dipt., I, 294.—Guerrero, Mex.
vasta COQUILLET, West. Amer. Scientist, 1891, 199.—San Diego Co., Cal.
virgata OSTEN SACKEN, West. Dipt., 266.—Waco, Texas; Ga.
 TOWNSEND, Psyche, May, 1893, 455, desc. of puparium.
 Inverness, Fla.—Johnson; Cal.—Coq.

RHABDOPSELAPHUS.

- BIGOT, Bull. Soc. Ent. France, 1886, ciii.
 WILLISTON, Synops. Fam. and Gen., 1888, 37, quoted.
mus BIGOT, loc. cit.—Cal.

THEREVIDÆ.

- BIGOT, Annales, 1889, 322, table of genera.
 COQUILLET, Jour. N. Y. Ent. Soc., II, 97, 1894, table of species.

METAPHRAGMA.

- COQUILLET, Jour. N. Y. Ent. Soc., II, 98, 1894.
planiceps LOEW, Cent., x, 38 (*Xestomyza*).—Cal.
 COQUILLET, Jour. N. Y. Ent. Soc., II, 97, gen. ref.; does not belong to
Xestomyza.

NEBRITUS.

- COQUILLET, Jour. N. Y. Ent. Soc., II, 98, 1894.
pellucidus COQUILLET, loc. cit.—Cal.

TABUDA.

- WALKER, Dipt. Saund., 197, 1853.
fulvipes WALKER, loc. cit., pl. vi, f. 4.—No locality.
 EVETT, Proc. Ent. Soc. Phil., I, 217, oc. in N. J.
 Ga.—O. S.

OZODICEROMYIA.

- BIGOT, Annales, 1889, 321.
mexicana BIGOT, loc. cit., 322.—Mex.

PSILOCEPHALA.

- ZETTERSTEDT, Ins. Lapp., 525, note, 1840; Dipt. Scand., I, 211, 1842.
 * COQUILLET, Canad. Ent., xxv, 223, 1893, table of species; corrected, p.
 260.
acuta ADAMS, Kans. Univ. Sci. Bull., II, 222.—Englewood, Kans.
aldrichii COQUILLET, Canad. Ent., xxv, 227.—N. J., Mont., Wyo., Cal.
argentata BELLARDI, Saggio, II, 90.—Mexico City and Cordova, Mex.
 ROEDER, Steit. Ent. Zeit, 1885, 340, oc. in Porto Rico.
 WILLISTON, Dipt. St. Vincent, 306, pl. xi, f. 82.—St. Vincent, W. I.
baccata COQUILLET, Canad. Ent., xxv, 226.—Los Angeles and San Bernardino
 Cos., Cal.
costalis LOEW, Cent., VIII, 16.—Cal.
crassicornis WILLISTON, see *Thereva*.
erythrura LOEW, Cent., IX, 75.—Middle States.

- festina** COQUILLET, *Canad. Ent.*, xxv, 225.—Fla.
Fla., several places.—Johnson.
- grandis** JOHNSON, *Canad. Ent.*, 1902, 241.—Ronville Co., Quebec, Can.
- hæmorrhoidalis** MACQUART, *Dipt. Exot.*, II, 1, 26 (*Thereva*).—Carolina.
N. J.—Smith Cat.; Montreal—Chagnon; Ormond, Fla.—Johnson.
- johnsoni** COQUILLET, *Canad. Ent.*, xxv, 228.—Fla.
St. Augustine and Ormond, Fla.—Johnson.
- lævigata** LOEW, *Zeitsch. f. Ges. Naturwiss.*, Dec., 1876, 319.—San Francisco.
- longipes** LOEW, *Cent.*, VIII, 11.—Cuba.
- limata** COQUILLET, *Jour. N. Y. Ent. Soc.*, II, 99.—Col., Wash.
- marcida** COQUILLET, *Canad. Ent.*, xxv, 228.—Los Angeles and San Diego Cos.,
Cal.
- melampodia** LOEW, *Cent.*, VIII, 12.—Ill.
- melanoprocta** LOEW, *Cent.*, VIII, 15.—Me.; Huds. Bay Terr.
Axton, N. Y.—M. and H.
- montivaga** COQUILLET, *Canad. Ent.*, xxv, 226.—Los Angeles Co., Cal.
- morata** COQUILLET, *Canad. Ent.*, xxv, 225.—N. J., Fla.
(*Marmoratus* of Smith Cat.)
- munda** LOEW, *Cent.*, VIII, 13.—Wis.
Montreal—Chagnon; Axton, N. Y.—M. & H.
- nigra** BELLARDI, *Saggio*, II, 92.—Mex.
SCHINER, *Novara*, 146, oc. in Chili (*penthoptera*, nom. nov. on account of
Say's *Thereva nigra*—an unnecessary change).
- notata** WIEDEMANN, *Dipt. Exot.*, 114; *Auss. Zw.*, I, 236 (*Thereva*).—Ga.
St. Augustine and Ormond, Fla.—Johnson.
- obscura** COQUILLET, *Canad. Ent.*, xxv, 229.—Jamaica.
Key West, Fla.—Johnson.
- pavida** COQUILLET, *Canad. Ent.*, xxv, 226.—Los Angeles Co., Cal.
- pictipennis** WIEDEMANN, *Dipt. Exot.*, 113; *Auss. Zw.*, I, 235 (*Thereva*).—Ga.
CASTLE and LAURENT, *Ent. News*, VII, 303, oc. at Enterprise, Fla.
N. J.—Smith Cat.; Fla., several places—Johnson.
- placida** COQUILLET, *Jour. N. Y. Ent. Soc.*, II, 99.—Fla.
- platancala** LOEW, *Zeitsch. f. Ges. Naturwiss.*, Dec., 1876, 321.—Texas.
- platycera** LOEW, *Cent.*, vol. II, p. 200, change of name; *Cent.*, VIII, 14 (*Uaticornis*,
preoc.).—Cuba.
- rufiventris** LOEW, *Cent.*, VIII, 17.—Nebr. N. J.—Smith Cat.
- scutellaris** LOEW, *Cent.*, IX, 74.—D. C. N. J.—Smith Cat.
- slossoni** COQUILLET, *Canad. Ent.*, xxv, 227.—N. H.
- sumichrasti** BELLARDI, *Saggio*, II, 91.—Tuxpango, Mex.
- tergissa** SAY, *Jour. Acad. Sci. Phil.*, III, 39; *Compl. Works*, II, 57 (*Thereva*).—
E. Fla.
WIEDEMANN, *Auss. Zw.*, I, 232 (*Thereva corusca*; no reason for change
of name).
COQUILLET, *Canad. Ent.*, xxv, 197 and 222, refers to this genus, from Fla.
specimens.
- univittata** BELLARDI, *Saggio*, II, 90.—Puebla, Mex.
- variegata** LOEW, *Cent.*, IX, 73.—Canada.

THEREVA.

- LATRIELLE, *Précis d. Caract. gén. Ins.*, 167, 1796; *Hist. Nat. Crust. et*
Ins., III, 440, 1802.
- MEIGEN, *Syst. Besch.*, II, 86, 1820.

- RONDANI, Dipt. Ital. Prod., I, 155, 1856 (*Thereva* and *Dialineura*).
 SCHINER, Fauna Austr., I, 161, 1862.
 WILLISTON, Manual, 69, 1896 (*Thereva* and *Dialineura*).
 COQUILLET, Canad. Ent., xxv, 197, table of species, 1893.
albiceps LOEW, Cent., ix, 69.—Red R. of the North; L. Winnipeg.
 See *albifrons*.
albifrons SAY, Jour. Acad. Sci. Phil., vi, 156; Compl. Works, II, 353.—Ind.
 COQUILLET, Canad. Ent., xxv, 197, refers *albiceps* to this species, which
 seems very doubtful, from the descriptions.
argentata BELLARDI, Saggio, II, 89.—Mexico City and Cordova, Mex.
 Porto Rico—Roeder.
bolboceras OSTEN SACKEN, Biologia, Dipt., I, 162.—Presidio, Mex.
candidata LOEW, Cent., VIII, 10.—N. Wis.
 North U. S. and Canada—O. S. Cat.; also note, p. 239, correcting Loew,
 "read *clausa* for *aperta*." Montreal—Chagnon.
comata LOEW, Cent., VIII, 9.—Cal.
conspicua WALKER, List, I, 223.—Nova Scotia.
crassicornis BELLARDI, Saggio, II, 88, pl. II, f. 16.—Mex.
crassicornis WILLISTON, Trans. Amer. Ent. Soc., XIII, 293.—Cal.
 COQUILLET, Canad. Ent., xxv, 222, refers to *Psilocephala*, from Cal. speci-
 mens.
diversa COQUILLET, Jour. N. Y. Ent. Soc., II, 100.—Col., Mont., Fla.
duplicis COQUILLET, Canad. Ent., xxv, 199.—S. D., Mont.
egressa COQUILLET, Jour. N. Y. Ent. Soc., II, 99.—Col., Cal.
flavincta LOEW, Cent., IX, 70; op. cit., 71 (*gilvipes*).—Wis., N. H.; Mass.
 [Coq.]
 N. J.—Smith Cat.; Axton, N. Y.—M. & H.
frontalis SAY, Long's Exped., App., 370; Compl. Works, I, 252.—N. W. Terr.
 WIEDEMANN, Auss. Zw., I, 230. Montreal—Chagnon.
fucata LOEW, Cent., x, 37.—Cal.
germana WALKER, List, I, 222.—Fla.
hirticeps LOEW, Berl. Ent. Zeitsch., 1874, 382.—San Francisco.
johnsoni COQUILLET, Canad. Ent., xxv, 200.—Wash.
melanoneura LOEW, Cent., x, 36.—Cal.
 COQUILLET, Proc. Acad. Sci. Wash., II, 407, oc. at Kukak Bay, Alaska.
melanophleba LOEW, Zeitsch. f. ges. Naturwiss., 1876, 317.—San Francisco.
nervosa WALKER, List, I, 223.—Ga. (preoc.—Osten Sacken).
nigra SAY, Jour. Acad. Sci. Phil., III, 40; Compl. Works, II, 57.—Pa.
 WIEDEMANN, Auss. Zw., I, 235.
 COQUILLET, Canad. Ent., xxv, 222, doubtfully recognized from Cal.
nitoris COQUILLET, Jour. N. Y. Ent. Soc., II, 101.—Mo.
otiosa COQUILLET, Canad. Ent., xxv, 199.—Los Angeles Co., Cal.
 N. J.—Smith Cat.
ruficornis MACQUART, Dipt. Exot., II, 1, 25.—Carolina.
semitaria COQUILLET, Canad. Ent., xxv, 198.—S. Cal.
senex WALKER, List, I, 224.—Nova Scotia. Province of Quebec—Fyles.
strigipes LOEW, Cent., IX, 72.—L. Winnipeg, Canada.
 JOHANNSEN, Ent. News, XIV, 15, notes.—Axton, N. Y.
 White Mts., N. H.—Slosson.
tergissa SAY, see *Psilocephala*.
varia WALKER, List, I, 221.—Fla.
vialis OSTEN SACKEN, West. Dipt., 274.—Yosemite Valley, Cal.

WILLISTON, Trans. Amer. Ent. Soc., XIII, 293, oc. in Wash., etc.; Dipt. of Death Val. Exped., oc. in Death Val., Cal.

vicina WALKER, List, 1, 222.—Nova Scotia.

OSTEN SACKEN, Cat., 97, note on types of Walker's *Therevas*.

SCENOPINIDÆ.

COQUILLET, Ent. News, XI, 500, 1900, table of the three N. A. genera.

METATRICHIA.

COQUILLET, Ent. News, XI, 500, 1900.

bulbosa OSTEN SACKEN, West. Dipt., 275 (*Scenopinus*).—Mo.

COQUILLET, Ent. News, XI, 500, refers to this genus, as type.

PSEUDATRICHIA.

OSTEN SACKEN, West. Dipt., 275, 1877, change of name.

LOEW, Cent., VII, 76, 1866 (*Atrichia*, preoc.).

flaviceps COQUILLET, Proc. U. S. N. M., XXV, 102.—Williams, Ariz.

griseola COQUILLET, Ent. News, XI, 500.—Mesilla Park, N. M., and Los Angeles Co., Cal.

longurio LOEW, Cent., VII, 76 (*Atrichia*).—Mex.

pilosa COQUILLET, Proc. U. S. N. M., XXV, 102.—Williams and Hot Springs, Ariz.

unicolor COQUILLET, Ent. News, XI, 500.—Las Vegas, N. M.

SCENOPINUS.

LATREILLE, Hist. Nat. Crust. et Ins., III, 463, 1802; XIV, 392, 1804.

MEIGEN, Syst. Besch., IV, 111, 1824.

MACQUART, Hist. Nat. Dipt., II, 5, 1835.

SCHINER, Fauna Austr., I, 159, 1862.

BRAUER, Zweifl. d. Kaiserl. Mus., II, 42, 1882, full discussion of related forms.

albidipennis LOEW, Cent., VIII, 53.—Cuba.

bulbosus OSTEN SACKEN, see *Metatrachia*.

fenestralis LINNÉ, Fauna Suecica, 1845 (*Musca*).—Europe.

DEGEER, Mém. pour. Servir Hist. Nat. Ins., II, 77 (*Nemotelus*).

LATREILLE, Gen. Crust., IV, 349; Consid. Génér., 444.

FABRICIUS, Syst. Antl., 335.

MEIGEN, Syst. Besch., IV, 113 (114, *sulcicollis*; 115, *vitripennis*; 116, *domesticus*; VII, 165, *rufitarsis*).

SAY, Jour. Acad. Sci. Phil., III, 100; Compl. Works, II, 86 (*pallipes*).—Pa.

LOEW, Verh. Zool.-Bot. Ver., 1857, oc. in N. A.; Silliman's Jour., syn. of *pallipes*.

SCHINER, Fauna Austr., I, 159.

HAGEN, Canad. Ent., XVIII, 129, larvæ found under carpet, may be carnivorous (*pallipes*).

OSTEN SACKEN, Ent. Mo. Mag., XXIII, 51, larval habits—undoubtedly carnivorous.

LINTNER, in Amsterdam, N. Y., "Daily Democrat," Nov. 1, 1890, larva "feeds only, so far as known, on the larvæ and pupæ of the clothes-moth."

N. J.—Smith Cat.; Montreal—Chagnon.

glabrifrons MEIGEN, Syst. Besch., IV, 114 (*glabrifrons* and *orbita*); 113 (*halt-crata*).—Europe.

SCHINER, Fauna Austr., I, 160.

LOEW, Verh. Zool.-Bot. Ver., 1857; Silliman's Jour., oc. in N. A.

nubilipes SAY, Jour. Acad. Sci. Phil., VI, 170; Compl. Works, II, 362.—Ind. Cuba, Fla.—Loew, in O. S. Cat.

MYDAIDÆ.

GERSTÆCKER, Stett. Ent. Zeit., 1868, 72, table of genera.

DOLICHOGASTER.

MACQUART, Dipt. Exot., Suppl., II, 2, 178, 1848.

WILLISTON, Kans. Acad. Sci., 1897, 57, correction.

brevicornis WIEDEMANN, Dipt. Exot., 117; Auss. Zw., I, 242 (*Midas*).—Brazil.

Also Auss. Zw., I, 241 (*Midas iopterus*).—Brazil. [O. S.]

MACQUART, Dipt. Exot., Suppl., II, 2, 179, pl. II, f. 2.—Brazil.

WALKER, List, I, 228, oc. in Mass. and St. John's Bluff, Fla. (*iopterus*).

ECTHYPUS.

GERSTÆCKER, Stett. Ent. Zeit., 1868, 92.

WILLISTON, Trans. Amer. Ent. Soc., XIII, 292, oc. in N. A., and note.

limbatus WILLISTON, Trans. Amer. Ent. Soc., XIII, 292.—Ariz.

townsendi WILLISTON, Proc. Kans. Acad. Sci., 1897, 58.—N. M.

LEPTOMYDAS.

GERSTÆCKER, Stett. Ent. Zeit., 1868, 81.

WILLISTON, Kans. Acad. Sci., 1897, 53, table of species.

brachyrhynchus OSTEN SACKEN, Biologia, Dipt., I, 69.—N. Sonora, Mex.

WILLISTON, Proc. Acad. Sci. Kans., 1897, 54, male.—Mex.; Biologia, Dipt., I, 267, oc. at Teapa, Mex., and notes.

pantherinus GERSTÆCKER, Stett. Ent. Zeit., 1868, 85.—Cal.

OSTEN SACKEN, West. Dipt., 280.—San Francisco, Cal.

WILLISTON, Trans. Amer. Ent. Soc., XIII, 291, male.—Wash., Cal.

sponsor OSTEN SACKEN, Biologia, Dipt., I, 68.—Guatemala.

tenuipes LOEW, Cent., X, 20 (*Midas*).—Cal.

venosus LOEW, Cent., VII, 26 (*Midas*).—Pecos R., West. Texas.

HINE, Canad. Ent., XXXV, 245.—Oak Creek Canyon, Ariz.

MYDAS.

FABRICIUS, Ent. Syst., IV, 252, 1794; Syst. Antl., 60, 1805.

LATREILLE, Hist. Nat. Crust. et Ins., III, 447, 1802; XIV, 338, 1804.

MEIGEN, Syst. Besch., II, 99, 1820.

WIEDEMANN, Mon. Gen. Midarum, Bonn, 1831.

MACQUART, Hist. Nat. Dipt., I, 273, 1834.

SCHINER, Fauna Austr., I, 158, 1862.

GERSTÆCKER, Stett. Ent. Zeit., 1868, 93.

OSTEN SACKEN, Berl. Ent. Zeitsch., 1895, 345, discusses the forms *Midas* and *Mydas*, accepting the latter.

WILLISTON, Kans. Acad. Sci., 1897, 54, table of species.

annularis GERSTÆCKER, Stett. Ent. Zeit., 1868, 100.—Mex.

WILLISTON, Biologia, Dipt., I, 268, oc. in Chilpancingo, Mex., and notes.

- annulicornis** WESTWOOD, see *mystaccus*.
- audax** OSTEN SACKEN, Bull. Buff. Soc. Nat. Hist., 1874, 186; Cat., 235, desc. quoted.—Ky.
- basalis** WESTWOOD, Arcana Ent., 1, 53.—Mex.
 BELLARDI, Saggio, II, 10.—Angang. Mex.
 WILLISTON, Kans. Acad. Sci., 1897, 55, oc. in N. M.
- bitæniatus** BELLARDI, Saggio, II, 7, pl. 1, f. 1.—Playa Vicente, Mex.
- brevicornis** WIEDEMANN, see *Dolichogaster*.
- carbonifer** OSTEN SACKEN, Bull. Buff. Soc. Nat. Hist., 1874, 186; quoted in Cat., 236.—West. N. Y.
- chrysites** OSTEN SACKEN, Biologia, Dipt., 1, 72.—N. Sonora, Mex.
- chrysostoma** OSTEN SACKEN, Bull. Buff. Soc. Nat. Hist., 1874, 187; quoted in Cat., 236.—Texas. N. J.—Smith Cat.
- clavatus** DRURY, Illustrations of Nat. Hist., 1, 103, pl. XLIV, f. 1; II, Appendix (*Musca*).
 DEGEER, Mém. pour Serv. Hist. Nat. Ins., pl. XXIX, f. 6 (*Nemotelus asiloides*).
 FABRICIUS, Syst. Ent., 756 (*Bibio illucens*); Spec. Ins., II, 412 (*Bibio filata*); Mantissa Ins., 328 (id.); Ent. Syst., IV, 252 (*Mydas filatus*); Syst. Antl., 60 (id.).—S. A.
 OLIVIER, Encycl. Méthodique, VIII, 83 (*filatus*).
 WIEDEMANN, Dipt. Exot., 116 (*filatus*); Auss. Zw., 1, 240 (id.); Mon. Midarum, pl. LIII, f. 8 (id.).—S. A.
 Eastern U. S. N. J.—Smith Cat.; Fla.—Johnson; Chicago—J. M. A.
- cleptes** OSTEN SACKEN, Biologia, Dipt., 1, 72.—N. Sonora, Mex., and perhaps Texas.
- crassipes** WESTWOOD, Arcana Ent., 1, 51, pl. XIII, f. 3.—N. A.
 OSTEN SACKEN, Biologia, Dipt., 1, 71, note.
 WILLISTON, Biologia, Dipt., 1, 268, oc. in Teapa, Mex.
- decor** OSTEN SACKEN, Biologia, Dipt., 1, 71.—Panama.
 WILLISTON, Kans. Acad. Sci., 1897, 55, oc. in N. M. and Mex.; Biologia, Dipt., 1, 268, oc. in Guerrero, Mex.
- dives** WESTWOOD, Arcana Ent., 1, 50, pl. XIII, f. 1.—Brazil.
 OSTEN SACKEN, Biologia, Dipt., 1, 70.—Panama.
 WILLISTON, Kans. Acad. Sci., 1897, 55, notes.
- fulvifrons** ILLIGER, Illig. Mag., 1, 206.—Ga.
 WIEDEMANN, Monogr. Midarum, 47, pl. LIII, f. 13.—Ga.
 WILLISTON, Kans. Acad. Sci., 1897, 55, oc. in Fla. N. J.—Smith Cat.
- fulvipes** WALSH, Proc. Boston Soc. Nat. Hist., IX, 306.—Ill.
 ROEDER, Wien. Ent. Zeitung, XIII, 169.—Mo.
- gracilis** MACQUART, Hist. Nat. Dipt., 1, 274, pl. VII, f. 1.—S. A.
 Oc. in Cuba reported by Loew, in O. S. Cat., 84.
- incisus** MACQUART, Dipt. Exot., 1, 2, 11, pl. 1, f. 1.—Carolina.
 JÆNNICKE, Neue Exot. Dipt., 354, oc. in Mex.
 See *pachygaster*.
- interruptus** WIEDEMANN, Monogr. Midarum, 46, pl. LIII, f. 12.—Mex.
 BELLARDI, Saggio, II, 8, pl. 1, f. 2 (*trilineatus*).—Mex. City. [Gerst.]
- luteipennis** LOEW, Cent., VII, 23.—West. Texas. Ariz.—Williston.
- maculiventris** WESTWOOD, Lond. and Edinb. Philos. Mag., 1835; Arcana Ent., 1, 53, pl. XIII, f. 5.—Ga.
- militaris** GERSTÆCKER, Stett. Ent. Zeit., 1868, 10 and 99.—Vera Cruz, Mex.

- MACQUART, Dipt. Exot., Suppl., IV, 60, pl. IV, f. 6 (*vittatus* Wied.).—
Mex. [Will.]
- BELLARDI, Saggio, II, 7 (id.).—Mex.
- WILLISTON, Biologia, Dipt., I, 268, oc. in Guerrero, Mex.
See *rufiventris* MACQ.
- mystaceus** WIEDEMANN, Monogr. Midarum, 40, pl. LII, f. 3, male.—Surinam.
WESTWOOD, Arcana Ent., I, 51, pl. XIII, f. 2, female (*annulicornis*).—Brazil.
GERSTÆCKER, Syst. Uebersicht Exot. Mydiden, 94, syn.
- WILLISTON, Kans. Acad. Sci., 1897, 57, oc. in Mexico (*annulicornis*).
- pachygaster** WESTWOOD, Arcana Ent., I, 53, pl. XIII, f. 4.—Ga.
JÆNNICKE, Neue Exot. Dipt., 354, oc. in Mex.
- JOHNSON, Proc. Acad. Nat. Sci. Phil., 1895, 325, oc. in Fla., and suggests
that *incisus* MACQ. is the male of the same species.
- parvulus** WESTWOOD, Arcana Ent., I, 53, pl. XIII, f. 6.—Ga.
Fla.—Walker; Georgiana, Fla.—Johnson.
- quadrilineatus** WILLISTON, Kans. Acad. Sci., 1897, 56.—Mex. Also Biologia,
Dipt., I, 268, oc. in Guerrero and Jalisco, Mex.
- rubidapex** WIEDEMANN, Monogr. Midarum, 40, pl. LII, f. 2; Auss. Zw., 626.—
Mex.
BELLARDI, Saggio, II, 5.—Mex.
BRAUER, Syst. Zool. Studien, pl. I, f. 2. [Will.]
OSTEN SACKEN, Biologia, Dipt., I, 70, oc. in Guatemala, and notes.
WILLISTON, Kans. Acad. Sci., 1897, 55, oc. in Mex.; Biologia, Dipt., I, 267,
oc. in Guerrero, Mex., and in Yucatan.
- [**rufiventris** MACQUART, Dipt. Exot., Suppl., IV, 60.—Brazil.
WILLISTON, Kans. Acad. Sci., 1897, 56, and Biologia, Dipt., I, 268, thinks
this probably the prior name for *militaris* and *ventralis* GERST.]
- scitulus** WILLISTON, Trans. Amer. Ent. Soc., XIII, 291.—Ariz.
- senilis** WESTWOOD, Arcana Ent., I, 52.—Mex.
- simplex** LOEW, Cent., VII, 25.—West. Texas.
- subinterruptus** BELLARDI, Saggio, II, 10, pl. I, f. 3.—Angang and Patzcuaro, Mex.
- tibialis** WIEDEMANN, Monogr. Midarum, 42, pl. LIII, f. 6; Auss. Zw., II, 627.—
Baltimore, Md.
BELLARDI, Saggio, II, 6.—Mex.
WESTWOOD, Arcana Ent., I, 51.
WALKER, List, VI, 359.
Mich.—O. S. Cat.
- tricolor** WIEDEMANN, Monogr. Midarum, 42, pl. LIII, f. 5.—Cuba.
BIGOT, in Sagra's Cuba, 799.—Cuba.
- ventralis** GERSTÆCKER, Stett. Ent. Zeit., 1868, 102, change of name.
LOEW, Cent., VII, 22 (*rufiventris*, preoc.).—Cal.
See *rufiventris* MACQ.
- xanthopterus** LOEW, Cent., VII, 24.—West. Texas.
GERSTÆCKER, Stett. Ent. Zeit., 1868, 96 (*lavatus*).—Mex. [O. S.]

PHYLLOMYDAS.

- BIGOT, Bull. Soc. Ent. France, 1880, no. 6, 62 (*Phyllomydas*).
WILLISTON, Manual N. A. Dipt., 63, quotes desc.
phyllocerus BIGOT, op. cit., 63.—Rocky Mts.

APIOCERIDÆ.

The relations of the group, and the question of family rank, have been exhaustively discussed in the following papers:

OSTEN SACKEN, Berl. Ent. Zeitsch., xxvii, 1883, 287.

WILLISTON, Psyche, 1888, 100, and Kans. Univ. Quart., 1, 101, 1893, two plates.

APIOCERA.

WESTWOOD, London and Edinb. Philos. Mag., 1835; Arcana Ent., 1, 50, 1841.

MACQUART, Dipt. Exot., 1, 1, 78, 1838 (*Tapinocera*).

MACQUART, Dipt. Exot. Suppl., 11, 47, 1847 (*Pomacera*).

PHILIPPI, Verh. Zool.-Bot. Ges., 1865, 702, pl. xxv, f. 26 (*Anypenus*).

augur OSTEN SACKEN, Biologia, Dipt., 1, 2.—Presidio, Mex.

haruspex OSTEN SACKEN, West. Dipt., 283.—Yosemite, Cal. There is a correction of the desc. in Berl. Ent. Zeitsch., xxvii, 300.

COQUILLET, Psyche, 1885, 244.

Wash.—J. M. A.

APOMYDAS.

COQUILLET, Canad. Ent., xxiv, 314, 1892 (*Apomidas*).

trochilus COQUILLET, Canad. Ent., xxiv, 315.—Merced Co., Cal.

RHAPHIOMYDAS.

OSTEN SACKEN, West. Dipt., 281, 1877.

TOWNSEND, Proc. Cal. Acad. Sci., iv, 601, table of species.

acton COQUILLET, West. Amer. Scientist, vii, 84.—Los Angeles Co., Cal.

TOWNSEND, Proc. Cal. Acad. Sci., iv, 602.—Sonora, Mex.

episcopus OSTEN SACKEN, West. Dipt., 282.—Cal., or perhaps Lower Cal.

TOWNSEND, Proc. Cal. Acad. Sci., iv, 603.—Lower Cal. The comparison with *episcopus* made by Coquillett in describing *acton* refers to *mellifex* instead.

mellifex TOWNSEND, Proc. Cal. Acad. Sci., iv, 604.—Lower Cal.

COQUILLET, West American Scientist, vii, 84 (*episcopus*).—Los Angeles Co., Cal. [Townsend.]

xanthos TOWNSEND, Proc. Cal. Acad. Sci., iv, 606.—Lower Cal. Also in Trans. Amer. Ent. Soc., xxvii, 161, oc. in Las Cruces, N. M.

ASILIDÆ.

LEPTOGASTER.

MEIGEN, Illig. Mag., 11, 269, 1803.

LATREILLE, Hist. Nat. Crust. et Ins., xiv, 309 (*Gonyptes*), 1804.

MEIGEN, Syst. Besch., 11, 258, 1820.

MACQUART, Hist. Nat. Dipt., 1, 315 (*Gonyptes*), 1834.

ZETTERSTEDT, Dipt. Scand., 1, 186, 1842.

SCHINER, Fauna Austr., 1, 117, 1862.

WILLISTON, Biologia, Dipt., 1, 298, partial table of Mexican species, 1901.

annulatus SAY, Jour. Acad. Sci. Phil., 111, 75; Compl. Works, 11, 68.—Pa.

WIEDEMANN, Auss. Zw., 1, 535 (*histris*; no reason for change of name).

SCHINER, Verh. Zool.-Bot. Ges., 1867, 356, notes on Wiedemann specimens.

N. J.—Smith Cat.; Province of Quebec—Fyles (*histris*).

badius LOEW, Cent., II, 6.—III.

N. J.—Smith Cat.; Montreal—Chagnon; White Mts., N. H.—Slosson.
brevicornis LOEW, Cent., x, 23.—Texas.

carolinensis SCHINER, Verh. Zool.-Bot. Ges., 1866, 696, change of name.

MACQUART, Dipt. Exot., I, 2, 155 (*Gonyptes nitidus*, preoc.)—Carolina.

OSTEN SACKEN, Catalogue, 230, note 98, on priority, etc.

clavipes JOHNSON, Ent. News, VIII, 120, change of name; Proc. Acad. Nat. Sci. Phil., 1894, 273 (*longipes*, preoc.)—Jamaica.

concinatus WILLISTON, Biologia, Dipt., I, 300.—Guerrero, Mex.

croceus WILLISTON, Biologia, Dipt., I, 300.—Guerrero, Mex.

cubensis BIGOT, in Sagra's Cuba, 792 (*Gonyptes*).—Cuba.

ROEDER, Stett. Ent. Zeit., 1885, 340.—Porto Rico.

dorsalis WILLISTON, Biologia, Dipt., I, 301.—Guerrero, Mex.

eudicranus LOEW, Berl. Ent. Zeitsch., 1874, 353.—Texas.

favillaceus LOEW, Cent., II, 12.—Conn.

fervens WIEDEMANN, Auss. Zw., II, 646.—Mex.

flavicornis VAN DER WULP, Tijdschr. v. Ent., x, 136.—Wis.

LOEW, Zeitsch. f. Ges. Naturwiss., XXXVI, 120, says probably is a syn. of *flavipes*.

flavipes LOEW, Cent., II, 15.—Nebr.; O. S. changes this to Atlantic States in his Catalogue.

VAN DER WULP, Tijdschr. v. Ent., XXVII, (sep.) I, male described. His own *flavicornis* is very likely the same.—Mass.

N. J.—Smith Cat.; Montreal—Chagnon.

histrion WIEDEMANN, see *annulatus*.

incisuralis LOEW, Cent., II, 11.—III. N. J.—Smith Cat.

intimus WILLISTON, Biologia, Dipt., I, 300.—Guerrero, Mex.

longipes JOHNSON, see *clavipes*.

macropygialis WILLISTON, Biologia, Dipt., I, 301, pl. v, f. 14.—Teapa, Mex.

micropygialis WILLISTON, Biologia, Dipt., I, 301.—Guerrero, Mex., several places.

murinus LOEW, Cent., II, 9.—Nebr.

obscuripennis JOHNSON, Proc. Acad. Nat. Sci., 1895, 304, 306.—Fla.

obscuripes LOEW, Cent., II, 13.—Cuba.

JÆNNICKE, Neue Exot. Dipt., 46 (*ramoni*).—Cuba. [Loew, in O. S. Cat.]

ochraceus SCHINER, Verh. Zool.-Bot. Ges., 1867, 359.—Pa.

pictipes LOEW, Cent., II, 7.—III.

TOWNSEND, Annals and Mag. Nat. Hist., XX, 23, thinks *varipes* is the same; oc. Vera Cruz. N. J.—Smith Cat.

ræderi WILLISTON, Trans. Ent. Soc. Lond., 1896, 305, pl. XI, f. 80.—St. Vincent, W. I.

rubida WIEDEMANN, of Williston, see *testaceus*.

scapularis BIGOT, Annales, 1878, 444.—Cal.

tenuipes LOEW, Cent., II, 14.—D. C.

testaceus LOEW, Cent., II, 10.—N. Y.

? WILLISTON, Biologia, Dipt., I, 299, doubtfully identified from N. Yucatan; *rubida* Wied. of S. A. may be the same.

Montreal—Chagnon; N. J.—Smith Cat.

triungulatus WILLISTON, Biologia, Dipt., I, 299, pl. v, f. 13.—Amula in Guerrero, Mex.

truquii BELLARDI, Saggio, II, 87, pl. II, f. 18.—Mex.; "Jantepec."

varipes LOEW, Cent., II, 8.—D. C. See also note under *pictipes*.

DICRANUS.

LOEW, Bemerkungen über Asiliden, 1851, 13.

WILLISTON, Ent. News, VII, 185, oc.

jaliscoensis WILLISTON, Biologia, Dipt., I, 302, pl. v, f. 15.—Jalisco, Mex.

DAMALIS.

FABRICIUS, Syst. Anth., 147, 1805.

WESTWOOD, Annales Soc. Ent. France, IV, 684 (*Chalcidomorpha*), 1835.

occidentalis WILLISTON, Biologia, Dipt., I, 309, pl. v, f. 21.—Tepetlapa and Santiago, Mex.

TOWNSENDIA.

WILLISTON, Kans. Univ. Quart., IV, 107, 1895; Biologia, Dipt., I, 307, 1901.

minuta WILLISTON, Kans. Univ. Quart., IV, 107; Biologia, Dipt., I, 307, pl. v, f. 19.—Tabasco, Mex.; N. M.

ABLAUTUS.

LOEW, Cent., VII, 63, 1866; Berl. Ent. Zeitsch., 1874, 377, name changed to *Ablautatus*.

SCHINER, Verh. Zool.-Bot. Ges., 1866, 846, quotes orig. desc.

OSTEN SACKEN, West. Dipt., 1877, 289 (*Ablautatus*).

WILLISTON, Manual, adopts original form.

mimus OSTEN SACKEN, West. Dipt., 289 (*Ablautatus*).—San Bernardino, Cal. Ariz.—Williston.

trifarius LOEW, Cent., VII, 63.—Cal.

? OSTEN SACKEN, Biologia, Dipt., I, 168, doubtful oc. in N. Sonora, Mex. (*Ablautatus*).

OSPRIOCERUS.

LOEW, Cent., VII, 51, 1866.

SCHINER, Verh. Zool.-Bot. Ges., 1866, 846, quotes orig. desc.

COQUILLET, Ent. News, IX, 37, 1898, synopsis of species.

WILLISTON, Biologia, Dipt., I, 303, notes, 1901.

abdominalis SAY, Long's Exped., App., 375; Compl. Works, I, 255 (*Asilus*). N. W. Terr.

WIEDEMANN, Auss. Zw., I, 390, changes name to *Dasygogon cacus*.

LOEW, Cent., VII, 51 (*cacides*).—Cal. [Coq.]

OSTEN SACKEN, West. Dipt., 290, oc. in Col., etc. (*cacus*).

COQUILLET, Ent. News, IX, 37, note. Mont.—Will. Ms.

cacus WIEDEMANN, see *abdominalis*.

cacides LOEW, see *abdominalis*.

diversus WILLISTON, Biologia, Dipt., I, 303, pl. v, f. 16.—Guerrero, Mex.

eutrophus LOEW, Berl. Ent. Zeitsch., 1874, 355.—Pecos R., Tex. Kans.—O. S. Cat.

minos OSTEN SACKEN, West. Dipt., 291.—Col.

rhadamanthus LOEW, Cent., VII, 52.—Pecos R., Texas.

spathulatus BELLARDI, Saggio, II, 82, pl. I, f. 9.—Mex.

LOEW, Cent., VII, 51, thinks is probably *cacus*—that is, *abdominalis*.

ventralis COQUILLET, Ent. News, IX, 37.—Ariz.

SCLEROPOGON.

LOEW, Cent., VII, 45, 1866.

SCHINER, Verh. Zool.-Bot. Ges., 1866, 846, quotes orig. desc.

- helvolus* LOEW, Berl. Ent. Zeitsch., 1874, 355.—Texas. Nebr.—J. M. A.
lugubris WILLISTON, Biologia, Dipt., 1, 304.—Guerrero, Mex.
ochraceus VAN DER WULP, Tijdschr. v. Ent., XIII, 212, pl. IX, f. 9 (*Stenopogon*);
 XXV, 96, notes; refers to this genus.—N. A.
 OSTEN SACKEN, Cat., note 101, gen. ref.
picticornis LOEW, Cent., VII, 45.—Cal.
truquii BELLARDI, Saggio, II, 76, pl. I, f. 10 (*Stenopogon?*).—Mex.
 WILLISTON, Biologia, Dipt., 1, 303.—Guerrero, Mex.

STENOPOGON.

- LOEW, Linnæa Ent., II, 453, 1847.
 SCHINER, Fauna Austr., I, 127, 1862.
æacidinus WILLISTON, Trans. Amer. Ent. Soc., XIII, 289.—Kans.
albibasis BIGOT, Annales, 1878, 422.—Cal.
breviusculus LOEW, Cent., X, 28.—Cal.
californiæ WALKER, List, II, 322 (*Dasyopogon*).—Cal.
consanguineus LOEW, Cent., VII, 48.—Nebr.
fuscolumbatus BIGOT, Annales, 1878, 421.—Mex.
gratus LOEW, Cent., X, 31; loc. cit., 29, female (*univittatus*).—Both Cal.
 [LOEW, Berl. Ent. Zeitsch., 1874, 358.]
inquinatus LOEW, Cent., VII, 47.—Nebr.
latipennis LOEW, Cent., VII, 49.—Pecos R., Texas.
longulus LOEW, Cent., VII, 50.—Pecos R., Texas.
modestus LOEW, Cent., VII, 46.—Red R. of the North.
morcosus LOEW, Berl. Ent. Zeitsch., 1874, 356.—Red R. of the North.
obscuriventris LOEW, Cent., X, 30.—Cal.
subulatus WIEDEMANN, Auss. Zw., I, 375 (*Dasyopogon*).—Ga.
univittatus LOEW, see *gratus*.

SPHAGEUS.

- LOEW, Cent., VII, 55, 1866.
 SCHINER, Verh. Zool.-Bot. Ges., 1866, 847, quotes orig. desc.
chalcoproctus LOEW, Cent., VII, 55.—Cuba.

MICROSTYLUM.

- MACQUART, Dipt. Exot., I, 2, 26, 1838.
 LOEW, Dipterenfauna Südafrika's, 74, 1860.
fulvigaster BIGOT, Annales, 1878, 410.—Mex.
galactodes LOEW, Cent., VII, 44.—N. M.; Osten Sacken, Cat., corrects to Pecos R., Texas, and adds Kans.
morosum LOEW, Cent., X, 27.—Dallas, Texas.
pollens OSTEN SACKEN, Cat., 230, note 100.—Dallas, Texas.
Note.—Osten Sacken's reference was not intended as a description, but I think the data and the availability of the types make it valid.

ARCHILESTRIS.

- LOEW, Berl. Ent. Zeitsch., 1874, 377, change of name.
 SCHINER, Verh. Zool.-Bot. Ges., 1866, 672 (*Archilestes*, preoc.).
 OSTEN SACKEN, Biologia, Dipt., I, 169, note, 1887.
magnificus WALKER, List, VI, 427 (*Dasyopogon*).—Mex.
 BELLARDI, Saggio, II, 79, pl. I, f. II (*Microstylum*).—Mexico, near the city, at Yautepec and Huastec.
 SCHINER, Novara, 168 (id.).—S. A.

OSTEN SACKEN, *Biologia, Dipt.*, I, 169, oc. in Ventenas, Mex.
 WILLISTON, *Psyche*, 1889, 259.

DIZONIAS.

LOEW, *Cent.*, VII, 53, 1866.

SCHINER, *Verh. Zool.-Bot. Ges.*, 1866, 846, quotes orig. desc.

WILLISTON, *Biologia, Dipt.*, I, 305.

tristic WALKER, *Dipt. Saund.*, 93 (*Dasygogon*).—U. S.

BELLARDI, *Saggio*, II, 80, pl. I, f. 8 (*Das. quadrimaculatus*).—Mex.

LOEW, *Cent.*, VII, 54 (*bicinctus*).—N. M.; corrected by O. S. Cat. to Pecos R., Texas, and Dallas, Texas, and Florida are added.

OSTEN SACKEN, *Cat.*, 230, note 103, on types, etc.

VAN DER WULP, *Tijdschr. v. Ent.*, XXV, 96, oc. in Argentina.
 Florida, several places—Johnson.

lucasi BELLARDI, *Saggio*, II, 81, pl. I, f. 7 (*Dasygogon*).—Mex.

WILLISTON, *Biologia, Dipt.*, I, 304.—Jalisco, Mex.

phœnicurus LOEW, *Cent.*, VII, 53.—Tamaulipas, Mex.

WILLISTON, *Biologia, Dipt.*, I, 304.—Jalisco, Mex.

pilatei JOHNSON, *Psyche*, 1903, 112, fig.—Tifton, Ga.

PSILOCURUS.

LOEW, *Berl. Ent. Zeitsch.*, 1874, 373.

WILLISTON, *Kans. Univ. Quart.*, II, 67, 1893 (*Orthoncuromyia*). [Will.]

caudatus WILLISTON, *Biologia, Dipt.*, I, 308, pl. V, f. 20.—Guerrero, Mex.

modestus WILLISTON, *Kans. Univ. Quart.*, II, 67 (*Orthoncuromyia*).—Western S. D.

nudiusculus LOEW, *Berl. Ent. Zeitsch.*, 1874, 370.—Texas.

LAPHYSTIA.

LOEW, *Linnaea Ent.*, II, 538, 1847.

SCHINER, *Fauna Austr.*, I, 136, 1862.

BIGOT, *Annales*, 1879, 235.

? **albiceps** MACQUART, *Dipt. Exot., Suppl.*, I, 69 (*Dasygogon*).—Texas.

OSTEN SACKEN, *Cat.*, gen. ref. with a doubt.

sexfasciata SAY, *Jour. Acad. Sci. Phil.*, III, 50; *Compl. Works*, II, 64 (*Dasygogon*).—Mo.

WIEDEMANN, *Auss. Zw.*, I, 408 (id.).

SCHINER, *Verh. Zool.-Bot. Ges.*, 1866, 693 (*Laphystis*).

LOEW, *Berl. Ent. Zeitsch.*, 1874, 373.

BIGOT, *Annales*, 1878, 433 (*Triclis notata*); *Bull. Soc. Ent. France*, 1879, 87 (*Triclis notata* and *L. sexfasciata*); *Annales*, 1879, 236 (mentioned as *L. subfasciata*).—N. A. [Will.]

WILLISTON, *Trans. Amer. Ent. Soc.*, XI, 9; XII, 53.—Mont., S. States.

N. J.—Smith Cat.; St. Augustine, Fla., "Common along seashore"—Johnson.

TRICLIS.

LOEW, *Bemerkungen Ueber Asiliden*, 17, 1851.

argentifacies WILLISTON, *Biologia, Dipt.*, I, 310, pl. V, f. 22.—Guerrero, Mex.

notata BIGOT, see *Laphystia sexfasciata*.

tagax WILLISTON, *Trans. Amer. Ent. Soc.*, XI, 9, pl. I, f. 6, 6a; XIII, 280, notes.—Cal.

CERATURGUS.

- WIEDEMANN, *Analecta Ent.*, 12, 1824; *Auss. Zw.*, 1, 414, 1828.
 MACQUART, *Hist. Nat. Dipt.*, 1, 288, 1834.
- aurulentus** FABRICIUS, *Syst. Anth.*, 166 (*Dasygogon*).—N. Y.
 WIEDEMANN, *Dipt. Exot.*, 228 (id.); *Analecta Ent.*, 12; *Auss. Zw.*, 1, 414,
 pl. VII, f. 5.—N. Y.
 MACQUART, *Hist. Nat. Dipt.*, 1, 239, pl. VII, f. 4.—N. Y.
 BRAUER, *Wien. Ent. Zeitung*, II, 56.
 JOHNSON, *Psyche*, 1903, III, fig. of antenna; oc. in N. J. and Pa.
 N. J.—Smith Cat.
- cruciatus** SAY, *Jour. Acad. Sci. Phil.*, III, 52; *Compl. Works*, II, 66 (*Dasygogon*).—Ark.
 WIEDEMANN, *Auss. Zw.*, 1, 381 (id.).—Ark.
 WALKER, *List*, II, 367 (*fasciatus*).—N. Y. [Lw., in O. S. Cat.]
 BRAUER, *Wien. Ent. Zeitung*, II, 56.
 JOHNSON, *Psyche*, 1903, 112, fig. of antenna.
 N. J.—Smith Cat.; Fla.—Johnson; S. D.—J. M. A.
 For *Dasygogon cornutus* Wied., see *Ceraturgopsis*.
- dimidiatus** MACQUART, *Dipt. Exot., Suppl.*, II, 35 (*Dasygogon*).—Mex.
 WALKER, *List*, VI, 428.
 BELLARDI, *Saggio*, II, 61.
 BRAUER, *Wien. Ent. Zeitung*, II, 56.
- geniculatus** BIGOT, *Annales*, 1878, 443.—Mex.
- lobicornis** OSTEN SACKEN, see *Myelaphus*.
- nigripes** WILLISTON, *Trans. Amer. Ent. Soc.*, XIII, 287, 288.—Ga.
- rufipennis** MACQUART, *Dipt. Exot., Suppl.*, II, 32.—Mex.
 BELLARDI, *Saggio*, II, 59.—Mex.
 BRAUER, *Wien. Ent. Zeitung*, II, 56.
- vitripennis** BELLARDI, see *Taracticus*.

CERATURGOPSIS.

- JOHNSON, *Psyche*, 1903, III.
- cornutus** WIEDEMANN, *Auss. Zw.*, 1, 382 (*Dasygogon*).—No locality.
 OSTEN SACKEN, *Cat.*, 66, makes a syn. of *Ceraturgus cruciatus*.
 JOHNSON, *Psyche*, 1903, III, fig., recognized as distinct.—Ormond, Fla.

MYELAPHUS.

- BIGOT, *Bull. Soc. ent. France*, 1882, no. 9, p. 112.
 WILLISTON, *Trans. Amer. Ent. Soc.*, XI, 5, 1883.
- lobicornis** OSTEN SACKEN, *West. Dipt.*, 287 (*Ceraturgus*).—Ida., Cal.
 BRAUER, *Wien. Ent. Zeit.*, II, 56 (*Ceraturgus*).
 WILLISTON, *Trans. Amer. Ent. Soc.*, XI, 7; XII, 53, and XIII, 288, additional notes.—Cal.
- melas** BIGOT, *Bull. Soc. ent. France*, 1882, no. 9, p. 112.—Cal.
 WILLISTON, *Trans. Amer. Ent. Soc.*, XI, 5.—Kern Co., Cal.
- rufus** WILLISTON, *Trans. Amer. Ent. Soc.*, XI, 7; XIII, 288, notes.—Kern Co., Cal.

DICOLONUS.

- LOEW, *Cent.*, VII, 56, 1866.
 SCHINER, *Verh. Zool.-Bot. Ges.*, 1866, 847, quotes orig. desc.
- simplex** LOEW, *Cent.*, VII, 56.—Cal.
 WILLISTON, *Trans. Amer. Ent. Soc.*, XI, 11, pl. I, f. 4, note and fig.—S. Cal.

ECHTHODOPA.

LOEW, Cent., VII, 27, 1866; Besch. Europ. Dipt., II, 78, obs.

SCHINER, Verh. Zool.-Bot. Ges., 1866, 848, quotes orig. desc.

formosa LOEW, Cent., X, 22.—Pa.

pubera LOEW, Cent., VII, 27.—Nebr. Mont.—Will. Ms.

DIOCTRIA.

MEIGEN, Illig. Mag., II, 270, 1803; Syst. Besch., II, 180, 1820.

MACQUART, Hist. Nat. Dipt., I, 289, 1834.

SCHINER, Fauna Austr., I, 119, 1862.

COQUILLET, Canad. Ent., XXV, 80, synopsis, 1893.

albus WALKER, List, II, 301.—N. Y.

OSTEN SACKEN, West. Dipt., 287, notes.

WILLISTON, Trans. Amer. Ent. Soc., XI, 8, oc. in Conn. and Wash.

N. J.—Smith Cat.; White Mts., N. H.—Slosson.

nitida WILLISTON, Trans. Ent. Soc., XI, 8.—Wash.

parvula COQUILLET, Canad. Ent., XXV, 80.—Cal.

pusio OSTEN SACKEN, West. Dipt., 288.—Sonoma Co., Cal.

WILLISTON, Trans. Amer. Ent. Soc., XIII, 288.—Col.

resplendens LOEW, Cent., X, 21.—Cal.

rubida COQUILLET, Canad. Ent., XXV, 80.—Cal.

sackeni WILLISTON, Trans. Amer. Ent. Soc., XI, 8.—Wash.

CYRTOPOGON.

LOEW, Linnæa Ent., II, 516, 1847.

SCHINER, Fauna Austr., I, 133, 1862.

OSTEN SACKEN, West. Dipt., 294, analyt. table of western species; Cat., 231, note 104, table of New England species.

aureifex OSTEN SACKEN, West. Dipt., 300.—Sierra Nevada Mts., Cal.

bimacula WALKER, Dipt. Saund., 102, pl. IV, f. 1 (*Euarmostus*), male.—N. A.

LOEW, Cent., VII, 61 (*Dasygogon melanoplurus*), female; Berl. Ent. Zeitsch., 1874, 365, syn.—White Mts., N. H.

callipedilus LOEW, Berl. Ent. Zeitsch., 1874, 358.—Cal.

OSTEN SACKEN, West. Dipt., 296.—Sierra Nevada, Cal.

WILLISTON, Trans. Amer. Ent. Soc., XI, 12, oc. in Wyo.

COQUILLET, Psyche, Jan., 1901, 149, oc. in N. M.

cerussatus OSTEN SACKEN, West. Dipt., 308.—Sonoma Co., Cal.

chrysopogon LOEW, Cent., VII, 59.—Mass.

? WALKER, List, II, 355 (*Dasygogon falto*).—Nova Scotia. [O. S. Cat., with ?]

Quebec—Wulp; Montreal—Chagnon; N. J.—Smith Cat.; Fla.—Johnson; Axton, N. Y.—M. & H.

cretaceus OSTEN SACKEN, West. Dipt., 302.—Sierra Nevada, Cal.

cymbalista OSTEN SACKEN, West. Dipt., 297, Sierra Nevada, Cal. (Summit Station and Webber Lake).

dasyllis WILLISTON, Kans. Univ. Quart., II, 66.—Col.

dasyллоides WILLISTON, Trans. Amer. Ent. Soc., XI, 11.—Wash.

dubius WILLISTON, Trans. Amer. Ent. Soc., XI, 13.—Ore.

evidens OSTEN SACKEN, West. Dipt., 306.—Webber Lake, Cal.

? **gibber** WILLISTON, Trans. Amer. Ent. Soc., XI, 14, pl. I, f. 9.—Cal. Gen. ref. with a ?

- leucozona** LOEW, Berl. Ent. Zeitsch., 1874, 364.—Sierra Nevadas, Cal.
OSTEN SACKEN, West. Dipt., 299.—Webber Lake and Yosemite Valley, Cal.
Beulah, N. M.—Skinner.
- longimanus** LOEW, Berl. Ent. Zeitsch., 1874, 360.—San Francisco.
OSTEN SACKEN, West. Dipt., 303.—Marin Co., Cal.
- lutatius** WALKER, List, II, 357 (*Dasyopogon*).—Nova Scotia.
OSTEN SACKEN, Cat., 231, note 105.—Cayuga L., N. Y.; Mass.
- lyratus** OSTEN SACKEN, Cat., 232.—White Mts., N. H.; Catskills, N. Y.
- marginalis** LOEW, Cent., VII, 60; Berl. Ent. Zeitsch., 1874, 365, note.—Mass.
Canada—O. S. Cat.; N. J.—Smith Cat.
- montanus** LOEW, Berl. Ent. Zeitsch., 1874, 362.—Sierra Nevadas, Cal.
OSTEN SACKEN, West. Dipt., 298.—Webber Lake, Cal.
Beulah, N. M.—Skinner.
- ? **nebulo** OSTEN SACKEN, West. Dipt., 309.—Webber L., Cal. Gen. ref. doubted.
WILLISTON, Trans. Amer. Ent. Soc., XI, 14.—Wash.
- nugator** OSTEN SACKEN, West. Dipt., 307.—Webber L., Cal.
WILLISTON, Trans. Amer. Ent. Soc., XI, 13, oc. in Ore. and note.
- plausor** OSTEN SACKEN, West. Dipt., 297.—Morino Valley and Spanish Peaks, N. M.; Utah; Idaho.
WILLISTON, Trans. Amer. Ent. Soc., XI, 12, oc. in Col.
- positivus** OSTEN SACKEN, West. Dipt., 307.—Webber L., Cal. Ariz.—Will. Ms.
- præpes** WILLISTON, Trans. Amer. Ent. Soc., XI, 12.—Wash.
- princeps** OSTEN SACKEN, West. Dipt., 302.—Webber L., Cal.
- profusus** OSTEN SACKEN, West. Dipt., 305.—Morino Valley and Sangre de Cristo Mts., N. M. Also reported by Williston from N. M.
- rattus** OSTEN SACKEN, West. Dipt., 308.—Webber L., Cal.
- reductus** OSTEN SACKEN, West. Dipt., 307.—Webber L., Cal.
- sudator** OSTEN SACKEN, West. Dipt., 307.—Webber L., Cal.

LASIOPOGON.

- LOEW, Linnaea Ent., II, 508, 1847; Berl. Ent. Zeitsch., 1874, 377, name changed to *Daulopogon*, on account of prior use of *Lasiopogon* in botany.
- arenicola** OSTEN SACKEN, West. Dipt., 310 (*Daulopogon*).—San Francisco.
- bivittatus** LOEW, Cent., VII, 57; Berl. Ent. Zeitsch., 1874, 370, note.—Cal.
- opaculus** LOEW, Berl. Ent. Zeitsch., 1874, 367 (*Daulopogon*).—Ill.
N. J.—Smith Cat.
- terricola** JOHNSON, Ent. News, XI, 326 (*Daulopogon*).—Ocean Co., Clementon, Wenonah, and Riverton, all in Southern N. J.
- tetragrammus** LOEW, Berl. Ent. Zeitsch., 1874, 368 (*Daulopogon*).—Can.

PLESIOMMA.

- MACQUART, Dipt. Exot., I, 2, 54, 1838.
- funesta** LOEW, Wien. Ent. Monatsch., V, 35; Cent., VII, 31.—Cuba.
JENNICKE, Neue Exot. Dipt., 48 (*Dioctria lugubris*).—Cuba. [Lw. in O. S. Cat.]
- indecora** LOEW, Cent., VII, 33.—Cuba. Jamaica—Johnson.
- leptogaster** LOEW, Cent., VII, 32.—Cuba.
- lineata** FABRICIUS, Spec. Ins., II, 465 (*Asilus*); Ent. Syst., 386 (id.); Syst. Antl., 167 (*Dasyopogon*).—West Indies.

WIEDEMANN, Dipt. Exot., 1, 221 (*Dasygogon*); Auss. Zw., 1, 385 (id.).—
W. I.

? SCHINER, Verh. Zool.-Bot. Ges., 1867, 374 (query by O. S.). See *macra*.
San Domingo—Will.

longiventris SCHINER, Verh. Zool.-Bot. Ges., 1867, 375.—Cuba.

macra LOEW, Wien. Ent. Monatsch., v, 35; Cent., vii, 34.—Cuba.

SCHINER, in Verh. Zool.-Bot., Ges., 1867, 374, says this is the same as
lineata; but Osten Sacken does not accept the synonymy in his Cata-
logue.

unicolor LOEW, Cent., vii, 35.—N. M. West. Texas—O. S.

HOLCOCEPHALA.

JENNICKE, Neue Exot. Dipt., 51, 1867, name changed.

MACQUART, Dipt. Exot., 1, 2, 1838 (*Discocephala*, preoc.).

abdominalis SAY, Jour. Acad. Sci. Phil., iii, 50; Compl. Works, ii, 64 (*Dasy-
gogon*).—Pa.

WIEDEMANN, Auss. Zw., 1, 412 (id.).

MACQUART, Dipt. Exot., 1, 2, 50, pl. iv, f. 2 (*Discocephala rufiventris*).—
Carolina, Brazil. [O. S., in Say's Compl. Works, loc. cit.]

WALKER, List, ii, 362 (*Dasygogon cta*).—Fla., Mass. [O. S.]

VAN DER WULP, Tijdschr. v. Ent., x, 137, pl. iii, f. 10-16 (*Dasygogon
laticeps*).—Wis. [Loew, in Zeitsch. f. Ges. Naturwiss., xxxvi, 115.]

N. J.—Smith Cat.; White Mts., N. H.—Slosson; Fla.—Johnson.

affinis BELLARDI, Saggio, ii, 86, pl. 1, f. 13 (*Discocephala*).—Mex.

calva LOEW, Cent., x, 35 (*Discocephala*).—Texas.

N. J.—Smith Cat.; Juniper Cr., Fla.—Johnson; West. N. Y.—O. S.

deltoides BELLARDI, Saggio, ii, 85, pl. 1, f. 12 (*Discocephala*).—Mex.

interlineata WALKER, Trans. Ent. Soc., v, 279 (*Discocephala*).—Mex.

longipennis BELLARDI, Saggio, ii, 286, pl. 1, f. 14 (*Discocephala*).—Jalapa, Mex.

WALKER, Trans. Ent. Soc., v, 279 (*Discocephala divisa*).—Mex. [Will.]

OSTEN SACKEN, Biologia, Dipt., 1, 171, oc. in Costa Rica, and note on type.

nitida WIEDEMANN, Auss. Zw., ii, 603 (*Dasygogon*).—Mex.

WALKER, List, vi, 503.—Mex.

BELLARDI, Saggio, ii, 83, 84 (*Discocephala minuta* and *nitida*).—Tuxpango
and Orizaba; Jalapa. [Will.]

WILLISTON, Biologia, Dipt., 1, 308.—Mexico, several places.

HOLOPOGON.

LOEW, Linnæa Ent., ii, 473, 1847.

SCHINER, Fauna Austr., 1, 129, 1862.

? **appendiculatus** BIGOT, Annales, 1878, 438.—Cal. Query by Bigot.

dejectus WILLISTON, Biologia, Dipt., 1, 306.—Guerrero, Mex.

guttula WIEDEMANN, Dipt. Exot., 228 (*Dasygogon*); Auss. Zw., 1, 411 (id.).—
Savannah, Ga.

? WALKER, List, ii, 355.—N. Y., Ohio. Query by Walker.

Atlantic States.—O. S.; N. J.—Smith Cat.

nitidiventris BIGOT, Annales, 1878, 437.—Cal.

phæonotus LOEW, Berl. Ent. Zeitsch., 1874, 366.—Texas.

philadelphicus SCHINER, Verh. Zool.-Bot. Ges., 1867, 360.—Philadelphia, Pa.

LOEW, Berl. Ent. Zeitsch., 1874, 367, note.

Ormond, Fla.—Johnson.

- pulcher** WILLISTON, *Biologia*, Dipt., i, 306, pl. v, f. 18.—Guerrero, Mex.
seniculus LOEW, *Cent.*, vii, 62.—Nebr.
violaceus WILLISTON, *Biologia*, Dipt., i, 306, pl. v, f. 17.—Guerrero, Mex.

PYCNOPOGON.

- LOEW, *Linnaea* Ent., ii, 500, 1847.
 SCHINER, *Fauna Austr.*, i, 128, 1862.
cirrhatus OSTEN SACKEN, *West. Dipt.*, 293.—Mariposa Co., Cal.
 WILLISTON, *Trans. Amer. Ent. Soc.*, xi, 15.—Cal.
divisus COQUILLET, *Jour. N. Y. Ent. Soc.*, x, 130.—Chihuahua, Mex.
senilis BIGOT, *Annales*, 1878, 423 (*Anisopogon*).—Cal. Referred to this genus by Williston, in litt. Fla.—Johnson.

STICHOPOGON.

- LOEW, *Linnaea* Ent., ii, 500, 1847.
 SCHINER, *Fauna Austr.*, i, 128, 1862.
argenteus SAY, *Jour. Acad. Sci. Phil.*, iii, 51; *Compl. Works*, ii, 65 (*Dasyopogon*). Pa. and Md.
 WIEDEMANN, *Auss. Zw.*, i, 409 (id.).
 Atlantic States: not rare on scabeches.—O. S.; N. J.—Smith Cat.
candidus MACQUART, see *trifasciatus*.
catulus OSTEN SACKEN, *Biologia*, Dipt., i, 170.—N. Sonora, Mex.
trifasciatus SAY, *Jour. Acad. Sci. Phil.*, iii, 51; *Compl. Works*, ii, 64 (*Dasyopogon*).—Pa. and Md.
 MACQUART, *Dipt. Exot.*, *Suppl.*, i, 67 (*Dasyopogon candidus*); *Suppl.*, iv, 69, pl. vi, f. 13 (*D. fasciventris*).—Vera Cruz; Mex.
 WALKER, *List.*, i, 223 (*Thereca plagiata* HARRIS,—a manuscript name); *Trans. Ent. Soc.*, v, 277 (*Dasyopogon gelascens*).—Mass.; Mex.
 BELLARDI, *Saggio*, ii, 78 (*Dasyopogon*).—Mex.
 WILLISTON, *Trans. Amer. Ent. Soc.*, xiii, 289, oc. and preceding synonymy.—New England, Kans., and S. Cal.
 TOWNSEND, *Proc. Cal. Acad. Sci.*, iv, 598, oc. in Lower Cal.
 N. J.—Smith Cat.

HABROPOGON.

- LOEW, *Linnaea* Ent., ii, 463, 1847.
 SCHINER, *Fauna Austr.*, i, 126, 1864.
 WILLISTON, *Trans. Amer. Ent. Soc.*, xi, 10, 1883.
 ? **lineatus** WILLISTON, *loc. cit.*, pl. i, f. 6.—Cal. Query by Will., in litt.

CALLINICUS.

- LOEW, *Cent.*, x, 32, 1872.
calcaneus LOEW, *Cent.*, x.—Cal.
 OSTEN SACKEN, *West. Dipt.*, 291, oc. in Marin Co., Cal.; *Cat.* gives Sonoma Co., Cal.
 BIGOT, *Annales*, 1878, 411 (*Dasyopogon bilimbatum*).—Cal.

HETEROPOGON.

- LOEW, *Linnaea*, Ent., ii, 488, 1847; *Berl. Ent. Zeitsch.*, 1874, 377, changes name to *Anisopogon*, on account of prior use of *Heteropogon* in botany.
 COQUILLET, *Canad. Ent.*, xxv, 20, 1893, table of species (*Anisopogon*).
gibbus LOEW, *Cent.*, vii, 58.—Pa.

WALKER, List, II, 356 (*Dasyopogon macerinus*).—Trenton Falls, N. Y.
[O. S.]

humilis BELLARDI, Saggio, II, 77.—Mex.

lautus LOEW, Cent., x, 34.—Texas.

WILLISTON, Trans. Amer. Ent. Soc., XI, 16 (*Anisopogon*).—Wash., Cal.

ludius COQUILLET, Canad. Ent., XXV, 20 (*Anisopogon*).—Los Angeles and San Bernardino Cos., Cal.; Brit. Col.

patruelis COQUILLET, Canad. Ent., XXV, 21 (*Anisopogon*).—Texas.

phœnicurus LOEW, Cent., x, 33.—Texas.

rejectus WILLISTON, Biol. Centr. Amer., Dipt., 1, 307.—Mex.; Venta de Zopilote.

rubidus COQUILLET, Canad. Ent., XXV, 21 (*Anisopogon*).—Los Angeles Co., Cal.

senilis BIGOT, see *Pycnopogon*.

vespoides BIGOT, Annales, 1878, 423 (*Anisopogon*).—Cal.

NEOLAPARUS.

WILLISTON, Psyche, 1885, 255, change of name.

LOEW, Bemerkungen über Asiliden, 4, 1851 (*Laparus*, preec.).

? **pictitarsis** BIGOT, Annales, 1878, 417.—Cal. Query by Bigot.

WILLISTON, Trans. Amer. Ent. Soc., XI, 25, notes; does not belong to this genus.

SAROPOGON.

LOEW, Linnæa Ent., 439, 1847; Bemerk. über Asil., 5, 1851.

SCHINER, Fauna Austr., I, 125, 1862; Verh. Zool.-Bot., Ges., 1866, 653.

abbreviatus JOHNSON, Psyche, 1903, 113.—San Antonio, Tex.

adustus LOEW, Berl. Ent. Zeitsch., 1874, 375.—Texas.

WILLISTON, Trans. Amer. Ent. Soc., x, 23.—Kans.

bicolor JOHNSON, Psyche, 1903, 113.—San Antonio, Tex.

combustus LOEW, Berl. Ent. Zeitsch., 1874, 373.—Texas.

WILLISTON, Trans. Amer. Ent. Soc., XI, 23.—Kans.

dispar COQUILLET, Jour. N. Y. Ent. Soc., x, 139.—Cuero and Columbus, Tex.

pulcherrimus WILLISTON, Biologia, Dipt., 1, 312, pl. VI, f. 3.—Guerrero, Mex.

senex OSTEN SACKEN, Biologia, Dipt., 1, 179.—Presidio, Mex.

BLEPHAREPIUM.

RONDANI, Studi Ent., 1, 89, 1848.

LYNCH, A. (ENRIQUE), Asilides Argentinos, 3, in Anal. Soc. Cient. Argentina, VIII, 145-153, 1879 (*Planctolestes*).

OSTEN SACKEN, Biologia, Dipt., 1, 171, 1887, rejects *Blepharepium*.

WILLISTON, Biologia, Dipt., 1, 310, 1892.

coarctatum PERTY, Delectus Animal., 181, pl. XXXVI, f. 4 (*Laphria*).—Brazil.

MACQUART, Dipt. Exot., I, 2, 194 (*Dasyopogon bonariensis*).—Argentina.

WALKER, List, VI, 439 and 504 (*Das. bonariensis* and *coarctatum*).—Buenos Aires and Rio Negro.

WALKER, Dipt. Saund., 455 (*Dasyopogon subcontractus*).—Amazon.

WALKER, Trans. Ent. Soc., v, 276 (*Dasyopogon scabillis*).—Mex.

BIGOT, in Sagra's Cuba, 789, pl. XX, f. 3 (*Senobasis annulatus*).—Cuba.

BELLARDI, Saggio, II, 63, pl. I, f. 4 (*Das. scabillis*).—Mex.

SCHINER, Verh. Zool.-Bot. Ges., 1866, 701 (*Senobasis scabillis*); 1867, 371 (*Sen. auricinctus*).—Surinam. [Loew.]

LYNCH, A. (ENRIQUE), Anal. Soc. Cient. Argent., VIII, 145, synonymy.—Argentina.

VAN DER WULP, Tijdschr. v. Ent., XXV, 88.—Argentina.

OSTEN SACKEN, *Biologia*, Dipt., 1, 171 (*Planctolestes secabilis*).—Mexico, several places; Guatemala; Panama.

SNOW, *Kans. Univ. Quart.*, iv, 177.

WILLISTON, *Biologia*, Dipt., 1, 310, oc. in several Mexican localities.

Note.—Osten Sacken uses the name *secabilis* for the Mexican form, because he has examined the type. The further synonymy is less certain.

DEROMYIA.

PHILIPPI, *Verh. Zool.-Bot. Ges.*, xv, 705, 1865.

SCHINER, *Verh. Zool.-Bot. Ges.*, xvi, 653, 1866.

LOEW, *Cent.*, vii, 36, 1866 (*Diogmites*).

VAN DER WULP, *Tijdsch. v. Ent.*, xxv, 92, 1882.

WILLISTON, *Trans. Amer. Ent. Soc.*, xi, 24, 1883; *Psyche*, 1889, 256; *Biologia*, Dipt., 1, 310, 1901.

OSTEN SACKEN, *Biologia*, Dipt., 1, 173, 1887 (*Diogmites*).

affinis BELLARDI, *Saggio*, 73 (*Saropogon*).—Mex.

angustipennis LOEW, *Cent.*, vii, 41 (*Diogmites*).—"Kansas; Matamoras."

WILLISTON, *Trans. Amer. Ent. Soc.*, xi, 25, note.

annulata BIGOT, see *Blepharopium coarctatum*.

basalis WALKER, see *unbrina*.

bicolor JENNICKE, *Neue Exot. Dipt.*, 49 (*Saropogon*).—Panama.

bigotii BELLARDI, *Saggio*, ii, 70 (*Saropogon*).—Mex.

St. Augustine and Ormond, Fla.—Johnson.

bilineata LOEW, *Cent.*, vii, 40 (*Diogmites*).—Cuba.

VAN DER WULP, *Tijdsch. v. Ent.*, xvii (sep.) 2, says this is a synonym of *basalis* WALKER "without the least doubt"; Osten Sacken, however, in *Cat.*, 233, note 108, says the type of *basalis* is either an *unbrina* or a *discolor*. *Com.*—Wulp.

brunnea FABRICIUS, *Mantissa Ins.*, ii, 359 (*Asilus*); *Ent. Syst.*, iv, 382 (id.); *Syst. Antl.*, 165 (*Dasyopogon*).—Cayenne, S. A.

WIEDEMANN, *Dipt. Exot.*, 1, 219 (id.); *Auss. Zw.*, 1, 382 (id.).—Cayenne.

? MACQUART, *Dipt. Exot.*, 1, 2, 34 (id.).—Cayenne; Philadelphia. Query by O. S.

BELLARDI, *Saggio*, ii, 67 (*Saropogon*).—Mex.

craverii BELLARDI, *Saggio*, ii, 68 (*Saropogon*).—Mex.

OSTEN SACKEN, *Biologia*, Dipt., 1, 178, note on types (*Diogmites*).

cuantlensis BELLARDI, *Saggio*, ii, 68 (*Saropogon*).—Cuantla, Mex.

OSTEN SACKEN, *Biologia*, Dipt., 1, 175 (*Diogmites*).—Guatemala.

discolor LOEW, *Cent.*, vii, 37 (*Diogmites*).—Pa.

? MACQUART, *Hist. Nat. Dipt.*, 1, 295 (*Dasyopogon rufescens*).—Philadelphia.

? WALKER, *List*, vi, 426 (id.).

OSTEN SACKEN, *Cat.*, 232, note on types and syn.

WILLISTON, *Trans. Amer. Ent. Soc.*, xi, 25, oc. in Pa.

N. J.—Smith *Cat.* See *bilincata*.

dubia BELLARDI, *Saggio*, ii, 74 (*Saropogon*).—Mex.

duillia WALKER, *List*, ii, 340 (*Dasyopogon*).—Honduras.

OSTEN SACKEN, *Biologia*, Dipt., 1, 178, note (*Diogmites*).

goniostigma BELLARDI, *Saggio*, ii, 65, pl. 1, f. 6 (*Saropogon*).—Mex.

hypomelas LOEW, *Cent.*, vi, 42 (*Diogmites*).—Pecos R., Texas.

jalapensis BELLARDI, *Saggio*, ii, 65, pl. 1, f. 5 (*Saropogon*).—Jalapa, Mex.

OSTEN SACKEN, *Biologia*, Dipt., 1, 177, note on type (*Diogmites*).

WILLISTON, *Biologia*, Dipt., 1, 311, oc. in several places in Mex.; Yucatan.

- lindigi** SCHINER, Novara, 165 (*Dasygogon*).—S. A.
OSTEN SACKEN, Dipt., I, 174 (*Diognites*), oc. in Panama.
- memnon** OSTEN SACKEN, Biologia, Dipt., I, 174, pl. III, f. 9 (*Diognites*).—Costa Rica, Panama.
- nigripennis** MACQUART, Dipt. Exot., Suppl., II, 34, pl. I, f. 6 (*Dasygogon*).—Mex.
BELLARDI, Saggio, II, 75 (*Saropogon*).—Mex.
- nigripes** BELLARDI, Saggio, II, 75 (*Saropogon*).—Mex., Playa Vicente.
- platyptera** LOEW, Cent., VII, 36 (*Diognites*).—Ill.
- pseudojalapensis** BELLARDI, Saggio, App., 23 (*Dasygogon*).—Tuxpango and Orizaba, Mex.
- rubescens** BELLARDI, Saggio, II, 71 (*Saropogon*).—Tuxpango, Mex.
OSTEN SACKEN, Biologia, Dipt., I, 176 (*Diognites*).—Orizaba, Mex.
- rufescens** MACQUART, see *discolor*.
- sallæi** BELLARDI, Saggio, II, 70 (*Saropogon*).—Tuxpango, Mex.
OSTEN SACKEN, Biologia, Dipt., I, 174, pl. III, f. 8 (*Diognites*).—N. Sonora, Ventenas, and Presidio, Mex.
WILLISTON, Biologia, Dipt., I, 311, oc. in many Mexican localities.
- symmacha** LOEW, Cent., X, 26.—Texas. (*Diognites*).
- tau** OSTEN SACKEN, Biologia, Dipt., I, 176, pl. III, f. 11 (*Diognites*).—Panama.
- ternata** LOEW, Cent., VII, 38 (*Diognites*).—Cuba.
St. Augustine, Fla.—Johnson.
- ? **tricolor** BELLARDI, Saggio, II, 72 (*Saropogon*).—Mex. Query by O. S., in Cat.
- umbrina** LOEW, Cent., VII, 43 (*Diognites*).—N. Y., Ill.
? WALKER, Dipt. Saund., 95 (*Dasygogon basalis*).—U. S. Query by O. S.; see note under *bilincata*.
? WALKER, List, II, 339 (*Dasygogon hercynius*).—Cincinnati. Query by J. M. A.
OSTEN SACKEN, Cat., 233, note on type of *basalis*.
WILLISTON, Trans. Amer. Ent. Soc., XI, 25, note.
Mass.—O. S.; N. J.—Smith Cat.
- virescens** BELLARDI, Saggio, II, 72 (*Saropogon*).—Mex.
- winthemi** WIEDEMANN, Dipt. Exot., 223; Auss. Zw., I, 387 (*Dasygogon*).—S. A.
? LOEW, Cent., VII, 39 (*Diognites miscellus*).—D. C.
SCHINER, Verh. Zool.-Bot. Ges., 1866, 678 (*Dasygogon*).
VAN DER WULP, Tijdsch. v. Ent., XXV, 93; XXVII (sep.), 2, oc. in Conn., notes.
WILLISTON, Trans. Amer. Ent. Soc., XI, 24, pl. II, f. 6, synonymy.
OSTEN SACKEN, Biologia, Dipt., I, 177, doubts identity of *miscellus*.
N. J.—Smith Cat.; Fla.—Johnson.

LESTOMYIA.

- WILLISTON, Trans. Amer. Ent. Soc., XI, 19, 1883.
OSTEN SACKEN, West. Dipt., 292, 1878 (*Clavator Phillippi*).
- fraudigera** WILLISTON, Trans. Amer. Ent. Soc., XI, 21.—Cal.
- sabulonum** OSTEN SACKEN, West. Dipt., 292 (*Clavator*).—Cal.
WILLISTON, Trans. Amer. Ent. Soc., XI, 20, pl. II, f. 4.—Kern Co., Cal., and Northern Cal.

LASTAURUS.

- LOEW, Bemerkungen über Asiliden, II, 1851.
- anthracinus** LOEW, loc. cit., 12.—Mex.
OSTEN SACKEN, Biologia, Dipt., I, 179, pl. III, f. 10.—Guatemala.

mutabilis LOEW, loc. cit., 12.—Venezuela.

OSTEN SACKEN, *Biologia, Dipt.*, 1, 180.—Costa Rica and Panama.

TARACTICUS.

LOEW, *Cent.*, vol. II, 240, note; 1872.

brevicornis WILLISTON, see *Cophura*.

? *niger* MACQUART, *Dipt. Exot.*, 1, 2, 25, pl. II, f. 1 (*Ceraturgus*).—N. A.

WALKER, *List.*, VI, 378, pt. desc. (id.).

OSTEN SACKEN, *Catalogue*, gen. ref.

BRAUER, *Wien. Ent. Zeit.*, II, 54, 56 (*Ceraturgus*).

WILLISTON, *Trans. Amer. Ent. Soc.*, XI, 22, doubts the generic position.

nigrimystaceus WILLISTON, *Biologia, Dipt.*, 1, 313, pl. v, f. 23.—Guerrero, Mex.

nigripes WILLISTON, *Biologia, Dipt.*, 1, 313.—Guerrero, Mex. "May not be distinct from *similis*."

octopunctatus SAY, *Jour. Acad. Sci. Phil.*, III, 99; *Compl. Works*, II, 63 (*Dioctria*). U. S.

WIEDEMANN, *Auss. Zw.*, 1, 365 (id.).—N. A.

WALKER, *List.*, VI, 387 (id.).

SCHNER, *Verh. Zool.-Bot. Ges.*, 1866, 675; 1867, 369 (id.).

WILLISTON, *Trans. Amer. Ent. Soc.*, XI, 22, pl. II, f. 2, 2a.

Atlantic States—O. S.; N. J.—*Smith Cat.*; White Mts., N. H.—Slosson; Fla.—Johnson; S. D.—J. M. A.

similis WILLISTON, *Biologia, Dipt.*, 1, 312.—Guerrero, Mex.

vitripennis BELLARDI, *Saggio*, II, 60 (*Ceraturgus*).—Cuantla, Mex.

OSTEN SACKEN, *Cat.*, 66. "can hardly be a *Ceraturgus*."

BRAUER, *Wien. Ent. Zeit.*, II, 56.

SNOW, *Kans. Univ. Quart.*, IV, 179, gen. ref.

WILLISTON, *Biologia, Dipt.*, 1, 313, oc. in Chilpancingo, Mex., and notes.

COPHURA.

OSTEN SACKEN, *Biologia, Dipt.*, 1, 181, 1886.

LOEW, *Cent.*, X, 24, 1872 (*Blax*, preoc.); *Berl. Ent. Zeitsch.*, 1874, 377 (*Blacodes*, preoc.).

WILLISTON, *Manual N. A. Dipt.*, 57, 1896 (*Laxiella*, preoc.); *Biologia, Dipt.*, 1, 314, 1901, list of species.

bella LOEW, *Cent.*, X, 24 (*Blax*).—Texas.

? *brevicornis* WILLISTON, *Trans. Amer. Ent. Soc.*, XI, 22, pl. II, f. 3 (*Taracticus*); XII, 54, refers to *Aphamartania*; *Biologia, Dipt.*, 1, 314, refers here with a doubt.—Wash.

clausa COQUILLET, *Canad. Ent.*, XXV, 34 (*Blacodes*).—Cal.

cristata COQUILLET, *Canad. Ent.*, XXV, 33 (*Blacodes*).—Cal.

fur WILLISTON, *Trans. Amer. Ent. Soc.*, XII, 53 (*Aphamartania*).—Ariz.

humilis WILLISTON, *Biologia, Dipt.*, 1, 315.—Guerrero, Mex.

pulchella WILLISTON, *Biologia, Dipt.*, 1, 314, pl. v, f. 24.—Guerrero, Mex.

scitula WILLISTON, *Trans. Amer. Ent. Soc.*, XI, 19, pl. II, f. 1, 1a (? *Nicocles*).—Wash.

sodalis OSTEN SACKEN, *Biologia, Dipt.*, 1, 181, pl. III, f. 13.—Presidio, Mex.

Jalisco, Mex.—Williston.

trunca COQUILLET, *Canad. Ent.*, XXV, 34 (*Blacodes*).—Los Angeles Co., Cal.

NICOCLES.

JÆNNICKE, *Neue Exot. Dipt.*, 47, 1867.

LOEW, *Cent.*, VII, 28, 1866 (*Pygostolus*, preoc.).

- WILLISTON, Trans. Amer. Ent. Soc., XI, 16, 1883.
 COQUILLET, Canad. Ent., XXV, 119, table of species, 1893.
abdominalis WILLISTON, Trans. Amer. Ent. Soc., XI, 17, pl. 1, f. 14.—Cal.
æmulator LOEW, Cent., X, 25 (*Pygostolus*).—Cal.
analís JÆNNICKE, Neue Exot. Dipt., 47, pl. 1, f. 13.—Mex.
argentatus COQUILLET, Canad. Ent., XXV, 119.—Los Angeles and San Bernardino Cos., Cal.
dives LOEW, Cent., VII, 29 (*Pygostolus*).—Cal. Sonoma Co., Cal.—O. S.
pictus LOEW, Cent., VII, 30 (*Pygostolus*).—D. C.
 N. J.—Smith Cat.; St. Augustine, Fla.—Johnson.
politus SAY, Jour. Acad. Sci. Phil., III, 52; Compl. Works, II, 65 (*Dasybogon*).—Pa. and Md.
 WIEDEMANN, AUSS. ZW., I, 405 (*id.*).
 WALKER, List, VI, 421 (*id.*).
 LOEW, Cent., VII, 28 (*Pygostolus argentifer*), male.—D. C.
 Mass.—O. S.; N. J.—Smith Cat.
rufus WILLISTON, Trans. Amer. Ent. Soc., XI, 18, pl. 1, f. 15.—Wash.
scitulus WILLISTON, see *Cophura*.

DASYPOGON.

MEIGEN, Illig. Mag., II, 270, 1803.

Note.—In the restricted sense, this genus does not occur in N. A. There are a few descriptions coming under this genus in the old sense which have never been elucidated, and perhaps never will be.

- angustus** MACQUART, Dipt. Exot., Suppl., III, 20.—Hayti.
bilimbatus BIGOT, see *Callinicus calcaneus*.
cepphicus SAY, Jour. Acad. Sci. Phil., VI, 158; Compl. Works, II, 354.—Mex.
mexicanus MACQUART, Dipt. Exot., Suppl., I, 68.—Mex.
nigritarsis MACQUART, Dipt. Exot., Suppl., I, 68.—Mex.
parvus BIGOT, in Sagra's Cuba, 789.—Cuba.
quadrinotatus BIGOT, Annales, 1878, 412.—Cal.
rubiginosus BIGOT, Annales, 1878, 419 (*Scilopogon*).—N. A. I put the species here, because Rondani makes *Scilopogon* identical with his *Cheilopogon*, which in turn Schiner makes a synonym of *Dasybogon* in the narrow sense.

PSEUDORUS.

- WALKER, Dipt. Saund., 103, pl. IV, f. 5, 1853.
 SCHINER, Verh. Zool.-Bot. Ges., 1866, 653.
 OSTEN SACKEN, Biologia, Dipt., I, 183, corrects error of Schiner.
bicolor BELLARDI, Saggio, II, 11, pl. 1, f. 20.—Playa Vicente, Mex.
 OSTEN SACKEN, Biologia, Dipt., I, 183.—Guatemala.
 WILLISTON, Biologia, Dipt., I, 315, oc. in Mex. (Amula, Acapulco, Atoyac, etc.).

DORYCLUS.

- JÆNNICKE, Abh. Senckenb. Ges., VI, 305, 1867.
 MACQUART, Hist. Nat. Dipt., I, 288 (*Megapoda*, preoc.), 1834.
 WALKER, List, VII, 504, 1855 (*Ampyva*, preoc.).
 SCHINER, Novara, 156, synonymy.
 LYNCH ARRIE, F., Anal. Soc. cient. Argent., XIII, syll.
 OSTEN SACKEN, Biologia, Dipt., I, 182, notes.
 ROEDER, Berl. Ent. Zeitsch., XXXI, 76, 1887, important discussion.

distendens WIEDEMANN, Auss. Zw., 1, 571 (*Asilus*).—Brazil.

MACQUART, Dipt. Exot., Suppl., 1, 198, pl. VII, f. 11, male (*Megapoda crassitaris*); 199, pl. VII, f. 12, female (*M. cyaneiventris*).—Brazil; Mex.

WALKER, List, VII, 564 (*Ampyr varipennis*).—Brazil.

VAN DER WULP, Tijdschr. v. Ent., XIII, 115, pl. IX, f. 7-12 (*Doryclus latipes*).—Surinam.

JÆNNICKE, Neue Exot. Dipt. (Abh. Senckenb. Ges.), 366, pl. XLIV, f. 3.

OSTEN SACKEN, Biologia, Dipt., 1, 182 (*varipennis* and *cyaneiventris*).—Guatemala.

ROEDER, Berl. Ent. Zeitsch., XXXI, 1887, 76, synonymy.

WILLISTON, Psyche, 1889, 256.—Brazil.

ATONIA.

WILLISTON, Psyche, 1889, 257.

brevistylata WILLISTON, Biologia, Dipt., 1, 316.—Teapa, Mex.

mikii WILLISTON, Trans. Amer. Ent. Soc., XIII, 290 (*Atomosia, Atractia*).—San Domingo.

APHESTIA.

SCHINER, Verh. Zool.-Bot. Ges., 1866, 673.

WILLISTON, Psyche, 1889, 257.

nigra BIGOT, Annales, 1878, 235.—Mex.

mexicana WILLISTON, Biologia, Dipt., 1, 317, pl. VI, f. 2.—Mexico; Amula, Atoyac.

CEROTAINIA.

SCHINER, Verh. Zool.-Bot. Ges., 1866, 673; Novara, 170, 1868.

WILLISTON, Psyche, 1889, 257.

dubia BIGOT, Annales, 238, 1878.—Mex.

macrocera SAY, Jour. Acad. Sci. Phil., III, 73; Compl. Works, II, 67 (*Laphria*).—Pa.

WIEDEMANN, Auss. Zw., 1, 531 (id.).

N. J.—Smith Cat.; Jamaica—Johnson.

nigra BIGOT, Annales, 1878, 238.—Mex.

nigripennis BELLARDI, Saggio, II, 191 (*Atomosia*).—Mex.

SCHINER, Verh. Zool.-Bot. Ges., 1866, 706.

ATOMOSIA.

MACQUART, Dipt. Exot., 1, 2, 73, 1838.

SCHINER, Verh. Zool.-Bot. Ges., 1866, 661, notes.

OSTEN SACKEN, Biologia, Dipt., 1, 183, note, 1887.

WILLISTON, Psyche, 1889, 257, table of genera of the *Atomosia* group.

anonyma WILLISTON, Biologia, Dipt., 1, 316.—Mexico, Teapa.

beckeri JÆNNICKE, Neue Exot. Dipt., 51.—Mex.

? **bigoti** BELLARDI, Saggio, II, 20.—Mex.; gen. ref. with a query.

eupoda BIGOT, Annales, 1878, 234 (*Cormansis*).—Mex. I place here because Bigot intimates that the genus is not distinct.

glabrata SAY, Jour. Acad. Sci. Phil., III, 53; Compl. Works, II, 66 (*Laphria*).—U. S.

MACQUART, Dipt. Exot., Suppl., II, 39 (*rufipes*).—Philadelphia. [Johnson.]

Atlantic States—O. S.

incisuralis MACQUART, Dipt. Exot., 1, 2, 76, pl. VII, f. 1.—Cuba.

BIGOT, in Sagra's Cuba, 788.

macquartii BELLARDI, Saggio, II, 20.—Mex.

WILLISTON, *Biologia*, Dipt., I, 316.—Mex.—Amula, Atoyac, Teapa, Yucatan.

mucida OSTEN SACKEN, *Biologia*, Dipt., I, 184.—Presidio, Mex.

WILLISTON, *Biologia*, Dipt., I, 315.—Yucatan, Mexico.

puella WIEDEMANN, *Auss. Zw.*, I, 531 (*Laphria*).—No locality.

SCHINER, *Verh. Zool.-Bot. Ges.*, 1866, 706, oc. in N. A.

MACQUART, *Hist. Nat. Dipt.*, I, 287 (*Laphria pygmaea*).—Ga. [O. S.]

? WALKER, *List*, II, 386 (? *Laphria echemon*).—Ohio.

JOHNSON, *Psyche*, 1903, 114, notes.—Gulf States and Phil.

N. J.—Smith Cat.; Fla.—Johnson.

rufipes MACQUART, see *glabrata*.

sayii JOHNSON, *Psyche*, 1903, 113.—Philadelphia and Delaware Co., Pa.

SAY, *Journal Acad. Sci. Phil.*, III, 54; *Compl. Works*, II, 66 (*Laphria glabrata*, var. a).—U. S.

sericans WALKER, *Trans. Ent. Soc.*, v, 282.—Mex.

similis BIGOT, in Sagra's *Cuba*, 788, pl. XX, f. 4.—Cuba.

soror BIGOT, *Annales*, 1878, 236.—Mex.

JOHNSON, *Psyche*, 1903, 114, brief desc.

tibialis MACQUART, *Dipt. Exot.*, *Suppl.*, I, 76.—Yucatan.

xanthopus WIEDEMANN, *Auss. Zw.*, I, 529 (*Laphria*).—Brazil.

VAN DER WULP, *Tijdsch. v. Ent.*, XXV, 105, oc. in Mex.

SCHINER, *Verh. Zool.-Bot. Ges.*, XVI, 693.

POGONOSOMA.

RONDANI, *Dipt. Ital. Prod.*, I, 160, 1856.

arachnoides BIGOT, *Annales*, 1878, 227.—Mex.

dorsatum SAY, *Amer. Ent.*, I, pl. I, f. 3; *Compl. Works*, I, 13 (*Laphria*).—Pa.

WIEDEMANN, *Auss. Zw.*, I, 506 (*Laphria*).

Ida., Wash.—J. M. A.

melanoptera WIEDEMANN, *Auss. Zw.*, I, 514 (*Laphria*).—No locality.

SCHINER, *Verh. Zool.-Bot. Ges.*, 1866, 707, oc. in S. C.

WILLISTON, *Trans. Amer. Ent. Soc.*, XII, 56.—Fla. N. J.—Smith Cat.

HYPERECHIA.

SCHINER, *Verh. Zool.-Bot. Ges.*, XVI, 673, 1866.

WILLISTON, *Trans. Amer. Ent. Soc.*, XI, 27, 1883.

atrox WILLISTON, *loc. cit.*, 28.—Pa.

N. J.—Smith Cat. Lansing, Mich.—J. M. A.

NUSA.

WALKER, *Dipt. Saund.*, 105, 1853.

RONDANI, *Dipt. Ital. Prod.*, I, 160, 1856 (*Andrenosoma*).

WILLISTON, *Psyche*, 1889, 255, note on priority.

abdominalis BROWN, *Kans. Univ. Quart.*, VI, 103, 1897.—Bernalillo Co., N. M.

cincta BELLARDI, *Saggio*, II, 18, pl. I, f. 19 (*Laphria*).—Mex.

OSTEN SACKEN, *Biologia*, Dipt., I, 188 (*Andrenosoma*).—Brit. Honduras.

cinerea BELLARDI, *Saggio*, II, 16, pl. I, f. 16 (*Laphria*).—Mex.

OSTEN SACKEN, *Biologia*, Dipt., I, 188, notes on type, etc. (*Andrenosoma*).—Panama.

chalybea WILLISTON, *Trans. Amer. Ent. Soc.*, XII, 56 (*Andrenosoma*).—San Domingo.

- formidolosa** WALKER, Trans. Ent. Soc., v, 280 (*Laphria*).—Mex.
 BELLARDI, Saggio, II, 17, pl. I, f. 18 (id.).—Cordova, Mex.
 OSTEN SACKEN, Biologia, Dipt., I, 188 (*Andrenosoma*).—Guatemala, Nicaragua, Panama.
- fulvicauda** SAY, Jour. Acad. Sci. Phil., III, 53, pl. VI; Compl. Works, I, 12 (*Laphria*).—Cote sans Dessein, on Mo. Riv.
 WIEDEMANN, Auss. Zw., I, 517 (*Laphria pyrhracra*; no apparent reason for the change of name).—Brazil, Savannah, and Mo.
 Me., Cal.—Williston; Fla.—Johnson; Montreal—Chagnon.
- rubida** WILLISTON, Biologia, Dipt., I, 318.—Mexico, Atoyac.
- similis** BROWN, Kans. Univ. Quart., VI, 102, 1897.—Bernalillo Co., N. M.
- xanthocnema** WIEDEMANN, Auss. Zw., I, 509 (*Laphria*).—Brazil.
 MACQUART, Dipt. Exot., I, 2, 67 (id.).—West Indies.
 VAN DER WULP, Tijdsch. v. Ent., XXV, 104.
- sexpunctata** WILLISTON, Biologia, Dipt., I, 319, pl. VI, f. 4.—Mexico, Amula.

LAMPRIA.

- MACQUART, Dipt. Exot., I, 2, 60, 1838.
- aurifex** OSTEN SACKEN, Biologia, Dipt., I, 187.—Costa Rica.
 BELLARDI, Saggio, II, 13 (*clavipes* Fabr.).—Orizaba, Mex. [O. S.]
- bicolor** WIEDEMANN, Auss. Zw., I, 522 (*Laphria*).—No locality.
 ? SAY, Jour. Acad. Sci. Phil., VI, 158; Compl. Works, II, 355 (*Laphria saniosa*).—Ind.
 MACQUART, Hist. Nat. Dipt., I, 284 (*megaccra*).—Philadelphia. [O. S.]
 WALKER, List, II, 379, and VII, 527 (*antca*).—Fla., and Brit. N. A.
 WILLISTON, Trans. Amer. Ent. Soc., XI, 32.—Conn., Pa.
 N. J.—Smith Cat.; Ormond, Fla.—Johnson; Province of Quebec—Fyles.
- circumdata** BELLARDI, Saggio, II, 15, pl. I, f. 17.—Mex.
- clavipes** FABRICIUS, Syst. Antl., 162 (*Laphria*).—S. A.
 WIEDEMANN, Dipt. Exot., I, 237; Auss. Zw., I, 513 (*Laphria*).—Brazil.
 MACQUART, Dipt. Exot., I, 2, 61; Suppl., III, 22.—Brazil.
 SCHINER, Novara, 174, says Macquart's second description refers to another species, and describes the proper female.—Brazil.
 OSTEN SACKEN, Biologia, Dipt., I, 186.—Panama.
 For Bellardi's *clavipes* see *aurifex*.
- corallogaster** BIGOT, Annales, 1878, 227 (*Laphria*).—N. A.
- felis** OSTEN SACKEN, West. Dipt., 286.—Webber L., Cal.
 WILLISTON, Trans. Amer. Ent. Soc., XI, 32.—Wash.
- mexicana** MACQUART, Dipt. Exot., Suppl., II, 37.—Mex.
 BELLARDI, Saggio, II, 13.—Mex.
 OSTEN SACKEN, Biologia, Dipt., I, 188, note on Bellardi's specimen.
- rubriventris** MACQUART, Hist. Nat. Dipt., I, 284 (*Laphria*).—Philadelphia.
 WILLISTON, Trans. Amer. Ent. Soc., XI, 32.—Ga., Tex.
- spinipes** FABRICIUS, Syst. Antl., 162 (*Laphria*); 163 (*Laphria affinis*).—S. A.
 WIEDEMANN, Dipt. Exot., I, 240; Auss. Zw., I, 525, desc. and syn.—Brazil.
 OSTEN SACKEN, Biologia, Dipt., I, 187.—Panama.

DASYLLIS.

- LOEW, Bemerkungen über Asiliden, 20, 1851.
 SNODGRASS, Psyche, 1902, 399, 1 pl., structure of hypopygium.
- affinis** MACQUART, Dipt. Exot., Suppl., v, 54 (*Laphria*).—Baltimore.

- OSTEN SACKEN**, Cat., 75 and 233, note on type (placed as a synonym of *D. thoracica*).
- JOHNSON**, Ent. News, xiii, 77, reasons for believing it distinct; oc. at Jackson, Ala.; Titton, Ga.; and in N. J.
- astur** **OSTEN SACKEN**, West. Dipt., 285.—Cal., several places.
WILLISTON, Trans. Amer. Ent. Soc., xi, 27.—Cal., Wash., Ore.
- columbica** **WALKER**, in Lord's Naturalist, etc.—Vancouver Id.
OSTEN SACKEN, West. Dipt., 285, quotes Walker.
WILLISTON, Trans. Amer. Ent. Soc., xi, 27.—Ore., Wash.
- fascipennis** **MACQUART**, Hist. Nat. Dipt., i, 284 (*Laphria*); Dipt. Exot., Suppl., i, 74 (*L. prapocens*).—Cayenne, S. A.
SCHLNER, Novara, 172, oc. in Central America.
- flavicollis** **SAY**, Long's Exped., App., 374; Compl. Works, i, 255 (*Laphria*).—N. W. Terr.
WIEDEMANN, Auss. Zw., i, 519 (*Laphria*).
WILLISTON, Trans. Amer. Ent. Soc., xi, 25.—Conn. Mass.—Harris Cat.; Atlantic St.—O. S.; N. J.—Smith Cat; White Mts.—Slosson; Montreal—Chagnon; Axton, N. Y.—M. & H.; Province of Quebec.—Fyles.
- grossa** **FABRICIUS**, Spec. Ins., ii, 460; Syst. Antl., 153 (*Asilus*).—S. A.
SAY, Jour. Acad. Sci. Phil., iii, 74; Compl. Works, ii, 67 (*Laphria ter-gissa*).—Pa.
WIEDEMANN, Auss. Zw., i, 502 (id.).
MACQUART, Dipt. Exot., i, 2, 68 (*L. analis*).—N. A.
HARRIS, Ins. New Engl., 3d edit., 604 (*L. flavibarbis*).
OSTEN SACKEN, Cat., 233, notes on synonymy.
WILLISTON, Trans. Amer. Ent. Soc., xi, 26.—Conn. Quebec—Wulp; N. J.—Smith Cat.; Montreal—Chagnon; Fla.—Johnson.
- lata** **MACQUART**, Dipt. Exot., Suppl., i, 78 (*Mallophora analis*).—Galveston, Tex.; change of name in Suppl. iv, 75.
OSTEN SACKEN, Cat., 233, note on type.
- posticata** **SAY**, Long's Exped., App., 374; Compl. Works, i, 255 (*Laphria*).—N. W. Terr.
WIEDEMANN, Auss. Zw., i, 518 (*Laphria*).
MACQUART, Dipt. Exot., i, 2, 69 (id.).—Carolina.
WILLISTON, Trans. Amer. Ent. Soc., xi, 26.
 Mass.—Harris Cat.; Atlantic St.—O. S.; N. J.—Smith Cat.; Montreal—Chagnon; Fla.—Johnson; Beulah, N. M.—Skinner; Axton, N. Y.—M. & H.
- sacrator** **WALKER**, List, ii, 382 (*Laphria*).—Nova Scotia.
WILLISTON, Trans. Amer. Ent. Soc., xi, 26.—N. H. Quebec, N. H., N. Y.—O. S.; Montreal—Chagnon.
- saffrana** **FABR.**, see *Laphria*.
- thoracica** **FABRICIUS**, Syst. Antl., 158 (*Laphria*; in erratis the name is changed to *fulvithorax*, which Wiedemann does not accept).—N. A.
WIEDEMANN, Dipt. Exot., 236; Auss. Zw., i, 511.
WALKER, List, ii, 383 (*L. alcanor*).—Mass. [O. S., from type.]
WILLISTON, Trans. Amer. Ent. Soc., xi, 26.—Conn., Pa.
LEBARON, in Prairie Farmer, July 13, 1872, notes it killing bees.
 N. J.—Smith Cat.; Montreal—Chagnon.
- unicolor** **WILLISTON**, Trans. Amer. Ent. Soc., xi, 26.—Wash.

LAPHRIA.

- MEIGEN, Illig. Mag., II, 270. 1803; Syst. Besch., II, 215, 1820.
 MACQUART, Hist. Nat. Dipt., I, 280. 1834.
 SCHINER, Fauna Austr., I, 137, 1862.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 54, table of species.
 SNODGRASS, Psyche, 1902, 399, 1 pl., structure of hypopygium.
æatus WALKER, List, II, 381.—Martin Falls, Canada, and Nova Scotia.
 White Mts., N. H.—O. S.
amanda WALKER, List, II, 373.—Guatemala.
anthrax WILLISTON, see *carbonarius*.
bilineata WALKER, see *gilva*.
canis WILLISTON, Trans. Amer. Ent. Soc., XI, 31.—Conn.
 TOWNSEND, Insect Life, II, 43 and 162, oc. in Mich.
 White Mts., N. H.—Slosson; N. J.—Smith Cat.; Montreal—Chagnon.
carbonarius WILLISTON, K. U. Quart., IV, 173, change of name; Trans. Amer. Ent.
 Soc., XI, 29 (*anthrax*, preoc.).—N. California.
 Beulah, N. M.—Skinner (*anthrax*).
carolinensis SCHINER, Verh. Zool.-Bot. Ges., 1867, 380.—Carolina.
cœrulea WILLISTON, Biologia, Dipt., I, 317.—Atoyac, Mex.
componens WALKER, Trans. Ent. Soc., V, 281.—Mex.
corallogaster BIGOT, see *Lampria*.
ferox WILLISTON, Trans. Amer. Ent. Soc., XI, 29.—Wash.
flavescens MACQUART, Dipt. Exot., I, 2, 69.—Carolina and the Pyrenees Mts. of
 Europe (Macquart's statement—very doubtful).
flavipila MACQUART, Hist. Nat. Dipt., I, 282.—U. S. (Osten Sacken, Cat., 75,
 says this is unrecognizable.)
franciscana BIGOT, Annales, 1878, 225.—Cal.
 WILLISTON, Trans. Amer. Ent. Soc., XI, 31.—Wash., Cal.
georgina WIEDEMANN, Dipt. Exot., 235; Auss. Zw., I, 506.—Savannah, Ga.
gilva LINNÉ, Fauna Suec., 1912 (*Asilus*).—Europe.
 DEGEER, Mém. pour. serv. d'Hist. Ins., VI, 241, pl. XIII, f. 15.
 LOEW, Linnæa Ent., II, 548.
 SCHINER, Fauna Austr., I, 139.
 PERRIS, Annales Soc. Ent. France, IV, 212, pl. III, f. 89, 96, parasitic [pred-
 atory?] on *Spondylis* and *Crioccephalus* larvæ.
 VAN DER WULP, Tijdschr. v. Ent., XXV, 104, recognized from Quebec.
 WALKER, List, IV, 1156 (*bilincata*).—Martin Falls, Canada. [Will.]
 WILLISTON, Trans. Amer. Ent. Soc., XI, 28, 30 (the latter *bilincata*).
 Col.—O. S.; Montreal—Chagnon.
homopoda BELLARDI, Saggio, App., 20, f. 16.—Mex.
 ? *ichneumon* OSTEN SACKEN, Biologia, Dipt., I, 185, pl. III, f. 6.—Guatemala.
 Gen. ref. with a question.
lasipus WIEDEMANN, Auss. Zw., I, 502.—Ky.
marginalis WILLISTON, Biologia, Dipt., I, 318.—Mexico, Atoyac.
melanogaster WIEDEMANN, Dipt. Exot., 236; Auss. Zw., I, 507.—Mex. and Sa-
 vannah, Ga.
 MACQUART, Dipt. Exot., Suppl., I, 75.—Texas.
numitor OSTEN SACKEN, Biologia, Dipt., I, 185.—Nicaragua.
olbus WALKER, List, II, 375.—Guatemala.
 MACQUART, Dipt. Exot., Suppl., V, 53, pl. II, f. 3.—Honduras.
pubescens WILLISTON, Trans. Amer. Ent. Soc., XI, 32.—Wash., Ore., White Mts.,
 N. H.

Montreal—Chagnon; Axton, N. Y.—M. & H.

- rapax** OSTEN SACKEN, West. Dipt., 286.—Webber Lake, Cal.
ruficauda WILLISTON, Trans. Amer. Ent. Soc., XII, 55.—San Domingo.
sadales WALKER, List, II, 378.—N. Y. White Mts., N. H.—O. S.
saffrana FABRICIUS, Syst. Antl., 160.—Carolina.
 WIEDEMANN, Dipt. Exot., 234; Auss. Zw., I, 504.—Ga.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 56.—Fla., N. C.
 Fla., several places—Johnson.
sericea SAY, Jour. Acad. Sci. Phil., II, 74; Compl. Works, I, 12.—U. S.
 WIEDEMANN, Auss. Zw., I, 508.
 N. J.—Smith Cat.: Montreal—Chagnon; White Mts., N. H.—Slosson.
terræ-novæ MACQUART, Dipt. Exot., I, 2, 69.—Newfoundland.
triligata WALKER, Trans. Ent. Soc., V, 281.—Mex.
ventralis WILLISTON, Trans. Amer. Ent. Soc., XII, 55.—Cal.
vivax WILLISTON, Trans. Amer. Ent. Soc., XI, 30.—Wash.
vultur OSTEN SACKEN, West. Dipt., 286.—Coast Range and Webber L., Cal.;
 Ore.
 WILLISTON, Trans. Amer. Ent. Soc., XI, 29, oc. in Wash., and note.
xanthippe WILLISTON, Trans. Amer. Ent. Soc., XI, 31.—Ore.
 Beulah, N. M.—Skinner.

NEOPHONEUS.

- WILLISTON, Psyche, 1889, 255.
 MACQUART, Dipt. Exot., I, 2, 79, 1839 (*Phoncus*. preoc.).
flavitibia BIGOT, Annales, 1878, 239 (*flavotibius*).—Hayti.

EMPHYSOMERA.

- SCHINER, Verh. Zool.-Bot. Ges., 1866, 665 and 845; Novara. 195. 1868.
 BIGOT, Annales, 1875, 238.
bicolor BIGOT, see *Ommatius pilosulus*.
pilosula BIGOT, see *Ommatius*.

OMMATIUS.

- WIEDEMANN, Auss. Zw., I, 418, 1828.
 BIGOT, Annales, 1875, 238.
fuscipennis BELLARDI, Saggio, App., 23.—Mex.
marginellus FABRICIUS, Spec. Ins., II, 464; Ent. Syst., 384 (*Asilus*); Syst. Antl.,
 170 (*Dasyfogon*).—West Indies.
 ? SAY, Jour. Acad. Sci. Phil., III, 49; Compl. Works, II, 63 (*tibialis*).—Pa.
 WIEDEMANN, Dipt. Exot., 213; Auss. Zw., I, 421, pl. VI, f. 5.—Brazil.
 ? WIEDEMANN, Auss. Zw., I, 422 (*tibialis*).
 WALKER, List, II, 474 (*saccas*).—Jamaica.
 BIGOT, Annales, 1875, 246 (*vitreus*).—Hayti.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 76 (*tibialis*); Trans. Ent. Soc.
 Lond., 1896, 304, oc., syn., etc.—New England; St. Vincent, W. I.
parvus BIGOT, Annales, 1875, 247.—Mex.
 BELLARDI, Saggio, II, 59 (*pumilus* MACQ.).—Cnautla, Mex. [Will.]
 WILLISTON, Biologia, Dipt., I, 332.—Guerrero and Yucatan, Mex.
peregrinus OSTEN SACKEN, Biologia, Dipt., I, 210.—Panama.
 WILLISTON, Biologia, Dipt., I, 331, oc. in Guerrero, Mex.
pilosulus BIGOT, Annales, 1875, 243 and 244 (*Empysomera pilosulus* and *bicolor*).
 Mex.
 WILLISTON, Biologia, Dipt., I, 332, syn., etc.—Guerrero and Jalisco, Mex.

- pumilus* MACQUART, Dipt. Exot., Suppl., II, 42, pl. 1, f. 10.—Mex.
tibialis SAY, see *marginellus*.
vitreus BIGOT, see *marginellus*.

ATRACTIA.

- MACQUART, Dipt. Exot., I, 2, 151, 1838.
 WILLISTON, Trans. Amer. Ent. Soc., XIII, 290, notes.
marginata OSTEN SACKEN, Biologia, Dipt., 1, 212.—Nicaragua.
mikii WILLISTON, see *Atonia*.

PROCTACANTHUS.

- MACQUART, Dipt. Exot., I, 2, 120, 1838.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 73, table of U. S. species.
arno TOWNSEND, Proc. Cal. Acad. Sci., IV, 599.—Lower Cal.
brevipennis WIEDEMANN, Auss. Zw., I, 431 (*Asilus*).—Ky.
 VAN DER WULP, Tijdschr. v. Ent., XXV, 108.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 73.—Ga., Fla.
 N. J.—Smith Cat.; Fla.—Johnson.
craverii BELLARDI, Saggio, II, 50.—Mex.
 WILLISTON, Biologia, Dipt., 1, 327.—Guadalajara, Mexico.
exquisitus OSTEN SACKEN, Biologia, Dipt., 1, 206, pl. III, f. 12.—N. Sonora, Mex.
fulviventris MACQUART, Dipt. Exot., Suppl., IV, 88.—Fla.
 OSTEN SACKEN, Cat., 235, note.
 Georgiana, Fla.—Johnson.
heros WIEDEMANN, Auss. Zw., I, 427 (*Asilus*).—Ky.
 SCHINER, Verh. Zool.-Bot. Ges., 1866, 682; 1867, 396.—S. C. and Ky.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 74.—Fla.
longus WIEDEMANN, Dipt. Exot., 183; Auss. Zw., I, 426 (*Asilus*).—Ga.
 MACQUART, Hist. Nat. Dipt., 1, 307; Dipt. Exot., I, 2, 123.—Rio Janeiro.
 SCHINER, Verh. Zool.-Bot. Ges., 1866, 682; 1867, 396.
micans SCHINER, Verh. Zool.-Bot. Ges., 1867, 397.—N. A.
milbertii MACQUART, Dipt. Exot., I, 2, 124.—N. A.
 RILEY, 2d Mo. Report, 122, fig. 89 (*Asilus missuriensis*).—Mo.; adult preys upon the honey bee.
 ? JENNICKE, Neue Exot. Dipt., 57 (*Asilus agrion*).—Ill. [O. S., Cat., from type, with a doubt.]
 RILEY, PACKARD and THOMAS, 1st Rept. U. S. Entomol. Comm., 317; adults prey upon locusts (*missuriensis*).
 WILLISTON, Trans. Amer. Ent. Soc., XII, 74.—Mo., Kans.
 See also Riley, Gen. Index Mo. Reports, 87, 88.
nigriventris MACQUART, Dipt. Exot., I, 2, 124.—Philadelphia, Carolina.
philadelphicus MACQUART, Dipt. Exot., I, 2, 123.—Philadelphia.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 75.—New Engl.
 N. J.—Smith Cat.; Fla.—Johnson.
rufiventris MACQUART, Dipt. Exot., I, 2, 123, pl. x, f. 2.—San Domingo, Honduras.
 Porto Rico—Roeder and Coquillett.
rufus WILLISTON, Trans. Amer. Ent. Soc., XII, 74.—N. C., Mass.
 N. J.—Smith Cat.
virginianus VAN DER WULP, Tijdschr. v. Ent., XXV, 109.—Va.
zamon TOWNSEND, see *Eccritosisia amphinome*.

ECCRITOSIA.

- SCHINER, Verh. Zool.-Bot. Ges., 1866, 674.
amphinome WALKER, List, II, 387 (*Asilus*).—Honduras.
 OSTEN SACKEN, Biologia, Dipt., I, 207.—Presidio, Mex., and Guatemala.
 TOWNSEND, Proc. Calif. Acad. Sci., (2), IV, 600 (*Proctacanthus zamon*).
 —Lower California.
 WILLISTON, Biologia, Dipt., I, 327, syn. and oc.—Jalisco, Mexico.
plinthopyga WIEDEMANN, Dipt. Exot., 184; Auss. Zw., I, 432 (*Asilus*).—Cuba.
 BIGOT, in Sagra's Cuba, 791 (*Asilus*).
 SCHINER, Verh. Zool.-Bot. Ges., 1867, 399.

ANARMOSTUS.

- LOEW, Dipterenfauna Südafrika's, 1860. (This reference is given by Osten Sacken, Williston, and others, and apparently confirmed by Scudder, but I cannot find the genus mentioned in the work specified.)
iopterus WIEDEMANN, Auss. Zw., I, 438 (*Asilus*).—Brazil.
 OSTEN SACKEN, Biologia, Dipt., I, 211.—Brit. Honduras.

ERAX.

- SCOPOLI, Entom. Carniolica, 359, 1763.
 MACQUART, Dipt. Exot., I, 2, 107, 1838.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 64, table of U. S. species; Biologia, Dipt., I, 322, table of Central American species.
 COQUILLET, Canad. Ent., XXV, 175 (*Efferia*, for a small group). [Williston.]
 OSTEN SACKEN, Biologia, Dipt., I, 197, table of Mexican and Cent. American species.
estuans LINNÉ, Syst. Nat., 12th ed., 1007, 5; Amœn. Acad., VI, 413 (*Asilus*).—N. A.
 FABRICIUS, Syst. Ent., IV, 379 (*Asilus*); Syst. Antl., 164 (*Dasyopogon*).—N. A.
 OLIVIER, Encycl. Méth., I, 264.
 WIEDEMANN, Dipt. Exot., I, 200; Auss. Zw., I, 467 (*Asilus*).—N. A.
 MACQUART, Hist. Nat. Dipt., I, 312 (*Asilus*); Dipt. Exot., I, 2, 115 and 116 (the last as *Asilus rubibarbis*; syn. by Will.).—N. A. to Brazil.
 BIGOT, in Sagra's Cuba, 791.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 72.—Eastern N. A.; Cuba.
 Note.—Williston dates the species from Wiedemann, thinking that Linné had a different species, which may be ignored, there being no possibility of determining it.
 N. J.—Smith Cat.
affinis BELLARDI, Saggio, II, 41.—Mex.
albibarbis MACQUART, see *cinerascens*.
ambiguus MACQUART, see *maculatus*.
anomalus BELLARDI, Saggio, II, 32, pl. II, f. 7.—Mex.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 68, oc. in Ariz.; Biologia, Dipt., I, 323.—Mexico.
 COQUILLET, Canad. Ent., XXV, 175, refers to *Efferia*.
 OSTEN SACKEN, Biologia, Dipt., I, 199.—N. Sonora and Cuantla, Mex.
aper WALKER, List, VII, 621.—Mex.
apicalis WIEDEMANN, Dipt. Exot., 191; Auss. Zw., I, 443 (*Asilus*).—N. A.
 COMSTOCK, Rept. Dept. of Agric., 1870, 291, note; this species captures many larvæ of *Aletia argillacea* in Ala.

- OSTEN SACKEN, Cat., 234, note 127, on type.
argyrogaster MACQUART, Dipt. Exot., Suppl., 1, 84.—Yucatan.
aridus WILLISTON, Dipt. of Death Valley Exped., 254.—Death Val., Cal. "Perhaps a var. of *latrunculus*."
bastardii MACQUART, Dipt. Exot., 1, 2, 115-118 (*femoratus*, *incisuralis*, *bastardii* and *tibialis*).—Carolina, Pa., San Domingo, Guiana.
 RILEY, 2d Missouri Rept., 124, fig. larval stages.—Mo.
 RILEY, Packard and Thomas, 1st Rept. U. S. Ent. Comm., 303, figs.; larvae devour locust eggs.—Missouri, etc.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 71, oc. and syn.—Atlantic and Central States.
 Porto Rico—Roeder; Fla.—Johnson. See *macrolabis*.
bicolor BELLARDI, Saggio, II, 47.—Mex.
bimaculatus BELLARDI, Saggio, II, 45, pl. II, f. 11.—Mex.
 SCHINER, Novara, 182, oc. in Colombia, S. A.
 WILLISTON, Biologia, Dipt., 1, 325.—Mexico.
candidus COQUILLET, Canad. Ent., XXV, 176 (*Efferia*).—Los Angeles Co., Cal.
carinatus BELLARDI, Saggio, II, pl. II, f. 9.—Mex.
 ? OSTEN SACKEN, Biologia, Dipt., 1, 205, oc. at Presidio, Mex., with a doubt.
 ? WILLISTON, Biologia, Dipt., 1, 323.—Acaguizotla and Rincon, Mex.
caudex WALKER, List, II, 404.—West Indies.
cinerascens BELLARDI, Saggio, II, 39, pl. II, f. 10.—Mex.
 MACQUART, Dipt. Exot., 1, 2, 118 (*albibarbis*).—N. A.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 67 (*furax*).—Wash., Cal., Kans., Ariz., and Conn. (Will.)
 OSTEN SACKEN, Biologia, Dipt., 1, 202, oc. and notes.—N. Sonora and Orizaba, Mex.
 HUNTER, S. J. Bull. Ent. Dept. Univ. of Kans., entitled "Alfalfa, Grasshoppers, Bees," p. 37, note on seeing this species "pouncing on young grasshoppers."—Kans.
 TOWNSEND, Proc. Cal. Acad. Sci., IV, 599.—Lower Cal.
 N. J.—Smith Cat.; "On white sands of ocean beach," St. Augustine and Lake Worth, Fla.—Johnson.
cingulatus BELLARDI, Saggio, II, 42.—Mex.
comatus BELLARDI, Saggio, II, 34.—Mex.
completus MACQUART, Dipt. Exot., 1, 2, 117, pl. IX, f. 9.—N. A.
 COQUILLET, Canad. Ent., XXV, 175, refers to *Efferia*.
concinatus WILLISTON, Biologia, Dipt., 1, 323.—Acaguizotla and Rincon, Mexico.
dascyllus WALKER, List, II, 401.—Mass.
 OSTEN SACKEN, Cat., 80, note on type; it is no longer recognizable.
disjunctus WILLISTON, Biologia, Dipt., 1, 326.—Atoyac, Mexico.
dolichogaster WILLISTON, Biologia, Dipt., 1, 326.—Atoyac, Teapa, Mexico.
eximius BELLARDI, Saggio, II, 38.—Mex.
femoratus MACQUART, see *bastardii*.
flavofasciatus WIEDEMAN, AUSS. ZW., 1, 470 (*Asilus*).—Brazil.
 WALKER, List, II, 400, oc. in Honduras.
fortis WALKER, List, VII, 623.—San Domingo.
fulvibarbis MACQUART, Dipt. Exot., Suppl., III, pl. II, f. 13.—Hayti.
furax WILLISTON, see *cinerascens*.
haitensis MACQUART, Dipt. Exot., Suppl., III, 28, pl. II, f. 10.—Hayti.
halæsus WALKER, List, II, 405.—Jamaica. Jamaica—Johnson.

- invarius** WALKER, Dipt. Saund., 131.—Jamaica.
- jubatus** WILLISTON, Trans. Amer. Ent. Soc., XII, 66.—N. M.
- ? **lascivus** WIEDEMANN, Auss. Zw., I, 474.—Brazil.
WALKER, List, II, 400, oc. in Honduras. List, loc. cit. (*Asilus amarynceus*; syn. in VII, 637). Probably not North American.
- lateralis** MACQUART, see *maculatus*.
- latrunculus** WILLISTON, Trans. Amer. Ent. Soc., XII, 67.—Ariz., Mont.
- leucocomus** WILLISTON, Trans. Amer. Ent. Soc., XII, 69.—Kans.
- loewii** BELLARDI, Saggio, App., 21, f. 17.—Mex.
- macrolabis** WIEDEMANN, Auss. Zw., I, 458.—Ky.
VAN DER WULP, Tijdschr. v. Ent., XXV, 113, oc. in Tenn.
WILLISTON, Trans. Amer. Ent. Soc., XII, 71, doubtful synonym of *bastardii*.
- ? **macularis** WIEDEMANN, Dipt. Exot., 193; Auss. Zw., I, 447 (*Asilus*).—Brazil.
MACQUART, Dipt. Exot., I, 2, 147.—Brazil.
VAN DER WULP, Tijdschr. v. Ent., XXV, 112; doubtful oc. in N. A.
- maculatus** MACQUART, Dipt. Exot., I, 2, 111, pl. IX, f. 6; 116 (*lateralis*); Suppl., I, 84 (*ambiguus*); Hist. Nat. Dipt., I, 310 (*Asilus interruptus*).—Guiana, Colombia, Guadeloupe; Philadelphia; Texas and Yucatan; Ga. [O. S.]
BELLARDI, Saggio, II, 49 (*Eristicus villosus*).—Mex. [O. S.]
SCHINER, Verh. Zool.-Bot. Ges., 1867, 392.
OSTEN SACKEN, Cat., 234, note; Biologia, Dipt., I, 200.—N. Sonora, Presidio and Yucatan, Mex.
Fla., several places—Johnson.
- marginatus** BELLARDI, Saggio, II, 46.—Mex.
- niger** WIEDEMANN, Dipt. Exot., 196; Auss. Zw., I, 460 (*Asilus*).—Ga.
- nigrimystaceus** MACQUART, Dipt. Exot., Supl., II, 41.—Guadeloupe.
- parvulus** BELLARDI, Saggio, II, 35, pl. II, f. 8.—Mex.
- pavidus** WILLISTON, Biologia, Dipt., I, 326.—Xucumanatlan, Mex.
- pernicis** COQUILLET, Canad. Ent., XXV, 175 (*Efferia*).—Los Angeles and San Diego Cos., Cal.
- pogonias** WIEDEMANN, Dipt. Exot., 198 (specific name changed); Auss. Zw., I, 460 (*Asilus*).—N. A. Ariz.—Wulp.
FABRICIUS, Syst. Antl., 169 (*Asilus barbatus*, preoc.).—N. A.
- prolificus** OSTEN SACKEN, Biologia, Dipt., I, 202.—N. Sonora, Mex.
WILLISTON, Biologia, Dipt., I, 323.—Venta de Zopilote, Mex.
- pumilus** WALKER, List, VII, 640.—Vera Cruz, Mex.
- quadrinaculatus** BELLARDI, II, 44, pl. II, f. 13.—Mex.
WILLISTON, Biologia, Dipt., I, 325.—Atoyac, Mexico.
- rapax** OSTEN SACKEN, Biologia, Dipt., I, 201.—N. Sonora, Mex.
- ravus** COQUILLET, Canad. Ent., XXV, 176 (*Efferia*).—Tex.
- rufitibia** MACQUART, Dipt. Exot., Suppl. III, 27, pl. II, f. 11.—Hayti, Brazil.
ROEDER, Stett. Ent. Zeit., 1885, 339, oc. in Porto Rico.
WILLISTON, Dipt. St. Vincent, 305, pl. X, f. 79.—St. Vincent, W. I.
- sagax** WILLISTON, Biologia, Dipt., I, 324.—Santiago Iscuintla, Mexico.
- similis** WILLISTON, Trans. Amer. Ent. Soc., XII, 68.—Ariz.
- splendens** WILLISTON, Biologia, Dipt., I, 325, pl. VI, f. 5.—San Blas, Mexico.
- stamineus** WILLISTON, Trans. Amer. Ent. Soc., XII, 68.—Mont.
- stylatus** FABRICIUS, Syst. Ent., 795 (*Asilus*); Ent. Syst., IV, 384 (id.); Syst. Antl., 171 (*Dasygogon*).—West Indies.
WIEDEMANN, Dipt. Exot., 198; Auss. Zw., I, 462 (*Asilus*).—S. A.
SCHINER, Verh. Zool.-Bot. Ges., 1866, 686.
VAN DER WULP, Tijdschr. v. Ent., XVI, 686, oc. in Wis.

- tagax** WILLISTON, Trans. Amer. Ent. Soc., XII, 65.—Ariz.
tricolor BELLARDI, Saggio, II, 40, pl. II, f. 12.—Mex.
triton OSTEN SACKEN, Biologia, Dipt., I, 200.—Presidio, Mex.
unicolor BELLARDI, Saggio, II, 37.—Mex.
 VAN DER WULP, Tijdschr. v. Ent., XXV, 114.—Guanajuato, Mex.
varipes WILLISTON, Trans. Amer. Ent. Soc., XII, 71.—Ariz., Kans.
 Beulah, N. M.—Skinner.
vicinus MACQUART, Dipt. Exot., Suppl. I, 85.—Galveston, Tex.

NEOERISTICUS.

- OSTEN SACKEN, Catalogue, 1878, 81, change of name.
 LOEW, Linnaea Ent., 396, 1848 (*Eristicus*, preoc.).
nigripes BELLARDI, Saggio, II, 48 (*Erax*, subgenus *Eristicus*).—Mex.
 SCHINER, Novara, 182 (*Erax bellardii*; change of name because of preoc. in genus *Erax*).—S. A.
villosus BELLARDI, Saggio, II, 49 (*Erax*, subg. *Eristicus*).—Mex.

MALLOPHORA.

- MACQUART, Hist. Nat. Dipt., I, 300, 1834; Dipt. Exot., I, 2, 84, 1838.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 57, 1885, table of species.
 OSTEN SACKEN, Biologia, Dipt., I, 189, notes.
 COQUILLET, Canad. Ent., XXV, 1893, table of species.
æaca WILLISTON, Biologia, Dipt., I, 319.—Atoyac, Mex.
amphinome WALKER, see *Eccritosis*.
 OSTEN SACKEN, Cat., 78, notes.
ardens MACQUART, Hist. Nat. Dipt., I, 302; Dipt. Exot., I, 2, 89, pl. VIII, f. 2.—N. A.
bomboides WIEDEMANN, Dipt. Exot., 203; Auss. Zw., I, 476 (*Asilus*).—Ga.
 MACQUART, Hist. Nat. Dipt., I, 302; Dipt. Exot., I, 2, 89.—Fla.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 57.—Ga., Fla.
 St. Augustine, Fla.—Johnson.
? breviventris MACQUART, Dipt. Exot., Suppl. IV, 77.—Brazil.
 ? WILLISTON, Biologia, Dipt., I, 321, doubtfully recognized from Guerrero, Mex.
clausicella MACQUART, Dipt. Exot., Suppl. IV, 79, pl. VII, f. 8.—Va.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 59.—Pa.
 N. J.—Smith Cat.; Beulah, N. M.—Skinner.
craverii BELLARDI, Saggio, II, 22.—Mex.
 WILLISTON, Biologia, Dipt., I, 320.—Atoyac and Teapa, Mex.
fautrix OSTEN SACKEN, Biologia, Dipt., I, 191, pl. III, f. 14.—Presidio, Mex.
 WILLISTON, Biologia, Dipt., I, 320, oc. in Tepic, Atoyac and Yucatan, Mex.
fulvianalis MACQUART, Dipt. Exot., Suppl. IV, 78.—Mex.; "perhaps the female of *fulviventris*."
fulviventris MACQUART, Dipt. Exot., Suppl. IV, 77.—Mex., Texas?
 OSTEN SACKEN, Biologia, Dipt., I, 191; Macquart's type is a male.
guildiana WILLISTON, Trans. Amer. Ent. Soc., XII, 60.—Kans., Mont., N. C.
 "Perhaps a variety of *clausicella*."
freycineti MACQUART, Dipt. Exot., I, 2, 85; Suppl. I, 77.—Brazil and Colombia.
 WIEDEMANN, Auss. Zw., I, 475 (*Asilus infernalis* var.).—Brazil.
 BELLARDI, Saggio, II, 21 (*infernalis*).—Mex.
 OSTEN SACKEN, Biologia, Dipt., I, 189 (*infernalis*).—Panama.
 WILLISTON, Biologia, Dipt., I, 319.—Guerrero, Mex.

- laphroides** WIEDEMANN, AUSS. ZW., I, 483 (*Asilus*).—Ky.
 MACQUART, Hist. Nat. Dipt., I, 302 (*minuta*); Dipt. Exot., I, 2, 90, pl. VIII, f. 13 (*heteroptera*).—Both Philadelphia.
 SCHINER, Verh. Zool.-Bot. Ges., 1866, 711; 1867, 387 (the latter *heteroptera* MACQ.).—Ky. and Brazil.
 WILLISTON, Trans. Amer. Ent. Soc., XI, pl. II, f. II; XII, 59, syn., etc.—Ga. St. Augustine, Fla.—Johnson.
- macquartii** OSTEN SACKEN, see *scopipeda*.
- megachile** COQUILLET, Canad. Ent., XXV, 118.—Los Angeles Co., Cal.
- nigra** WILLISTON, Trans. Amer. Ent. Soc., XII, 58.—Miss.
 S. Augustine, Fla.—Johnson.
- orcina** WIEDEMANN, AUSS. ZW., I, 477 (*Asilus*).—Savannah, Ga.
 SCHINER, Verh. Zool.-Bot. Ges., 1866, 711.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 58.—D. C., Ariz., Va.
 RILEY, PACKARD, and THOMAS, 2d Rept. U. S. Ent. Comm., quote report by Hubbard on manner of oviposition.
 Fla., several places—Johnson.
- perpusilla** WALKER, Dipt. Saund., 123.—U. S.
 OSTEN SACKEN, Cat., 78, note on type.
- pica** MACQUART, Dipt. Exot., Suppl. IV, 78.—Mex.
 SNOW, Kans. Univ. Quart., IV, 186, 1866, makes this a synonym of *bergii* LYNCH, Asilides Argentinos, 35, which is much more recent.
- pluto** WIEDEMANN, AUSS. ZW., I, 477 (*Asilus*).—Brazil.
 VAN DER WULP, Tijdschr. v. Ent., XXV, 106, notes.—Guatemala and Brazil.
 OSTEN SACKEN, Biologia, Dipt., I, 190.—Guatemala.
- robusta** WIEDEMANN, AUSS. ZW., I, 478 (*Asilus*).—No locality.
 MACQUART, Dipt. Exot., Suppl. I, 78.—Yucatan.
 VAN DER WULP, Tijdschr. v. Ent., XXV, 106.—Brazil.
- scopipeda** RONDANI, Archiv. per la Zool., 1863, 46.—S. A.
 MACQUART, Dipt. Exot., I, 2, 89 (*scopifer* WIED.).—Cuba.
 BIGOT, in Sagra's Cuba, 790 (id.).—Cuba.
 OSTEN SACKEN, Cat., 78 and 233, note 120.
 SNOW, Kans. Univ. Quart., IV, 1866, 186.
 (Arrangement by Williston, in litt.)
- trichostica** WILLISTON, Biologia, Dipt., I, 320.—Atoyac, Mex.
- trapezoidalis** BELLARDI, Saggio, II, 28, pl. III, f. 4 (*Promachus*).—Mex.
 WILLISTON, Biologia, Dipt., I, 320.—Atoyac, Mex.

PROMACHUS.

- LOEW, Linnæa Ent., III, 390, 1848.
 MACQUART, Dipt. Exot., I, 2, 91 (*Trupanca*, preoc.), 1838.
 SCHINER, Fauna Austr., I, 141, 1862.
 WILLISTON, Trans. Amer. Ent. Soc., XII, 60, table of species.
 OSTEN SACKEN, Biologia, Dipt., I, 192, table of Mexican species.
- albifacies** WILLISTON, Trans. Amer. Ent. Soc., XII, 63.—Ariz.
 OSTEN SACKEN, Biologia, Dipt., I, 195.—N. Sonora, Mex.
- anceps** OSTEN SACKEN, Biologia, Dipt., I, 104.—Panama.
 ? BELLARDI, Saggio, II, 24, pl. II, f. 11 (*fuscipennis* MACQ.).—Mex. [O. S.]
 WILLISTON, Biologia, Dipt., I, 321.—Atoyac, Mex.
- bastardii** MACQUART, Dipt. Exot., I, 2, 104 (*Trupanca*).—U. S.
 WALKER, List, II, 392 (*Asilus levinus*); Dipt. Saund., 123 and 136 (*Tru-*

- panca rubiginis* and *Asilus ultimus*).—Mass.; N. A.; N. A. [Syn. of *ultimus* by Will.; the rest by O. S.]
- SCHINER, Verh. Zool.-Bot. Ges., 1867, 389 (*philadelphicus*).—Pa. [O. S.]
- WILLISTON, Trans. Amer. Ent. Soc., XII, 63.—New England, Middle States. N. J.—Smith Cat.
- cinctus** BELLARDI, Saggio, II, 25, pl. II, f. 2.—Mex.
- OSTEN SACKEN, Biologia, Dipt., I, 193.—Guatemala, Nicaragua.
- WILLISTON, Biologia, Dipt., I, 321.—San Lorenzo, Mex.
- fitchii** OSTEN SACKEN, Cat., note, 121, p. 234, change of name.
- FITCH, Country Gentleman, XXIV, 63; 3d N. Y. Report, 251, pl. IV, f. 7 (*Trupanea apicvora*, preoc). Adult devours bees in Nebraska.
- RILEY, 1st Mo. Report, 168, same habit in Mo. (id.).
- WILLISTON, Trans. Amer. Ent. Soc., XII, 61.—Kans., Conn. St. Augustine, Fla.—Johnson.
- forfex** OSTEN SACKEN, Biologia, Dipt., I, 194.—Costa Rica.
- BELLARDI, Saggio, II, 27, pl. II, f. 3 (*quadratus*, preoc).—Mex. [O. S. and Will.]
- WILLISTON, Biologia, Dipt., I, 321.—Atoyac, Mex.
- [**fuscipennis** MACQUART, not North American. See Osten Sacken, Biologia, Dipt., I, 194.]
- magnus** BELLARDI, Saggio, II, 26.—Mex.
- nobilis** OSTEN SACKEN, Biologia, Dipt., I, 196.—Costa Rica.
- princeps** WILLISTON, Trans. Amer. Ent. Soc., XII, 62.—Wash.
- pulchellus** BELLARDI, Saggio, II, 29, pl. II, f. 5.—Mex.
- quadratus** WIEDEMANN, Dipt. Exot., 201; Auss. Zw., I, 485 (*Asilus*).—Ga.
- OSTEN SACKEN, Biologia, Dipt., I, 192, notes.
- rufipes** FABRICIUS, Syst. Ent., 794 (*Asilus*); Syst. Antl., 169 (*Dasygogon*).—America.
- WIEDEMANN, Dipt. Exot., 203; Auss. Zw., I, 487 (*Asilus*).—America.
- SCHINER, Verh. Zool.-Bot. Ges., XVI, 688, gen. ref.
- VAN DER WULP, Tijdschr. v. Ent., XXV, 107, note.
- WILLISTON, Trans. Amer. Ent. Soc., XII, 107.—Ga., Fla.
- trapezoidalis** BELLARDI, see *Mallophora*.
- truquii** BELLARDI, Saggio, II, 30, pl. II, f. 6.—Mex.
- WILLISTON, Biologia, Dipt., I, 322.—Amula and Atoyac, Mex.
- ultimus** WALKER, Dipt. Saund., 136 (*Asilus*).—U. S.
- OSTEN SACKEN, Cat., 79, note; perhaps same as *bastardii*.
- vertebratus** SAY, Jour. Acad. Sci. Phil., III, 47; Compl. Works, II, 62 (*Asilus*).—Mo.
- WIEDEMANN, Auss. Zw., I, 485 (id.).
- MACQUART, Dipt. Exot., I, 2, 103 (*Trupanea*).—No locality.
- SCHINER, Verh. Zool.-Bot. Ges., XVI, 688, gen. ref.
- WILLISTON, Trans. Amer. Ent. Soc., XII, 62.—Wash. Brookings, S. D.—J. M. A.

STENOPROSOPUS.

- MACQUART, Dipt. Exot., I, 2, 130, 1838 (*Senoprosopis*).
- arizonensis** WILLISTON, Kans. Univ. Quart., II, 76.—Ariz.

EUTOLMUS.

LOEW, Linnæa Ent., IV, 150, 1849.

This genus is mentioned as North American by Williston, Manual, p. 50, but no species have been definitely referred to it.

MACHIMUS.

LOEW, *Linnæa Ent.*, iv, 1, 1849.

avidus VAN DER WULP, *Tijdschr. v. Ent.*, sec. XII, 82.—Wis.

HELIGMONEURA.

BIGOT, *Thoms. Archiv. Entom.*, II, 1858.

LOEW, *Linnæa Ent.*, iv, 58, 1849 (*Mochtherus*, preoc.); syn. acknowledged in *Dipteren-fauna Südafrika's*, 1860.

OSTEN SACKEN, *Cat.*, 82, changes Loew's name to *Neomochtherus*, 1878.

WILLISTON, *Psyche*, 1889, 255, syn.

dolichomerus WILLISTON, *Biologia, Dipt.*, I, 329.—Guerrero, Mex.; may be var. of *melanocerus*.

gracilis WIEDEMANN, *Auss. Zw.*, I, 445 (*Asilus*).—Savannah, Ga.

OSTEN SACKEN, *Cat.*, 235, note on type, etc. (*Neomochtherus*).

fuliginosa BELLARDI, *Saggio*, II, 52 (*Mochtherus*).—Mex.

melanocerus WILLISTON, *Biologia, Dipt.*, I, 329.—Guerrero, Mex.

plebeia OSTEN SACKEN, see *truquii*.

truquii BELLARDI, *Saggio*, II, 52 (*Mochtherus*).—Mex.

VAN DER WULP, *Tijdschr. v. Ent.*, XXV, 116 (id.), note.—Guanajuato, Mex.

BELLARDI, *Saggio*, II, 55 (*Philonicus taniatus*)—Mex.

OSTEN SACKEN, *Biologia, Dipt.*, I, 209 (*Neomochtherus plebeius*).—N. Sonora, Mex.

WILLISTON, *Biologia, Dipt.*, I, 328.—Mexico, various places; synonymy.

xanthocerus WILLISTON, *Biologia, Dipt.*, I, 329.—Guerrero, Mex.

STILPNOGASTER.

LOEW, *Linnæa Ent.*, iv, 82, 1849.

anceps VAN DER WULP, *Tijdschr. v. Ent.*, XII, 84.—Wis.

NEOITAMUS.

OSTEN SACKEN, *Cat.*, 82, 1878, change of name.

LOEW, *Linnæa Ent.*, iv, 84, 1849 (*Itamus*, preoc.).

æneobarba "LOEW, in litt.—Northern and Middle States"—O. S. Cat.

affinis WILLISTON, *Kans. Univ. Quart.*, II, 73.—Wash.

capillatus WILLISTON, *Biologia, Dipt.*, I, 330.—Guerrero, Mexico.

distinctus WILLISTON, *Kans. Univ. Quart.*, II, 73.—N. H., Conn.

N. J.—Smith Cat.; White Mts., N. H.—Slosson; Montreal—Chagnon.

nigrocaudatus WILLISTON, *Biologia, Dipt.*, I, 329.—Guerrero, Mexico.

EPITRIPTUS.

LOEW, *Linnæa Ent.*, iv, 108, 1849.

? **albispinosus** BELLARDI, *Saggio*, II, 54.—Mex. Query by Bell.

niveibarba BELLARDI, *Saggio*, II, 53.—Mex.

TOLMERUS.

LOEW, *Linnæa Ent.*, iv, 82, 1849.

alterus WILLISTON, *Biologia, Dipt.*, I, 330.—Guerrero, Mexico.

annulipes MACQUART, *Dipt. Exot.*, I, 2, 149 (*Asilus*).—Carolina.

Atl. St. and Canada—O. S.; N. J.—Smith Cat.

callidus WILLISTON, *Kans. Univ. Quart.*, II, 75.—Wash., Ore.

Montreal—Chagnon; Beulah, N. M.—Skinner.

notatus WIEDEMANN, Auss. Zw., 1, 451 (*Asilus*).—Ga.

WILLISTON, Kans. Univ. Quart., II, 74.—N. C., Mich., S. D., New England.

N. J.—Smith Cat.; Montreal—Chagnon; White Mts., N. H.—Slosson.

PHILODICUS.

LOEW, Linnæa Ent., IV, 144, 1848; Dipterenfauna Südafrika's, 139, 1860.
tæniatus BELLARDI, see *Heligmoneura truquii*.

tuxpanganus BELLARDI, Saggio, App., 22.—Tuxpango, Mex.

ASILUS.

LINNÉ, Syst. Naturæ, 605 (11th ed., 1760); Fauna Suecica, 469, 1761.

LATREILLE, Hist. Nat. Crust. et Ins., III, 433, 1802.

FABRICIUS, Sys. Antl., 153, 1805.

MEIGEN, Syst. Beschrl., II, 230, 1820.

MACQUART, Hist. Nat. Dipt., I, 302, 1834.

SCHINER, Fauna Austr., I, 142, 1862.

Note.—Some of the species included here doubtless belong to other genera, perhaps quite remote from *Asilus*.

alethes WALKER, List, II, 454.—N. Y.

angustifrons WILLISTON, Kans. Univ. Quart., II, 71.—Wash.

annulatus WILLISTON, Kans. Univ. Quart., II, 70.—N. H., Mass., Conn., S. D., Kans.

N. J.—Smith Cat.; Montreal—Chagnon; White Mts., N. H.—Mrs. Slosson.

anonymus WILLISTON, Biologia, Dipt., I, 330.—Guerrero, Mex.

antimachus WALKER, List, II, 454.—Trenton Falls, N. Y.

apicalis BELLARDI, Saggio, II, 57.—Mex. (Preoccupied—O. S.)

astutus WILLISTON, Kans. Univ. Quart., II, 70.—Cal.

atripes FABRICIUS, Syst. Antl., 170 (*Dasygogon*).—West Indies.

WIEDEMANN, Dipt. Exot., 195; Auss. Zw., I, 155.—West Indies.

auratus JOHNSON, Proc. Acad. Nat. Sci., 1895, 305.—Palatka and St. Augustine, Fla.

chrysauges OSTEN SACKEN, Biologia, Dipt., I, 208.—Guatemala.

femoralis MACQUART, Dipt. Exot., Suppl. II, 45.—Philadelphia.

flavipes WILLISTON, Kans. Univ. Quart., II, 72.—Pa.; the one mentioned from Conn. is different. N. J.—Smith Cat.; Montreal—Chagnon.

inauratus WALKER, Trans. Ent. Soc., V, 283.—Mex.

infuscatus BELLARDI, Saggio, II, 56, pl. II, f. 15.—Mex.

lecythus WALKER, List, II, 451.—Nova Scotia.

lestes WILLISTON, Biologia, Dipt., I, 331.—Guerrero, Mexico.

? **longicella** MACQUART, Dipt. Exot., Suppl. IV, 95, pl. IX, f. 5.—Locality N. A., with a doubt.

megacephalus BELLARDI, Saggio, II, 58, pl. II, f. 14.—Mex.

mexicanus MACQUART, Dipt. Exot., Suppl. I, 94.—Mex.

midas BRAUER, Sitzungsbericht der Kaiserl. Akad. der Wissenschaften, xci, 1885, 387, pl. II, f. 1.—Mex.

WILLISTON, Kans. Univ. Quart., II, 69, brief quotation.—N. M.

OSTEN SACKEN, Biologia, Dipt., I, 209.—Durango and Cuernavaca, Mex.

novæ scotiæ MACQUART, Dipt. Exot., Suppl. II, 46.—Nova Scotia.

WILLISTON, Kans. Univ. Quart., II, 68.—Conn.

N. J.—Smith Cat.; White Mts., N. H.—Slosson; Montreal—Chagnon; Fla.—Johnson.

- orphne** WALKER, List, II, 456.—N. Y.
paropus WALKER, List, II, 455.—N. Y.
perrumpens WALKER, Trans. Ent. Soc., v, 283.—Mex.
sadyates WALKER, List, II, 453.—Ohio.
sericeus SAY, Jour. Acad. Sci. Phil., III, 48; Compl. Works, II, 63.—Pa.
 WIEDEMANN, Auss. Zw., I, 429.
 WALKER, List, II, 410 (*herminius*).—Mass. [O. S.]
 WILLISTON, Trans. Amer. Ent. Soc., XI, pl. II, f. 10, no desc.; Kans. Univ. Quart., II, 68.—New England, Ind., Kans.
 RILEY, 2d Mo. Report, 123, gives figure, and notes that Harris (Insects Injurious to Vegetation, 605) has reared the species from larvæ feeding on rhubarb roots.
 N. J.—Smith Cat.
tenebrosus WILLISTON, Biologia. Dipt., I, 328.—Omitlteme, Mexico.
tibialis MACQUART, Hist. Nat. Dipt., I, 313.—Philadelphia.
truquii BELLARDI, see *Heligmoncura*.
vittatus OLIVIER, Encycl. Méthodique, I, 263.—San Domingo.

RHADIURGUS.

- LOEW, Linnæa Ent., IV, 1849.
leucopogon WILLISTON, Kans. Univ. Quart., II, 75.—S. D., Nebr.

LOPHONOTUS.

- MACQUART, Dipt. Exot., I, 2, 125, 1838.
 LOEW, Linnæa Ent., III, 423, 1848; Dipterenfauna Südafrika's, 152, 1860.
humilis BELLARDI, Saggio, II, 51.—Mex.

DOLICHOPODIDÆ.

LOEW, Mon. N. A. Dipt., vol. II, 1864 (in Smithsonian Miscellaneous Collections, No. 171), is a monograph which is still useful, although it must be studied in connection with the later works. The earlier descriptions are quoted and discussed in this monograph.

BIGOT, Annales, 1890, 261, article with table of genera of the world.

Note.—The arrangement in subfamilies, much of the synonymy, and some notes, are the result of my own study of the family, which has been a favorite with me for fourteen years.

AGONOSOMINÆ.

PSILOPODINUS.

- BIGOT, Annales Soc. Ent. France, 1890, 269.
 ?BIGOT, Annales Soc. ent. France, 1859, 215 (*Oariostylus*, *Megistostylus*, *Mesoblepharius*, *Condylostylus*, *Eurostomerus*, *Dasypsilopus*, *Heteropsilopus*, *Aedipsilopus*).
 LOEW, Mon. N. A. Dipt., II, 229 (*Psilopus*), 1864.
 ?BIGOT, Annales Soc. ent. France, 1890, 261-269 (*Spathipsilopus*, *Eudasybus*, *Amblypsilopus*, *Tylochaetus*, *Oariopherus*).
 ALDRICH, Kans. Univ. Quart., II, 47, 1895 (*Psilopus* in restricted sense); Biologia Centrali-Americana, Dipt., I, 350, 1901, table of American species (id.); Canad. Ent., 1904, 246, nomenclature.
Note.—As the species up to 1902 have all been referred to under the name *Psilopus*, it will be unnecessary to repeat it in each reference.

- albicoxa* WALKER, List, III, 651.—U. S.
- argentatus* ALDRICH, Biologia, Dipt., I, 361.—Guerrero and Tabasco, Mex.
- atricauda* ALDRICH, Biologia, Dipt., I, 357.—Tabasco and Vera Cruz, Mex.
- atrolamellatus* ALDRICH, Biologia, Dipt., I, 359.—Teapa, Mex.
- barbatus* ALDRICH, Biologia, Dipt., I, 358.—Guerrero, Mex.; Rio Janeiro.
- basilaris* WIEDEMANN, Auss. Zw., II, 215.—Brazil.
ALDRICH, Biologia, Dipt., I, 362.—Teapa, Mex.
- bellulus* ALDRICH, Dipt. St. Vincent, 343; Biologia, Dipt., I, 355.—St. Vincent, W. I.; Mexico, several places.
- brevisetia* COQUILLET, Jour. N. Y. Ent. Soc., X, 140.—San Rafael, Vera Cruz, Mex.
- calcaratus* LOEW, Neue Beitr., VIII, 93; Mon. N. A. Dipt., II, 272.—Carolina.
- caudatus* WIEDEMANN, Auss. Zw., II, 224.—Ga.
LOEW, Neue Beitr., VIII, 93; Mon. N. A. Dipt., II, 271 (both *caudatulus*).
—Mo., Ill.
ALDRICH, Biologia, Dipt., I, 360, oc. in Mexico, several places, and syn. St. Vincent and Grenada, W. I.—Aldrich.
U. S. generally, except Rocky Mts. and west of them.
- chrysoprasus* WALKER, List, III, 646 (*chrysoprasus*).—W. I.
LOEW, Neue Beitr., VIII, 90; Mon. N. A. Dipt., II, 265.—Mex.
SCHINER, Novara, 213, oc. in Brazil.
Porto Rico—Roeder; Jamaica—Johnson; St. Vincent and Grenada—Aldrich; Charlotte Harbor, Fla.—Johnson.
- ciliatus* LOEW, see *mundus*.
- ciliipes* ALDRICH, Biologia, Dipt., I, 355, pl. VI, f. 22.—Acapulco, N. Yucatan, etc., Mex.
- clavipes* ALDRICH, Biologia, Dipt., I, 363.—Guerrero, Mex.
- clunalis* COQUILLET, Jour. N. Y. Ent. Soc., X, 141.—San Rafael, Vera Cruz, Mex.
- comatus* LOEW, Neue Beitr., VIII, 89; Mon. N. A. Dipt., II, 262.—Middle States.
ALDRICH, Biologia, Dipt., I, 361, oc. in Mexico, several places.
? SCHINER, Novara, 213.—S. A. Probably not the same.
Volusia, Fla.—Johnson. See *longicornis*.
- coxalis* ALDRICH, Biologia, Dipt., I, 357.—Misantla, Mex.
- delicatus* WALKER, see *Agonosoma*.
- depressus* ALDRICH, Biologia, Dipt., I, 359.—Tabasco, Mex.
- diffusus* WIEDEMANN, Auss. Zw., II, 221.—Brazil.
LOEW, Mon. N. A. Dipt., II, 235, the Savannah label has been changed on the type to Brazil; redesc. from Brazil.
ALDRICH, Biologia, Dipt., I, 355, oc. in Tabasco and Vera Cruz, Mex.
Porto Rico—Roeder.
- dimidiatus* LOEW, see *Agonosoma*.
- femoratus* SAY, Jour. Acad. Sci. Phil., III, 86, and VI, 168; Compl. Works, II, 76 and 361—the latter reference, however, is a mistake, and refers to another species.—Pa. (Near *caudatus*, but cannot be determined with certainty—J. M. A.)
- flavicoxa* ALDRICH, Biologia, Dipt., I, 363.—Vera Cruz and Tabasco, Mex.
- forcipatus* ALDRICH, Biologia, Dipt., I, 362.—Teapa, Mex.
- genualis* ALDRICH, Biologia, Dipt., I, 358.—Guerrero, Mex.
- hæreticus* WALKER, Trans. Ent. Soc., V, 286.—Mex. (Unrecognizable—J. M. A.)
- hirtipes* ALDRICH, Biologia, Dipt., I, 361.—Guerrero, Mex.
- hirtulus* BIGOT, Bull. Ent. Soc. France, 1888, XXIX; Annales, 1890, 286.—Hayti.
(Near *caudatus*; cannot be determined with certainty—J. M. A.)

- incisuralis** MACQUART, Dipt. Exot., Suppl., 1, 120, pl. xx, f. 6.—Yucatan, Mex.
 LOEW, Mon. N. A. Dipt., II, 241, notes; not recognized. (Near *flavicoxa*, but cannot be identified with certainty—J. M. A.)
- inermis** LOEW, Neue Beitr., VIII, 93; Mon. N. A. Dipt., II, 272. Pa.
 N. J.—Smith Cat.
- inornatus** ALDRICH, Biologia, Dipt., I, 356.—Guerrero and Morelos, Mex.
- insularis** ALDRICH, Dipt. St. Vincent, 344.—St. Vincent, W. I. Grenada—Ald.
- interceptus** ALDRICH, Biologia, Dipt., I, 363.—Teapa, Mex.
- jucundus** LOEW, Neue Beitr., VIII, 87; Mon. N. A. Dipt., II, 258.—Cuba.
 MACQUART, Dipt. Exot., II, 2, 119, pl. XXI, f. 1 (*sipho* WIED.).—Pa., Cuba, Guiana and Brazil. [Lw.]
 Porto Rico—Roeder; Jamaica—Johnson; Grenada—Aldrich.
- lepidus** WALKER, Dipt. Saund., 207.—Mex. (Unrecognizable.)
- longicornis** FABRICIUS, Syst. Ent., 783; Ent. Syst., IV, 341 (both *Musca*); Syst. Antl., 269 (*Dolichopus*).—W. I.
 WIEDEMANN, Auss. Zw., II, 220.—W. I.
 LOEW, Mon. N. A. Dipt., II, 231, 289, 294, notes and orig. desc.
 COQUILLET, Proc. U. S. N. M., XXII, 252, oc. in Porto Rico. (Probably refers to *comatus*, which may be the original species.)
- longiseta** COQUILLET, Jour. N. Y. Ent. Soc., X, 141.—San Rafael, Vera Cruz, Mex.
- macula** WIEDEMANN, Auss. Zw., II, 219.—Caribee Ids.
 LOEW, Mon. N. A. Dipt., II, 292, quotes orig. desc.
 (Near *sipho*, but cannot be recognized with certainty.)
- melampus** LOEW, Berl. Ent. Zeitsch., VI, 215; Mon. N. A. Dipt., II, 253.—Mexico.
 SCHINER, Novara, 212.—S. A.
 ? WALKER, List, III, 649 (*inficitus*).—Mex. [J. M. A.]
 ALDRICH, Biologia, Dipt., I, 354, oc. in Mexico, several places.
 Beulah, N. M.—Skinner (*melanopus*).
- mundus** WIEDEMANN, Auss. Zw., II, 227.—Savannah, Ga.
 LOEW, Neue Beitr., VIII, 80; Mon. N. A. Dipt., II, 240, 260 (*ciliatus*, but with probable synonymy).—Fla.
 CASTLE and LAURENT, Ent. News., VII, 303, oc. at Enterprise, Fla. (*ciliatus*).
 Fla., several places—Johnson.
- nigrofemoratus** WALKER, List, III, 650.—Nova Scotia. (Unrecognizable.)
- nobilissimus** ALDRICH, Biologia, Dipt., I, 360, pl. VI, f. 23.—Guerrero, Morelos, etc., Mex.
- patibulatus** SAY, Jour. Acad. Sci. Phil., III, 87 and VI, 168; Compl. Works, II, 76 and 361 (*Dolichopus*).—E. Fla.; the second reference mentions the species as occurring in Mexico, but this is probably *melampus*.
 WALKER, List, III, 648 (*amatus*).—Trenton Falls, N. Y.
 LOEW, Neue Beitr., VIII, 85; Mon. N. A. Dipt., II, 251.—“Chicago, Nebr., etc.”
 N. J.—Smith Cat.; Montreal—Chagnon.
- pennifer** ALDRICH, Biologia, Dipt., I, 363.—Teapa, Mex.
- peractus** WALKER, Trans. Ent. Soc., V, 286.—Mex. (Unrecognizable.)
- permodicus** WALKER, Trans. Ent. Soc., V, 287.—Mex. (Unrecognizable.)
- pilosus** LOEW, Neue Beitr., VIII, 86; Mon. N. A. Dipt., II, 256.—Cuba.
 ROEDER, Stett. Ent. Zeit., 1885, 340, oc. in Porto Rico, and notes.
- portoricensis** MACQUART, Hist. Nat. Dipt., I, 450; Dipt. Exot., II, 2, 121; Suppl. I, 120, pl. XI, f. 17.—Porto Rico.
- præstans** ALDRICH, Biologia, Dipt., I, 355.—Teapa, Mex.

- purpuratus* ALDRICH, *Biologia*, Dipt., I, 358.—Morelos and Guerrero, Mex.
- purpureus* ALDRICH, *Biologia*, Dipt., I, 362.—Vera Cruz, Guerrero and Tabasco, Mex.
- radians* MACQUART, *Hist. Nat. Dipt.*, I, 450; *Dipt. Exot.*, II, 2, 121.—N. A. (Near *comatus*, but cannot be recognized.)
LOEW, *Mon. N. A. Dipt.*, II, 240, 298, not recognized.
- scaber* LOEW, *Neue Beitr.*, VIII, 85; *Mon. N. A. Dipt.*, II, 250.—Pa.
N. J.—Smith Cat.
- scobinator* LOEW, *Neue Beitr.*, VIII, 91; *Mon. N. A. Dipt.*, II, 268.—N. Y., III.
N. J.—Smith Cat.; Axton, N. Y.—M. & H.
- similis* ALDRICH, *Biologia*, Dipt., I, 359.—Guerrero, Yucatan, etc., Mex.; Brazil.
- sipho* SAY, *Jour. Acad. Sci. Phil.*, III, 85; *Compl. Works*, II, 75 (*Dolichopus*).
U. S.
WIEDEMANN, *Auss. Zw.*, II, 218.—Pa.
WALKER, *List*, III, 646 (*gemmifer*).—Trenton Falls, N. Y. [Lw.]
LOEW, *Neue Beitr.*, VIII, 83; *Mon. N. A. Dipt.*, II, 248.—Pa., Ga., Va., III.
Common throughout the eastern and middle part of the United States;
Montreal—Chagnon.
Note.—There is a reference to *sipho* by Macquart, in *Dipt. Exot.*, II, 2, 179, with fig. 1, pl. XXI; Loew, *Mon.*, 241, says it refers to *jucundus*, while Schiner, *Novara*, 210, says it means *dux* WIED.
- solidus* WALKER, *Trans. Ent. Soc.*, v, 286.—Mex. (Unrecognizable.)
- suavium* WALKER, *List*, III, 648.—Jamaica. Porto Rico—Roeder.
- tibialis* WIEDEMANN, *Auss. Zw.*, II, 222.—Antigua.
- tonsus* ALDRICH, *Biologia*, Dipt., I, 364.—Frontera, Mex.
- triseriatus* ALDRICH, *Biologia*, Dipt., I, 356.—Cuernavaca and Teapa, Mex.
- ungulivena* WALKER, *Trans. Ent. Soc.*, IV, 249.—U. S. (Unrecognizable.)
- virgo* WIEDEMANN, *Auss. Zw.*, II, 224.—N. Y.
SCHINER, *Novara*, 215, oc. in S. A.
LOEW, *Mon. N. A. Dipt.*, II, 240, 295.

AGONOSOMA.

- GUÉRIN-MÉNEVILLE, *Voyage . . . sur la Corvette. Zoologie*, Tome II, partie 2me, p. 293. Paris, 1838 (title-page gives date 1830). On the plates the genus is called *Chrysosoma*.
- FALLÉN, *Dolichopodes*, 23, 1823 (*Leptopus*, preoc.).
- MEIGEN, *Syst. Besch.*, IV, 35, 1824 (*Psilopus*, preoc.).
- ZELLER, *Isis* 1842, 831, changes *Psilopus* to *Sciapus*.
- ? BIGOT, *Annales Soc. ent. France*, 1859, 215 (*Margaritostylus*, in part).
- RONDANI, *Dipt. Ital. Prodrömus*, IV, 11, 1861, changes *Psilopus* to *Psilopodius*.
- SCHINER, *Fauna Austr.*, I, 180, 1862 (*Psilopus* MEIG.).
- LOEW, *Mon. N. A. Dipt.*, II, 229 (id.), 1864.
- ALDRICH, *Kans. Univ. Quart.*, II, 47, 1893 (*Gnamptopsilopus*); *Biologia*, Dipt., I, 364, 1901, table of species (id.); *Canad. Ent.*, 1904, 246, nomenclature.
- COQUILLET, *Jour. N. Y. Ent. Soc.*, X, 140, 1902, syn. of *Gnamptopsilopus*.
- BEZZI, *Zeitsch. f. Syst. Hym. u. Dipterologie*, 1902, 191, adopts *Sciapus*.
- bicolor* LOEW, see *unifasciatus*.
- castum* LOEW, *Cent.*, VI, 84 (*Psilopus*).—Cuba.
- ciliipennis* ALDRICH, *Biologia*, Dipt., I, 366, pl. VI, f. 24 (*Gnamptopsilopus*).—Omitlme, Mex.

- delicatum** WALKER, List, III, 645 (*Psilopus*).—N. Y. (Unrecognizable.)
- dimidiatum** LOEW, Berl. Ent. Zeitsch., VI, 216; Mon. N. A. Dipt., II, 246 (both *Psilopus*).—Mex.
ALDRICH, Biologia, Dipt., I, 365 (*Gnamptopsilopus*).—Morelos, Mex. Porto Rico, Roeder; South Amer.—Schiner, Novara, 212.
- dorsale** LOEW, Cent., VI, 85 (*Psilopus*).—Cuba.
- filipes** LOEW, Neue Beitr., VIII, 99; Mon. N. A. Dipt., II, 286, pl. VII. f. 44 (*Psilopus*).—Middle States.
- flavicornis** ALDRICH, Dipt. St. Vincent, 342 (*Gnamptopsilopus*).—St. Vincent. W. I.; also from Grenada.
- flavidum** ALDRICH, Dipt. St. Vincent, 341, pl. XII, f. 109 (*Gnamptopsilopus*).—St. Vincent, W. I.; also from Grenada.
- infumatum** ALDRICH, Biologia, Dipt., I, 365 (*Gnamptopsilopus*).—Guerrero, Mex.
- mexicanum** ALDRICH, Biologia, Dipt., I, 365 (*Gnamptopsilopus*).—Vera Cruz and Tabasco, Mex.
- pallens** WIEDEMANN, AUSS. ZW., II, 219 (*Psilopus*).—N. Y.
LOEW, Neue Beitr., V, 4 (*Psilopus albouotatus*, from Isle to Rhodes); VIII, 97 (*Psilopus pallens*); Mon. N. A. Dipt., II, 275 (id.).—N. Y.
OSTEN SACKEN, Cat., 243, oc. and syn.—Spain, N. Y., R. I. N. J.—Smith Cat.
- psittacinum** LOEW, Neue Beitr., VIII, 96; Mon. N. A. Dipt., II, 281 (*Psilopus*).—Fla.
N. J.—Smith Cat.; Porto Rico—Roeder; St. Augustine and L. Worth. Fla.—Johnson.
- scintillans** LOEW, Neue Beitr., VIII, 94; Mon. N. A. Dipt., II, 273 (both *Psilopus*).—Middle States. N. J.—Smith Cat.
- tener** LOEW, Cent., II, 71; Mon. N. A. Dipt., II, 284 (both *Psilopus*).—Pa. N. J.—Smith Cat.
- unifasciatum** SAY, Jour. Acad. Sci. Phil., III, 85; Compl. Works, II, 75 (*Dolichopus*).—Pa.
WIEDEMANN, AUSS. ZW., II, 219 (*Psilopus sayi*).
LOEW, Neue Beitr., VIII, 96; Mon. N. A. Dipt., II, 280 (both *Psilopus bicolor*).—Middle States. Loew also quotes the earlier descriptions, pp. 332, 289, 293.
GIGLIO-TOS, Annales Soc. Ent. France, 1895, 359, suspects that *Psilopus leptogaster* THOMPSON, Eugen. Resa, 510, is the same as *bicolor*.
- variegatum** LOEW, Neue Beitr., VIII, 95; Mon. N. A. Dipt., II, 278 (both *Psilopus*).—Fla. Cuba. N. J.—Smith Cat.; Fla., several places—Johnson.

MESORHAGA.

SCHINER, Novara, 217, 1868.

ALDRICH, Kans. Univ. Quart., II, 48, 1893 (*Aptorthus*); Ent. News, XI, 531, syn.

albiciliata ALDRICH, Kans. Univ. Quart., II, 48 (*Aptorthus*).—Westville, N. J.; Mich. N. J.—Smith Cat.

borealis ALDRICH, Kans. Univ. Quart., II, 49 (*Aptorthus*).—St. Paul, Minn.

nigripes ALDRICH, Kans. Univ. Quart., II, 49 (*Aptorthus*).—Cal.

townsendii ALDRICH, Kans. Univ. Quart., II, 50 (*Aptorthus*).—Aztec., Ariz.; Atlantic City, N. J.

LEPTORHETHUM.

ALDRICH, Kans. Univ. Quart., II, 50, 1893.

angustatum ALDRICH, Kans. Univ. Quart., II, 50; Dipt. St. Vincent, 345, pl. XII, f. 108.—St. Vincent, W. I.

DIAPHORINÆ.

DIAPHORUS.

- MEIGEN, Syst. Besch., iv, 32, 1824.
 SCHINER, Fauna Austr., i, 186, 1864.
 LOEW, Wien. Ent. Monatsch., i, 37, 1857 (*Lyroneurus*, in part); Mon. N. A. Dipt., ii, 156 and 169, 1864 (*Diaphorus* and *Lyroneurus*).
 ALDRICH, Dipt. St. Vincent, 321, note, 1896; Kans. Univ. Sci. Bull., i, 1902, 85, table of species.
amœnus ALDRICH, Kans. Univ. Sci. Bull., i, 86.—Grenada, W. I.
approximatus ALDRICH, see *spectabilis*.
cærulescens LOEW, Wien. Ent. Monatsch., i, 39; Neue Beitr., viii, 60; Mon. N. A. Dipt., ii, 170 (all *Lyroneurus*).—Mex.
contiguus ALDRICH, Dipt. St. Vincent, 323.—St. Vincent, W. I.; also in Grenada.
deceptivus ALDRICH, Biologia, Dipt., i, 346.—Guerrero and Vera Cruz, Mex.
dimidiatus ALDRICH, Dipt. St. Vincent, 322.—St. Vincent, W. I. Also in Grenada.
dubius ALDRICH, Dipt. St. Vincent, 324.—St. Vincent, W. I.; also in Grenada.
flavipes ALDRICH, Dipt. St. Vincent, 323.—St. Vincent, W. I. Also occurs in Grenada.
interruptus LOEW, see *Asyndetus*.
lamellatus LOEW, Mon. N. A. Dipt., ii, 165.—Middle States.
leucostoma LOEW, Neue Beitr., viii, 58; Mon. N. A. Dipt., ii, 166.—D. C., Md. HOWARD, Proc. Wash. Acad. Sci., ii, 561, reared a specimen from human excrement. N. J.—Smith Cat.; Charlotte Harbor, Fla.—Johnson.
mundus LOEW, Neue Beitr., viii, 57; Mon. N. A. Dipt., ii, 161.—Pa. N. J.—Smith Cat.; Drayton Id. and Charlotte Harbor, Fla.—Johnson.
nigrescens ALDRICH, Biologia, Dipt., i, 346.—Guerrero, Mex.
opacus LOEW, Neue Beitr., viii, 56; Mon. N. A. Dipt., ii, 160.—N. Y. ALDRICH, Dipt. St. Vincent, 320; Kans. Univ. Sci. Bull., i, 86.—St. Vincent and Grenada, W. I., and notes. N. J.—Smith Cat.
palpiger WHEELER, Psyche, June, 1890, 360.—Milwaukee Co., Wis.
parvulus ALDRICH, Dipt. St. Vincent, 321.—St. Vincent, W. I.
rauterbergi WHEELER, Psyche, June, 1890, 360.—Saline Co., Nebr.
satrapa WHEELER, Psyche, June, 1890, 359.—Saline Co., Nebr.
simplex ALDRICH, Dipt. St. Vincent, 333, pl. xii, f. 117 (*Lyroneurus*); Biologia, Dipt. i, 345; Kans. Univ. Sci. Bull., i, 85, 87.—St. Vincent, W. I. (type); Mexico, several places; Grenada, W. I.
sodalis LOEW, Neue Beitr., viii, 58; Mon. N. A. Dipt., ii, 163.—N. Y. HOWARD, Proc. Wash. Acad. Sci., ii, 561, reared from human excrement in Md. N. J.—Smith Cat.
spectabilis LOEW, Neue Beitr., viii, 57; Mon. N. A. Dipt., ii, 162.—D. C. ALDRICH, Dipt. St. Vincent, 321 (*approximatus*); Ent. News, xi, 533, *syn.*; Biologia, Dipt., i, 345; Kans. Univ. Sci. Bull., i, 87.—St. Vincent, W. I.; Mexico, several places; Grenada, W. I.
subsejunctus LOEW, Cent., vi, 83.—Cuba.

ASYNDETUS.

- LOEW, Cent., viii, 58, 1869; Besch. Europ. Dipt., ii, 206, 1871.
 WHEELER, Proc. Cal. Acad. Sci., ii, 32, table of species, etc.
 ALDRICH, Kans. Univ. Sci. Bull., i, 87, table of species, etc.
ammophilus LOEW, Cent., viii, 58.—Newport, R. I. N. J.—Smith Cat.

- appendiculatus** LOEW, Cent., VIII, 59.—Newport, R. I.
fratellus ALDRICH, Dipt. St. Vincent, 332, pl. XII, f. 114.—St. Vincent, W. I. Also occurs in Grenada.
interruptus LOEW, Wien. Ent. Monatsch., v, 37; Neue Beitr., VIII, 59; Mon. N. A. Dipt., II, 168 (all *Diaphorus*).—Cuba.
 ALDRICH, Kans. Univ. Sci. Bull., I, 87, gen. ref.
syntormoides WHEELER, Proc. Cal. Acad. Sci., II, 32, pl. II, f. 50-52.—New Bedford and Boston, Mass.; Avalon, N. J.
 ALDRICH, Kans. Univ. Sci. Bull., I, 88, oc. in Grenada, W. I., and Kans.

CHRYSOTUS.

- MEIGEN, Syst. Besch., IV, 40, 1824.
 SCHINER, Fauna Austr., I, 185, 1862.
 LOEW, Mon. N. A. Dipt., II, 171, 1864.
 KOWARZ, Verh. Zool.-Bot. Ges., XXIV, 453-478, 1874, 1 pl., revision of the European species.
 ALDRICH, Kans. Univ. Sci. Bull., I, 85, 88, table of species, 1002.
abdominalis SAY, see *Thrypticus*.
acutus ALDRICH, Dipt. St. Vincent, 329.—St. Vincent, W. I.
affinis LOEW, Neue Beitr., VIII, 64; Mon. N. A. Dipt., II, 178.—Middle States.
albipalpus ALDRICH, Dipt. St. Vincent, 327.—St. Vincent, W. I. Also occurs in Grenada.
apicalis ALDRICH, see *barbatus*.
auratus LOEW, Neue Beitr., VIII, 65; Mon. N. A. Dipt., II, 183.—N. Y.
barbatus LOEW, Neue Beitr., VIII, 48; Mon. N. A. Dipt., II, 138 (both male only, as *Synarthrus barbatus*); Neue Beitr., VIII, 63; Mon. N. A. Dipt., II, 175 (both female only, as *Chrysotus validus*).—Middle States.
 WHEELER, Ent. News, VII, 154 (*Xiphandrium americanum*).—Wis., Ill., Ind.
 ALDRICH, Dipt. St. Vincent, 330 (*apicalis*); Ent. News., XI, 533, syn.; Kans. Univ. Sci. Bull., I, 90.—St. Vincent and Grenada, W. I.
 Porto Rico—Coq.
choricus WHEELER, Psyche, June, 1890, 357.—Milwaukee Co., Wis.
concinarius SAY, Jour. Acad. Sci., Phil., VI, 168; Compl. Works, II, 361.—Mex. (Unrecognizable.)
cornutus LOEW, Mon. N. A. Dipt., II, 174.—D. C.
costalis LOEW, Neue Beitr., VIII, 64; Mon. N. A. Dipt., II, 179.—Fla., Md.
discolor LOEW, Neue Beitr., VIII, 65; Mon. N. A. Dipt., II, 182.—Middle States.
 ALDRICH, Biologia, Dipt., I, 347.—Guerrero and Tabasco, Mex.
excisus ALDRICH, Dipt. St. Vincent, 325; Biologia, Dipt., I, 348.—St. Vincent, W. I.; Teapa, Mex. Also occurs in Grenada, W. I.
flavus ALDRICH, Dipt. St. Vincent, 326.—St. Vincent, W. I.
hirsutus ALDRICH, Dipt. St. Vincent, 328.—St. Vincent, W. I. Also in Grenada.
incertus WALKER, List, III, 651.—U. S. (Unrecognizable.)
inermis ALDRICH, Dipt. St. Vincent, 330.—St. Vincent, W. I.
longimanus LOEW, Neue Beitr., VIII, 62; Mon. N. A. Dipt., II, 175.—Middle States.
longipalpus ALDRICH, Dipt. St. Vincent, 329.—St. Vincent, W. I. Also in Grenada.
niger ALDRICH, Dipt. St. Vincent, 327.—St. Vincent, W. I. Also in Grenada.
nubilus SAY, Jour. Acad. Sci. Phil., VI, 168; Compl. Works, II, 361.—Ind. (Unrecognizable.)
obliquus LOEW, Neue Beitr., VIII, 633; Mon. N. A. Dipt., II, 176.—N. Y.
 ?SCHINER, Novara, 221, oc. in S. A. (doubtful—J. M. A.).
 N. J.—Smith Cat.
pallipes LOEW, Neue Beitr., VIII, 66; Mon. N. A. Dipt., II, 183.—Middle States.

SCHINER, Novara, 221, oc. in S. A.

Porto Rico—Roeder and Coquillett.

paradoxus ALDRICH, Kans. Univ. Sci. Bull., 1, 90.—Grenada, W. I.

philtrum MELANDER, Ent. News, XIV, 72.—Tex., La. and Pa.

picticornis LOEW, Mon. N. A. Dipt., II, 184.—Ill. [Osten Sacken, Cat., gives the locality as D. C. and Texas.]

WHEELER, Psyche, June, 1890, 358.—Milwaukee Co., Wis.

St. Vincent and Grenada, W. I.; Mex., several places—Aldrich.

pratincola WHEELER, Psyche, June, 1890, 357.—Saline Co., Nebr.

proximus ALDRICH, Dipt. St. Vincent, 326; Kans. Univ. Sci. Bull., 1, 90.—St. Vincent, W. I.; Grenada, W. I.

subcostatus LOEW, Mon. N. A. Dipt., II, 181.—Ill.

teapanus ALDRICH, Biologia, Dipt., 1, 347.—Teapa, Mex.

validus LOEW, see *barbatus*.

viridifemora MACQUART, Dipt. Exot., Suppl., IV, 124.—N. A. (Unrecognizable.)

vividus LOEW, Mon. N. A. Dipt., II, 178.—D. C.

ALDRICH, Biologia, Dipt., 1, 348, oc. in Mexico, several places.

wisconsinensis WHEELER, Psyche, June, 1890, 356.—Milwaukee Co., Wis.

EUTARSUS.

LOEW, Neue Beitr., v, 45, 1857; VIII, 54, 1861; Mon. N. A. Dipt., II, 153, 1864.

leewi ALDRICH, Biologia, Dipt., 1, 349.—Teapa, Mex.

sinuatus ALDRICH, Dipt. St. Vincent, 334, pl. XI, f. 104, pl. XII, f. 110, 115.—St. Vincent, W. I. Occurs also in Grenada.

TEUCHOPHORUS.

LOEW, Neue Beitr., v, 44, 1857; VIII, 66, 1861; Mon. N. A. Dipt., II, 185, 1864.

SCHINER, Fauna Austr., 1, 236, 1862.

KOWARZ, Wien. Ent. Zeitung, 1884, 110, table European species.

WHEELER, Proc. Cal. Acad. Sci., II, 57, 1899, oc. in N. A., etc.

clavigerellus WHEELER, Proc. Cal. Acad. Sci., II, 57, pl. IV, f. 103, 104.—S. D. (Type locality is Brookings, S. D.—J. M. A.)

CAMPSICNEMUS.

HALIDAY, in Walker's Ins. Brit., Dipt., 1, 187, 1851.

LOEW, Neue Beitr., v, 26, 1857; VIII, 68, 1861; Mon. N. A. Dipt., II, 193, 1864.

SCHINER, Fauna Austr., 1, 232, 1862.

KOWARZ, Wien. Ent. Zeitung, 1884, 110, table of European species.

WHEELER, Proc. Cal. Acad. Sci., II, 58, table of species.

claudicans LOEW, Mon. N. A. Dipt., II, 194.—Sitka.

WHEELER, Proc. Cal. Acad. Sci., II, 62, pl. IV, f. 113.—Craig's Mt., Ida.

degener WHEELER, Proc. Cal. Acad. Sci., II, 58, pl. IV, f. 110-112.—Pacific Grove, Cal.; Vollmer, Ida.

hirtipes LOEW, Neue Beitr., VIII, 68; Mon. N. A. Dipt., II, 193.—Pa.

WHEELER, Proc. Cal. Acad. Sci., II, 59, oc. in Middle States.

St. Augustine, Fla.—Johnson.

œdipus WHEELER, Proc. Cal. Acad. Sci., II, 60, pl. IV, f. 114.—Two-gwo-te-ee Pass, Wyo.

philoctetes WHEELER, Proc. Cal. Acad. Sci., II, 59, pl. IV, f. 115-117.—Lusk, Little Wind R. Canons, Hunter's Cr., and Jackson's L., all in Wyo.; S. D. (the type locality in S. D. is Brookings.—J. M. A.)

- sequax** WALKER, List, III, 666 (*Dolichopus*).—Martin Falls, Canada.
 LOEW, Mon. N. A. Dipt., II, 317, quotes orig. desc.; p. 24, comments.
- thersites** WHEELER, Proc. Cal. Acad. Sci., II, 61, pl. IV, f. 118.—Natrona Co.,
 Wind R. Mts., Two-gwo-te-ee Pass, all in Wyo.

RHAPHINÆ.

ARGYRA.

- MACQUART, Hist. Nat. Dipt., I, 456, 1834.
 SCHINER, Fauna Austr., I, 188, 1862.
 LOEW, Neue Beitr., v, 38, 1857; VIII, 45, 1861; Mon. N. A. Dipt., II, 123, 1864.
 MIK, Dipterol. Untersuchungen, 1878 (*Lasiargyra*, in part).
 KOWARZ, Verh. Zool.-Bot. Ges., XXVIII, 1878, 437-462, 1 pl., revision of the
 European species.
- albicans** LOEW, Neue Beitr., VIII, 45; Mon. N. A. Dipt., II, 125.—D. C.
 MIK, Dipterol. Unters., refers to *Lasiargyra*.
 N. J.—Smith Cat.; Quebec—Wulp.
- albiventris** LOEW, Mon. N. A. Dipt., II, 128.—Sitka.
- calceata** LOEW, Neue Beitr., VIII, 47; Mon. N. A. Dipt., II, 131.—Middle States.
- calcitrans** LOEW, Neue Beitr., VIII, 46; Mon. N. A. Dipt., II, 130.—N. Y.
 N. J.—Smith Cat.
- cylindrica** LOEW, Mon. N. A. Dipt., II, 132.—Sitka.
- minuta** LOEW, Neue Beitr., VIII, 46; Mon. N. A. Dipt., II, 129.—D. C.
 N. J.—Smith Cat.
- nigripes** LOEW, Mon. N. A. Dipt., II, 127.—Sitka.

LEUCOSTOLA.

- LOEW, Neue Beitr., v, 39; VIII, 53, 1861; Mon. N. A. Dipt., II, 157, 1864.
 KOWARZ, Verh. Zool.-Bot. Ges., 1878, 458.
- cingulata** LOEW, Neue Beitr., VIII, 53; Mon. N. A. Dipt., II, 152.—D. C.
 N. J.—Smith Cat.

PORPHYROPS.

- MEIGEN, Syst. Besch., IV, 45, 1824.
 SCHINER, Fauna Austr., I, 196, 1862.
 LOEW, Neue Beitr., VIII, 50, 1861; Mon. N. A. Dipt., II, 142, 1864.
 WHEELER, Proc. Cal. Acad. Sci., II, 33, table of species.
- consobrinus** ZETTERSTEDT, Dipt. Scand., II, 471 and VIII, 3061.—N. Europe.
 COQUILLET, Proc. Wash. Acad. Sci., II, 426, oc. in Yakutat and Kukak Bay,
 Alaska. Note.—The recognition of this European species is somewhat
 premature, in view of the condition of our present knowledge of the N. A.
 species.
- effilatus** WHEELER, Proc. Cal. Acad. Sci., II, 34, pl. II, f. 54, 55; Psyche, June, 1890,
 361 (the latter as *P. longipes*).—Buck Creek and Little Wind R., Wyo.;
 Milwaukee Co., Wis.
- fumipennis** LOEW, Neue Beitr., VIII, 51; Mon. N. A. Dipt., II, 146.—Middle States.
- longipes** LOEW, Cent., v, 92; Mon. N. A. Dipt., II, 340.—White Mts., N. H.
 Canada—O. S. Cat. See *effilatus* for Wheeler's reference.
- melampus** LOEW, Neue Beitr., VIII, 50; Mon. N. A. Dipt., II, 141.—Atl. States.
 N. J.—Smith Cat.
- nigricoxa** LOEW, Neue Beitr., VIII, 51; Mon. N. A. Dipt., II, 145.—Md.
 N. J.—Smith Cat.
- pilosicornis** WALKER, see *Pelastoncurus*.

rotundiceps LOEW, Neue Beitr., VIII, 51; Mon. N. A. Dipt., II, 146.—D. C.
signifer OSTEN SACKEN, Cat., 242.—Tarrytown and Manlius, N. Y.
xiphères WHEELER, Proc. Cal. Acad. Sci., II, 34, pl. II, f. 53.—Delaware Co., Pa.

RHAPHIUM.

MIEGEN, Illig. Mag., II, 272, 1803; Syst. Besch., IV, 28, 1824.
 LOEW, Neue Beitr., V, 30, 1857; VIII, 49, 1861; Mon. N. A. Dipt., II, 140, 1864.
lugubre LOEW, Neue Beitr., VIII, 49; Mon. N. A. Dipt., II, 141.—Carolina.
 Delaware Co., Pa.—J. M. A.

NEMATOPROCTUS.

LOEW, Neue Beitr., V, 40, 1857; VIII, 53, 1861; Mon. N. A. Dipt., II, 150, 1864.
venustus MELANDER, Canad. Ent., XXXII, 142, f. 12.—Westville, N. J.

SYNTORMON.

LOEW, Neue Beitr., V, 35, 1857 (*Syntormon* and *Synarthrus*); Mon. N. A. Dipt., II, 133 and 134 (id.), 1864.
 SCHINER, Fauna Austr., I, 192, 1862.
 WHEELER, Proc. Cal. Acad. Sci., II, 36, 1899, reinstates *Synarthrus*.
 MIK, Wien. Ent. Zeitung, XIX, 20, 1899.
affine WHEELER, Proc. Cal. Acad. Sci., II, 38, pl. III, f. 56-59 (*Synarthrus*).—Monterey, Cal.
barbatum LOEW, see *Chrysotus*.
cinereiventris LOEW, Neue Beitr., VIII, 48; Mon. N. A. Dipt., II, 137 (both *Synarthrus*).—Middle States. Texas—O. S. Cat.
 LOEW, Zeitsch. f. Ges. Naturwiss., XLIV, 1874, 77, male (id.).
 WHEELER, Psyche, June, 1890, 362 (id.).—Wis
palmare LOEW, Mon. N. A. Dipt., II, 135 (*Synarthrus*).—Sitka. Wash.—J. M. A.
quadratum ALDRICH, Biologia, Dipt., I, 342, pl. VI, f. 18.—Mexico City.
stratægum WHEELER, Proc. Cal. Acad. Sci., II, 39, pl. III, f. 60, 61 (*Synarthrus*).—Lusk, Wyo.; Monterey, Cal.

SYMPYCININÆ.

PARASYNTORMON.

WHEELER, Proc. Cal. Acad. Sci., II, 41, 1899, def. and table of species.
asellus WHEELER, Proc. Cal. Acad. Sci., II, 42.—Coronado, Cal.
emarginatum WHEELER, Proc. Cal. Acad. Sci., II, 45, pl. III, f. 75.—Monterey and San Diego, Cal.
hinnulus WHEELER, Proc. Cal. Acad. Sci., II, 44, pl. III, f. 72, 73.—Lusk, Wyo.
lagotis WHEELER, Proc. Cal. Acad. Sci., II, 43, pl. III, f. 70, 71.—Monterey, Cal.
montivagum WHEELER, Proc. Cal. Acad. Sci., II, 46, pl. III, f. 74.—Wind R. Mts., Wyo.
occidentale ALDRICH, Kans. Univ. Quart., II, 1894, 153 (*Sympycnus*).—Wyo.
 WHEELER, Proc. Cal. Acad. Sci., II, 43, oc. in Wind R. Mts., Wyo., and gen. ref.
wheeleri ALDRICH, Biologia, Dipt., I, 343, pl. VI, f. 19.—Mexico City.

SYMPYCINUS.

LOEW, Neue Beitr., V, 42, 1857; VIII, 66, 1861; Mon. N. A. Dipt., II, 185, 1864.
 SCHINER, Fauna Austr., I, 231, 1862.

- KOWARZ, Wien. Ent. Zeitung, 1889, 175, synopsis of the European spp.
 WHEELER, Proc. Cal. Acad. Sci., II, 47, table of species, and def.
- angustipennis** ALDRICH, Biologia, Dipt., I, 344, pl. VI, f. 20.—Orizaba, Mex.
coxalis ALDRICH, Biologia, Dipt., I, 344, pl. VI, f. 21.—Teapa, Mex.
cuprinus WHEELER, Proc. Cal. Acad. Sci., II, 50, pl. IV, f. 99, 100.—Monterey, Cal.
 COQUILLET, Proc. Wash. Acad. Sci., II, 426, oc. in Juneau and Popof Id.,
 Alaska.
- falco** ALDRICH, Dipt. St. Vincent, 336.—St. Vincent, W. I. Also occurs in
 Grenada.
- frater** ALDRICH, Kans. Univ. Sci. Bull., I, 83.—Grenada, W. I.
- frontalis** LOEW, see *Nothosympycnus*.
- lineatus** LOEW, Neue Beitr., VIII, 67; Mon. N. A. Dipt., II, 189.—Va., N. Y.
 WHEELER, Proc. Cal. Acad. Sci., II, 49, pl. IV, f. 96-98.—Wis., several places.
 N. J.—Smith Cat.
- marcidus** WHEELER, Proc. Cal. Acad. Sci., II, 48, pl. IV, f. 92-95.—Little Wind R.
 Canon, Dinwiddie Cr., Buck Cr., Dubois,—all in W. Wyo.
- nodatus** LOEW, see *Nothosympycnus*.
- occidentalis** ALDRICH, see *Parasyntormon*.
- pugil** WHEELER, Proc. Cal. Acad. Sci., II, 51, pl. IV, f. 101, 102.—Seattle, Wash.
- similis** ALDRICH, Dipt. St. Vincent, 336; Kans. Univ. Sci. Bull., I, 84.—St. Vincent
 (type) and Grenada, W. I.
- tertianus** LOEW, Mon. N. A. Dipt., II, 187.—Sitka.
- variipes** ALDRICH, Biologia, Dipt., I, 344.—Guerrero, Mex.

NOTHOSYMPYCNUS.

- WHEELER, Proc. Cal. Acad. Sci., II, 51, 1899, def. and table of species.
- fortunatus** WHEELER, Proc. Cal. Acad. Sci., II, 52, pl. III, f. 83-85.—Natrona, Pa.
 N. J.—Smith Cat.
- frontalis** LOEW, Neue Beitr., VIII, 67; Mon. N. A. Dipt., II, 188 (*Sympycnus*).
 —Pa.
 WHEELER, Proc. Cal. Acad. Sci., II, 47, gen. ref.
- nodatus** LOEW, Cent., II, 68; Mon. N. A. Dipt., II, 185 (*Sympycnus*).—Ill.
 WHEELER, Proc. Cal. Acad. Sci., II, 56, notes and gen. ref.—Wis.
- oreas** WHEELER, Proc. Cal. Acad. Sci., II, 55, pl. III, f. 86, 87.—Buck Cr., Wyo.
- sobrinus** WHEELER, Proc. Cal. Acad. Sci., II, 54, pl. III, f. 88-91.—Lewiston, Idaho.
- vegetus** WHEELER, Proc. Cal. Acad. Sci., II, 53, pl. III, f. 76-79.—Monterey, Cal.

ANEPSIOMYIA.

- BEZZI, Zeitsch. f. Hym. und Dipterologie, 1902, 192, change of name.
- LOEW, Neue Beitr., V, 45, 1857; VIII, 45, 1861; Mon. N. A. Dipt., II, 123,
 1864 (all *Anepsius*, preoc.).
- linearis** ALDRICH, Dipt. St. Vincent, 317.—St. Vincent, W. I. Also occurs in
 Grenada.

NEURIGONINÆ.

NEURIGONA.

- RONDANI, Dipt., Ital. Prodrumus, I, 142, 1856.
- LOEW, Neue Beitr., V, 41, 1857; VIII, 75, 1861; Mon. N. A. Dipt., II, 224,
 1864 (all as *Saucropus*).
- ALDRICH, Kans. Univ. Quarterly, II, 151, 1894 (*Dactylomyia*, in part);
 Ent. News., XI, 531, syn.

- WHEELER, Proc. Cal. Acad. Sci., II, 72, table of species, 1899.
- carbonifer** LOEW, Cent., IX, 84 (*Saucropus*).—N. Y.
- WHEELER, Proc. Cal. Acad. Sci., II, 72, female (*floridula*).—Md., N. Y., III. White Mts., N. H.—Slosson (*floridula*).
- decora** ALDRICH, Kans. Univ. Sci. Bull., I, 83.—Grenada and St. Vincent, W. I.
- dimidiata** LOEW, Neue Beitr., VIII, 75; Mon. N. A. Dipt., II, 225 (*Saucropus*).—Fla., D. C.
- floridula** WHEELER, see *carbonifer*.
- lateralis** SAY, Proc. Acad. Sci., Phil., VI, 169; Compl. Works. II, 362 (*Medcterus*).—Indiana.
- LOEW, Neue Beitr., VIII, 76; Mon. N. A. Dipt., II, 227 (both *Saucropus superbiens*).—Fla., D. C., N. Y.
- ALDRICH, Kans. Univ. Quart., II, 151 (*Dactylomyia gracilipes*); Ent. News, XI, 531, syn.—S. D.
- WHEELER, Proc. Cal. Acad. Sci., II, 73, syn. of *gracilipes*.—Mass., III.
- lienosa** WHEELER, Proc. Cal. Acad. Sci., II, 73.—Monterey, Cal.
- rubella** LOEW, Neue Beitr., VIII, 76; Mon. N. A. Dipt., II, 226 (*Saucropus*).—Berkeley Spr., Va. N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- signifer** ALDRICH, Dipt. St. Vincent, 337.—St. Vincent, W. I. Occurs also in Grenada.
- superbiens** LOEW, see *lateralis*.
- tenuis** LOEW, Mon. N. A. Dipt., II, 228 (*Saucropus*).—Middle States.

XANTHOCHLORINÆ.

ACHALCUS.

- LOEW, Neue Beitr., V, 30, 1857; VIII, 72, 1861; Mon. N. A. Dipt., II, 217, 1864.
- caudatus** ALDRICH, Kans. Univ. Sci. Bull., I, 93.—Grenada, W. I.
- sordidus** ALDRICH, Dipt. St. Vincent, 339, pl. XI, f. 107, 107a.—St. Vincent, W. I. Occurs also in Grenada.

CHRYSOTIMUS.

- LOEW, Neue Beitr., V, 48, 1857; VIII, 73, 1861; Mon. N. A. Dipt., II, 220, 1864.
- barbatus** ALDRICH, Kans. Univ. Sci. Bull., I, 91.—Grenada, W. I.
- delicatus** LOEW, Neue Beitr., VIII, 74; Mon. N. A. Dipt., II, 222.—N. Y.
- pusio** LOEW, Neue Beitr., VIII, 74; Mon. N. A. Dipt., II, 221.—N. Y.
- WHEELER, Psyche, July, 1890, 374.—Wis.

XANTHOCHLORUS.

- LOEW, Neue Beitr., V, 42, 1857; VIII, 74, 1861; Mon. N. A. Dipt., II, 223, 1864.
- SCHINER, Fauna Austr., I, 184, 1862.
- helvinus** LOEW, Neue Beitr., VIII, 75; Mon. N. A. Dipt., II, 224.—Chicago.
- WHEELER, Psyche, July, 1890, 377.—Milwaukee, Wis.
- White Mts., N. H.—Slosson.

XANTHINA.

- ALDRICH, Kans. Univ. Sci. Bull., I, 92, 1902.
- plumicauda** ALDRICH, op. cit., pl. IV.—Grenada, W. I.

THINOPHILINÆ.

THINOPHILUS.

WAILBERG, Oefv. of k. Vetensk. Akad. Förhandl., 1844, 37.

SCHINER, Fauna Austr., I, 227, 1862.

LOEW, Mon. N. A. Dipt., II, 148, 1864.

MIK, Dipt. Untersuch., 1878 (*Schwannophilus*).

WHEELER, Ent. News, VII, 153; Proc. Cal. Acad. Sci., II, 69, 1899.

neglectus WHEELER, Proc. Cal. Acad. Sci., II, 70.—Cape May, N. J.

pectinifer WHEELER, Ent. News, VII, 155.—Lusk, Wyo.

DIOSTRACUS.

LOEW, Neue Beitr., VIII, 43, 1861; Mon. N. A. Dipt., II, 120, 1864.

prasinus LOEW, Neue Beitr., VIII, 44; Mon. N. A. Dipt., II, 121.—N. Y.

HYPOCHARASSUS.

MIK, Verh. Zool.-Bot. Ges., 1878, 627.

WILLISTON, Synops. Fam. and Gen., 1886, 82, quotes desc.

WHEELER, Zoolog. Bulletin, I, 217, 1898 (*Drepanomyia*).

gladiator MIK, Verh. Zool.-Bot. Ges., 1878, 628.—Ga.

WHEELER, Zool. Bull., I, 219, fig. (*Drepanomyia johnsoni*).—Fla.

MIK, Wien. Ent. Zeitung, XIX, 21, syn.

pruinosis WHEELER, Zool. Bull., I, 218, figs. (*Drepanomyia*).—Fla.

Wood's Hole, Mass.—Wheeler in litt.

PHYLARCHUS.

ALDRICH, Biologia, Dipt., I, 342, 1902.

tripartitus ALDRICH, op. cit., pl. VI, f. 16.—Vera Cruz, Mex.

MEDETERINÆ.

MEDETERUS.

FISCHER VON WALDHEIM, notice sur une Mouche carnivore, Moscow, 1819.

SCHINER, Fauna Austr., I, 236, 1862.

LOEW, Mon. N. A. Dipt., II, 218, 1864.

MEIGEN, Syst. Besch., IV, 59, 1824.

KOWARZ, Verh. Zool.-Bot. Ges., XXVII, 1877, 39-76, revision of the European species.

WHEELER, Proc. Cal. Acad. Sci., II, 20, table of species, 1899.

Note.—Prof. A. D. Hopkins informed me that he has reared specimens of this genus from larvæ taken in burrows of Scolytidae, and thinks they are predaceous on the latter insect.

aberrans WHEELER, Proc. Cal. Acad. Sci., II, 22, pl. II, f. 40.—Avalon, N. J.

aldrichii WHEELER, Proc. Cal. Acad. Sci., II, 24.—Moscow, Idaho.

appendiculatus WHEELER, Proc. Cal. Acad. Sci., II, pl. II, f. 41-43.—Lance Cr., Wyo.

aurivittatus WHEELER, Proc. Cal. Acad. Sci., II, 29, pl. II, f. 47.—Moscow, Idaho.

californiensis WHEELER, Proc. Cal. Acad. Sci., II, 27, pl. II, f. 44, 45.—Palo Alto, Cal.

cyanogaster WHEELER, Proc. Cal. Acad. Sci., II, 27.—Colfax, Wash.

exiguus ALDRICH, Kans. Univ. Sci. Bull., I, 91.—Grenada, W. I.

lateralis SAY, see *Neurigona*.

- maurus** WHEELER, Proc. Cal. Acad. Sci., II, 23, pl. II, 46.—Mt. Wash., N. H.
nigripes LOEW, Neue Beitr., VIII, 73; Mon. N. A. Dipt., II, 218.—Middle States.
 N. J.—Smith Cat.; Fla.—Johnson.
petulcus WHEELER, Proc. Cal. Acad. Sci., II, 21.—Colfax, Wash.
princeps WHEELER, Proc. Cal. Acad. Sci., II, 25, pl. II, f. 29-32.—Farmingdale,
 N. J.
veles LOEW, Neue Beitr., VIII, 73; Mon. N. A. Dipt., II, 219.—Fla.
 WHEELER, Proc. Cal. Acad. Sci., II, 26, pl. II, f. 36-38.—Middle States,
 Chicago.
viduus WHEELER, Proc. Cal. Acad. Sci., II, 24, pl. II, f. 39.—Olympia, Wash.
xerophilus WHEELER, Proc. Cal. Acad. Sci., II, 28, pl. II, f. 33-35.—Pacific Grove,
 Cal.

PELOROPEODES.

- WHEELER, Psyche, July, 1890, 373.
 MIK, Wien. Ent. Zeitung, 1892, 3, notes on position, etc.
salax WHEELER, Psyche loc. cit.—Milwaukee Co., Wis.

THRYPTICUS.

- GERSTÄCKER, Stett. Ent. Zeit., 1866, 43.
 WHEELER, Psyche, July, 1890, 375 (*Aphantotimus*).
 MIK, Wien. Ent. Zeitung, 1891, 4, syn. of *Aphantotimus*.
 ALDRICH, Trans. Ent. Soc. Lond., 1896, 339 (*Xanthotricha*); Ent. News,
 XI, 532, syn.
 WHEELER, Proc. Cal. Acad. Sci., II, 30, table of species, 1899.
 ? **abdominalis** SAY, Jour. Acad. Sci. Phil., VI, 169; Compl. Works, II, 362
 (*Chrysotus*).
 LOEW, Mon. N. A. Dipt., II, 172, notes, and 291, orig. desc.
 (On account of the bright green color, "white" feet, and purple face, I
 feel safe in referring to this genus, although I cannot identify it).
cupuliferus ALDRICH, Trans. Ent. Soc. Lond., 1896, 339, pl. X, f. 106 (*Xantho-*
tricha).—St. Vincent, W. I.
 Grenada, W. I., and Mexico City—Aldrich.
fraterculus WHEELER, Psyche, July, 1890, 376 (*Aphantotimus*); Proc. Cal. Acad.
 Sci., II, 31, pl. II, f. 48, notes.—Milwaukee Co., Wis.
 ALDRICH, Biologia, Dipt., I, 349, oc. in Mexico City.
minor ALDRICH, Trans. Ent. Soc. Lond., 1896, 340 (*Xanthotricha*).—St. Vincent,
 W. I. Also occurs in Grenada.
pusillus ALDRICH, Biologia, Dipt., I, 349.—Teapa, Mex.
singularis ALDRICH, Trans. Ent. Soc. Lond., 1896, 340 (*Xanthotricha*).—St. Vin-
 cent, W. I.
willistoni WHEELER, Psyche, July, 1890, 376 (*Aphantotimus*); Proc. Cal. Acad.
 Sci., II, 31, pl. II, f. 49.—Milwaukee Co., Wis. (type); Ill., Wyo.

CÆLOGLUTUS.

- ALDRICH, Trans. Ent. Soc. London, 1896, 338.
concaucus ALDRICH, op. cit., pl. XI, f. 105.—St. Vincent, W. I.

HYDROPHORINÆ.

HYDROPHORUS.

- FALLÉN, Dolichopodes, 1823, 4.
 WAHLBERG, Oefv. of K. Vetensk. Akad. Förhandl., 1844.

LOEW, Neue Beitr., v. 22, 1857; VIII, 71, 1861; Mon. N. A. Dipt., II, 211, 1864.

SCHINER, Fauna Austr., I, 229, 1862 (inclusive of *Scellus*).

KOWARZ, Wien. Ent. Zeit., 1884, 109, table of European species.

WHEELER, Ent. News, 1896, 185 (*Parhydrophorus*, in part); Proc. Cal. Acad. Sci., II, 62, table of species.

æstum LOEW, Cent., VIII, 60.—Newport, R. I.

agalma WHEELER, Proc. Cal. Acad. Sci., II, 33, 66, pl. IV, f. 120, 121.—Battle Creek, Mich.

? **albiflorens** WALKER, List, III, 656 (*Medeterus*).—Nova Scotia.

WHEELER, Proc. Cal. Acad. Sci., II, 63, genus doubtful.

algens WHEELER, Proc. Cal. Acad. Sci., II, 63, pl. IV, f. 123.—Two-gwo-te-ee Pass, W. Wyo.

breviseta THOMSON, Eugen. Resa, 510 (*Medeterus*).—Cal.

canescens WHEELER, Ent. News, VII, 187, fig. (*Parhydrophorus*).—40 miles n. of Lusk, Wyo. Lawrence, Kans.—J. M. A.

cerutius LOEW, Cent., X, 65.—Texas. Lawrence, Kans.—J. M. A.

chrysolagus WALKER, List, III, 655 (*Medeterus*).—Martin Falls, Canada.

LOEW, Mon. N. A. Dipt., 215, 309, quotes desc., with comments.

WHEELER, Proc. Cal. Acad. Sci., II, 63, notes.

(Scarcely identifiable.)

eldoradensis WHEELER, Proc. Cal. Acad. Sci., II, 65, pl. IV, f. 125.—Wyo., Cal., N. M., Texas, Kansas.

glaber WALKER, List, III, 665 (*Medeterus*).—Martin Falls, Canada.

LOEW, Mon. N. A. Dipt., II, 215, 309, quotes desc.

COQUILLET, Proc. Wash. Acad. Sci., II, 426, oc. at Metlakatla, Alaska.

White Mts., N. H.—Slosson.

innotatus LOEW, Mon. N. A. Dipt., II, 212.—Sitka.

lateralis SAY, see *Argyra*.

magdalena WHEELER, Proc. Cal. Acad. Sci., II, 67, pl. IV, f. 124.—Magdalena, N. M.

parvus LOEW, Cent., II, 67; Mon. N. A. Dipt., II, 216.—Pa.

WHEELER, Proc. Cal. Acad. Sci., II, 64, pl. IV, f. 110.—Worcester, Mass.

philombrius WHEELER, Psyche, July, 1890, 378; Proc. Cal. Acad. Sci., II, 65, pl. IV, f. 126, 127.—Milwaukee Co., Wis. (type); Texas.

pirata LOEW, Neue Beitr., VIII, 71; Mon. N. A. Dipt., II, 214.—Pa.

N. J.—Smith Cat.

punctipennis SAY, see *Pelastoneurus*.

signiferus COQUILLET, Dipt. of Commander Ids., 344.—Bering Id.

sodalis WHEELER, Proc. Cal. Acad. Sci., II, 68, pl. IV, f. 122.—Lusk, etc., Wyo.

viridiflos WALKER, Dipt. Saund., 212.—N. A. Mass.—O. S.

SCELLUS.

LOEW, Neue Beitr., v. 22, 1857; VIII, 70, 1861; Mon. N. A. Dipt., II, 200, 1864.

avidus LOEW, Mon. N. A. Dipt., II, 207.—Ft. Resolution, Huds. Bay Terr.

Professor Wheeler collected the species in Wyoming.

exustus WALKER, Dipt., Saund., 211 (*Medeterus*).—N. A.

LOEW, Neue Beitr., VIII, 71; Mon. N. A. Dipt., II, 203.—Middle States, Ill.

S. D., Ida., Wash., in grass—J. M. A.

filifer LOEW, Mon. N. A. Dipt., II, 209.—Ft. Resolution, Huds. Bay Terr.

Custer, S. D., on pine trunks—J. M. A.

- monstruosus** OSTEN SACKEN, West. Dipt., 319.—British Columbia.
spinimanus ZETTERSTEDT, Ins. Lapp., 701 (*Hydrophorus notatus*); Dipt. Scand., II, 445 (*Hydrophorus*).—N. Europe.
 LOEW, Mon. N. A. Dipt., II, 205.—Ft. Resolution, Huds. Bay Terr.
vigil OSTEN SACKEN, West. Dipt., 318.—Webber L., Cal., on stones.

LIANCALUS.

- LOEW, Neue Beitr., v, 22, 1857; VIII, 70, 1861; Mon. N. A. Dipt., II, 198, 1864.
 RONDANI, Dipt. Ital. Prod., I, 141, 1856 (*Anoplomerus*, preoc.).
 SCHINER, Fauna Austr., I, 228, 1864.
 MIK, Dipterol. Untersuch., 1878 (*Allaoneurus*, in part, as to which see
 Osten Sacken, Berl. Ent. Zeitsch., XLI, 1896, 326, postscript).
genualis LOEW, Neue Beitr., VIII, 70; Mon. N. A. Dipt., II, 199.—Middle States.
 N. J.—Smith Cat.; about the cascades at Ithaca, N. Y.—J. M. A.
hydrophilus ALDRICH, Psyche, Dec., 1893, 569.—Custer, in West. S. D.
querulus OSTEN SACKEN, West. Dipt., 318.—The Geysers, Sonoma Co., Cal.
 Thousand Springs, on Snake R., in S. Idaho—J. M. A.
similis ALDRICH, Psyche, Dec., 1893, 571.—Wash. Occurs also at Kendrick, Idaho.

PLAGIONEURINÆ.

PLAGIONEURUS.

- LOEW, Wien. Ent. Monatschr., I, 43, 1857; Mon. N. A. Dipt., II, 196, 1864.
 WHEELER, Proc. Cal. Acad. Sci., II, 71, 1899.
univittatus LOEW, Wien. Ent. Monatschr., I, 43; Neue Beitr., VIII, 69, 1861; Mon.
 N. A. Dipt., 196, pl. VI, f. 36.—Cuba; also in Brazil.
 WILLISTON, Trans. Amer. Ent. Soc., XIII, 295, male.—San Domingo.
 WHEELER, Proc. Cal. Acad. Sci., II, 71, pl. VI, f. 36.—Wis., Ill.
 ALDRICH, Kans. Univ. Sci. Bull., I, 83, oc. in Grenada, W. I., and note on
 dist.—S. D., Nebr., Mass. Mrs. Slosson collected several in Fla.

APHROSYLINÆ.

APHROSYLUS.

- WALKER, Ins. Britannica, I, 220, 1851.
 LOEW, Neue Beitr., v, 55, 1857; VIII, 52, 1861; Mon. N. A. Dipt., II, 148,
 1864.
 SCHINER, Fauna Austr., I, 202, 1862.
 WHEELER, Proc. Cal. Acad. Sci., I, 145, def. and table of species, 1897;
 larva on p. 150, pl. IV, fig. 14, found in tufts of algæ on rocks along
 seashore.
direptor WHEELER, op. cit., 148, pl. IV, f. 7-10.—Pacific Grove, Cal.
grassator WHEELER, op. cit., 149, pl. IV, f. 12, 13.—Pacific Grove, Cal.
prædator WHEELER, op. cit., 146, pl. IV, f. 1-6.—Pacific Grove and San Diego Co.,
 Cal.

DOLICHOPINÆ.

DOLICHOPUS.

- LATREILLE, Précis des caract. générique des Insectes, 1797; Hist. Nat. Crust.
 et Ins., III, 439, 1802 and XIV, 333, 1804.
 MEIGEN, Syst. Besch., IV, 74, 1824.
 MACQUART, Hist. Nat. Dipt., I, 459, 1834.
 ZETTERSTEDT, Dipt. Scand., II, 493, 1843.

- RONDANI, Dipt. Ital. Prod., I, 144, 1856 (*Rhagencoura* and *Achantipodus*).
 LOEW, Neue Beitr., v, 10, 1857; VIII, 5, 1861; Mon. N. A. Dipt., II, 18, 1864
 (*Hygrocelanthus* and *Dolichopus*).
 SCHINER, Fauna Austr., I, 212 (id.), 1864.
 KOWARZ, Wien. Ent. Zeit., 1884, 53, table of European species.
 BIGOT, Annales, 1890, 292 (*Spatichira*, in part).
 ALDRICH, Kans. Univ. Quart., II, 1 and 23, tables of species of *Dolichopus*
 and *Hygrocelanthus* in N. A.
 MELANDER and BRUES, Biolog. Bull., I, 123, *Hygrocelanthus* as a subgenus,
 table of species.
- abdominalis** SAY, Jour. Acad. Sci. Phil., VI, 170; Compl. Works, II, 362.—Ind.
 (Unrecognizable; probably an *Argyra*.)
- acuminatus** LOEW, Neue Beitr., VIII, 12; Mon. N. A. Dipt., II, 34.—Ill.
 N. J.—Smith Cat.; Wis.—Mel. and Brues; Mich.—J. M. A.
- adjacens** WALKER, List, III, 661.—Martin Falls, Canada. (Unrecognizable.)
- æneus** DEGEER, Mém. Hist. Nat. Ins., VI, 78, pl. IX, f. 14-22.—N. Europe.
 FABRICIUS, Syst. Antl., 266, etc. (*angulatus* Linn.).
 STANNIUS, Isis, 1831, 130 (id.).
 GUÉRIN, Iconographie, 96 (id.).
 MACQUART, Annales, II, ser. 2, 186 (id.).
 SCHINER, Fauna Austr., I, 222.
 VAN DER WULP, Tijdschr. v. Ent., XII, 1869, 80, oc. in Wis.
 BRAUER, Zweifl. d. Kaiserl. Mus., III, 44, pl. IV, f. 72-75, desc. of larva, which
 lives in damp vegetable mold.
- affinis** WALKER, List, III, 659.—Nova Scotia. (Unrecognizable.)
- afflictus** OSTEN SACKEN, West. Dipt., 313 (*Hygrocelanthus*).—Marin Co., Cal.
 WHEELER, Proc. Cal. Acad. Sci., II, 3, oc. in Cal. and Ariz. (id.).
 MELANDER and BRUES, Biolog. Bull., I, 132, figs.—Wyo.
- agronomus** MELANDER and BRUES, Biolog. Bull., I, 140, figs.—New Bedford, Mass.
- albiciliatus** LOEW, Cent., II, 59; Mon. N. A. Dipt., II, 31.—Ill. West. N. Y.—O. S.
 WHEELER, Psyche, May, 1890, 338, male.—Wis.
 ALDRICH, Kans. Univ. Quart., II, 9, notes.—N. J.
 Montreal—Chagnon; White Mts., N. H.—Slosson; Mass.—M. and B.
- albicoxa** ALDRICH, Kans. Univ. Quart., II, 10, pl. I, f. 13.—Mass., Conn.
 N. J.—Smith Cat.; Ill.—M. and B.; Mich.—J. M. A.
- aldrichii** WHEELER, Proc. Cal. Acad. Sci., II, 3, pl. I, f. 1-3 (*Hygrocelanthus*).—
 Moscow, Idaho, and West. Wyo.
 MELANDER and BRUES, Biolog. Bull., I, 120, figs.—Col.
- annicola** MELANDER and BRUES, Biolog. Bull., I, 130, figs. (*Hygrocelanthus*).—
 North Park, Col. Cache Co., Utah, and Oneida Co., Ida.—J. M. A.
- anphericus** MELANDER and BRUES, Biolog. Bull., I, 146, figs.—Price Co., Wis.
- angustatus** ALDRICH, Kans. Univ. Quart., II, 15, pl. I, f. 4.—Mass.
- apheles** MELANDER and BRUES, Biolog. Bull., I, 144, figs.—Milwaukee, Wis.
- aurifacies** ALDRICH, Kans. Univ. Quart., II, 20.—Tem., Kans.
- aurifer** THOMSON, see *Hercostomus*.
- barycnemus** COQUILLET, Proc. Wash. Acad. Sci., II, 424.—Popof Id., Alaska.
- batillifer** LOEW, Neue Beitr., VIII, 5; Mon. N. A. Dipt., II, 31.—Ill. West Point
 N. Y. Mass.—M. and B.; N. J.—Smith Cat.; White Mts., N. H.—
 Slosson.
- bifractus** LOEW, Neue Beitr., VIII, 19; Mon. N. A. Dipt., II, 53.—Chicago, Nebr.
 ALDRICH, Kans. Univ. Quart., II, 12, pl. I, f. 14.—N. H. to N. D. and Kans.
 Montreal—Chagnon; Cuernavaca, Mex.—Aldrich.

- bifrons** WALKER, see *Pelastoucurus*.
- brevimanus** LOEW, Neue Beitr., VIII, 14; Mon. N. A. Dipt., II, 39.—D. C. Mass., N. H., N. J., Wis.—M. and B.
LOEW, Berl. Ent. Zeitsch., VI, 211 (*socius*); Mon. N. A. Dipt., II, 40 (id.).—Ill.
ALDRICH, Kans. Univ. Quart., II, 10, Mass.; notes (*socius*).
- brevipennis** MEIGEN, Syst. Besch., IV, 89.—Europe.
FALLÉN, Dolichopodes, 10 (var. of *planitarsis*).
STANNIUS, Isis, 1831, 60.
SCHINER, Fauna Austr., I, 221.
LOEW, Mon. N. A. Dipt., II, 37.—Ft. Resolution, Huds. Bay Terr.
ALDRICH, Kans. Univ. Quart., II, 10, pl. I, f. 6.
- brunneus** ALDRICH, Kans. Univ. Quart., II, 14.—S. D.
- calainus** MELANDER and BRUES, Biolog. Bull., I, 138, fig.—Chicago.
- calcaratus** ALDRICH, Kans. Univ. Quart., II, 8.—N. J.
Mass.—M. and B.; White Mts., N. H.—Slosson.
- canaliculatus** THOMSON, Eugen. Resa, 512.—Cal.
OSTEN SACKEN, West. Dipt., 315.—Marin Co., Cal.
- chrysostoma** LOEW, Neue Beitr., VIII, 23; Mon. N. A. Dipt., II, 67.—D. C.
? WALKER, List, 665 (*terminatus*).—N. A. [LOEW, Mon., 24 and 316, with a doubt.]
- ciliatus** WALKER, List, III, 661.—Martin Falls, Canada. (Unrecognizable.)
- ciliatus** ALDRICH, Kans. Univ. Quart., II, 25, pl. I, f. 28 (*Hygrocleuthus*).—S. D., Wyo.
WHEELER, Proc. Cal. Acad. Sci., II, 3, oc. in Wyo. (id.).
MELANDER and BRUES, Biolog. Bull., I, 133, figs. (id.).
- coercens** WALKER, List, III, 661.—N. Y. (Unrecognizable.)
- coloradensis** ALDRICH, Kans. Univ. Quart., II, 16, pl. I, f. 19 (*agilis*, preoc.; see note. loc. cit., 26, where name is changed).—Col.
Beulah, N. M.—Skinner.
- comatus** LOEW, Neue Beitr., VIII, 23; Mon. N. A. Dipt., II, 69.—Pa., Md., D. C.
ALDRICH, Kans. Univ. Quart., II, 14, pl. I, f. 25.—N. J., Pa.
Mass., Ill., Wis.—M. and B.
- confinis** WALKER, List, III, 664.—Martin Falls, Canada. (Unrecognizable.)
- consanguineus** WHEELER, Proc. Cal. Acad. Sci., II, 5, pl. I, f. 5-7 (*Hygrocleuthus*).—Monterey, Cal.
MELANDER and BRUES, Biolog. Bull., I, 131, figs. (id.).
var. **propinquus** MELANDER and BRUES, loc. cit. (id.).—Vancouver Id.
- consors** WALKER, Dipt. Saund., 213.—U. S. (Unrecognizable.)
- conterminus** WALKER, List, III, 664.—N. Y. (Unrecognizable.)
- contiguus** WALKER, List, III, 663.—N. Y. (Unrecognizable.)
- contingens** WALKER, Dipt. Saund., 213.—U. S. (Unrecognizable.)
- convergens** ALDRICH, Kans. Univ. Quart., II, 9.—Ore., Wash.
- coquiletti** ALDRICH, Kans. Univ. Quart., II, 19, pl. I, f. 17.—Cal.
Common at Moscow, Idaho—J. M. A.; Vancouver Id.—M. and B.
- corax** OSTEN SACKEN, West. Dipt., 314.—Webber L., Cal.
ALDRICH, Kans. Univ. Quart., II, 7.—Cal.
- crenatus** OSTEN SACKEN, West. Dipt., 312 (*Hygrocleuthus*).—Sonoma Co., Cal.
ALDRICH, Kans. Univ. Quart., II, 24, pl. I, f. 27, 27a (id.).—Cal., Wash.
WHEELER, Proc. Cal. Acad. Sci., II, 3, pl. I, f. 4 (id.).—Ida., Wyo., Wash.
MELANDER and BRUES, Biolog. Bull., I, 131, figs. (id.).—Wyo. and Vancouver Id.
ALDRICH, Amer. Naturalist, 1894, 35, courtship (id.).

- cuprinus** WIEDEMANN, *Auss. Zw.*, II, 230.—Md., Va.
 SAY, *Jour. Acad. Sci. Phil.*, III, 86; *Compl. Works*, II, 76 (*cupreus*,
 prec.).—Md. and Va.
 LOEW, *Neue Beitr.*, VIII, 20; *Mon. N. A. Dipt.*, II, 55.—Middle States; Nebr.
 ALDRICH, *Kans. Univ. Quart.*, II, 12, pl. I, f. 7; notes.—Mass. to Kans.
 Ill., Wis., Wyo.—M. and B.; Montreal—Chagnon; White Mts., N. H.—
 Slosson.
- dakotensis** ALDRICH, *Kans. Univ. Quart.*, II, 11, pl. I, f. 1.—Brookings, S. D.
- detersus** LOEW, *Cent.*, VII, 79.—Saratoga, N. Y. (O. S. gives Western N. Y.)
 ALDRICH, *Kans. Univ. Quart.*, II, 8.—Minn., S. D. III.—M. and B.
- discussus** WALKER, *List*, III, 662.—Mass. (Unrecognizable.)
- discifer** STANNIUS, *Isis*, 1831, 57.—Europe.
 MEIGEN, *Syst. Besch.*, IV, 86 (*patellatus* FLL.).
 SCHINER, *Fauna Austr.*, I, 216.
 LOEW, *Neue Beitr.*, VIII, 24 (*tanyphus*); *Mon. N. A. Dipt.*, II, 71.—English
 R., Canada; Red R.; Sitka; White Mts., N. H.
 COQUILLET, *Proc. Wash. Acad. Sci.*, II, 423, oc. in Alaska, several places.
- distractus** WALKER, *List*, III, 662.—N. Y. (Unrecognizable.)
- dorycerus** LOEW, *Cent.*, V, 85; *Mon. N. A. Dipt.*, II, 326.—White Mts., N. H.
- duplicatus** ALDRICH, *Kans. Univ. Quart.*, II, 18, pl. I, f. 21; II, 157, note on
 hypopygium.—Wash. Also common in N. Idaho.
- enigma** MELANDER and BRUES, *Biolog. Bull.*, I, 130, figs.—North Park, Col.,
 9,000 ft.
- eudactylus** LOEW, *Neue Beitr.*, VIII, 16; *Mon. N. A. Dipt.*, II, 46.—N. Y., Mass.
 ALDRICH, *Kans. Univ. Quart.*, II, 11, pl. I, f. 2 (but the fig. is incorrect).
 —Kans. N. J.—Smith Cat.
 var. **tonsus** LOEW, *Neue Beitr.*, VIII, 16; *Mon. N. A. Dipt.*, II, 47.—D. C. (De-
 scribed as a distinct species; I place it here from examination of type).
 N. J.—Smith Cat.; Mass.—M. and B.
- exclusus** WALKER, *List*, III, 663.—Martin Falls, Canada. (Unrecognizable.)
- festinans** ZETTERSTEDT, see *rupestris*.
- finitus** WALKER, *List*, III, 662.—N. Y. (Unrecognizable.)
- flagellitenes** WHEELER, *Psyche*, May, 1890, 339.—Milwaukee Co., Wis.
 ALDRICH, *Kans. Univ. Quart.*, II, 13, pl. I, f. 11.—S. D., Col. III.—M. and B.
- fulvipes** LOEW, *Cent.*, II, 61; *Mon. N. A. Dipt.*, II, 61.—Ill.; White Mts., N. H.
 N. Y.—O. S.
- funditor** LOEW, *Neue Beitr.*, VIII, 22; *Mon. N. A. Dipt.*, II, 66.—Middle States.
 ALDRICH, *Kans. Univ. Quart.*, II, 20, pl. I, f. 10.—N. J., Pa.
- germanus** WHEELER, *Psyche*, May, 1890, 341.—Milwaukee Co., Wis.
 ALDRICH, *Kans. Univ. Quart.*, II, 21, oc. in S. D.; notes. Wyo.—M. and B.
- gracilis** ALDRICH, *Kans. Univ. Quart.*, II, 15.—Pa. Wis.—M. and B.
- grandis** ALDRICH, *Kans. Univ. Quart.*, II, 21, pl. I, f. 22.—Cal.
- gratus** LOEW, *Neue Beitr.*, VIII, 11; *Mon. N. A. Dipt.*, II, 29.—Trenton Falls, West
 Point, Palisades, etc., in N. Y.
 ALDRICH, *Kans. Univ. Quart.*, II, 7, oc. in White Mts., N. H., and notes.
 Ill., Wis.—M. and B.; N. J.—Smith Cat.
- grœnlandicus** ZETTERSTEDT, *Dipt. Scand.*, II, 528.—Greenland.
 STAEGER, *Grœnl. Antliater*, 358.
 HOLMGREN, *Ins. Nordgrœnl.*, 100.
- [**guttula** WIEDEMANN is South American; see LOEW, *Mon. N. A. Dipt.*, II, 237.]
- hastatus** LOEW, *Mon. N. A. Dipt.*, II, 50.—Sitka.
 ALDRICH, *Kans. Univ. Quart.*, II, 13, oc. on Mt. Hood, Ore., and notes.

- hebes** WALKER, List, III, 213.—U. S. (Unrecognizable.)
- heteroneurus** MACQUART, see *Pelastoneurus*.
- henshawi** WHEELER, see *pugil*.
- idahoensis** ALDRICH, Kans. Univ. Quart., II, 154 (*Hygrocleuthus*).—Moscow, Idaho.
- MELANDER and BRUES, Biolog. Bull., I, 133, figs. (id.)
- incisuralis** LOEW, Neue Beitr., VIII, 25; Mon. N. A. Dipt., II, 74.—Trenton Falls, N. Y. N. J.—Smith Cat.; Montreal—Chagnon.
- LOEW, Cent., VII, 80 (*platyprosopus*).—Huds. B. Terr. [From type.]
- incongruus** WHEELER, Psyche, May, 1890, 338.—Milwaukee Co., Wis.
- ineptus** WALKER, Dipt. Saund., 214.—U. S. (Unrecognizable.)
- intentus** MELANDER and BRUES, Biolog. Bull., I, 137, figs.—Chicago.
- irrasus** WALKER, see *Pelastoneurus latus*.
- johnsoni** ALDRICH, Kans. Univ. Quart., II, 7.—N. J.
- kansensis** ALDRICH, Kans. Univ. Quart., II, 8.—Kans.
- lamellicornis** THOMSON, Eugenes Resa, 511.—Cal.
- OSTEN SACKEN, West. Dipt., 313, notes (*Hygrocleuthus*).
- ALDRICH, Kans. Univ. Quart., II, 25, note (id.).
- lamellipes** WALKER, List, III, 660.—Martin Falls, Canada. (Unrecognizable.)
- laticornis** LOEW, Neue Beitr., VIII, 12; Mon. N. A. Dipt., II, 29.—Conn.
- ALDRICH, Kans. Univ. Quart., II, 7.
- Fla.—Johnson; Montreal—Chagnon; Wis., Wyo.—M. and B.
- latipes** LOEW, Neue Beitr., VIII, 5 (*Hygrocleuthus*); Mon. N. A. Dipt., II, 17 (id.).—Red R. of the North.
- ALDRICH, Kans. Univ. Quart., II, 24, pl. 1, f. 26 (id.); op. cit., p. 155, note.—S. D., Wyo., Conn.; Wis.
- WHEELER, Proc. Cal. Acad. Sci., II, 2 (id.).—Wis., Ill.
- MELANDER, and BRUES, Biolog. Bull., I, 128, figs. (id.).
- lobatus** LOEW, Neue Beitr., VIII, 24; Mon. N. A. Dipt., II, 72.—English R., Canada.
- ALDRICH, Kans. Univ. Quart., II, 16, pl. 1, f. 20.—S. D., Mich.
- COQUILLET, Proc. Wash. Acad. Sci., II, 425, oc. at Kukak Bay, Alaska. N. J.—Smith Cat.; Wis.—M. and B.
- longimanus** LOEW, Neue Beitr., VIII, 14; Mon. N. A. Dipt., II, 38.—English R., Canada; West Point, N. Y.
- ALDRICH, Kans. Univ. Quart., II, 10, oc. in N. H., S. D.; note.
- COQUILLET, Proc. Wash. Acad. Sci., II, 425, oc. in Alaska, several places. White Mts., N. H.—Slosson; Wis., Mass.—M. and B.
- longipennis** LOEW, Neue Beitr., VIII, 21; Mon. N. A. Dipt., II, 57.—D. C., Chicago.
- ALDRICH, Kans. Univ. Quart., II, 13, pl. 1, f. 8.—N. J. to Ga. and Kans. Fla.—Johnson; Vancouver Id.—M. and B.
- luteipennis** LOEW, Neue Beitr., VIII, 18; Mon. N. A. Dipt., II, 51.—D. C. Ill.—O. S. Cat.; Vancouver Id.—M. and B.
- maculipes** WALKER, see *Pelastoneurus*.
- marginatus** ALDRICH, Kans. Univ. Quart., II, 17.—Conn.
- MELANDER and BRUES, Biol. Bull., I, 135, notes.—Mass., N. J.
- melanocerus** LOEW, Cent., V, 86; Mon. N. A. Dipt., II, 330.—Canada. Mass.—M. and B.
- metatarsalis** THOMSON, see *Hercostomus*.
- misellus** MELANDER, Canad. Ent., XXXII, 136, fig. II.—Natrona Co. and Little Wind R., Wyo.

- myosota** OSTEN SACKEN, *Biologia*, Dipt., 1, 213.—N. Sonora, Mex.
Cal.—M. and B.; North Idaho—Aldrich.
- nudus** LOEW, *Mon. N. A. Dipt.*, 11, 41.—Ft. Resolution, Huds. B. Terr.
- obcordatus** ALDRICH, *Kans. Univ. Quart.*, 11, 14, pl. 1, f. 24.—Wyo., Col. Common in Idaho.
- obscurus** SAY, see *Gymnopternus*.
- occidentalis** ALDRICH, *Kans. Univ. Quart.*, 11, 19, pl. 1, f. 18.—Wash. Id., Vancouver Id.—M. and B.
- ovatus** LOEW, *Neue Beitr.*, VIII, 13; *Mon. N. A. Dipt.*, 11, 35.—Middle States, Ill.—O. S. Cat.
- pachynemus** LOEW, *Neue Beitr.*, VIII, 13; *Mon. N. A. Dipt.*, 11, 35.—Middle States; Ill.
ALDRICH, *Kans. Univ. Quart.*, 11, 9, pl. 1, f. 12.—S. D. Mass.—M. and B.
- palæstricus** LOEW, *Cent.*, v, 84; *Mon. N. A. Dipt.*, 11, 328.—White Mts., N. H.
ALDRICH, *Kans. Univ. Quart.*, 11, 10, pl. 1, f. 3.—N. J.
Ill.—M. and B.; Axton, N. Y.—M. and H.
- paluster** MELANDER and BRUES, *Biolog. Bull.*, 1, 136, figs.—Monterey Bay, Cal.
- pantomimus** MELANDER and BRUES, *Biolog. Bull.*, 1, 142, figs.—New Bedford, Mass.
- partitus** MELANDER and BRUES, *Biolog. Bull.*, 1, 135, fig.—North Park, Col.
- pernix** MELANDER and BRUES, *Biolog. Bull.*, 1, 141, fig.—Corfield, on Vancouver Id.
- platyprosopus**, see *incisuralis*.
- plumipes** SCOPOLI, *Entomol. Carniolica*, 334, 1763 (*Musca*).—Europe.
FALLÉN, *Dolichopodes*, 11 (*pennitarsis*).
STANNIUS, *Isis*, 63, 1831 (id.).
ZETTERSTEDT, *Dipt. Scand.*, 11, 546 (*wahlbergi*).
SCHINER, *Fauna Austr.*, 1, 217.
LOEW, *Mon. N. A. Dipt.*, 11, 60.—Europe; Sitka and Quebec.
ALDRICH, *Kans. Univ. Quart.*, 11, 13, oc. in S. D. and Col.
MELANDER and BRUES, *Biolog. Bull.*, 1, 127, f. 3 (*Hygrocleuthus*).—Col., Vancouver Id.
COQUILLET, *Proc. Wash. Acad. Sci.*, 11, 423, oc. in Alaska, several places.
For the courtship of this species, see Dahl, *Zoolog. Anzeiger*, Apr., 1889, quoted by Wheeler, *Proc. Wis. Nat. Hist. Soc.*, Apr., 1889, and by Aldrich, *Amer. Nat.*, 1894, 36.
Beulah, N. M.—Skimmer; Province of Quebec—Fyles.
- plumitarsis** FALLÉN, *Dolichopodes*, 10, 1823.—Europe.
ZETTERSTEDT, *Dipt. Scand.*, 11, 556.
SCHINER, *Fauna Austr.*, 1, 216.
COQUILLET, *Proc. Wash. Acad. Sci.*, 11, 425, oc. at Kukak Bay and Popoff Id., Alaska.
- plumosus** ALDRICH, *Kans. Univ. Quart.*, 11, 18, pl. 1, f. 16.—Wash.
- pollex** OSTEN SACKEN, *West. Dipt.*, 314.—Webber L., Cal.
- præustus** LOEW, *Cent.*, 11, 62; *Mon. N. A. Dipt.*, 11, 68.—Ill.
- pugil** LOEW, *Cent.*, VII, 77.—Canada. Mass.—O. S. Cat.
WHEELER, *Psyche*, May, 1890, 340 (*henshawi*).—Mass.
MELANDER and BRUES, *Biolog. Bull.*, 1, 134, notes (id.).
- pulcher** WALKER, *Dipt. Saund.*, 215.—U. S.
LOEW, *Mon. N. A. Dipt.*, 11, 21 and 309, quotes desc., etc.

- pulchrimanus** BIGOT, Bull. Soc. Ent. France, 1888, p. xxx (*Spathichira pulchri-
mana*); Annales, 1890, 292 (*Spathichira pulchrimanus*).—Rocky Mts.,
N. A.
ALDRICH, Kans. Univ. Quart., II, 23; genus untenable and species unrec-
ognizable.
- quadrilamellatus** LOEW, Cent., v, 83; Mon. N. A. Dipt., II, 331.—N. J.
- ramifer** LOEW, Neue Beitr., VIII, 19; Mon. N. A. Dipt., II, 52.—L. Winnipeg;
Nebr.; New Rochelle, N. Y.
ALDRICH, Kans. Univ. Quart., II, 12.—Mich. to Kans. and Mont.
Montreal—Chagnon; Ill., Tex., Wyo.—M. and B.; Ida.—J. M. A.
- reflectus** ALDRICH, Kans. Univ. Quart., II, 12.—Philadelphia.
- remipes** WAHLBERG, Act. Reg. Soc. Sci. Holmiæ, 1838.—Sweden.
ZETTERSTEDT, Dipt. Scand., II, 518.
A male has been sent me from Olympia, Wash., by Professor Kincaid.
- remotus** WALKER, List, III, 666.—N. A. (Unrecognizable.)
- renidescens** MELANDER and BRUES, Biolog. Bull., I, 143, figs.—North Park, Col.
S. D., Idaho—J. M. A.
- ruficornis** LOEW, Neue Beitr., VIII, 21; Mon. N. A. Dipt., I, 63.—Middle States.
- rupestris** HALIDAY, Entomologist's Magazine, I, 164.—England.
ZETTERSTEDT, Ins. Lapp., 708 (*festinans*); Dipt. Scand., II, 507 (id.); op.
cit., 510 (*fuscimanus*).
SCHINER, Fauna Austr., I, 222, syn. and desc.
COQUILLET, Proc. Wash. Acad. Sci., II, 424, oc. at Kukak Bay and Popof
Id., Alaska (*festinans*).
- sarotes** LOEW, Cent., VII, 81.—Ill. Wis.—M. and B.
Note.—Looking at the single male type, I decided it to be the same as
longipennis; on looking at my specimens after reaching home, I see that
there is an easy mark of distinction in the fore feet, *sarotes* having the
third joint much larger, broader and whiter. This illustrates what may
be done by examining types.
- scapularis** LOEW, Neue Beitr., VIII, 22; Mon. N. A. Dipt., II, 64.—D. C.; Ill.
ALDRICH, Kans. Univ. Quart., II, 20.—Kans., Pa., Ohio, Tenn.
Wis.—M. and B.
- scoparius** LOEW, Mon. N. A. Dipt., II, 70.—Maine, Mass.
WHEELER, Psyche, May, 1890, 339, male lamellæ.
ALDRICH, Kans. Univ. Quart., II, 18, pl. I, f. 9.—N. J., Pa., Mass.
White Mts., N. H.—Slosson; Montreal—Chagnon; Ill., Wis.—M. and B.;
Axtou, N. Y.—M. and H.
- separatus** WALKER, List, III, 665.—Martin Falls, Canada. (Unrecognizable.)
- sequax** WALKER, see *Campsicnemus*.
- setifer** LOEW, Neue Beitr., VIII, 12; Mon. N. A. Dipt., II, 30.—D. C.; Trenton
Falls, N. Y. Newport, R. I.—O. S. Cat.
ALDRICH, Kans. Univ. Quart., II, 156, oc. in Wis.; note.
N. J.—Smith Cat.; Mass.—M. and B.; Montreal—Chagnon.
- setosus** LOEW, Cent., II, 63; Mon. N. A. Dipt., II, 73.—Mass.
Vancouver Id.—M. and B.
- sexarticulatus** LOEW, Mon. N. A. Dipt., II, 62.—D. C. Ill., La.—M. and B.
- sincerus** MELANDER, Canad. Ent., XXXII, 136, figs.—Price Co., Wis.
- soccatus** WALKER, List, III, 666.—Martin Falls, Canada. (Unrecognizable.)
- socius** LOEW, see *brevimanus*.
- sphæristes** BRUES, Ent. News, XII, 44, fig.—Austin, Tex.
- splendidulus** LOEW, see *splendidus*.
- splendidus** LOEW, Neue Beitr., VIII, 21; Mon. N. A. Dipt., II, 44.—Ill.

- LOEW, Cent., v, 82; Mon. N. A. Dipt., II, 327 (both *splendidulus*).—White Mts., N. H. [From types.] Ont., Ill.—M. and B.
- stenhammari** ZETTERSTEDT, Ins. Lapp., 710 (*annulipes*, preoc.); Dipt. Scand., II, 521.—N. Sweden and Lapland.
- OSTEN SACKEN, Cat., 108, oc. at Sloop Harbor, Labrador.
- COQUILLET, Proc. Wash. Acad. Sci., II, 424, oc. in Alaska, several places.
- subciliatus** LOEW, Mon. N. A. Dipt., II, 43.—Ft. Resolution, Huds. B. Terr.
- tener** LOEW, Neue Beitr., VIII, 17; Mon. N. A. Dipt., II, 49.—Chicago. Wis.—M. and B.
- tenuipes** ALDRICH, Kans. Univ. Quart., II, 155; Amer. Naturalist, 1894, 35, courtship (*n. sp.*).—Moscow, Ida. Cal.—M. and B.
- terminalis** LOEW, Cent., VII, 78.—Genesee, N. Y. Wis.—M. and B.
- tetricus** LOEW, Mon. N. A. Dipt., I, 33.—Ft. Resolution, Huds. B. Terr.
- tonsus** LOEW, see *rudactylus*.
- variabilis** LOEW, Neue Beitr., VIII, 17; Mon. N. A. Dipt., II, 50.—N. Y. ALDRICH, Kans. Univ. Quart., II, 11, oc. in Mass., Pa., N. J., S. D. Ill., Wis.—M. and B.; Montreal—Chagnon; White Mts., N. H.—Slosson.
- varipes** COQUILLET, Proc. Wash. Acad. Sci., II, 425.—Popof Id., Alaska. Craig's Mt., Ida.—J. M. A.
- varius** WALKER, see *Pelastoncurus pictipennis*.
- vigilans** ALDRICH, Kans. Univ. Quart., II, 13, pl. 1, f. 15.—Kans.
- vittatus** LOEW, Neue Beitr., VIII, 20; Mon. N. A. Dipt., II, 55.—Chicago. N. Y.—O. S. Cat.; S. D.—Aldrich; Wis.—M. and B.; N. J.—Smith Cat.; Montreal—Chagnon.
- wheeleri** MELANDER and BRUES, Biolog. Bull., I, 126, figs. (*Hygrocluthus*).—Wood's Hole, Mass.
- willistonii** ALDRICH, Kans. Univ. Quart., II, 22, pl. 1, f. 23.—Lawrence, Kans.
- xanthocnemus** LOEW, Mon. N. A. Dipt., II, 21.—Sitka. COQUILLET, Proc. Wash. Acad. Sci., II, 424, oc. in Alaska, several places.

GYMNOPTERNUS.

- LOEW, Neue Beitr., v, 10, 1857; VIII, 26, 1861; Mon. N. A. Dipt., II, 75, 1864.
- SCHINER, Fauna Austr., I, 205, 1862.
- albiceps** LOEW, Neue Beitr., VIII, 30; Mon. N. A. Dipt., II, 85.—Middle States.
- barbatulus** LOEW, Neue Beitr., VIII, 29; Mon. N. A. Dipt., II, 82.—Middle States. N. J.—Smith Cat.
- chalcochrus** LOEW, Mon. N. A. Dipt., II, 335.—D. C., N. Y.
- coxalis** LOEW, Cent., v, 87; Mon. N. A. Dipt., II, 335.—N. Y.
- crassicauda** LOEW, Neue Beitr., VIII, 35; Mon. N. A. Dipt., II, 95.—N. Y.
- debilis** LOEW, Neue Beitr., VIII, 35; Mon. N. A. Dipt., II, 95.—Pa. N. J.—Smith Cat.; Fla.—Johnson.
- despicatus** LOEW, Neue Beitr., VIII, 33; Mon. N. A. Dipt., II, 90.—Middle States.
- difficilis** LOEW, Neue Beitr., VIII, 33; Mon. N. A. Dipt., II, 91.—N. Y.
- exiguus** LOEW, Mon. N. A. Dipt., II, 337.—Ill.
- exilis** LOEW, Neue Beitr., VIII, 30; Mon. N. A. Dipt., II, 84.—Pa. N. J.—Smith Cat.
- fimbriatus** LOEW, Neue Beitr., VIII, 32; Mon. N. A. Dipt., II, 89.—Md.
- flavus** LOEW, Neue Beitr., VIII, 28; Mon. N. A. Dipt., II, 80.—Pa. N. J.—Smith Cat.
- frequens** LOEW, Neue Beitr., VIII, 32; Mon. N. A. Dipt., II, 88.—Middle States. White Mts., N. H.—Slosson.
- humilis** LOEW, Mon. N. A. Dipt., II, 336.—N. Y., Ill.

- lævigatus* LOEW, Neue Beitr., VIII, 31; Mon. N. A. Dipt., II, 87.—Middle States.
lunifer LOEW, Neue Beitr., VIII, 32; Mon. N. A. Dipt., II, 89.—N. Y.
 N. J.—Smith Cat.
meniscus LOEW, Cent., V, 88; Mon. N. A. Dipt., II, 336.—D. C.
minutus LOEW, Neue Beitr., VIII, 35; Mon. N. A. Dipt., II, 96.—Middle States.
mirificus MELANDER, Canad. Ent., XXXII, 137, fig. 13.—Mass.
nigribarba LOEW, Neue Beitr., VIII, 33; Mon. N. A. Dipt., II, 91.—Pa.
obscurus SAY, Jour. Acad. Sci. Phil., III, 85; Compl. Works, II, 75 (*Dolichopus*).
 —Pa.
 WIEDEMANN, Auss. Zw., II, 232 (id.).
 LOEW, Mon. N. A. Dipt., II, 290, 296, quotes Say and Wiedemann.
opacus LOEW, Neue Beitr., VIII, 34; Mon. N. A. Dipt., II, 93.—N. Y.
parvicornis LOEW, Neue Beitr., VIII, 34; Mon. N. A. Dipt., II, 92.—Middle States.
phylliphorus LOEW, Cent., VII, 82.—L. George, N. Y.
 White Mts., N. H.—Slosson.
pœnitens WHEELER, see *Hercostomus unicolor*.
politus LOEW, Neue Beitr., VIII, 34; Mon. N. A. Dipt., II, 94 and 334.—N. Y.
pusillus LOEW, Mon. N. A. Dipt., II, 334.—Ill.
ruficornis ALDRICH, Trans. Ent. Soc. Lond., 1896, 309.—St. Vincent, W. I.
scotias LOEW, Neue Beitr., VIII, 29; Mon. N. A. Dipt., II, 81.—L. Winnipeg.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson.
spectabilis LOEW, Neue Beitr., VIII, 30; Mon. N. A. Dipt., II, 85.—N. Y.
 N. J.—Smith Cat.
subdilatus LOEW, Neue Beitr., VIII, 31; Mon. N. A. Dipt., II, 86.—Middle States.
 N. J.—Smith Cat.
subulatus LOEW, Neue Beitr., VIII, 29; Mon. N. A. Dipt., II, 80.—Trenton Falls, N. Y.
tristis LOEW, Mon. N. A. Dipt., II, 83.—Sitka.
ventralis LOEW, Neue Beitr., VIII, 36; Mon. N. A. Dipt., II, 97.—N. Y.
 D. C.—O. S. Cat.; N. J.—Smith Cat.

HERCOSTOMUS.

- LOEW, Neue Beitr., V, 9, 1857; VIII, 42, 1861; Mon. N. A. Dipt., II, 116, 1864.
 WHEELER, Proc. Cal. Acad. Sci., II, 8, 1899, table of species.
 MELANDER, Canad. Ent., XXXII, 138, table of species, 1900.
Note.—This genus is not well-defined, and serves as a catch-all for aberrant forms near *Gymnopternus*.
aurifer THOMSON, Eugen. Resa, 512 (*Dolichopus*).—Cal.
anarmostus MELANDER, Canad. Ent., XXXII, 139, f. 3.—Chicago.
flavipes ALDRICH, Biologia, Dipt., I, 336, pl. VI, f. 17.—Guerrero, Mex.
impudicus WHEELER, Proc. Cal. Acad. Sci., II, 10, pl. I, f. 11-13.—Monterey, Cal.
latipes ALDRICH, Trans. Ent. Soc. Lond., 1896, 311, pl. XII, f. 111.—St. Vincent, W. I. Grenada—Aldrich.
metatarsalis THOMSON, Eugen. Resa, 512 (*Dolichopus*).—Cal.
 WHEELER, Proc. Cal. Acad. Sci., II, 8, pl. I, f. 9, 10 (*proccrus*).—Monterey, Cal. [J. M. A.]
proccrus WHEELER, see *metatarsalis*.
unicolor LOEW, Mon. N. A. Dipt., II, 117.—Ft. Resolution, Huds. B. Terr.
 WHEELER, Psyche, June, 1890, 356 (*Gymnopternus pœnitens*).—Wis.
 MIK, Wien. Ent. Zeit., 1894, 4, gen. ref. of *pœnitens*.
 MELANDER, Canad. Ent., XXXII, 138, syn.
 Seattle—J. M. A.
vetitus MELANDER, Canad. Ent., XXXII, 138, f. 1, 2.—Clementon, N. J.

PARACLIUS.

LOEW, Mon. N. A. Dipt., II, 97, 1864.

WHEELER, Proc. Cal. Acad. Sci., II, 18, 1890, table of species.

ALDRICH, Biologia, Dipt., I, 337, 1902, table of Mex. species; Kans. Univ. Sci. Bull., I, 47, 1902, table of species.

Note.—The genus *Paraclius*, BIGOT, Annales, 1859, 215, is not the same.

abdominalis ALDRICH, Kans. Univ. Sci. Bull., I, 78.—Grenada, W. I.

albonotatus LOEW, Mon. N. A. Dipt., II, 102.—New Orleans.

Grenada, W. I., and Tabasco, Mex.—Aldrich.

alternans LOEW, Cent., v, 91 (*Pelastoncurus*); Mon. N. A. Dipt., II, 339 (id.).—New Rochelle, N. Y. (Gen. ref. from type—J. M. A.)

arcuatus LOEW, Neue Beitr., VIII, 39; Mon. N. A. Dipt., II, 101.—Cuba.

ALDRICH, Kans. Univ. Sci. Bull., I, 80, oc. in Grenada and Jamaica, and notes.

bellus ALDRICH, Kans. Univ. Sci. Bull., I, 81.—Grenada, W. I.

claviculatus LOEW, Cent., VII, 83.—New Rochelle, N. Y.

Grenada—Aldrich.

discifer ALDRICH, Kans. Univ. Sci. Bull., I, 80.—Grenada.

femoratus ALDRICH, Biologia, Dipt., I, 340.—Vera Cruz, Teapa and Frontera, Mex.

filifer ALDRICH, Trans. Ent. Soc. Lond., 1896, 314, pl. XI, f. 102.—St. Vincent, W. I.

WHEELER, Proc. Cal. Acad. Sci., II, 19, notes, and oc. in Fla.

Grenada—Aldrich; Porto Rico—Coquillett.

fuscicornis ALDRICH, Kans. Univ. Sci. Bull., I, 79.—Grenada, W. I.

humeralis ALDRICH, Biologia, Dipt., I, 340, pl. VI, f. 10.—Vera Cruz, Mex.

hybridus MELANDER, Canad. Ent., XXXII, 141, f. 4, 5.—Wood's Hole, Mass.

nigripes ALDRICH, Kans. Univ. Sci. Bull., I, 78.—Grenada, W. I.

propinquus WHEELER, Proc. Cal. Acad. Sci., II, 18, pl. I, f. 22-24.—Charlotte Harbor and Ormond, Fla.

pumilio LOEW, Cent., X, 63.—Texas.

quadrinotatus ALDRICH, Kans. Univ. Sci. Bull., I, 81.—Grenada, W. I.

venustus ALDRICH, Biologia, Dipt., I, 340, pl. VI, f. 11.—Teapa, Mex.

Grenada—Aldrich.

TACHYTRECHUS.

LOEW, Neue Beitr., v, 14, 1857; VIII, 40, 1861; Mon. N. A. Dipt., II, 109, 1864.

STANNIUS, Isis, 1831, 261 (*Ammobates*, preoc.).

MIK, Verh. Zool.-Bot. Ges., 1878 (*Macellocerus*, in part).

angustipennis LOEW, Cent., II, 64; Mon. N. A. Dipt., II, 113.—D. C.

OSTEN SACKEN, West Dipt., 315, oc. in Cal., Sonoma Co. and Summit Station.

auratus ALDRICH, Trans. Amer. Ent. Soc., XXIII, 83 (*Macellocerus*).—Moscow, Ida.

binodatus LOEW, Cent., VII, 84.—Saratoga, N. Y.

JOHNSON, Ent. News, XIII, 168, oc. in Morris Co., N. J.

Battle Creek, Mich.—Aldrich.

floridensis ALDRICH, Trans. Amer. Ent. Soc., XXIII, 82.—Fla.

mœchus LOEW, Neue Beitr., VIII, 40; Mon. N. A. Dipt., II, 110.—Trenton Falls, N. Y.

- olympiæ** ALDRICH, Trans. Amer. Ent. Soc., XXIII, 83 (*Maccllocrus*).—Olympia, Wash. Boise, Ida.—J. M. A.
- protervus** MELANDER, Canad. Ent., XXXII, 143, f. 6, 7.—Clementon and Del. Water Gap, N. J.
- sanus** OSTEN SACKEN, West. Dipt., 316.—Webber L., Cal. Craig's Mt., Ida.—J. M. A.
- volitans** MELANDER, Canad. Ent., XXXII, 143, f. 8.—Lusk, Wyo.
- vorax** LOEW, Neue Beitr., VIII, 41; Mon. N. A. Dipt., II, 112.—D. C. N. J.—Smith Cat.; Mich., Col.—J. M. A.

POLYMEDON.

- OSTEN SACKEN, West. Dipt., 317, 1877.
- WILLISTON, Synops. Fam. and Gen., 47, 1886.
- ALDRICH, Trans. Ent. Soc. Lond., 1896, 318, amended; Biologia, Dipt., I, 333, 1902, table of species.
- argentatus** ALDRICH, Biologia, Dipt., I, 334, pl. VI, f. 7.—Cuernavaca, Mex.
- castus** WHEELER, Proc. Cal. Acad. Sci., II, 6, pl. I, f. 8.—Grand Cañon, Ariz. ALDRICH, Biologia, Dipt., I, 333, footnote.
- flabellifer** OSTEN SACKEN, West. Dipt., 317.—Sonoma Co., Cal.; on stones in stream. Juliaetta, Idaho—J. M. A.
- nimius** ALDRICH, Biologia, Dipt., I, 334, pl. VI, f. 8, 9.—Guerrero, Mex., and Hagerman, Ida., about waterfalls.
- superbus** ALDRICH, Trans. Ent. Soc. Lond., 1896, 318-320, pl. XI, f. 103 and pl. XII, f. 113, 118, 119.—St. Vincent, W. I.; on stones in stream.
- triangularis** ALDRICH, Biologia, Dipt., I, 335.—Cuernavaca, Mex.

SARCIONUS.

- ALDRICH, Biologia, Dipt., I, 341, 1902; Kans. Univ. Sci. Bull., I, 47, 1902.
- flavicoxa** ALDRICH, Biologia, Dipt., I, 341, pl. VI, f. 15.—Teapa, Mex. (on the plate as *Pacilobothrus*).
- lineatus** ALDRICH, Trans. Ent. Soc., Lond., 1896, 312 (*Pelastoneurus*); Biologia, Dipt., I, 341, gen. ref. and oc. in Teapa, Mex.; Kans. Univ. Sci. Bull., I, 82, oc. in Grenada, and notes.—St. Vincent, W. I.

PELASTONEURUS.

- LOEW, Neue Beitr., VIII, 36, 1861; Mon. N. A. Dipt., II, 103, 1864.
- ALDRICH, Kans. Univ. Quart., II, 152, 1893 (*Metapelastoneurus*, in part); Ent. News, XI, 532, syn.
- WHEELER, Proc. Cal. Acad. Sci., II, 11, 1899, table of species.
- ALDRICH, Biologia, Dipt., I, 336, 1902, table of Mex. species; Kans. Univ. Sci. Bull., I, 47, 1902, table of species.
- abbreviatus** LOEW, Cent., v, 89; Mon. N. A. Dipt., II, 338.—New Rochelle, N. Y. St. Augustine, Fla.—Johnson.
- alternans** LOEW, see *Paraclius*.
- argentifer** ALDRICH, Trans. Ent. Soc. Lond., 1896, 313.—St. Vincent, W. I. Mexico, several places, and Grenada, W. I.—Aldrich.
- bifrons** WALKER, Dipt. Saund., 212 (*Dolichopus*).—U. S. (Unrecognizable.)
- bigeminatus** ALDRICH, Biologia, Dipt., I, 338, pl. VI, f. 13.—Vera Cruz, Mex.
- cognatus** LOEW, Mon. N. A. Dipt., II, 109.—Middle States. Texas—O. S. Cat. WHEELER, Proc. Cal. Acad. Sci., II, 12, oc. at Chicago. ALDRICH, Biologia, Dipt., I, 339, male.—Vera Cruz, Mex. St. Augustine, Fla.—Johnson.

- cyaneus** WHEELER, Proc. Cal. Acad. Sci., II, 17, pl. 1, f. 16-18.—Monterey, Cal. and Lusk, Wyo.
- dissimilipes** WHEELER, Proc. Cal. Acad. Sci., II, 17.—Monterey, Cal.
- fasciatus** ROEDER, Stett. Ent. Zeit., 1885, 34.—Porto Rico.
- floridanus** WHEELER, Proc. Cal. Acad. Sci., II, 13, pl. II, f. 26.—St. Augustine, Fla.
- furcifer** LOEW, Cent., X, 64.—Texas.
- hamatus** ALDRICH, Biologia, Dipt., I, 338, pl. VI, f. 12.—Mexico City.
- heteroneurus** MACQUART, Dipt. Exot., Suppl., IV, 128, pl. XII, f. 10 (*Dolichopus*).—N. A.
- kansensis** ALDRICH, Kans. Univ. Quart., II, 153, 1893 (*Metapelastoncurus*).—Lawrence, Kans.; Milbank, S. D.—J. M. A.
- lætus** LOEW, Neue Beitr., VIII, 38; Mon. N. A. Dipt., II, 106.—Ga., D. C.
?WALKER, List, III, 667 (*Dolichopus irrasus*).—Fla. [J. M. A.]
- lamellatus** LOEW, Cent., V, 90; Mon. N. A. Dipt., II, 338.—N. Y.
- longicauda** LOEW, Neue Beitr., VIII, 37; Mon. N. A. Dipt., II, 104.—N. Y.
- lugubris** LOEW, Neue Beitr., VIII, 38; Mon. N. A. Dipt., II, 105.—Trenton Falls, N. Y.
WHEELER, Proc. Cal. Acad. Sci., II, pl. II, f. 28.—Wis., Ill., Ind. N. J.—Smith Cat.; Vera Cruz, Mex.—Aldrich.
- maculipes** WALKER, Dipt. Saund., 214 (*Dolichopus*).—U. S.
- mexicanus** BIGOT, Bull. Soc. Ent. France, Feb. 22, 1888, p. xxx; Annales, 1890, 294 (*Pacilobothrus*).—Mex. (Unrecognizable.)
- neglectus** WHEELER, Proc. Cal. Acad. Sci., II, 12, pl. I, f. 14.—Chicago and Milwaukee.
Note.—The specimens were males, not females (Wheeler in litt.).
- occidentalis** WHEELER, Proc. Cal. Acad. Sci., II, 13, pl. 1, f. 20.—Pacific Grove, Cal.
- pictipennis** WHEELER, Proc. Cal. Acad. Sci., II, 14, pl. 1, f. 19 and pl. II, f. 25.—St. Augustine and Gotha, Fla.
?WALKER, Dipt. Saund., 215 (*Dolichopus varius*).—U. S. [J. M. A.]
- ? **pilosicornis** WALKER, List, III, 653 (*Porphyrops*).—Martin Falls, Canada. (Unrecognizable.)
- punctipennis** SAY, Jour. Acad. Sci. Phil., VI, 170; Compl. Works, II, 362 (*Medeterus*).—Mex.
ALDRICH, Biologia, Dipt., I, 339, pl. VI, f. 14 (on the plate *P. variegatus*).—Orizaba, Mex.
- unguiculatus** ALDRICH, Trans. Ent. Soc. Lond., 1896, 310, pl. XI, f. 101 and pl. XII, f. 116 (*Pacilobothrus*).—St. Vincent, W. I.
Vera Cruz, Mex.—Aldrich.
- vagans** LOEW, Neue Beitr., VIII, 39; Mon. N. A. Dipt., II, 107.—Middle States.
WHEELER, Proc. Cal. Acad. Sci., II, 15, pl. 1, f. 15, oc. in Wis., Ill., Ind., N. M., and Wyo. N. J.—Smith Cat.; Orizaba, Mex.—Aldrich.
- wheeleri** MELANDER, Canad. Ent., XXXII, 140, f. 15.—Austin, Texas.

LEPTOCORYPHA.

- ALDRICH, Trans. Ent. Soc. London, 1896, 315.
- pavo** ALDRICH, op. cit., pl. XII, f. 112.—St. Vincent. W. I.

ORTHOCHILE.

- LATREILLE, Gen. Crust. et Ins., IV, 289, 1809.

? *derempta* WALKER, List, III, 667.—N. A. See Osten Sacken, Cat., 243, note 187. The species does not belong to this genus, but not even the genus can be determined from the description.

EMPIDIDÆ.

BIGOT, Annales, 1889, 114, table of genera of the world.

COQUILLET, Revis. Emp., in Proc. U. S. N. M., XVIII, 1896 (separates in 1895), 387-440, has a table of genera, p. 389.

MELANDER, Monograph Empididæ, in Trans. Amer. Ent. Soc., XXVIII, 1902, 195-367, 5 plates, has a table of genera, p. 201.

COQUILLET, Proc. Wash. Ent. Soc., v, 245-272, types of genera, table, notes, etc. Following my own convictions, and to some extent the advice of Mr. Melander, I have not adopted all the changes proposed in this paper.

PHONEUSTICA.

LOEW, Cent., III, 35, 1863.

MELANDER, Mon. Empid., I, 204, 1902, def. and table of species.

bimaculata LOEW, see *maculipennis*.

maculipennis WALKER, List, III, 507 (*Tachydromia*).—Martin Falls, Canada.

LOEW, Cent., III, 35 (*bimaculata*).—Sitka. [Coq.]

MELANDER, Mon. Empid., I, 204 (id.).—Brookings, S. D.

simplicior WHEELER and MELANDER, Biologia, Dipt., I, 375.—Chilpancingo in Guerrero, Mex.

MELANDER, Mon. Empid., I, 205.—Guerrero and Vera Cruz, Mex.

STILPON.

LOEW, Neue Beitr., VI, 34, 43, 1859.

OSTEN SACKEN, Cat., 241, 1878, quotes desc.

MELANDER, Mon. Empid., I, 205, 1902, def. and table of species; the latter revised on p. 339.

houghi MELANDER, see *Coloboucura*.

minuta MELANDER, Mon. Empid., I, 339.—Cloudercroft and Highrolls, N. M.

nigripes MELANDER, Mon. Empid., I, 339.—Alamogordo, Highrolls, and Cloudercroft, N. M.

pectiniger MELANDER, see *varipes*.

varipes LOEW, Cent., II, 58.—Pa.

MELANDER, Mon. Empid., I, 205, f. 45 (*varipes* and *pectiniger*).—Milwaukee, Wis., and New Bedford, Mass. [Melander, in litt.]

DRAPETIS.

MEIGEN, Syst. Besch., III, 91, 1822.

SCHINER, Fauna Austr., I, 1862.

WILLISTON, Trans. Ent. Soc. Lond., 1896, 441, table of St. Vincent species.

COQUILLET, Proc. U. S. N. M., XXII, 251, correction of preceding.

MELANDER, Mon. Empid., I, 206, 1902, def. and table of species.

apicis WILLISTON, Trans. Ent. Soc. Lond., 1896, 442, pl. XIV, f. 167.—St. Vincent, W. I.

MELANDER, Mon. Empid., I, 209.

divergens LOEW, Cent., X, 62.—Texas.

WILLISTON, Trans. Ent. Soc. Lond., 1896, 442, pl. XIV, f. 168 (*minuta*).—St. Vincent, W. I.

- MELANDER, Mon. Empid., 1, 210, f. 15 (*divergens* and *minuta*).—Ma., Ga., N. M. [Mel., *in litt.*]
- dividua** MELANDER, Mon. Empid., 1, 208, f. 16, 18, 23.—Moscow, Idaho.
- femoralis** WHEELER and MELANDER, Biologia, Dipt., 1, 376.—Vera Cruz and Tabasco, Mex.
MELANDER, Mon. Empid., 1, 211, f. 13.
- flavida** WILLISTON, Trans. Ent. Soc. Lond., 1896, 308, pl. XI, f. 80.—St. Vincent, W. I.
COQUILLETT, Proc. U. S. N. M., XXII, 251, oc. in Porto Rico (*Tachydromia*).
WHEELER and MELANDER, Biologia, Dipt., 1, 376, oc. in Orizaba and Vera Cruz, Mex.
MELANDER, Mon. Empid., 1, 213.—Hayti.
COQUILLETT, Proc. Ent. Soc. Wash., v, 265, note.
- gilvipes** LOEW, Cent., x, 61.—Texas.
WILLISTON, Trans. Ent. Soc. Lond., 1896, pl. IV, f. 85 (*xanthopodus*).—St. Vincent, W. I.
MELANDER, Mon. Empid., 1, 212, 213, syn. on 340.—Galveston and Bosque Co., Texas.
- latipennis** MELANDER, Mon. Empid., 1, 209, f. 11, 19.—Lawrence, Kans.; Milwaukee, Wis.
- medetera** MELANDER, Mon. Empid., 1, 208, f. 22.—Ida., Wyo., Col., Ariz.
COQUILLETT, Proc. Ent. Soc. Wash., v, 265, note.
- minuta** WILLISTON, see *divergens*.
- nigra** MEIGEN, Syst. Besch., VI, 344.—Europe.
WALKER, List, III, 511, oc. in N. A.—Martin Falls, Canada.
MELANDER, Mon. Empid., 1, 208, f. 12, 17, 24.—Brookings, S. D.
- nitida** MELANDER, see *unipila*.
- pubescens** LOEW, Cent., II, 57.—N. Y.
MELANDER, Mon. Empid., 1, 210, 340.
- septentrionalis** MELANDER, Mon. Empid., 1, 211.—Battle Creek, Mich.
- spectabilis** MELANDER, Mon. Empid., 1, 212, 340, f. 9, 20.—Wood's Hole and Horseneck Beach, Mass.; Bosque Co., Texas.
- unipila** LOEW, Cent., x, 60.—Texas.
MELANDER, Mon. Empid., 1, 207, f. 10, 14, 21 (*nitida*); 339, syn.—Monterey Co., Cal.; Austin and Granite Mt., Texas.
- xanthopodus** WILLISTON, see *gilvipes*.

ELAPHROPEZA.

- MACQUART, Dipt. Nord France, 1, 1827; Hist. Nat. Dipt., 1, 359, 1834.
SCHINER, Fauna Austr., 1, 94, 1862.
MELANDER, Mon. Empid., 1, 213, 1902.
- montana** MELANDER, Mon. Emp., 1, 213, f. 7, 8.—Col.

PLATYPALPUS.

- MACQUART, Dipt. Nord France, 94, 1827; Hist. Nat. Dipt., 1, 351, 1834.
SCHINER, Fauna Austr., 1, 87, 1862.
OSTEN SACKEN, Cat., 241, note.
COQUILLETT, Revis. Empid., 438, table of species, 1895.
MELANDER, Mon. Empid., 1, 214, 1902, def. and table of species.
- æqualis** LOEW, Cent., v, 75.—Ill.
MELANDER, Mon. Emp., 1, 222.—Mass. to La., Ida. to Cal. and Mex.
N. J.—Smith Cat.; White Mts., N. H.—Slosson. See *crassifemoris*.

- alexippus** WALKER, List, III, 510 (*Tachydromia*).—Martin Falls, Canada.
- apicalis** LOEW, Cent., v, 79.—Pa.
MELANDER, Mon. Empid., I, 218.—Wood's Hole, Mass. White Mts., N. H.—Slosson.
- caligatus** MELANDER, Mon. Empid., I, 216, f. 27, 35, 46.—Guerrero, Mex.
WHEELER and MELANDER, Biologia, Dipt., I, 375, had referred the same specimens to *trivialis* LW.
- canus** MELANDER, Mon. Empid., I, 220, f. 29, 40, 45.—Los Angeles Co., Cal.
- crassifemoris** FITCH, N. Y. Repts., I, 301, 1856 (*Oscinis*).—N. Y.
COQUILLET, Rev. Empid., 438, gen. ref., from type.
- MELANDER, Mon. Empid., I, 223, 342, *trivialis* and *equalis* are probably the same.—Mass., Mich., Ida.
- debilis** LOEW, Cent., III, 37.—D. C.
- discifer** LOEW, Cent., III, 36.—D. C.
MELANDER, Mon. Empid., I, 222; note on type, 342.
- diversipes** COQUILLET, Proc. Wash. Acad. Sci., II, 422.—Popof Id., Alaska.
MELANDER, Mon. Empid., I, 218.
- flavirostris** LOEW, Cent., v, 80.—White Mts., N. H.
COQUILLET, Proc. Wash. Acad. Sci., II, 422.—Popof Id., Alaska.
MELANDER, Mon. Empid., I, 219; notes on type, 342.
- gilvipes** COQUILLET, Proc. Wash. Acad. Sci., II, 422.—Popof Id., Alaska.
MELANDER, Mon. Empid., I, 224.
- gravidus** MELANDER, Mon. Empid., I, 221, f. 25, 42.—San Diego Co., Cal.
- hastatus** MELANDER, Mon. Empid., I, 222, f. 30.—Lawrence, Kans.; Craig's Mt., Ida.
- hians** MELANDER, Mon. Empid., I, 220, f. 32, 36, 37.—Col.
- impexus** MELANDER, Mon. Empid., I, 219.—Brookings, S. D.; Battle Creek, Mich.
- incultus** COQUILLET, Rev. Empid., 439.—S. Cal.
MELANDER, Mon. Empid., I, 218.—Texas.
- incurvus** MELANDER, Mon. Empid., I, 221, f. 31, 33, 44.—Los Angeles Co. and San Diego Co., Cal.
- inops** MELANDER, Mon. Empid., I, 220.—Dubois and Hunter's Cr., Wyo.; Oxford, Idaho.
- lætus** LOEW, Cent., v, 81.—White Mts., N. H.
MELANDER, Mon. Empid., I, 219; note on type, 341.
- lateralis** LOEW, Cent., v, 78.—White Mts., N. H.
COQUILLET, Proc. Wash. Acad. Sci., II, 421, oc. in Alaska. several places.
MELANDER, Mon. Empid., I, 222.
- lupatus** MELANDER, Mon. Empid., I, 340.—Cloudcroft, N. M.
- mesogramma** LOEW, Cent., III, 38.—D. C., N. Y.
MELANDER, Mon. Empid., I, 219.—Pa., Tenn. N. J.—Smith Cat.
- monticola** MELANDER, Mon. Empid., I, 217, f. 41.—Cameron Pass, Col.
- pachynema** LOEW, Cent., v, 77.—D. C.
MELANDER, Mon. Empid., I, 217. Tarrytown, N. Y.—O. S.
- pluto** MELANDER, Mon. Empid., I, 217, f. 39.—San Diego, Cal.; doubtfully from Albion and Juliaetta, Idaho.
- rufiventris** MELANDER, Mon. Empid., I, 341.—Cloudcroft, N. M.
- tenellus** MELANDER, Mon. Empid., I, 223, f. 28, 38.—Champaign Co., Ill.; Brookings, S. D.
- tersus** COQUILLET, Rev. Empid., 439.—Ga., N. C.
MELANDER, Mon. Empid., I, 219.—Ga., La.
- trivialis** LOEW, Cent., v, 76.—Me., D. C.
MELANDER, Mon. Empid., I, 216, f. 26, 34, 43.—New Bedford, Mass.
See *caligatus*.

COQUILLET, Proc. Ent. Soc. Wash., v, 265, notes.

White Mts., N. H.—Slosson. See *caligatus* and *crassifemoris*.

vicarius WALKER, Trans. Ent. Soc., n. ser., iv, 149 (*Tachydromia*).—U. S.

MELANDER, Mon. Empid., i, 220, quotes desc.

vierecki MELANDER, Mon. Empid., i, 340.—Clouderoft, N. M.

TACHYDROMIA.

MEIGEN, Illig. Mag., ii, 269, 1803; Syst. Besch., iii, 68, Div. A: vi, 341 (the last *Tachypeza*).

SCHINER, Fauna Austr., i, 92, 1862.

OSTEN SACKEN, Cat., 1878, 241, note.

COQUILLET, Revis. Empid., 1895, 439, table of species.

MELANDER, Mon. Empid., i, 224, 1902, def. and table of species.

HOWARD, Proc. Wash. Acad. Sci., ii, 560, records the rearing of an undetermined species from human excrement.

COQUILLET, Proc. Ent. Soc. Wash., v, 265, notes; recognizes *Tachypeza* as distinct.

bacis WALKER, List, iii, 510.—Jamaica.

MELANDER, Mon. Empid., i, 226, quotes desc.

brachialis MELANDER, Mon. Empid., i, 343.—Bonnton, N. J.

clavipes LOEW, Cent., v, 73 (*Tachypeza*).—Ill.

MELANDER, Mon. Empid., i, 229.

corticalis MELANDER, Mon. Empid., i, 343.—Clouderoft, N. M.

enecator MELANDER, Mon. Empid., i, 226.—St. John's Co., Quebec; Lance Cr., Wyo.

fenestrata SAY, Jour. Acad. Sci. Phil., iii, 95; Compl. Works, ii, 82 (*Sicus*).—Mid. States.

WIEDEMANN, Abss. Zw., ii, 12.

MELANDER, Mon. Empid., i, 228.

flavida WILLISTON, of Coquillett, see *Drapetis*.

inusta MELANDER, Mon. Empid., i, 226, f. 50, 54.—Julietta and Craig's Mt., Ida.; Magdalena Mts., N. M.

lata COQUILLET, Proc. Ent. Soc. Wash., v, 266.—Biscayne Bay, Fla.

maculipennis WALKER, see *Phoncustica*.

nubifera COQUILLET, Dipt. Commander Ids., 343.—Bering Id.

MELANDER, Mon. Empid., i, 342.

COQUILLET, Proc. Ent. Soc. Wash., v, 265, note.

portæcola WALKER, List, iii, 506.—Martin Falls, Canada.

MELANDER, Mon. Empid., i, 227, quotes desc.

postica WALKER, Trans. Ent. Soc., n. ser., iv, 149.—U. S.

? MELANDER, Mon. Empid., i, 227, doubtfully identified from Lawrence, Kans.

pruinosa COQUILLET, Proc. Ent. Soc. Wash., v, 267 (*Tachypeza*).—Atherton, Mo.

pusilla LOEW, Cent., v, 74 (*Tachypeza*).—Ill.

MELANDER, Mon. Empid., i, 229, f. 51.—Ill., Mass. N. J.—Smith Cat.

rapax LOEW, Cent., v, 71 (*Tachypeza*).—Ill.

MELANDER, Mon. Empid., i, 229, f. 55.—Mass., Ind., Ill., Wis., Wyo.

rostrata LOEW, Cent., v, 72 (*Tachypeza*).—White Mts., N. H.; N. Y.

MELANDER, Mon. Empid., i, 229.

schwarzii COQUILLET, Revis. Empid., 440.—N. Cal. and Utah.

WHEELER and MELANDER, Biologia, Dipt., i, 375, oc. in Guerrero, Mex.

- MELANDER, Mon. Empid., 1, 225, f. 52.—Cal., Utah, Ida., Tex.
 Franconia, N. H.—Melander *in litt.*
- similis** WALKER, List, III, 506.—Martin Falls, Canada.
 MELANDER, Mon. Empid., 1, 229, quotes desc.
 White Mts., N. H.—Slosson.
- varipennis** COQUILLET, Proc. Ent. Soc. Wash., v, 266.—Franconia, N. H.
 SLOSSON, Ent. News, XIV, 266, habits of adult.
- vittipennis** WALKER, Trans. Ent. Soc., n. ser., IV, 149.—U. S.
 MELANDER, Mon. Empid., 1, 227, quotes desc.
- winthemi** ZETTERSTEDT, Ins. Lapp., 548; Dipt. Scand., 1, 321 (*Tachypesa*).—Europe.
 OSTEN SACKEN, Cat., 106, oc. in N. A.—Mt. Washington, N. H.
 MELANDER, Mon. Empid., 1, 227.

COLOBONEURA.

- MELANDER, Mon. Empid., 1, 229, 1902.
- houghi** MELANDER, Mon. Empid., 1, 206, f. 2, 3 (*Stilpon*).—New Bedford, Mass.
 Gen. ref. by Melander *in litt.*
- inusitata** MELANDER, Mon. Empid., 1, 230, 344, f. 47, 48, 49.—Wood's Hole,
 Mass.; R. I.; Lake Worth, Fla.
 SLOSSON, Ent. News, XIV, 268, habits of adult.
- nana** COQUILLET, Proc. Ent. Soc. Wash., v, 267.—Lake Worth, Fla.

HEMERODROMIA.

- MEIGEN, Syst. Besch., III, 61, 1822.
- RONDANI, Dipt. Ital. Prod., 1, 148, 1856 (*Mantipesa*). [Mel.]
- SCHINER, Fauna Austr., 1, 82, 1862.
- LOEW, Wien. Ent. Monatschr., 1864, 237.
- COQUILLET, Revis. Empid., 1895, 391, table of species; 392 (*Ncoplasta*).
 [Mel.]
- WILLISTON, Trans. Ent. Soc. Lond., 1896, 440, on the relations of *Mantipesa*, etc.
- MELANDER, Mon. Empid., 1, 233, 1902, def. and table.
- albipes** WALKER, Walker, List, III, 505.—Martin Falls, Canada.
 MELANDER, Mon. Empid., 1, 237, quotes desc.
- capta** COQUILLET, Revis. Empid., 391.—N. Y.
 MELANDER, Mon. Empid., 1, 237.
- collusor** MELANDER, Mon. Empid., 1, 235, f. 57, 58.—Dubois and Dinwiddie Cr.,
 Wyo.; Col.
- defecta** LOEW, Cent., II, 55.—D. C.
 MELANDER, Mon. Empid., 1, 235. N. J.—Smith Cat.
- defessa** WILLISTON, Trans. Ent. Soc. Lond., 1896, 439, pl. XIV, f. 166.—St. Vincent,
 W. I.
 MELANDER, Mon. Empid., 1, 237.
- empiformis** SAY, Jour. Acad. Sci. Phil., III, 99; Compl. Works, II, 85 (*Ochthera*).—Ill.
 LOEW, Cent., II, 56 (*vittata*); Mon. N. A. Dipt., 1, 159, note on Say.
 OSTEN SACKEN, Cat., 106, syn. with a doubt.
 MELANDER, Mon. Empid., 1, 236.—Pa.
- mexicana** MELANDER, Mon. Empid., 1, 235, f. 56, 60.—Orizaba, Mex.
- notata** LOEW, Cent., II, 53.—Ill., Pa.
 MELANDER, Mon. Empid., 1, 238.

obsoleta LOEW, Cent., II, 52.—III.

MELANDER, Mon. Empid., I, 238. Md.—O. S.

palloris COQUILLET, Revis. Empid., 392 (*Mantipeza*).—N. II.

MELANDER, Mon. Empid., I, 238.

precatoria FALLÉN, Empidiae, 10, 34 (*Tachydromia*).—Europe.

STEPHENS, Illustrations, pl. XLV, f. 3.

MEIGEN, Syst. Besch., III, 63, pl. XXIII, f. 13; 62, f. 6 (*monostigma*).

SCHINER, Fauna Austr., I, 83.

WALKER, List, III, 505, oc. in N. A.—Martin Falls, Canada.

MELANDER, Mon. Empid., I, 238, notes.

rogatoris COQUILLET, Revis. Empid., 392.—N. C.

MELANDER, Mon. Empid., I, 236, f. 65.—Wis., Wyo.

scapularis LOEW, Cent., II, 54.—Md.

COQUILLET, Revis. Empid., 392, refers to *Neoplata*, n. gen.

MELANDER, Mon. Empid., I, 234, f. 59.—Me., Pa., Tenn., Wyo.

N. J.—Smith Cat.; White Mts., N. II.—Slosson.

superstitiosa SAY, Long's Exped., Appendix, 376; Compl. Works, I, 256.—N.

W. Terr.

WIEDEMANN, Auss. Zw., II, II.

OSTEN SACKEN, Cat., 242, quotes a published reference to predaceous habits by Walsh.

MELANDER, Mon. Empid., I, 236. Drayton, Id., Fla.—Johnson.

valida LOEW, Cent., II, 51.—Huds. B. Terr.

COQUILLET, Proc. Wash. Acad. Sci., II, 423, oc. in Alaska (*Mantipeza*).

MELANDER, Mon. Empid., I, 238.

vittata LOEW, see *cmpiformis*.

LITANOYMIA.

MELANDER, Mon. Empid., I, 231, 1902, def. and table of species.

elongata MELANDER, Mon. Empid., I, 232.—Mass., Wis., S. D.

mexicana WHEELER and MELANDER, Biologia, Dipt., I, 376 (*Sciodromia*).—

Guerrero, Mex.

MELANDER, Mon. Empid., I, 232.

CHIROMANTIS.

RONDANI, Dipt. Ital. Prod., I, 148, 1856.

MELANDER, Mon. Empid., I, 344, 1902.

vocatoria FALLÉN, Empides, 12 (*Tachydromia*).—Europe.

ZETTERSTEDT, Dipt. Scand., I, 270 (*Phylodromia*).

MELANDER, Mon. Empid., I, 345.

N. J.—Smith Cat.,—so far the only record for N. A.

OREOTHALIA.

MELANDER, Mon. Empid., I, 233, 1902.

pelops MELANDER, Mon. Empid., I, 233.—Kendrick, Idaho.

HELEODROMIA.

HALIDAY, Entom. Mag., I, 150, 1833; Westwood's Introd., II, 132, 1840 (the latter *Sciodromia*).

ZETTERSTEDT, Ins. Lapp., 572, 1838 (*Microcera*).

SCHINER, Fauna Austr., I, 85, 1862 (*Sciodromia*).

MELANDER, Mon. Empid., I, 345, 1902 (id.).

COQUILLET, Proc. Ent. Soc. Wash., V, 250, 1903.

pullata MELANDER, Mon. Empid., 1, 345 (*Sciodromia*).—Las Vegas Range, N. M.

Note.—For *Sciodromia bicolor* LOEW, of Coquillett, see *Borcomyia*.

For *Sciodromia palliata* COQUILLET, see *Microphorus*.

For *Sciodromia mexicana* WHEELER and MELANDER, see *Litanomyia*.

BOREOMYIA.

COQUILLET, Proc. Ent. Soc. Wash., v, 247, 1903.

bicolor LOEW, Cent., III, 34 (*Synamphotera*).—Sitka.

COQUILLET, Revis. Empid., 388; Proc. Wash. Acad. Sci., II, 423, oc. in Popof Id., Alaska (*Sciodromia*); Proc. Wash. Ent. Soc., v, 247, gen. ref.

MELANDER, Mon. Empid., 1, 231, 1902 (*Synamphotera*).

ROEDERIOIDES.

COQUILLET, Bull. 47, N. Y. State Mus., 585, 1901.

MELANDER, Mon. Empid., 1, 239, 1902.

juncta COQUILLET, loc. cit.—Adirondacks, N. Y.

NEDHAM, loc. cit., 581, pl. xv, f. 5-8. Reared from aquatic larvæ in creeks.

MELANDER, Mon. Empid., 1, 239.

ARDOPTERA.

MACQUART, Dipt. Nord France, 1827; Hist. Nat. Dipt., 1, 358, 1834.

SCHINER, Fauna Austr., 1, 85, 1862.

LOEW, Wien. Ent. Monatsch., II, 7.

MELANDER, Mon. Empid., 1, 239, 1902.

irrorata FALLÉN, Empidiæ, 13 (*Tachydromia*).—Europe.

MEIGEN, Syst. Besch., III, 66, pl. XXIII, f. 11.

WALKER, Ins. Brit., 1, 103, pl. III, f. 5.

SCHINER, Fauna Austr., 1, 85.

MELANDER, Mon. Empid., 1, 239.

N. A.—“Loew in litt.”—O. S. White Mts., N. H.—Slosson.

CLINOCERA.

MEIGEN, Illig. Mag., II, 271, 1803.

LOEW, Wien. Ent. Monatsch., 1858, 238.

SCHINER, Fauna Austr., 1, 84, 1862.

MELANDER, Mon. Empid., 1, 240, 1902, def. and table of species;—the latter amended, p. 346.

MIK, Verh. Zool.-Bot. Ges., 1881, 320, divides into ten genera,—not followed by Melander

binotata LOEW, Zeitsch. f. Ges. Naturwiss., 1876, 325.—N. Y.

MELANDER, Mon. Empid., 1, 243.—Montreal, Canada.

conjuncta LOEW, Wien. Ent. Monatsch., IV, 79.—Middle States.

MELANDER, Mon. Empid., 1, 242; note on type, 346.

dolicheretma MELANDER, Mon. Empid., 1, 241.—Juliaetta, Idaho.

fuscipennis LOEW, Zeitsch. f. Ges. Naturwiss., 1876, 324.—White Mts., N. H.

MELANDER, Mon. Empid., 1, 245.

lecta MELANDER, Mon. Empid., 1, 243.—Kendrick and Lewiston, Idaho.

lepida MELANDER, Mon. Empid., 1, 241.—Juliaetta, Idaho.

- lineata** LOEW, Cent., II, 50.—Pa.
MELANDER, Mon. Empid., I, 241, f. 61, 62.—Seattle, Wash.
- maculata** LOEW, Wien. Ent. Monatsch., IV, 79.—Middle States.
MELANDER, Mon. Empid., I, 244.
- maculipes** BIGOT, Bull. Soc. Zool. France, XII, 22.—Cal.; placed among the Leptidæ.
MELANDER, Mon. Empid., I, 245, notes.
- simplex** LOEW, Cent., II, 49.—Huds. B. Terr.
? WALKER, List, III, 504 (*Heliodromia longipes*).—Martin Falls, Canada.
[O. S., with query.]
MELANDER, Mon. Empid., I, 240.
- stagnalis** HALIDAY, Ent. Mag., I, 159 (*Hemcrodromia*).—Europe.
SCHINER, Fauna Austr., I, 84.
LUNDBECK, Dipt. Grœnl., I, 207, oc. in Greenland.
COQUILLET, Proc. Ent. Soc. Wash., V, 264, mentions this as *Hydrodromia*.
- taos** MELANDER, Mon. Empid., I, 242.—Franconia, N. H.

MEGHYPERUS.

- LOEW, Stett. Ent. Zeit., XI, 1850, 303.
SCHINER, Fauna Austr., I, 78, 1862.
MELANDER, Mon. Empid., I, 255, 1902, def. and table of species.
- nitidus** MELANDER, Mon. Empid., I, 255, f. 72, 73.—Moscow, Idaho.
- occidens** COQUILLET, Revis. Empid., 435.—S. Cal.

SYNECHES.

- WALKER, Dipt. Saund., 165, 1852.
RONDANI, Dipt. Ital. Prod., 152, 1856 (*Pterospilus*).
LOEW, Dipterenfauna Südafrika's, 1860, 259; quoted in part by O. S.
Cat., 240.
SCHINER, Fauna Austr., I, 77, 1862.
COQUILLET, Revis. Empid., 436, 1895, table of species.
SCHWARZ, Proc. Wash. Acad. Sci., 1891, 146, feeding habits; quoted by
Melander, Mon. Empid., I, 251, footnote.
MELANDER, Mon. Empid., I, 251, 1902, def. and table; the latter amended,
346.
COQUILLET, Proc. Ent. Soc. Wash., V, 246, 1903, proposes to replace
Syneches with *Acromyia* LATR.; but the latter was never published as
a generic or subgeneric name.
- albonotatus** LOEW, Cent., II, 18.—D. C.
MELANDER, Mon. Empid., I, 252.
- debilis** COQUILLET, Revis. Empid., 436.—D. C., Md.
MELANDER, Mon. Empid., I, 253.—Ga.
- hyalinus** COQUILLET, Revis. Empid., 437.—Md.
MELANDER, Mon. Empid., I, 252. N. J.—Smith Cat.
- longipennis** MELANDER, Mon. Empid., I, 346.—Hertford Co., N. C.
- pusillus** LOEW, Cent., I, 25.—N. Y., Chicago.
WILLISTON, Trans. Ent. Soc. Lond., 1896, 308, pl. XI, f. 84.—St. Vincent,
W. I.
Note.—In Scudder's Butterflies of New England, III, 1913, Dr. Williston discusses the case of a specimen of this species supposed to have been bred from the pupa of a butterfly, *Lycæna neglecta*.
MELANDER, Mon. Empid., I, 253.—Wis., Kans., N. M.

- quadrangularis** WHEELER and MELANDER, *Biologia, Dipt.*, 1, 374.—Tabasco, Mex.
MELANDER, *Mon. Empid.*, 1, 253, redesc.
- rufus** LOEW, *Cent.*, 1, 24.—N. Y., Chicago.
MELANDER, *Mon. Empid.*, 1, 253.—Ohio, Ind., Wis.
N. J.—Smith Cat.
- simplex** WALKER, *Dipt. Saund.*, 165, pl. v, f. 7.—U. S.
VAN DER WULP, *Tijdschr. v. Ent.*, x, 139, pl. III, f. 18-21 (*punctipennis*).
Wis.
LOEW, *Zeitsch. f. Ges. Naturwiss.*, xxxvii, 115, syn.
MELANDER, *Mon. Empid.*, 1, 254, f. 86.—Mass. and Ontario to Wis. and Ill.
N. J.—Smith Cat.; Charlotte Harbor, Fla.,—Johnson.
- thoracicus** SAY, *Jour. Acad. Sci. Phil.*, III, 76; *Compl. Works*, II, 68 (*Hybos*).—Pa.
WIEDEMANN, *Auss. Zw.*, 1, 538 (id.).
MACQUART, *Dipt. Exot.*, 1, 2, 156, pl. XIII, f. 1 (id.).—Pa.
MELANDER, *Mon. Empid.*, 1, 254, f. 84.—Pa. to Kans.
N. J.—Smith Cat.

SYNDYAS.

- LOEW, *Dipterenfauna Südafrika's*, 260, 1860.
OSTEN SACKEN, *Cat.*, 240, 1878.
MELANDER, *Mon. Empid.*, 1, 254, 1902, def. and table.
- dorsalis** LOEW, *Cent.*, 1, 26.—N. Y.
MELANDER, *Mon. Empid.*, 1, 254.—Ill.
- polita** LOEW, *Cent.*, 1, 27.—Carolina.
MELANDER, *Mon. Empid.*, 1, 254, f. 83.—Mass., Ga., Ala., La., Kans., Ohio, Mich.

HYBOS.

- MEIGEN, *Illig. Mag.*, II, 269, 1803; *Syst. Besch.*, II, 246, 1820.
SCHINER, *Fauna Austr.*, 1, 77, 1862.
OSTEN SACKEN, *Cat.*, 240, note on Walker's types.
COQUILLET, *Revis. Empid.*, 437, 1895, table of species; *ibid.* (*Euhybos*).
[Wh. and Mel.]
WHEELER and MELANDER, *Biologia, Dipt.*, 1, 372, 1902, table of Mexican species.
MELANDER, *Mon. Empid.*, 1, 245, 1902, def. and table of species.
- dimidiata** BELLARDI, see *scquens*.
- dimidiata** LOEW, see *electus*.
- duplex** WALKER, see *triplex*.
- electus** MELANDER, *Mon. Empid.*, 1, 245, change of name; 247, desc.—Tifton, Ga.;
New Bedford, Mass.
LOEW, *Wien. Ent. Monatsch.*, v, 36 (*dimidiata*, preoc.).—Cuba.
WILLISTON, *Trans. Ent. Soc. Lond.*, 1896, 307, pl. XI, f. 83 (*dimidiata*
LW.).—St. Vincent, W. I.
- mellipes** WHEELER and MELANDER, *Biologia, Dipt.*, 1, 373.—Guerrero, Mex.
MELANDER, *Mon. Empid.*, 1, 247, f. 78, redesc.
- purpureus** WALKER, see *triplex*.
- reversus** WALKER, *List*, III, 487.—Trenton Falls, N. Y.
MELANDER, *Mon. Empid.*, 1, 248.—Jamesburg, N. J.
- sequens** MELANDER, *Mon. Empid.*, 1, 245, change of name; 249, desc.
BELLARDI, *Saggio*, II, 97 (*dimidiata*, preoc.).—Mex.

- slossonæ** COQUILLET, Revis. Empid., 437.—N. H.
 MELANDER, Mon. Empid., 1, 247.—Mass., Wis.
- spinicosta** WHEELER and MELANDER, Biologia, Dipt., 1, 374.—Guerrero, Mex.
 MELANDER, Mon. Empid., 1, 246, f. 77, redesc.
- subjectus** WALKER, see *triplex*.
- triplex** WALKER, List, III, 486 and 487 (*triplex*, *purpurcus*, *duplex*, and *subjectus*).—Trenton Falls, N. Y.; Ga.; N. Y.; Martin Falls, Canada. [Wheeler and Melander.]
 COQUILLET, Revis. Empid., 437, refers to *Euhyb*, n. gen.; Proc. U. S. N. M., XXII, 251, oc. of *subjectus* in Porto Rico.
 WHEELER and MELANDER, Biologia, Dipt., 1, 373, notes on varieties, recognizing as such *triplex*, *purpurcus*, *subjectus*, *duplex*, *loetzi*, *bakeri*, *texasensis*, and *yucatanus*.—Tabasco and Yucatan, Mex.
 MELANDER, Mon. Empid., 1, 248, f. 79, 80, 81.—Eastern half of N. A., from Mass. to Vera Cruz and Yucatan, Mex.
 COQUILLET, Proc. Ent. Soc. Wash., v, 264, table of three supposedly valid species, *Euhyb* *subjectus*, *purpurcus*, and *triplex*.
- typicus** WHEELER and MELANDER, Biologia, Dipt., 1, 373.—Guerrero, Mex.
 MELANDER, Mon. Empid., 1, 246, redesc.

OEDALEA.

- MEIGEN, Syst. Besch., II, 355, 1820.
 SCHINER, Fauna Austr., 1, 80, 1862.
 MELANDER, Mon. Empid., 1, 256, 1902.
 First notice of occurrence in N. A. by Mrs. Slosson, Ent. News, IX, 352.
- ohioensis** MELANDER, Mon. Empid., 256, f. 74, 75, 76.—Vinton, Ohio.
 N. J.—Smith Cat. (? *stigmatella* ZETT., a European species); syn. and notes by Melander, op. cit., 347.
- pruinosa** COQUILLET, Proc. Ent. Soc. Wash., v, 267.—Franconia, N. H.

LEPTOPEZA.

- MACQUART, Dipt. du Nord France, 1827; Hist. Nat. Dipt., 1, 320, 1834.
 SCHINER, Fauna Austr., 1, 82, 1862.
 COQUILLET, Revis. Empid., 435, 1895, table of species.
 MELANDER, Mon. Empid., 1, 257, 1902, def. and table of species.
- compta** COQUILLET, Revis. Empid., 435.—N. H., Mass.
 MELANDER, Mon. Empid., 1, 258, f. 70.—Ohio, Tenn., Ill., Wis., Ida.
 N. J.—Smith Cat.
- flavipes** MEIGEN, Syst. Besch., II, 353 (*Hybos*).—Europe.
 SCHINER, Fauna Austr., 1, 82.
 OSTEN SACKEN, Cat., 104, oc. on Saskatchewan Riv., Canada.
 MELANDER, Mon. Empid., 1, 258, f. 68.—Dixie Landing, Va.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson.

OCYDROMIA.

- MEIGEN, Syst. Besch., II, 311, 1820.
 SCHINER, Fauna Austr., 1, 81, 1862.
 MELANDER, Mon. Empid., 1, 259, 1902.
- glabricula** FALLÉN, Empidiæ, 33 (*Empis*).—Europe.
 MEIGEN, Syst. Besch., II, 353 and 354 (*rufipes* and *scutellata*); VI, 334 (*dorsalis* and *nigripennis*).

LOEW, Isis, 1840 (*mclanopleura*).

SCHINER, Fauna Austr., 1, 81, syn. and desc.

OSTEN SACKEN, Cat., 100, oc. at Sitka—"Loew in litt."

WALKER, List, III, 488 (*percegrinator*).—Trenton Falls, N. Y. [Mel.]

COQUILLET, Proc. Wash. Acad. Sci., 11, 421, oc. in Sitka.

MELANDER, Mon. Empid., 1, 259, f. 66, 67.—Wis., Wyo., Vancouver Id.

MEGACYTTARUS.

BIGOT, Bull. Soc. Ent. France, 1880, 47.

COQUILLET, Revis. Empid., 388, 1895, makes a synonym of *Rhamphomyia*.

MELANDER, Mon. Empid., 1, 350, 1902.

argenteus BIGOT, loc. cit.—Col.

COQUILLET, Revis. Empid., 388, regards as the female of *Rhamphomyia limbata* Lw.

MELANDER, Mon. Empid., 1, 350, translates pt. desc.; accepts provisionally.

BRACHYSTOMA.

MEIGEN, Syst. Besch., III, 12, 1822.

SCHINER, Fauna Austr., 1, 117, 1862.

MELANDER, Mon. Empid., 1, 259, 1902, def. and table of species.

binummus LOEW, see *Blepharoprocta*.

occidentalis MELANDER, Mon. Empid., 1, 260, f. 89.—Wash., Idaho.

robertsonii COQUILLET, Revis. Empid., 393.—Ill.

MELANDER, Mon. Empid., 1, 260.—Tenn., Ohio.

serrulata LOEW, see *Blepharoprocta*.

BLEPHAROPROCTA.

LOEW, Cent., II, 17, 1862.

MELANDER, Mon. Empid., 1, 261, 1902, def. and table of species.

binummus LOEW, Cent., II, 16 (*Brachystoma*).—D. C.

MELANDER, Mon. Empid., 1, 261, f. 91, 92.

nigrimanus LOEW, Cent., II, 17.—Ill.

MELANDER, Mon. Empid., 1, 261.

serrulata LOEW, Cent., I, 23 (*Brachystoma*).—Ga.

MELANDER, Mon. Empid., 1, 262, f. 90.

Ga. and Ohio—O. S.

EMPIMORPHA.

COQUILLET, Revis. Empid., 396, 1895, def. and table of species.

MELANDER, Mon. Empid., 283, note; 329, def. and table of species, 1902.

Doubtfully distinct from *Empis*—Melander.

barbata LOEW, Cent., II, 19 (*Empis*).—Cal.

COQUILLET, Revis. Empid., 396, refers to this genus.

MELANDER, Mon. Empid., 1, 329, f. 106.—Cal.

comantis COQUILLET, Revis. Empid., 396.—N. Cal.

MELANDER, Mon. Empid., 1, 330, 353, female, etc.—Cal.

geneatis MELANDER, Mon. Empid., 1, 329, f. 105.—Cal.

PACHYMERIA.

STEPHENS, Syst. Catal., 1829.

MACQUART, Hist. Nat. Dipt., 1, 333 (*Pachymerina*); II, 657, adopts earlier name, 1834.

LOEW, Wien. Ent. Monatsch., VIII, 12.

SCHINER, Fauna Austr., 1, 110, 1862.

MELANDER, Mon. Empid., 1, 330, 1902, def. and table of species.

brevis LOEW, Cent., 11, 22.—D. C.

MELANDER, Mon. Empid., 1, 330.

pubica LOEW, Cent., 1, 35; Wien. Ent. Monatsch., VIII, 12 ("The *P. tumida* quoted there as a synonym of *P. pudica* does not exist"—O. S.).—D. C.

MELANDER, Mon. Empid., 1, 331.

EMPIS.

LINNÉ, Fauna Suecica, 2d edition, p. 466, 1761.

MEIGEN, Syst. Besch., III, 15, 1822.

SCHINER, Fauna Austr., 1, 102, 1862.

BIGOT, Bull. Soc. Ent. France, 1880, 47 (*Enoplcmpis*).

COQUILLET, Revis. Empid., 392-400, 1895, table of species; syn.

WHEELER and MELANDER, Biologia, Dipt., 1, 366, 1902, table of Mexican species.

MELANDER, Mon. Empid., 1, 282, 1902, full discussion and table of species.

abcirus WALKER, List, III, 494.—Ga.

MELANDER, Mon. Empid., 1, 299, quotes Walker.

æripes MELANDER, Mon. Empid., 1, 328, f. 141.—Idaho.

ærobotica MELANDER, Mon. Empid., 1, 323.—Cal. and Moscow, Idaho.

ALDRICH and TURLEY, Amer. Nat., XXXIII, 809, habits—"A Balloon-making Fly."—Moscow, Idaho; determined as "*Empis* near *poplitica* Lw."

agasthus WALKER, List, III, 496.—Martin Falls, Canada.

COQUILLET, Revis. Empid., 397, quotes from Walker.

alûrichii MELANDER, Mon. Empid., 1, 309, f. 110.—Moscow, Ida., and Mt. Hood, Ore.

amystis WALKER, List, III, 493.—N. Y.

MELANDER, Mon. Empid., 1, 299.

annulipes WHEELER and MELANDER, Biologia, Dipt., 1, 369.—Amula in Guerrero, Mex.

MELANDER, Mon. Empid., 1, 115, same redesc.

armipes LOEW, Cent., 1, 300, 353.

arthritica MELANDER, Mon. Empid., 1, 318, f. 135, 144.—Montgomery Co., Pa.

asema MELANDER, Mon. Empid., 1, 294, f. 130.—Austin, Tex.

atra WIEDEMANN, Auss. Zw., II, 1.—St. Croix.

atrifemur WHEELER and MELANDER, Biologia, Dipt., 1, 370.—Guerrero, Mex.

MELANDER, Mon. Empid., 1, 290, notes.

avida COQUILLET, Revis. Empid., 405.—Ill.

MELANDER, Mon. Empid., 1, 307.

azteca WHEELER and MELANDER, Biologia, Dipt., 1, 369.—Amula in Guerrero, Mex.

MELANDER, Mon. Empid., 1, 291, f. 119, redesc.

barbata LOEW, see *Empimorpha*.

benigna OSTEN SACKEN, see *Lamprempis*.

bicolor BELLARDI, Saggio, II, 98.—Chantla, Mex.

WHEELER and MELANDER, Biologia, Dipt., 1, 370, oc. in Amula, Mex., and note.

MELANDER, Mon. Empid., 1, 291, f. 112, 113, redesc.

bigoti MELANDER, Mon. Empid., 1, 319, change of name and transl. of desc.

BIGOT, Bull. Soc. Ent. France, 1882, No. 9, p. 112 (*Enoplcmpis cinerea*, precoc. in *Empis*).—Cal.

- COQUILLET, Revis. Empid., 388, 397, notes; in Proc. Ent. Soc. Wash., v, 265, he states that *manca* is "almost certainly" the same. Melander, *in litt.*, does not agree.
- brachysoma** COQUILLET, Proc. Wash. Acad. Sci., II, 409.—Saldovia, Alaska.
MELANDER, Mon. Empid., I, 308.
Note.—For the "*brachystoma* Coq. MSS." of Smith's N. J. cat., see *Hilara umbrosa*.
- cacuminifer** MELANDER, Mon. Empid., I, 304, f. 124.—Ohio, Ala.
cæligena MELANDER, Mon. Empid., I, 314, f. 107.—Ala.
canaster MELANDER, Mon. Empid., I, 326, f. 139, 140.—Idaho, Ore.
capta COQUILLET, Revis. Empid., 405.—N. C., Ga.
MELANDER, Mon. Empid., I, 310.
- chichimeca** WHEELER and MELANDER, see *Lampræmpis*.
- cinerea** BIGOT, see *bigoti*.
- clauda** COQUILLET, Proc. Wash. Acad. Sci., II, 407.—Yakutat, Popof Id., and Kadiak, Alaska.
MELANDER, Mon. Empid., I, 321.
- clausa** COQUILLET, Revis. Empid., I, 401.—Ill.
MELANDER, Mon. Empid., I, 293, f. 129.—Western U. S., common.
- colonica** WALKER, List, III, 498.—Nova Scotia.
MELANDER, Mon. Empid., I, 300.
- comantis** COQUILLET, Revis. Empid., 402.—N. Cal.
MELANDER, Mon. Empid., I, 308.
- compta** COQUILLET, Revis. Empid., 405.—Ill.
MELANDER, Mon. Empid., I, 306, male.—Opelousas, La.
- conjuncta** COQUILLET, Proc. Wash. Acad. Sci., II, 411.—Sitka and Orca, Alaska.
MELANDER, Mon. Empid., I, 277 (*Ragas*). [Coq., Proc. Ent. Soc. Wash., v, 264.]
- cormus** WALKER, List, III, 496.—Martin Falls, Canada.
MELANDER, Mon. Empid., I, 296, note.
- cyanea** BELLARDI, see *Lampræmpis*.
- diaphorina** OSTEN SACKEN, see *Lampræmpis*.
- distans** LOEW, Cent., VIII, 54.—Ga.
MELANDER, Mon. Empid., I, 295, f. 127.—Conn. and La.
- dolobraria** MELANDER, Mon. Empid., I, 325.—Cal.
subspecies **disconvenita**, loc. cit.—Cal.
- dolorosa** WHEELER and MELANDER, Biologia, Dipt., I, 370.—Amula in Guerrero, Mex.
MELANDER, Mon. Empid., I, 295, f. 128, redesc.
- enodis** MELANDER, Mon. Empid., I, 303, f. 125.—Glen Ellyn and Chicago, Ill.
- eudamides** WALKER, List, III, 493.—N. A.
MELANDER, Mon. Empid., I, 299, quotes desc.
- exilis** COQUILLET, Proc. Ent. Soc. Wash., v, 269.—Atherton, Mo.
- falcata** MELANDER, Mon. Empid., I, 326, f. 137.—Berkeley, Cal.; Juliaetta, Idaho.
- frontalis** COQUILLET, Proc. Ent. Soc. Wash., v, 271.—St. George Id., Alaska.
- fumida** COQUILLET, Proc. Wash. Acad. Sci., II, 409.—Metlakahtla, Virgin Bay, and Kukak Bay, Alaska.
MELANDER, Mon. Empid., I, 313.
- geniculata** KIRBY, Fauna Boreali Americana, Ins., 311.—Canada; repub. in Canad. Ent., XIII, 165.
MELANDER, Mon. Empid., I, 296. See *luctuosa*.
- gladiator** MELANDER, Mon. Empid., I, 316, f. 134.—Lawrence, Kans.
- gulosa** COQUILLET, Revis. Empid., 408.—Ill.
MELANDER, Mon. Empid., I, 297.

- hirtipes** COQUILLET, Proc. Ent. Soc. Wash., v, 270 (*hirtipes* and *tenebrosa*, male and female).—White Mts., N. M. [Melander, *in litt.*]
- humilis** COQUILLET, Rev. Empid., 403.—Ill.
MELANDER, Mon. Empid., 1, 297.
- infumata** COQUILLET, Proc. Wash. Acad. Sci., II, 409.—Popof Id., Alaska.
MELANDER, Mon. Empid., 1, 314.
- johnsoni** MELANDER, Mon. Empid., 1, 303, f. 123.—Montgomery Co., Pa.
- labiata** LOEW, Cent., 1, 33.—D. C.
MELANDER, Mon. Empid., 1, 294.
- lævigata** LOEW, Cent., v, 49.—White Mts., N. H.
MELANDER, Mon. Empid., 1, 312.
- laniventris** ESCHOLTZ, Entomographien, 1, 1822, 113.—Unalaska (Fox Ids.).
WIEDEMANN, Auss. Zw., II, 6, quotes desc.
MACQUART, Dipt. Exot., 1, 2, 162 (*Eriogaster*, n. gen.).
COQUILLET, Dipt. of Commander Ids., 343, oc. in Copper Ids., Alaska;
Proc. Wash. Acad. Sci., II, 408, oc. at Popof Id., Alaska, common.
MELANDER, Mon. Empid., 1, 300.
- leptogaster** LOEW, Cent., III, 30.—D. C.
MELANDER, Mon. Empid., 1, 300.
- levicula** COQUILLET, Revis. Empid., 406.—Ill.
MELANDER, Mon. Empid., 1, 307.
- longipes** LOEW, Cent., v, 51.—N. Y., N. J.
MELANDER, Mon. Empid., 1, 298, 353.
- loripedis** COQUILLET, Revis. Empid., 400.—Ill.
MELANDER, Mon. Empid., 1, 316, f. 131.—Ill. and Ohio.
N. J.—Smith Cat.
- luctuosa** KIRBY, Fauna Boreali Americana, Ins., 311; repub. in Canad. Ent., XIII, 165.—Canada.
COQUILLET, Revis. Empid., 1, 397, puts *geniculata* as a synonym: I should think both quite unrecognizable.
MELANDER, Mon. Empid., 1, 296, quotes desc.
- manca** COQUILLET, Revis. Empid., 406.—Cal.
MELANDER, Mon. Empid., 1, 320.
See *bigoti*.
- mira** BIGOT, Bull. Soc. Ent. France, 1880, No. 6, p. 63 (*Enoplompis*).—Cal.
COQUILLET, Revis. Empid., 388, note.
MELANDER, Mon. Empid., 1, 319, transl. desc.
- mixopolia** MELANDER, Mon. Empid., 1, 327.—Idaho.
- montezuma** WHEELER and MELANDER, Biologia, Dipt., 1, 369.—Santiago in Jalisco, Mex.
MELANDER, Mon. Empid., 1, 290, f. 114, redesc.
- neomexicana** MELANDER, Mon. Empid., 1, 352.—Las Vegas Range, N. M.
- nodipes** MELANDER, Mon. Empid., 1, 324, f. 143.—Magdalena, N. M.
- nuda** LOEW, Cent., II, 20.—Ill.
MELANDER, Mon. Empid., 1, 305, f. 126.—Ill.
- obesa** LOEW, Cent., 1, 28.—Mass.
COQUILLET, Revis. Empid., 403 (*ravida*).—White Mts., N. H.
MELANDER, Mon. Empid., 1, 309, 310, 353, desc. and syn. from Loew's type.
- ollius** WALKER, List, III, 493.—Nova Scotia.
MELANDER, Mon. Empid., 1, 299, quotes desc.
- otiosa** COQUILLET, Revis. Empid., 407, 408.—Ill., Conn.
MELANDER, Mon. Empid., 1, 302, f. 122.—Mass., N. H., Kans., La.
Montreal—Chagnon.

- pallida* LOEW, Cent., I, 30.—N. Y.
MELANDER, Mon. Empid., I, 301.
- pegasus* OSTEN SACKEN, Biologia, Dipt., I, 216.—Panama.
MELANDER, Mon. Empid., I, 292.
- pellucida* COQUILLET, Proc. Wash. Acad. Sci., II, 408.—Alaska, several places.
MELANDER, Mon. Empid., I, 313.
- podagra* MELANDER, Mon. Empid., I, 318.—Julietta and Peck, Idaho.
- pæciloptera* LOEW, Cent., I, 31.—N. Y.
MELANDER, Mon. Empid., I, 298.
- poplitea* LOEW, Cent., III, 29.—Sitka.
COQUILLET, Proc. Wash. Acad. Sci., II, 407, oc. in Alaska, several places, and in Col.
MELANDER, Mon. Empid., I, 321, 324, f. 136, 145 (*poplitca* and *serperastrorum*), 353, syn. from Loew's type.—Col. and Ida.
N. M.—Coq. See *arobaticus*.
- ravida* COQUILLET, see *obesa*.
- reciproca* WALKER, Trans. Ent. Soc., n. ser., IV, 147.—U. S.
- rubida* WHEELER and MELANDER, Biologia, Dipt., I, 368.—Chilpancingo, Guerrero, Mex.
MELANDER, Mon. Empid., I, 302, f. 121, redesc.
- rufescens* LOEW, Cent., V, 52.—White Mts., N. H.
MELANDER, Mon. Empid., I, 302, f. 120.—Mass.
Axton, N. Y.—M. and H.
- scatophagina* MELANDER, Mon. Empid., I, 351.—Sitka, Alaska.
- scoparia* COQUILLET, Proc. Ent. Soc. Wash., V, 269.—Franconia, N. H.
- serperastrorum* MELANDER, see *poplitca*.
- sociabilis* WILLISTON, see *Rhamphomyia*.
- sordida* LOEW, Cent., I, 29.—D. C.
MELANDER, Mon. Empid., I, 298.
- spectabilis* LOEW, Cent., II, 21.—Md.
MELANDER, Mon. Empid., I, 311, f. 109.—Delaware Co., Pa.
N. J.—Smith Cat.
- spiloptera* WIEDEMANN, Auss. Zw., II, 5.—Mex.
LOEW, Cent., III, 28 (*picta*); vol. I, p. 261, syn.—Mex.
MELANDER, Mon. Empid., I, 292.
- squamipes* COQUILLET, Proc. Ent. Soc. Wash., V, 271.—Sierra Madre, Chihuahua, Mex.
- stenoptera* LOEW, Cent., V, 50.—White Mts., N. H.
MELANDER, Mon. Empid., I, 304, 353.
- suavis* LOEW, see *Lamprcmpis*.
- superba* LOEW, see *Lamprcmpis*.
- tenebrosa* COQUILLET, Revis. Empid., 404.—Texas.
MELANDER, Mon. Empid., I, 311.
- tenebrosa* COQUILLET (*bis*), see *hirtipcs*.
- teres* MELANDER, Mon. Empid., I, 315, f. 133, 142.—Idaho.
- tersa* COQUILLET, Revis. Empid., I, 404.—N. C.
MELANDER, Mon. Empid., I, 311.
- totipennis* BELLARDI, Saggio, II, 99.—Mex.
MELANDER, Mon. Empid., I, 292.
- triangula* COQUILLET, Proc. Wash. Acad. Sci., II, 410.—Alaska, several places; British Col.
MELANDER, Mon. Empid., I, 296. Hudsonian Zone, N. M.—Ckll.

- tridentata** COQUILLET, Proc. U. S. N. M., XXIII, 609.—Delaware Co., Pa.
MELANDER, Mon. Empid., 1, 301, f. 132.
N. J.—Smith Cat.
- vaginifer** MELANDER, Mon. Empid., 1, 352.—D. C.
- valentis** COQUILLET, Revis. Empid., 402.—N. Cal.
MELANDER, Mon. Empid., 1, 320, f. 138.—Cal.
- varipes** LOEW, Cent., 1, 34.—Pa.
MELANDER, Mon. Empid., 1, 307.
White Mts., N. H.—Slosson; Montreal—Chagnon.
- violacea** LOEW, see *Lamprocmis*.
- virgata** COQUILLET, Revis. Empid., 408; Proc. Wash. Acad. Sci., II, 408, oc.—
Wash.; Alaska, common.
MELANDER, Mon. Empid., 1, 312, f. 108.
- xochitl** WHEELER and MELANDER, Biologia, Dipt., 1, 370.—Chilpancingo in Guerrero, Mex.
MELANDER, Mon. Empid., 1, 292, f. 118, redesc.
- HILARA.**
- MEIGEN, Syst. Besch., III, 1, 1822.
SCHINER, Fauna Austr., 1, 112, 1862.
COQUILLET, Revis. Empid., 394, 1895, table of species.
MELANDER, Mon. Empid., 1, 262, 1902, def. and table of species.
- atra** LOEW, Cent., II, 42.—Ill.
MELANDER, Mon. Empid., 1, 266.—Mass., Col., N. M.
Beulah, N. M.—Skimmer.
- aurata** COQUILLET, Proc. Wash. Acad. Sci., II, 411.—Kukak Bay, Alaska, and Eastport, Me.
MELANDER, Mon. Empid., 1, 269.
- baculifer** MELANDER, Mon. Empid., 1, 271, f. 96.—Tifton, Ga.
- basalis** LOEW, Cent., II, 45.—Ill.
MELANDER, Mon. Empid., 1, 267.
- bella** MELANDER, Mon. Empid., 1, 271, f. 94.—Mass.
- brevipila** LOEW, Cent., II, 41.—Ill.
MELANDER, Mon. Empid., 1, 266.
- cana** COQUILLET, Revis. Empid., 395.—S. Cal.
MELANDER, Mon. Empid., 1, 269.
- carbonaria** MELANDER, Mon. Empid., 1, 272.—New Bedford, Mass.
- congregaria** MELANDER, Mon. Empid., 1, 272.—Monterey Co., Cal.
Mentioned with *nugax* as "*Hilara* species" by Wheeler, Archiv. f. Entwickelungsmechanik der Organismen, 1899, VIII, 375, where their habit of flying in swarms is discussed.
- femorata** LOEW, Cent., II, 35.—Md.
MELANDER, Mon. Empid., 1, 264.—N. J., Ohio, Wis.
White Mts., N. H.—Slosson; N. J.—Smith Cat.
- gracilis** LOEW, Cent., II, 44.—Pa.
MELANDER, Mon. Empid., 1, 266.
White Mts., N. H.—Slosson; N. J.—Smith Cat.
- johnsoni** COQUILLET, Revis. Empid., 395.—Ala.
MELANDER, Mon. Empid., 1, 268.—Eufala, Ala.
- leucoptera** LOEW, Cent., II, 43.—Fla.
MELANDER, Mon. Empid., 1, 266.
N. J.—Smith Cat.; Charlotte Harbor, Fla.—Johnson.

- lutea** LOEW, Cent., III, 33.—D. C.
MELANDER, Mon. Empid., I, 267. N. J.—Smith Cat.
- macroptera** LOEW, Cent., III, 32.—D. C.
MELANDER, Mon. Empid., I, 267.
- migrata** WALKER, List, III, 491.—Martin Falls, Canada.
MELANDER, Mon. Empid., I, 271, quotes desc.
- mutabilis** LOEW, Cent., II, 40.—Ill.
MELANDER, Mon. Empid., I, 265.
N. J.—Smith Cat.; Saranac Inn, N. Y.—Needham.
- nigriventris** LOEW, Cent., II, 38.—Pa.
MELANDER, Mon. Empid., I, 265.
- nugax** MELANDER, Mon. Empid., I, 273.—Monterey Co., Cal.
See note to *congregaria*.
- plebeia** WALKER, Trans. Ent. Soc., II, ser., IV, 148.—U. S.
MELANDER, Mon. Empid., I, 270, quotes desc.
- quadrivittata** MEIGEN, Syst. Besch., III, 7.—Europe.
SCHINER, Fauna Austr., I, 115.
COQUILLET, Proc. Wash. Acad. Sci., II, 412, oc. at Kukak Bay, Popof Id.,
and Kadiak, all in Alaska.
MELANDER, Mon. Empid., I, 264.
- seriata** LOEW, Cent., V, 63.—White Mts., N. H.
MELANDER, Mon. Empid., I, 268.—N. J.
- testacea** LOEW, Cent., V, 64.—N. H.
MELANDER, Mon. Empid., I, 268.
N. J.—Smith Cat.; New Rochelle, N. Y.—O. S.
- transfuga** WALKER, List, III, 491.—Martin Falls, Canada.
COQUILLET, Proc. Wash. Acad. Sci., II, 411, oc. at Berg Bay and Popof
Id., Alaska.
MELANDER, Mon. Empid., I, 270, quotes desc.
- tristis** LOEW, Cent., V, 62.—N. H.
MELANDER, Mon. Empid., I, 267.
SLOSSON, Ent. News, XIV, 267, habits of adult.
N. J.—Smith Cat.; White Mts., N. H.—Slosson; Axton, N. Y.—M. and
H.
- trivittata** LOEW, Cent., II, 39.—Ill.
MELANDER, Mon. Empid., I, 265 (habits on p. 200).—Central Texas.
White Mts., N. H.—Slosson.
- umbrosa** LOEW, Cent., II, 34.—Ill.
? MELANDER, Mon. Empid., I, 264.—Wood's Hole, Mass., with a doubt.
According to Melander, this is the "*Empis brachystoma* Coq. MSS." of
Smith's N. J. Cat.; notwithstanding that *umbrosa* is also recorded there.
- unicolor** LOEW, Cent., II, 37.—Md.
MELANDER, Mon. Empid., I, 265.—Mass.
Axton, N. Y.—M. and H.
- velutina** LOEW, Cent., II, 36.—D. C.
MELANDER, Mon. Empid., I, 264.
- viridis** COQUILLET, see *Lampremphis*.
- wheeleri** MELANDER, Psyche, June, 1901, 213, figs.—Wyo.
MELANDER, Mon. Empid., I, 270, f. 95, redesc.

OREOGETON.

SCHINER, Wien. Ent. Monatsch., iv, 53, 1860; Fauna Austr., i, 112, 1862.

MELANDER, Mon. Empid., i, 275, def. and table, 1902 (*Gloma* MEIG.—the correction is by Melander in litt.).

The N. A. species have been referred heretofore entirely to *Gloma*.

obscura LOEW, Cent., v, 68.—N. H.

COQUILLET, Proc. Wash. Acad. Sci., II, 412, oc. in Yakutat and Virgin Bay, Alaska.

MELANDER, Mon. Empid., i, 276, f. 93.—Idaho.

White Mts., N. H.—Slosson.

rufa LOEW, Cent., v, 67.—N. H.

MELANDER, Mon. Empid., i, 275.

? *phthia* WALKER, List, III, 492.—Trenton Falls, N. Y.

"Is not a *Gloma*—Loew in litt."—O. S.

scopifera COQUILLET, Proc. Wash. Acad. Sci., II, 412.—Sitka, Alaska.

Melander, Mon. Empid., i, 276.

RAGAS.

WALKER, Entom. Mag., iv, 1837, 229.

SCHINER, Fauna Austr., i, 111, 1862.

MELANDER, Mon. Empid., i, 276, 1902, def. and table of species.

conjuncta COQUILLET, of Melander, see *Empis*.

mabelæ MELANDER, Mon. Empid., i, 277, f. 98.—Moscow, Idaho.

HORMOPEZA.

ZETTERSTEDT, Ins. Lapp., 540, 1840; Dipt. Scand., i, 257, 1842.

SCHINER, Fauna Austr., i, 111, 1862.

MELANDER, Mon. Empid., i, 273, 1902, def. and table of species.

brevicornis LOEW, Cent., v, 65.—Yukon R., Alaska.

MELANDER, Mon. Empid., i, 273, f. 87.—S. D., Idaho, Wyoming.

bullata MELANDER, Mon. Empid., i, 274, f. 88.—Jackson's Lake, Wyo.

nigricans LOEW, Cent., v, 66.—Yukon R., Alaska.

MELANDER, Mon. Empid., i, 275.—Moscow, Idaho.

LAMPREMPIS.

WHEELER and MELANDER, Biologia, Dipt., i, 366, 1902 (subg. of *Empis*).

MELANDER, Mon. Empid., i, 1902, 278, as separate genus; table of species.

benigna OSTEN SACKEN, Biologia, Dipt., i, 215 (*Empis*).—Ciudad in Durango, Mex.

MELANDER, Mon. Empid., i, 281.

chichimeca WHEELER and MELANDER, Biologia, Dipt., i, 368.—Amula in Guerrero, Mex.

MELANDER, Mon. Empid., i, 280, redesc.

cyanea BELLARDI, Saggio, II, 98 (*Empis*).—Mex.

WHEELER and MELANDER, Biologia, Dipt., i, 367.—Guerrero, Mex.

MELANDER, Mon. Empid., i, 280, additional desc.

diaphorina OSTEN SACKEN, Biologia, Dipt., i, 215 (*Empis*).—Ciudad in Durango, Mex.

MELANDER, Mon. Empid., i, 281.

setigera COQUILLET, Proc. Ent. Soc. Wash., v, 272.—Baracoa, Cuba.

suavis LOEW, Cent., VIII, 56 (*Empis*).—Mex.

- WHEELER and MELANDER, *Biologia, Dipt.*, 1, 368, oc. in Chilpancingo, Guerrero, Mex.
 MELANDER, *Mon. Empid.*, 1, 280, redesc.
superba LOEW, *Wien. Ent. Monatsch.*, v, 36 (*Empis*); *Cent.*, VIII, 57 (id.).—Cuba.
 MELANDER, *Mon. Empid.*, 1, 279.
violacea LOEW, *Cent.*, VIII, 55 (*Empis*).—Mex.
 ? MELANDER, *Mon. Empid.*, 1, 278, f. 103, 104, doubtfully identified.—Mex.
viridis COQUILLETT, *Revis. Empid.*, 395 (*Hilara*).—Jamaica.
 MELANDER, *Mon. Empid.*, 1, 269 (id.).—Jamaica. (Gen. ref. by Melander, in litt.)

ITEAPHILA.

- ZETTERSTEDT, *Ins. Lapp.*, 541, 1840; *Dipt. Scand.*, 1, 258, 1842.
 LOEW, *Beschreib. Europ. Dipteren*, II, 250, 1871.
 SCHINER, *Fauna Austr.*, 1, 110, 1862.
 MELANDER, *Mon. Empid.*, 1, 331, 1902.
macquartii ZETTERSTEDT, *Ins. Lapp.*, 541; *Dipt. Scand.*, 1, 258.—N. Sweden.
 OSTEN SACKEN, *Cat.*, 101, oc. in N. A.—White Mts., N. H., and Quebec.
 MELANDER, *Mon. Empid.*, 1, 331.
orchestris MELANDER, *Mon. Empid.*, 1, 354.—Las Vegas Range, N. M.
 ? **peregrina** MELANDER, *Mon. Empid.*, 1, 331, f. 97.—San Diego Co., Cal.; query by Mel.

MICROPHORUS.

- MACQUART, *Dipt. Nord France*, 140, 1827; *Hist. Nat. Dipt.*, 1, 345, 1834.
 MEIGEN, *Syst. Besch.*, VI, 335, 1830 (*Trichina*).
 SCHINER, *Fauna Austr.*, 1, 79, 1862.
 LOEW, *Schles. Zeit. f. Ent.*, 1863.
 MELANDER, *Mon. Empid.*, 1, 332, 1902 (in litt. he includes his species of *Holoclera* also).
Note.—There is great divergence of views between Coquillett and Melander as to the limits of *Microphorus*, *Anthalia*, and *Euthyneura*. Coquillett, in *Proc. Ent. Soc. Wash.*, v, 263, has distributed the species according to his ideas. I have been guided mainly by Melander's views, communicated to me in letters.
atratus COQUILLETT, see *Euthyneura*.
bilineatus MELANDER, *Mon. Empid.*, 1, 334, f. 99 (*Holoclera*).—Opelousas, La.
crocatus COQUILLETT, see *Euthyneura*.
drapetooides WALKER, *List*, III, 489.—Martin Falls, Canada.
 MELANDER, *Mon. Empid.*, 1, 332, quotes desc.
flavipilosus COQUILLETT, see *Euthyneura*.
gilvihirtus COQUILLETT, see *Euthyneura*.
obscurus COQUILLETT, *Proc. Wash. Ent. Soc.*, v, 268.—Franconia, N. H.
palliatius COQUILLETT, *Jour. N. Y. Ent. Soc.*, x, 140 (*Sciodromia*).—Tabasco, Mex.
ravidus COQUILLETT, *Revis. Empid.*, 409.—S. Cal.
 MELANDER, *Mon. Empid.*, 1, 333 (*Holoclera*).
sycophantor MELANDER, *Mon. Empid.*, 1, 334 (*Holoclera*).—Idaho.

EUTHYNEURA.

- MACQUART, *Annales*, 1836, 517.
 SCHINER, *Fauna Austr.*, 1, 82, 1862.

- MELANDER, Mon. Empid., 1, 256, def. and table, 1902; the latter amended, p. 347; in litt. includes *Anthalia* as a synonym, following Schiner.
- COQUILLET, Proc. Ent. Soc. Wash., v, 263, 1903, radically disagrees and does not recognize the genus from North America.
- aperta** MELANDER, Mon. Empid., 1, 348.—Cloudercroft, N. M.
- atrata** COQUILLET, Proc. Wash. Acad. Sci., 11, 412 (*Microphorus*): Proc. Ent. Soc. Wash., v, 263, refers to *Anthalia*.—Kadiak, Alaska.
- MELANDER, Mon. Empid., 1, 333 (*Holocera*).
- atripes** MELANDER, Mon. Empid., 1, 349.—Los Angeles Co., Cal.
- bucinator** MELANDER, Mon. Empid., 1, 348.—Pa.
- bulbosa** MELANDER, Mon. Empid., 1, 349.—Chester Co., Pa.
- crocata** COQUILLET, Proc. Wash. Acad. Sci., 11, 413 (*Microphorus*).—Sitka.
- Gen. ref. by Melander, in litt.
- flava** COQUILLET, Proc. Ent. Soc. Wash., v, 268 (*Anthalia*).—Mt. Washington, N. H.
- SLOSSON, Ent. News, xiv, 266, habits of adult.
- flavipilosa** COQUILLET, Proc. Wash. Acad. Sci., 11, 413 (*Microphorus*); Proc. Ent. Soc. Wash., v, 263, same gen. ref.—Lowe Inlet, Br. Col.
- MELANDER, Mon. Empid., 1, 257.
- gilvihirta** COQUILLET, Proc. Ent. Soc. Wash., v, 268 (*Microphorus*).—Francodia, N. H.
- Gen. ref. by Melander, in litt.
- nura** MELANDER, Mon. Empid., 1, 349.—Mass.
- stentor** MELANDER, Mon. Empid., 1, 348.—Cloudercroft, N. M.
- stigmalis** COQUILLET, Proc. Ent. Soc. Wash., v, 268 (*Anthalia*).—Port Renfrew, B. C.

CYRTOMA.

- MEIGEN, Syst. Besch., iv, 1, 1824.
- SCHINER, Fauna Austr., 1, 76, 1862.
- MELANDER, Mon. Empid., 1, 335, 1902, def. and table of species.
- COQUILLET, Proc. Ent. Soc. Wash., v, 246, proposes to replace *Cyrtoma* with *Bicellaria* MACQ. I do not feel sure of his data, and hence make no change.
- femorata** LOEW, Cent., v, 69.—N. H.
- MELANDER, Mon. Empid., 1, 335.
- halteralis** LOEW, Cent., 11, 46.—D. C.
- MELANDER, Mon. Empid., 1, 335.—Wis.
- longipes** LOEW, Cent., 11, 47.—Ill.
- MELANDER, Mon. Empid., 1, 336, f. 71.—Mass., N. H., Wis., Ill., Wyo., N. M.
- White Mts., N. H.—Slosson; Pa.—O. S.
- pilipes** LOEW, Cent., 11, 48.—Ill.
- COQUILLET, Proc. Wash. Acad. Sci., 11, 412, oc. in Kukak Bay and Popof Id., Alaska.
- MELANDER, Mon. Empid., 1, 336.
- White Mts., N. H.—Slosson.
- procera** LOEW, Cent., v, 70.—Sitka, Alaska.
- MELANDER, Mon. Empid., 1, 335.

RHAMPHOMYIA.

- MEIGEN, Syst. Besch., III, 42, 1822.
- SCHINER, Fauna Austr., 1, 96, 1862.

- COQUILLET, Revis. Empid., 410, 1895, table of species; in Proc. Ent. Soc. Wash., v, 252, he proposes to substitute *Macrostomus* WIED. for *Rhamphomyia*. I do not adopt this, as there is considerable risk of error in the old determination upon which it depends.
- abdita** COQUILLET, Revis. Empid., 430.—Wash.
- adversa** COQUILLET, Proc. Wash. Acad. Sci., II, 418.—Sitka, Yakutat, and Orca, Alaska.
- agasicles** WALKER, List, III, 499.—Martin Falls, Canada.
- albata** COQUILLET, Proc. U. S. N. M., XXV, 103.—Williams, Ariz.
- albipilosa** COQUILLET, Proc. Wash. Acad. Sci., II, 418.—Berg Bay, Alaska.
- americana** WIEDEMANN, AUSS. ZW., II, 8.—N. A.
- amplicella** COQUILLET, Revis. Empid., 431.—S. Cal.
- amplipedis** COQUILLET, Revis. Empid., 422.—Mass.
- anaxo** WALKER, List, III, 500.—Martin Falls, Canada.
- angustipennis** LOEW, Cent., I, 55.—N. Y. N. J.—Smith Cat.
- anthracodes** COQUILLET, Proc. Wash. Acad. Sci., II, 420.—Metlakahtla and Sitka, Alaska.
- aperta** LOEW, Cent., II, 27.—Ill.
- arcuata** COQUILLET, Revis. Empid., 421.—Mass.
- atrata** COQUILLET, Proc. Wash. Acad. Sci., II, 420.—Sitka.
- avida** COQUILLET, Revis. Empid., 425.—Mass.
- barypoda** COQUILLET, Proc. Wash. Acad. Sci., II, 417.—Sitka, Yakutat, Virgin Bay, and Kadiak, Alaska.
- basalis** LOEW, Cent., V, 54.—N. H.
- COQUILLET, Revis. Empid., 410, desc. of male, etc.—N. H.
- bifilata** COQUILLET, Revis. Empid., 424.—Cal.
- brevis** LOEW, Cent., I, 52.—D. C.
- californica** COQUILLET, Revis. Empid., 420.—Cal.
- candicans** LOEW, Cent., V, 61.—N. H. N. J.—Smith Cat.
- ciliata** COQUILLET, Revis. Empid., 428.—N. H.
- cilipes** SAY, Jour. Acad. Sci. Phil., III, 95; Compl. Works, III, 83 (*Empis*).—Ohio.
- WIEDEMANN, AUSS. ZW., II, 7.
- cinefacta** COQUILLET, Proc. Wash. Acad. Sci., II, 419.—Sitka.
- cineracea** COQUILLET, Proc. Wash. Acad. Sci., II, 416.—Sitka, Kukak Bay, Popof Id., and Juneau, Alaska.
- clauda** COQUILLET, Proc. U. S. N. M., XXIII, 610.—Clementon, N. J.; Mt. Washington, N. H.
- clavator** COQUILLET, Proc. U. S. N. M., XXIII, 611, correction and change of name; Proc. Wash. Acad. Sci., II, 421 (*macrura*, preoc.).—Sitka, Yakutat, Virgin Bay, Orca, all in Alaska.
- clavigera** LOEW, Cent., I, 53.—N. Y.
- colorata** COQUILLET, Revis. Empid., 420.—Texas.
- compta** COQUILLET, Revis. Empid., 423.—U. S. N. J.—Smith Cat.
- conjuncta** LOEW, Cent., I, 56.—D. C.
- cophas** WALKER, List, III, 499.—N. Y.
- corvina** LOEW, Cent., I, 51.—N. Y.
- COQUILLET, Proc. Wash. Acad. Sci., II, 414, oc. in Alaska, D. C., Pa., and N. C.
- crassinervis** LOEW, see *sordida*.
- cyanogaster** WHEELER and MELANDER, Biologia, Dipt., I, 371.—Omiteme in Guerrero, Mex.

- dana* WALKER, List, III, 502.—Martin Falls, Canada.
- daria* WALKER, List, III, 503.—N. Y.
- debilis* LOEW, Cent., I, 45.—Saskatchewan R., Canada.
- dimidiata* LOEW, Cent., I, 36.—Md., Mass.
- disparilis* COQUILLET, Proc. Wash. Acad. Sci., II, 415.—Yakutat and Virgin Bay, Alaska.
- diversa* COQUILLET, Proc. U. S. N. M., XXIII, 611.—Clementon, N. J.
- duplicis* COQUILLET, Revis. Empid., 424.—Cal.
- ecetra* WALKER, List, III, 500.—Ga.
- effera* COQUILLET, Revis. Empid., 427.—Locality omitted.
- exigua* LOEW, Cent., II, 32.—D. C., Ill.
- expulsa* WALKER, Trans. Ent. Soc., n. ser., IV, 148.—U. S. White Mts., N. H.—Slosson.
- ficana* WALKER, List, III, 501.—Martin Falls, Canada.
- fimbriata* COQUILLET, Revis. Empid., 429.—Cal.
- flavirostris* WALKER, List, III, 501.—Martin Falls, Canada. Alaska—Coquillett.
- flexuosa* COQUILLET, Revis. Empid., 433.—Col.
- frontalis* LOEW, Cent., II, 28.—Ill.
- fumosa* LOEW, Cent., I, 39.—N. Y., D. C.
- furcifer* WHEELER and MELANDER, Biologia, Dipt., I, 371.—Omiteme in Guerrero, Mex.
- geniculata* BIGOT, Annales, 1889, 134.—Cal.
 "Proc. and better be cancelled"—Coq., Rev. Emp., 410.
- gilvipes* LOEW, Cent., I, 48.—N. Y., Ill. White Mts., N. H.—Slosson.
- gilvipilosa* COQUILLET, Revis. Empid., 434.—Ill.
- glabra* LOEW, Cent., I, 41.—Va., Ill. D. C.—O. S.; N. J.—Smith Cat.
- glaucua* COQUILLET, Proc. Wash. Acad. Sci., II, 416.—Metlakahla and Berg Bay, Alaska.
- gracilis* LOEW, Cent., I, 43.—Pa. N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- hirtipes* LOEW, Cent., V, 59.—N. H.
- hirtula* ZETTERSTEDT, Dipt. Scand., I, 421, obs.—Greenland.
 LUNDBECK, Dipt. Greenl., I, 298, full desc.—Greenland.
- impedita* LOEW, Cent., II, 31.—Ill., D. C.
- incompleta* LOEW, Cent., III, 31.—D. C.
- insecta* COQUILLET, Revis. Empid., 426.—Texas.
- irregularis* LOEW, Cent., V, 60.—N. H.
 COQUILLET, Proc. Wash. Acad. Sci., II, 414, oc. in Col. and Kukak Bay, Alaska.
- laevigata* LOEW, Cent., I, 37.—Nebr. Montreal—Chagnon.
- leucoptera* LOEW, Cent., I, 62.—D. C. N. J.—Smith Cat.
- limata* COQUILLET, Proc. Wash. Acad. Sci., II, 417.—Popof Id., Alaska.
- limbata* LOEW, Cent., I, 60.—D. C.
 COQUILLET, Proc. Wash. Acad. Sci., II, 414, oc. in Alaska and Ill.
 See *Mcgacyttarus argenteus* BIGOT.
- liturata* LOEW, Cent., I, 61.—D. C.
- longicauda* LOEW, Cent., I, 38.—D. C. N. J.—Smith Cat.
- longicornis* LOEW, Cent., I, 47.—D. C.
- longipennis* LOEW, Cent., I, 46.—D. C. White Mts., N. H.—Slosson.
- loripedis* COQUILLET, Revis. Empid., 419.—Cal.
- luctifera* LOEW, Cent., I, 50.—N. Y.
- luctuosa* LOEW, Cent., II, p. 290, change of name; Cent., II, 30 (*lugens*, preoc.).
 —Cal.

- luteiventris* LOEW, Cent., v, 57.—N. H. N. J.—Smith Cat.
- macilenta* LOEW, Cent., v, 55.—N. H. N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- macrura* COQUILLET, see *clavator*.
- mallos* WALKER, List, III, 502.—Martin Falls, Canada.
- manca* COQUILLET, Revis. Empid., 427.—N. C.
HOWARD, Proc. Wash. Acad. Sci., II, 561, note on habits. N. J.—Smith Cat.
- minytus* WALKER, List, III, 502.—Martin Falls, Canada.
N. J.—Smith Cat.; Alaska—Coq.
- mutabilis* LOEW, Cent., II, 26.—Ill. White Mts., N. H.—Slosson.
- nana* LOEW, Cent., I, 64.—Md. N. J.—Smith Cat.
- nasoni* COQUILLET, Revis. Empid., 423.—Ill.
- nigricans* LOEW, Cent., v, 58.—N. H. White Mts., N. H.—Slosson.
Axton, N. Y.—M. and H.
- nigrita* ZETTERSTEDT, Ins. Lapp., 567.—Europe.
STÆGER, Grœnl. Antl., 357, oc. in Greenland.
HOLMGREN, Ins. Nordgrœnl., 100, same.
FABRICIUS, O., Fauna Grœnl., 211 (*Empis borealis*).—Greenland.
[Schïödt.]
- nigrita* BIGOT, Annales, 1889, 133.—Cal.
COQUILLET, Revis. Empid., 410, note.
- nitidivittata* MACQUART, Dipt. Exot., Suppl., I, 97.—Galveston, Tex.
- otiosa* COQUILLET, Revis. Empid., 425.—Col.
- pachymera* BIGOT, Annales, 1889, 133.—Cal.
COQUILLET, Revis. Empid., 410, note.
- parva* COQUILLET, Rev. Empid., 433.—Mass.
- pectinata* LOEW, Cent., I, 49.—D. C.
- pectoris* COQUILLET, Revis. Empid., 420.—St. Catharine Id., Ga.
- phemius* WALKER, List, III, 500.—Martin Falls, Canada.
- piligeronis* COQUILLET, Revis. Empid., 432.—Ill.
- polita* LOEW, Cent., II, 29.—Ill., D. C. N. J.—Smith Cat.
- priapululus* LOEW, Cent., I, 54.—Md. N. J.—Smith Cat.
- pulchra* LOEW, Cent., I, 40.—N. Y. N. J.—Smith Cat.
- pulla* LOEW, Cent., I, 44.—Conn. N. J.—Smith Cat.; Montreal—Chagnon.
SLOSSON, Ent. News, XIV, 265, habits of adult.
- pusio* LOEW, Cent., I, 63.—Md. N. J.—Smith Cat.
- quinquelineata* SAY, Jour. Acad. Sci. Phil., III, 95; Compl. Works, II, 82 (*Empis*).—Ind.
WIEDEMANN, Auss. Zw., II, 7.
- rava* LOEW, Cent., II, 25.—Ill.
COQUILLET, Revis. Empid., 410, notes.
- ravida* COQUILLET, Revis. Empid., 418.—Ill., Tex., N. M.
- rufrostris* SAY, Jour. Acad. Sci. Phil., III, 159; Compl. Works, II, 355.—Ind.
- rustica* LOEW, Cent., v, 56.—N. H. Montreal—Chagnon; White Mts., N. H.—Slosson. Axton, N. Y.—M. and H.
- scaurissima* WHEELER, Ent. News, VII, 189, figs.—Cal.
- scolopacea* SAY, Jour. Acad. Sci. Phil., III, 96; Compl. Works, II, 83 (*Empis*).—Pa.
WIEDEMANN, Auss. Zw., II, 8. N. J.—Smith Cat.
- scutellaris* COQUILLET, Revis. Empid., 429.—N. Cal.
- sellata* LOEW, Cent., I, 42.—D. C.

- setosa** COQUILLET, Revis. Empid., 426; Proc. Wash. Acad. Sci., II, 419, oc. in Alaska, and correction of orig. desc.—N. H.; Alaska, several places.
White Mts., N. H.—Slosson.
- soccata** LOEW, Cent., I, 67.—Miss.
- sociabilis** WILLISTON, Kans. Univ. Quart., II, 76 (*Empis*).—Wash.
Common in N. Idaho; is a *Rhamphomyia*—J. M. A.
- sordida** LOEW, Cent., I, 58; *ibid.*, 59 (*crassinervis*).—D. C.; N. Y. [Coq.]
- stylata** COQUILLET, Revis. Empid., 432.—Cal.
- sudigeronis** COQUILLET, Revis. Empid., 431.—Cal.
- tersa** COQUILLET, Revis. Empid., 422.—N. H. N. J.—Smith Cat.
- testacea** LOEW, Cent., II, 24.—Ill. Md., D. C.—O. S.
- tolteca** WHEELER and MELANDEP, Biologia, Dipt., I, 371.—Guerrero, Mex.
- tristis** WALKER, Trans. Ent. Soc., n. ser., IV, 148.—U. S.
- umbilicata** LOEW, Cent., I, 65, 66 (*umbilicata* and *ungulata*).—Pa., Me.; Me.
"Umbilicata is wrongly attributed to Mexico in the Centuries"—O. S.
SLOSSON, Ent. News, XIV, 268, habits of adult.
- umbrosa** LOEW, Cent., V, 53.—N. H. Montreal—Chagnon; Province of Quebec
—Fyles.
- unimaculata** LOEW, Cent., II, 33.—Ill. D. C.—O. S.
- valga** COQUILLET, Revis. Empid., 428.—N. H.
- vara** LOEW, Cent., I, 57.—Nebr. N. J.—Smith Cat.
- villipes** COQUILLET, Proc. Wash. Acad. Sci., II, 414.—Popof Id., Alaska.
- virgata** COQUILLET, Revis. Empid., 430.—Mass.
Axton, N. Y.—M. and H.
- vittata** LOEW, Cent., II, 23.—Ill. N. J.—Smith Cat.; S. D.—J. M. A.

NEOCOTA.

- COQUILLET, Revis. Empid., 434, 1895.
- weedii** COQUILLET, Revis. Empid., 434.—Miss.

LONCHOPTERIDÆ.

LONCHOPTERA.

- MEIGEN, Illig. Mag., II, 272, 1803; Syst. Besch., IV, 105, 1824.
- ZETTERSTEDT, Dipt. Scand., VII, 2800, 1848.
- SCHINER, Fauna Austr., I, 243, 1862.
- lutea** PANZER, Fauna Germ., CVIII, 20.—Europe.
- MEIGEN, Syst. Besch., IV, 107, 108 (the latter *rivalis*).
- SCHINER, Fauna Austr., I, 243.
- OSTEN SACKEN, Cat., 103, oc. in N. A.
- MEIJERE, Zool. Jahrb., 14, vol. V, 87-132, 3 pl.; full discussion of the larva
(abstract in Illus. Zeitsch. f. Ent., VI, 61, 1901).
N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- punctum** MEIGEN, Syst. Besch., IV, 110.—Europe.
WALKER, Ins. Brit., I, 223.
SCHINER, Fauna Austr., I, 244.
WEBSTER, Canad. Ent., 1900, 213, oc. in Ohio.
- riparia** MEIGEN, Syst. Besch., IV, 108.—Europe.
SCHINER, Fauna Austr., I, 244, notes.
OSTEN SACKEN, Cat., 118, oc. in N. A.
N. J.—Smith Cat.

PHORIDÆ.

- BECKER, Die Phoriden, in Abhandlungen d. K. K. Zool.-Bot. Ges., 1, 1-100, 5 plates, 1901, is an admirable monograph of the European members of the family.
- BRUES, Monograph of the N. A. Phoridæ, in Trans. Amer. Ent. Soc., xxix, 331-404, 5 plates, describes the genera of the world and all the N. A. species, with a new generic arrangement. It is dated 1903, but really appeared in January, 1904. This would exclude it from the present catalogue, which closes with Jan. 1, 1904, but I deem it necessary to make an exception here, in order to avoid having this part of the work out of date on publication. There are full tables of genera and species, etc.; it is a very valuable work.
- OSTEN SACKEN, Ent. Mo. Mag., sec. ser., xiii, 204, 1902, discusses the position of this family.

PHORA.

- LATREILLE, Précis. car. gén. Ins., 1796; Hist. nat. Crust. et Ins., iii, 464, 1802, and xiv, 394, 1804. In 1802 he gives *Musca aterrima* as type.
- MEIGEN, Syst. Besch., vi, 210, 1830, inclusive of *Trincura*.
- SCHINER, Fauna Austr., ii, 335, 1864.
- ALDRICH, Canad. Ent., xxiv, 142, 1892.
- COQUILLET, Canad. Ent., xxvii, 104, 1895.
- LINTNER, 10th N. Y. Rept., 404, 1895, literature of *Phora*.
- WICKHAM, Canad. Ent., xxvi, 41, rearing of *Phora* sp. from pupa of *Tropisternus glaber*.
- BRUES, Mon. Phoridæ, 339, 1904, def. and table of species, in restricted sense.
- cimbicis* ALDRICH, Canad. Ent., xxiv, 143, fig.—Brookings, S. D.; reared from cocoons of *Cimbea americana*.
- BRUES, Mon. Phoridæ, 348, f. 15.—Mass.; Toronto, Can.
- comstocki* ALDRICH in Brues, Mon. Phoridæ, 346, f. 12.—Ithaca, N. Y.
- cornuta* BIGOT, in Sagra's Cuba, 827.—Cuba.
- divaricata* ALDRICH, Trans. Ent. Soc. Lond., 1896, 437.—St. Vincent, W. I.
- BRUES, Mon. Phoridæ, 349, types redesc.; oc. in Granada, W. I.
- var. *perplexa* BRUES, Mon. Phoridæ, 350.—Ga., Fla. This is the *Phora incisuralis* of Coquillett, Canad. Ent., xxvii, 104. [Brues.]
- fratercula* BRUES, Mon. Phoridæ, 341, f. 3.—Jackson's Lake, Wyo.
- grœnlandica* LUNDBECK, Dipt. Grœnland., ii, 307, fig.—Greenland.
- BRUES, Mon. Phoridæ, 350, transl. and fig. reproduced.
- incisuralis* LOEW, Cent., vii, 98.—D. C.
- JOHNSON, Dipt. of Florida, oc. and note on female.—Tick Id., Fla.
- BRUES, Mon. Phoridæ, 348, f. 6.—Fla., Ga., La.
- luggeri* ALDRICH, Canad. Ent., xxiv, 145, fig.—Miss.
- BRUES, Mon. Phoridæ, 347, f. 13.—Kans., Pa., Mass.
- microcephala* LOEW, Cent., vii, 96.—D. C.
- BRUES, Mon. Phoridæ, 342, type redesc.
- multiseriata* ALDRICH in Brues, Mon. Phoridæ, 345, f. 9 and 10.—Lawrence, Kans.; Ithaca, N. Y.
- nitidifrons* BRUES, Mon. Phoridæ, 347, f. 14.—Mass., N. Y., Pa.
- olympicæ* ALDRICH in Brues, Mon. Phoridæ, 344, f. 6.—Olympia, Wash.
- pachyneura* LOEW, Cent., vii, 97.—Alaska.
- BRUES, Mon. Phoridæ, 341, f. 12.—Idaho, Wis., Wash., Montreal.
- scutellata* BRUES, Mon. Phoridæ, 344, f. 8 and 11.—Grenada, W. I.

- spinipes** COQUILLET, *Canad. Ent.*, xxvii, 105.—Comm.
BRUES, *Mon. Phoridae*, 343, f. 5, 6.—Moscow, Ida.; Wash. Ohio—Webster.
- thoracica** MEIGEN, *Klassif.*, 313 (*Trincura*); *Syst. Besch.*, vi, 214.—Europe.
FALLÉN, *Phytomyzides*, 6 (*Trincura*).
ZETTERSTEDT, *Ins. Lapp.*, 795 (id.); *Dipt. Scand.*, vii, 2852 (id.).
SCHINER, *Fauna Austr.*, ii, 342.
BECKER, *Die Phoriden*, 20.
BRUES, *Mon. Phoridae*, 342, f. 4, desc. and oc. in N. A.—White Mts., N. H.
- venusta** COQUILLET, *Canad. Ent.*, xxvii, 107.—Mass.
BRUES, *Mon. Phoridae*, 346, desc. quoted.

HYPOCERA.

- LLOY, *Atti Inst. Venet.*, 1864, 78 (*Hypocera* and *Gymnocera*).
BRUES, *Mon. Phoridae*, 351, 1901, def. and table of species.
- clavata** LOEW, *Cent.*, vii, 95 (*Phora*).—D. C.
MOTTER, *Jour. N. Y. Ent. Soc.*, vi, 223, oc. in human graves (*Phora*).
BRUES, *Mon. Phoridae*, 355, f. 22, 23.—N. H., Mass., Pa., Kans.
- ehrmanni** ALDRICH in BRUES, *Mon. Phoridae*, 353, f. 20.—Pittsburgh, Pa.
- femorata** MEIGEN, *Syst. Besch.*, vi, 213 (*Phora femorata* and *flucimana*).—Europe.
ZETTERSTEDT, *Dipt. Scand.*, vii, 2886 (*Trincura*).
SCHINER, *Fauna Austr.*, ii, 339 (id.).
SLOSSON, *Ent. News*, oc. in N. A.—White Mts., N. H. (id.).
BECKER, *Die Phoriden*, 41 (id.).
HOWARD, *Proc. Wash. Acad. Sci.*, ii, 598, oc. and note (*Phora*).—W. Va.
BRUES, *Mon. Phoridae*, 354, f. 21.—N. H., Mass., R. I.
- grenadensis** BRUES, *Mon. Phoridae*, 356, f. 24.—Grenada, W. I.
- johnsoni** BRUES, *Mon. Phoridae*, 352, f. 18, 19.—Riverton, N. J.
- mordellaria** FALLÉN, *Phytomyzides*, 6 (*Trincura*).—Europe.
MEIGEN, *Syst. Besch.*, vi, 212 (*Phora*).
MACQUART, *Hist. Nat. Dipt.*, ii, 630 (id.).
ZETTERSTEDT, *Dipt. Scand.*, vii, 2883 (*Trincura*).
SCHINER, *Fauna Austr.*, ii, 339 (*Phora*).
COQUILLET, *Canad. Ent.*, xxvii, 104, oc. in N. A. (id.).
BECKER, *Die Phoriden*, 40 (id.).
BRUES, *Mon. Phoridae*, 355, not seen from N. A.

APHIOCHÆTA.

- BRUES, *Mon. Phoridae*, 337, 357, 1904, diagnosis and table of species; the definition of the genus is accidentally omitted.
- agarici** LINTNER, 10th N. Y. Report, 399, 406, plate (*Phora*).—N. Y.; the larvæ feed in edible mushrooms, *Agaricus* spp.
ALDRICH, *Canad. Ent.*, xxiv, 141, fig. (*Phora setacca*, female; the male being a different species, retains the name *setacca*).—Brookings, S. D.; larvæ reared from cocoons of *Cimbex americana*.
BRUES, *Mon. Phoridae*, 369, f. 41, no locality.
N. J.—Smith Cat.
- albidihalteris** FELT, in Lintner's 12th N. Y. Rept., 228 (*Phora*).—New Brunswick, N. J.; reared from mushrooms.
BRUES, *Mon. Phoridae*, 368.—N. J.
- atlantica** BRUES, *Mon. Phoridae*, 362, f. 30.—N. J., Pa., Mass.

- aurea** ALDRICH, Trans. Ent. Soc. Lond., 1896, 437 (*Phora*).—St. Vincent, W. I.
COQUILLET, Proc. U. S. N. M., XXII, 253, oc. in Porto Rico (*Phora*).
BRUES, Mon. Phoridae, 365, f. 35.—Grenada, W. I.
Lawrence, Kans., shown me by Kahl.
- cata** MELANDER and BRUES, Biol. Bull., v, 16, f. 5 (*Phora*).—Woods Hole, Mass.,
breeding in nests of *Halictus pruinosus* RBTSN.
BRUES, Mon. Phoridae, 371, desc. quoted.
- epeiræ** BRUES, Psyche, June, 1902, 351, fig. (*Phora*); Mon. Phoridae, 358, f. 25.
—Austin, Texas, bred from eggs of a spider, *Epeira* sp.; La., Fla., Pa.
- fasciata** FALLÉN, Phytomyzides, 7 (*Trincura*).—Europe.
ZETTERSTEDT, Dipt. Scand., vii, 2879 (id.).
CURTIS, Brit. Entom., 437 (*Phora atricapilla*). [Schiner.]
SCHINER, Fauna Austr., II, 344 (*Phora*).
COQUILLET, Canad. Ent., XXVII, 104, oc. in N. A. (*Phora*).
BECKER, Die Phoriden, 50 (*Phora*).
BRUES, Mon. Phoridae, 360, desc.; not seen from N. A.
N. J.—Smith Cat.; White Mts., N. H.—Slosson; Fla.—Johnson; St. Vincent, W. I.—Aldrich.
- flava** FALLÉN, Phytomyzides, 7 (*Trincura*).—Europe.
ZETTERSTEDT, Dipt. Scand., vii, 2876 (*Trincura*).
SCHINER, Fauna Austr., II, 343 (*Phora*).
BECKER, Die Phoriden, 54 (id.).
BRUES, Mon. Phoridae, 361, f. 29.—Wis., N. J.
- fungicola** COQUILLET, Canad. Ent., XXVII, 106 (*Phora*); Proc. Wash. Acad. Sci.,
II, 437, oc.—Las Cruces, N. M., bred from the fungus *Trametes pecki*;
Alaska and N. J.
N. J.—Smith Cat.; White Mts., N. H.—Slosson; St. Vincent, W. I.—
Aldrich.
- furtiva** ALDRICH, Trans. Ent. Soc. Lond., 1896, 436 (*Phora*).—St. Vincent, W. I.
BRUES, Mon. Phoridae, 367, f. 39.—St. Vincent, W. I.
- giraudii** EGGER, Verh. Zool.-Bot. Ges., 1862, 1235 (*Phora*).—Europe; reared
from cocoons of *Cimbex variabilis*.
SLOSSON, Ent. News, vi, 7, oc. in N. A.—White Mts., N. H. (id.).
BECKER, Die Phoriden, 58 (id.).
BRUES, Mon. Phoridae, 366, desc.; not seen from N. A.
- halictorum** MELANDER and BRUES, Biol. Bull., v, 14, 1902 (*Phora*).—Woods Hole,
Mass., breeding in nests of *Halictus pruinosus* RBTSN.
BRUES, Mon. Phoridae, 366, f. 37.
- lutea** MEIGEN, Syst. Besch., VI, 219, 220 (*Phora sutphuripes, bicolor, flava,*
lutea).—Europe. [Becker.]
FALLÉN, Phytomyzides, 7 (var. of *Trincura flava*).
MACQUART, Hist. Nat. Dipt., II, 628 (*Phora*).
ZETTERSTEDT, Ins. Lapp., 797 (*Trincura*); Dipt. Scand., II, 2877 (id.).
BECKER, Die Phoriden, 54 (*Phora*).
BRUES, Mon. Phoridae, 362, f. 31, oc. in N. A. and desc.—Opelousas, La.;
Wis.
- magnipalpis** ALDRICH, Trans. Ent. Soc. Lond., 1896, 438 (*Phora*).—St. Vincent,
W. I.
BRUES, Mon. Phoridae, 365, f. 36.—Grenada, W. I.
- minuta** ALDRICH, Canad. Ent., XXIV, 146, fig. (*Phora*).—Brookings, S. D.; bred
from cocoons of *Cimbex americana*.
BRUES, Mon. Phoridae, 366, f. 38.—Mass., N. J., N. Y., Ohio, Ida., Cal.
White Mts., N. H.—Slosson.

- nigriceps** LOEW, Cent., VII, 99 (*Phora*).—D. C.
 COMSTOCK, Dept. Agr. Rept., 1879, 208-211 (*Phora aleticæ*).—Southern States; reared from pupæ of the Cotton Worm, *Aletia argillacea*.
 RILEY, 4th Rept. U. S. Ent. Comm., 116-119, discusses habits—not a parasite (*Phora aleticæ*).
 ALDRICH, 21st Report Dept. Geol. Ind., 1896, 190, oc. in cavern in Ind. (*Phora*).
 BRUES, Mon. Phoridae, 363, f. 34.—Mass., Ill., Tenn., N. Y., Texas; in Texas bred from an artificial nest of *Pogonomyrmex barbatus* by Dr. Wm. M. Wheeler.
- obscura** BRUES, Mon. Phoridae, 360, f. 27.—St. Vincent, W. I.
- picta** LEHMANN, Hamb. Observ., 1822, 43, pl. I, f. 6 (*Phora*).—Europe.
 ZETTERSTEDT, Ins. Lapp., 797 (*Trincura interrupta*); Dipt. Scand., VII, 2878 (id.). [BERGROTH, Wien. Ent. Zeit., 1896, 112.]
 SCHINER, Fauna Austr., II, 337 (*Phora interrupta*).
 COQUILLET, Canad. Ent., XXVII, 104, oc. in N. A. (*Phora interrupta*).
 BECKER, Die Phoriden, 52 (*Phora*).
 BRUES, Mon. Phoridae, 361, f. 28.—Wis.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson; St. Vincent, W. I.—Aldrich.
- pulicaria** FALLÉN, Phytomyzides, 7 (*Trincura*).—Europe.
 MEIGEN, Syst. Besch., VI, 217 (*Phora*).
 ZETTERSTEDT, Ins. Lapp., 795 (*Trincura*); Dipt. Scand., VII, 2859 and 2873 (*Trincura pulicaria* and *pumila*).
 SCHINER, Fauna Austr., II, 341 (*Phora*).
 STROBL, Wien. Ent. Zeitung, XI (*Phora pulicaria, nigra, luctuosa, pumila*). [Becker.]
 BECKER, Die Phoriden, 62 (*Phora*).
 BRUES, Mon. Phoridae, 371, f. 45, oc. in N. A. and desc.—Mass., La., S. D., Ida., Cal.
- pygmaea** ZETTERSTEDT, Dipt. Scand., VII, 2860 (*Trincura*).—Europe.
 EGGER, Verh. Zool.-Bot. Ges., 1862, 1236 (*Phora brachyneura*).
 SCHINER, Fauna Austr., II, 344 (id.).
 STROBL, Wien. Ent. Zeit., XI, 196 (id.).
 BECKER, Die Phoriden, 49 (*Phora*).
 BRUES, Mon. Phoridae, 359, f. 26.—Ida., Cal., Texas.
- rostrata** MELANDER and BRUES, Biol. Bull., v, 15, 1903 (*Phora*).—Woods Hole, Mass.; about the burrows of *Halictus pruinosus* RBTSX.
 BRUES, Mon. Phoridae, 370, f. 43, 44, redesc. type.
- rufipes** MEIGEN, Klassif., 313, pl. XV, f. 23 (*Trincura*); Syst. Besch., VI, 216 (*Phora rufipes* and *annulata*).—Europe.
 FABRICIUS, Syst. Antl., 336 (*Trincura*).
 FALLÉN, Phytomyzides, 6 (*Trincura vulgaris*). [Meigen.]
 LATREILLE, Gen. Ins., IV, 360 (*Phora pallipes*).
 MACQUART, Hist. Nat. Dipt., II, 627 (*Phora pallipes* and *annulata*).
 DUFOUR, Mém. Soc. R. Paris, 1840, 54, pl. III, f. 107-110 (*Phora pallipes*).
 ZETTERSTEDT, Ins. Lapp., 795 (*Trincura*); Dipt. Scand., VII, 2857 (id.).
 SCHINER, Fauna Austr., II, 340 (*Phora*).
 STROBL, Wien. Ent. Zeit., XI, (*Phora rufipes* and *heracleellæ*). [Becker.]
 COQUILLET, Amer. Naturalist, XXXI, 386 (*Phora*), oc. in N. A.—Mammoth Cave, Ky.; Proc. Wash. Acad. Sci., II, 437 (id.), oc. in Alaska.
 BECKER, Die Phoriden, 59 (*Phora*).
 BRUES, Mon. Phoridae, 368, f. 40.—Mass., Pa., Mich., N. Y., Ill., Ida.
 White Mts., N. H.—Slosson; N. J.—Smith Cat.

scalaris LOEW, Cent., VII, 100 (*Phora*).—Cuba.

BRUES, Mon. Phoridae, 364, f. 33.—St. Vincent and Grenada, W. I.; Pa. N. J.—Smith Cat.

setacea ALDRICH, Canad. Ent., XXIV, 144, fig. (*Phora*—the female there described belongs to *agarici*).—Brookings, S. D.; bred from cocoons of *Cimber americana*.

BRUES, Mon. Phoridae, 370, f. 42.—D. C.

APOCEPHALUS.

COQUILLET, Proc. Ent. Soc. Wash., IV, 501, 1901.

BRUES, Mon. Phoridae, 372, 1904.

pergandei COQUILLET, loc. cit., figs.—Cabin John Bridge, Md.; the larvæ are internal parasites of the ant *Camponotus pennsylvanicus*; in the observed instance it ate out the head after separating it from the body.

BRUES, Mon. Phoridae, 373, f. 47, 48.—Frankford, Pa., and Austin, Texas; at the latter place found in a nest of *Camponotus maculatus* var. *sansabeanus* BKLY.

wheeleri BRUES, Mon. Phoridae, 373, f. 49.—Pine Lake, Wis.

TRINEURA.

MEIGEN, Illiger's Mag., II, 276, 1803; Klassif., 312, 1804.

SCHINER, Fauna Austr., II, 347, 1862.

BECKER, Die Phoriden, 78, 1901.

BRUES, Mon. Phoridae, 375, 1904, def. and table of species.

aterrima FABRICIUS, Syst. Ent., IV, 334, 1794 (*Musca*); Syst. Antl., 323 (*Tephritis*).—Europe.

COQUEBERT, Illust. Icon. Ins., pl. XXIV, f. 3 (*Musca*).

LATREILLE, Hist. Nat. Crust. et Ins., III, 464, 1802, type of *Phora*; XIV, 394 and Dict. d'Hist. Nat., XXIV, 197, both 1804 (*Phora*).

MEIGEN, Klassif., 313, pl. XV, f. 22 (*atra*); Syst. Besch., VI, 224, 225 (*aterrima* and *stictica*).

FALLÉN, Phytomyzides, 7 (*atra*).

WALKER, List, IV, 1138 (*Phora*), oc. in N. A.—Martin Falls, Canada.

SCHINER, Fauna Austr., II, 349.

STROBL, Wien. Ent. Zeit., XI, 204, makes *stictica* a var.

BECKER, Die Phoriden, 80.

BRUES, Mon. Phoridae, 377, f. 50.—Mass. to Kans. and Texas.

Alaska and N. H.—Coquillett; White Mts., N. H.—Slosson.

montana BRUES, Mon. Phoridae, 378, f. 52, 53.—Magdalena Mts., N. M.; Kans.

velutina MEIGEN, Syst. Besch., VI, 224 (*Phora*).—Europe.

BECKER, Die Phoriden, 80.

BRUES, Mon. Phoridae, 378, f. 51.—Mass., Mich., Kans., Ida., Cal.

CONICERA.

MEIGEN, Syst. Besch., VI, 226, 1830.

SCHINER, Fauna Austr., II, 335, 1864.

BECKER, Die Phoriden, 80, 1901.

BRUES, Mon. Phoridae, 379, def. and table of species, 1904.

aldrichii BRUES, Mon. Phoridae, 379, f. 54.—Juliaetta, Idaho.

atra MEIGEN, Syst. Besch., VI, 226, pl. LXIII, f. 13.—Europe. Also op. cit., 223 (*Phora dauci* and *albipennis*). [Becker.]

? WEBSTER, Ins. Life, II, 356, larvæ in human remains after burial (mentioned as *Conicera* sp.).—Indiana.

RILEY and HOWARD, Ins. Life, II, 351, note on preceding (id.).

KOWARZ, Fliegen Böhmens, 1894 (*Phora nickerli*). [Becker.]

BECKER, Die Phoriden, 81.

BRUES, Mon. Phoridae, 380, f. 55, 56.—Mass., N. J., D. C., Canada, Mich., N. Y.

var. **neotropica** BRUES, Mon. Phoridae, 380.—Grenada, W. I.

GYMNOPHORA.

MACQUART, Hist. Nat. Dipt., II, 631, 1835.

SCHINER, Fauna Austr., II, 346, 1864.

BECKER, Die Phoriden, 82, 1901.

BRUES, Mon. Phoridae, 381, 1904.

arcuata MEIGEN, Syst. Beschreibung, VI, 215 and 222, pl. LXIII, f. 9 (*Phora fuliginosa* and *arcuata*).—Europe. [Becker.]

FALLÉN, Phytomyzides, 5 (*Trincura rufipes* Mg.). [Meigen.]

HALIDAY, Entom. Mag., I, 179 (*Phora debilis*).

MACQUART, Hist. Nat. Dipt., II, 631.

SCHINER, Fauna Austr., II, 346.

OSTEN SACKEN, Cat., 212, oc. in N. A.

BECKER, Die Phoriden, 82.

BRUES, Mon. Phoridae, 381, f. 57.—Kans., Tex., Wis., Pa., Mass.

White Mts., N. H.—Slosson.

PACHYNEURELLA.

BRUES, Mon. Phoridae, 382, 1904.

venata ALDRICH, Trans. Ent. Soc. Lond., 1896, 436 (*Phora*).—St. Vincent, W. I.

BRUES, Mon. Phoridae, 382, f. 58, 59, type redesc.

SYNEURA.

BRUES, Mon. Phoridae, 383, 1904.

cocciphila COQUILLET, Canad. Ent., XXVII, 106 (*Phora*).—Magdalena, Victoria and Tamaulipas, Mex.; bred from larvæ infesting dead adults of *Icerya purchasi*.

BRUES, Mon. Phoridae, 383, types redesc.

METOPINA.

MACQUART, Hist. Nat. Dipt., II, 666, 1835.

STROBL, Funde am Seitenst., 1880 (*Drepanophora*).

SIX, Tidschr. v. Ent., XXI, 126 (*Leptophora*).

BECKER, Die Phoriden, 83, syn. and desc., 1901.

BRUES, Mon. Phoridae, 384, 1904.

pachycondylæ BRUES, Mon. Phoridae, 384.—Austin, Texas; the larvæ live as commensals with those of the ant *Pachycondyla harpar*. The habits of the larvæ are described by Professor Wm. M. Wheeler in an illustrated article, "An Extraordinary Ant-Guest," in American Naturalist, Dec., 1901,—one of the most interesting contributions to knowledge that ever came under my notice.

COMMOPTERA.

- BRUES, Amer. Naturalist, xxxv, 344, 1901; Mon. Phoridae, 385, 1904.
solenopsidis BRUES, Amer. Naturalist, xxxv, 344, figs.; Mon. Phoridae, 386, brief desc.—Austin, Texas; in nests of *Solenopsis geminata* FABR.

ÆNIGMATIAS.

- MEINERT, Entom. Meddelelser, II, 213, 1890.
 BECKER, Die Phoriden, 89, 1901.
 COQUILLET, Canad. Ent., xxxv, 20, notes.
 BRUES, Mon. Phoridae, 386, 1904.
schwarzii COQUILLET, Canad. Ent., xxxv, 21.—Flagstaff, Ariz.
 BRUES, Mon. Phoridae, 387, quotes desc.

ECITOMYIA.

- BRUES, Amer. Naturalist, xxxv, 347, 1901; Mon. Phoridae, 387, 1904.
wheeleri BRUES, Amer. Nat., xxxv, 347, figs.; Mon. Phoridae, 388, brief desc.—Austin, Tex.; from nests of *Eciton cacum* LATR. and *schmitti* EMERY.

ACONTISTOPTERA.

- BRUES, Amer. Naturalist, xxxvi, 1902, 373; Mon. Phoridae, 388, 1904.
melanderi BRUES, Amer. Nat., xxxv, 373, figs.; Mon. Phoridae, 389, brief desc.—Austin, Texas; in nests of *Eciton opacithorax* EMERY.

XAINONOTUM.

- BRUES, Amer. Naturalist, xxxvi, 1902, 376; Mon. Phoridae, 389, 1904.
hystrix BRUES, Amer. Nat., xxxvi, 376, figs.; Mon. Phoridae, 390, brief desc.—Austin, Texas; in nests of *Eciton opacithorax* EMERY.

PULICIPHORA.

- DAHL, Zool. Anzeiger, xx, 410, 1897; Sitzungsber. d. Naturforsch. Freunde, 185, 1898; Zool. Anzeiger, xxi, 308, 1898.
 WANDOLLECK, Zool. Jahrbuch, Abth. f. Syst., 424, 1898 (*Stethopathus*).
 BRUES, Amer. Naturalist, May, 1901, 354 (id.).
 MELANDER and BRUES, Biol. Bull., June, 1903 (id.).
 BRUES, Mon. Phoridae, 390, 1904, syn. and desc.
occidentalis MELANDER and BRUES, Biol. Bull., v, 17, f. 6, 7 (*Stethopathus*).—Woods Hole, Mass., about burrows of *Halictus*.
 BRUES, Mon. Phoridae, 391, quotes desc.

PLATYPEZIDÆ.

- SNOW, Kans. Univ. Quart., III, 143, 1894, table of genera, etc.
 VERRALL, British Flies, VIII, 15, table of genera, 1901.

AGATHOMYIA.

- VERRALL, British Flies, VIII, 30, 1901.
notata LOEW, Cent., VI, 76 (*Callomyia*); IX, 82 (*Callomyia tenera*).—Pa.; N. Y.
 SNOW, Kans. Univ. Quart., III, 152 (*Callomyia aldrichii*).—Lawrence, Kans.
 Gen. ref. and synonymy were communicated to me by Mr. Kahl.

CALLIMYIA.

MEIGEN, *Klassifikation*, 311, 1804; *Syst. Besch.*, iv, 10, 1824 (the latter *Callomyia*).

SCHINER, *Fauna Austr.*, 1, 239, 1862 (id.).

VERRALL, *British Flies*, VIII, 22, 1901.

de MEIJERE, *Tijdschr. v. Ent.*, 1901, 223-234, desc. of larva of a European species.

aldrichii SNOW, see *Agathomyia notata*.

bella WILLISTON, *Biologia*, Dipt., III, 89.—Guerrero, Mex.

divergens LOEW, *Cent.*, VI, 77.—Pa.

notata LOEW, see *Agathomyia*.

talpula LOEW, *Cent.*, IX, 81.—N. H.

tenera LOEW, see *Agathomyia notata*.

venusta LOEW, *Kans. Univ. Quart.*, III, 151, pl. XII, f. 9, 10.—Magdalena Mts., N. M.

CALOTARSA.

TOWNSEND, *Canad. Ent.*, XXVI, 51, 102, 1894.

SNOW, *Kans. Univ. Quart.*, III, 143, makes it a synonym of *Platypeza*; Mr. Kahl inclines to the view that it may be retained.

calceata SNOW, *Kans. Univ. Quart.*, III, 146, pl. XII, f. 1, 3 (*Platypeza*).—Magdalena Mts., N. M.

ornatipes TOWNSEND, *Canad. Ent.*, 1894, 52, 102.—Ill.

BANKS, *Canad. Ent.*, XXVI, 88, oc. at Ithaca, N. Y.

Brookings, S. D.—Aldrich; see SNOW, *Kans. Univ. Quart.*, III, 207.

PLATYPEZA.

MEIGEN, *Illig. Mag.*, II, 272, 1803; *Syst. Besch.*, IV, 4, 1824.

SCHINER, *Fauna Austr.*, 1, 241, 1862.

VERRALL, *British Flies*, VIII, 34, 1901.

SNOW, *Kans. Univ. Quart.*, III, 145, 1894, table of species.

abscondita SNOW, *Kans. Univ. Quart.*, III, 205.—Craig's Mt., Idaho.

anthrax LOEW, *Cent.*, IX, 83.—N. Y.

calceata SNOW, see *Calotarsa*.

cinerea SNOW, *Kans. Univ. Quart.*, III, 150; 148 (*velutina* LOEW); 206 (*pulla*).—Magdalena Mts., N. M., 9,500 ft. [Kahl, in litt.]

egregia SNOW, see *umbrosa*.

flavicornis LOEW, *Cent.*, VI, 79.—Pa.

obscura LOEW, *Cent.*, VI, 80.—Pa. White Mts., N. H.—Slosson.

ornatipes TOWNSEND, see *Calotarsa*.

pallipes LOEW, *Cent.*, VI, 81.—D. C.

pulchra SNOW, *Kans. Univ. Quart.*, III, 149, pl. XII, f. 6.—Magdalena Mts., N. M., 8,000 ft.

pulla SNOW, see *cinerea*.

tæniata SNOW, *Kans. Univ. Quart.*, III, 149.—Ill.

umbrosa SNOW, *Kans. Univ. Quart.*, III, 148, pl. XII, f. 7; p. 150 (*egregia*).—Magdalena Mts., N. M., 8,000 ft. [Kahl.]

unicolor SNOW, *Kans. Univ. Quart.*, III, 206.—Moscow, Idaho.

velutina LOEW, *Cent.*, VI, 79.—Pa.

N. J.—Smith Cat.; Montreal—Chagnon; White Mts., N. H.—Slosson.

For SNOW's *velutina* see *cinerea*.

PLATYCNEMA.

ZETTERSTEDT, Dipt. Scand., 1, 332, 1842.

SCHINER, Fauna Austr., 1, 242, 1862.

VERRALL, British Flies, VIII, 19, 1901.

? *imperfecta* LOEW (Cent., vi, 82.—D. C.). On examining the type, at Mr. Kahl's request, I found it to be a small Empid.

The genus occurs in the United States, however, for Mr. Kahl had a species, captured at Lawrence, Kans.

PIPUNCULIDÆ.

HOUGH, Proc. Boston Soc. Nat. Hist., XXIX, 77-86, 1899, paper containing table of genera.

BECKER, Berl. Ent. Zeitsch., XLII, 25-100, 1897, has a revision of the European members of the family.

VERRALL, British Flies, VIII, 1901, contains a monograph of the British species.

CHALARUS.

WALKER, Entomologist's Magazine, II, 269, 1834.

MACQUART, Hist. Nat. Dipt., II, 12, 1835 (*Atelencura*).

SCHINER, Fauna Austr., I, 244, 1862.

BECKER, Berl. Ent. Zeitsch., XLII, 96, 1897.

VERRALL, British Flies, VIII, 67, 1901.

spurius FALLÉN, Syrph., 16 (*Cephalops*).—N. Europe.

MEIGEN, Syst. Besch., IV, 24 (*Pipunculus*).

MACQUART, Hist. Nat. Dipt., II, 12 (*Atelencura nigripes*).

SCHINER, Fauna Austr., I, 245.

BECKER, Berl. Ent. Zeitsch., XLII, 96, bibliography, etc.

GIARD, Compt. Rend. Acad. Sci. Paris, CIX, records rearing the species from *Typhlocyba rosæ*, a leaf-hopper.

VERRALL, British Flies, VIII, 68.

N. J.—Smith Cat.; White Mts., N. H.—Slosson. Mr. Kahl has compared American with European specimens, and confirms the identity. We also have an undescribed species.

NEPHROCERUS.

ZETTERSTEDT, Ins. Lapp., 578, 1840; Dipt. Scand., III, 946, 1844.

BECKER, Berl. Ent. Zeitsch., XLII, 47, 1897.

VERRALL, British Flies, VIII, 77, 1901.

dæcki JOHNSON, Ent. News, XIV, 107.—Long Id., N. Y.

Mr. Coquillett determined an undescribed species from the White Mts. for Mrs. Slosson's list; Mr. Kahl also has reported the genus to me from Kansas.

PIPUNCULUS.

LATREILLE, Hist. Nat. Crust. et Ins., III, 463, 1802; XIV, 393, 1804.

FALLÉN, Syrphici, 14, 1816 (*Cephalops*).

MACQUART, Hist. Nat. Dipt., II, 9, 1835.

ZETTERSTEDT, Dipt. Scand., III, 949, 1844.

SCHINER, Fauna Austr., I, 245, 1862.

BECKER, Berl. Ent. Zeitsch., XLII, 35, 1897.

- VERRALL, Brit. Flies, VIII, 79, 1901.
 HOUGH, Proc. Boston Soc. Nat. Hist., XXIX, 77 et seq., table of species.
 WILLISTON, Biologia, Dipt., III, 86, table of Mex. species, 1892.
 BECKER, loc. cit., 28, gives references to observations on the larvæ;—they parasitize leaf-hoppers.
- aculeatus** WILLISTON, see *willistonii*.
- albofasciatus** HOUGH, Proc. Boston Soc. Nat. Hist., XXIX, 85.—Opelousas, La. N. J.—Smith Cat.
- aridus** WILLISTON, see *subvirescens*.
- atlanticus** HOUGH, Proc. Boston Soc. Nat. Hist., XXIX, 80.—New Bedford, Mass.; Montgomery Co., Pa. N. J.—Smith Cat.; Montreal—Chagnon.
- cingulatus** LOEW, Cent., VI, 73.—D. C.
 HOUGH, Proc. Boston Soc. Nat. Hist., XXIX, 81, type redesc.
 White Mts., N. H.—Slosson.
- elegantulus** WILLISTON, Biologia, Dipt., III, 87.—Guerrero, Mex.
- fasciatus** LOEW, Cent., X, 59.—Texas.
 HOUGH, Proc. Boston Soc. Nat. Hist., XXIX, 78, type redesc.
 KERTÉSZ, Wien. Ent. Zeitung, XIX, 270, would change name to *locwi*, because there was once a *fasciatus* described, which turned out to be a synonym. I should strongly object to admitting the principle.
- flavicornis** WILLISTON, Biologia, Dipt., III, 88.—Guerrero, Mex.
 GIGLIO-TOS, Dit. del Mess., II, 71, note on male.—Tuxpango, Mex.
- flavitaris** WILLISTON, Biologia, Dipt., III, 87.—Guerrero, Mex.
- flavomaculatus** HOUGH, Proc. Boston Soc. Nat. Hist., XXIX, 84.—Horse Neck Beach, Mass.
- fuscitarsis** ADAMS, Kans. Univ. Sci. Bull., II, 36.—Atherton, Mo.
- fuscus** LOEW, Cent., VI, 71.—Md.
 ? WALKER, List, III, 639 (*reipublicæ*).—N. Y. [Hough, with query.]
 HOUGH, Proc. Boston Soc. Nat. Hist., XXIX, 82, type redesc.
 White Mts., N. H.—Slosson; Axton, N. Y.—M. and H.
 See *nitidiventris*.
- houghi** of Smith's Cat. is a manuscript name;—Ent. News, XII, 96 and XIV, 107.
- houghi** of KERTÉSZ, see *lateralis*.
- lateralis** WALKER, Dipt. Saund., 216.—N. A.
 COQUILLET, Proc. Acad. Nat. Sci. Phil., 1895, 331, refers to *Prothecus*.
 KERTÉSZ, Wien. Ent. Zeitung, 1900, 244, refers to *Pipunculus*, and changes name to *houghi* on account of preoccupation.
 VERRALL, Brit. Flies, VIII, 120, shows that there was no preoccupation, as Meigen's *lateralis* is a synonym of *maculatus* WALKER.
 St. Augustine, Fla.—Johnson.
- nigricornis** ADAMS, Kans. Univ. Sci. Bull., II, 36.—Atherton, Mo.
- nigripes** LOEW, Cent., VI, 75.—Pa.
 HOUGH, Proc. Boston Soc. Nat. Hist., XXIX, 79, type redesc.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- nitidiventris** LOEW, Cent., VI, 72.—D. C.
 HOUGH, Proc. Boston Soc. Nat. Hist., XXIX, 82, type redesc.; may be the female of *fuscus*.
 White Mts., N. H.—Slosson; Montreal—Chagnon.
- opacus** WILLISTON, see *Verrallia*.
- pallipes** JOHNSON, Ent. News, XIV, 107.—Wildwood, N. J.
- politus** WILLISTON, Trans. Ent. Soc. London, 1896, 351, pl. XI, f. 88.—St. Vincent, W. I.
- similis** HOUGH, Proc. Boston Soc. Nat. Hist., XXIX, 83.—Tifton, Ga.; Ala. N. J.—Smith Cat.

subopacus LOEW, Cent., VI, 74.—D. C.

WILLISTON, Biologia, Dipt., III, 88, oc. and note.—Guerrero, Mex.
HOUGH, Proc. Boston Soc. Nat. Hist., XXIX, 79, type redesc.
Montreal—Chagnon.

subvirescens LOEW, Cent., X, 58.—Texas.

? WALKER, Trans. Ent. Soc., IV, 150 (*translatus*).—U. S. [Hough, with
a ?]

WILLISTON, Dipt. of Death Val. Exped., 255 (*aridus*).—Argus Mt., Cal.
[Hgh.]

HOUGH, Boston Soc. Nat. Hist., XXIX, 84.—New Bedford, Mass.; Tifton,
Ga.; Opelousas, La.

Montreal—Chagnon.

willistonii KERTÉSZ, Wien. Ent. Zeit., XIX, 1900, 244, change of name.

WILLISTON, Biologia, Dipt., III, 88 (*aculeatus*, preoc.); Trans. Ent. Soc.
Lond., 1896, 351 (id.).—Tabasco, Mex.; St. Vincent, W. I.

xanthopodus WILLISTON, Biologia, Dipt., III, 87.—Guerrero, Mex.

VERRALLIA.

MIK, Wien. Ent. Zeit., XVIII, 137, 1899.

BECKER, Berl. Ent. Zeitsch., XLII, 1897, 93 (*Prothecus* ROND.).

Note.—According to Mik, loc. cit., Rondani made an error of identification, and the species he named as the type is not *auctus*, but has an acuminate third antennal joint. This antennal character is mentioned in the definition, hence *Prothecus* could not be used for the present group, in which the lack of a point on the third antennal joint is one of the principal characteristics.

opaca WILLISTON, Trans. Amer. Ent. Soc., XIII, 295 (*Pipunculus*).—Wash.

HOUGH, Proc. Boston Soc. Nat. Hist., XXIX, 77, refers to *Prothecus*, in
Becker's sense.

KERTÉSZ, Wien. Ent. Zeitung, XIX, 244, refers to *Verrallia*.

SYRPHIDÆ.

WILLISTON, Synop. N. A. Syrphidæ. Bulletin of The United States National
Museum, No. 31. Washington, 1886, xxx and 335 pages, with 12 plates.
The largest and most complete family monograph yet published on North
American Diptera.

VERRALL, British Flies. Syrphidæ, etc. Gurney and Jackson, London, 1901.
690 pages, portrait and many excellent text figures. Includes also in an
appendix of 121 pages a full catalogue and bibliography of the British rep-
resentatives of the three families described, which are the Platypezidæ, Pipun-
culidæ and Syrphidæ. This massive volume is an encyclopedia on the three
families indispensable to the advanced worker. Many of the British species
and most of the genera occur also in America.

CHAGNON, G., Études Préliminaires sur les Syrphides de la Province de Que-
bec. Chicotini, Quebec, 1901, 75 pages. Originally published in parts in "Le
Naturaliste Canadien," 1901. I quote the separate edition. It is a convenient
and useful compilation on the commoner species of that region.

MICRODON.

MEIGEN, Illig. Mag., II, 275, 1803; Syst. Besch., III, 162, 1822.

LATREILLE, Hist. Nat. Crust. et Ins., XIV, 358; 1805 (*Aphritis*).

- WIEDEMANN, AUSS. Zweifl., II, 79, 1830 (*Ceratophya*).
 MACQUART, Hist. Nat. Dipt., I, 486, 1834 (*Chymophila*). [O. S.]
 NEWMAN, Ent. Mag., v, 372, 1838 (*Dimocraspis*).
 WALKER, List, IV, 1157, 1849 (*Mesophila*); Dipt. Saund., 217, 1856 (*Ubristes*).
 SCHINER, Fauna Austr., I, 249, 1862.
 WILLISTON, Synop. N. A. Syrph., 3, 1886, def. and table of species; Biologia, Dipt., III, 2, 1891, syn., etc.
 GIGLIO-TOS, Boll. Mus. Zool., VI, No. 108, 4, 1891; Ditt. del Mess., I, 38, 1892 (both *Omegasyrphus*). [Will.]
 WHEELER, Psyche, July, 1901, larva in nest of *Pseudomyrmex* in Mex.
 VERRALL, Brit. Flies, VIII, 658, 1901.
 CHAGNON, Ét. Prélim. les Syrph., 13, 190, table of Quebec species, 1901.
- aquilinus** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 123, 1892; Ditt. del Mess., I, 37.—Tuxpango, Mex.
- aurifex** WIEDEMANN, AUSS. Zweifl., II, 85.—Brazil.
 MACQUART, Hist. Nat. Dipt., I, 486 (*Chymophila splendens*); Dipt. Exot., II, 2, 10 (id.); II, 3, 11 (*Aphritis aurifex*).—Philadelphia; Para.
 WALKER, Ins. Saund., 216 (*trochilus*).—Mex. [Will.]
 OSTEN SACKEN, Bull. Buff. Soc. Nat. Hist., Nov., 1875, on type of *Chymophila splendens*; quoted by Williston, Synops., 12.
 WILLISTON, Synop. N. A. Syrph., 9, 10; Biologia, Dipt., III, 2, pl. 1, f. 2.—Mex.; Guerrero and Tehuantepec.
- aurantulus** FABRICIUS, Syst. Antl., 185 (*Mulio*).—Carolina.
 WIEDEMANN, AUSS. Zweifl., II, 86.
 MACQUART, Dipt. Exot., II, 2, 12, pl. II, f. 1 (*Aphritis*); Suppl. II, 2, 38 (*Aphritis crassitarsis*).—Carolina; Rio Negro.
 F. LYNCH ARRIBALZAGA, Dipt. Argent., 126 (*crassitarsis*).—Argentina.
 WILLISTON, Synop. N. A. Syrph., 11, transl. Wied. and Macq.
 GIGLIO-TOS, Ditt. del Mess., I, 35, oc. in Orizaba.
 JOHNSON, Ent. News, XII, 94, oc. in Pa.
- baliopterus** LOEW, Cent., x, 56.—Texas.
 WILLISTON, Synop. N. A. Syrph., 5, pl. I, f. 4.
 Charlotte Harbor, Fla.—Johnson (*Omegasyrphus*).
 WILLISTON, Biologia, Dipt., III, 3, oc. and note.—Texas; Guerrero and N. Yucatan, Mex.
- bombiformis** TOWNSEND, see *megalogaster*.
- chrysopyga** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 123, 1892 (*Ubristes*); Ditt. del Mess., I, 37 (id.).—Orizaba, Mex.
- coarctatus** LOEW, Cent., v, 47.—D. C.
 WILLISTON, Synop. N. A. Syrph., 6, transl. orig. desc.
 GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 118, 1892; Ditt. del Mess., I, 39, pl. I, f. 11 (both *Omegasyrphus*, type of new genus).—Tuxpango, Mex.
 Orlando, Fla.—Johnson (*Omegasyrphus*).
- cothurnatus** BIGOT, see *tristis*.
- falcatus** WILLISTON, Synop. N. A. Syrph., 9; Biologia, Dipt., III, 3, notes.—Guerrero and Tehuantepec, Mex.
 GIGLIO-TOS, Ditt. del Mess., I, 36.—Tehuacan, Mex.
- fulgens** WIEDEMANN, AUSS. Zweifl., II, 82.—Ga.
 GRAY, in Griffith's An. Kingd., Ins., II, pl. CXXV, f. 2 (*cuglossoides*).
 MACQUART, Dipt. Exot., Suppl., I, 122 (*Aphritis*).—Guiana, Fla.
 WILLISTON, Synop. N. A. Syrph., 11, orig. desc., etc.

- St. Augustine and Suwanee, Fla.; pupæ found in decaying pine logs—
Johnson.
- HUNTER, Canad. Ent., xxviii, 89.—Fla.
- fuscipennis** MACQUART, Hist. Nat. Dipt., I, 488 (*Ccratophya*).—Philadelphia.
- WALKER, List, III, 539 (*agapenor*); IV, 1157, gen. ref. (*Mesophila*).—Ga.
- WILLISTON, Synop. N. A. Syrph., 4, pl. I, f. 2 (*globosus* FAB.).—Atlantic States; Mich. [Syn. by Snow.]
- TOWNSEND, Trans. Amer. Ent. Soc., xxii, 33, female.—D. C.
- CHAGNON, Ét. Prélim. les Syrph., 14; Le Nat. Canadien, Nov., 1900 (the latter as *globosus*).—Montreal.
- N. J.—Smith Cat.: Georgiana, Fla.—Johnson.
- globosus** FABRICIUS, Syst. Antl., 185 (*Mulio*).—Carolina.
- WIEDEMANN, Auss. Zweifl., II, 86, transl. orig. desc.
- MACQUART, Dipt. Exot., II, 2, 13, pl. I, f. 4 (*Aphritis*).—Carolina.
- NEWMAN, Ent. Mag., v, 373 (*Dimcraspis podagra*).
- WILLISTON, Synop. N. A. Syrph., 4, pl. I, f. I (*fuscipennis* MACQ.).—Va., Fla., Tex., Col. [Snow.]
- LINTNER, 2d N. Y. Rept., 116, figs.; larvæ in ants' nests in decaying wood.—N. Y.
- CHAGNON, Ét. Prélim. les Syrph., 15.—N. J.
- gracilis** BIGOT, Annales, 1883, 320.—Mex.
- WILLISTON, Biologia, Dipt., III, 3.—Orizaba, Mex.
- inequalis** LOEW, Cent., VII, 70.—Cuba.
- lætus** LOEW, Cent., v, 46.—Cuba.
- lanceolatus** ADAMS, Kans. Univ. Sci. Bull., II, 222.—Englewood, Kans.
- limbus** WILLISTON, Synop. N. A. Syrph., 8.—Fla.
- marmoratus** BIGOT, Annales, 1883, 320.—Cal.
- WILLISTON, Synop. N. A. Syrph., 10, transl. of orig. desc.
- megalogaster** SNOW, Kans. Univ. Quart., I, 34, pl. VII, f. I.—Col.
- TOWNSEND, Trans. Amer. Ent. Soc., xxii, 33 (*bombiformis*).—Dixie Landing, Va. [Hunter.]
- JOHNSON, Ent. News, XII, 95, oc. in N. J. and Pa.
- niger** WILLISTON, Biologia, Dipt., III, 4, pl. I, f. 4.—Vera Cruz, Mex.
- pachystylum** WILLISTON, Synop. N. A. Syrph., 8.—Ga.
- St. Augustine, Fla.—Johnson.
- pulcher** WILLISTON, Synop. N. A. Syrph., 5.—San Domingo.
- rufipes** MACQUART, Dipt. Exot., II, 2, 11, pl. II, f. 3 (*Aphritis*).—Pa.
- WILLISTON, Synop. N. A. Syrph., 12, transl. orig. desc.
- JOHNSON, Ent. News, XII, 95, oc. in La.
- scitulus** WILLISTON, Synop. N. A. Syrph., 10.—Fla.
- tristis** LOEW, Cent., v, 45.—Va.
- WILLISTON, Synop. N. A. Syrph., 6, pl. I, f. 3.—Conn., Ore.
- CHAGNON, Ét. Prélim. les Syrph., 14.—Montreal.
- Mackenzie R.—O. S.; N. J.—Smith Cat.; Axton, N. Y.—M. and H.
- var. **cothurnatus** BIGOT, Annales, 1883, 320.—Wash.
- WILLISTON, Synop. N. A. Dipt., 8.—Mt. Hood, Ore.
- var. **ruficrus** WILLISTON, Synop. N. A. Syrph., 7.—Conn.
- violens** TOWNSEND, Trans. Amer. Ent. Soc., xxii, 34.—Jamaica.
- viridis** TOWNSEND, Pr. Cal. Acad. Sci., IV, 610.—Lower Cal.
- HUNTER, Canad. Ent., xxix, 123, oc. in Tenn.
- xanthophilus** TOWNSEND, Pr. Cal. Acad. Sci., IV, 611.—Cal.

RHOPALOSYRPHUS.

GIGLIO-TOS, Boll. R. Univ. Torino, vi, No. 108, 1891; Ditt. del Mess., i, 34, 1892.

F. LYNCH ARRIBALZAGA, Dipt. Argentina, 1891, 37 (*Holmbergia*).

WILLISTON, Biologia, Dipt., iii, 78, 1891, notes.

güntheri F. LYNCH ARRIBALZAGA, Dipt. Argent., 1891, 37 (*Holmbergia*).—Buenos Aires.

GIGLIO-TOS, Boll. R. Univ. Torino, vii, No. 118; Ditt. del Mess., i, 35, pl. 1, f. 10.—Chinantla, Mex.

MIXOGASTER.

MACQUART, Dipt. Exot., ii, 2, 14, 1842.

KAHL, Kans. Univ. Quart., vi, 140, list of species, etc., 1897.

bellula WILLISTON, Biologia, Dipt., iii, 1, pl. 1, f. 1.—Guerrero, Mex.

breviventris KAHL, Kans. Univ. Quart., vi, 137.—Kans.

dimidiata GIGLIO-TOS, Boll. R. Univ. Torino, vi, No. 123, 1892; Ditt. del Mess., i, 33, pl. 1, f. 9.—Tuxpango, Mex.

mexicana MACQUART, Dipt. Exot., Suppl., i, 123, pl. x, f. 15.—Mex.

WILLISTON, Biologia, Dipt., iii, 1, oc. and note.—Guerrero, Mex.

CALLICERA.

PANZER, Fauna Germanica, civ, 1806.

MEIGEN, Syst. Besch., iii, 155, 1822.

SCHINER, Fauna Austr., i, 248, 1802.

SNOW, Kans. Univ. Quart., i, 33, 1892.

VERRALL, Brit. Flies, viii, 655, 1901.

johnsoni HUNTER, Canad. Ent., xxviii, 87.—Pa.

montensis SNOW, Kans. Univ. Quart., i, 34, pl. vii, f. 4; iii, 225, notes.—Col., 9,000 ft.: N. M., 9,500 ft.

CHRYSOTOXUM.

MEIGEN, Illig. Mag., ii, 259, 1803; Syst. Besch., iii, 166, 1822.

SCHINER, Fauna Austr., i, 252, 1802.

WILLISTON, Synop. N. A. Syrph., 13, 1886, table of species, etc.

CHAGNON, Ét. Prélim. les Syrph., 73, 1901.

VERRALL, Brit. Flies, viii, 641, 1901.

derivatum WALKER, List, iii, 542.—Martin Falls, Canada.

BIGOT, Annales, 1883, 323 (*villosulum*).—Wash. [Will.]

WILLISTON, Synop. N. A. Syrph., 16, pl. 1, f. 5.—Alaska, Colorado Mts., Cal., Ore.

SNOW, Kans. Univ. Quart., i, 34, oc. and notes; iii, 226, oc. and notes.—Col.

TOWNSEND, Trans. Amer. Ent. Soc., xxii, 35, notes on the male.

HUNTER, Canad. Ent., xxviii, 89.—Wyo., Nebr.

N. M.—Coq.

flavifrons MACQUART, Dipt. Exot., ii, 2, 17.—Newfoundland.

WILLISTON, Synop. N. A. Syrph., 17, would drop.

integrum WILLISTON, Synop. N. A. Syrph., 16; Biologia, Dipt., iii, 5, oc. and note.—Ariz.; Sonora, Mex.

GIGLIO-TOS, Ditt. del Mess., i, 39.—Mex.

SNOW, Kans. Univ. Quart., iii, 227, oc. in N. M., and note.

laterale LOEW, Cent., v, 42.—Nebr.

WILLISTON, Synop. N. A. Syrph., 14, transl. orig. desc.—N. Y.

TOWNSEND, Trans. Amer. Ent. Soc., xxii, 35, oc. in Mex. and notes.

N. J.—Smith Cat.

nigratum FABRICIUS, Ent. Syst., iv, 292 (*Syrphus*); Syst. Antl., 183 (*Mulio*).—Jamaica.

WIEDEMANN, Auss. Zweifl., II, 88.

pubescens LOEW, Wien. Ent. Monatsch., iv, 84; Cent., v, 43.—Ill.

WILLISTON, Synop. N. A. Syrph., 15, transl. orig. desc.—N. Y.

TOWNSEND, Trans. Amer. Ent. Soc., xxii, 35.—Mich., Va.

HUNTER, Canad. Ent., xxviii, 91, desc.

CHAGNON, Ét. Prélim. les Syrph., 73.—Isle Jesus, P. Q.

N. J.—Smith Cat.

ventricosum LOEW, Cent., v, 44.—D. C.

WILLISTON, Synop. N. A. Syrph., 15, transl. orig. desc.—Canada.

TOWNSEND, Trans. Amer. Ent. Soc., xxii, 36.—Ariz.

N. J.—Smith Cat.

villosulum BIGOT, see *derivatum*.

ypsilon WILLISTON, Synop. N. A. Syrph., 14.—N. M.

SNOW, Kans. Univ. Quart., III, 226, notes on a female.

LEPROMYIA.

WILLISTON, Synop. N. A. Syrph., 31, 1886, change of name.

LOEW, Cent., v, 38, 1864 (*Lepidomyia*, preoc.).

calopus LOEW, Cent., v, 38 (*Lepidomyia*).—Cuba.

WILLISTON, Synop. N. A. Syrph., 31, transl. orig. desc.

cincta BIGOT, see *Chilosia*.

CHRYSOGASTER.

MEIGEN, Illig. Mag., II, 274, 1803; Syst. Besch., III, 265, 1822.

MACQUART, Hist. Nat. Dipt., I, 563 (*Orthoncura*), 1834.

BIGOT, Rev. et Mag. Zool., 1859, 3 (*Cryptincura*).

SCHNER, Fauna Austr., I, 266 and 271 (*Chrysogaster* and *Orthoncura*), 1862.

WILLISTON, Synop. N. A. Syrph., 31, 1886, table of species, etc.

VERRALL, Brit. Flies, VIII, 185, 186, 1901 (*Chrysogaster* and *Orthoncura*).

CHAGNON, Ét. Prélim. les Syrph., 16, 1901, table of Quebec species.

apisaon WALKER, List, III, 572.—N. Y.

bellula WILLISTON, Proc. Amer. Phil. Soc., xx, 304; Synop. N. A. Syrph., 36, pl. II, f. 6; Biologia, Dipt., III, 7.—Col., Wash., Cal.; Durango and Patzcuaro, Mex.

N. M.—Snow.

lata LOEW, Cent., iv, 59.—Br. N. A., English R.

WILLISTON, Synop. N. A. Syrph., 36, transl. orig. desc.—Ore.

nigripes LOEW, Cent., iv, 60, male; ix, 80, female (*Orthoncura ustulata*).—N. Y., N. J. [Will.]

? WALKER, List, III, 572 (*antitheus*).—N. Y. [Will., with a doubt.]

WILLISTON, Synop. N. A. Syrph., 33, pl. II, f. 10.—Conn., N. C.

CHAGNON, Ét. Prélim. les Syrph., 17.—Rigaud, Quebec.

N. J.—Smith Cat.; Sea Cliff, N. Y.—Banks.

nigrovittata LOEW, Zeitsch. f. Ges. Naturwiss., 1876, 378 (*Orthoncura*).—San Francisco.

WILLISTON, Proc. Amer. Phil. Soc., xx, 304; Synop. N. A. Syrph., 34, pl. II, f. 11.—Wash., Cal., Col.

- nitida** WIEDEMANN, Auss. Zweifl., II, 116.—N. A.
 WALKER, List, III, 545 (*Paragus ancus*).—Ohio.
 BIGOT, Rev. et Mag. Zool., 1859, 4 (*Cryptineura hieroglyphica*); Annales, 1883, 315, protests against making this a synonym.
 LOEW, Cent., IV, 58, note (*Orthoncurea*).
 SCHINER, Novara, 368 (*Orthoncurea*), oc. in S. A.
 WILLISTON, Synop. N. A. Syrph., 35, pl. II, f. 7; Biologia, Dipt., III, 7, oc. in Mex.—New England, Pa., Va., S. C., Kans.
 TOWNSEND, Trans. Amer. Ent. Soc., XXII, 36, note.—Va., D. C.
 N. J.—Smith Cat.: Sea Cliff, N. Y.—Banks; Fla.—Johnson.
- pictipennis** LOEW, Cent., IV, 58 (*Orthoncurea*).—N. Y.
 WILLISTON, Synop. N. A. Syrph., 37.—Conn., N. Y., N. J.
 HUNTER, Canad. Ent., XXIX, 124, oc. in Neb.
 CHAGNON, Ét. Prélim. les Syrph., 18.—Montreal.
- pulchella** WILLISTON, Synop. N. A. Syrph., 35, pl. II, f. 9.—N. H., Conn., Canada.
 TOWNSEND, Trans. Amer. Ent. Soc., XXII, 36, note on var.—Mich.
 CHAGNON, Ét. Prélim. les Syrph., 17.—Montreal.
 N. J.—Smith Cat.
- recedens** WALKER, Dipt. Saund., 228.—U. S.
- stigmata** WILLISTON, Proc. Amer. Phil. Soc., XX, 303; Synop. N. A. Syrph., 34, pl. II, f. 8.—Cal.
 BIGOT, Annales, 1884, 556 (*Orthoncurea sinuosa*).—Wash. [Will.]
 Northern Ida.—J. M. A.

PSILOTA.

- MEIGEN, Syst. Besch., III, 256, 1822.
 SCHINER, Fauna Austr., I, 266, 1862.
 WILLISTON, Synop. N. A. Syrph., 30, 1886.
 VERRALL, Brit. Flies, VIII, 181, 1901.
- buccata** MACQUART, Dipt. Exot., II, 2, 107, pl. XVIII, f. 2 (*Pipiza*).—Carolina.
 WILLISTON, Synop. N. A. Syrph., 30 and 291.—Texas, Ga.
 HUNTER, Canad. Ent., XXVIII, 91, historical account, syn., etc.
 Iverness, Fla.—Johnson.
- flavipennis** MACQUART, Dipt. Exot., Suppl. V, 97, pl. V, f. 5.—Philadelphia.
 WILLISTON, Synop. N. A. Syrph., 30, quotes orig. desc.

PIPIZA.

- FALLÉN, Syrphidi, 58, 1816.
 MEIGEN, Syst. Besch., III, 241, 1822.
 LOEW, Oken's Isis, 1840, 512 (*Triglyphus*).
 RONDANI, Dipt. Ital. Prod., I, 53, 1856 (*Heringia*); II, 185, 1857 (*Pipizella*).
 EGGER, Verh. Zool.-Bot. Ges., XV, 573, 1865 (*Cnemodon*).
 PHILIPPI, Verh. Zool.-Bot. Ges., XV, 1865, 741 (*Penium*).
 SCHINER, Fauna Austr., I, 261, 1862.
 WILLISTON, Synop. N. A. Syrph., 22, def. and table of species, 1886; Biologia, Dipt., III, 6, bibl.
 VERRALL, Brit. Flies, VIII, 161, 1901.
 CHAGNON, Ét. Prélim. les Syrph., 18, 1901.
- albipilosa** WILLISTON, Synop. N. A. Syrph., 28.—Pa.
bellula WILLISTON, Biologia, Dipt., III, 6.—Guerrero, Mex.

- calcarata* LOEW, Cent., vi, 42.—N. Y.
WILLISTON, Synop. N. A. Syrph., 24, transl. orig. desc.
N. J.—Smith Cat.
- crassipes* BIGOT, Annales, 1884, 557.—N. A.
WILLISTON, Synop. N. A. Syrph., 291, quotes orig. desc.
- divisa* WALKER, see *Ocyrtamus dimidiatus*.
- femoralis* LOEW, Cent., vi, 38.—Ill.
? RILEY, 1st Mo. Rept., 121, f. 66; 6th Rept., 52; Amer. Entom., 1, 83
(*radicum*).—Mo.; larvæ feed on *Schizoneura lanigera* and *Phylloxera vastatrix*. [Will.]
WILLISTON, Synop. N. A. Syrph., 26.—Pa.
CHAGNON, Ét. Prélim. les Syrph., 19.—Montreal and Rigaud, Quebec.
- fraudulenta* LOEW, Cent., vi, 41.—Ill.
WILLISTON, Synop. N. A. Syrph., 26, transl. desc.; may be same as *nigri-
barba*.
- modesta* LOEW, Cent., iv, 62 (*Triglyphus*).—N. Y.
WILLISTON, Synop. N. A. Dipt., 24, transl. desc.
WEBSTER, Canad. Ent., xxx, 19, reared from larvæ feeding on *Schizoneura
lanigera*.
CHAGNON, Ét. Prélim. les Syrph., 20.—St. Jean, P. Q., Canada.
N. J.—Smith Cat.: Montreal—Chagnon; Beulah, N. M.—Skinner.
- nigribarba* LOEW, Cent., vi, 40.—N. Y.
WILLISTON, Synop. N. A. Syrph., 25, transl. desc. See *fraudulenta*.
- nigripilosa* WILLISTON, Synop. N. A. Syrph., 28.—Pa.
- occidentalis* TOWNSEND, Annals and Mag. Nat. Hist., xix, 140.—Rio Ruidosa,
N. M.
- pistica* WILLISTON, Synop. N. A. Syrph., 29.—Conn.
CHAGNON, Ét. Prélim. les Syrph., 20.—Sherbrooke, Quebec.
N. J.—Smith Cat.: N. M.—Snow; Montreal—Chagnon.
- pisticoides* WILLISTON, Synop. N. A. Syrph., 29.—White Mts., N. H.
COQUILLET, Proc. Wash. Acad. Sci., II, 426, oc. in Alaska, Me., N. Y.,
Col.
Beulah, N. M.—Skinner; Axton, N. Y.—M. and H.
- pubescens* LOEW, Cent., iv, 61 (*Triglyphus*).—Wis.
WILLISTON, Synop. N. A. Syrph., 23, transl. desc.
- puella* WILLISTON, Synop. N. A. Syrph., 27, pl. II, f. 3.—N. H.
- pulchella* WILLISTON, Synop. N. A. Syrph., 29, pl. II, f. 1.—Conn., Mass.
N. J.—Smith Cat.; St. Augustine and L. Worth, Fla.—Johnson.
- radicum* RILEY, see *femoralis*.
- salax* LOEW, Cent., vi, 39.—Pa.
WILLISTON, Synop. N. A. Syrph., 25, transl. desc.

NAUSIGASTER.

- WILLISTON, Trans. Amer. Ent. Soc., xi, 33, 1885; Synop. N. A. Syrph.,
21, 1886.
- TOWNSEND, Annals and Mag. Nat. Hist., xx, 23, 1897, table of species,
etc.
- geminata* TOWNSEND, Annals and Mag. Nat. Hist., xx, 25.—Beeville and Ken-
nedy, Texas.
- meridionalis* TOWNSEND, Annals and Mag. Nat. Hist., xix, 20.—Vera Cruz, Mex.
- punctulata* WILLISTON, Trans. Amer. Ent. Soc., xi, 34, pl. II, f. 15; Synop. N.
A. Syrph., 21, pl. I, f. 10; Biologia, Dipt., III, 6, oc. and notes.—N. M.,
Cal., Mex.
TOWNSEND, Psyche, 1897, 148, notes.—N. M.

GLAUROTRICHA.

THOMSON, Eugen. Resa, 493, 1868.

BIGOT, Annales, 1883, 250.

WILLISTON, Synop. N. A. Syrph., 301, note, 1886.

volucelloides BIGOT, Annales, 1884, 548.—Mex.

WILLISTON, Synop. N. A. Syrph., 301, note.

PARAGUS.

LATREILLE, Dict. D'Hist. Nat., XXIV, 1804: Hist. Nat. Crust. et Ins., XIV, 358, 1804.

MEIGEN, Syst. Besch., III, 176, 1822.

SCHINER, Fauna Austr., I, 256, 1862.

WILLISTON, Synop. N. A. Syrph., 17, 1886, def. and table of species.

VERRALL, Brit. Flies, VIII, 149, 1901.

CHAGNON, Ét. Prélim. les Syrph., 21, 1901.

angustifrons LOEW, Cent., IV, 64.—Va.

WILLISTON, Synop. N. A. Syrph., 17, transl. desc.

N. J.—Smith Cat.; Montreal—Chagnon; Sea Cliff, N. Y.—Banks.

bicolor FABRICIUS, Ent. Syst., IV, 297 (*Syrphus*); Syst. Antl., 186 (*Mulio*).—Europe.

LATREILLE, Dict. d'Hist. Nat., XXIV, 194.

MEIGEN, Syst. Besch., III, 178–180 (*arcuatus*, *bicolor*, *tæniatus*, and *testaceus*).

MACQUART, Hist. Nat. Dipt., I, 565.

ZETTERSTEDT, Dipt. Scand., II, 849–852 (*bicolor*, *punctulatus*, and *ruficauda*).

SCHINER, Fauna Austr., I, 259; Verh. Zool.-Bot. Ges., VII, 301.

OSTEN SACKEN, Catalogue, 120, oc. in N. A.

WILLISTON, Synop. N. A. Syrph., 18, pl. I, f. 7, 9.—U. S. and Europe: common and variable.

TOWNSEND, Psyche, Nov., 1897, oc. in N. M., and notes on varieties.

VERRALL, Brit. Flies, VIII, 152.

CHAGNON, Ét. Prélim. les Syrph., 21.—Quebec.

dimidiatus LOEW, Cent., IV, 63.—D. C.

WILLISTON, Synop. N. A. Syrph., 20, transl. desc.; Biologia, Dipt., III, 5, oc. and notes; perhaps not distinct from *tibialis*.—Mexico, several places.

tibialis FALLÉN, Syrphidi, 60 (*Pipiza*).—Europe.

MEIGEN, Syst. Besch., III, 182–184 (*hamorrhous*, *æneus*, *obscurus*, *tibialis*, and *femoratus*).

ZETTERSTEDT, Dipt. Scand., II, 852–854 (*tibialis*, *trianguliferus*, and *æneus*).

SCHINER, Fauna Austr., I, 257, desc. and European bibliography.

BIGOT, Annales, 1884, 540 (*auricaudatus*).—Cal.

WILLISTON, Synop. N. A. Syrph., 19, bibl., etc.—Europe and N. A.; common and variable.

TOWNSEND, Psyche, Nov. 1897, 140; Dec. 1897, 147, notes on varieties, etc.—N. M.

VERRALL, Brit. Flies, VIII, 150.

CHILOSIA.

MEIGEN, Syst. Besch., III, 296, 1822.

SCHINER, Fauna Austr., I, 273, 1862.

WILLISTON, Synop. N. A. Syrph., 38, 1886, table of species; Biologia, III, 8, 1891, table of Central Am. spp.

- BIGOT, Annales, 1883, 230 (*Cartosyrphus*). [Will.]
 HUNTER, Canad. Ent., XXVIII, 229, 1896, table and catalogue of species;
 XXIX, 1897, table of new species.
 VERRALL, British Flies, VIII, 205, 1901.
 CHAGNON, Ét. Prélim. les Syrph., 21, 1901.
Note.—The great work on this genus is the monograph by Theodor
 Becker, Halle, 1894, with 13 plates. This includes only the palæarctic
 fauna, not that of North America.
- æscytes* WALKER, List, III, 591 (*Syrphus*).—Martin Falls, Canada.
 OSTEN SACKEN, Cat., 124, gen. ref.
- alaskensis* HUNTER, Canad. Ent., XXIX, 124, fig.—Cook's Inlet, Alaska.
 COQUILLET, Proc. Wash. Acad. Sci., II, 427, oc. in Yakutat, Alaska.
- aldrichi* HUNTER, Canad. Ent., XXVIII, 229.—Craig's Mt., Idaho.
- auritecta* GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 132, 1892; Ditt. del Mess.,
 II, 58, pl. II, f. 22.—Orizaba, Mex.
- baroni* WILLISTON, Synop. N. A. Syrph., 40.—Cal., Wash.
- borealis* COQUILLET, Proc. Wash. Acad. Sci., II, 426.—Alaska, several places.
- capillata* LOEW, Cent., IV, 65.—D. C.
 BIGOT, Annales, 1884, 552 (*Cartosyrphus lamprurus*).—N. A. [Will.]
 WILLISTON, Synop. N. A. Syrph., 43.—Va.
 N. J.—Smith Cat.
- chalybescens* WILLISTON, Kans. Univ. Quart., II, 76.—Cal.
- chrysochlamys* WILLISTON, Biologia, Dipt., III, 8, pl. I, f. 4.—Guerrero, Mex.
- ? *cincta* BIGOT, Annales, 1883, 345 (*Lepidomyia*).—Mex.
 WILLISTON, Synop. N. A. Syrph., 299, doubtfully referred here.
- comosa* LOEW, Cent., IV, 66.—English R., Winnipeg.
 WILLISTON, Synop. N. A. Syrph., 44.—Col.
 CHAGNON, Ét. Prélim. les Syrph., 74.—St. Hilaire, Quebec.
- cyanea* HUNTER, Canad. Ent., XXVIII, 228.—Moscow, Idaho.
- cyanescens* LOEW, Cent., IV, 67, male.—Ill.
 ? LOEW, Cent., IV, 68, female (*plumata*).—Va. [Will., with some doubt.]
 WILLISTON, Synop. N. A. Syrph., 42, pl. III, f. 3.—Conn., N. H.
 CHAGNON, Ét. Prélim. les Syrph., 23.—Montreal.
- frontosa* BIGOT, Annales, 1883, 553 (*Cartosyrphus*).—Mex.
- gracilis* HUNTER, Canad. Ent., XXIX, 126, fig.—Cook's Inlet, Alaska.
 COQUILLET, Proc. Wash. Acad. Sci., II, 427, would make this a syn. of
plutonia.
- hoodiana* BIGOT, Annales, 1884, 552 (*Cartosyrphus*).—Mt. Hood, Ore.
 WILLISTON, Synop. N. A. Syrph., 292, quotes desc.; changes name to
hoodiensis.
 Hudsonian Zone, N. M.—Cockerell.
- infumatus* BIGOT, see *nigripennis*.
- lævis* BIGOT, Annales, 1884, 553 (*Cartosyrphus*).—Wash.
 WILLISTON, Synop. N. A. Syrph., 292, quotes desc.
- lamprurus* BIGOT, see *capillata*.
- lasiophthalmus* WILLISTON, Proc. Amer. Phil. Soc., XX, 306, 1882; Synop. N. A.
 Syrph., 40, pl. III, f. 2.—Col.
 COQUILLET, Proc. Wash. Acad. Sci., II, 427, oc. in Alaska.
 White Mts., N. H.—Slosson.
- latrans* WALKER, List, III, 575 (*Syrphus*).—Martin Falls, Canada. Gen. ref. by
 O. S., Cat., 124.
- leucoparea* LOEW, Cent., IV, 69.—Carolina.
 WILLISTON, Synop. N. A. Syrph., 45, transl. desc.

- lucta** SNOW, Kans. Univ. Quart., III, 228.—Col.
- lugubris** WILLISTON, see *willistonii*.
- nigripennis** WILLISTON, Proc. Amer. Phil. Soc., XX, 307; Synop. N. A. Syrph., 44, pl. II, f. 14.—Mt. Hood, Ore.
BIGOT, Annales, 1884, 553 (*Cartosyrphus infumatus*).—Mt. Hood, Ore. [Will.]
- occidentalis** WILLISTON, Proc. Amer. Phil. Soc., XX, 305; Synop. N. A. Syrph., 41, pl. III, f. 1.—Cal.
COQUILLET, Proc. Wash. Acad. Sci., II, 426, oc. in Alaska and Col.
CHAGNON, Ét. Prélim. les Syrph., 22.—Sherbrooke, Quebec.
White Mts., N. H.—Slosson; Hudsonian Zone, N. M.—Cockerell.
- pacifica** HUNTER, Canad. Ent., XXIX, 127, fig.—Cal.
- pallipes** LOEW, Cent., IV, 70.—D. C.
WILLISTON, Synop. N. A. Syrph., 41, pl. III, f. 5.—Jackson, N. H.; Wash., Ore.
CHAGNON, Ét. Prélim. les Syrph., 23.—Montreal.
N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- parva** WILLISTON, Proc. Amer. Phil. Soc., XX, 307; Synop. N. A. Syrph., 45, pl. II, f. 13.—Ore.
BIGOT, Annales, 1884, 555 (*Melanogaster? ochripes*).—Mt. Hood, Ore. [Will.]
- petulca** WILLISTON, Synop. N. A. Syrph., 39, pl. II, f. 15.—Wash.
White Mts., N. H.—Slosson.
SNOW, Kans. Univ. Quart., III, 228, oc. in Col. and note.
- plumata** LOEW, see *cyaneescens*.
- plutonia** HUNTER, Canad. Ent., XXIX, 125, fig.—Cook's Inlet, Alaska.
COQUILLET, Proc. Wash. Acad. Sci., II, 427, oc. in Alaska.
See note about this under *gracilis*.
- prima** HUNTER, Canad. Ent., XXVIII, 92.—Pa.
- pulchriceps** LOEW, Verh. Zool.-Bot. Verein, 1857, 19.—Europe.
SCHINER, Fauna Austr., I, 281.
BECKER, Rev. Gatt. Chilosis, 372.
COQUILLET, Proc. Wash. Acad. Sci., II, 428, oc. in Alaska.
VERRALL, British Flies, VIII, 222.
- punctulata** HUNTER, Canad. Ent., XXIX, 128, fig.—Nebr.
- ? rufipes** BIGOT, Annales, 1884, 555 (*Melanogaster*).—N. A.
WILLISTON, Synop. N. A. Syrph., 301, quotes desc.; may be a *Melanos-toma*.
- signatiseta** HUNTER, Canad. Ent., XXVIII, 227.—Moscow, Idaho.
- skinneri** JOHNSON, Trans. Amer. Ent. Soc., XXIX, 101.—Beulah, N. M.
- sororcula** WILLISTON, Biologia, Dipt., III, 9.—Guerrero, Mex.
SNOW, Kans. Univ. Quart., III, 228.—N. M.
- sororia** WILLISTON, Biologia, Dipt., III, 8.—Durango, Mex.
- tarda** SNOW, Kans. Univ. Quart., III, 228.—Col.
- townsendi** HUNTER, Canad. Ent., XXVIII, 94.—Cal.
TOWNSEND, Proc. Cal. Acad. Sci., ser. 2, IV, 611 (*Chilosis*, n. sp.).
- tristis** LOEW, Cent., IV, 71.—Red R. of the North.
WILLISTON, Synop. N. A. Syrph., 293, notes.
COQUILLET, Proc. Wash. Acad. Sci., II, 427, oc. in Alaska.
Beulah, N. M.—Skinner; Canadian Zone, N. M.—Cockerell.
- versipellis** WILLISTON, Synop. N. A. Syrph., 44.—Wash.
- willistonii** SNOW, Kans. Univ. Quart., III, 227, change of name.
WILLISTON, Synop. N. A. Syrph., 45 (*lugubris*, preoc.).—Col.
HUNTER, Canad. Ent., XXVIII, 233, note.

CHALCOMYIA.

- WILLISTON, Bull. Brooklyn Ent. Soc., VII, 113, 1885; Synop. N. A. Syrph., 126, 1886.
ærea LOEW, Cent., X, 53 (*Myiolepta*).—Ill.
 WILLISTON, Synop. N. A. Dipt., 126, pl. IV, f. 14.—Va.

MYIOLEPTA.

- NEWMAN, Ent. Mag., V, 373, 1838.
 RONDANI, Dipt. Ital. Prod., II, 96, 1857 (*Xyloteja*).
 SCHINER, Fauna Austr., I, 324, 1862.
 WILLISTON, Synop. N. A. Syrph., 127, 1886, def. and table of species.
 VERRALL, Brit. Flies, VIII, 572, 1901.
ærea LOEW, see *Chalcomyia*.
auricaudata WILLISTON, Biologia, Dipt., III, 40, pl. 1, f. 11.—Guerrero and Morcillos, Mex.
aurinota HINE, Canad. Ent., XXXV, 245.—Phœnix, Ariz.
bella WILLISTON, Proc. Amer. Phil. Soc., XX, 308; Synop. N. A. Syrph., 128, pl. V, f. 2.—Wash., Ore.
 COQUILLET, Proc. Wash. Acad. Sci., II, 434, oc. at Virgin Bay, Alaska.
nigra LOEW, Cent., X, 52.—Pa.
 WILLISTON, Synop. N. A. Syrph., 129, pl. IV, f. 15.—N. Y., N. C.
strigilata LOEW, Cent., X, 54.—Texas.
 WILLISTON, Synop. N. A. Syrph., 127.—N. C.
varipes LOEW, Cent., IX, 79.—Va.
 WILLISTON, Proc. Amer. Phil. Soc., XX, 308; Synop. N. A. Syrph., 128, pl. V, f. 1.—Wash., Col.
 BIGOT, Annales, 1884, 537 (*lunulata*).—Mt. Hood, Ore. [Will.]

BACCHA.

- FABRICIUS, Syst. Antl., 199, 1805.
 MEIGEN, Syst. Besch., III, 196, 1822.
 SCHINER, Fauna Austr., I, 323, 1862.
 WILLISTON, Synop. N. A. Syrph., 116, 1886, def. and table of species;
 Biologia, Dipt., III, 1891, 31, table of Central American spp.
 CHAGNON, Ét. Prélim. les Syrph., 41, 1901.
 VERRALL, Brit. Flies, VIII, 455, 1901.
adpersa FABRICIUS, Syst. Antl., 200.—S. A.
 WIEDEMANN, Auss. Zweifl., II, 97.—S. A.
 SCHINER, Novara, 342.—S. A.
 WILLISTON, Trans. Amer. Ent. Soc., XV, 269; Biologia, Dipt., III, 34, oc.—Brazil; Panama.
ænea WILLISTON, Biologia, Dipt., III, 37, pl. 1, f. 10.—Guerrero, Mex.
attenuata WILLISTON, Biologia, Dipt., III, 35.—Guerrero, Mex.
aurinota WALKER, see *fascipennis*.
babista WALKER, see *clavata*.
capitata LOEW, Cent., III, 25.—Cuba.
 WILLISTON, Synop. N. A. Syrph., 124.—Cuba.
 Porto Rico—Roeder.
clavata FABRICIUS, Ent. Syst., IV, 298 (*Syrphus*); Syst. Antl., 200.—W. I.
 WIEDEMANN, Auss. Zweifl., II, 94.—S. A.
 SCHINER, Novara, 341, note.—S. A.
 WALKER, List, III, 548 (*varia*); 549 (*babista*); Trans. Linn. Soc., XVII, 342 (*Paragus? scutellaris*).—No. loc.; Ga.; Brazil. [Austen.]

- THOMSON, Eugen. Resa, 504 (*facialis*).—Galapagos Ids. [Will.]
 BIGOT, Annales, 1883, 326 (*Spazigaster bacchoides*).—Rocky Mts. [Will.]
 WILLISTON, Trans. Amer. Ent. Soc., xv, 270; Synop. N. A. Syrph., 117.
 pl. iv, f. 9 (*babista*); Biologia, Dipt., III, 33; Ent. News, III, 145, bibl.;
 Trans. Ent. Soc. Lond., 1896, 347, full syn.—Ga., Fla., Ariz., Cal., Mex.
 (several places), St. Vincent, W. I. and Guadeloupe.
 AUSTEN, Proc. Zool. Soc. Lond., 1893, 159, syn. of Walker's spp. from
 types.
 SNOW, Kans. Univ. Quart., III, 239, oc. in N. M., Fla., Col.
 GIGLIO-TOS, Ditt. del Mess., II, 57, pl. II, f. 20, oc. in Mex.
 TOWNSEND, Jour. N. Y. Ent. Soc., v, 172, brief desc. of pupa; Trans.
 Amer. Ent. Soc., XXII, notes.—Brownsville, Texas; Jamaica and N. M.
 HUNTER, Canad. Ent., XXVIII, 96, oc. and notes; XXIX, 130, oc.—Nebr.
 Porto Rico—Roeder and Coquillett; Jamaica and Fla.—Johnson; N. J.—
 Smith Cat.
- cochinillivora** GUÉRIN, Rev. Zool., 1848, 350; Bull. Soc. Ent., 1848.—Guatemala.
cœrulea WILLISTON, Biologia, Dipt., III, 38.—Guerrero, Mex.
cognata LOEW, Cenh., III, 27.—N. Y. (Not N. Wis.—O. S.)
 WILLISTON, Synop. N. A. Syrph., 122, quotes orig. desc.
 CHAGNON, Ét. Prélim. les Syrph., 42.—Montreal.
 N. J.—Smith Cat.
- concinna** WILLISTON, Biologia, Dipt., III, 38.—Guerrero and Tabasco, Mex.
conjuncta WIEDEMANN, Auss. Zweifl., II, 116 (*Syrphus*).—S. A.
 WILLISTON, Trans. Amer. Ent. Soc., xv, 267; Biologia, Dipt., III, 33, oc.—
 Brazil; Vera Cruz, Mex.
- costata** SAY, Jour. Acad. Sci. Phil., VI, 61; Compl. Works, II, 357.—Ind.
 WILLISTON, Synop. N. A. Syrph., 122, quotes orig. desc.
- cubensis** MACQUART, Dipt. Exot., Suppl. IV, 161.—Cuba.
cylindrica FABRICIUS, Spec. Ins., II, 249; Ent. Syst., IV, 298 (both *Syrphus*):
 Syst. Antl., 190.—W. I.
 WIEDEMANN, Auss. Zweifl., II, 92.—W. I.
- dimidiata** FABRICIUS, see *Ocyrtamias*.
- dolosa** WILLISTON, Biologia, Dipt., III, 37, pl. 1, f. 7.—Guerrero, Mex.; Guate-
 mala.
- fascipennis** WIEDEMANN, Auss. Zweifl., II, 96.—No locality.
 WALKER, List, III, 548 ("Baccha aurinota HARRIS, Catalogue Ins. of
 Massachusetts").—U. S. Harris' name had not been published.
 VAN DER WULP, Tijdschr. v. Ent., XXVI, 9, oc. at Quebec.
 WILLISTON, Synop. N. A. Syrph., 120, pl. IV, f. 7 ("aurinota (Harris)
 Walker").—Conn., Mass., Ind.
 CHAGNON, Ét. Prélim. les Syrph., 42.—Ottawa.
 Sea Cliff, N. Y.—Banks.
- gracilis** WILLISTON, Biologia, Dipt., III, 34.—Guerrero, Mex.
laudabilis WILLISTON, Biologia, Dipt., III, 36.—Guerrero, Mex.
lemur OSTEN SACKEN, West. Dipt., 331.—Cal., Wyo., N. M.
 WILLISTON, Synop. N. A. Syrph., 121, quotes orig. desc.
 TOWNSEND, Psyche, 1897, 148, notes; Annals and Mag. Nat. Hist., XIX,
 140, oc.; Trans. Amer. Ent. Soc., XXII, 38, notes.—N. M.
 HUNTER, Canad. Ent., XXIX, 131, note.—Col.
- lepida** MACQUART, Dipt. Exot., II, 2, 109, pl. XIX, f. 1.—No locality.
 GIGLIO-TOS, Ditt. del Mess., II, 55.—Orizaba, Mex.
- lineata** MACQUART, Dipt. Exot., Suppl. 1, 139, pl. XX, f. 5.—Yucatan, or Texas.

- livida** SCHINER, Novara, 343.—S. A.
WILLISTON, Trans. Amer. Ent. Soc., xv, 268; Biologia, Dipt., III, 33, oc.—Brazil, and Guerrero, Vera Cruz and N. Yucatan, Mex.; may be same as *lineata*.
- luctuosa** BIGOT, Annales, 1883, 334.—Mex.
? WILLISTON, Biologia, Dipt., III, 39, doubtfully identified and redesc. from Costa Rica.
- lugens** LOEW, Cent., III, 24.—N. Wis.
WILLISTON, Synop. N. A. Syrph., 118.—S. States.
N. J.—Smith Cat.; Crescent City, Fla.—Johnson; Sea Cliff, N. Y.—Banks.
- lugubris** WILLISTON, Biologia, Dipt., III, 37.—Guerrero, Vera Cruz, and Tabasco, Mex.
- marmorata** BIGOT, Annales, 1883, 333.—Mex.
GIGLIO-TOS, Ditt. del Mess., II, 58, pl. II, f. 19.—Orizaba, Mex.
- nasuta** BIGOT, Annales, 1884, 103 (*Sphacriophoria nasuta*; the same name is used for a different species in Annales, 1888, 253—G. T.).—Mex.
WILLISTON, Biologia, Dipt., III, 35 (*nasuta*, n. sp.).—Mex. [G. T.]
GIGLIO-TOS, Ditt. del Mess., II, 57, pl. II, f. 8.—Orizaba and Solco, Mex.
- notata** LOEW, Cent., VII, 65.—Cuba.
HUNTER, Canad. Ent., XXVIII, 97, transl. desc. and notes.—Fla.
Charlotte Harbor, Fla.—Johnson.
- obscuricornis** LOEW, Cent., III, 26.—Sitka.
OSTEN SACKEN, West. Dipt., 332 (*angusta*).—Cal. [Will.]
OSTEN SACKEN, Cat., 127, believes *angusta* is the same as as the European *B. clongata* F.
WILLISTON, Synop. N. A. Syrph., 123.—Col.
COQUILLET, Proc. Wash. Acad. Sci., II, 434, oc. in Br. Col. and Alaska.
- parvicornis** LOEW, Wien. Ent. Monatsch., v, 41; Cent., VII, 64.—Cuba.
Porto Rico—Roeder.
- phæoptera** SCHINER, Novara, 342.—S. A.
WILLISTON, Trans. Amer. Ent. Soc., xv, 267; Biologia, Dipt., III, 33, oc. and note.—Brazil; Mexico, several places.
TOWNSEND, Annals and Mag. Nat. Hist., XIX, 20.—Paso de Telaya, Mex.
- punctifrons** WILLISTON, Biologia, Dipt., III, 36.—Guerrero, Mex.
- rubida** WILLISTON, Biologia, Dipt., III, 34, pl. I, f. 8.—Guerrero, Mex.
- sagittifera** AUSTEN, Proc. Zool. Soc. Lond., 1893, 144, pl. IV, f. 14.—Jamaica.
- spatulata** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 132, 1892; Ditt. del Mess., II, 56, pl. II, f. 18.—Orizaba, Mex.
- stenogaster** WILLISTON, Trans. Amer. Ent. Soc., xv, 266; Biologia, Dipt., III, 34, oc. and note.—Brazil; Guerrero, Mex.
- tarchetius** WALKER, List, III, 549.—Ga.
WILLISTON, Synop. N. A. Syrph., 117.—N. J.
TOWNSEND, Trans. Amer. Ent. Soc., XXII, 38, notes.—Va.
HUNTER, Canad. Ent., XXVIII, 96, oc. and notes.—Penn., Ala.
N. J.—Smith Cat.; Orlando and Inverness, Fla.—Johnson.
- torva** WILLISTON, see *Ocyptamus trigonus*.
- tricincta** BIGOT, Annales, 1883, 33.—Wash.
- tropicalis** TOWNSEND, Jour. N. Y. Ent. Soc., v, 172; VI, 50, notes.—Brownsville, Texas.

OCYPTAMUS.

MACQUART, Hist. Nat. Dipt., I, 554, 1834.

WILLISTON, Synop. N. A. Syrph., 116, 1886, combines with *Baccha*; Manual, 86, 1896, reinstates.

- antiphates** WALKER, List, III, 589 (*Syrphus*).—Jamaica.
AUSTEN, Proc. Zool. Soc. Lond., 1893, 134, gen. ref. from type.
- conformis** LOEW, Cent., VII, 67.—Cuba.
WILLISTON, Synop. N. A. Syrph., 119, may be same as *fuscipennis* (*Baccha*).
Porto Rico—Roeder.
- dimidiatus** FABRICIUS, Spec. Ins., II, 434; Ent. Syst., IV, 310 (both *Syrphus*); Syst. Antl., 254 (*Scæva*).—W. I.
WIEDEMANN, Auss. Zweifl., II, 140 (*Syrphus*).—W. I.
WALKER, Trans. Ent. Soc., n. ser., IV, 156 (*Pipiza dolosa* and *divisa*).—Amazon; Vera Cruz. [Austen.]
MACQUART, Dipt. Exot., II, 2, 105 (*Chilosia*), gen. ref.
SCHINER, Novara, 346, oc. in Brazil.
VAN DER WULP, Tijdschr. v. Ent., XXVI, 10.—Guadeloupe.
WILLISTON, Trans. Amer. Ent. Soc., XV, 265; Synop. N. A. Syrph., 125, pl. v, f. 10 (*Baccha*); Biologia, Dipt., III, 30, oc. and notes; Trans. Ent. Soc. Lond., 1896, 348, full syn.—Brazil; San Domingo; Mexico, several places; St. Vincent, W. I.
GIGLIO-TOS, Ditt. del Mess., II, 53.—Mexico, common.
TOWNSEND, Trans. Amer. Ent. Soc., XXII, 39, oc. in Jamaica.
- fasciatus** ROEDER, Stett. Ent. Zeit., 1885, 342.—Porto Rico.
- funebis** MACQUART, Hist. Nat. Dipt., I, 554; Dipt. Exot., II, 2, 105, pl. XIX, f. 2.—Brazil; Isle Teneriffe.
BIGOT, in Sagra's Cuba, Ins., 338, oc. in Cuba.
SCHINER, Novara, 346, notes.—Brazil.
VAN DER WULP, Tijdschr. v. Ent., XXVI, 9, note.—Bahia.
WILLISTON, Trans. Amer. Ent. Soc., XV, 265; Biologia, Dipt., III, 30.—Brazil; Mexico, several places.
F. LYNCH ARRIBALZAGA, Dipt. Argentina, 253.—Argentina.
GIGLIO-TOS, Ditt. del Mess., II, 54, oc. in Mex., common.
- fuscipennis** SAY, Jour. Acad. Sci. Phil., III, 100; Compl. Works, II, 86 (*Baccha*).—Pa.
MACQUART, Hist. Nat. Dipt., I, 554, pl. XII, f. 13 (*fascipennis*, n. sp.).—Philadelphia.
WALKER, List, III, 589, 590 (*Syrphus amissas*, *radaca*, and *peas*).—Ga.; Fla.; no locality. [Austen, from Walker's types.]
LOEW, Cent., VII, 66 (*longicentris*).—D. C. [Will.]
OSTEN SACKEN, Cat., note 216, on Walker's types.
VAN DER WULP, Tijdschr. v. Ent., XXVI, 9, note (*fascipennis*).—Guadeloupe.
WILLISTON, Synop. N. A. Syrph., 119, pl. IV, f. 8 (*Baccha*).—Conn., Fla., Kans.
TOWNSEND, Annals and Mag. Nat. Hist., XIX, 21, note; Trans. Amer. Ent. Soc., XXII, note.—Vera Cruz, Mex.; Jamaica.
Sea Cliff, N. Y.—Banks; N. J.—Smith Cat.; Fla.—Johnson.
- infuscatus** BIGOT, Annales, 1883, 324 (*infuscatus* and *fraternus*); 1884, 251 (*fenestratus*).—Mexico. [Will.]
GIGLIO-TOS, Ditt. del Mess., II, 55, oc. and note (*fenestratus*).—Orizaba, Mex.
WILLISTON, Biologia, Dipt., III, 30, may not be distinct from *funebis*.
- iris** AUSTEN, Proc. Zool. Soc. Lond., 1893, 133, pl. IV, f. 1.—Jamaica.
- latiusculus** LOEW, Cent., VII, 68.—Cuba.
WILLISTON, Synop. N. A. Syrph., 122 (*Baccha*).—San Domingo.
Porto Rico—Roeder and Coquillett; Jamaica—Johnson.

- notatus** COQUILLET, *Canad. Ent.*, 1902, 195.—Frontera in Tabasco, Mex.
rufiventris BIGOT, *Annales*, 1883, 325.—Cuba.
scutellatus LOEW, *Cent.*, VII, 69.—Cuba.
trigonus WIEDEMANN, *Auss. Zweifl.*, II, 126 (*Syrphus*).—Brazil.
 WALKER, *Trans. Ent. Soc.*, n. ser., IV, 156 (*Pipiza pica*).—Amazon River.
 [Austen.]
 SCHINER, *Novara*, 346.—Columbia, S. A.
 WILLISTON, *Trans. Amer. Ent. Soc.*, XV, 264, 265 (*trigonus* and *gastrostacus* WIED.); *Synop. N. A. Syrph.*, 124 (*Baccha torva*); *Biologia, Dipt.*, III, 18 and 30 (*Syrphus* sp.? and *O. trigonus*); *Ent. News*, III, 146, note and bibl.—Brazil; Texas; Guerrero and N. Yucatan, Mex.
 SNOW, *Suppl. List, Kans. Univ. Quart.*, III, 255, syn.
 F. LYNCH ARRIEZAGA, *Dipt. Argentina*, 254.—Argentina.
 GIGLIO-TOS, *Ditt. del Mess.*, II, 54, oc. in Mexico, several places.

SALPINGOGASTER.

- SCHINER, *Novara*, 344, 1868.
 WILLISTON, *Synop. N. A. Syrph.*, 298, 1886; *Biologia, Dipt.*, III, 28, 1891, table of species.
cothurnata BIGOT, *Annales*, 1883, 329.—Mex.
limbipennis WILLISTON, *Biologia, Dipt.*, III, 29.—Guerrero, Mex.
nigra SCHINER, *Novara*, 345.—S. A.
 WILLISTON, *Trans. Amer. Ent. Soc.*, XV, 270; *Biologia, Dipt.*, III, 29, oc. and syn.—Brazil; Guatemala and Panama.
 BIGOT, *Annales*, 1883, 328 (*anchoratus*).—Mexico.
 GIGLIO-TOS, *Ditt. del Mess.*, II, 22, notes, etc.—Orizaba, Mex.
nova GIGLIO-TOS, *Boll. R. Univ. Torino*, VII, No. 123, 1892; *Ditt. del Mess.*, II, 23, pl. II, f. 3.—Mex.
pygophora SCHINER, *Novara*, 344.—No locality.
 WILLISTON, *Trans. Amer. Ent. Soc.*, XV, 270.—Mexico.

PYROPHÆNA.

- SCHINER, *Wien. Ent. Monatsch.*, IV, 213, 1860; *Fauna Austriaca*, I, 297, 1864.
 WILLISTON, *Synop. N. A. Syrph.*, 54, def. and table of species, 1886.
 VERRALL, *Brit. Flies*, VIII, 299, 1901.
 CHAGNON, *Ét. Prélim. les Syrph.*, 29, 1901.
granditarsa FORSTER, *N. Sp. Ins.*, *Cent.*, I, 99 (*Musca granditarsa*).—Europe.
Note.—Hagen gives 1781 as the date of the preceding; Verrall gives 1771.
 FABRICIUS, *Mantissa Ins.*, II, 341 (*Syrphus ocymi*); *Ent. Syst.*, IV, 307 (id.); *Syst. Antl.*, 252 (*Scæva ocymi*).
 HARRIS, *Expl. Engl. Ins.*, 110, pl. XXXIII, f. 51 (*Musca confusus*).
 PANZER, *Fauna Germ.*, LXXXII, 18 (*Syrphus ocymi*).
 FALLÉN, *Syrphidi*, 48 (*Scæva ocymi*).
 MEIGEN, *Syst. Besch.*, III, 337 (*Syrphus ocymi*).
 MACQUART, *Hist. Nat. Dipt.*, I, 546 (id.).
 ZETTERSTEDT, *Dipt. Scand.*, II, 754 and VIII, 3152 (*Scæva ocymi*).
 STÆGER, *Kröyer's Tidsskr.*, IV, 326 (*Platycheirus ocymi*).
 WALKER, *Ins. Brit.*, *Dipt.*, I, 295, restores Forster's name.
 SCHINER, *Verh. Zool.-Bot. Ges.*, VII, 362 (*ocymi*); *Fauna Austr.*, I, 297 (id.).
 OSTEN SACKEN, *Cat.*, 122 (id.), oc. in N. A.—Mass., White Mts., N. H., Quebec, Athabasca, L., etc.

WILLISTON, Synop. N. A. Syrph., 55, pl. III, f. 13 (id.).—Wash., Labrador.

VERRALL, Brit. Flies, VIII, 300, figs.

Montreal—Chagnon; White Mts., N. H.—Slosson (both *ocymi*).

ocymi FABRICIUS, see *granditarsus*.

rosarum FABRICIUS, Mantissa Ins., II, 341 (*Syrphus*); Ent. Syst., IV, 307 (id.); Syst. Antl., 251 (*Scæva*).—Europe.

FALLÉN, Syrphidi, 47 (*Scæva*).

MEIGEN, Syst. Besch., III, 338 (*Syrphus*).

ZETTERSTEDT, Dipt. Scand., II, 755 and VIII, 3152 (*Scæva*).

SCHINER, Verh. Zool.-Bot. Ges., VII, 357; Fauna Austr., I, 298.

OSTEN SACKEN, Cat., 122, oc. in N. A.—Mass. and White Mts., N. H.

WILLISTON, Synop. N. A. Syrph., 55, desc. quoted.

VERRALL, Brit. Flies, VIII, 392, figs.

PLATYCHIRUS.

ST. FARGEAU et SERVILLE, Encycl. Méth., X, 513, 1825 (*Platychirus*).

SCHINER, Fauna Austr., I, 292, 1862.

WILLISTON, Synop. N. A. Syrph., 56, def. and table of species, 1886.

VERRALL, Brit. Flies, VIII, 262, 1901.

CHAGNON, Ét. Prélim. les Syrph., 28, 1901.

æratus COQUILLETT, Proc. Wash. Acad. Sci., II, 430.—Muir Inlet, Alaska.

albimanus FABRICIUS, Spec. Ins., II, 434 (*Syrphus*); Syst. Antl., 253 (*Scæva*).—Europe.

MEIGEN, Syst. Besch., III, 333 (*Syrphus*).

WALKER, Ins. Brit., I, 294.

SCHINER, Fauna Austr., I, 294.

BIGOT, Annales, 1884, 75 (*ciliatus*).—Cal.

WILLISTON, Synop. N. A. Syrph., 59 (*ciliatus*).—Cal.

COQUILLETT, Proc. Wash. Acad. Sci., II, 430, oc. in Alaska.

VERRALL, Brit. Flies, VIII, 280, 675, figs., desc. and syn. of Bigot, from his type.—England.

White Mts., N. H.—Slosson (*ciliatus*).

chætopodus WILLISTON, Synop. N. A. Syrph., 59.—Wash.

SNOW, Kans. Univ. Quart., III, 231, note.—Col.

ciliatus BIGOT, see *albimanus*.

hyperboreus STÆGER, Grœnl. Antl., 362 (*Syrphus*).—Greenland.

HOLMGREN, Ins. Nordgrœnl., 100 (*Scæva*).—Greenland.

WILLISTON, Synop. N. A. Syrph., 57, pl. III, f. 12.—N. Y., Col., Pa., White Mts., N. H.

SNOW, Kans. Univ. Quart., III, 231, notes.—Col.

CHAGNON, Ét. Prélim. les Syrph., 29.—Montreal.

N. J.—Smith Cat.; Axton, N. Y.—M. and H.; Sea Cliff, N. Y.—Banks.

naso WALKER, List, III, 587 (*Syrphus*).—Martin Falls, Canada.

OSTEN SACKEN, Cat., 244, note on type and gen. ref.

pacilus WALKER, Dipt. Saund., 240 (*Syrphus*).—N. A.

OSTEN SACKEN, Cat., 244, note on type and gen. ref.

palmulosus SNOW, Kans. Univ. Quart., III, 231.—Col.

peltatus MEIGEN, Syst. Besch., III, 334 (*Syrphus*).—Europe.

FALLÉN, Syrphidi, 46 (*Scæva albimana*).

ZETTERSTEDT, Dipt. Scand., II, 747; VIII, 4145 (both *Scæva*).

STÆGER, Krøyer's Tidsskr., IV, 320.

SCHINER, Fauna Austr., I, 295.

OSTEN SACKEN, Cat., 122, oc. in N. A.—Alaska and West. N. Y.

- WILLISTON, Synop. N. A. Syrph., 58, pl. III, f. 11.—White Mts., N. H., Pa.
 VERRALL, Brit. Flies, VIII, 274, figs.
 Alaska—Coquillett and Johnson.
- quadratus** SAY, Jour. Acad. Sci. Phil., III, 90; Compl. Works, II, 79 (*Scæva*).—
 U. S.
 WIEDEMANN, Auss. Zweifl., II, 135 (*Syrphus*).—Pa.
 MACQUART, Dipt. Exot., Suppl. v, 95 (*Syrphus fuscianipennis*).—Baltimore.
 [Osten Sacken, Cat., 122.]
 WILLISTON, Synop. N. A. Dipt., 57, pl. III, f. 10.—U. S. generally.
 COQUILLET, Proc. Wash. Acad. Sci., II, 428, oc.—Alaska, several places.
 CHAGNON, Ét. Prélim. les Syrph., 28.—St. Jean and Montreal, Quebec.
- tenebrosus** COQUILLET, Proc. Wash. Acad. Sci., II, 428.—Alaska, several places.

MELANOSTOMA.

- SCHINER, Wien. Ent. Monatsch., IV, 213, 1800; Fauna Austr., I, 289, 1862.
 WILLISTON, Synop. N. A. Syrph., 46, def. and table of species; Biologia,
 Dipt., III, 9, table of Central American spp., 1891.
 VERRALL, Brit. Flies, VIII, 303, 1901.
 CHAGNON, Ét. Prélim. les Syrph., 25, 1901.
- ambiguum** FALLÉN, Syrphici, 47 (*Syrphus*).—Europe.
 SCHINER, Fauna Austr., I, 291.
 ? STEGER, Grœnl. Antl., 361, doubtfully ident. from Greenland.
 LUNDBECK, Dipt. Grœnl., I, 300, oc. in Greenland.
 VERRALL, Brit. Flies, VIII, 304, 675; has seen specimens from N. A.
- angustatum** WILLISTON, Synop. N. A. Syrph., 50, pl. III, f. 7.—Wash.
 White Mts., N. H.—Slosson.
- ? **annuliferum** BIGOT, Annales, 1884, 84 (*M. ? annulifera*).—Mex.
 WILLISTON, Biologia, Dipt., III, 14, note; cannot be a *Melanostoma*.
- ? **anthracoides** BIGOT, Annales, 1884, 82.—Panama. Query by Bigot.
 WILLISTON, Biologia, Dipt., III, 14, note; more likely *Ocyptamus*.
- ? **bicruciatum** BIGOT, Annales, 1884, 79.—Cal. Query by Bigot.
 WILLISTON, Synop. N. A. Syrph., 53, quotes desc.
- bucephalus** WIEDEMANN, Auss. Zweifl., II, 126 (*Syrphus*).—Brazil.
 WILLISTON, Trans. Amer. Ent. Soc., XV, 264; Biologia, Dipt., III, 11.—
 Brazil; Guerrero, Mex.
 GIGLIO-TOS, Ditt. del Mess., II, 34.—Orizaba, Mex.
- catabomba** WILLISTON, Biologia, Dipt., III, 12.—Guerrero, Mex.
 GIGLIO-TOS, Ditt. del Mess., II, 38.—Meztillan and Orizaba, Mex.
- cœrulescens** WILLISTON, Synop. N. A. Syrph., 49.—Col.
 CHAGNON, Ét. Prélim. les Syrph., Sherbrooke, Quebec.
- concinnum** SNOW, Kans. Univ. Quart., III, 229.—N. M. and Col., up to 10,000 ft.
 SNOW, Kans. Univ. Quart., I, 35 (*M.*, n. sp.?).
- crenulatum** WILLISTON, Biologia, Dipt., III, 12, pl. I, f. 5.—Guerrero, Mex.
 ? GIGLIO-TOS, Ditt. del Mess., II, 40, doubtfully ident. from Mex.
- cruciatum** BIGOT, see *mellinum*.
- cyaneocinctum** BIGOT, Annales, 1885, 251.—Mex.
- elegans** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 132, 1892; Ditt. del Mess., II,
 39, pl. II, f. 21.—Orizaba, Mex.
- fenestratum** MACQUART, Dipt. Exot., II, 2, 103, pl. XVII, f. 6 (*Syrphus*).—Chili.
 BLANCHARD, in Gray's Hist., etc., Chile, VII, 413 (id.).
 PHILIPPI, Aufzählung d. Chilen' schen Dipt., 746 (id.).
 SCHINER, Novara, 351.—S. A.
 WILLISTON, Biologia, Dipt., III, 10.—Guerrero and Durango, Mex.

- glaciale** JOHNSON, see *Syrphus*.
- kelloggi** SNOW, Kans. Univ. Quart., III, 230.—Col.
- melanocera** WILLISTON, Biologia, Dipt., III, 13.—Costa Rica.
- mellinum** LINNÉ, Syst. Nat., 10th ed., 594 (*Musca*); Fauna Suec., 2d ed., 449 (id.).—Europe.
- SCOPOLI, Ent. Carn., 346 (id.).
- FABRICIUS, Syst. Ent., 771; Ent. Syst., IV, 308 (*Syrphus*); Syst. Antl., 257 (*Scæva*).
- FALLÉN, Syrphici, 46 (*Scæva*).
- MEIGEN, Syst. Besch., III, 328, 329, 331 (*Syrphus mellarius, melliturgus, and mellinus*).
- ZETTERSTEDT, Dipt. Scand., II, 759 (*Scæva*).
- SCHINER, Verh. Zool.-Bot. Ges., VII, 355; Fauna Austr., I, 292.
- KOWARZ, Wien. Ent. Zeit., IV, 201.
- BIGOT, Annales, 1884, 76, 79 (*M. annulata* and *M. pruinosa*).—Sierra Leone and Cal. [Verrall.]
- BIGOT, Annales, 1884, 81 (*M. cruciatum*).—Mex. [Williston; there may be some doubt as to this, for Verrall, who has Bigot's types, does not mention this synonym.]
- WILLISTON, Synop. N. A. Syrph., 49, pl. III, f. 9, desc. and syn.; Biologia, Dipt., III, II, 6c, and notes.—U. S. and Mexico, common.
- GIGLIO-TOS, Dipt. del Mess., II, 37, bibliog., etc.—Mexico.
- HUNTER, Canad. Ent., XXIX, 129, 6c, in Alaska.
- CHAGNON, Ét. Prélim. les Syrph., 27.—Quebec.
- VERRALL, Brit. Flies, VIII, 309, 51, exhaustive bibliography.
- N. A., in nearly all local lists.
- obscurum** SAY, Amer. Entom., I, pl. XI; Compl. Works, I, 23 (*Syrphus*).—Pa., Va.
- WIEDEMANN, Auss. Zweifl., II, 131, transl. from Say.
- WILLISTON, Synop. N. A. Syrph., 48.—White Mts., N. H., Conn., Pa.
- CHAGNON, Ét. Prélim. les Syrph., 26.—Montreal and Rigaud, Quebec.
- N. J.—Smith Cat.; Sea Cliff, N. Y.—Banks.
- ? **pachytarsis** BIGOT, Annales, 1884, 80.—Cal. Query by Bigot.
- WILLISTON, Synop. N. A. Syrph., 54, quotes orig. desc.
- ? **pictipes** BIGOT, Annales, 1884, 78.—Cal. Query by Bigot.
- WILLISTON, Synop. N. A. Dipt., 53, quotes orig. desc.
- ? **quadrinotatum** BIGOT, Annales, 1884, 77.—Mex. Query by Bigot.
- WILLISTON, Biologia, Dipt., III, 14, note, not seen.
- ? **rufipes** WILLISTON, Proc. Amer. Phil. Soc., XX, 306 (*Chilosia*); Synop. N. A. Syrph., 47.—Wash. Doubt by Williston.
- HUNTER, Ent. News, VII, 216, male, etc.
- rugonasmus** WILLISTON, Biologia, Dipt., III, 13.—Guerrero, Mex.
- stegnum** SAY, Jour. Acad. Sci. Phil., VI, 163; Compl. Works, II, 358 (*Syrphus*).—Mex.
- MACQUART, Dipt. Exot., II, 2, 103, pl. XVI, f. 6 (*Syrphus fenestratus*).—Chili.
- SCHINER, Novara, 351 (id.).—S. A.
- THOMSON, Eugen. Resa, 502 (*Syrphus trichopus*).—Cal.
- PHILIPPI, Aufzähl. d. Chil. Dipt., 746 (id.).—Chili.
- OSTEN SACKEN, West. Dipt., 323 (*tigrina*).—Cal.
- BIGOT, Annales, 1884, 80 (*M. rostratum*).—Cal.
- WILLISTON, Trans. Amer. Ent. Soc., XV, 10 (*stegnum* and *fenestratum*);

- Synop. N. A. Syrph., 47, pl. III, f. 8 (*tigrinum*); Biologia, Dipt., III, 10; Ent. News, III, 145, bibl.—Brazil; Wash., Cal., Col., Ariz.; Mex.
 VAN DER WULP, Tijdschr. v. Ent., XXXI, 375 (*punctulata*).—Argentina.
 GIGLIO-TOS, Ditt. del Mess., II, 36, bibl., etc.—Mex.
 SNOW, Kans. Univ. Quart., I, 35, notes; III, 229, oc.—Col.
 COQUILLET, Proc. Wash. Acad. Sci., II, 428, recognizes *trichopus* as a distinct species, from Alaska.

trichopus THOMSON, see *stegnum*.

LEUCOZONA.

- SCHINER, Wien. Ent. Monatsch., IV, 214, 1860; Fauna Austr., I, 298, 1862.
 WILLISTON, Synop. N. A. Syrph., 61, 1886.
 MIK, Wien. Ent. Zeit., XVI, 62, notes, 1897.
 VERRALL, Brit. Flies, VIII, 319, 1901.
lucorum LINNÉ, Syst. Nat., 10th ed., 591 (*Musca*); Fauna Suec., 2d ed., 445 (id.).—Europe.
 FABRICIUS, Spec. Ins., II, 426 (*Syrphus*); Ent. Syst., IV, 291 (id.); Syst. Anthl., 241 (*Eristalis*); also described as *asiliformis* in the same works.
 FALLÉN, Syrphici, 50 (*Eristalis*).
 MEIGEN, Syst. Besch., III, 313 (*Syrphus lucorum* and *asiliformis*).
 SCOPOLI, Ent. Carniol., No. 908 (*Conops praeinctus*).
 ZETTERSTEDT, Dipt. Scand., II, 778 (*Eristalis*).
 SCHINER, Fauna Austr., I, 299.
 WILLISTON, Synop. N. A. Syrph., 62, pl. III, f. 6.—Wash., Col.
 OSTEN SACKEN, Cat., 122, oc. in N. A.—Brit. Poss., Quebec.
 COQUILLET, Proc. Wash. Acad. Sci., II, 430, oc. in Alaska.
 VERRALL, Brit. Flies, VIII, 319, 53, fuller bibliog., etc.

EUPEODES.

- OSTEN SACKEN, West. Dipt., 328, 1877.
 WILLISTON, Synop. N. A. Syrph., 64, 1886.
volucris OSTEN SACKEN, West. Dipt., 329.—Cal., Utah, Col.
 BIGOT, Annales, 1884, 90 (*Syrphus perpallidus*).—N. A. [Will.]
 WILLISTON, Synop. N. A. Syrph., 66, pl. III, f. 14.—Kans. westward to the coast, common.
 WILLISTON, Biologia, Dipt., III, 14, oc. in Mexico.
 SNOW, Kans. Univ. Quart., III, 232, note on dist.
 GIGLIO-TOS, Ditt. del Mess., II, 27, notes.—Mex.
 TOWNSEND, Psyche, 1897, 127 and 148, notes; Jour. N. Y. Ent. Soc., VI, 50, notes.—N. M.; Texas.
 Reared from larvæ feeding on grain *Aphis*, *Siphonophora avenæ*, at Moscow, Ida.—J. M. A.

DIDEA.

- MACQUART, Hist. Nat. Dipt., I, 508, 1834.
 MEIGEN, Syst. Besch., VII, 140, 1838 (*Enica*).
 SCHINER, Fauna Austr., I, 313, 1862.
 WILLISTON, Synop. N. A. Syrph., 89, 1886.
 VERRALL, Brit. Flies, VIII, 325, 1901.
coquilletti WILLISTON, Biologia, Dipt., III, 19, pl. I, f. 9.—Guerrero, Mex.
 GIGLIO-TOS, Ditt. del Mess., II, 21.—Solco, Mex.
fasciata MACQUART, Hist. Nat. Dipt., I, 508, pl. II, f. 15.—Europe.
 MEIGEN, Syst. Besch., VII, 140 (*Enica farsteri*).

- LOEW, Cent., iv, 82 (*fuscipes*).—Pa.
 OSTEN SACKEN, Cat., 245, note 212, makes *fuscipes* a var.
 WILLISTON, Synop. N. A. Syrph., 89 (*fasciata*, var. *fuscipes*).—Conn., N. M., S. D.
 VERRALL, Brit. Flies, viii, 328.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson; Quebec—Wulp.
laxa OSTEN SACKEN, Bull. Buff. Soc. Nat. Sci., iii, 56; Cat., 245, redesc.—L. Superior, Maine, Mt. Washington.
 WILLISTON, 90, pl. iv, f. 4; Biologia, Dipt., iii, 18, oc. and note.—White Mts., N. H., Ore., Wash., Cal.; Mexico.
 COQUILLET, Proc. Wash. Acad. Sci., ii, 433, oc. in Alaska.

LASIOPHTHICUS.

- RONDANI, Dipt. Ital. Prod., i, 51, 1856; ii, 137, 1857.
 OSTEN SACKEN, West. Dipt., 325, 1877; Cat., 1878, 244 (both *Catabomba*).
 BIGOT, Bull. Soc. Ent. France, 1882, No. 2, p. 20, syn.
 WILLISTON, Synop. N. A. Syrph., 62, 1886 (*Catabomba*).
 VERRALL, Brit. Flies, viii, 333, 1901 (id.).
Note.—I dissent from the conclusions of Osten Sacken and Verrall in adopting Rondani's name here. In the first reference above, Rondani says, "Spec: typ: *Musca pyrastris* LIN." and mentions no other species. Hence the proper procedure, in case the genus is illy conceived, is to revise its definition, rather than to make its type *the type* of another genus. I here use *Lasiophthicus* as if this had been done, exactly in the sense of *Catabomba*.
pyrastris LINNÉ, Syst. Nat., 10th ed., 594 (*Musca*); Fauna Suec., 2d ed., 448 (id.).—Europe.
 FABRICIUS, Spec. Ins., ii, 432 (*Syrphus*); Ent. Syst., iv, 305, 306 (*Syrphus pyrastris* and *transfuga*); Syst. Antl., 249, 250 (*Scæva pyrastris* and *transfuga*).—Europe.
 FALLÉN, Syrphici, 39 (*Scæva*).
 MEIGEN, Syst. Besch., iii, 303 (*Syrphus*).
 SAY, Jour. Acad. Sci. Phil., iii, 99 (*Syrphus affinis*); Compl. Works, ii, 81 (id.).—Arkansas.
 WIEDEMANN, Auss. Zweifl., ii, 117 (*S. affinis*).
 MACQUART, Hist. Nat. Dipt., i, 536 (*Syrphus*).
 ZETTERSTEDT, Dipt. Scand., ii, 703 and viii, 3132 (both *Scæva*).
 CURTIS, Brit. Ent., 509, var. *unicolor*, which occurs also in Idaho.
 SCHINER, Verh. Zool.-Bot. Ges., vii, 338; Fauna Austr., i, 301 (both *Syrphus*).
 OSTEN SACKEN, West. Dipt., 325 (*Catabomba*).—Cal., Utah, Col.
 WILLISTON, Synop. N. A. Syrph., 63, pl. iv, f. 1 (*Catabomba*).—Kans. to Ariz. and Wash.
 SNOW, Kans. Univ. Quart., iii, 232, note on dist. (*Catabomba*).
 VERRALL, Brit. Flies, viii, 334 (*Catabomba*); on p. 619 is a reference (Ent. Mo. Mag., xxxiv, 244) to an alleged rearing of this fly from pupæ of a species of *Plusia*, which is probably an error, as I have reared it from larvæ feeding on the grain *Aphis*, *Siphonophora arvensis*.
 Very common in the U. S., west of the hundredth meridian—J. M. A.

SYRPHUS.

- FABRICIUS, Syst. Ent., 762, 1775; Syst. Antl., 248, 1805 (*Scæva*).
 MEIGEN, Syst. Besch., iii, 274, 1822.

- SCHINER, Fauna Austr., 1, 300, 1862.
 OSTEN SACKEN, Boston Soc. Nat. Hist., XVIII, 1875, 135-153.
 BIGOT, Bull. Soc. Ent. France, 1882, No. 6 (*Ischyrosyrphus* and *Ancyclosyrphus*); Annales, 1883, 251, 256 (id.).
 WILLISTON, Synop. N. A. Syrph., 66, def. and table of species; Biologia, Dipt., III, 15, table of Central American species, 1891.
 GIRSCHNER, Ill. Wochenschr. f. Ent., II, 569.
 VERRALL, Brit. Flies, VIII, 321 and 338, 1901 (*Ischyrosyrphus* and *Syrphus*).
 CHAGNON, Ét. Prélim. les Syrph., 30, 1901, with table of Quebec spec.
- abbreviatus** ZETTERSTEDT, Dipt. Scand., VIII, 3136 (*Scæva*).—Europe.
 SCHINER, Fauna Austr., 1, 311 (*cercisus*, in part).—Europe.
 OSTEN SACKEN, Bost. Soc. Nat. Hist., XVIII, 144.—Mass.
 WILLISTON, Synop. N. A. Syrph., 81.—Conn., Mass.
 CHAGNON, Ét. Prélim. les Syrph., 33.—Montreal.
- adolescens** WALKER, List, III, 584.—Martin Falls and Nova Scotia, Canada.
- æscytes** WALKER, see *Chilosia*.
- agilis** BIGOT, Annales, 1884, 92.—Mex.
- agnon** WALKER, see *arcuatus*.
- amalopsis** OSTEN SACKEN, Proc. Bost. Soc. Nat. Hist., XVIII, 148, 175.—White Mts., N. H.
 WILLISTON, Synop. N. A. Syrph., 69.—Conn., N. M.
 COQUILLET, Proc. Wash. Acad. Sci., II, 431, oc. in Alaska.
 AXTON, N. Y.—M. and H.
- americanus** WIEDEMANN, Auss. Zweifl., II, 129.—N. A.
 OSTEN SACKEN, Proc. Bost. Soc. Nat. Hist., XVIII, 145.—Mass., Mich., Texas.
 WILLISTON, Synop. N. A. Syrph., 82.—New Eng., Mont.
 CHAGNON, Ét. Prélim. les Syrph., 34.—Montreal and St. Jean, Quebec.
 RILEY, Rept. Dept. Agr., 1889, 351, mentions the larva feeding on grain *Aphis*, *Siphonophora avenæ*.
 SNOW, Kans. Univ. Quart., III, 236, notes.—Col., N. M.
 WILLISTON, Biologia, Dipt., III, 15, oc.—Guerrero, Mex.
 N. J.—Smith Cat.; Fla.—Johnson; Sea Cliff, N. Y.—Banks; Chatham, Mich.—Pettit.
- antiphates** WALKER, see *Ocyptamus*.
- arcuatus** FALLÉN, Syrphici, 42 (*Scæva*).—Europe.
 MEIGEN, Syst. Besch., III, 302.
 MACQUART, Hist. Nat. Dipt., 1, 536.
 ZETTERSTEDT, Ins. Lapp., 598 (*Scæva lapponica*); Dipt. Scand., II, 719 and VIII, 3138 (*Scæva*).
 WALKER, List, III, 579, 580 (*agnon*, *alcidice*, and *arcuinctus*).—Martin Falls and Nova Scotia.
 SCHINER, Verh. Zool.-Bot. Ges., VII, 344 (*arcuatus* and *lapponicus*); Fauna Austr., 1, 305.
 OSTEN SACKEN, Proc. Bost. Soc. Nat. Hist., XVIII, 149; West. Dipt., 326 (*lapponicus*).—White Mts., N. H.; Cal.
 GIRSCHNER, Wien. Ent. Zeit., III, 187, pl. III, f. 1 (var. *bipunctatus*, which is Walker's *alcidice*). [Will.]
 WILLISTON, Synop. N. A. Syrph., 68, syn., etc.—New Eng. to Cal.
 SNOW, Kans. Univ. Quart., 1, 36, notes.—Col.
 COQUILLET, Proc. Wash. Acad. Sci., II, 431, oc. in Alaska.
 VERRALL, Brit. Flies, VIII, 380.

- CHAGNON, Ét. Prélim. les Syrph., 32.—St. Jean, Quebec.
N. A., in nearly all local lists.
- arcuinctus** WALKER, see *arcuatus*.
- bisinuatus** WILLISTON, Biologia, Dipt., III, 17.—Guerrero, Mex., and Costa Rica.
GIGLIO-TOS, Ditt. del Mess., II, 28.—Oaxaca, Orizaba and Tehuacan, Mex.
- boscii** MACQUART, see *Mesogramma*.
- bryantii** JOHNSON, see *contumax*.
- coalescens** WALKER, see *Mesogramma*.
- colludens** WALKER, Trans. Ent. Soc., n. ser., v, 292.—Mex.
- concauus** SAY, Jour. Acad. Sci. Phil., III, 89 (*Scæva*); Compl. Works, II, 78.—Pa.
Perhaps same as *torvus*—O. S., Cat., 123.
- contumax** OSTEN SACKEN, Proc. Bost. Soc. Nat. Hist., XVIII, 148.—White Mts., N. H.
WALKER, List, III, 584 (*adolescens*).—Martin Falls and Nova Scotia.
WILLISTON, Synop. N. A. Syrph., 71.—White Mts., N. H.
COQUILLET, Proc. Wash. Acad. Sci., II, 431, oc. in Alaska.
JOHNSON, Ent. News, IX, 17 (*bryantii*).—Mt. St. Elias, Alaska. [Johnson, *in litt.*]
Note.—Walker's types, as quoted by Osten Sacken, Cat., 245, note, belong to three species; hence his name is not entitled to priority.
- corbis** WALKER, see *Mesogramma*.
- creper** SNOW, Kans. Univ. Quart., III, 234.—Col. and N. M.
SNOW, *ibid.*, I, 37 (*pauvillus* WILL.).
N. M.—Coquillett.
- decipiens** WILLISTON, Biologia, Dipt., III, 18.—Guerrero, Mex.
- delineatus** MACQUART, Dipt. Exot., Suppl. I, 139, pl. XI, f. 13.—Mex.
- dimensus** WALKER, see *Allograpta obliqua*.
- dimidiatus** MACQUART, Hist. Nat. Dipt., I, 537.—Ga.
WILLISTON, Synop. N. A. Syrph., 294, cannot be identified.
- disgregus** SNOW, Kans. Univ. Quart., III, 233.—N. M., 7,500-8,500 ft.
- disjectus** WILLISTON, Proc. Amer. Phil. Soc., XX, 314 (*disjunctus* MACQ.);
Synop. N. A. Syrph., 72.—Wash.
SNOW, Kans. Univ. Quart., I, 36, note on female.—Col.
White Mts., N. H.—Slosson.
- diversipes** MACQUART, Dipt. Exot., Suppl. IV, 155.—Newfoundland.
OSTEN SACKEN, Proc. Bost. Soc. Nat. Hist., XVIII, 149.—L. Superior.
WILLISTON, Synop. N. A. Syrph., 76.—White Mts., N. H.; N. Y., Wash.
COQUILLET, Proc. Wash. Acad. Sci., II, 431, oc. in Alaska.
VERRALL, Brit. Flies, VIII, 676.
CHAGNON, Ét. Prélim. les Syrph., 34.—Rigaud, Quebec.
- diversus** WILLISTON, Biologia, Dipt., III, 16, pl. I, f. 6.—Guerrero, Mex.
- dryadis** HOLMGREN, see *tarsatus*.
- eupeltatus** BIGOT, Annales, 1884, 91.—Mex.
WILLISTON, Biologia, Dipt., III, 16, notes.—Guerrero, Mex.
GIGLIO-TOS, Ditt. del Mess., II, 20.—Angang, Mex.
- fumipennis** THOMSON, Eugen. Resa, 400.—Cal.
WILLISTON, Synop. N. A. Syrph., 293, notes; quotes desc.
- geniculatus** MACQUART, Dipt. Exot., II, 2, 101, pl. XVII, f. 5.—Newfoundland.
OSTEN SACKEN, Proc. Bost. Soc. Nat. Hist., XVIII, 150; Cat., 245, note on type.—White Mts., N. H.
WILLISTON, Synop. N. A. Syrph., 84, pl. IV, f. 3.—White Mts., N. H.
Alaska—Coquillett and Johnson.

- genualis** WILLISTON, Synop. N. A. Syrph., 86.—N. H.
Beulah, N. M.—Skinner.
- glacialis** JOHNSON, Ent. News, 1898, 18 (*Melanostoma*).—Alaska.
COQUILLET, Proc. Wash. Acad. Sci., II, 433, oc. in Alaska, and gen. ref.
[**gracilis** MEIGEN, of Walker, was wrongly identified; see Osten Sacken, Cat., 122.]
- gracilis** COQUILLET, Proc. Wash. Acad. Sci., II, 432.—Juneau, Alaska.
- grossulariæ** MEIGEN, Syst. Besch., III, 306.—Europe.
MACQUART, Hist. Nat. Dipt., I, 542; Dipt. Exot., II, 2, 92, pl. xvi, f. 3 (*lesueurii*).—Europe; Philadelphia.
ZETTERSTEDT, Dipt. Scand., II, 705 and XIII, 5091 (both *Scæva*).
WALKER, Dipt. Saund., 242, pl. vi, f. 5 (*Epistrophe conjungens*).—U. S.
SCHINER, Fauna Austr., I, 310.
- OSTEN SACKEN**, Proc. Bost. Soc. Nat. Hist., XVIII, 143 (*lesueurii*).—N. and Mid. States.
- WILLISTON**, Synop. N. A. Syrph., 80, pl. iv, f. 2 (*lesueurii*).—White Mts., N. H.; Wash.
- CHAGNON**, Ét. Prélim. les Syrph., 36 (id.).—St. Hilaire, Quebec.
- VERRALL**, Brit. Flies, VIII, 675, syn.
- N. J.**—Smith Cat.; White Mts., N. H.—Slosson.
- gurgis** WALKER, see *Mesogramma boscii*.
- hecticus** JENNICKE, see *Mesogramma polita*.
- interrogans** WALKER, see *Mesogramma geminata*.
- intrudens** OSTEN SACKEN, West. Dipt., 326.—Cal.
WILLISTON, Synop. N. A. Syrph., 70, quotes desc.
SNOW, Kans. Univ. Quart., III, 232, note.—Col.
HUNTER, Canad. Ent., XXIX, 129, notes.—Cook's Inlet, Alaska.
Hudsonian Zone, N. M.—Cockerell.
- jactator** LOEW, Wien. Ent. Monatsch., v, 40; Cent., VI, 46.—Cuba.
- latrans** WALKER, see *Chilosia*.
- lautus** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 132, 1892; Ditt. del Mess., II, 29, pl. II, f. 4.—Tuxpango, Mex.
- lesueurii** MACQUART, see *grossulariæ*.
- limbatus** FABRICIUS, Syst. Antl., 251 (*Scæva*).—W. I.
WIEDEMANN, Auss. Zweifl., II, 133.
- lotus** WILLISTON, Synop. N. A. Syrph., 75; Biologia, Dipt., III, 16, oc.—Ariz.; Guerrero, Mex.
- lunulatus** MEIGEN, Syst. Besch., III, 299.—Europe.
SCHINER, Fauna Austr., I, 303.
LUNDBECK, Dipt. Grœnl., I, 302, oc. in Greenland.
VERRALL, Brit. Flies, VIII, 351.
- macularis** ZETTERSTEDT, Dipt. Scand., II, 730 (*Scæva*).—Europe.
SCHINER, Fauna Austr., I, 302.
COQUILLET, Proc. Wash. Acad. Sci., II, 433, oc. in N. A.—Yakutat, Alaska.
- maculifrons** BIGOT, Annales, 1884, 89.—Ore.
WILLISTON, Synop. N. A. Dipt., 88, quotes desc.
- [**maculosus** MEIGEN, of Walker, was wrongly identified; see Osten Sacken, Cat., 122.]
- mentalis** WILLISTON, Synop. N. A. Syrph., 72.—Wash.
HUNTER, Canad. Ent., XXIX, 130, note.—Cook's Inlet, Alaska.
COQUILLET, Proc. Wash. Acad. Sci., II, 431, oc. in Alaska.
- montivagus** SNOW, Kans. Univ. Quart., III, 236.—Col., 11,000–12,000 ft.

- mutuus** SAY, Jour. Acad. Sci., vi, 164; Compl. Works, ii, 358.—Mex.
- nigripes** LOEW, Cent., vi, 44.—Cuba.
- ochrostoma** ZETTERSTEDT, Dipt. Scand., viii, 3133 (*Scæva*).—Europe.
SCHINER, Fauna Austr., i, 310.
VAN DER WULP, Tijdschr. v. Ent., xxv, 134, oc. in N. A.—Canada.
WILLISTON, Synop. N. A. Syrph., 203, note; not seen.
- œstriformis** WALKER, see *Eristalis*.
- opinator** OSTEN SACKEN, West. Dipt., 327.—Marin Co., Cal.
WILLISTON, Synop. N. A. Syrph., 83.—Wash., Ore., Cal.
TOWNSEND, Proc. Cal. Acad. Sci., iv, 612, notes.
SNOW, Kans. Univ. Quart., iii, 236.—Cal., N. M.
- pauvillus** WILLISTON, Synop. N. A. Syrph., 74.—N. M.
See *crcper*.
- perpusillus** BIGOT, see *Eupcodes volucris*.
- philadelphicus** MACQUART, Dipt. Exot., ii, 2, 93, pl. xvi, f. 2.—Philadelphia.
OSTEN SACKEN, Cat., 123, and note 209, perhaps same as *ribesii*.
- præustus** LOEW, Cent., vi, 45.—Cuba.
- profusus** WALKER, see *Milesia*.
- protritrus** OSTEN SACKEN, West. Dipt., 328.—Saucelito, Cal.
WILLISTON, Synop. N. A. Syrph., 77, quotes desc.
HUNTER, Canad. Ent., xxix, 130, oc. at Cook's Inlet, Alaska.
JOHNSON, Ent. News, xi, 17, oc. in Alaska.
- pullulus** SNOW, Kans. Univ. Quart., iii, 237.—N. M., 8,000 ft.
Beulah, N. M.—Skimmer.
- quadrifasciatus** BIGOT, in Sagra's Cuba, 804, pl. xx, f. 5.—Cuba.
- quinqvelimbatus** BIGOT, Annales, 1884, 91.—Cal.
WILLISTON, Synop. N. A. Syrph., 87, quotes orig. desc.
- quintius** WALKER, see *Mesogramma marginata*.
- radiatus** BIGOT, in Sagra's Cuba, 804.—Cuba.
- ribesii** LINNÉ, Syst. Nat., 10th ed., 593 (*Musca*); Fauna Suec., 2d ed., 447 (id.).
—Europe.
FABRICIUS, Syst. Ent., 770; Spec. Ins., ii, 432; Ent. Syst., iv, 304; Syst. Antl., 248 (*Scæva*).
LATREILLE, Gen. Crust., iv, 325.
FALLÉN, Syrphici, 40 (*Scæva*).
MEIGEN, Syst. Besch., iii, 306.
KIRBY, Fauna Bor. Amer. (*Scæva*); reptub. in Canad. Ent., xiii, 167.—Canada.
ZETTERSTEDT, Dipt. Scand., ii, 707 (*Scæva*); viii, 3132 (id.).
SCHINER, Verh. Zool.-Bot. Ges., vii, 340; Fauna Austr., i, 310.
OSTEN SACKEN, Proc. Bost. Soc. Nat. Hist., xviii, 140 (*rectus*); Cat., 123, syn.
WILLISTON, Synop. N. A. Syrph., 77.—Atlantic, Middle and Pacific States.
WILLISTON, Biologia, Dipt., iii, 17, notes.—Guerrero, Mex.
GIGLIO-TOS, Ditt. del Mess., ii, 27, bibl., etc.—Tehuacan, Mex.
CHAGNON, Ét. Prélim. les Syrph., 36.—Montreal.
VERRALL, Brit. Flies, viii, 306.
Alaska—Coquillett; also in almost all local lists of the United States.
- ruficauda** SNOW, Kans. Univ. Quart., i, 36, pl. vii, f. 3; iii, 234.—Col.; N. M.
- saussurii** GIGLIO-TOS, Ditt. del Mess., ii, 30.—Orizaba, Mex.
- sexmaculata** PALISOT DE BEAUVOIS, Ins., 224, pl. iii, f. 8.—S. States and San Domingo.
OSTEN SACKEN, Cat., 124, note.

- simplex** LOEW, Wien. Ent. Monatsch., v. 40; Cent., vi, 43.—Cuba.
WILLISTON, Synop. N. A. Syrph., 87.—San Domingo.
- sodalis** WILLISTON, Synop. N. A. Syrph., 74.—Col.
- tarsatus** ZETTERSTEDT, Ins. Lapp., 601; Dipt. Scand., 730 (both *Scæva*).—N. Europe.
ST. EGGER, Grœnl. Antl., 360, oc. in Greenland.
SCHINER, Fauna Austr., 1, 302.
HOLMGREN, Ins. Spetsb., 26 (*Scæva dryadis*); Ins. Nordgrœnl., 100 (id.).—Spitzbergen; Greenland.
WILLISTON, Synop. N. A. Dipt., 204.
LUNDBECK, Dipt. Grœnl., 1, 302, syn. of Holmgren.—Greenland. Ibid., 11, 310, the *Tolucella lappona* of O. FABRICIUS, Fauna Grœnl., 208, 169, may be this species.
- torvus** OSTEN SACKEN, Proc. Bost. Soc. Nat. Hist., xviii, 139.—White Mts., N. H.; Mass., R. I. Canada, Col.
ZETTERSTEDT, Ins. Lapp., 509 (*Scæva topiarius* MEIG.); Dipt. Scand., 11, 723 and viii, 3139 (id.).—N. Europe.
WALKER, List, iii, 582 (*Syrphus topiarius* MEIG.), oc. in Europe, and at Martin Falls, Canada.
SCHINER, Verh. Zool.-Bot. Ges., vii, 347; Fauna Austr., 1, 304 (id.).
WILLISTON, Synop. N. A. Syrph., 79.—Atlantic States and Wash.
VERRALL, Brit. Flies, viii, 350.
CHAGNON, Ét. Prélim. les Syrph., 35.—Rigaud, Quebec.
N. J.—Smith Cat.
- tricolor** BIGOT, see *velutinus*.
- umbellatarum** FABRICIUS, Ent. Syst., iv, 307; Syst. Antl., 250 (*Scæva*).—Europe.
SCHINER, Fauna Austr., 1, 307.
WALKER, List, iii, 586 (*guttatus* MEIG. and *serquadratus*).—Martin Falls and Nova Scotia. [O. S. Cat., the former doubtful.]
OSTEN SACKEN, Proc. Bost. Soc. Nat. Hist., xviii, 151.—White Mts., N. H.
WILLISTON, Synop. N. A. Syrph., 85.—Ariz.
CHAGNON, Ét. Prélim. les Syrph., 32.—Sherbrooke, Quebec.
VERRALL, Brit. Flies, viii, 409, 676; important.
Alaska—Johnson, Hunter; N. J.—Smith Cat.
Note.—Osten Sacken, Williston and Verrall all indicate doubt whether our American form be the same as the European *umbellatarum*.
- velutinus** WILLISTON, Proc. Amer. Phil. Soc., xx, 314; Synop. N. A. Dipt., 73.—Mt. Hood, Ore.
BIGOT, Annales, 1884, 73 (*Ischyrosyrphus tricolor*).—Cal. [Will.]
COQUILLET, Proc. Wash. Acad. Sci., 11, 431, oc. in Alaska.
VERRALL, Brit. Flies, viii, 321, would make *Ischyrosyrphus* a separate genus, and suspects *tricolor* to be a synonym of *laterarius* MÜLLER.
- xanthostoma** WILLISTON, Synop. N. A. Syrph., 86.—Pa. Province of Quebec—Fyles.

ALLOGRAPTA.

- OSTEN SACKEN, Bull. Buffalo Soc. Nat. Hist., 111, 49, 1876; Cat., 246, 1878.
WILLISTON, Synop. N. A. Syrph., 90, 1886.
CHAGNON, Ét. Prélim. les Syrph., 37, 1901.
- exotica** WIEDEMANN, of Van der Wulp, see *fracta*.
- fracta** OSTEN SACKEN, West. Dipt., 331.—Santa Monica, Cal.
VAN DER WULP, Tijdschr. v. Ent., xxvi, 2, pl. 1, f. 2 (*exotica* WIED.).—Guadeloupe.

- WILLISTON, Synop. N. A. Syrph., 97, quotes orig. desc.; Biologia, Dipt., III, 20, syn. of Wulp's *exotica*, etc.—Cal.; Guerrero and Durango, Mex.
 GIGLIO-TOS, Ditt. del Mess., II, 41.—Mexico, several places.
 HUNTER, Canad. Ent., XXVIII, 95, female.—Cal.
- oblitqua** SAY, Jour. Acad. Sci. Phil., III, 89 (*Scæva*); Compl. Works, II, 78 (id.).—U. S.
 WIEDEMANN, AUSS. Zweifl., II, 136 (*Syrphus exoticus*).—Brazil. [G. T.]
 WILLISTON, Synop. N. A. Syrph., 96.—Conn. to Cal., etc.
 MACQUART, Dipt. Exot., II, 2, 100, pl. XVI, f. 1 (*Syrphus securiferus*); Suppl. 1, 139, note on female (id.).—N. A.; Savannah.
 WALKER, List, III, 594 (*Spharophoria bacchides*); Dipt. Saund., 235 (*Syrphus dimensus*).—Fla.; U. S.
 SCHINER, Novara, 353, oc. in S. A.
 VAN DER WULP, Tijdschr. v. Ent., X, 44, pl. IV, f. 12 (*Syrphus signatus*).—N. A.
 OSTEN SACKEN, Cat., 120, syn.
 WILLISTON, Synop. N. A. Syrph., 96; Biologia, Dipt., III, 19, bibl., etc.—U. S., common; Mexico, various places (Argentina—Wulp).
 RILEY, Rept. Dept. Agr., 1889, 351, mentions the larvæ as preying on the grain Aphid. *Siphonophora avænae*.
 GIGLIO-TOS, Ditt. del Mess., II, 40, extended bibl., etc.—Mexico.
 CHAGNON, Ét. Prélim. les Syrph., 37.—St. Jean and Montreal, Quebec.
 Fla.—Johnson; N. J.—Smith Cat.; Sea Cliff, N. Y.—Banks.

XANTHOGRAMMA.

- SCHINER, Wien. Ent. Monatsch., IV, 215, 1860; Fauna Austr., I, 318, 1862.
 WILLISTON, Synop. N. A. Syrph., 91, def. and table of species, 1886.
 MIK, Wien. Ent. Zeit., 1897, 65.
 HUNTER, Canad. Ent., XXIX, 130, 1897.
 VERRALL, Brit. Flies, VIII, 447, 1901.
 CHAGNON, Ét. Prélim. les Syrph., 74, 1901.
- æqualis** LOEW, Cent., IV, 84 (*Doros*).—Pa.
 WILLISTON, Synop. N. A. Syrph., 95, pl. IV, f. 6.—D. C.
 N. J.—Smith Cat.
- divisa** WILLISTON, Proc. Amer. Phil. Soc., XX, 311; Synop. N. A. Syrph., 92.—Wash., White Mts., N. H.
- emarginata** SAY, Jour. Acad. Sci. Phil., III, 91 (*Scæva*); Compl. Works, II, 79 (id.).—E. Fla.
 WIEDEMANN, AUSS. Zweifl., II, 119 (*Syrphus*).—E. Fla.
 WILLISTON, Synop. N. A. Syrph., 93.—Fla., Pa., N. H.
 N. J.—Smith Cat.
- felix** OSTEN SACKEN, Bull. Buff. Soc. Nat. Sci., III, 67; Cat., 247.—West Point, N. Y.; Pa., III.
 WILLISTON, Proc. Amer. Phil. Soc., XX, 311; Synop. N. A. Syrph., 91.—Conn.
- flavipes** LOEW, Cent., IV, 83 (*Doros*).—Pa.
 WILLISTON, Synop. N. A. Syrph., 94.—Conn.
 CHAGNON, Ét. Prélim. les Syrph., 74.—Montreal.
 N. Y.—O. S. Cat.; N. J.—Smith Cat.; Sea Cliff, N. Y.—Banks.
- nabilis** SNOW, Kans. Univ. Quart., III, 238.—N. M.
- insularis** BIGOT, Annales, 1883, 330 (*Doros*).—Cuba.
 WILLISTON, Synop. N. A. Syrph., 299, note; may be a true *Doros*.

MESOGRAMMA.

- LOEW, Cent., vi, 47, 1865; in Centuries, vol. II, p. 290, Loew proposes to change this name to *Mesograptia*, on account of *Mesogramma* having been used in botany; this would not now be a valid change.
- MACQUART, Dipt. Exot., Suppl., v, 93, 1855 (*Toxomerus*).
- WILLISTON, Synop. N. A. Syrph., 98, 1886 (*Mesograptia*); Biologia, Dipt., III, 24, 1891, def. and table of Central American species.
- CHAGNON, Ét. Prélim. les Syrph., 38, 1901.
- anchorata** MACQUART, Dipt. Exot., II, 2, 97, pl. XVI, f. 8 (*Syrphus*).—N. A.
- arcifer** LOEW, Cent., VI, 52 (*Mesograptia*).—Cuba.
Porto Rico—Coquillett; Jamaica—Johnson.
- aurulenta** WILLISTON, Synop. N. A. Syrph., 102 (*Mesograptia*).—San Domingo.
- basilaris** WIEDEMANN, AUSS. Zweifl., II, 43 (*Syrphus*).—Brazil.
SCHINER, Novara, 350 (*soror*).—America (doubtless S. A.). [Giglio-Tos.]
VAN DER WULP, Tijdschr. v. Ent., XXVI, 6, pl. I, f. 8 (*Mesograptia*).—Guadeloupe.
GIGLIO-TOS, Ditt. del Mess., II, 45.—Vera Cruz, Tabasco, etc.
? WILLISTON, Trans. Ent. Soc. Lond., 1896, 349, doubtful oc. in St. Vincent, W. I.
- ? **bicincta** BIGOT, Annales, 1884, 112 (" *Mesograptia?* ").—Mex.
- bidentata** GIGLIO-TOS, Ditt. del Mess., II, 49, pl. II, f. 12.—Orizaba and Tampico, Mex.
WILLISTON, Biologia, Dipt., III, 25 (" *Mesogramma?* ").—Mexico, several places.
- ? **bistrigata** BIGOT, Annales, 1884, 110 (" *Mesograptia?* ").—Mex.
- boscii** MACQUART, Dipt. Exot., II, 2, 100, pl. XVI, f. 2 (*Syrphus*).—Cardina.
WALKER, Dipt. Saund., 236 (*Syrphus gurgces*).—U. S. [O. S.]
LOEW, Cent., VI, 47 (*parvula*).—Fla. [Hunter.]
WILLISTON, Synop. N. A. Syrph., 99 and 103 (*parvula* and *boscii*).—Ga.
HUNTER, Canad. Ent., XXVIII, 95.—Mex.
St. Vincent—Will.; N. J.—Smith Cat.; Porto Rico—Roeder; Montreal—Chagnon; Fla.—Johnson.
- ciliata** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 132, 1892; Ditt. del Mess., II, 50, pl. II, f. 16.—Tuxpango, Mex.
- ? **circumdاتا** BIGOT, Annales, 1884, 107 (" *Mesograptia?* ").—Mex.
- coalescens** WALKER, Dipt. Saund., 237 (*Syrphus*).—N. A.
OSTEN SACKEN, Cat., 125, note; gen. ref.
- comma** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 132, 1892; Ditt. del Mess., II, 53.—Mex.
- confusa** SCHINER, Novara, 349.—S. A.
BIGOT, Annales, 1884, 113 (*Mesograptia? maculipes*).—Brazil.
GIGLIO-TOS, Ditt. del Mess., II, 51, pl. II, f. 11, syn., etc.—Mex.
- corbis** WALKER, Dipt. Saund., 237 (*Syrphus*).—N. A.
OSTEN SACKEN, Cat., 125, note; gen. ref.
- ? **cuprina** BIGOT, Annales, 1884, 114 (" *Mesograptia?* ").—Cuba.
- diversa** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 132, 1892; Ditt. del Mess., II, 48, pl. II, f. 13.—Mex.
- duplicata** WIEDEMANN, AUSS. Zweifl., II, 142 (*Syrphus*).—S. A.
MACQUART, Dipt. Exot., II, 2, 91, pl. XV, f. 9 (*Syrphus*).—Uruguay.
RONDANI, NUOVO Ann. Sc. Nat. Bologna, 1850, 5; Ann. del Soc. Nat. Modena, 1868, III, 3 (both *Syrphus*).—S. A.
SCHINER, Novara, 350.—Brazil and Colombia—Wiedemann's types.
THOMSON, Eugen. Resa, 494 (*Syrphus ochrogaster*).—Buenos Ayres.

VAN DER WULP, Tijdschr. v. Ent., xxvi, 4, pl. 1, f. 3.—Argentina.

GIGLIO-TOS, Ditt. del Mess., II, 44, pl. II, f. 9.—Mex.

ectypus SAY, Jour. Acad. Sci. Phil., VI, 165 (*Syrphus*); Compl. Works, II, 359.
—Mex. (Osten Sacken gives it Cuba, which is probably an oversight.)

geminata SAY, Jour. Acad. Sci. Phil., III, 92 (*Scæva*); Compl. Works, II, 80
(id.).—U. S.

WIEDEMANN, Auss. Zweifl., II, 145 (*Syrphus*).—Pa.

MACQUART, Dipt. Exot., Suppl. v, 93, pl. v, f. 4 (*Toxomerus notatus*).—
Baltimore.

WALKER, Dipt. Saund., 225, 238 (*Eumerus priverus* and *Syrphus inter-*
rogans).—U. S.; N. A.

SCHINER, Novara, 347, note.

WILLISTON, Proc. Amer. Phil. Soc., XX, 310 (*Toxomerus*); Synop. N. A.
Syrph., 102, pl. IV, f. 5.—Conn., Cal., Wash.

CHAGNON, Ét. Prélim. les Syrph., 39.—Montreal.

N. J.—Smith Cat.

? **heraldica** BIGOT, Annales, 1884, 109 (*Mesograpta?*).—Mex.

? **lachrymosa** BIGOT, Annales, 1884, 108 (*Mesograpta?*).—Mex., Brazil.

laciniosa LOEW, Cent., VI, 50.—Cuba.

Porto Rico—Roeder, Coquillett; St. Vincent—Will.

linearis VAN DER WULP, Tijdschr. v. Ent., xxvi, 5 (*Mesograpta*).—Mex.

? **maculata** BIGOT, Annales, 1884, 111 (*Mesograpta?*).—Cuba, Mex., Brazil.

marginata SAY, Jour. Acad. Sci. Phil., II, 92 (*Scæva*); Compl. Works, II, 80
(id.).—U. S.

WIEDEMANN, Auss. Zweifl., II, 146 (*Syrphus*).—Pa.

WALKER, Dipt. Saund., 239 (*Syrphus quintus*).—N. A.

THOMSON, Eugen. Resa, 495 (*Syrphus limbiventris*).—Cal.

LOEW, Cent., VI, 49 (*planiventris*).—Fla.

WILLISTON, Synop. N. A. Syrph., 100, 294 (*Mesograpta*); Biologia, Dipt.,
III, 25, notes.—U. S., common; Mex.

SNOW, Kans. Univ. Quart., III, 239, note.—Col., N. M.

GIGLIO-TOS, Ditt. del Mess., II, 52.—Mex.

CHAGNON, Ét. Prélim. les Syrph., 40.—Montreal.

N. A., in most local lists; Johnson makes *planiventris* distinct.

minuta WIEDEMANN, Auss. Zweifl., II, 146 (*Syrphus*).—Brazil.

BIGOT, in Sagra's Cuba, 806, oc. in Cuba (id.).

? **mu** BIGOT, Annales, 1884, 105 (*Mesograpta?*).—Mex.

multipunctata VAN DER WULP, Tijdschr. v. Ent., xxvi, 6, pl. 1, f. 7.—Guadeloupe.

mutua SAY, Jour. Acad. Sci. Phil., VI, 164 (*Syrphus*); Compl. Works, II, 358
(id.).—Mex.

? WILLISTON, Biologia, Dipt., III, 27, doubtfully ident. from Mex.

GIGLIO-TOS, Ditt. del Mess., II, 43, pl. II, f. 10.—Cuernavaca, Orizaba and
Patzcuaro, Mex.

pallipes BIGOT, see *tridentata*.

parvula LOEW, see *boscii*.

picta MACQUART, Dipt. Exot., II, 2, 99 (*Syrphus*).—Guiana.

LOEW, Cent., VI, 51 (*pæcilogaster*).—Cuba.

GIGLIO-TOS, Ditt. del Mess., II, 52.—Mex.

Jamaica—Johnson (*pæcilogaster*).

planiventris LOEW, see *marginata*.

pæcilogaster LOEW, see *picta*.

polita SAY, Jour. Acad. Sci. Phil., III, 68 (*Scæva*) and American Ent., I, pl. XI,
f. 3 (*Syrphus*); Compl. Works, II, 77 and I, 24.—U. S.

- WIEDEMANN, AUSS. Zweifl., II, 132 (*Syrphus*).
- MACQUART, Dipt. Exot., Suppl. IV, 155 (*Syrphus cingulatus*).—Pensacola, Fla.
- JÆNNICKE, Neue Exot. Dipt., 90 (*Syrphus hecticus*).—III.
- OSTEN SACKEN, Cat., 125, syn. of Macquart and Jænnicke.
- WILLISTON, Synop. N. A. Dipt., 98 (*Mesograpta*); Biologia, Dipt., III, 25, bibl., etc.—N. C., Kans., Conn., Ga.; Guerrero and Tabasco, Mex.
- RILEY and HOWARD, Ins. Life, I, 5-8, figs., habits: larvæ feed on pollen and tissues of corn; II, 115, note on damage.—Mo.
- SNOW, Kans. Univ. Quart., III, 239, note.—N. M.
- GIGLIO-TOS, Ditt. del Mess., II, 42, bibl., etc.—Mex.
- CHAGNON, Ét. Prélim. les Syrph., 38.—St. Jean, Quebec.
- St. Augustine, Fla.—Johnson; N. J.—Smith Cat.; Montreal—Chagnon.
- pulchella** MACQUART, Dipt. Exot., Suppl. I, 138, pl. XI, f. 12 (*Syrphus*).—San Domingo.
- VAN DER WULP, Tijdschr. v. Ent., XXVI, 4, pl. I, f. 4 (*Mesograpta*).—Guadeloupe.
- quinquecincta** BIGOT, Annales, 1888, 254 (*Mesograpta*).—Mex.
- quinquemaculata** BIGOT, Annales, 1888, 254 (*Mesograpta*).—Mex.
- rhombica** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 132, 1892; Ditt. del Mess., II, 46, pl. II, f. 13.—Orizaba, Mex.
- sapphiridiceps** BIGOT, Annales, 1884, 105 (“*Mesograpta?*”).—Mex.
- WILLISTON, Biologia, Dipt., III, 24.—Guerrero, Mex.
- subannulata** LOEW, Cent., VI, 48.—Cuba.
- GIGLIO-TOS, Ditt. del Mess., II, 47, pl. II, f. 14.—Mex.
- COQUILLETT, Proc. U. S. N. M., XXII, 253, oc. in Porto Rico.
- Jamaica—Johnson.
- tridentata** RONDANI, Ann. Soc. Nat. Modena, III, 1868, 1 (*Syrphus*).—Patagonia.
- BIGOT, Annales, 1884, 106 (*Mesograpta? pallipes*).—Mex. [G. T.]
- WILLISTON, Biologia, Dipt., III, 27 (*pallipes*).—Guerrero, Tabasco, Mex.
- GIGLIO-TOS, Ditt. del Mess., II, 48, pl. II, f. 17.—Tuxpango, Mex.
- ? **trilobata** BIGOT, Annales, 1884, 109 (“*Mesograpta?*”).—Mex.
- variabilis** VAN DER WULP, Tijdschr. v. Ent., XXVI, 6, pl. I, f. 9 (*Mesograpta*).—Guadeloupe.

SPHÆROPHORIA.

- ST. FARGEAU et SERVILLE, Encycl. Méth., X, 513, 1825.
- MACQUART, Dipt. du Nord de la France, 1827, 216; Hist. Nat. Dipt., 551, 1834.
- LOEW, Oken's Isis, 1840, 573 (*Melithreptus*).
- WALKER, Ins. Brit. Dipt., III, XXI (*Melitrophus*), 1856.
- SCHINER, Fauna Austr., I, 315 (*Melithreptus*), 1862.
- WILLISTON, Synop. N. A. Syrph., 104, def. and table of species, 1886; Biologia, Dipt., III, 20, notes and table of species, 1891.
- VERRALL, Brit. Flies, VIII, 426, 1901.
- CHAGNON, Ét. Prélim. les Syrph., 40, 1901.
- bacchides** WALKER, see *Allograpta obliqua*.
- [**calceolatus** MACQUART. For the possible occurrence of this in Mexico, see GIGLIO-TOS, Ditt. del Mess., II, 33.]
- cylindrica** SAY, Amer. Entomology, I, pl. XI; Compl. Works, I, 22 (both *Syrphus*).—Pa.
- WIEDEMANN, AUSS. Zweifl., II, 138 (id.).
- MACQUART, Dipt. Exot., Suppl. II, 62 (*contigua*).—Philadelphia. [O. S.]

- WILLISTON, Synop. N. A. Syrph., 105, pl. iv, f. 16.—New Eng., Wash., Col., N. M.
- RILEY, Rept. Dept. Agr., 1889, 351, mentions the larvæ feeding on grain
Aphis, *Siphonophora arvensis*.
- CHAGNON, Ét. Prélim. les Syrph., 41.—Quebec, common.
N. A., in nearly all local lists.
- dubia** BIGOT, Annales, 1884, 101.—Cal.
- WILLISTON, Synop. N. A. Syrph., 108, quotes orig. desc.
- forreri** GIGLIO-TOS, Ditt. del Mess., II, 32.—Solco and Cuernavaca, Mex.
- WILLISTON, Biologia, Dipt., III, 23 ("*Spharophoria*—?").—Durango, Mex.
- fulvicauda** BIGOT, Annales, 1884, 104.—Mex.
- hieroglyphica** MEIGEN, Syst. Besch., III, 327 (*Syrphus*).—Europe.
WALKER, List, III, 593, oc. in Nova Scotia.
- infumata** THOMSON, Eugen. Resa, 501.—Cal.
- WILLISTON, Synop. N. A. Syrph., 109, quotes orig. desc.
- melanosa** WILLISTON, Synop. N. A. Syrph., 106.—Cal.
Hudsonian Zone, N. M.—Cockerell.
- menthastri** LINNÉ, Fauna Suec., 2d ed., no. 1819 (*Musca*).—Europe.
WALKER, List, III, 593, oc. in Canada and New York.
- micrura** OSTEN SACKEN, West. Dipt., 330.—Sonoma Co., etc., Cal.
- WILLISTON, Synop. N. A. Syrph., 107; Biologia, Dipt., III, 21, notes.—Cal.; Guerrero, Mex.
- GIGLIO-TOS, Ditt. del Mess., II, 33.—Orizaba.
- nasuta** BIGOT, Annales, 1884, 103, see *Baccha*.
- nasuta** BIGOT, Annales, 1888, 253.—Mex.
- pachyipyga** BIGOT, Annales, 1884, 104.—Mex.
- picta** MEIGEN, of Holmgren, Ins. Nordgrœnl., 100, see *scripta*.
- picticauda** BIGOT, Annales, 1884, 102.—Mex.
WILLISTON, Biologia, Dipt., III, 21.—Guerrero and Tabasco, Mex.
- GIGLIO-TOS, Ditt. del Mess., II, 34, notes.—Mexico, several places.
- pyrrhina** BIGOT, Annales, 1884, 101.—Cal.
WILLISTON, Synop. N. A. Syrph., 108, quotes orig. desc.
- rostrata** BIGOT, Annales, 1884, 102.—Mex.
- scripta** LINNÉ, Syst. Nat., 10th ed., 594 (*Musca*): Fauna Suec., 2d ed., 449 (id.).—Europe.
SCOPOLI, Ent. Carn., 965 (*Conops gemmatus*).
FABRICIUS, Syst. Ent., 772 (*Syrphus*); Spec. Ins., II, 434 (id.); Ent. Syst., IV, 308 (id.); Syst. Antl., 252 (*Scæva*).
FALLÉN, Syrphici, 48 (*Scæva*).
MEIGEN, Syst. Besch., III, 324 (*Syrphus*).
MACQUART, Dipt. du Nord de la France, 1827, 218; Hist. Nat. Dipt., I, 571.
ZETTERSTEDT, Ins. Lapp., 605; Dipt. Scand., II, 766 and VIII, 3157 (all *Scæva*).
WALKER, List, III, 592, oc. in Nova Scotia.
SCHINER, Verh. Zool.-Bot. Ges., VII, 369 (*Mclithreptus*): Fauna Austr., I, 316 (id.).
RONDANI, Dipt. Ital. Prod., II, 112.
VAN DER WULP, Tijdschr. v. Ent., XXVI, 8, oc. at Quebec (*Mclithreptus*).
KOWARZ, Wien. Ent. Zeit., IV, 133, varieties, etc.
WILLISTON, Synop. N. A. Syrph., 107, transl. Schiner; not seen.
VERRALL, Brit. Flies, VIII, 432.
- var. **strigata** ST. EGGER, Grœnl. Antl., 362.—Greenland.

- HOLMGREN, Ins. Nordgrœnl., 100 (*strigata* and *picta* MEIG.).—Greenland.
[Lundbeck.]
- LUNDBECK, Dipt. Grœnl., 1, 304, oc. in Greenland.
- sulphuripes** THOMSON, Eugen. Resa, 501 (*Syrphus*).—Cal.
- OSTEN SACKEN, West. Dipt., 330.—San Rafael and Yosemite, Cal.
- WILLISTON, Synop. N. A. Syrph., 106.—Cal.
Alaska—Coquillett; Hudsonian Zone, N. M.—Cockerell.
- trilimbata** BIGOT, Annales, 1888, 254.—Mex.
- willistonii** GIGLIO-TOS, Ditt. del Mess., II, 31, pl. III, f. 6.—Orizaba, Mex.
WILLISTON, Biologia, Dipt., III, 22 (“*Spharophoria*—?”).—Mex.

PELECOCERA.

- MEIGEN, Syst. Besch., III, 340, 1822.
- SCHINER, Fauna Austr., I, 314, 1862.
- WILLISTON, Wien. Ent. Zeit., III, 185, 1884 (*Eucratomyia* BIGOT); Synop.
N. A. Syrph., 110, 1886.
- MIK, Wien. Ent. Zeit., XIV, 133, 1895.
- KERTÉSZ, Wien. Ent. Zeit., XVI, 149, 1897.
- SNOW, Kans. Univ. Quart., III, 187, notes, 1895.
- VERRALL, Brit. Flies, VIII, 459, 1901.
- pergandei** WILLISTON, Wien. Ent. Zeit., III, 186, fig. (*Eucratomyia*); Bull.
Brooklyn Ent. Soc., VII, 139; Synop. N. A. Syrph., 110, pl. IV, f. 13.—
D. C.
- BIGOT, Wien. Ent. Zeit., III, 217, refers to *Merapioides*.
- willistonii** SNOW, see *Chamæsyrrhus*.

CHAMÆSYRPHUS.

- MIK, Wien. Ent. Zeit., XIV, 133, 1895.
- willistonii** SNOW, Kans. Univ. Quart., III, 187 (*Pelecocera*).—N. M.
MIK, loc. cit., gen. ref.
Beulah, N. M.—Skinner.

SPHEGINA.

- MEIGEN, Syst. Besch., III, 193, 1822.
- SCHINER, Fauna Austr., I, 322, 1862.
- WILLISTON, Synop. N. A. Syrph., 113, def. and table of species, 1886.
- VERRALL, Brit. Flies, VIII, 463, 1901.
- CHAGNON, Ét. Prélim. les Syrph., 43, 1901.
- campanulata** ROBERTSON, Canad. Ent., XXXIII, 284.—Carlinville, Ill.
- infuscata** LOEW, Cent., III, 23.—Sitka.
WILLISTON, Synop. N. A. Syrph., 114, pl. IV, f. 12.—Ore.
COQUILLET, Proc. Wash. Acad. Sci., II, 434, note on male, and dist.—
Alaska, Col. and N. H.
- keeniana** WILLISTON, Synop. N. A. Syrph., 113, pl. IV, f. 11.—Philadelphia.
N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- lobata** LOEW, Cent., III, 21.—Middle States.
WILLISTON, Synop. N. A. Syrph., 115.—White Mts., N. H.; Ore.
N. J.—Smith Cat.; Sea Cliff, L. I.—Banks; White Mts., N. H.—Slosson.
- rufiventris** LOEW, Cent., III, 22.—N. Y.
WILLISTON, Synop. N. A. Syrph., 114.—Wash.
CHAGNON, Ét. Prélim. les Syrph., 43.—Montreal.
N. J.—Smith Cat.; Quebec—Wulp and Fyles.

NEOASCIA.

WILLISTON, Synop. N. A. Syrph., iii, def. and change of name, 1886.
 MEIGEN, Syst. Besch., iii, 185, 1822 (*Ascia*, preoc.).
 SCHINER, Fauna Austr., i, 320 (id.), 1862.
 VERRALL, Brit. Flies, viii, 467, 1901, does not admit preoc. of *Ascia*, and retains it.

CHAGNON, Ét. Prélim. les Syrph., 44, 1901.

distincta WILLISTON, Synop. N. A. Syrph., 112.—Mass.

globosa WALKER, List, iii, 546 (*Ascia*).—Trenton Falls, N. Y.

WILLISTON, Proc. Amer. Phil. Soc., xx, 315 (*metallica*); Synop. N. A. Syrph., iii, pl. iv, f. 10.—New Eng., Ore.

BIGOT, Annales, 1883, 327, 328 (*Ascia nasuta*, *quadrinotata*, and *albipes*).
 —Mt. Hood, Ore.; Mt. Hood, Ore.; N. A. [Will.]

COQUILLETT, Proc. Wash. Acad. Sci., ii, 433, oc. in Alaska.

CHAGNON, Ét. Prélim. les Syrph., 44.—Sherbrooke, Quebec.

N. J.—Smith Cat.: Montreal—Chagnon; Sea Cliff, N. Y.—Banks.

Williston recognizes *albipes* and *metallica* as varieties.

RHINGIA.

SCOPOLI, Ent. Carniol., 358, 1763.

MEIGEN, Syst. Besch., iii, 257, 1822.

SCHINER, Fauna Austr., iii, 325, 1862.

WILLISTON, Synop. N. A. Syrph., 129, 1886.

VERRALL, Brit. Flies, viii, 477, 1901.

CHAGNON, Ét. Prélim. les Syrph., 45, 1901.

nasica SAY, Jour. Acad. Sci. Phil., iii, 94; Compl. Works, ii, 81.—U. S.

WIEDEMANN, Auss. Zweifl., ii, 115.

WILLISTON, Synop. N. A. Syrph., 130, pl. v, f. 3.—New Eng., Ind., Ky.

CHAGNON, Ét. Prélim. les Syrph., 45.—Montreal.

N. J.—Smith Cat.: White Mts., N. H.—Slosson; Sea Cliff, N. Y.—Banks;
 Province of Quebec—Fyles.

nigra MACQUART, Dipt. Exot., Suppl. i, 133, pl. xi, f. 10.—Colombia.

WILLISTON, Biologia, Dipt., iii, 40, oc.—Tabasco, Mex.

HAMMERSCHMIDTIA.

SCHUMMEL, in Oken's Isis, 1834, 740; reprinted by Roeder, 1888.

RONDANI, Dipt. Ital. Prod., ii, 170 (*Erocheila*), 1857.

WILLISTON, Canad. Ent., xiv, 80, 1882 (*Eugeniomyia*); Proc. Amer. Phil. Soc., xx, 309, 1882 (id.); Synop. N. A. Syrph., 130, 1886 (id.).

VERRALL, Brit. Flies, viii, 475, 1901, notes; scarcely distinct from *Brachyopa*.

ferruginea FALLÉN, Syrphici, 34 (*Rhingia*).—Europe.

MEIGEN, Syst. Besch., iii, 263 (*Brachyopa*).

ZETTERSTEDT, Ins. Lapp., 596; Dipt. Scand., ii, 686 and viii, 3125 (all *Brachyopa*).

SCHINER, Verb. Zool.-Bot. Ges., vii, 376; Fauna Austr., i, 320 (id.).

LOEW, in Osten Sacken's Cat., 128, oc. in N. A.—Saskatchewan R.

WILLISTON, Canad. Ent., xiv, 80 (*Eugeniomyia rufa*); Synop. N. A. Syrph., 131 (*Eugeniomyia*).—Wash.

BRACHYOPA.

MEIGEN, Syst. Besch., iii, 260, 1822.

SCHINER, Fauna Austr., i, 326, 1862.

- WILLISTON, Synop. N. A. Syrph., 131, def. and table of species, 1886.
 VERRALL, Brit. Flies, VIII, 474, 1901.
 CHAGNON, Ét. Prélim. les Syrph., 45, 1901.
- cynops** SNOW, Kans. Univ. Quart., I, 37, pl. VII, f. 2.—Col.
- ferruginea** FALLÉN, see *Hammerschmidia*.
- media** WILLISTON, Proc. Amer. Phil. Soc., XX, 308; Synop. N. A. Syrph., 132, pl. v, f. 7.—Cal.
 CHAGNON, Ét. Prélim. les Syrph., 46.—St. Hilaire, Quebec.
- notata** OSTEN SACKEN, Bull. Buff. Soc. Nat. Sci., III, 68; Cat., 248, reprinted.—White Mts., N. H.
 WILLISTON, Synop. N. A. Syrph., 132, pl. v, f. 5, 6.—Ore., Wash.
 COQUILLETT, Proc. Wash. Acad. Sci., II, 434, oc. in Alaska.
 CHAGNON, Ét. Prélim. les Syrph., 46.—Rigaud, Quebec.
 White Mts., N. H.—Slosson; Montreal—Chagnon.
- vacua** OSTEN SACKEN, Bull. Buff. Soc. Nat. Sci., III, 68 (*vacua*, a typographical error); Cat., 247, reprinted.—Quebec, Canada.
 BIGOT, Annales, 1884, 537 (*cincercovitta*).—Cal. [Will.]
 WILLISTON, Synop. N. A. Syrph., 133.—Kern Co., Cal.
 CHAGNON, Ét. Prélim. les Syrph., 46.
 JOHNSON, Ent. News, Sept., 1899, 220, oc. at Darby, Pa.

COPESTYLUM.

- MACQUART, Dipt. Exot., Suppl. I, 124, 1846.
 WILLISTON, Synop. N. A. Dipt., 161, 1886.
- limbipennis** WILLISTON, Synop. N. A. Syrph., 152; Biologia, Dipt., III, 56 (*limbipenne*), female desc.—Mex.; Acapulco and Tehuantepec, Mex.
- marginatum** SAY, Jour. Acad. Sci. Phil., VI, 167; Compl. Works, II, 360 (*Volucella*).—Mex.
 MACQUART, Dipt. Exot., Suppl. I, 125, pl. x, f. 16 (*flaviventris*).—Venezuela.
 WILLISTON, Synop. N. A. Syrph., 151, pl. VII, f. 1; Biologia, Dipt., III, 56, oc. and notes; Ent. News, II, 162, larval habits.—Tex., Ariz., Mont., Cal.; Guerrero and N. Sonora, Mex.; the larvae feed in the tissues of the common cactus of the plains, *Opuntia missouriensis*.
 TOWNSEND, Psyche, 1898, 267, note.—N. M.
 GIGLIO-TOS, Ditt. del Mess., II, 40, pl. I, f. 14, 15 (*marginatum* and *distinctum*).—Mexico.
Note.—Giglio-Tos believes that both Say and Macquart confused two species as males and females of the same species.
- var. **lentum** WILLISTON, Synop. N. A. Syrph., 152.
- parvum** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 123, 1892; Ditt. del Mess., I, 42.—Tehuacan, Mex.
- simile** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 123, 1892; Ditt. del Mess., I, 42.—Tehuacan and Mezquillan, Mex.

VOLUCELLA.

- GEOFFROY, Hist. Ins. Env. de Paris, II, 540, 1764.
 ST. FARGEAU et SERVILLE, Encycl. Méth., X, 786, 1825 (*Temnocera* and *Ornidia*).
 MACQUART, Dipt. Exot., II, 2, 26 (*Temnocera*), 1842.
 SCHINER, Fauna Austr., I, 328, 1862.
 BIGOT, Bull. Soc. Ent. France, 1882, No. 12 (*Atemnocera*); Annales, 1883, 64, table of species.

- WILLISTON, Synop. N. A. Syrph., 134, def. and table of species, 1886:
Biologia, Dipt., III, 43, table of Cent. Amer. species, 1891.
- GIGLIO-TOS, Boll. R. Univ. Torino, VI, No. 117, 1892 (*Camerania*); Ditt. del Mess., I, 45, 1892 (id.).
- TOWNSEND, Annals and Mag. Nat. Hist., XX, 26, table of species of *amethystina* group.
- VERRALL, Brit. Flies, VIII, 482, 1901.
- CHAGNON, Ét. Prélim. les Syrph., 47, 1901.
- abdominalis** WIEDEMANN, Auss. Zweifl., II, 196.—Cuba.
MACQUART, Dipt. Exot., II, 2, 25.—Cuba.
COCKERELL, Jour. Inst. Jamaica, I, 259 ("spiniger, Brit. Mus."). [Twins.]
TOWNSEND, Trans. Amer. Ent. Soc., XXII, 39.—Jamaica.
- amethystina** BIGOT, Annales, 1875, 479.—Mex.
WILLISTON, Biologia, Dipt., III, 52, brief desc.—Presidio, Mex.
- anna** WILLISTON, Synop. N. A. Syrph., 138, pl. VI, f. 8.—Ariz., N. M.
TOWNSEND, Trans. Amer. Ent. Soc., XXII, 40, female; Annals and Mag. Nat. Hist., XIX, 141, oc.—N. M.; Rio Ruidosa, N. M.
- aperta** WALKER, Trans. Ent. Soc., n. ser., V, 292.—Mex.
- apicalis** LOEW, Cent., VI, 36.—Cuba.
WILLISTON, Synop. N. A. Syrph., 149, transl. orig. desc.
- apicifera** TOWNSEND, pub. by SNOW, in Kans. Univ. Quart., III, 241; Townsend. Trans. Amer. Ent. Soc., XXII, 40.—Las Cruces, N. M.
HUNTER, Canad. Ent., XXIX, 131, oc. and note.—N. M.
- ardua** WIEDEMANN, Auss. Zweifl., II, 204.—Surinam.
RONDANI, Es. Ins. Ditt. Brasil., 1848.—Brazil.
GIGLIO-TOS, Ditt. del Mess., I, 50.—Orizaba, Mex.
- avida** OSTEN SACKEN, West. Dipt., 333.—Cal.
WILLISTON, Synop. N. A. Syrph., 139, pl. VI, f. 12; Biologia, Dipt., III, 47.—Cal.; Guanajuato, Mex.
HUBBARD, Psyche, May, 1899, suppl. I, I, larvæ in giant cactus, *Cercus giganteus*, in Ariz.
- bombylans** LINNÉ, see *cæcta*.
- brevis** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 123, 1892; Ditt. del Mess., I, 63.—Meztillan, Mex.
- cæsariata** WILLISTON, Biologia, Dipt., III, 49.—Orizaba, Mex.
GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 123, 1892 (*hirsuta*); Ditt. del Mess., I, 60.—Meztillan, Mex.
- castanea** BIGOT, Annales, 1875, 476.—Mex.
WILLISTON, Biologia, Dipt., III, 45, oc.—Jalisco, Mex.
TOWNSEND, Trans. Amer. Ent. Soc., XXII, 41.—Guanajuato, Mex.
See also under *postica*.
- chætophora** WILLISTON, Synop. N. A. Syrph., 149; Biologia, Dipt., III, 52, pl. I, f. 15.—Mex.; Guerrero, Isthmus of Tehuantepec, and N. Yucatan, Mex.
? TOWNSEND, Annals and Mag. Nat. Hist., XX, 26, notes; identity seems doubtful.—Vera Cruz.
- chalybescens** WIEDEMANN, Auss. Zweifl., II, 204.—Brazil.
JENNICKE, Neue Exot. Dipt., 4.—Cuba.
GIGLIO-TOS, Ditt. del Mess., I, 52.—Orizaba, Mex.
- comastes** WILLISTON, Biologia, Dipt., III, 52.—Orizaba, Mex.
See note to *variegata*.
- comstocki** WILLISTON, Synop. N. A. Syrph., 138, pl. VI, f. 9; Biologia, Dipt., III, 51, oc.—Ariz., N. M.; N. Sonora, Mex.

- TOWNSEND, Trans. Amer. Ent. Soc., xxii, 41; Psyche, 1897, 148, notes; Annals and Mag. Nat. Hist., xix, 141, notes.—N. M.
- cordiæ** TOWNSEND, Annals and Mag. Nat. Hist., xx, 27.—Vera Cruz, Mex.
- craverii** GIGLIO-TOS, Boll. R. Univ. Torino, vii, No. 123, 1892; Ditt. del Mess., i, 49.—Mex.
- dichroica** GIGLIO-TOS, Boll. R. Univ. Torino, vii, No. 123, 1892; Ditt. del Mess., i, 55.—Huastec, Mex.
- estebana** TOWNSEND, Proc. Cal. Acad. Sci., iv, 612.—Lower Cal.
- esuriens** FABRICIUS, Syst. Ent., iv, 281 (*Syrphus*); Syst. Antl., 226 (id.).—W. I. SAY, Jour. Acad. Sci. Phil., vi, 166 (*violacca*); Compl. Works, ii, 360 (id.).—Mex.
- WIEDEMANN, Auss. Zweifl., ii, 197.
- MACQUART, Dipt. Exot., ii, 2, 25, pl. v, f. 3 (*mexicana*); Suppl. i, 123, pl. xi, f. 2 (*dispar*).—Mex.; New Grenada.
- WALKER, List, iii, 636 (*metallifera*).—Venezuela and Mex. [Will.]
- JENNICKE, Neue Exot. Dipt., 87 (*maximiliani*).—Mex.
- SCHINER, Novara, 356 (*esuriens* and *mexicana*), syn., etc.—S. A.
- OSTEN SACKEN, West. Dipt., iii (*mexicana*); Cat., 128, syn.—S. Cal.
- RONDANI, Archiv. per Zool., iii, 4, 1865 (*transatlantica*).—S. A.
- WILLISTON, Synop. N. A. Syrph., 137, pl. vi, f. 5; Biologia, Dipt., iii, 50, bibl., etc.—Cal., Ariz., Tex., Fla.; Mexico, several places.
- GIGLIO-TOS, Ditt. del Mess., i, 47, full bibl.—Mexico, common.
- TOWNSEND, Trans. Amer. Ent. Soc., xxii, 41, notes; Proc. Cal. Acad. Sci., iv, 613, notes; Jour. N. Y. Ent. Soc., v, 174, notes.—N. M.; Lower Cal.; Tex.
- Porto Rico—Roeder.
- eugenia** WILLISTON, Synop. N. A. Syrph., 139, pl. vi, f. 10.—Bahamas, Fla., Jamaica.
- evecta** WALKER, Dipt. Saund., 251.—U. S.
- MACQUART, Dipt. Exot., Suppl. iv, 131 (*plumata* FABR.), note.—Newfoundland.
- WILLISTON, Proc. Amer. Phil. Soc., xx, 316 (*facialis*); Synop. N. A. Syrph., 136, 137, pl. vi, f. 6 (*evecta*, *facialis*, and var. *sanguinea*).—New England, Middle States, Brit. Possessions, Cal.
- COQUILLET, Proc. Wash. Acad. Sci., ii, 434, oc. in Alaska (*facialis*).
- TOWNSEND, Trans. Amer. Ent. Soc., xxii, 42, notes on varieties, recognizing *facialis* and *sanguinea* as such.
- CHAGNON, Ét. Prélim. les Syrph., 47.—Montreal and St. Jean, Quebec.
- Axton, N. Y.—M. and H.; N. J.—Smith Cat.; Sea Cliff, N. Y.—Banks; White Mts., N. H.—Slosson.
- fasciata** MACQUART, Dipt. Exot., ii, 2, 22, pl. v, f. 2.—Carolina.
- OSTEN SACKEN, West. Dipt., 334, oc.—Texas and Manitou, Col.
- WILLISTON, Synop. N. A. Syrph., 145, pl. vi, f. 4; Biologia, Dipt., iii, 48, note; Ent. News, ii, 162, larvæ.—Kans., Col., Tex., Mexico, Carolina; Mex.; larvæ feed in the tissues of the common cactus of the plains, *Opuntia missouriensis*.
- SMITH, Canad. Ent., xxiii, 242, larvæ in prickly pear cactus.
- Inverness, Fla.—Johnson; N. J.—Smith Cat.
- fax** TOWNSEND, Trans. Amer. Ent. Soc., xxii, 42.—Col.
- flavissima** GIGLIO-TOS, Boll. R. Univ. Torino, vii, No. 123, 1892; Ditt. del Mess., i, 50.—Orizaba, Mex.
- fornax** TOWNSEND, Proc. Cal. Acad. Sci., iv, 613.—Lower Cal.

- fraudulenta** WILLISTON, *Biologia*, Dipt., III, 48, pl. 1, f. 13.—Guerrero and N. Yucatan, Mex.
GIGLIO-TOS, *Ditt. del Mess.*, 1, 59.—Meztillan, Mex.
- fulvicornis** BIGOT, *Annales*, 1883, 84.—Panama.
- furens** GIGLIO-TOS, *Boll. R. Univ. Torino*, VII, No. 123, 1892; *Ditt. del Mess.*, 1, 48.—Mex.
- fuscipennis** MACQUART, *Dipt. Exot.*, II, 2, 24, pl. IV, f. 2.—Brazil.
WILLISTON, *Trans. Amer. Ent. Soc.*, XV, 276; *Biologia*, Dipt., III, 54.—Brazil; Tabasco and N. Yucatan, Mex.
- haagi** JENNICKE, *Neue Exot. Dipt.*, 397.—Mex.
OSTEN SACKEN, *West. Dipt.*, 334 (*Temnocera scitigera*).—Vermejo R., N. M. [Will.]
- VAN DER WULP**, *Tijdschr. v. Ent.*, XXV, 126, pl. X, f. 10 (id.).—Ariz.
WILLISTON, *Synop. N. A. Syrph.*, 147, pl. V, f. 8; *Biologia*, Dipt., III, 51, oc.—Ariz.; Guerrero, N. Sonora and Guanajuato, Mex.
TOWNSEND, *Proc. Cal. Acad. Sci.*, IV, 614; *Trans. Amer. Ent. Soc.*, XXII, 43, oc.: XXXVIII, 161, notes.—Lower Cal.; Jamaica; N. M.
GIGLIO-TOS, *Ditt. del Mess.*, 1, 50, notes.—Mex.
- hirsuta** GIGLIO-TOS, see *casariata*.
- hispida** GIGLIO-TOS, see *ornata*.
- hyaloptera** GIGLIO-TOS, *Boll. R. Univ. Torino*, VII, No. 123, 1892; *Ditt. del Mess.*, 1, 57.—Tampico, Mex.
- hystrix** GIGLIO-TOS, *Boll. R. Univ. Torino*, VII, No. 123, 1892; *Ditt. del Mess.*, 1, 62.—Tuxpango, Mex.
- inops** TOWNSEND, *Trans. Amer. Ent. Soc.*, XXII, 43.—Ft. Collins, Col.
- isabellina** WILLISTON, *Synop. N. A. Syrph.*, 140; *Biologia*, Dipt., III, 46, oc.—Ariz., N. M.; Mex., N. Sonora.
TOWNSEND, *Proc. Cal. Acad. Sci.*, IV, 614, male.—Ariz.
- kincaidii** COQUILLET, see *Pyrilis*.
- lata** WIEDEMANN, *Auss. Zweifl.*, II, 195.—Mex.
GIGLIO-TOS, *Ditt. del Mess.*, 1, 46.—Oaxaca and Meztillan, Mex.
For Williston's *lata* WIED., see *macrocephala*.
- lucasana** TOWNSEND, *Proc. Cal. Acad. Sci.*, IV, 615.—Lower Cal.
- lugens** WIEDEMANN, *Auss. Zweifl.*, II, 206.—Brazil.
WILLISTON, *Biologia*, Dipt., III, 54, doubtfully identified from Guatemala.
- macrocephala** GIGLIO-TOS, *Ditt. del Mess.*, 1, 45 (*Camcrania*).—Yucatan and Vera Cruz, Mex.
WILLISTON, *Synop. N. A. Dipt.*, 146 (*megacephala* LOEW); *Biologia*, Dipt., III, 45 (*lata* WIED.).—Ariz., Mex.; N. Yucatan and Vera Cruz, Mex. [G. T.]
- macula** WIEDEMANN, *Auss. Zweifl.*, II, 200.—Brazil.
MACQUART, *Dipt. Exot.*, II, 2, 24, pl. IV, f. 1.—Brazil.
WILLISTON, *Trans. Amer. Ent. Soc.*, XV, 272; *Biologia*, Dipt., III, 51, oc.—Brazil; Mex.
- megacephala** LOEW, *Cent.*, IV, 57 (*Temnocera*).—Cal.
TOWNSEND, *Proc. Cal. Acad. Sci.*, IV, 615.—Lower Cal.
For Williston's *megacephala* LOEW, see *macrocephala*.
- mellea** JENNICKE, *Neue Exot. Dipt.*, 396.—Guanajuato, Mex.
WILLISTON, *Biologia*, Dipt., III, 49, oc.—Mexico City.
TOWNSEND, *Trans. Amer. Ent. Soc.*, XXII, 44, notes.—Mex.
GIGLIO-TOS, *Ditt. del Mess.*, 1, 58.—Angang. Mess.
- minima** GIGLIO-TOS, *Boll. R. Univ. Torino*, VII, No. 123, 1892; *Ditt. del Mess.*, 1, 53.—Orizaba, Mex.

- nautilana** TOWNSEND, Annals and Mag. Nat. Hist., xx, 28.—Vera Cruz.
- nigrifacies** BIGOT, Annales, 1875, 479.—Mex.
- obesa** FABRICIUS, Syst. Ent., 763 (*Syrphus*); Ent. Syst., iv, 282 (id.); Syst. Antl., 227 (id.).—W. I.
 ST. FARGEAU et SERVILLE, Encycl. Méth., x, 786 (*Ornidia*).—S. A.
 WIEDEMANN, Auss. Zweifl., II, 199.
 MACQUART, Hist. Nat. Dipt., I, 494.—Asia and S. A.
 SCHINER, Novara, 356, note.—S. A.
 WILLISTON, Synop. N. A. Syrph., 143, pl. v, f. 9; Trans. Amer. Ent. Soc., xv, 272; Biologia, Dipt., III, 50, notes.—San Domingo, Mex., N. M.; Brazil; Mex.
 TOWNSEND, Trans. Amer. Ent. Soc., xxii, 43, notes.—Jamaica.
 GIGLIO-TOS, Ditt. del Mess., I, 64, full. bibliog., etc.; Annales Soc. Ent. de France, 1895, 300, note.—Mexico, Madagascar, E. Indies, etc.; Isle de Séchelles.
 St. Vincent—Williston; Porto Rico—Roeder; Jamaica—Johnson.
- obesoides** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 123, 1892; Ditt. del Mess., I, 65.—Mex.
- omochroma** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 123, 1892; Ditt. del Mess., I, 47.—Mex.
- opalescens** TOWNSEND, Trans. Amer. Ent. Soc., xxvii, 160.—Organ Mts., N. M.
- opalina** TOWNSEND, Annals and Mag. Nat. Hist., xx, 29.—Vera Cruz.
 var. **splendens** TOWNSEND, loc. cit.
- opinator** WILLISTON, Biologia, Dipt., III, 51, pl. I, f. 14.—Vera Cruz, Mex.
- ornata** WILLISTON, Biologia, Dipt., III, 49.—Jalapa, Mex.
 GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 123, 1892 (*hispidia*); Ditt. del Mess., I, 61.—Jalapa and Orizaba, Mex.
- pallens** WIEDEMANN, Auss. Zweifl., II, 204.—Brazil.
 LOEW, Wien. Ent. Monatsch., v, 38 (*sexpunctata*); Cent., VI, 37 (id.).—Cuba.
 WILLISTON, Trans. Amer. Ent. Soc., xv, 275; Synop. N. A. Syrph., 141, pl. VI, f. 2 (*sexpunctata* Lw.); Biologia, Dipt., III, 53, syn. and oc.; Ent. News, III, 146, syn.—Brazil; Fla.; Guatemala.
 GIGLIO-TOS, Ditt. del Mess., I, 57.—Playa Vicente and Meztilian, Mex.
 TOWNSEND, Trans. Amer. Ent. Soc., xxii, 45, oc. in Jamaica.
 Fla. and Jamaica—Johnson; Porto Rico—Roeder.
- picta** WIEDEMANN, Auss. Zweifl., II, 201.—Brazil.
 BIGOT, in Sagra's Cuba, 802, oc. in Cuba.
 SCHINER, Novara, 358.—Brazil.
 RONDANI, Studi Ent., 65.—Brazil.
 BIGOT, Annales, 1875, 480 (*pulchripes*).—Mex.
 WILLISTON, Trans. Amer. Ent. Soc., xv, 275; Biologia, Dipt., III, 47, syn., etc.—Brazil; Mexico, several places.
- postica** SAY, Jour. Acad. Sci. Phil., VI, 166; Compl. Works, II, 360.—Mex.
 GIGLIO-TOS, Ditt. del Mess., I, 49, desc.; would make *castanea* BIG., a synonym.—Tehuacan, Mex.
- pubescens** LOEW, Wien. Ent. Monatsch., v, 38 (*Temnocera*); Cent., VI, 35 (id.).—Cuba.
 WILLISTON, Synop. N. A. Syrph., 148, transl. orig. desc.
- pulchripes** BIGOT, see *picta*.
- purpurascens** LOEW, Cent., VIII, 52.—Hayti.
 WILLISTON, Synop. N. A. Syrph., 148, transl. orig. desc.
 Jamaica—Johnson.

- purpurifera** BIGOT, Annales, 1875, 477, 481 (*tricincta*, *purpurifera*, and *varians*): 1883, 63, syn. of *varians*.—Oaxaca, Mex.
WILLISTON, Biologia, Dipt., III, 54, redesc.; syn.—Oaxaca, Mex.
- pusilla** MACQUART, Dipt. Exot., II, 2, 21, pl. v, f. 3.—Cuba.
WILLISTON, Synop. N. A. Syrph., 144, pl. vi, f. 3.—Fla.
St. Augustine and Georgiana, Fla.—Johnson; Porto Rico—Roeder.
- quadrata** WILLISTON, Biologia, Dipt., III, 46, pl. I, f. 12.—Guerrero, Mex.
- rafaelana** TOWNSEND, Annals and Mag. Nat. Hist., XX, 28.—Vera Cruz.
- satur** OSTEN SACKEN, West. Dipt., 333.—Utah, Col.
WILLISTON, Synop. N. A. Syrph., 142, pl. vi, f. 11.—W. Kans., Col. N. M.—Snow.
- setigera** OSTEN SACKEN, see *haagi*.
- sexpunctata** LOEW, see *pallens*.
- sodomis** TOWNSEND, Proc. Cal. Acad. Sci., IV, 66.—Lower Cal.
- tamaulipana** TOWNSEND, Jour. N. Y. Ent. Soc., VI, 51.—Brownsville, Tex.
- tau** BIGOT, Annales, 1883, 84.—Mex.
WILLISTON, Synop. N. A. Syrph., pl. vi, f. 13.—Cal. Col., N. M.—Snow.
- testacea** VAN DER WULP, Tijdschr. v. Ent., XXXIV, 203.—Curacao.
- tibialis** MACQUART, Dipt. Exot., Suppl. I, 123.—Yucatan.
- tolteca** TOWNSEND, Trans. Amer. Ent. Soc., XXII, 45; Proc. Cal. Acad. Sci., IV, 616, notes.—Guanaxuato, Mex.; Lower Cal.
- tricincta** BIGOT, see *purpurifera*.
- tristis** BIGOT, Annales, 1875, 482; 1883, 70 (*tristis*); 1883, 81, 86 (*Phalacromyia mclanorhina*).—Mexico. [G. T.]
GIGLIO-TOS, Ditt. del Mess., I, 54, syn., etc.; may be same as *Phalac. sub-rostrata* ROND., from Brazil.—Orizaba, Tuxpango, Tehuacan, Mex.
- tympانيتis** FABRICIUS, Syst. Antl., 226 (*Syrphus*).—S. A.
WIEDEMANN, Auss. Zweifl., II, 200.
WILLISTON, Trans. Amer. Ent. Soc., XV, 275; Biologia, Dipt., III, 52, oc.—Brazil; Mexico and Panama.
- unilecta** WALKER, Trans. Ent. Soc., n. ser., V, 292 (*Temnocera*).—Mex.
- vacua** FABRICIUS, Syst. Ent., 763 (*Syrphus*); Ent. Syst., IV, 281 (id.); Syst. Antl., 227 (id.).—W. I.
WIEDEMANN, Auss. Zweifl., II, 202.—S. A.
WALKER, List, III, 637, oc. in Ga. and Fla.
TOWNSEND, Trans. Amer. Ent. Soc., XXII, 46, redesc.—Jamaica.
- varians** BIGOT, Annales, see *purpurifera*.
- variegata** BIGOT, Annales, 1875, 478.—Mex.
GIGLIO-TOS, Ditt. del Mess., I, 51.—Orizaba; *comastes* WILL. may be the same.
- vesiculosa** FABRICIUS, Syst. Antl., 226 (*Syrphus*).—S. A.
WIEDEMANN, Auss. Zweifl., II, 201.—S. A.
MACQUART, Dipt. Exot., Suppl. III, 30, pl. IV, f. 3.—N. A.
WILLISTON, Synop. N. A. Syrph., 141, pl. vi, f. 1.—Pa., Conn., Md., Ky., Fla.
N. J.—Smith Cat.; Inverness, Fla.—Johnson.
- victoria** WILLISTON, Synop. N. A. Syrph., 145.—N. M.
TOWNSEND, Psyche, 1898, 267, oc.; Annals and Mag. Nat. Hist., XIX, 141, notes.—Both N. M.
- violacea** SAY, see *csuricus*.
- viridana** TOWNSEND, Annals and Mag. Nat. Hist., XX, 30.—Vera Cruz.
- viridula** WALKER, Trans. Ent. Soc., n. ser., V, 292 (*Temnocera*).—Mex.

viridula BIGOT, see *Phalacromyia vaga*.

volucris GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 123, 1892; Ditt. del Mess., I, 61.—Orizaba, Mex.

MEGAMETOPON.

GIGLIO-TOS, Boll. R. Univ. Torino, VI, No. 108, 5, fig., Sept., 1891; Ditt. del Mess., I, 43, 1892.

WILLISTON, Biologia, Dipt., III, 55, pl. II, f. I (Dec., 1891) (*Ophromyia*).

nasicum WILLISTON, Biologia, Dipt., III, 55 and 79, pl. II, f. I (*Ophromyia*).—Guerrero, Mex.

GIGLIO-TOS, Ditt. del Mess., I, 44, pl. I, f. 12.—Guerrero, Mex.

PHALACROMYIA.

RONDANI, Esame . . . Ins. Ditt. Brasil, Torino, 1848.

THOMSON, Eugen. Resa, 593, 1868 (*Glauotricha*). [Will.]

BIGOT, Annales, 1883, 64 and 81, table of species.

WILLISTON, Synop. N. A. Syrph., 297, 1886, note; Biologia, Dipt., III, 40, 1891, table of Cent. Amer. species.

bellula WILLISTON, Biologia, Dipt., III, 42.—N. Yucatan, Mex.

melanorhina BIGOT, see *Volucella tristis*.

pica SCHINER, Novara, 355, pl. IV, f. 6.—Colombia.

? WILLISTON, Biologia, Dipt., III, 41, doubtfully ident. from Misantla, Mex.

pulchra WILLISTON, Biologia, Dipt., III, 41.—Costa Rica.

vaga WIEDEMANN, Auss. Zweifl., II, 205 (*Volucella*).—Brazil.

SCHINER, Novara, 355, note.

BIGOT, Annales, 1875, 481 (*Volucella viridula*); 1883, 62, syn.—Mex.

WILLISTON, Biologia, Dipt., III, 42, oc. in Mex.

GIGLIO-TOS, Ditt. del Mess., I, 56 (*Volucella*).—Guerrero and Orizaba, Mex.

vicina BIGOT, Annales, 1883, 86.—Mex.

virescens WILLISTON, Biologia, Dipt., III, 42.—Guatemala.

volucelloides BIGOT, Annales, 1884, 548 (*Glauotricha*), from Mexico, should perhaps be placed here, as Williston, Biologia, Dipt., III, 43, says that *Glauotricha* is hardly distinct from *Phalacromyia*.

SERICOMYIA.

MEIGEN, Illig. Mag., II, 274, 1803; Syst. Besch., III, 342, 1822.

SCHINER, Fauna Austr., I, 330, 1862.

WILLISTON, Synop. N. A. Syrph., 153, 1886, def. and table of species.

VERRALL, Brit. Flies, VIII, 634, 1901.

CHAGNON, Ét. Prélim. les Syrph., 48, 1901.

bifasciata WILLISTON, Synop. N. A. Syrph., 154.—N. H.

Pa.—Johnson; Axton, N. Y.—M. and H.

chalcopyga LOEW, Cent., III, 20.—Sitka.

WILLISTON, Synop. N. A. Syrph., 156, pl. VII, f. 2.—Wash., Ore.

COQUILLET, Proc. Wash. Acad. Sci., II, 435, oc. in Alaska and White Mts., N. H.

Axton, N. Y.—M. and H.; N. Idaho—J. M. A.

chrysotoxoides MACQUART, Dipt. Exot., II, 2, 19, pl. III, f. 3 bis; Suppl. II, 58, female (*limbipennis*).—Philadelphia; Nova Scotia. [O. S.]

WALKER, List, III, 596 (*filia*).—Martin Falls and Nova Scotia. [O. S.]

OSTEN SACKEN, Cat., 130, syn.

WILLISTON, Synop. N. A. Syrph., 157, pl. VII, f. 4.—Atlantic States and Canada.

CHAGNON, Ét. Prélim. les Syrph., 49.—Montreal.

N. J.—Smith Cat.; White Mts., N. H.—Slosson; Sea Cliff, N. Y.—Banks.

lappona LINNÉ, Syst. Nat., 10th ed., 591 (*Musca*); Fauna Suec., 2d ed., 443 (id.)—Europe.

FABRICIUS, Spec. Ins., 422; Ent. Syst., iv, 280; Syst. Antl., 226 (all *Syrphus lapponum*).

LATREILLE, Hist. Nat. Crust. et Ins., xiv, 265 (*Volucella*); Consid. Génér., 443.

FALLÉN, Syrphici, 20 (*lapponum*).

MEIGEN, Syst. Besch., iii, 344.

MACQUART, Hist. Nat. Dipt., i, 496.

ZETTERSTEDT, Ins. Lapp., 590; Dipt. Scand., ii, 646.

SCHINER, Verh. Zool.-Bot. Ges., vii, 437; Fauna Austr., i, 331.

VAN DER WULP, Tijdschr. v. Ent., xxv, 126, oc. at Quebec.

WILLISTON, Synop. N. A. Syrph., 154.—Quebec (v. d. W.).

VERRALL, Brit. Flies, viii, 637, fig.

Note.—The *Volucella lappona* of O. Fabricius is mentioned under *Syrphus tarsatus*.

militaris WALKER, List, iii, 595.—Martin Falls and Nova Scotia.

WILLISTON, Synop. N. A. Syrph., 155, pl. vii, f. 3.—White Mts., N. H.; Canada, New York, New Mexico.

SNOW, Kans. Univ. Quart., i, 37, notes.—Minn., Col.

TOWNSEND, Trans. Amer. Ent. Soc., xxii, 46, notes.—Col.

CHAGNON, Ét. Prélim. les Syrph., 48.—Montreal.

Axton, N. Y.—M. and H.; Beulah, N. M.—Skinner; White Mts., N. H.—Slosson; Col. and Red R. of the North—O. S. Cat.

sexfasciata WALKER, List, iii, 596.—Martin Falls, Canada.

WILLISTON, Synop. N. A. Syrph., 155.—Huds. B. Terr.

ARCTOPHILA.

SCHINER, Wien. Ent. Monatsch., iv, 215, 1860; Fauna Austr., i, 331, 1862.

WILLISTON, Synop. N. A. Syrph., 157, 1886.

VERRALL, Brit. Flies, viii, 631, 1901.

flagrans OSTEN SACKEN, Bull. Buff. Soc. Nat. Sci., iii, 69; West. Dipt., 335.—Mts. of Col.

WILLISTON, Synop. N. A. Dipt., 158, pl. vii, f. 5.—N. M.

TOWNSEND, Trans. Amer. Ent. Soc., xxii, 47, notes.—Col.

COQUILLET, Proc. Wash. Acad. Sci., ii, 434, oc. in Popof Id., Alaska.

N. M.—Coquillett; N. M., up to 10,000 ft.—Snow; Black Hills, S. D.—J. M. A.

PYRITIS.

HUNTER, Canad. Ent., xxix, 131, 1897.

kincaidii COQUILLET, Ent. News, vi, 132 (*Volucella*).—Wash. Gen. ref. by Melander in litt.

montigena HUNTER, loc. cit.—Moscow, Idaho.

DOLIOSYRPHUS.

BIGOT, Bull. Soc. Ent. France, 1882, No. 13; Annales, 1883, 237.

WILLISTON, Synop. N. A. Syrph., 178, 1886.

hirtipes BIGOT, Bull. Soc. Ent. France, 1882, No. 13; Annales, 1883, 343.—Panama.

rileyi WILLISTON, Synop. N. A. Syrph., 178, pl. viii, f. 8.—N. M.

scutellatus BIGOT, Bull. Soc. Ent. France, 1882, No. 13; Annales, 1883, 342.—Panama.

ERISTALIS.

- LATREILLE, Dict. d'Hist. Nat., 1804; Hist. Nat. Crust. et Ins., xiv, 363, 1804.
- MEIGEN, Syst. Besch., iii, 381, 1822.
- RONDANI, Dipt. Ital. Prod., ii, 40, 1857 (*Eristalinus* and *Eristalomyia*).
- SCHINER, Fauna Austr., i, 332, 1862.
- WILLISTON, Synop. N. A. Syrph., 158, def. and table of species, 1886; Biologia, Dipt., iii, 56, 1891, table of Central American spp.
- MIK, Wien. Ent. Zeit., xvi, 113, 1897, divides into five genera.
- VERRALL, Brit. Flies, viii, 493, 1901, adopts five subgenera.
- CHAGNON, Ét. Prélim. les Syrph., 50, 1901.
- æmulus** WILLISTON, Biologia, Dipt., iii, 64, pl. II, f. 5.—Guerrero, Mex.; Guatemala and Panama.
- GIGLIO-TOS, Ditt. del Mess., ii, 13, oc. in Mex., several places.
- æneus** SCOPOLI, Ent. Carniol., 356 (*Conops*).—Europe.
- FABRICIUS, Ent. Syst., iv, 302 (*Syrphus*): Syst. Antl., 244.
- FALLÉN, Syrphici, 28 (*Syrphus*).
- MEIGEN, Syst. Besch., iii, 384.
- WIEDEMANN, Auss. Zweifl., ii, 190 (*cuprovittatus*).—N. A. [Verrall, from types.]
- HARRIS, Ins. Inj. to Veg., 3d ed., 609 (*sincerus*).—Mass.
- ZETTERSTEDT, Dipt. Scand., ii, 668 (*Syrphus*).
- WALKER, List, iii, 611 (*sincerus*).—U. S.
- SCHINER, Fauna Austr., i, 333.
- LOEW, in Silliman's Jour., syn. and oc. in N. A.
- WILLISTON, Synop. N. A. Syrph., 161.—Europe and N. A.
- MIK, Wien. Ent. Zeit., xvi, 113, refers to *Lathyrophthalmus*, n. g.
- VERRALL, Brit. Flies, viii, 501 (subg. *Lathyrophthalmus*).
- Sea Cliff, N. Y.—Banks; N. J.—Smith Cat.; N. Africa and Asia Minor—Schiner.
- agrorum** FABRICIUS, Ent. Syst., iv, 285 (*Syrphus*): Syst. Antl., 235.—W. I.
- WIEDEMANN, Auss. Zweifl., ii, 172.—S. A.
- VAN DER WULP, Tijdschr. v. Ent., xxv, 130, oc. in Guadeloupe and Argentina.
- albiceps** MACQUART, see *albifrons*.
- albifrons** WIEDEMANN, Auss. Zweifl., ii, 189.—Brazil.
- MACQUART, Dipt. Exot., ii, 2, 56 (*albiceps*).—Carolina.
- LOEW, Cent., vi, 63 (*scniculus*).—Cuba.
- OSTEN SACKEN, Cat., 249, note 221.
- ROEDER, Stett. Ent. Zeit., 1885, 341.—Porto Rico.
- WILLISTON, Trans. Amer. Ent. Soc., xv, 283; Synop. N. A. Syrph., 172 (*albiceps*); Biologia, Dipt., iii, 62, syn., etc.; Ent. News, iii, 146, bibl.—Brazil; Ga.; Fla., San Domingo; Tabasco, Mex.
- Jamaica and Fla.—Johnson.
- androclous** WALKER, see *Helophilus*; the species determined as this by Osten Sacken is placed by Hunter as *meigenii*.
- atrimanus** LOEW, Cent., vi, 62.—Cuba.
- WILLISTON, Synop. N. A. Syrph., 173.—San Domingo.
- Jamaica—Johnson.
- atriceps** LOEW, see *compactus*.
- atropis** GIGLIO-TOS, Boll. R. Univ. Torino, vii, No. 123, 1892; Ditt. del Mess., ii, 14, pl. II, f. 23.—Mex.

- basilaris** MACQUART, Hist. Nat. Dipt., 1, 502.—N. A.
OSTEN SACKEN, Cat., 133, note.
- bastardii** MACQUART, Dipt. Exot., II, 2, 35, pl. IX, f. 1; Suppl. IV, 140 (*scimitalicus*).—N. A.; Nova Scotia.
WALKER, List, III, 616 (*nebulosus*).—N. Y., Martin Falls, and Nova Scotia.
OSTEN SACKEN, Cat., 131, and note, syn.
VAN DER WULP, Tijdschr. v. Ent., XXV, 128, oc. at Quebec.
WILLISTON, Synop. N. A. Syrph., 168, New Eng., Canada, Labrador.
TOWNSEND, Trans. Amer. Ent. Soc., XXII, 48, notes.—D. C.
CHAGNON, Ét. Prélim. les Syrph., 55.—St. Jean and Montreal, Quebec.
N. J.—Smith Cat.
- bellardii** JENNICKE, see *bogotensis*.
- bogotensis** MACQUART, Dipt. Exot., II, 2, 52.—Bogota.
JENNICKE, Neue Exot. Dipt., 400 (*bellardii*).—Mex.
BIGOT, Annales, 1880, 221 (*Eristalomyia rufoscutata*).—Mex.
VAN DER WULP, Tijdschr. v. Ent., XXV, 129; Notes from the Leyden Mus., v, 79.—Argentina.
F. LYNCH ARRIBALZAGA, Dipt. Argentina, Syrph., 253.—Argentina.
WILLISTON, Biologia, Dipt., III, 60 (*bellardii*).—Durango, Mex.
GIGLIO-TOS, Ditt. del Mess., II, 4, syn., etc.—Oaxaca, Angang, Mex.
- bombusoides** (!) GIGLIO-TOS, see *circe*.
- brousi** WILLISTON, see *mcigenii*.
- circe** WILLISTON, Biologia, Dipt., III, 59, pl. II, f. 7.—Guerrero and Jalapa, Mex.
GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 123, 1892 (*bombusoides*);
Ditt. del Mess., II, 3.—Oaxaca.
- clarissimus** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 123, 1892; Ditt. del Mess., II, 11.—Tuxpango, Mex.
- compactus** WALKER, List, III, 619.—Martin Falls, Canada.
LOEW, Cent., VI, 64 (*atriceps*).—White Mts., N. H. [Will.]
WILLISTON, Synop. N. A. Syrph., 169, pl. VII, f. 9.—Conn.
COQUILLETT, Proc. Wash. Acad. Sci., II, 435, oc. in Alaska.
Canada—O. S. Cat.; White Mts., N. H.—Slosson.
- cosmius** SCHINER, Novara, 362.—S. A.
? WILLISTON, Biologia, Dipt., III, 61, doubtfully recognized from Jalapa, Mex.
- cubensis** MACQUART, Dipt. Exot., II, 2, 42.—Cuba; may be the female of *albifrons* or a var. of *annulipes*—Meq., loc. cit.
- dimidiatus** WIEDEMANN, Auss. Zweifl., II, 180.—N. A.
MACQUART, Hist. Nat. Dipt., 1, 505 (*niger*); Dipt. Exot., II, 2, 55 (*thermivivarii* and *chalybeus*, male and female); Suppl. IV, 139 (*incisuralis*).—N. A.; Carolina; Carolina; N. A. [All by O. S., Cat., 131.]
WALKER, List, III, 617 (*intlexus*).—Martin Falls and Nova Scotia. [O. S.]
WILLISTON, Synop. N. A. Syrph., 162.—Conn., D. C., N. H., Kans.
RILEY and HOWARD, Ins. Life, II, 201, ref. to an alleged case of the larva of this species passing from the bowels of a human being.
TOWNSEND, Trans. Amer. Ent. Soc., XXII, 48, notes.—D. C.
CHAGNON, Ét. Prélim. les Syrph., 52.—St. Hilaire, St. Jean and Montreal, Quebec.
N. J.—Smith Cat.; White Mts., N. H.—Slosson; Fla.—Johnson; Sea Cliff, N. Y.—Banks.
- diminutus** WALKER, List, III, 622.—Mex.

- everes** WALKER, Dipt. Saund., 246.—N. A.
- expictus** WALKER, Trans. Ent. Soc., n. ser., v, 291.—Mex.
- familiaris** WALKER, Trans. Ent. Soc., n. ser., v, 290.—Mex.
- fasciatus** WIEDEMANN, Zool. Mag. Kiel, i, 51; Auss. Zweifl., ii, 173.—Brazil.
MACQUART, Dipt. Exot., ii, 2, 38 and 57 (*podagra* and *fasciatus*); Suppl. v, 87 (*bifasciatus*).—Brazil; S. A.; Brazil. [Will.]
RONDANI, Studi Ent., 68.—Brazil.
WILLISTON, Trans. Amer. Ent. Soc., xv, 281 (*podagra*); Biologia, Dipt., iii, 62, oc. and syn.—Brazil; Tabasco, Mex.
- flavipes** WALKER, List, iii, 633.—Martin Falls, Canada.
SAY, Jour. Acad. Sci. Phil., vi, 163; Compl. Works, ii, 357 (*Milesia barda*; the male is *Mallota posticata*).—Ind. [O. S.]
LOEW, Cent., vi, 69 (*mcianostomus*).—Minn., Ore. [Will.]
WILLISTON, Synop. N. A. Syrph., 168.—Canada, New Eng., Wash.
HUNTER, Canad. Ent., xxviii, 99, oc. and predaceous habit of adult.—Nebr.
TOWNSEND, Trans. Amer. Ent. Soc., xxii, 48, notes.—Col.
COQUILLET, Proc. Wash. Acad. Sci., ii, 435, oc. in Alaska.
CHAGNON, Ét. Prélim. les Syrph., 53.—Montreal.
N. J.—Smith Cat.; Sea Cliff, N. Y.; Col.—Snow.
- fulvipes** BIGOT, Annales, 1880, 225 (*Eristalomyia*).—Mex.
- furcatus** WIEDEMANN, Zool. Mag. Kiel, i, 51; Auss. Zweifl., ii, 176.—Bahia and Montevideo.
MACQUART, Dipt. Exot., ii, 2, 40, pl. ix, f. 6 (*femoratus*).—Rio Janeiro.
SCHINER, Novara, 362, syn. and note.—Brazil and Colombia.
VAN DER WULP, Tijdschr. v. Ent., xxv, 131, oc. and note.—Argentina.
WILLISTON, Trans. Amer. Ent. Soc., xv, 279; Biologia, Dipt., iii, 61, oc.—Brazil; Mexico, common.
TOWNSEND, Jour. N. Y. Ent. Soc., v, 174, oc. and notes.—Brownsville, Tex.
GIGLIO-TOS, Ditt. del Mess., ii, 15.—Mexico, common.
- guadelupensis** MACQUART, Dipt. Exot., ii, 2, 32.—Guadeloupe.
- gundlachi** LOEW, Cent., vi, 61.—Cuba.
- hirtus** LOEW, see *temporalis*.
- hortorum** FABRICIUS, Syst. Ent., 764 (*Syrphus*); Ent. Syst., iv, 286 (id.); Syst. Antl., 236.—W. I.
DEGEER, Méth. Hist. Ins., vi, 145, pl. xxix, f. 1 (*Musca surinamensis*).—Surinam. [Fabr.]
WIEDEMANN, Auss. Zweifl., ii, 169.—St. Thomas, W. I.
WILLISTON, Synop. N. A. Syrph., 173, pl. vii, f. 10.—San Domingo.
- impositus** WALKER, Trans. Ent. Soc., n. ser., v, 289.—Hayti.
- inflatus** MACQUART, Hist. Nat. Dipt., i, 507.—N. A.
OSTEN SACKEN, Cat., 133, note; not seen.
- inornatus** LOEW, Cent., vi, 68.—Red R. of the North.
WILLISTON, Synop. N. A. Syrph., 175, transl. of orig. desc.
Craig's Mt., Ida.—J. M. A.
- lateralis** WALKER, Linn. Trans., xvii, 347; List, iii, 622.—Brazil, Chili, Guiana, Mexico, Jamaica.
- latifrons** LOEW, Cent., vi, 65.—Matamoros, Mex.
OSTEN SACKEN, West. Dipt., 336 (*stipator*).—Col., N. M., Cal.
WILLISTON, Proc. Amer. Phil. Soc., xx, 319 (*stipator*); Synop. N. A. Syrph., 164; Biologia, Dipt., iii, 60, oc.—Col.; Cal., Arizona, N. M., Tex., Kans.; N. Sonora and Guerrero, Mex.

SNOW, Kans. Univ. Quart., i, 38, notes.—Col.

GIGLIO-TOS, Ditt. del Mess., ii, 5.—Tehuacan, Mex.

TOWNSEND, Proc. Cal. Acad. Sci., iv, 617, oc.; Psyche, 1897, 49, 93, notes;
Trans. Amer. Ent. Soc., xxii, 49, notes.—Cal.; N. M.; Ariz., Cal., N.
M.

HUNTER, Canad. Ent., xxviii, 97, oc. and notes.—Nebr., S. D., Cal., Mex.
Beulah, N. M.—Skinner.

var. **maculipennis** TOWNSEND, Psyche, 1897, 93.—N. M.

meigenii WIEDEMANN, Auss. Zweifl., ii, 177.—S. A.

THOMSON, Eugen. Resa, 419 (*fovcijrons*).—S. A.

OSTEN SACKEN, West. Dipt., 337 (*androclous* WALK.): Cat., 131, 249, note
(*androclous* O. S., Walker's species proving to be a *Hcrophilus*).—N. H.
to Utah and Alaska.

WILLISTON, Proc. Amer. Phil. Soc., xx, 323, female (*brousi*); 319, male
(*meigenii*); Synop. N. A. Syrph., 165, 166 (*meigenii* and *brousi*).—
New Eng. to Alaska.

TOWNSEND, Trans. Amer. Ent. Soc., xxii, 48, notes.—N. H., Col.

HUNTER, Canad. Ent., xxviii, 98 (*brousi*); xxix, 133, full syn.—S. D.,
Ida., Wyo.

COQUILLET, Proc. Wash. Acad. Sci., ii, 435, oc. in Alaska.

CHAGNON, Ét. Prélim. les Syrph., 51.—Montreal.

N. J.—Smith Cat.

melanostoma LOEW, see *flavipes*.

mexicanus MACQUART, Dipt. Exot., Suppl. ii, 59.—Mex.

GIGLIO-TOS, Ditt. del Mess., ii, 5.—Mexico City.

minutalis WILLISTON, Biologia, Dipt., iii, 64, pl. ii, f. 6.—Tabasco, Mex.

montanus WILLISTON, Proc. Amer. Phil. Soc., xx, 322; Synop. N. A. Syrph.,
166.—Wyo.

HUNTER, Canad. Ent., xxviii, 98; xxix, 134, oc. and notes.—Ida.; Nebr.

nemorum LINNÉ, Syst. Nat., 10th ed., 591 (*Musca*); Fauna Suec., 2d ed., 444
(id.).—Europe.

MEIGEN, Syst. Besch., iii, 394 and vii, 144 (*ucmorum* and *sylvarum*).

SCHINER, Fauna Austr., i, 336, 337 (id.).

? VAN DER WULP, Tijdschr. v. Ent., xxv, 128, doubtful oc. at Quebec.

VERRALL, Brit. Flies, viii, 514, fig.

obscurus LOEW, Cent., vi, 67.—Red R. of the North.

WILLISTON, Synop. N. A. Syrph., 175, trans. orig. desc.

COQUILLET, Proc. Wash. Acad. Sci., ii, 436, oc. at Fox Point, Alaska.

Hudsonian Zone, N. M.—Cockerell.

obsoletus WIEDEMANN, Auss. Zweifl., ii, 175.—Brazil.

MACQUART, Dipt. Exot., Suppl. iv, 138 (*testaccicornis*).—Mex. [Will.]

SCHINER, Novara, 361, redesc.—S. A.

BIGOT, Annales, 1880, 224 (*Eristalomyia pachypoda*).—Mex.

WILLISTON, Trans. Amer. Ent. Soc., xv, 279; Biologia, Dipt., iii, 59, 60
(*obsoletus* and *pachypoda*).—Brazil; Mexico, several places, and Costa
Rica.

GIGLIO-TOS, Ditt. del Mess., ii, 7, syn. and oc.—Orizaba and Cuernavaca,
Mex.

TOWNSEND, Proc. Cal. Acad. Sci., iv, 617, note.—Lower Cal.

occidentalis WILLISTON, Proc. Amer. Phil. Soc., xx, 322; Synop. N. A. Syrph.,
167.—Wash.

HUNTER, Canad. Ent., xxix, 133, oc. at Cook's Inlet, Alaska.

COQUILLET, Proc. Wash. Acad. Sci., ii, 435, oc. in Alaska, sev. places.

- ochraceus** WILLISTON, Trans. Amer. Ent. Soc., xv, 279; *Biologia*, Dipt., III, 60, female.—Brazil; Tabasco, Mex.
- œstriformis** WALKER, List, III, 573.—Martin Falls, Canada.
OSTEN SACKEN, Cat., 249, note 227, on type.
WILLISTON, Synop. N. A. Syrph., 176, quotes Walker and Osten Sacken.
- opulentus** BIGOT, see *Mcromacrus*.
- ornatus** TOWNSEND, Annals and Mag. Nat. Hist., XIX, 21.—Vera Cruz, Mex.
- pachypoda** BIGOT, see *obsoletus*.
- parens** BIGOT, Annales, 1880, 216.—N. A.
WILLISTON, Synop. N. A. Syrph., 177, quotes orig. desc.
- persa** WILLISTON, *Biologia*, Dipt., III, 58.—Guerrero, Mex.
- pilosus** LOEW, Cent., VI, 70.—Greenland.
WILLISTON, Synop. N. A. Syrph., 174, transl. of orig. desc.
- præclarus** GIGLIO-TOS, see *rufiventris*.
- pusillus** MACQUART, Dipt. Exot., II, 2, 54.—Yucatan.
JENNICKE, Neue Exot. Dipt., 400 (*tricolor*).—Mex. [G. T.]
WILLISTON, *Biologia*, Dipt., III, 62 (*tricolor*).—Mexico, several places.
TOWNSEND, Jour. N. Y. Ent. Soc., v, 175, oc. (*tricolor*); Proc. Cal. Acad. Sci., IV, 617 (id.).—Brownsville, Tex.; Lower Cal.
GIGLIO-TOS, Ditt. del Mess., II, 10, syn., etc.—Mexico, many places.
- pusio** WIEDEMANN, Auss. Zweifl., II, 192.—Brazil.
ROEDER, Stett. Ent. Zeit., 1885, 341.—Porto Rico.
- ruficeps** MACQUART, Dipt. Exot., II, 2, 51.—Bogota.
JENNICKE, Neue Exot. Dipt., 91 (*thoracica*).—Mex. [G. T.]
WILLISTON, Ent. News, III, 146, would make *thoracica* a syn. of *obsoletus*.
GIGLIO-TOS, Ditt. del Mess., II, 6.—Tehuacan, Mex.
- rufiventris** MACQUART, Dipt. Exot., Suppl. I, 129.—Colombia.
WILLISTON, Trans. Amer. Ent. Soc., xv, 282; *Biologia*, Dipt., III, 65, oc. and note.—Brazil; Tabasco, Mex.
GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 123 1892 (*præclarus*); Ditt. del Mess., II, 11.—Tabasco and Tuxpango, Mex.
- rufoscutatus** BIGOT, see *bogotensis*.
- sackeni** BIGOT, Annales, 1880 (*Eristalomyia sackenis*).—Mex.
- sallæi** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 123, 1892; Ditt. del Mess., II, 12.—Mexico City.
- saxorum** WIEDEMANN, Auss. Zweifl., II, 158.—Savannah, Ga.
MACQUART, Dipt. Exot., II, 2, 33.—Philadelphia.
WALKER, List, III, 618 (*pervagus* HARRIS, Cat. Ins. Mass.).—U. S. [O. S.]
WILLISTON, Synop. N. A. Syrph., 163.—Mass., Conn., N. C., Pa. N. J.—Smith Cat.
- scutellaris** FABRICIUS, Syst. Antl., 190 (*Milesia*).—S. A.
WIEDEMANN, Auss. Zweifl., II, 159.—Brazil.
MACQUART, Hist. Nat. Dipt., I, 513 (*Palpada scutellata*); Dipt. Exot., II, 2, 38 and 41 (*scutellatus* and *scutellaris*); Suppl., IV, 139 (*fascithorax*).—Brazil; Brazil and Cayenne; America.
SCHINER, Novara, 364, notes; syn. of *scutellata*, and probably of *fascithorax*.—S. A.
BIGOT, Annales, 1883, 222, note on Macquart's types of *scutellata* (*Priomcrus*); 342 (*Doliosyrphus scutellatus* n. sp.).—Panama. [G. T.]
WILLISTON, Trans. Amer. Ent. Soc., xv, 279; Synop. N. A. Syrph., 178, pl. VIII, f. 8 (*Doliosyrphus rileyi*); *Biologia*, Dipt., III, 63, oc. and syn.; Ent. News, III, 146, syn.—Brazil; New Mexico; Panama and Mexico, several places.

- GIGLIO-TOS, Ditt. del Mess., II, 12.—Mexico City.
- semicirculus** WALKER, Dipt. Saund., 249.—Honduras.
- seniculus** LOEW, see *albifrons*.
- soulouquensis** BIGOT, Annales, 1880, 228 (*Eristalomyia*).—Hayti.
- stipator** OSTEN SACKEN, see *latifrons*.
- sumichrasti** GIGLIO-TOS, Boll. R. Univ. Torino, VII, no. 123, 1892; Ditt. del Mess., II, 6.—Tehuacan, Mex.
- temporalis** THOMSON, Eugen. Resa, 490.—Cal.
 LOEW, Cent., VI, 66 (*hirtus*).—Cal. [O. S.]
 OSTEN SACKEN, West. Dipt., 335 (*hirtus*), desc. and correction of Loew.—Cal. and Col., common.
 WILLISTON, Synop. N. A. Syrph., 162 (*hirtus*).—Wash., Ore., Cal., W. Kans.
 TOWNSEND, Trans. Amer. Ent. Soc., XXII, 49, notes (*hirtus*).—Ariz., Col.
 BAKER, Ent. News, VI, 174, reared at Ft. Collins, Col.; larvæ in ooze at mouth of drain (*hirtus*).
- tenax** LINNÉ, Syst. Nat., 10th ed., 591 (*Musca*); Fauna Suec., 2d ed., 444 (id.).—Europe.
 SCOPOLI, Ent. Carniol., No. 960, 961 (*Conops vulgaris* and *fuscus*).
 FABRICIUS, Syst. Ent., 765 (*Syrphus*); Ent. Syst., IV, 288 (id.); Syst. Antl., 238.
 FALLÉN, Syrphici, 26.
 LATREILLE, Consid. Génér., 443 (*Elophilus*).
 MEIGEN, Syst. Besch., III, 385-388 (*tenax*, *campestris*, *hortorum*, *sylvaticus*, *vulpinus*).
 ZETTERSTEDT, Dipt. Scand., II, 661; VIII, 3113; XI, 4301; XII, 4651.
 WALKER, Ins. Brit., Dipt., I, 243, pl. IX, f. 5.
 SCHINER, Verh. Zool.-Bot. Ges., VII, 390; Fauna Austr., I, 334.
 BRAUER, Zweifl. des Kaiserl. Mus., III, 69, 1883, bibliog. of larval stages, from Réaumur down.
 OSTEN SACKEN, Ent. Mo. Mag., XXIII, 1883, 97, spread in North America, etc.; Bull. Soc. Ent. Ital., 1893, 186-217 (also reprinted in English at Heidelberg, 1894), "On the So-called Bugonia of the Ancients" (translation in Smithsonian Report, 1893); Berl. Ent. Zeitsch., XL, 1895, 142-147, early Chinese and Japanese literature of the larva.
 WILLISTON, Synop. N. A. Syrph., 160, pl. VII, f. 7.—New Eng., Central and Pacific States.
 RILEY and HOWARD, Ins. Life, II, 262, alleged case of the larvæ occurring in the human intestine; III, 22, larvæ in well, not positively identified.
 MIALL, Nat. Hist. of Aquatic Insects, London, 1895, pp. 198-215, larva, etc.
 TOWNSEND, Trans. Amer. Ent. Soc., XXII, 49, notes.—D. C., Cal.; Guanajuato, Mex.
 VERRALL, Brit. Flies, VIII, 505, figs.
 CHAGNON, Ét. Prélim. les Syrph., 51.—Montreal.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson; Sea Cliff, N. Y.—Banks; Beulah, N. M.—Skimmer; Axton, N. Y.—M. and H.
 Note.—Linné, in Fauna Suec.—"Habitat in aquis stagnantibus, cloacis, Bibliopagorum pappo, vix preli pressione destruenda larva."
- testaceicornis** MACQUART, see *obsoletus*.
- thoracicus** JENNICKE, see *obsoletus*.
- transversus** WIEDEMANN, Auss. Zweifl., II, 188.—N. A.
 MACQUART, Hist. Nat. Dipt., I, 307 (*vittatus*); Dipt. Exot., II, 2, 34, pl.

- viii, f. 4 (*philadelphicus*); 57 (*pumilus*).—N. A.; Philadelphia; N. A. [O. S.]
- OSTEN SACKEN, Cat., 132 and note on Macq.; syn.
- BIGOT, *Annales*, 1880, 217 (*zonatus*).—N. A. [Will.]
- WILLISTON, Synop. N. A. Syrph., 170, pl. vii, f. 8.—Canada to Fla., Col., Ill., Kans.
- TOWNSEND, Trans. Amer. Ent. Soc., xxii, 49, oc.—Mich., Va., D. C.
- CHAGNON, Ét. Prélim. les Syrph., 52.—Montreal and St. Jean, Quebec.
- N. J.—Smith Cat.; Fla.—Johnson; Sea Cliff, N. Y.—Banks; Axton, N. Y.—M. and H.
- triangularis** GIGLIO-TOS, Boll. R. Univ. Torino, vii, No. 123, 1892; Ditt. del Mess., ii, 9.—Mexico, several places.
- WILLISTON, Trans. Amer. Ent. Soc., xv, 281; *Biologia*, Dipt., iii, 63 (both referred to as "*Eristalis*—?", not named).—Brazil; Mexico, several places. [G. T.]
- tricolor** JENNICKE, see *pusillus*.
- trigonus** WILLISTON, *Biologia*, Dipt., iii, 61, pl. ii, f. 4.—Guerrero, Mex.
- trilimbatus** GIGLIO-TOS, Boll. R. Univ. Torino, vii, No. 123, 1892; Ditt. del Mess., ii, 8.—Tuxpango, Mex.
- unicolor** VAN DER WULP, Tijdschr. v. Ent., xxv, 131, pl. x, f. 11-13.—Guadeloupe.
- vinetorum** FABRICIUS, Ent. Syst., Suppl. 562 (*Syrphus*); Syst. Antl., 235.—W. I. SAY, Jour. Acad. Sci. Phil., vi, 165; Compl. Works, ii, 359 (*trifasciatus*).—Mex.
- WIEDEMANN, *Auss. Zweifl.*, ii, 163.—Brazil.
- MACQUART, Dipt. Exot., ii, 2, 41.—Guiana, Cuba and Philadelphia.
- WALKER, List, iii, 623 (*urvarum*).—Jamaica.
- F. LYNCH ARRIBALZAGA, Dipt. Argentina, Syrph., 116.—Argentina.
- WILLISTON, Trans. Amer. Ent. Soc., xv, 280; Synop. N. A. Syrph., 171, pl. vii, f. 8; *Biologia*, Dipt., iii, 63; Trans. Ent. Soc. Lond., 1896, 346, oc. and syn.—Brazil; Cuba, Fla., Ga., Mex.; Mex. and Guatemala; St. Vincent, W. I.
- TOWNSEND, Jour. N. Y. Ent. Soc., v, 175, oc.; Trans. Amer. Ent. Soc., xxii, 50, notes.—Brownsville, Tex.; Jamaica, Trinidad.
- Porto Rico—Roeder; Jamaica and Fla.—Johnson.
- zonatus** BIGOT, see *transversus*.

LYCASTRIRHYNCHA.

- BIGOT, Rev. et Mag. Zool., 1859, 307.
- WILLISTON, *Biologia*, Dipt., iii, 66, 1891.
- nitens** BIGOT, Rev. et Mag. Zool., 1859, 307.—Amazons.
- WILLISTON, *Biologia*, Dipt., iii, 66.—Vera Cruz, Mex.
- GIGLIO-TOS, Ditt. del Mess., ii, 17.—Cordova, Mex.
- willistonii** COQUILLET, Canad. Ent., 1902, 196.—Frontera in Tabasco, Mex.

MEROMACRUS.

- RONDANI, Esam. di . . . Ins. Brasil., 1848, 10.
- MACQUART, Dipt. Exot., ii, 2, 59, 1842 (*Plagiocera*, preoc.).
- LOEW, Cent., vi, 59, 1865 (*Pteroptila*).
- WILLISTON, Synop. N. A. Syrph., 179, 1886, def. and table of species; Ent. News, iv, 114, note on syn.
- acutus** FABRICIUS, Syst. Antl., 189 (*Milesia*).—Carolina.
- WIEDEMANN, *Auss. Zweifl.*, ii, 105 (*Milesia cruciger*); 110 (*Milesia acuta*).—Ga., Carolina.

- MACQUART, Hist. Nat. Dipt., I, 500 (*Mallota milcsiformis*); Dipt. Exot., II, 2, 60, pl. x, f. 7 (*Plagiocera cruciger*).—Cuba.
- WILLISTON, Synop. N. A. Syrph., 180, pl. VIII, f. 1 (*Pteroptila crucigera*); Biologia, Dipt., III, 66 (id.).—Ga., Fla., Tex.; Vera Cruz and Tabasco, Mex.
- cinctus** DRURY, Ius., I, 109, pl. XLV, f. 6 (*Musca*).—Jamaica, San Domingo.
- FABRICIUS, Syst. Ent., 763 (*Syrphus pinguis*); Ent. Syst., IV, 282 (id.); Syst. Antl., 233 (*pinguis*).—America.
- WIEDEMANN, Auss. Zweifl., II, 193 (*pinguis*).—Jamaica.
- WALKER, List, III, 564 (*Milesia ania*).—Jamaica.
- MACQUART, Dipt. Exot., Suppl. v, 94 (*pinguis*).—Jamaica.
- WILLISTON, Synop. N. A. Syrph., 182.—San Domingo.
- TOWNSEND, Trans. Amer. Ent. Soc., XXII, 50.—Jamaica.
- Porto Rico—Roeder; Jamaica—Johnson.
- decorus** LOEW, Cent., VI, 50 (*Pteroptila*).—Cuba.
- WILLISTON, Synop. N. A. Syrph., 181.—Cuba.
- opulentus** BIGOT, Annales, 1883, 336 (*Eristalis*).—Cuba.
- pratorum** FABRICIUS, Syst. Ent., 765 (*Syrphus*); Ent. Syst., IV, 280 (id.); Syst. Antl., 236 (*Eristalis*).—W. I.
- WIEDEMANN, Auss. Zweifl., II, 166 (*Eristalis*).—S. A.
- ROEDER, Stett. Ent. Zeit., 1885, oc. in Porto Rico.
- WILLISTON, Trans. Ent. Soc. Lond., 1896, 346, oc. and bibliog.—St. Vincent, W. I.
- ruficus** WIEDEMANN, Auss. Zweifl., II, 105 (*Milesia*).—Cuba.
- WILLISTON, Synop. N. A. Syrph., 181 (*Pteroptila*).—Cuba.
- zonatus** LOEW, Cent., VI, 60 (*Pteroptila*).—Mex.
- WILLISTON, Synop. N. A. Syrph., 182, transl. orig. desc. (id.); Biologia, Dipt., III, 67, pt. desc.—Mex.; Guerrero, Mex.

TROPIDIA.

- MEIGEN, Syst. Besch., III, 346, 1822.
- SCHINER, Fauna Austr., I, 348, 1862.
- WILLISTON, Synop. N. A. Syrph., 206, def. and table of species, 1886.
- HUNTER, Ent. News, VII, 215, 1896, table of species.
- VERRALL, Brit. Flies, VIII, 507, 1901.
- CHAGNON, Ét. Prélim. les Syrph., 60, 1901.
- albistylum** MACQUART, Dipt. Exot., Suppl. II, 60, pl. II, f. 10.—N. A.
- WILLISTON, Synop. N. A. Syrph., 207, probably not distinct from *quadrata*; Ent. News, III, 146, recognizes as distinct.
- N. J.—Smith Cat.; Fla., several places—Johnson.
- calcarata** WILLISTON, Synop. N. A. Syrph., 208.—Mich.
- N. J.—Smith Cat.
- incana** TOWNSEND, Trans. Amer. Ent. Soc., XXII, 52.—Ft. Collins, Col.
- mamillata** LOEW, Cent., I, 68.—Ill.
- WILLISTON, Synop. N. A. Syrph., 208, transl. and note.
- HUNTER, Canad. Ent., XXIX, 144, oc. in Nebr.
- HINE, Ohio Nat., II, 229, oc. in Baldwin, Kans.
- montana** HUNTER, Ent. News, VII, 215 (*uigricornis*; name changed, p. 320).—Moscow, Idaho. See also further notes, Canad. Ent., XXIX, 143.
- quadrata** SAY, Amer. Entomology, I, pl. VIII, Compl. Works, I, 14 (*Xylota*).—Pa.
- WIEDEMANN, Auss. Zweifl., II, 101, transl. of Say.
- MACQUART, Dipt. Exot., II, 2, 72, gen. ref.

WILLISTON, Synop. N. A. Syrph., 207, pl. ix, f. 2.—Conn., Canada, Wash.
 CHAGNON, Ét. Prélim. les Syrph., 60.—Montreal.
 N. J.—Smith Cat.; Sea Cliff, N. Y.—Banks.

PLATYNOCHÆTUS.

WIEDEMANN, Auss. Zweifl., II, 147, 1830.
niger GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 123, 1892; Ditt. del Mess., II, 20, pl. II, f. 1.—Orizaba, Mex.

HELOPHILUS.

- MEIGEN, Illig. Mag., II, 274, 1803 (*Elophilus*); Syst. Besch., III, 368, 1822.
 SCHINER, Fauna Austr., I, 337, 1862.
 BIGOT, Bull. Soc. Ent. France, 1883, No. 2 (*Eurhimyia*); Annales, 1883, 242 (id.).
 WILLISTON, Synop. N. A. Syrph., 183, 295, def. and table of species, 1886.
 VERRALL, Brit. Flies, VIII, 523, 1901.
 CHAGNON, Ét. Prélim. les Syrph., 56, 1901.
- aureopilis** TOWNSEND, see *latus*.
androclus WALKER, List, III, 612 (*Eristalis*).—Martin Falls, Canada.
 OSTEN SACKEN, Cat., 250, note on type.
bilinearis WILLISTON, Synop. N. A. Syrph., 295.—Col.
 Montreal—Chagnon.
borealis STEGER, Kroyer's Tidsk., N. R., I, 359.—Greenland.
 LOEW, Stett. Ent. Zeit., VI, 123, 1843.
 WILLISTON, Synop. N. A. Syrph., 185, transl. Loew's desc.
chalepus WALKER, Dipt. Saund., 247 (*Eristalis*).—Canada.
 OSTEN SACKEN, Cat., 250, note on type.
chrysostoma WIEDEMANN, Auss. Zweifl., II, 174 (*Eristalis*).—Ga.
 WILLISTON, Synop. N. A. Syrph., 190, pl. VIII, f. 5.—New Eng., N. Y.
 N. J.—Smith Cat.; Montreal—Chagnon.
conostoma WILLISTON, Synop. N. A. Dipt., 193, pl. VIII, f. 3.—Conn.
 OSTEN SACKEN, Cat., 134 (*lincatus* FAB.).—Mass., Ill., Canada.
 ? WALKER, List, III, 603 (*anansis*).—Martin Falls, Canada.
 CHAGNON, Ét. Prélim. les Syrph., 57.—Rigaud and Lévis, Quebec.
 N. J.—Smith Cat.; Sea Cliff, L. I.—Banks.
Note.—Walker's name is prior, but in this difficult group there is too much uncertainty to justify changing the name at present.
distinctus WILLISTON, Synop. N. A. Syrph., 192.—Conn., Va., Pa.
 N. J.—Smith Cat.
divisus LOEW, Cent., IV, 78.—D. C.
 WILLISTON, Synop. N. A. Syrph., 195, transl. orig. desc.
 HUNTER, Canad. Ent., XXIX, 138, 140, male.—N. J.
 N. J.—Smith Cat.; Orlando, Fla.—Johnson.
dychei WILLISTON, in Hunter's article, Canad. Ent., XXIX, 136.—Sitka.
 Alaska—Coquillett; N. M.—Coquillett.
flavifacies BIGOT, Annales, 1883, 344.—Md.
 WILLISTON, Synop. N. A. Syrph., 197, quotes desc.
 HUNTER, Canad. Ent., XXIX, 139, quotes part of desc.
formalis WALKER, List, III, 603.—Mex.
frater WALKER, List, III, 613 (*Eristalis*).—Martin Falls, Canada.
 OSTEN SACKEN, Cat., 250, note on type.
glacialis LOEW, Stett. Ent. Zeit., 1843, 120.—Labrador.
 WILLISTON, Synop. N. A. Syrph., 184, transl. orig. desc.

- grœnlandicus** O. FABRICIUS, Fauna Grœnll., 208 (*Tabanus*).—Greenland.
ZETTERSTEDT, Ins. Lapp., 595 (*arcticus*): Dipt. Scand., II, 678 (id.).—Europe.
- STEEGER, Kroyer's Tidskr., N. R., I, 359 (*arcticus*), oc. in Greenland.
LOEW, Stett. Ent. Zeit., VI, 119.
CURTIS, Ins. of Ross' Exped., LXXVII (*bilineata*). [Schïödt.]
? WALKER, List, III, 667 (*latro*).—Martin Falls and Nova Scotia. [O. S. with a doubt.]
WILLISTON, Synop. N. A. Syrph., 185.—Greenland, Lapland.
LUNDBECK, Ent. Unters. i West-Grœnll., Heft VII, pl. VII, f. 17; Dipt. Grœnll., I, 304, bibl., etc.—Greenland.
- hamatus** LOEW, Cent., IV, 79.—Huds. B. Terr.
WILLISTON, Synop. N. A. Syrph., 195, transl. orig. desc.
N. J.—Smith Cat.
- hybridus** LOEW, Stett. Ent. Zeit., VII, 141.—Europe.
SCHINER, Fauna Austr., I, 339.
MACQUART, Dipt. Exot., Suppl. II, 60 (*novæ-scotiæ*).—Nova Scotia. [Verrall, from type.]
WILLISTON, Synop. N. A. Syrph., 197, quotes Macq.
VERRALL, Brit. Flies, VIII, 529, full discussion.—England.
- integer** LOEW, Cent., IV, 76.—N. Y.
WILLISTON, Synop. N. A. Syrph., 195, transl. orig. desc.
HUNTER, Canad. Ent., XXIX, 139.—N. J.
N. J.—Smith Cat.
- lætus** LOEW, Cent., IV, 77.—N. Y., Wis.
WILLISTON, Synop. N. A. Syrph., 189, pl. VIII, f. 6.—Conn., N. Y.
TOWNSEND, Trans. Amer. Ent. Soc., XXII, 51 (*aurcopilis*).—Constantine, Mich.
HUNTER, Canad. Ent., XXIX, 139, syn.
- latifrons** LOEW, Cent., IV, 73.—Nebr.
OSTEN SACKEN, West. Dipt., 337, notes.—Sonoma Co., Cal.; Red R. of the North.
WILLISTON, Synop. N. A. Syrph., 188.—Mass. to Cal. and Wash.
WILLISTON, Biologia, Dipt., III, 68, oc. in Guerrero, Mex.
LINTNER, 7th N. Y. Rept., 228, 234, life hist., bibl., etc.—N. Y.: this is the *H. similis* of the 2d Rept.
HUNTER, Canad. Ent., XXIX, 138, oc. at Cook's Inlet, Alaska.
CHAGNON, Ét. Prélim. les Syrph., 59.—Montreal.
N. J.—Smith Cat.
- latitarsis** HUNTER, Canad. Ent., XXIX, 134.—Minn.
- lineatus** FABRICIUS; see *conostoma* for the species thus identified by Osten Sacken.
- lunulatus** MEIGEN, Syst. Besch., III, 370.—Europe.
SCHINER, Fauna Austr., I, 340.
COQUILLET, Proc. Wash. Acad. Sci., II, 436, oc. in N. A.—Alaska.
VERRALL, Brit. Flies, VIII, 540, fig.
- mexicanus** MACQUART, see *Asemosyrphus*.
- modestus** WILLISTON, Synop. N. A. Syrph., 192, pl. VIII, f. 4.—Wyo.
- novæ-scotiæ** MACQUART, see *hybridus*.
- obscurus** LOEW, Cent., IV, 74.—Col.
WILLISTON, Synop. N. A. Syrph., 196, transl. and notes.
- obsoletus** LOEW, Cent., IV, 75.—Fort Resolution, Huds. B. Terr.
WILLISTON, Synop. N. A. Syrph., 196, transl. orig. desc.

- pilosus* HUNTER, *Canad. Ent.*, XXIX, 137.—*Brit. Col.*
polygrammus LOEW, see *Asemosyrphus mexicanus*.
porcus WALKER, *List*, III, 551.—Martin Falls, Canada.
 OSTEN SACKEN, *Cat.*, 250, note on type.
 WILLISTON, *Synop. N. A. Syrph.*, 197, quotes both.
similis MACQUART, *Dipt. Exot.*, II, 2, 64.—Ga.
 WALKER, *List*, III, 605 and 614 (*fasciatus* and *Eristalis decisus*).—Martin Falls, Canada; Trenton Falls, N. Y.
 JÄENNICKE, *Neue Exot. Dipt.*, 94 (*susurraus*).—Ill.
 OSTEN SACKEN, *Cat.*, 134 and 250, note, syn.
 WILLISTON, *Synop. N. A. Syrph.*, 189, pl. VIII, f. 2.—New England and Canada to Cal.
 CHAGNON, *Ét. Prélim. les Syrph.*, 58.—Montreal.
 N. J.—*Smith Cat.: Fla.*—Johnson.
stipatus WALKER, *List*, III, 602.—Trenton Falls, N. Y.
 OSTEN SACKEN, *Cat.*, 250, note; probably same as *conostoma*.
trivittatus FABRICIUS, *Syst. Antl.*, 234 (*Eristalis*).—Europe.
 MEIGEN, *Syst. Besch.*, III, 373.
 MACQUART, *Hist. Nat. Dipt.*, I, 510.
 ZETTERSTEDT, *Dipt. Scand.*, II, 679.
 LOEW, *Stett. Ent. Zeit.*, VII, 142.
 SCHINER, *Fauna Austr.*, I, 340.
 BIGOT, *Annales*, 1880, 141, oc. in Persia.
 GIGLIO-TOS, *Ditt. del Mess.*, II, 18, bibl. and oc. in Mexico City.

ASEMOSYRPHUS.

- BIGOT, *Bull. Soc. Ent. France*, 1882, cxxviii; *Annales*, 1883, 228.
 GIGLIO-TOS, *Ditt. del Mess.*, II, 18, 1893.
bicolor BIGOT, *Bull. Soc. Ent. France*, 1882; *Annales*, 1883, 350.—Mex.
 GIGLIO-TOS, *Boll. R. Univ. Torino*, VII, No. 123, 1892 (*impurus* and *olivaceus*); *Ditt. del Mess.*, II, 19.—Mexico, several places.
mexicanus MACQUART, *Dipt. Exot.*, II, 2, 64, pl. XI, f. 2 (*Helophilus*).—Mex.
 LOEW, *Cent.*, X, 55 (*Helophilus polygrammus*).—Cal. [Will.]
 OSTEN SACKEN, *West. Dipt.*, 338 (id.), note on male.—Sierra Co., Cal.; Ore.
 BIGOT, *Bull. Soc. Ent. France*, 1882 (*oculiferus*, *nigroscutatus*, and *flavocaudatus*); *Annales*, 1883, 350, 351 (id.).—Mex. [Will.]
 WILLISTON, *Synop. N. A. Syrph.*, 186, pl. VIII, f. 7 (*Helophilus*); *Biologia*, *Dipt.*, III, 68 (id.).—Wash., Cal.; Mexico, several places.
 HUNTER, *Canad. Ent.*, XXIX, 137 (id.), oc. in S. D.
 GIGLIO-TOS, *Boll. R. Univ. Torino*, VII, No. 123, 1892 (*griseus*); *Ditt. del Mess.*, II, 20, syn., etc.—Mexico, various places.

MALLOTA.

- MEIGEN, *Syst. Besch.*, III, 337, 1822.
 MACQUART, *Dipt. Exot.*, II, 2, 67, 1842 (*Imatisma*).
 SCHINER, *Fauna Austr.*, I, 342, 1862.
 WILLISTON, *Synop. N. A. Syrph.*, 201, def. and table of species, 1886.
 VERRALL, *Brit. Flies*, VIII, 551, 1901.
 CHAGNON, *Ét. Prélim. les Syrph.*, 55, 1901.
albipilis SNOW, *Kans. Univ. Quart.*, III, 244.—N. M.
bipartita WALKER, *List*, III, 599 (*Merodon*).—Ga.

OSTEN SACKEN, Cat., 250, note on types.

WILLISTON, Synop. N. A. Syrph., 205, quotes desc.

cimbiciformis FALLÉN, Syrphici, 27 (*Syrphus*).—Europe.

MEIGEN, Syst. Besch., III, 385 (*Eristalis*).

MACQUART, Dipt. Exot., II, 2, 68, pl. XII, f. 2 (*Imatisma posticata*, female).—Carolina, Philadelphia.

ZETTERSTEDT, Dipt. Scand., II, 663: XII, 4652.

WALKER, List, III, 600 (*Merodon bautias*).—Ga.

LOEW, Neue Beitr., IV, 17, 43 (*crystaloides*): Silliman's Jour., oc. in N. A.

RONDANI, Dipt. Ital. Prod., II, 34 (*Zetterstedtia*).

SCHINER, Verb. Zool.-Bot. Ges., VII, 402 (*crystaloides*); Fauna Austr., I, 343 (id.).

OSTEN SACKEN, Cat., 250, note on type of *bautias*.

LINTNER, 1st N. Y. Rept., 211 (*dentipes* WILL.).

KARSCH, Berl. Ent. Zeitsch., XXVII, 172, 1883 (*bautias* and *atrox*).

WILLISTON, Berl. Ent. Zeitsch., XXVII, 171, 1883; Synop. N. A. Syrph., 202, pl. VIII, f. 11 and pl. IX, f. 8.—Canada and New Hampshire to Ga.

HUNTER, Canad. Ent., XXVIII, 99.—Nebr.; *sackeni* is quite likely a syn.

VERRALL, Brit. Flies, VIII, 552, fig.

CHAGNON, Ét. Prél. les Syrph., 56.—Montreal.

Inverness, Fla.—Johnson; N. J.—Smith Cat.; Sea Cliff, L. I.—Banks; Axton, N. Y.—M. and H.

? **championi** WILLISTON, Biologia, Dipt., III, 69.—Guerrero, Mex. Query by Will.

facialis HUNTER, Canad. Ent., XXVIII, 100.—Nebr.

illinoisensis ROBERTSON, Canad. Ent., XXXIII, 284.—Carlinville, Ill.

margarita WILLISTON, Biologia, Dipt., III, 70, pl. II, f. 7.—Guerrero, Mex.

posticata FABRICIUS, Syst. Antl., 237 (*Eristalis*).—Carolina.

SAY, Jour. Acad. Sci. Phil., VI, 163 (*Milesia bardus*): Compl. Works, II, 357 (id.).—Ind.; the female here referred to belongs in *cimbiciformis*.

WIEDEMANN, Auss. Zweifl., II, 165, 194 (*Eristalis coactus* and *posticatus*).—No. loc.; Carolina.

MACQUART, Dipt. Exot., II, 2, 68 (*Imatisma posticata*; male only—the female is *cimbiciformis*).—Carolina, Philadelphia.

WALKER, List, III, 600 (*Merodon balanus*).—N. Y. [O. S.]

PACKARD, Guide to Study of Ins., 399, f. 319 (*Merodon bardus*): Amer. Nat., II, Jan., 1869, 593 (id.).

GLOVER, MS. Notes, Dipt., 1874, 32, pl. VIII, f. 30 (*Merodon bardus*).

LINTNER, 1st N. Y. Report, 211, life hist., figs., etc.; the rat-tailed larvæ were found in decaying trees.—N. Y.

WILLISTON, Berl. Ent. Zeitsch., XXVII, 170, syn.; Synop. N. A. Syrph., 201, pl. VIII, f. 13.—New Eng., Canada, N. Y., Kans.

BIGOT, Annales, 1883, 227, notes.

VERRALL, Brit. Flies, VIII, 554, notes; does not occur in Europe.

CHAGNON, Ét. Prél. les Syrph., 55.—Montreal.

N. J.—Smith Cat.; White Mts., N. H.—Slosson; Sea Cliff, N. Y.—Banks; Axton, N. Y.—M. and H.

sackeni WILLISTON, Proc. Amer. Phil. Soc., XX, 324; Synop. N. A. Syrph., 204, pl. VIII, f. 14; Biologia, Dipt., III, 70, oc.—Wash., Tex.; Guanajuato, Mex.

OSTEN SACKEN, West. Dipt., 338 (*posticata*).—San Rafael, Cal.

This may still be only a synonym of *posticata*—J. M. A.

smithi WILLISTON, Biologia, Dipt., III, 70, pl. II, f. 8.—Guerrero, Mex.

MERODON.

- MEIGEN, Illig. Mag., II, 274, 1803; Syst. Besch., III, 349, 1822.
 SCHINER, Fauna Austr., I, 343, 1862.
 VERRALL, Brit. Flies, VIII, 555, 1901.
equestris FABRICIUS, Ent. Syst., IV, 292 (*Syrphus equestris* and *flavicans*); Syst. Antl., 196, 239, 240 (*Merodon equestris*, *Eristalis narcissi* and *ferruginus*).—Europe; larvæ in bulbs of *Narcissus*, etc.
 MEIGEN, Syst. Besch., III, 352-354 (*equestris*, *transversalis*, *constans*, and *nobilis*).
 RONDANI, Nuovi ann. di Bologna, II, 4, 254 (*tuberculatus* and *bulborum*).
 SCHINER, Fauna Austr., I, 344.
 OSTEN SACKEN, Cat., 135, note on occasional importation of larvæ in bulbs from Europe.
 VERRALL, Brit. Flies, VIII, 556, figs.
 Montreal—Johnson in litt.

TRIODONTA.

- WILLISTON, Bull. Brooklyn Ent. Soc., VII, 136, 1885; Synop. N. A. Syrph., 205, 1886.
 MACQUART, Dipt. Exot., Suppl. IV, 144, 1850 (*Polydonta*, preoc.).
curvipes WIEDEMANN, Auss. Zweifl., II, 149 (*Merodon*).—N. A.
 MACQUART, Dipt. Exot., Suppl. I, 132, pl. II, f. 7 (*Helophilus albiceps*), female; Suppl. IV, 144, pl. XIII, f. 6 (*Polydonta bicolor*), male.—Both Nova Scotia.
 WALKER, List, III, 599 (*Merodon morosus*).—Nova Scotia.
 OSTEN SACKEN, West. Dipt., 338, notes (*Polydonta*): Cat., 135, syn.
 WILLISTON, Synop. N. A. Syrph., 206, pl. IX, f. 1.—New Eng., Cal., Col. N. J.—Smith Cat.; Sea Cliff, L. I.—Banks.

TEUCHOCNEMIS.

- OSTEN SACKEN, Bull. Buff. Soc. Nat. Sci., III, 58, 1876; Cat., 250, 1878, desc. quoted.
 WILLISTON, Synop. N. A. Syrph., 199, 1886.
 CHAGNON, Ét. Prélim. les Syrph., 54, 1901.
bacuntius WALKER, List, III, 563 (*Milcsia*).—Ga.
 OSTEN SACKEN, Bull. Buff. Soc. Nat. Sci., III, 58; Cat., 250, notes on genus.
 WILLISTON, Synop. N. A. Syrph., 200, pl. VII, f. 6.—Ga., Tex.
 N. J.—Smith Cat.
lituratus LOEW, Cent., IV, 81 (*Pterallastes*).—Pa.
 OSTEN SACKEN, Bull. Buff. Soc. Nat. Sci., III, 58; Cat., 250, notes.
 WILLISTON, Synop. N. A. Syrph., 200, pl. VIII, f. 12.—Pa., Conn., Mo.
 CHAGNON, Ét. Prélim. les Syrph., 54.—Rigaud, Quebec.

PTERALLASTES.

- LOEW, Cent., IV, 80, 1863.
 WILLISTON, Synop. N. A. Syrph., 198, 1886.
perfidiosus HUNTER, Canad. Ent., XXIX, 139, fig.—Br. Col.
thoracicus LOEW, Cent., IV, 80.—Pa.
 WILLISTON, Synop. N. A. Syrph., 198, pl. VIII, f. 9.—Pa.
 N. J.—Smith Cat.; Sea Cliff, L. I.—Banks.

SENOGASTER.

MACQUART, Hist. Nat. Dipt., I, 519, 1834; Dipt. Exot., II, 2, 72, 1842.

BIGOT, Bull. Soc. Ent. France, 1878, 131 (*Acrochordonodes*).

WILLISTON, Synop. N. A. Syrph., 238, 1886.

comstocki WILLISTON, Proc. Amer. Phil. Soc., XX, 326; Synop. N. A. Syrph., 239, pl. XI, f. 1.—N. Y.

SYRITTA.

ST. FARGEAU et SERVILLE, Encycl. Méth., X, 808, 1825.

MACQUART, Hist. Nat. Dipt., I, 525, 1834.

MEIGEN, Syst. Besch., VII, 113, 1838.

ZETTERSTEDT, Ins. Lapp., 584, 1838 (*Coprina*); Dipt. Scand., II, 881, 1843.

WALKER, Ins. Brit., Dipt., I, 253, 1851.

RONDANI, Arch. Zool., III, 9 (*Planca*).

SCHINER, Fauna Austr., I, 357, 1862.

WILLISTON, Synop. N. A. Syrph., 239, 1886.

VERRALL, Brit. Flies, VIII, 611, 1901.

CHAGNON, Ét. Prélim. les Syrph., 61, 1901.

pipiens LINNÉ, Syst. Nat., 10th ed., 594 (*Musca*); Fauna Suec., 2d ed., 450 (id.).—Europe.

DEGEER, Ins., VI, 120, pl. VII, f. 8, 9 (id.).

SCOPOLI, Ent. Carniol., No. 969 (*Conops*).

FABRICIUS, Spec. Ins., II, 434 (*Syrphus*); Ent. Syst., IV, 310 (id.); Syst. Antl., 194 (*Milcsia*).—Europe.

LATREILLE, Consid. Génér., 443 (id.).

FALLÉN, Syrphici, 12 (id.).

MEIGEN, Syst. Besch., III, 213 (*Xylota*); VII, 113, pl. LXVII, f. 21.

SAY, Amer. Ent., I, 16, pl. VIII, f. 3 (*Xylota proxima*); Compl. Works, I, 16 (id.).—Phil., Va.

WIEDEMANN, Auss. Zweifl., II, 102 (id.).

ZETTERSTEDT, Ins. Lapp., 584 (*Coprina*); Dipt. Scand., II, 881; XII, 4675.

SCHINER, Verh. Zool.-Bot. Ges., VII, 424; Fauna Austr., I, 358.

WILLISTON, Synop. N. A. Syrph., 240.—U. S.; common everywhere.

HOWARD, Proc. Wash. Acad. Sci., II, 597, notes: said to have been reared from horse and cow dung.

VERRALL, Brit. Flies, VIII, 612, figs.

CHAGNON, Ét. Prélim. les Syrph., 61.—Montreal.

"Everywhere and at all times abundant from spring to autumn"—Will.

vagans WIEDEMANN, Auss. Zweifl., II, 101.—Brazil.

RONDANI, Archiv. Zool., III, 9 (*Planca*).

SCHINER, Novara, 367 (*americana*).—S. A.

BIGOT, Annales, 1883, 539 (*mexicana*).—Mex.

WILLISTON, Trans. Amer. Ent. Soc., XV, 285 (*americana*); Biologia, Dipt., III, 73.—Brazil; Vera Cruz and Costa Rica.

XYLOTA.

MEIGEN, Syst. Besch., III, 211, 1822.

SCHINER, Fauna Austr., I, 354, 1862.

WILLISTON, Synop. N. A. Syrph., 224, 1886, def. and table of species; Biologia, Dipt., III, 71, 1891, table of Central Amer. species.

VERRALL, Brit. Flies, VIII, 596, 1901.

CHAGNON, Ét. Prélim. les Syrph., 62, 1901.

æpalius WALKER, see *Brachypalpus sorosis*.

- analis** WILLISTON, Synop. N. A. Syrph., 226.—Cal., N. M.
HUNTER, Canad. Ent., xxviii, 100, notes on antennæ. etc.—Nebr.
N. J.—Smith Cat.
- angustiventris** LOEW, Cent., vi, 58.—Ill.
WILLISTON, Synop. N. A. Syrph., 231 and 234 (*angustiventris* and *elongata*).—N. H., N. Y., Pa. [Will.]
HUNTER, Canad. Ent., xxviii, 101, notes.—Nebr.
CHAGNON, Ét. Prélim. les Syrph., 64.—St. Hilaire, Quebec.
N. J.—Smith Cat.
- annulifera** BIGOT, see *ejuncida*.
- anthres** WALKER, List, iii, 556.—Trenton Falls, N. Y.
WILLISTON, Synop. N. A. Syrph., 235.—N. H.
N. J.—Smith Cat.: Montreal—Chagnon.
- arcuata** SAY, Jour. Acad. Sci. Phil., vi, 162; Compl. Works, ii, 357.—Mex.
- barbata** LOEW, Cent., v, 40.—Sitka.
WILLISTON, Synop. N. A. Syrph., 233.—Ore., Wash., Cal.
COQUILLET, Proc. Wash. Acad. Sci., ii, 437, oc. in Alaska.
HUNTER, Canad. Ent., xxix, 101, notes.—Cal.
- bicolor** LOEW, Cent., v, 39.—Ill.
WILLISTON, Synop. N. A. Syrph., 229.—Pa.
N. J.—Smith Cat.
- brachygaster** WILLISTON, Biologia, Dipt., iii, 72.—Guerrero, Mex.
- chalybea** WIEDEMANN, Auss. Zweifl., ii, 98.—No locality.
WILLISTON, Synop. N. A. Syrph., 233.—Pa., Va., Ill.
TOWNSEND, Trans. Amer. Ent. Soc., xxii, 53, oc. in D. C.
N. J.—Smith Cat.
- coloradensis** BIGOT, Annales, 1884, 544.—Col.
WILLISTON, Synop. N. A. Syrph., 236, quotes desc.
- communis** WALKER, List, iii, 557.—Martin Falls, Canada.
- curvipes** LOEW, Neue Beiträge, ii, 19.—Central Europe.
SCHINER, Fauna Austr., i, 355.
OSTEN SACKEN, Bull. Buff. Soc. Nat. Sci., iii, 70; Cat., 252.
? BIGOT, Annales, 1884, 546 (*satanica*).—Cal. [Will., with a query.]
WILLISTON, Synop. N. A. Syrph., 232.—N. H., N. Y., Mimm., Cal.
CHAGNON, Ét. Prélim. les Syrph., 63.—Ottawa, Canada.
White Mts., N. H.—Slosson; Montreal—Chagnon; Axton, N. Y.—M. and H.
- ejuncida** SAY, Amer. Entomol., i, pl. viii; Compl. Works, i, 15.—E. Fla. and Philadelphia.
WIEDEMANN, Auss. Zweifl., ii, 100.
OSTEN SACKEN, Cat., 252, note.
BIGOT, Annales, 1884, 545 (*annulifera*).—N. A. [Will.]
WILLISTON, Synop. N. A. Syrph., 229, pl. xi, f. 8.—U. S. generally.
HUNTER, Canad. Ent., xxix, 143, oc. at Cook's Inlet, Alaska.
CHAGNON, Ét. Prélim. les Syrph., 64.—St. Jean and St. Hilaire, Quebec.
N. J.—Smith Cat.; Fla., Johnson; Axton, N. Y.—M. and H.
See *quadrinaculata*.
- elongata** WILLISTON, see *angustiventris*.
- flavifrons** WALKER, List, iii, 537.—Martin Falls, Canada.
WILLISTON, Synop. N. A. Syrph., 234, note.
- flavitibia** BIGOT, Annales, 1884, 546.—Cal.
WILLISTON, Proc. Amer. Phil. Soc., xx, 327 (*Xylota*, n. sp.); Synopsis N. A. Syrph., 228, pl. xi, f. 6.—Col.

- HUNTER, Canad. Ent., xxviii, 101, oc. in Nebr.
 TOWNSEND, Trans. Amer. Ent. Soc., xxii, 53, oc. in D. C.
 Beulah, N. M.—Skinner.
- fraudulosa** LOEW, Cent., v, 41.—Ill., Wis.
 WILLISTON, Synop. N. A. Syrph., 230.—N. Y., N. H., Wash.
 HUNTER, Canad. Ent., xxviii, 101, oc. in Nebr.
 White Mts., N. H.—O. S. Cat.
- libo** WALKER, List, iii, 556.—Nova Scotia.
- marginalis** WILLISTON, Synop. N. A. Syrph., 226.—White Mts., N. H.; may not be distinct from *libo*.
 Axton, N. Y.—M. and H.
- metallica** WIEDEMANN, Auss. Zweifl., ii, 102.—Ga.
 WILLISTON, Synop. N. A. Syrph., 235, orig. desc., transl., and note.
- metallifera** BIGOT, Annales, 1884, 545.—Col.
 WILLISTON, Synop. N. A. Syrph., 236, quotes desc.
- nemorum** FABRICIUS, Syst. Antl., 192 (*Milesia*).—Europe.
 FALLÉN, Syrphici, i, (id.).
 MEIGEN, Syst. Besch., iii, 219.
 MACQUART, Hist. Nat. Dipt., i, 521.
 ZETTERSTEDT, Dipt. Scand., ii, 871.
 SCHINER, Fauna Austr., i, 356.
 VAN DER WULP, Tijdschr. v. Ent., xxvi, 8, oc. in N. A.—Quebec.
 WILLISTON, Synop. N. A. Syrph., 231, notes.
 VERRALL, Brit. Flies, viii, 604, 676, oc. in America requires investigation.
 Montreal—Chagnon.
- notha** WILLISTON, Synop. N. A. Syrph., 228.—Col.
 Beulah, N. M.—Skinner.
- obscura** LOEW, Cent., vi, 55.—Red R. of the North.
 WILLISTON, Synop. N. A. Syrph., 233.—Ore., Cal.
 HUNTER, Canad. Ent., xxviii, 101, oc. in Nebr.
- pachymera** LOEW, Cent., vi, 54.—Cuba.
 WILLISTON, Synop. N. A. Syrph., 237, transl. orig. desc.
 Porto Rico—Roeder.
- pauzilla** WILLISTON, Biologia, Dipt., iii, 71, pl. ii, f. 9.—Guerrero, Mex.
- pigra** FABRICIUS, Ent. Syst., iv, 295 (*Syrphus*): Syst. Antl., 192, 193 (*Milesia pigra* and *hamatodes*).—Germany; Carolina.
 LATREILLE, Gen. Crust., iv, 331 (*Milesia*).
 MEIGEN, Syst. Besch., iii, 221.
 SAY, Amer. Ent., i, pl. viii (*hamatodes*): Compl. Works, i, 16 (id.).—E. Fla.
 WIEDEMANN, Auss. Zweifl., ii, 99 (id.).
 MACQUART, Dipt. Exot., ii, 2, 73, pl. xiii, f. 4 (id.).—N. A.
 ZETTERSTEDT, Dipt. Scand., ii, 878; viii, 3192.
 WAHLBERG, Acta Holmiæ, 1838, 15 (*crassipes*).
 LOEW, in Silliman's Jour., oc. in N. A.
 WILLISTON, Synop. N. A. Syrph., 227, pl. xi, f. 7.—Atlantic and Pacific States.
 TOWNSEND, Trans. Amer. Ent. Soc., xxii, 53, note.—D. C.
 CHAGNON, Ét. Prélim. les Syrph., 63.—Ottawa and Montreal.
 DÆCKE, Ent. News, xiv, 275, reared from larvæ under bark of a pine tree.
 Fla.—Johnson; N. J.—Smith Cat.; Beulah, N. M.—Skinner.
 See *rubiginigaster*.

- pretiosa* LOEW, Wien. Ent. Monatsch., i, 39; Cent., vi, 53.—Cuba.
 WILLISTON, Synop. N. A. Syrph., 237, quotes desc.
- quadrifasciata* LOEW, Cent., vi, 56.—Ill.
 WILLISTON, Synop. N. A. Syrph., 229, probably not distinct from *cjuncida*.
- rubiginigaster* BIGOT, Annales, 1884, 544.—Col.
 WILLISTON, Synop. N. A. Syrph., 227, probably teneral form of *pigra*.
- rufipes* WILLISTON, Biologia, Dipt., III, 71.—Guerrero, Mex.
- satanica* BIGOT, see *curvipes*.
- stenogaster* WILLISTON, Biologia, Dipt., III, 72.—Guerrero, Mex.; Guatemala.
- subcostalis* WALKER, Trans. Ent. Soc., n. ser., v, 291.—Mex.
- subfasciata* LOEW, Cent., vi, 57.—Red R. of the North.
 WILLISTON, Synop. N. A. Syrph., 230, transl. orig. desc.
- ? *tuberans* WILLISTON, Synop. N. A. Syrph., 225.—Texas. Query by Will.
- vecors* OSTEN SACKEN, Bull. Buff. Soc. Nat. Sci., III, 69; Cat., 252.—White Mts., N. H.
 WILLISTON, Synop. N. A. Syrph., 232, quotes Osten Sacken.
 CHAGNON, Ét. Prélim. les Syrph., 63.—Montreal.

CERIOGASTER.

- WILLISTON, Trans. Amer. Ent. Soc., xv, 285, 1888; Biologia, Dipt., III, 73, 1891.
- auricaudata* WILLISTON, Biologia, Dipt., III, 73, pl. II, f. 10.—Guerrero, Mex.

CHRYSOCHLAMYS.

- RONDANI, in Walker's Ins. Brit., i, 279, 1851, change of name.
 RONDANI, Ann. Sci. Nat. Bologna, 1844 (*Ferdinandca*); Dipt. Ital. Prod., II, 145, 1857.
 SCHINER, Fauna Austr., i, 363, 1862.
 WILLISTON, Synop. N. A. Syrph., 240, def. and table of species, 1886.
 VERRALL, Brit. Flies, VIII, 623, 1901.
- buccata* LOEW, Cent., iv, 72.—Va.
 WILLISTON, Synop. N. A. Syrph., 242, transl. orig. desc.
- cræsus* OSTEN SACKEN, West. Dipt., 341.—Utah, Salt Lake City.
 WILLISTON, Synop. N. A. Syrph., 241.—Cal., Wash., N. M.
 SNOW, Kans. Univ. Quart., III, 245.—Col., N. M.
 TOWNSEND, Psyche, March, 1897, oc.; Annals and Mag. Nat. Hist., XIX, 142, oc.—Gila R., N. M.; Rio Ruidosa, N. M.
- dives* OSTEN SACKEN, West. Dipt., 340.—Ky.
 WILLISTON, Synop. N. A. Syrph., 241, pl. XI, f. 5.—Ill., Mo., Canada.
 N. J.—Smith Cat.
- nigripes* OSTEN SACKEN, West. Dipt., 341.—Mass.
 WILLISTON, Synop. N. A. Syrph., 242, quotes desc.
 ? White Mts., N. H.—Slosson (*nigriceps*, probably an error).

BRACHYPALPUS.

- MACQUART, Hist. Nat. Dipt., i, 523, 1834.
 SCHINER, Fauna Austr., i, 353, 1862.
 WILLISTON, Synop. N. A. Syrph., 221, def. and table of species, 1886.
 VERRALL, Brit. Flies, VIII, 592, 1901.
 CHAGNON, Ét. Prélim. les Syrph., 64, 1901.
- amithaon* WALKER, List, III, 567 (*Milesia*).—N. C.
 OSTEN SACKEN, Cat., 251, note on type.
 WILLISTON, Synop. N. A. Syrph., 297, quotes desc.; note, not seen.

- frontosus** LOEW, Cent., x, 50.—D. C.
 ? WALKER, List, III, 558 (*Xylota oarus*).—Trenton Falls, N. Y. [O. S., with a doubt.]
 WILLISTON, Synop. N. A. Syrph., 221, pl. x, f. 8.—D. C., Pa.
 CHAGNON, Ét. Prélim. les Syrph., 65.—Rigaud and Montreal, Quebec.
 N. J.—Smith Cat.
- inarmatus** HUNTER, Canad. Ent., XXIX, 142.—Vollmer, Idaho.
- morrisoni** BIGOT, see *Pocota grandis*.
- parvus** WILLISTON, Synop. N. A. Syrph., 222.—Col.
- pulcher** WILLISTON, Canad. Ent., XIV, 79; Synop. N. A. Syrph., 223, pl. x, f. 9.
 —Ore., Wash.
 BIGOT, Annales, 1883, 352 (*Calliprobola arca*).—Wash. [Will.]
- rileyi** WILLISTON, Synop. N. A. Syrph., 222.—N. C.
 N. J.—Smith Cat.
- sorosis** WILLISTON, Synop. N. A. Syrph., 223, 297.—Ga.
 ? WALKER, List, III, 557 (*Xylota apalius*).—Ga. [Will., with a doubt.]
 N. J.—Smith Cat.
- verbosus** HARRIS, of WALKER, see *Criorhina*.

POCOTA.

- ST. FARGEAC et SERVILLE, Encycl. Méth., x, 518, 1825.
- SCHINER, Verh. Zool.-Bot. Ges., VII, 440; Fauna Austr., I, 351 (both *Plocota*).
- EGGER, Verh. Zool.-Bot. Ges., VIII, 711 (*Dasymyia*).
- WILLISTON, Canad. Ent., 1882, 78 (*Hadromyia*); Synop. N. A. Syrph., 220, 1886.
- VERRALL, Brit. Flies, VIII, 586, 1901.
- bomboides** HUNTER, Canad. Ent., XXIX, 141.—Cal.
- grandis** WILLISTON, Canad. Ent., XIV, 79, female (*Hadromyia*); Synop. N. A. Syrph., 221, pl. x, f. 7.—Wash.
 BIGOT, Annales, 1883, 355 (*Brachypalpus morrisoni*).—Wash. [Will.]
 RILEY and HOWARD, Ins. Life, IV, 86, notes on the male.—Vancouver Id.

CRIOPRORA.

- OSTEN SACKEN, Cat., 251, 1878.
- BIGOT, Annales, 1883, 356 (*Romaleosyrphus*).
- WILLISTON, Synop. N. A. Syrph., 217, 1886, def. and table of species; Biologia, Dipt., III, 72, 1891, syn.
- alopez** OSTEN SACKEN, West. Dipt., 338 (*Pocota*); Cat., 251, note.—Marin Co., Cal.
- arctophiloides** GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 123, 1892; Ditt. del Mess., II, 25, pl. II, f. 2.—Angang, Mex.
- cyarella** OSTEN SACKEN, West. Dipt., 339 (*Pocota*); Cat., 251, notes.—Santa Barbara, Cal.
 WILLISTON, Synop. N. A. Syrph., 218, pl. x, f. 6.—Cal.
- cyanogaster** LOEW, Cent., x, 51 (*Brachypalpus*).—Pa.
 WILLISTON, Synop. N. A. Syrph., 218.—Col.
 Montreal—Chagnon.
- femorata** WILLISTON, Proc. Amer. Phil. Soc., XX, 329; Synop. N. A. Syrph., 219, pl. x, f. 5.—Ore., Wash.
- villosa** BIGOT, Bull. Soc. Ent. France, 1882 (*Romaleosyrphus*); Annales, 1883, 356 (id.).—Mex.
 WILLISTON, Biologia, Dipt., III, 72, oc. in Mex., and gen. ref.

MERAPIOIDUS.

BIGOT, Bull. Soc. Ent. France, 1879, 64.

WILLISTON, Synop. N. A. Syrph., 243, 1886.

villosus BIGOT, Bull. Soc. Ent. France, 1879, 64.—N. A.

WILLISTON, Synop. N. A. Syrph., 243, pl. xi, f. 2.—Ga.

CRIORHINA.

MEIGEN, Syst. Besch., III, 236, 1822, subg. of *Milesia*.

ST. FARGEAU et SERVILLE, Encycl. Méth., x, 518, 1825 (subg. of *Milesia*).

MACQUART, Hist. Nat. Dipt., I, 497, 1834; Dipt. Exot., Suppl., II, 57, 1847 (*Somula*).

SCHINER, Fauna Austr., I, 349, 1862.

PHILIPPI, Verh. Zool.-Bot. Ges., xv, 736, 1865 (*Eriophora*).

WILLISTON, Canad. Ent., xiv, 77, 1882 (*Brachymyia*).

BIGOT, Bull. Soc. Ent. France, 1882, No. 6 (*Eurhinomallota*); Annales, 1883, 225, note.

WILLISTON, Synop. N. A. Syrph., 209, 1886, distinguishes three subgenera—*Criorhina*, *Somula*, and *Cynorhina* (the last new).

VERRALL, Brit. Flies, VIII, 576, 1901, makes *Cynorhina* a separate genus.

analis MACQUART, Dipt. Exot., II, 2, 79, pl. xv, f. 2 (*Milesia*).—N. A.

WILLISTON, Proc. Amer. Phil. Soc., xx, 330, notes; Synop. N. A. Syrph., 214, pl. ix, f. 3.—Eastern States.

N. J.—Smith Cat.; Montreal—Chagnon; Sea Cliff, L. I.—Banks.

armillata OSTEN SACKEN, Bull. Buff. Soc. Nat. Sci., III, 68; Cat., 251.—Quebec.

WILLISTON, Synop. N. A. Syrph., 213, quotes desc.

COQUILLET, Proc. Wash. Acad. Sci., II, 436, oc. in Alaska, N. H., and Mont.

White Mts., N. H.—Slosson.

badia WALKER, List, III, 559 (*Xylota*).—N. Y.

OSTEN SACKEN, Cat., 253, probably is identical with *intersistens*.

coquilletti WILLISTON, Ent. News, III, 145.—S. Cal.

decora MACQUART, Dipt. Exot., Suppl. III, 57, pl. II, f. 11 (*Somula*).—Philadelphia.

WILLISTON, Synop. N. A. Syrph., 216, pl. x, f. 3.—Conn., Mass., Pa.

VAN DER WULP, Tijdschr. v. Ent., xxvii, 2, notes.—Conn.

CHAGNON, Ét. Prélim. les Syrph., 66.—Montreal.

N. J.—Smith Cat.; Sea Cliff, L. I.—Banks.

humeralis WILLISTON, Proc. Amer. Phil. Soc., xx, 330; Synop. N. A. Syrph., 214, pl. ix, f. 4.—Wash.; Cal.

intersistens WALKER, List, III, 615 (*Eristalis*).—Trenton Falls, N. Y.

WILLISTON, Synop. N. A. Syrph., 212.—N. H., Pa., N. J., Minn.

CHAGNON, Ét. Prélim. les Syrph., 65.—Montreal.

N. J.—Smith Cat.; Axton, N. Y.—M. and H.

See *badia*.

johnsoni COQUILLET, Ent. News, v, 125.—Wash.

kincaidi COQUILLET, Proc. U. S. N. M., xxxiii, 611.—Seattle.

lupina WILLISTON, Canad. Ent., xiv, 77 (*Brachymyia*); Proc. Amer. Phil. Soc., xx, 330 (*Eurhinomallota*); Synop. N. A. Syrph., 211, pl. ix, f. 6.—Cal.

metallica BIGOT, Bull. Soc. Ent. France, 1882, 78 (*Eurhinomallota*).—Mex.

WILLISTON, Synop. N. A. Syrph., 211, probably same as *lupina*.

nigripes WILLISTON, Canad. Ent., xiv, 78 (*Brachymyia*); Proc. Amer. Phil. Soc., xx, 330 (*Eurhinomallota*); Synop. N. A. Syrph., 210, pl. x, f. 1.—Cal.

notata WIEDEMANN, Auss. Zweifl., II, 109 (*Milesia*).—Savannah, Ga.

- MACQUART, Dipt. Exot., II, 2, 80, pl. xv, f. 5 (id.).—Carolina and Georgia.
 WALKER, List, III, 578 (*Syrphus profusus*).—Ga. [O. S.]
 ? BIGOT, Annales, 1883, 354 (*Calliprobola pictipes*).—Carolina. [Will.
 with a doubt.]
 WILLISTON, Synop. N. A. Syrph., 215, transl. orig. desc.; see also p. 296.
scitula WILLISTON, Proc. Amer. Phil. Soc., XX, 331; Synop. N. A. Syrph., 215.—
 Wash.
 COQUILLET, Proc. Wash. Acad. Sci., II, 436, oc. at Fox Point, Alaska, and
 in Oregon.
tricolor COQUILLET, Proc. Wash. Acad. Sci., II, 436.—Sitka.
umbratilis WILLISTON, Synop. N. A. Syrph., 212, pl. IX, f. 7.—Conn.
 SNOW, Kans. Univ. Quart., I, 38, note.—Kans.
 HINE, Ohio Nat., II, 229, oc. in Cincinnati, O., and Nashville, Tenn.
verbosa WALKER, List, III, 568 (" *Milesia verbosa* HARRIS, Cat. Ins. Mass.")—
 N. A.
 OSTEN SACKEN, Cat., 136, ref. to *Brachypalpus*.
 SWEDERUS, Vetensk. Ak. Nya Handl., 1787 (*Musca tomentosa*).—N. A.
 [O. S.]
 WILLISTON, Synop. N. A. Syrph., 211, pl. x, f. 2.—Mass., Maine.
 HUNTER, Canad. Ent., XXIX, 141.—Minn.
 N. J.—Smith Cat.

MILEZIA.

- LATREILLE, Hist. Nat. Crust. et Ins., XIV, 361, 1804.
 FALLÉN, Syrphici, 7, 1816.
 MEIGEN, Syst. Besch., III, 226, 1822.
 SCHINER, Fauna Austr., I, 366, 1862.
 WILLISTON, Synop. N. A. Syrph., 254, 1886.
bella TOWNSEND, Annals and Mag. Nat. Hist., XIX, 142.—Rio Ruidosa, N. M.
 HINE, Canad. Ent., XXXV, 246, notes.—Elden Mt., Ariz.
ornata FABRICIUS, see *virginiensis*.
virginiensis DRURY, Illust. Exot. Ent., App., II, pl. XXXVII, f. 6 (*Musca*).—Va.
 HAUSMAN, Ent. Bemerk., II, 67 (*Syrphus trifasciatus*). [Wied.]
 FABRICIUS, Syst. Antl., 188 (*ornata*).—Carolina. [Wied.]
 WIEDEMANN, Auss. Zweifl., II, 106 (*ornata*).—N. A.
 WESTWOOD, Drury's Exot. Ent., 2d ed., II, 77 (id.).
 BIGOT, Annales, 1884, 341 (*Sphyra fulvifrons*).—Ga. [Will.]
 WILLISTON, Synop. N. A. Syrph., 255, pl. XII, f. 2 (*ornata*).—New Eng.
 III., Md.
 N. J.—Smith Cat.; Fla., several places—Johnson.
profusa WALKER, List, III, 578 (*Syrphus*).—Ga.
 OSTEN SACKEN, Cat., 124, gen. ref.
pulchra WILLISTON, Biologia, Dipt., III, 74, pl. II, f. 11.—Guatemala.

SPILOMYIA.

- MEIGEN, Illig. Mag., II, 273, 1803.
 MACQUART, Hist. Nat. Dipt., I, 491, 1834 (*Mixtomyia*).
 RONDANI, Dipt. Ital. Prod., I, 47, 1856 (*Calliprobola*).
 SCHINER, Fauna Austr., I, 364, 1862.
 WILLISTON, Synop. N. A. Syrph., 244, def. and table of species, 1886.
 CHAGNON, Ét. Prélim. les Syrph., 67, 1901.
area BIGOT, see *Brachypalpus pulcher*.
calorhina BIGOT, see *Sphcomomyia pattoni*.

- ephippium** OSTEN SACKEN, Bull. Buff. Soc. Nat. Sci., III, 70; Cat., 254 (both *Mixtemyia*).—Mex.
WILLISTON, Syno. N. A. Syrph., 249, quotes desc.; Biologia, Dipt., III, 74, oc. in Mex.
- fusca** LOEW, Cent., v, 34.—Pa.
WILLISTON, Synop. N. A. Syrph., 246.—Pa., N. H., Ga., Mass., Canada.
CHAGNON, Ét. Prélim. les Syrph., 68.—Rigaud and Montreal.
N. J.—Smith Cat.; Adirondacks—Lintner.
- hamifera** LOEW, Cent., v, 33.—Pa.
WILLISTON, Synop. N. A. Syrph., 247.—N. H.
Va., Fla., Ky.—O. S. Cat.; St. Augustine and Inverness, Fla.—Johnson;
N. J.—Smith Cat.
- interrupta** WILLISTON, Proc. Amer. Phil. Soc., XX, 327; Synop. N. A. Syrph., 246, pl. XII, f. 4.—Wash.
- kahlii** SNOW, Kans. Univ. Quart., III, 245.—N. M., 9,000 ft.
- litorata** WILLISTON, Synop. N. A. Syrph., 245.—N. M.
- longicornis** LOEW, Cent., x, 49.—Mass., Pa., Tex.
WILLISTON, Synop. N. A. Syrph., 245.—Ill., Pa., D. C., New Eng.
TOWNSEND, Trans. Amer. Ent. Soc., XXII, 54, notes.—Mich., Va.
CHAGNON, Ét. Prélim. les Syrph., 69.—Montreal.
N. J.—Smith Cat.; Kans., O. S. Cat.
- obscura** COQUILLET, Canad. Ent., 1902, 195.—Sierra Madre in Chihuahua, Mex.
- pallipes** BIGOT, Annales, 1883, 352.—Mex.
WILLISTON, Biologia, Dipt., III, 74, oc.—Mex.
- pictipes** BIGOT, see *Criorhina notata*.
- pleuralis** WILLISTON, Synop. N. A. Syrph., 247.—Mex.
- quadrifasciata** SAY, Long's Exped. App., 377; Compl. Works, I, 257 (both *Paragus*).—N. W. Terr.
WIEDEMANN, Auss. Zweifl., II, 91 (*Psarus*).—N. W. Terr.
MACQUART, Hist. Nat. Dipt., I, 491, pl. XI, f. 8 (*Mixtemyia*).—Pa.
OSTEN SACKEN, Cat., 139, oc. in Quebec, Mass., Conn., and White Mts., N. H.
WILLISTON, Synop. N. A. Syrph., 248, pl. XII, f. 3.—N. Y.
TOWNSEND, Trans. Amer. Ent. Soc., XXII, 54, oc. in Mich.
HUNTER, Canad. Ent., XXVIII, oc. in Nebr.
CHAGNON, Ét. Prélim. les Syrph., 67.—Montreal and St. Jean, Quebec.
Kans.—SNOW.

SPHECOMYIA.

- LATREILLE, Dict. Class. d'Hist. Nat., XV, 545, 1829.
GORSKI, Anal. Ent., 1852, I, 70 (*Tyzenhausia*).
ZETTERSTEDT, Dipt. Scand., XII, 4645, 1855.
RONDANI, Dipt. Ital. Prod., II, 185, 1857 (*Sphirca*).
SCHINER, Fauna Austr., I, 367, 1862.
OSTEN SACKEN, Cat., 254, 1878, historical sketch.
WILLISTON, Synop. N. A. Syrph., 256, def. and table of species, 1886.
CHAGNON, Ét. Prélim. les Syrph., 71, 1901.
- brevicornis** OSTEN SACKEN, West. Dipt., 341.—Webber L., Cal.
WILLISTON, Synop. N. A. Syrph., 258, quotes Osten Sacken.
- fulvifrons** BIGOT, see *Milcsia virginiensis*.
- pattoni** WILLISTON, Proc. Amer. Phil. Soc., XX, 328; Synop. N. A. Syrph., 258, pl. XII, f. 8.—Wash.
BIGOT, Annales, 1884, 353 (*Caliprobola calorhina*).—Wash. [Will.]

- vittata** WIEDEMANN, Abss. Zweifl., II, 87 (*Chrysotoxum*); 91 (*Psarus ornatus*).
—No locality.
- MACQUART, Hist. Nat. Dipt., I, 491 (*Psarus ornatus*); Dipt. Exot., II, 2.
18, pl. III, f. 3, syn. and brief desc.—Ga.
- CUVIER, Règne Anim., XIV, 495.
- GORSKI, Analecta Ent., 1852, 170, pl. I, f. 1 (*Tyzenhausia vespiformis*)—
Europe.
- WAHLBERG, Oefv. Ak. Förh., XI, 156 (*Milesia vespiformis*).—Europe.
- ZETTERSTEDT, Dipt. Scand., XII, 464b (*vespiformis*).
- SCHINER, Fauna Austr., I, 368 (id.).
- ROEDER, Ent. Nachrichten, 1870, 90.
- WILLISTON, Synop. N. A. Syrph., 257.—New Eng., So. States, Minn.
- HUNTER, Canad. Ent., XXVIII, 101, oc.—Nebr.
- CHAGNON, Ét. Prélim. les Syrph., 71.—Montreal.
- Axton, N. Y.—M. and H.; N. J.—Smith Cat.

TEMNOSTOMA.

- ST. FARGEAU et SERVILLE, Encycl. Méth., X, 518, 1825.
- WILLISTON, Synop. N. A. Syrph., 249, 1886; ref. and table of species.
- VERRALL, Brit. Flies, VIII, 628, 1901.
- CHAGNON, Ét. Prélim. les Syrph., 69, 1901.
- æqualis** LOEW, Cent., v, 36.—English R., Huds. B. Terr.
- WILLISTON, Synop. N. A. Syrph., 253.—New Eng., Col.
- White Mts., N. H.—Slosson.
- alternans** LOEW, Cent., v, 37.—Philadelphia.
- WILLISTON, Synop. N. A. Syrph., 252, pl. XII, f. 7.—Canada, Maine, N. H.,
Conn., Pa., Mass.
- CHAGNON, Ét. Prélim. les Syrph., 70.—St. Hilaire and Montreal, Quebec.
- White Mts., N. H.—Slosson; Axton, N. Y.—M. and H.
- bombylans** FABRICIUS, Syst. Antl., 189 (*Milesia*).—Europe.
- PANZER, Fauna Germ., VIII, 11 (id.).
- MEIGEN, Syst. Besch., III, 233 (id.).
- MACQUART, Hist. Nat. Dipt., I, 534 (id.).
- FALLÉN, Syrphici, 8 (*Milesia zetterstedtii*).
- WALKER, List, III, 577 (*Doros balyras*).—Trenton Falls, N. Y. [Will.]
- SCHINER, Fauna Austr., I, 365 (*Spilomyia*).
- LOEW, Cent., v, 35 (*obscura*).—Saskatchewan R. [Will.]
- WILLISTON, Synop. N. A. Syrph., 250, pl. XII, f. 6.—N. Y., Conn., White
Mts., N. H., and Pa.
- CHAGNON, Ét. Prélim. les Syrph., 70.—Montreal and St. Hilaire, Quebec.
- White Mts., N. H.—Slosson; Axton, N. Y.—M. and H.
- excentrica** HARRIS, Ins. Inj. to Veg., 3d ed., 609 (*Milesia*).—Mass.
- OSTEN SACKEN, ibidem, fig. 267; Cat., 253, note (the male only).
- WILLISTON, Synop. N. A. Syrph., 251.—Mass., Tenn., Ill.
- pictula** WILLISTON, Synop. N. A. Syrph., 251.—Pa.
- trifasciata** ROBERTSON, Canad. Ent., XXXIII, 285.—Carlinville, Ill.
- venusta** WILLISTON, Synop. N. A. Syrph., 253.—White Mts., N. H.
- OSTEN SACKEN, in Harris' Ins. Inj. to Veg., 610; Cat. 253, note (*excentrica*, the female).—Mass., L. Superior.
- White Mts., N. H.—Slosson.

CERIA.

- FABRICIUS, Syst. Ent., iv, 277, 1774; Syst. Antl., 173, 1805.
 MEIGEN, Illig. Mag., ii, 271, 1803; Klassif., i, 281, 1804; Syst. Besch., iii, 158, 1822.
 LATREILLE, Hist. Nat. Crust. et Ins., xiv, 356, 1804; Gen. Crust., iv, 327, 1809.
 FALLÉN, Syrphici, 6, 1816.
 MACQUART, Hist. Nat. Dipt., i, 484, 1834.
 ZETTERSTEDT, Dipt. Scand., ii, 631, 1842.
 RONDANI, Ann. Soc. Ent. France, ser. 2, viii, 211, 212 (*Ceroides* and *Sphiximorpha*), 1850; Dipt. Ital. Prod., i, 55, 1856 (*Ceria* and *Sphiximorpha*); ii, 212, 214, 1857 (id.).
 LOEW, Neue Beitr., i, 1853.
 SCHINER, Fauna Austr., i, 368, 1862.
 WILLISTON, Synop. N. A. Syrph., 259, def. and table of species, 1886; Biologia, Dipt., iii, 75, 1891, table of Mex. species.
 VERRALL, Brit. Flies, viii, 664, 1901.
 CHAGNON, Ét. Prélim. les Syrph., 72, 1901.
- abbreviata** LOEW, Cent., v, 48; x, 57, note.—Pa., Fla.
 WILLISTON, Synop. N. A. Syrph., 261.—Comm., Va.
 TOWNSEND, Trans. Amer. Ent. Soc., xxii, 54, notes.—Col. N. Y.—O. S. Cat.; N. J.—Smith Cat.; Kans.—J. M. A.
- ancoralis** COQUILLET, Canad. Ent., xxxiv, 196 (*Sphiximorpha*).—Las Cruces, N. M.
- arietis** LOEW, Neue Beitr., i, 17.—Mex.
 GIGLIO-TOS, Ditt. del Mess., i, 32.—Cordova, Mex.
- bergrothi** WILLISTON, Biologia, Dipt., iii, 77.—Vera Cruz, Mex.
- cacica** WALKER, Trans. Ent. Soc., n. ser., v, 287.—Mex.
- daphnaea** WALKER, List, iii, 537.—Jamaica.
 WESTWOOD, Trans. Ent. Soc., v, 231, pl. xxiii, f. 7.
 LOEW, Neue Beitr., i, 17.
 Jamaica—Johnson.
- loewii** WILLISTON, Synop. N. A. Syrph., 260.—Ariz.
- meadei** WILLISTON, Biologia, Dipt., iii, 76, pl. ii, f. 12.—Guerrero, Mex.
- nigra** BIGOT, Annales, 1883, 317 (*Sphiximorpha*).—Mex.
 WILLISTON, Biologia, Dipt., iii, 77, oc.—Guerrero, Mex.
- nigripennis** WILLISTON, Synop. N. A. Syrph., 263.—Mex.
- pedicellata** WILLISTON, Synop. N. A. Syrph., 264; Biologia, Dipt., iii, 77.—Mex.: Guanajuato and Tehuantepec, Mex.
- pictula** LOEW, Neue Beitr., i, 17.—So. States.
 WILLISTON, Synop. N. A. Syrph., 261, quotes Loew.
- rufbasis** BIGOT, Annales, 1883, 318 (*Sphiximorpha*).—Mex.
- schnablei** WILLISTON, Biologia, Dipt., iii, 76.—Vera Cruz, Mex.
- scutellata** WILLISTON, Synop. N. A. Syrph., 265.—Mex.
- signifera** LOEW, Neue Beitr., i, 18.—Mex.
 GIGLIO-TOS, Ditt. del Mess., i, 32.—Cordova, Mex.
 JOHNSON, Ent. News, iv, 91, desc. of puparium, etc.—Pa. Inverness, Fla.—Johnson.
 For Williston's ref., see *willistonii*.
- superba** WILLISTON, Synop. N. A. Syrph., 264.—Mex.
- townsendi** SNOW, Kans. Univ. Quart., iii, 246.—Las Cruces, N. M.
- tricolor** LOEW, Wien. Ent. Monatsch., v, 37.—Cuba.
- tridens** LOEW, Cent., x, 57.—Cal.

WILLISTON, Synop. N. A. Syrph., 263.—Cal., Wash.

JOHNSON, Ent. News, iv, 91, oc. at Denver, Col.

TOWNSEND, Trans. Amer. Ent. Soc., xxii, 54, notes.—N. M.

verralli WILLISTON, Biologia, Dipt., iii, 75.—Panama.

willistonii KAIL, Kans. Univ. Quart., vi, 141.—Kans.

WILLISTON, Synop. N. A. Syrph., 262 (*signifera* LOEW).—Texas, Fla.

BANKS, Proc. Ent. Soc. Wash., v, 310, puparium.—Va.

CONOPIDÆ.

TROPIDOMYIA.

WILLISTON, Canad. Ent., xx, 1, 1888.

bimaculata WILLISTON, Canad. Ent., xx, 11; Biologia, Dipt., iii, 84, oc.—Brazil (type); Guerrero, Mex.

? GIGLIO-TOS, Ditt. del Mess., ii, 68, doubtfully recognized from Orizaba.

CONOPS.

LINNÉ, Syst. Nat., 10th edit., No. 226, 1758.

FABRICIUS, Syst. Antl., 174, 1805.

FALLÉN, Conopsariæ, 7, 1817.

MEIGEN, Syst. Besch., iv, 119, 1824.

MACQUART, Hist. Nat. Dipt., ii, 21, 1835.

SCHINER, Fauna Austr., i, 369, 1862.

WILLISTON, Trans. Conn. Acad., vi, 387, 1885, revision of U. S. spp.;

Biologia, Dipt., iii, 79, 1892, table of Mexican spp.

Among the synonyms may be mentioned:

Leopoldius RONDANI, Nuovo Ann. Sc. Nat. Bologna, x, 35, 1843.

Conopæjus RONDANI, Guérin's Mag. Zool., No. 153, 1845.

Conopilla, *Sphyrasoma* and *Brachyglossum* RONDANI, Dipt. Ital. Prod., i, 56, 1856.

Pleurocina MACQUART, Dipt. Exot., Suppl., iv, 164, 1850.

Bombidia and *Cylindrogaster* LIOY, Acta Venet., 3 ser., ix, 1326 and 1327, 1864.

affinis WILLISTON, see *Physocephala*.

? **analis** FABRICIUS, Syst. Antl., 175.—S. A.

WIEDEMANN, Auss. Zw., ii, 237.—S. A.

MACQUART, Dipt. Exot., ii, 3, 14, pl. 1, f. 4, oc. in Carolina.

WILLISTON, Trans. Conn. Acad., iv, 342, quotes Fabricius and Wiedemann.

Macquart's identification is in all probability incorrect, in which case the species is extra-limital; hence the query.

anthreas WILLISTON, Biologia, Dipt., iii, 80.—Guerrero, Presidio and Vera Cruz, Mex.

auratus TOWNSEND, Trans. Amer. Ent. Soc., xxvii, 161.—Organ Mts., N. M.

brachyrhynchus MACQUART, Dipt. Exot., ii, 3, 15; pl. 1, f. 8.—N. A.

WILLISTON, Trans. Conn. Acad., iv, 341, quotes orig. desc.: 328 (*obscuripennis*).—Va., S. C., Ga., Mass., Kans., S. D.

TOWNSEND, Trans. Amer. Ent. Soc., xxii, 61, notes; oc. in N. M.

N. J.—Smith Cat.; St. Augustine, Fla.—Johnson.

bulbrosstris LOEW, Neue Beitr., i, 30.—No locality; referred to N. A. in O. S. Cat. on Loew's authority.

WILLISTON, Trans. Conn. Acad., iv, 331.—Ga., N. C.

N. J.—Smith Cat.; St. Augustine, Fla.—Johnson.

- carbonarius** BIGOT, see *Physocephala*.
- ? **costatus** FABRICIUS, Syst. Antl., 175.—S. A.
 WIEDEMANN, AUSS. ZW., II, 238.—S. A.
 MACQUART, Dipt. Exot., II, 3, 14, pl. 1, f. 4, oc. in Carolina.
 WILLISTON, Trans. Conn. Acad., IV, 342, quotes Wiedemann.
 VAN DER WULP, Tijdschr. v. Ent., XXV, 11; Macquart probably had a different species, making this extra-limital.
- discalis** WILLISTON, Biologia, Dipt., III, 80.—Guerrero and Tabasco, Mex.
 GIGLIO-TOS, Ditt. del Mess., II, 67, note.—Orizaba.
- excisus** WIEDEMANN, AUSS. Zweifl., II, 234 and 236 (*excisus* and *sugens*).—Ga.; no local.
 WILLISTON, Trans. Conn. Acad., IV, 330.—Ga., Fla., N. C.
 N. J.—Smith Cat.; Fla.—Johnson (*Physocephala*).
- flaviceps** MACQUART, Dipt. Exot., II, 3, 15.—N. A.
 WILLISTON, Trans. Conn. Acad., IV, 341, quotes orig. desc.
- fronto** WILLISTON, Trans. Conn. Acad., VI, 378.—W. Kans.
 GIGLIO-TOS, Ditt. del Mess., II, 64, refers to *Physocephala*.—Mex.
- fulvipennis** MACQUART, Dipt. Exot., II, 3, 13, pl. 1, f. 9.—N. A.
 WILLISTON, Trans. Conn. Acad., IV, 341, quotes orig. desc.
- genualis** LOEW, see *Physocephala sagittaria*.
- gracilis** WILLISTON, Trans. Conn. Acad., VI, 377.—Ariz.
 TOWNSEND, Trans. Amer. Ent. Soc., XXII, 61, notes; oc. in N. M.
- nigrimanus** BIGOT, Annales, 1887, 38.—Ga.
- obscuripennis** WILLISTON, see *brachyrhynchus*.
- ocellatus** GIGLIO-TOS, see *parvus*.
- ochreiceps** BIGOT, see *Physocephala*.
- parvus** WILLISTON, Kans. Univ. Quart., 1892, 46.—Brazil.
 GIGLIO-TOS, Boll. R. Univ. Torino, VII, No. 132, 1892 (*ocellatus*); Ditt. del Mess., II, 67, syn., etc.—Mex.
- pictus** FABRICIUS, Ent. Syst., IV, 391; Syst. Antl., 176.—West Indies.
 WIEDEMANN, AUSS. ZW., II, 239.—S. A.
 MACQUART, Dipt. Exot., II, 3, 13 (in part).—Carolina.
 BIGOT, in Sagra's Cuba, 808 (*ramondi*).—Cuba. [Lw.]
 OSTEN SACKEN, Cat., 255, note.
 WILLISTON, Trans. Conn. Acad., IV, 340, quotes Fabricius and Bigot. Porto Rico—Roeder.
- sequax** WILLISTON, Biologia, Dipt., III, 80.—Guerrero, Mex.
 GIGLIO-TOS, Ditt. del Mess., II, 67, note, oc. in Orizaba.
- sylvosus** WILLISTON, Trans. Conn. Acad., IV, 329; Biologia, Dipt., III, 81, oc. and notes.—Mass., Conn., Kans.; Guerrero, Mex.
 GIGLIO-TOS, Ditt. del Mess., II, 67, note; oc. in Tehuacan, Mex.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- xanthopareus** WILLISTON, Trans. Conn. Acad., IV, 332.—Tex., Mass.
 N. J.—Smith Cat.

PHYSOCEPHALA.

- SCHNER, Wien. Ent. Monatsch., V, 1861; Fauna Austr., I, 375, 1862.
 WILLISTON, Trans. Conn. Acad., VI, 388, 1885, table of species; Biologia, Dipt., III, 82, 1892, table of Mexican species.
- affinis** WILLISTON, Trans. Conn. Acad., IV, 339 (*Conops*); VI, 391, gen. ref.—Kans., Cal., Wash.
 GIGLIO-TOS, Ditt. del Mess., II, 65, oc. in Mex.

- DAVIDSON, Ent. News, vi, 253, larvæ parasitic in nests of *Anthidium emarginatum*, in Cal.
- TOWNSEND, Trans. Amer. Ent. Soc., xxii, 62, notes.—Mich.
- burgessi** WILLISTON, Trans. Conn. Acad., iv, 337 (*Conops*); vi, 391, gen. ref.—Col., and Mendocino, Cal.
- Beulah, N. M.—Skinner.
- carbonaria** BIGOT, Annales, 1887, 42 (*Conops*).—Mex.
- ? WILLISTON, Biología, Dipt., iii, 82, pl. II, f. 13.—Vera Cruz, Mex., with a doubt.
- GIGLIO-TOS, Ditt. del Mess., ii, 66, oc. in Orizaba.
- castanoptera** LOEW, Neue Beitr., i, 33 (*Conops*).—Savannah.
- WILLISTON, Trans. Conn. Acad., iv, 330, transl. orig. desc.
- TOWNSEND, Trans. Amer. Ent. Soc., xxii, 62.—Mich.
- St. Augustine, Fla.—Johnson.
- furcillata** WILLISTON, Trans. Conn. Acad., iv, 336 (*Conops*); vi, 391, gen. ref.—N. H., Canada.
- ? WALKER, List, iii, 671 (*Conops æthiops*).—N. A. [Will., with a doubt.]
- N. J.—Smith Cat.; Montreal—Chagnon; Adirondacks, N. Y.—Lintner and Needham.
- marginata** SAY, Jour. Acad. Sci. Phil., iii, 82; Compl. Works, ii, 73 (*Conops*).—Mo.
- WIEDEMANN, Auss. Zw., ii, 240 (id.).
- LOEW, Neue Beitr., i, 34 (id.), redesc. Wiedemann's specimen.
- WILLISTON, Trans. Conn. Acad., iv, 338 (id.); vi, 391, gen. ref.—Pa., N. H.
- maxima** GIGLIO-TOS, Boll. R. Univ. Torino, vii, no. 132, 1892; Ditt. del Mess., ii, 64.—Mex.
- nigrifacies** BIGOT, Annales, 1887, 40 (*Conops*).—Mex.
- WILLISTON, Biología, Dipt., iii, 82.—Guerrero, Mex.
- ochreiceps** BIGOT, Annales, 1887, 39 (*Conops*).—Ga.; Mex.
- TOWNSEND, Trans. Amer. Ent. Soc., xxii, 62, notes, and oc. in N. M.
- WILLISTON, Biología, Dipt., iii, 83, notes.—Guerrero, Mex.
- sagittaria** SAY, Jour. Acad. Sci. Phil., iii, 82; Compl. Works, ii, 73 (*Conops*).—Pa.
- LOEW, Neue Beitr., i, 32 (*Conops genualis*).—Ky. [Will.]
- GIGLIO-TOS, Ditt. del Mess., ii, 65, oc. in Mex.
- N. J.—Smith Cat.; Inverness, Fla.—Johnson.
- sororcula** WILLISTON, Biología, Dipt., iii, 83.—Guerrero, Mex.
- GIGLIO-TOS, Ditt. del Mess., ii, 66, note.—Mex.
- texana** WILLISTON, Trans. Conn. Acad., iv, 338 (*Conops*); vi, 391, gen. ref.—Texas.
- Montreal—Chagnon.
- tibialis** SAY, Jour. Acad. Sci. Phil., vi, 171; Compl. Works, ii, 363 (*Conops*).—Ind. .
- WIEDEMANN, Auss. Zw., ii, 236 (*Conops nigricornis*).—Pa. [Will.]
- LOEW, Neue Beitr., i, 31 (id.).
- WILLISTON, Trans. Conn. Acad., iv, 334.—Mass., Conn., D. C., Va., N. C., Kans.
- TOWNSEND, Trans. Amer. Ent. Soc., xxii, 63, oc. in Mich., and Va. Fla.—Johnson.
- xanthops** WILLISTON, Biología, Dipt., iii, 83.—Guerrero and Tabasco, Mex.
- GIGLIO-TOS, Ditt. del Mess., ii, 66, oc. in Tuxpango, Mex.

ZODION.

- LATREILLE, Précis, des caract. gén., 1796.
 SCHINER, Fauna Austr., I, 380, 1862.
 WILLISTON, Trans. Conn. Acad., VI, 379, 1885; table of U. S. species, p. 392.
 ADAMS, Kans. Univ. Sci. Bull., II, 33, 1903, table of species.
abitus ADAMS, Kans. Univ. Sci. Bull., II, 33.—Kansas and Mass.
albonotatum TOWNSEND, Jour. N. Y. Ent. Soc., V, 175; VI, 52, notes.—Brownsville, Texas.
[americanum WIEDEMANN, doubtfully recognized by Walker, List, III, 678, is almost certainly extra-limital.]
auricaudatum WILLISTON, Biologia, Dipt., III, 85, pl. II, f. 14a.—Guerrero, Mex.
bicolor ADAMS, Kans. Univ. Sci. Bull., II, 35.—Douglass Co., Kans.
flavipennis BIGOT, see *fulvifrons*.
fulvifrons SAY, Jour. Acad. Sci. Phil., III, 83 and 84 (*fulvifrons* and *abdominale*); Compl. Works, II, 74 (id.).—Md., Pa.; near Rocky Mts.
 WIEDEMANN, AUSS. ZW., II, 241, 242 (id.).
 ?ROBINEAU-DESVOIDY, Myodaires, 247 (*Myopa rubrifrons*).—Philadelphia. [Walker, List, III, 678; questioned by Williston.]
 WILLISTON, Trans. Conn. Acad., VI, 380, 392; Biologia, Dipt., III, 84, oc. and syn.—New England, Cal., Wash., Ariz.; Guerrero, Mex.
 BIGOT, Annales, 1887, 204 (*flavipennis*).—Mex. [Will.]
 TOWNSEND, Psyche, 1897, 93, 127, 140; Trans. Amer. Ent. Soc., XXII, 63, notes.—N. M.; Ottawa, Canada.
 GIGLIO-TOS, Ditt. del Mess., II, 68, oc. in Puebla, Cordova and Cuautla, Mex.
 Montreal—Chagnon; Fla.—Johnson; Beulah, N. M.—Skinner; Axton, N. Y.—M. and H.
leucostoma WILLISTON, see *obliquefasciatum*.
nanellum LOEW, Cent., VIII, 75.—D. C.
 ?WALKER, List, III, 676 (*occidentis*).—Ohio. [Will., with a query.]
 WILLISTON, Trans. Conn. Acad., VI, 382, transl. of Loew.
 N. J.—Smith Cat.; Montreal—Chagnon; Porto Rico—Roeder; Fla.—Johnson.
occidentis WALKER, see *nanellum*.
obliquefasciatum MACQUART, Dipt. Exot., Suppl., I, 141 (*Myopa*).—Texas.
 JENNICKE, Neue Exot. Dipt., 405 (97) (*splendens*).—Mexico.
 WILLISTON, Trans. Conn. Acad., VI, 380 (*leucostoma*).—Kans., Mont., Ariz., S. D. [Will., Biol., III, 85.]
 TOWNSEND, Trans. Amer. Ent. Soc., XXII, 63, note; Psyche, 1897, 127, 148, notes.—Zacatecas, Mex.; N. M.; N. M. (*splendens*).
 ADAMS, Kans. Univ. Sci. Bull., II, 33, syn. Beulah, N. M.—Skinner.
palpale ROBERTSON, Canad. Ent., XXXIII, 284.—Carlinville, Ill.
parvum ADAMS, Kans. Univ. Sci. Bull., II, 34 (*parvis*).—Ariz.
perlongum COQUILLET, Canad. Ent., XXXIV, 199.—Rio Ruidosa, N. M.; Chihuahua, Mex.; Col.
pictulum WILLISTON, Trans. Conn. Acad., VI, 379.—N. M.
pygmæum WILLISTON, Trans. Conn. Acad., VI, 381; Biologia, Dipt., III, 84, oc.—Cal., Col.; Guerrero, Mex.
scapulare ADAMS, Kans. Univ. Sci. Bull., II, 34.—Ariz.
splendens JENNICKE, see *obliquefasciatum*.
triste BIGOT, Annales, 1887, 203.—Cal.
zebrinum BIGOT, Annales, 1887, 204.—Mexico.

STYLOGASTER.

- MACQUART, Hist. Nat. Dipt., II, 38, 1835; Dipt. Exot., II, 3, 17, 1845.
 WESTWOOD, Proc. Zool. Soc. Lond., 1850, 270 (*Stylomyia*).
 BIGOT, Rev. et Mag. de Zool., 1850, no. 7 (*Ptychoproctus*).
 WILLISTON, Trans. Conn. Acad., VI, 91, 1883; Kans. Univ. Quart., I, 120, 1893.
 TOWNSEND, Annals and Mag. Nat. Hist., XIX, 1897, 25, table of species; believes them parasitic on ants of the genus *Eciton*, from his observations.
 ROEDER, Wien. Ent. Zeit., XI, 287, 1891, table of species.

biannulata SAY, Jour. Acad. Sci. Phil., III, 81; Compl. Works, II, 72 (*Myopa*).
 Pa.

- WIEDEMANN, AUSS. ZW., II, 243 (*Myopa stylata* FAB., in part).—S. A.
 MACQUART, Dipt. Exot., II, 3, 17 (? *Stylogaster stylatus* FAB.), note.
 WESTWOOD, Proc. Zool. Soc. Lond., 1850, 271 (*Stylomyia confusa*).
 LOEW, Schaum's Jahresbericht, 1851, 133, note on syn.
 OSTEN SACKEN, Cat., note 259, syn.
 WILLISTON, Trans. Conn. Acad., VI, 93; Kans. Univ. Quart., I, 120, full discussion of *stylatus* FAB. and WIED.—CONN.

ethiops TOWNSEND, Annals and Mag. Nat. Hist., XIX, 26.—Vera Cruz.

minuta TOWNSEND, Annals and Mag. Nat. Hist., XIX, 27.—Vera Cruz.

neglecta WILLISTON, Trans. Conn. Acad., VI, 91; Kans. Univ. Quart., I, 120.—CONN.

WIEDEMANN, AUSS. ZW., II, 243 (*Myopa stylata* FAB., in part).—S. A. [Will.]

TOWNSEND, Trans. Amer. Ent. Soc., XXII, 64, oc. in Kans.

N. J.—Smith Cat.

stylata FABRICIUS, Syst. Antl., 177 (*Conops*).—Brazil.

As to the possibility of present or future recognition of this species, see Roeder, Wien. Ent. Zeit., XI, 287, 1891, for the affirmative, and Williston, Kans. Univ. Quart., I, 120, 1893, for the negative.

stylosa TOWNSEND, Annals and Mag. Nat. Hist., XIX, 24.—Vera Cruz.

DALMANNIA.

- ROBINEAU-DESVOIDY, Myodaires, 248, 1830.
 MACQUART, Dipt. du Nord. de la France, 1833 (*Stachynia*): Hist. Nat. Dipt., II, 36, 1835 (id.).
 SCHINER, Fauna Austr., I, 388, 1862.
 WILLISTON, Trans. Conn. Acad., VI, 94, 1883.
 COQUILLET, Ent. News, III, 150, table of species.

nigriceps LOEW, Cent., VII, 71.—Va.

WILLISTON, Trans. Conn. Acad., VI, 94.—CONN., N. Y., D. C., Mont.
 N. J.—Smith Cat.

picta WILLISTON, Trans. Conn. Acad. Sci., VI, 94.—N. M. S. Cal.—Coq.

vitiosa COQUILLET, Ent. News, III, 150.—Cal., Los Angeles Co.

ONCOMYIA.

- ROBINEAU-DESVOIDY, Dipt. Env. Paris, 50, 1853 (*Occomyia*; changed by Loew, Cent., VII, 73).
 RONDANI, Dipt. Ital. Prod., I, 58, 1856 (*Thecophora*).
 SCHINER, Fauna Austr., I, 381, 1862.
 WILLISTON, Trans. Conn. Acad., VI, 95, 392, def. and table of species, 1883.

- abbreviata** LOEW, Cent., vii, 73.—D. C.
 WILLISTON, Trans. Conn. Acad., vi, 97; Biologia, Dipt., iii, 86, oc. and note.—N. Y., D. C., Cal., Wash.; Durango, Mex.
 GIGLIO-TOS, Ditt. del Mess., ii, 69, note.
 PANAMINT Val., Cal.—Williston; N. J.—Smith Cat.; Montreal—Chagnon.
- baroni** WILLISTON, Trans. Conn. Acad., vi, 97.—Cal., Col.
 TOWNSEND, Trans. Amer. Ent. Soc., xxii, 63, oc. in N. H., and note.
 Beulah, N. M.—Skinner.
- loraria** LOEW, Cent., vii, 74.—N. H.
 WILLISTON, Trans. Conn. Acad., vi, 98; Biologia, Dipt., iii, 86, oc.—Conn., Cal.; Guerrero, Mex.
 TOWNSEND, Trans. Amer. Ent. Soc., xxii, 64, oc. in D. C., and note.
 GIGLIO-TOS, Ditt. del Mess., ii, 10, oc. in Puebla, Mex., and note.
 White Mts., N. H.—Slosson.
- modesta** WILLISTON, Trans. Conn. Acad., vi, 96.—Wash., Col.
 var. **melanopoda** WILLISTON, loc. cit.—N. H.
- propinqua** ADAMS, Kans. Univ. Sci. Bull., ii, 32.—No locality.

MYOPA.

- FABRICIUS, Syst. Ent., 798, 1775; Syst. Antl., 178, 1805.
 MEIGEN, Syst. Besch., iv, 140, 1824.
 RONDANI, Dipt. Ital. Prod., i, 58, 1856 (*Myopa* and *Gonirhynchus*).
 SCHINER, Fauna Austr., i, 384, 1862.
 WILLISTON, Trans. Conn. Acad., vi, 382, 393, table of species; also gives the divisions proposed by Robineau-Desvoidy and Lioy.
 ADAMS, Kans. Univ. Sci. Bull., ii, 35, 1903, table of species.
- bistria** WALKER, List, iii, 679.—N. A.
- castanea** BIGOT, Annales, 1887, 207 (*Gonirhynchus*).—Nev.
- clausa** LOEW, Cent., vii, 72.—Me.
 WILLISTON, Trans. Conn. Acad., vi, 385.—Mass., Conn., Mont., Cal., Ariz., Wyo., Wash.
 White Mts., N. H.—Slosson; Hudsonian Zone, N. M.—Cockerell.
- conjuncta** THOMSON, Eugen. Resa, 515.—Cal.
- fenestrata** COQUILLET, Canad. Ent., xxxiv, 197.—Sierra Madre, Chihuahua, Mex.
- longicornis** SAY, Jour. Acad. Sci. Phil., iii, 83; Compl. Works, ii, 72.—Mo.
 WIEDEMANN, Auss. Zw., ii, 245.—Pa.
 WILLISTON, Trans. Conn. Acad., vi, 386, quotes both desc.
- maculifrons** BIGOT, Annales, 1887, 206 (*Glossigona*).—Nev.
- obliquefasciata** MACQUART, see *Zodion*.
- pictipennis** WILLISTON, Trans. Conn. Acad., vi, 382.—Ariz., Cal.
 GIGLIO-TOS, Ditt. del Mess., ii, 70, oc. in Toluca, Mex.
- pilosa** WILLISTON, Trans. Conn. Acad., vi, 383.—Cal.
- plebeia** WILLISTON, Trans. Conn. Acad., vi, 384.—Ariz.
- pulchra** COQUILLET, Canad. Ent., xxxiv, 198.—Sierra Madre, Chihuahua, Mex.
- rubida** BIGOT, Annales, 1887, 206 (*Glossigona*).—Col.
- tectura** ADAMS, Kans. Univ. Sci. Bull., ii, 35.—No locality.
- vesiculosa** SAY, Jour. Acad. Sci. Phil., iii, 80; Compl. Works, ii, 72.—Pa.
 WIEDEMANN, Auss. Zw., ii, 245.
 ? WALKER, List, iii, 679 (*apicalis*).—N. A. [Will., with a doubt.]
 WILLISTON, Trans. Conn. Acad., vi, 384.—Pa., N. H., Mass., Ga.
 N. J.—Smith Cat.; Montreal—Chagnon.

- vicaria** WALKER, List, III, 670.—Nova Scotia.
WILLISTON, Trans. Conn. Acad., VI, 386, quotes orig. desc.
N. J.—Smith Cat.; Montreal—Chagnon.

SICUS.

- SCOPOLI, Entom. Carniolica, 1004, 1763.
SCHINER, Fauna Austr., I, 384, 1862.
brevis COQUILLET, Canad. Ent., XXXIV, 198.—Sierra Madre, Chihuahua, Mex.

CESTRIDÆ.

- BRAUER, Monographie der Cestridenten, Vienna, 1863, is the great classic work on this family.
BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 158 and VI, 180, tables of genera of the world.
BRAUER, Zweifl. d. Kaiserl. Mus., III, 36, table of genera, based on larvæ of the third stage.
BRAUER, Denkschr. d. Kaiserl. Akad. Wiss., Math.-Naturwiss. Classe, LXIV, 259-282, 1 pl., has a fascinating article on the descent of the Cestridentæ and on the elephant bot, *Cobboldia elephantis*, which may be brought to the United States in elephants from India.
TOWNSEND, Proc. Ent. Soc. Wash., II, 94, 1891, gives tables of genera, both for larvæ and adults, from Brauer.
OSBORN, Bull. Div. Ent., No. 5, notes on *Gastrophilus* and other bots.
HUNTER, Nebraska Bd. of Hort., 189, 291-300, popular illustrated account of bots.
AUSTEN, Annals and Mag. Nat. Hist., 6th ser., XV, 391, 1895, table of genera of *Cuterebrinae*.

The following references have not been assigned to any genus:

- Ground-squirrel bot:** RILEY and HOWARD, Insect Life, IV, 147, extract from correspondence, on a new species from Kansas, not *emasculator*.
Bots affecting Man: BLANCHARD, Annales Soc. ent. de France, 1892, full summary of American cases.
RILEY and HOWARD, Ins. Life, V, 2, brief review of foregoing; p. 58, addition—notes on same subject.
See also under *Dermatobia*.
Botfly of Cat: RILEY and HOWARD, Insect Life, VI, 266, extract from correspondence on, in North Carolina; p. 327, two more cases, in N. Y. and Mo.
Botfly of Rabbit: RILEY and HOWARD, Insect Life, III, 21, extract from correspondence on, affecting jack-rabbits in Texas. See also *Cuterebra*.

GASTROPHILUS.

- LEACH, On the Genera and Species of Eproboscideous Insects, 1817.
MEIGEN, Syst. Besch., IV, 174, 1824 (*Gastrus*).
SCHINER, Fauna Austr., I, 390, 1862.
BRAUER, Mon. Cestridenten, 53, 1863, full biology, table of species, etc.
[epilepsalis] FRENCH, Canad. Ent., 1900, 203, fig.; 1904, 83.—Ill.
ALDRICH, Canad. Ent., 1900, 318, rejects species.
Note.—Described from a larval specimen 2 mm. long, passed by a boy who had had epileptic spasms for four years!]
WASHBURN, Canad. Ent., XXXV, 320, case of a subcutaneous human parasite,—almost certainly a different species.

- BANKS, *Canad. Ent.*, xxxv, 333, the original was not an *Æstrid* larva at all.
- equi** CLARK, *Trans. Linn. Soc.*, III, 226, pl. XXIII, f. 7-9, 1788 (*Æstrus equi*).—Europe.
- FABRICIUS, *Syst. Antl.*, 228, 1805 (id.).
- CLARK, *Essay on Bots*, 17, pl. I, f. 1-16 (id.).
- LEACH, *Eproboscideous Insects*, 1817.
- MEIGEN, *Syst. Besch.*, iv, 175 (*Gastrus*).
- MACQUART, *Hist. Nat. Dipt.*, II, 52 (*Æstrus*).
- SCHINER, *Fauna Austr.*, I, 391, 1862.
- BRAUER, *Mon. Æstriden*, 68, full bibliogr. to 1863; figs. all stages, etc.
- FITCH, *Trans. N. Y. Agl. Soc.*, IX, 799 (*Æstrus*), oc. in U. S., etc.
- HARRIS, *Ins. of New England*, 3d ed., 623, pl. VIII, f. 2.
- GARMAN, *Annual Rept. Ky. Expt. Station*, 1894, figs., etc.; notes an early account by Rev. Rowland Green, *Adams' Medical and Agl. Register*, 1806, 53.
- RILEY, *Rept. Dept. of Agriculture*, 1893, 213, summarizes results of investigations made for the Department by Osborn.
- TOWNSEND, *Trans. Amer. Ent. Soc.*, XXII, 64, oc. in Jamaica.
- LUGGER, 2d *Rept. Ent. Minn.*, 1896, 212-216, figs., habits, etc.
- HERRICK, *Bull.* 53, *Miss. Expt. Station*, 1900, brief account.
- The common stomach bot of the horse; N. A., wherever horses occur.
- hæmorrhoidalis** LINNÉ, *Fauna Suec.*, 2d ed., No. 1733, year 1761 (*Æstrus*).—Europe.
- DEGEER, *Hist. Nat. Ins.*, VI, 291, pl. XV, f. 13 (id.).
- CLARK, *Trans. Linn. Soc.*, III, 289, pl. XXIII, f. 10-12 (id.).
- LEACH, *Eproboscideous Ins.*, 1817.
- MEIGEN, *Syst. Besch.*, iv, 177, 1824 (*Gastrus*).
- ZETTERSTEDT, *Dipt. Scand.*, III, 981, 1844 (id.).
- SCHINER, *Fauna Austr.*, I, 392, 1862.
- BRAUER, *Mon. Æstriden*, 83, figs., biology, etc.
- GARMAN, *Ann. Rept. Ky. Expt. Station*, 1894.
- LUGGER, 2d *Rept. Ent. Minn.*, 216, notes and good fig.
- Larvæ in stomach, duodenum and rectum of the horse; N. A. generally, as preceding.
- nasalis** LINNÉ, *Fauna Suecica*, 2d ed., no. 1722, year 1761; *Systema Naturæ*, 12th ed., II, 969 (*Æstrus*).—Europe.
- FABRICIUS, *Syst. Ent.*, 746 (id.); *Ent. Syst.*, IV, 232 (*Æstrus equi*, var. *nasalis*); *Syst. Antl.*, 230 (*veterinus* CLK.).
- CLARK, *Trans. Linn. Soc.*, V, III, 328 (*Æstrus veterinus*); *Essay on Bots*, 33, pl. I (*Æstrus salutiferus*).
- LEACH, *Eproboscideous Ins.*, 2 (*Æstrus clarkii*).
- MEIGEN, *Syst. Besch.*, IV, 176-180 (*Gastrus salutaris*, *nasalis*, *jumentorum*, and *clarkii*).
- FALLÉN, *Hæmatomyz.*, 12, 6 (*Æstrus veterinus*).
- MACQUART, *Hist. Nat. Dipt.*, II, 53 (*Æstrus salutaris*).
- ZETTERSTEDT, *Dipt. Scand.*, III, 979, 981 (*Gastrus nasalis* and *nigritus*).
- FITCH, *Trans. N. Y. Agl. Soc.*, IX, 799, 1849, oc. in N. Y., and popular account (*Æstrus*).
- WALKER, *List*, III, 687 (*subjacens*).—Nova Scotia. [Brauer.]
- SCHINER, *Fauna Austriaca*, I, 391.
- BRAUER, *Mon. Æstriden*, 86, full biology, etc.
- TOWNSEND, *Entom. News*, III, 227, habits.

GARMAN, Ann. Rept. Ky. Expt. Station, 1894.

LUGGER, 2d Rept. Ent. Minn., 1896, 217-219, notes and good figure.

Larvæ in the duodenum and about pylorus of the horse; distribution as the preceding.

[**pecorum** FABRICIUS, Ent. Syst., iv, 230, 1794 (*Æstrus*).—Europe.

WALKER, List, III, 686, oc. in Jamaica.

BRAUER, Mon. Cestridenten, 75, biology, bibliography, etc.; larvæ in the alimentary canal of the horse, clinging to the rectum like *hæmorrhoidalis*.—Europe.

GARMAN, Ann. Rept. Ky. Expt. Station, 1894, compiled desc.

Seems not to have been authoritatively recorded from North America.]

ÆSTRUS.

LINNÉ, Fauna Suecica, 2d ed., 428, 1761.

LATREILLE, Fam. Nat., Règne Animal., 1825 (*Cephalomyia*).

SCHINER, Fauna Austr., i, 392, 1862.

BRAUER, Mon. Cestridenten, 147, 1863.

ovis LINNÉ, Fauna Suecica, 2d ed., 430, 1761.—Sweden.

FABRICIUS, Syst. Ent., 747; Ent. Syst., iv, 232; Syst. Antl., 230.

CLARK, Trans. Linn. Soc., III, 289, pl. XXIII, f. 14-17.

LATREILLE, Gen. Crust., iv, 341; Dict. d'Hist. Nat.; Fam. Nat. d. Règne Animal. (the last *Cephalomyia*).

SCHINER, Fauna Austr., i, 392, 1862.

BRAUER, Mon. Cestridenten, 151, full bibliog., biology, etc.—Europe and N. A.

FITCH, Trans. N. Y. Agl. Soc., ix, 800, 1849 (*Cephalomyia*).

RILEY, First Mo. Rept., 161-165, figs., life hist., etc.

CURTICE, Animal Parasites of Sheep, Govt. Printing Office, Washington, 1890; full discussion, figs., etc.

BAKER, Entom. News, vi, 174, notes on biology, and oc. at Fort Collins, Col.

LUGGER, 2d Rept. Ent. Minn., 1896, 219-225, life hist. and good figs.

HERRICK, Bull. 53, Miss. Expt. Station, brief notes.

Larvæ in frontal sinuses of sheep; widely distributed in N. A.

CEPHENOMYIA.

LATREILLE, Fam. Nat. du Règne Animal., 1825.

SCHINER, Fauna Austr., i, 394, 1862.

BRAUER, Mon. Cestridenten, 183, 1863, amended.

Undetermined bots, supposed to belong to *Cephenomyia*:

Bots in deer: BRAUER, Mon. Cestridenten, 211, pl. ix, f. 9, a larva found in throat of *Cervus macrotis* by Say, in N. W. Terr., U. S.

RILEY and HOWARD, Insect Life, i, 386, note on larva from deer in Cal.

Bots in the pig: RILEY and HOWARD, Insect Life, III, 151, extract from correspondence, on bots in throats of hogs in W. Va.

Bots in man: RILEY and HOWARD, Insect Life, II, 116, extract from correspondence, on larvæ in man's head; San Bernardino, Cal.

? **phobifer** CLARK, Essay on Bots, 69, pl. II, f. 30 (*Æstrus*).—Ga.

BRAUER, Mon. Cestridenten, 213, 291, pl. v, f. II (copied fig.). Referred with a doubt to this genus.

WIEDEMANN, Auss. Zw., II, 255, data compiled from Clark (*Æstrus*).

- MACQUART, Dipt. Exot., II, 3, 25, pl. II, f. 8, brief compiled reference, and the figure does not agree with Brauer.
 [ulrichii BRAUER, Mon. Cestrinen, 199, pl. III, f. 8 and IX, f. 7.—Europe, in *Cervus alces*. Only larvæ were seen from N. A., hence the species here may not be the same.]

HYPODERMA.

- CLARK, Essay on Bots, 1815.
 LATREILLE, Fam. Nat. du Règne Animal., 1825.
 SCHINER, Fauna Austr., I, 396, 1862.
 BRAUER, Mon. Cestrinen, 93, 1863.
 Undetermined species:
 Bot of man: RILEY and HOWARD, Insect Life, II, 238, account of larva removed from a boy in Pa.
-
- bonassi BRAUER, Verh. Zool.-Bot. Ges., 1875, 75, larva only, on the buffalo.
 Note.—I take the reference from O. S. Cat.; whether the buffalo is not the old-world species, as the name indicates, I am unable to ascertain.
 [bovis DEGEER, see under *lineata*; *bovis* is not positively known from N. A.]
 lineata DE VILLIERS, Ent. Linn., III, 349, pl. IX, f. 1, 1789 (*Estrus*).—Europe.
 LEACH, Eproboscideous Insects, Suppl., 3 (*Estrus cricetorum*).
 CLARK, Essay on Bots, 37, 67 and 72, pl. I, f. 30, 31, 32 (*Estrus bovis*, var. *vernalis*).
 SCHINER, Fauna Austr., I, 397.
 LÖEW, Wien. Ent. Monatschr., Feb., 1863.
 BRAUER, Mon. Cestrinen, 122, 1863; Verh. Zool.-Bot. Ges., 1890, 509-516, discovery of host-relations, biology, etc.; infests the cow.
 WALKER, List, III, 685 (*Estrus supplens*).—Nova Scotia.
 OSTEN SACKEN, Cat., 143, synonymy.
 FITCH, Trans. N. Y. Agl. Soc., IX, 800, popular account (*bovis*).
 RILEY, Scientific American, Jan., 1877, pop. account (*bovis*).
 COMSTOCK, Rept. Dept. Agriculture, 1881, 258, identifies the "Texas cattle heel fly" as *bovis*.
 FARMERS' REVIEW, Chicago, July 17, 1889, et seq., investigation of damage to hides, etc.
 CURTICE, Insect Life, II, 207, notes on larvæ (as *bovis*); thinks eggs or larvæ are taken through the mouth; Jour. Com. Medicine and Vet. Archives, XII, 265, June, 1891; announces conclusion that the American species is *lineata*, not *bovis*; life hist. and figs.
 RILEY, The Ox Bot in the United States. Bulletin Dept. of Agriculture, Washington, 1892. 16 pp. and figs.
 RILEY, Rept. Dept. of Agriculture, 1892, 159, pl. I, f. 2, and pl. II. Synopsis of life hist.
 RILEY and HOWARD, Insect Life, I, 318, notes on, in Texas; II, 156, notes on work of Farmers' Review (*bovis*); II, 201, comments on theory of Curtice (*bovis*); II, 172, figs., habits, etc. (*bovis*); IV, 234, review of Curtice; IV, 302-317, full desc. and biology, with figs.
 LINTNER, 6th N. Y. Report, 111-116, full life hist., figs., etc. (*bovis*).
 HOLSTEIN, Ent. News, IV, 299, life hist.
 LUGGER, 2d Rept. Ent. Minn., 1896, 226, notes and good fig.
 The "Warble Fly" of cattle; larvæ under the skin of the back. Occurs very generally throughout the United States, and presumably other cattle-raising sections of North America.

CEDEMAGENA.

LATREILLE, Fam. Nat. du Règne Animal., 1825.

BRAUER, Mon. Cestriden, 130, 1803 (as a subg. of *Hypoderma*; in later works, as in Zweifl. d. Kaiserl. Mus., he accords the genus full rank.

tarandi LINNÉ, Fauna Suec., 2d ed., 429, no. 1731, year 1761 (*Cestrus*).—Europe.

FABRICIUS, Syst. Antl., 227 (id.).

FALLÉN, Hæmatomyz., 10 (id.).

MEIGEN, Syst. Besch., iv, 169, pl. xxxviii, f. 15 (*Cestrus*).

MACQUART, Hist. Nat. Dipt., ii, 49, oc. in N. A.

ZETTERSTEDT, Dipt. Scand., iii, 973.

BRAUER, Mon. Cestriden, 131, bibliog., biology, etc.—Europe and N. A.

WILLISTON, Trans. Amer. Ent. Soc., xiii, 307, confirms oc. in N. A.

COQUILLET, Proc. Wash. Acad. Sci., ii, 438, oc. in Alaska.

The larvæ live under the skin of the reindeer, hence only far north.

BOGERIA.

AUSTEN, Annals and Mag. Nat. Hist., 6th ser., xv, 391-393, 1895.

TOWNSEND, Psyche, 1897, 8, says he has obtained larvæ of this genus from jack-rabbits in N. M.; had previously referred them to *Dermatobia*.

principes AUSTEN, loc. cit., 393-395, pl. xiii, f. 5, 5b.—Gulf of Cal., Mex.

CUTEREBRA.

CLARK, Essay on Bots, 1815.

WIEDEMANN, Auss. Zw., ii, 256, 1830 (*Trypoderma*).

BRAUER, Mon. Cestriden, 219, 1803.

AUSTEN, Annals and Mag. Nat. Hist., ser. 6, xv, 377, 1895 (*Cutiterebra*).

MIK, Wien. Ent. Zeitung, xvi, 35, no. 62, has a few sensible remarks on the use of *Cutiterebra* and on the propriety of short forms in general. Undetermined species:

Bot in Rabbit, mentioned by Townsend, see *Icpusculi*.

Bot in Mouse: RILEY and HOWARD, Insect Life, vi, 46, note on a bot in mouse, *Sitomys californicus*, at West Creek, Cal.

americana FABRICIUS, Syst. Ent., 774; Ent. Syst., iv, 315; Syst. Antl., 288 (all *Musca*).—W. I.

CLARK, Essay on Bots, 70, pl. ii, f. 3 (*cauterium*).—Ogeechee Riv. [Wied.]

WIEDEMANN, Auss. Zw., ii, 258 (*Trypoderma*).—N. A.

MACQUART, Dipt. Exot., ii, 3, 23.—N. A.

BRAUER, Mon. Cestriden, 242, pl. iv, f. 2 and vi, f. 7.—Mex.

AUSTEN, Annals and Mag. Nat. Hist., 6th ser., xv, 383, redesc.—Ga.

TOWNSEND, Proc. Cal. Acad. Sci., iv, 618, note on doubtful oc. in Cal.; Trans. Amer. Ent. Soc., xxii, 64, oc. in Ariz.; notes.

Beulah, N. M.—Skinner.

analis MACQUART, Dipt. Exot., ii, 3, 22, pl. ii, f. 5.—Brazil.

GUÉRIN-MÉNEVILLE, Iconographie du Règne Animal., Ins., 547, pl. ci, f. 1 (*apicalis*).—America. [Austen.]

VAN DER WULP, Biologia, Dipt., ii, 1 (*cmasculator* FITCH).—N. Sonora and Presidio, Mex. [Austen.]

AUSTEN, Annals and Mag. Nat. Hist., xv, 386.—Orizaba, Mex., and Brazil.

- approximata** WALKER, in Lord's "Naturalist in Vancouver Id. and British Col.," ii, 338, 1866.—Vancouver Id.
 AUSTEN, Annals and Mag. Nat. Hist., xv, 380, 382, type redesc.
 VAN DER WULP, Biologia, Dipt., ii, 2, oc. in Chihuahua, Mex., and Guatemala.
- atrox** CLARK, Essay on Bots, addenda, f. 5.—Mex.
 WALKER, List, iii, 683 (*terrisona*).—Guatemala.
 BRAUER, Mon. Cestrident., 241, 242 and 244, 245 (latter as *terrisona* WALK., reproducing Walker's desc.).—Mexico and Guatemala.
 VAN DER WULP, Biologia, Dipt., ii, 2 (*approximata* WALKER).—Chihuahua, Mex.
 AUSTEN, Annals and Mag. Nat. Hist., ser. 6, xv, 382, pl. XIII, f. 2, 2a, redesc. of Walker's type, above synonymy, etc.
- buccata** FABRICIUS, Genera Ins., 305, 1776; Mantissa Ins., 305; Ent. Syst., iv, 230; Syst. Antl., 227 (*Estrus*).—S. Carolina.
 WIEDEMANN, Auss. Zw., ii, 259 (*Trypoderma*).—N. A.
 OLIVIER, Encycl. Méthodique, viii, 404.
 MACQUART, Hist. Nat. Dipt., ii, 47.—N. A.; larvæ under skin of a species of hare.
 CLARK, Essay on Bots, 70, 4, pl. II, f. 29 (*purivora*).
 BRAUER, Mon. Cestrident., 249, pl. IV, f. 4; VI, f. 9.—Ky.; Pa.
 WALKER, List, iii, 683 (*horripilum* CLARK).—Nova Scotia.
 RATHYON, Amer. Entomologist, 1, 1869, 116, oc. of larvæ in a striped squirrel.
 LUGGER, 2d Rept. Ent. Minn., 1896, 229, fig., no desc. (*baccata*, by mistake).
 AUSTEN, Annals and Mag. Nat. Hist., 6th ser., xv, 384, notes and synonymy.
 Mass.—Harris; N. J.—Smith Cat.; Fla.—Johnson.
- cuniculi** CLARK, Trans. Linn. Soc., iii, 209; Essay on Bots, 70, pl. II, f. 26 (*Estrus*).—Ga.; larva under skin of rabbits.
 FABRICIUS, Syst. Antl., 230 (*Estrus*).—Ga.
 WIEDEMANN, Auss. Zw., ii, 256 (*Trypoderma*).—Ga.
 OLIVIER, Encycl. Méthodique, viii, 464.
 MACQUART, Hist. Nat. Dipt., ii, 47, pl. XIII, f. 17.—Ga.
 BRAUER, Mon. Cestrident., 240; doubts if it be different from *horripilum*.
 RILEY and HOWARD, Insect Life, v, 137, extract from correspondence, on this species affecting rabbits in Va. and Ind.
 Mass.—O. S. Cat.
- emasculator** FITCH, see *fontinella*.
- fontinella** CLARK, Trans. Linn. Soc., xv, 410.—Ill.
 FITCH, 2d N. Y. Report, 210; 3d Rept., Suppl., 478-485 (*emasculator*).—N. Y.; larva lives in scrotum of chipmunk, *Tamias striatus*.
 WALKER, List, iii, 683 (*americana* FABR.).—Nova Scotia.
 BRAUER, Mon. Cestrident., 232, abstract of Fitch; 242, quotes Clark.
 LINTNER, 2d N. Y. Report, 45 (*emasculator*).—N. Y.; same habits.
 RILEY and HOWARD, Insect Life, 1, 214, fig. of larva and notes (*emasculator*); occurs in other parts than the scrotum; probably affects several species of squirrels.
 VAN DER WULP, Biologia, Dipt., ii, 1, oc. at Presidio, Mex. (*emasculator*).
 AUSTEN, Annals and Mag. Nat. Hist., ser. 6, xv, 384, desc.; xvi, 152, notes and syn. of Walker.
 COQUILLET, Canad. Ent., xxx, 9, syn. of *emasculator*, from Fitch's type.

- funebri** AUSTEN, Annals and Mag. Nat. Hist., ser. 6, xv, 378, pl. xiii, f. 1, 1b.—Trinidad, W. I.; larva in Spiny Rat, *Loucheres Guianæ*. Quotes circular by Hart, Botanical Dept., Trinidad, on rearing the larvæ.
- histrio** COQUILLET, Proc. U. S. N. M., xxv, 103.—Guanaxuato, Mex.
- horripilum** CLARK, Essay on Bots, 70, pl. II, f. 27.—Savannah, Ga.
WIEDEMANN, AUSS. ZW., II, 257 (*Trypoderma*).—Ga.
WALKER, List, III, 683, oc. in Nova Scotia.
BRAUER, Mon. Œstriden, 235, pl. IV and VI.—N. Y., Ga.
LUGGER, 2d Rept. Ent. Minn., 1896, 229, fig., no desc.—Minn.
See also *cuniculi*.
- latifrons** COQUILLET, Canad. Ent., xxx, 10.—Los Angeles Co., Cal.
- leporivora** COQUILLET, Canad. Ent., xxx, 9, 10 (*Alepivora*).—Cal., Wyo.; bred from the cotton-tail rabbit.
JOHNSON, Ent. News, XII, 293, oc. at Beulah, N. M.
COQUILLET, Proc. U. S. N. M., xxv, 104, important addition to desc. Beulah, N. M.—Skinner.
- lepusculi** TOWNSEND, Psyche, 1897, 8, desc.; Psyche, 1892, 299, description of larva from cotton-tail rabbit; Insect Life, v, 319, refers larva to *fontinella* CLK.—New Mexico and Colorado.
AUSTEN, Annals and Mag. Nat. Hist., ser. 6, xv, 384, shows that Townsend's species is not *fontinella*.
- nitida** COQUILLET, Canad. Ent., xxx, 10.—Los Angeles Co., Cal.
TOWNSEND, Psyche, 1898, 268, oc. in N. M., and notes.
- polita** COQUILLET, Canad. Ent., xxx, 10.—National Park, Wyo.
- scutellaris** BRAUER, Mon. Œstriden, 230, pl. IV and VI.—N. A. Wash.—J. M. A.
- similis** JOHNSON, Trans. Amer. Ent. Soc., xxix, 101.—Beulah, N. M.
- sterilator** LUGGER, 2d Rept. Ent. Minn., 227-229, fig.—Minn.; larva supposed to live in scrotum of ground-squirrel, *Spermophilus tredecimlineatus*.
- tenebrosa** COQUILLET, Canad. Ent., xxx, 11.—Col., Cal., Ore.
Piedmont, S. D.—J. M. A.
- terrisona** WALKER, see *atrox*.

DERMATOBIA.

BRAUER, Verh. Zool.-Bot. Ges., 1860; Mon. Œstriden, 251, 1893

No North American species have been described. The following papers relate to this genus:

SAY, "On the South American species of *Œstrus*, which inhabits the Human Body," Jour. Acad. Sci. Phil., II, 354, 1822; Compl. Works, II, 32.

RUDOLPH MATAS, M.D., paper by, on species infesting man in New Orleans; reprinted, with figs., in Insect Life, I, 76.

OSBORN, Insect Life, I, 226, quotes another account from Miss.

TOWNSEND, Psyche, Aug., 1892, 299, describes a larva from *Lepus californicus*; afterward refers it to *Bogeria*, q. v.

TACHINIDÆ.

Notc.—The classification adopted follows closely that of Coquillett, Revision of the Tachinidæ, Bulletin of Division of Entomology, Technical series, No. 7, 1897. This work seems to embody a far clearer and more consistent idea of the genera than any other general work on the American species of the family. It includes, however, only the fauna of the United States, and that no farther than seen by the author. This has necessitated my adding a large number of

genera and species, which I have endeavored to distribute in accordance with the classification in the work mentioned. I cannot hope to have made a perfect success of this, considering the difficulty of the family.

The work of Brauer and Bergenstamm, Vorarbeiten zu einer Monographie der Muscaria schizometopa, forming parts iv, v and vi of the series called Zweiflügler des Kaiserlichen Museums zu Wien, is an elaborate and extensive work, characterized by a minute subdivision of the group into numerous so-called families, sections, super-genera, and genera. Although it shows an immense amount of patient and faithful study, it is vitiated by a failure to grasp the natural divisions between groups of the same category. Hence it must be used with caution, and much experience is necessary before one can judge of its authoritativeness in a particular case. The table contains many illusory characters, and the usefulness of the work is further marred by a succession of addenda, modifying the system in numerous parts, and making it still more difficult to follow.

The work of Townsend shows itself to have been powerfully influenced by the one just mentioned; hence there is a serious confusion of genera, and in some instances the same species is described several times under different genera, or in the same genus. The worst instance of this will be found under *Myiophasia anca*. This was not the result of carelessness but of a too narrow splitting up of genera and species, in the attempt to follow Brauer and Bergenstamm. The specific descriptions of Townsend are conscientious and faithful, and among the most recognizable of any in the family.

The extensive article by Van der Wulp on the Mexican and Central American fauna, published in vol. II of the Diptera in Biologia Centrali-americana, goes to the other extreme in the matter of genera, and the large genera in it are without exception heterogeneous collections, which can at present hardly be placed consistently in the system here adopted.

The descriptions by Bigot are in every way objectionable, almost always referred to the wrong genus, and seldom containing the essential data. Most fortunately, the types of nearly all the species have been examined by Brauer, who has elucidated them in accordance with his system in three articles in Sitzungs-berichten der Kaiserlichen Akademie der Wissenschaften (Mathematischen-Naturwissenschaftlichen Classe, Bd. CVI, CVII and CVIII). This makes it possible to arrange them fairly well in the present work.

The following tables of genera may be consulted:

- TOWNSEND, Proc. Ent. Soc. Wash., II, 92, 96; Trans. Amer. Ent. Soc., XIX, 134.
 VAN DER WULP, Biologia, Dipt., II, 5 and 41.
 COQUILLETT, Revision Tach., 30; this is most important.

The synonymy adopted by Coquillett in his Revision has been followed rather closely for the species included in that work, without giving credit in the references.

To facilitate reference through the index, I mention the following cases where the genus might not otherwise be found:

Argyrophylax rostrata Coq. has been placed in *Siphosturnia*.

Ceromasia Rond. is a synonym of *Masicera*; but only *chrysocephala* and *zonata* of Bigot have been placed there. His *abbreviata*, *pictigaster*, *quadrivittata* and *spinipes* will be found in *Hypostena*, while his *castanifrons* has been referred to *Prospheerysa*.

Chætolyga is a synonym of *Winthemia*; but the species of Bigot will be found under *Exorista*, *Hypostena*, *Phorocera* and *Winthemia*.

Dimorphomyia calliphoroides BIGOT, Bull. Soc. Ent. France, 1885, has been found on examination of the type to consist of the head of a Syrphid glued to the body of a Muscid. See BRAUER, Sitzungsbericht Kaiserl. Akad., VII, 14. We may say at least that it was admirably named!

Eggonia VAN DER WULP, mentioned by Brauer and Bergenstamm, Zweifl. Kaiserl. Mus., VI, 104, lacks a specific name for the type, and must have been a manuscript name on some of Van der Wulp's material.

Eurigaster MACQ. is a synonym of *Exorista*, but *E. septentrionalis* WALKER will be found under *Euphorocera claripennis*.

Fabricia DESV. is a synonym of *Echinomyia*, but Bigot's *F. infumata* will be found under *Archytas bicolor*.

Loewia EGGER; the species of Townsend all fall under *Myiophasia cæca*.

Lophosia setigena THOMSON has been placed under *Clausicella*.

Lydella doryphoræ RILEY will be found under *Phorocera*, although the genus is a synonym of *Exorista*.

Melanosphora diabroticæ SHIMER is a *Cclatoria*.

Micropalpus is a synonym of *Linnaemyia*, but some of the species are placed under *Epalpus* and *Cuphocera*.

Oplisa albifacies BIGOT is referred to *Pseudoceria* by Brauer, and *O. nigri-facies* to *Medina*.

Pachychæta jarowchewskyi PORTSCHINSKY, from Russian America, is listed by B. and B. among the material in the Vienna Museum; but I have found no other reference to it.

Phasia atripennis SAY is referred to *Xanthomelana*, and *jugatoria* to *Trichopoda pennipes*.

Podotachina americana B. B. is referred to *Tachina mella*, and *P. vibrissata* B. B. to *Euphorocera claripennis*.

Pseudogermaria georgiæ B. B. is referred to *Distichona*.

Ptilocera americana MACQ. is referred to *Phyto*.

Pyrrosia ochracea BIGOT is referred to *Æstrophasia*.

Siphoniomyia melas BIGOT is referred to *Trichophora analis*.

Thysanomyia inermis BIGOT, mentioned by Johnson, Dipt. of Florida, may be *Blepharipeza inermis*, but I am not certain.

The species of **Tryphera** described by Townsend all go in *Polidca*.

Viviana citrina BIGOT will be found under *Chatona longiseta*; *georgiæ* in *Biomyia*; and *rufopygata* in *Lcskia*.

Wahlbergia is a synonym of *Besseria*, but Townsend's *atripennis* is a *Xanthomelana*.

Xysta didyma LOEW is a *Clytiomyia*.

CISTOGASTER.

LATREILLE, in Cuvier's Règne Anim., v, 1829.

DESVOIDY, Myodaires, 239, 1830 (*Pallasia*).

SCHINER, Fauna Austr., I, 411, 1862.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 156, 157 (the latter as *Gymnoclytia*), 1893.

TOWNSEND, Canad. Ent., XXV, 166; Annals and Mag. Nat. Hist., XX, 284, table of species; both articles contain speculations on the synonymy of the genus.

VAN DER WULP, Biologia, Dipt., II, 445, 1903, table of Mexican species.

ferruginea VAN DER WULP, Tijdschr. v. Ent., XXXV, 187; Biologia, Dipt., II, 448.

—Guerrero and Tabasco, Mex.

- griseonigra** VAN DER WULP, Tijdschr. v. Ent., xxxv, 187; Biologia, Dipt., II, 447.
—Guerrero, Mex.
- hirticollis** VAN DER WULP, Tijdschr. v. Ent., xxxv, 187; Biologia, Dipt., II, 448.
—Guerrero, Mex.
- immaculata** MACQUART, Dipt. Exot., II, 3, 233 (76), pl. VIII, f. 7.—Carolina.
WALKER, List, IV, 692 (*Gymnosoma occidua*).—Nova Scotia.
LOEW, Cent., IV, 88 (*divisa*).—Conn.
WILLISTON, Trans. Amer. Ent. Soc., XIII, 296, female described (*divisa*).
—CONN., Kans., Col., Cal.
COQUILLET, Revis. Tachin., 43.—Canada to Texas and S. D.; Col., Cal.
TOWNSEND, Canad. Ent., XXII, 66; Annals and Mag. Nat. Hist., XIX, 31
and XX, 283. Notes on sexual differences, etc.
FORBES, Psyche, 1893, 466, bred from ?*Leucania unipuncta* HAW.
AXTON, N. Y.—M. and H.; Province of Quebec—Fyles.
- insularis** WILLISTON, Trans. Ent. Soc. Lond., 1896, 351.—St. Vincent, W. I.
- melanosoma** VAN DER WULP, Tijdschr. v. Ent., xxxv, 186; Biologia, Dipt., II,
446.—Guerrero, Mex.
- pallasii** TOWNSEND, Proc. Ent. Soc. Wash., II, 1891, 42.—S. D.
COQUILLET, Canad. Ent., XXX, 233, not seen.
Note.—The type looked to me like a melanic variety of *immaculata*.
- propinqua** VAN DER WULP, Tijdschr. v. Ent., xxxv, 187; Biologia, Dipt., II, 447.
—Guerrero, Mex.
- ruficornis** VAN DER WULP, Tijdschr. v. Ent., xxxv, 186; Biologia, Dipt., II, 446.
—Tabasco, Mex.
TOWNSEND, Canad. Ent., XXV, 166, would refer to *Gymnosoma filiola*—that
is, *G. fuliginosa* of this catalogue.
- subpetiolata** VAN DER WULP, Tijdschr. v. Ent., xxxv, 186; Biologia, Dipt., II,
446.—Vera Cruz, Mex.
- variegata** VAN DER WULP, Tijdschr. v. Ent., xxxv, 187; Biologia, Dipt., II, 449.
—Guerrero, Mex.
GIGLIO-TOS, Ditt. del Mess., III, 6, notes.—Orizaba, Mex.

GYMNOSOMA.

- MEIGEN, Illig. Mag., II, 278, 1803.
SCHINER, Fauna Austr., I, 499, 1862.
BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 153, 1893.
- fuliginosa** DESVOIDY, Myodaires, 237.—Carolina.
WALKER, List, IV, 692 (*par*).—Nova Scotia.
LOEW, Cent., X, 66 (*filiola*).—Texas.
COQUILLET, Rev. Tachin., 43.—N. H. to Cal.; Canada; La., etc.
Porto Rico—Roeder; N. M.—Townsend; Montreal—Chagnon; Axton, N.
Y.—M. and H.
- occidua** WALKER, see *Cistogaster immaculata*.

ELIOZETA.

- RONDANI, Dipt. Ital. Prod., I, 82, 1856.
BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 150, 1889; V, 388,
1891; VI, 157, 1893.
- americana** BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 407.—Ga.

PHORANTHA.

- RONDANI, Dipt. Ital. Prod., V, 21, 1862.
BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 149, 1899; VI,
157, 1893.

- COQUILLET, Revis. Tachin., 43, 1897.
- bidwelli** HINE, Ohio Naturalist, II, 220, 1902.—Baldwin, Kans.
- calyptrata** COQUILLET, Revis. Tachin., 44.—D. C., Va., Ky.
- fenestrata** BIGOT, Annales, 1888, 255 (*Alophora*).—Nev.
COQUILLET, Proc. U. S. N. M., xxv, 105, oc. at Moscow, Ida.
For the *Alophora fenestrata* of Coquillett's Revision, 46, see *A. splendida*.
- humeralis** ROBERTSON, see *occidentis*.
- nigrens** VAN DER WULP, Tijdschr. v. Ent., xxxv, 185 (*Hyalomyia*); Biologia, Dipt., II, 443 (id.).—Guerrero, Mex.
COQUILLET, Revis. Tachin., 43.—Los Angeles Co., Cal.
- occidentis** WALKER, Dipt. Saund., I, 260 (*Hyalomyia*).—U. S.
BIGOT, Annales, 1888, 255 (*Alophora luctuosa*).—Nevada.
TOWNSEND, Proc. Ent. Soc. Wash., II, 130 (*Hyalomyia punctigera*, *aldrichi*, *robertsonii* and *purpurascens*); Trans. Amer. Ent. Soc., xxii, 65 (*H. celer*); Annals and Mag. Nat. Hist., xx, 32 (*H. violascens*).—Va., S. D., Ill., N. M., and San Rafael, Vera Cruz, Mex.
COQUILLET, Revis. Tachin., 44.—Ft. McLeod, British Amer. to Mex.; Md. to Cal.
ROBERTSON, Canad. Ent., xxxiii, 285 (*pruinosa* and *humeralis*).—Carlinville, Ill. [J. M. A.]
Note.—I examined Townsend's types, except *violascens*, and agree with Mr. Coquillett in the above synonymy.
- pruinosa** ROBERTSON, see *occidentis*.

ALOPHORA.

- DESVOIDY, Myodaires, 293, 1830; op. cit., 298 (*Hyalomyia*).
- SCHINER, Fauna Austr., I, 401, 1862.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 149, 1883; VI, 157, 1893.
- HINE, Ohio Naturalist, II, 220, note on habits of this and *Phorantha*.
- VAN DER WULP, Biologia, Dipt., II, 440, 1903, table of Mexican species (*Hyalomyia*).
- Note.—Some of the species published under *Hyalomyia* will be found under *Phorantha* and *Hyalomyodes*.
- æneoventris** WULLISTON, Trans. Amer. Ent. Soc., XIII, 296 (*Hyalomyia*).—Wash.
COQUILLET, Revis. Tachin., 45.—Wash., Ida., N. H., Va.
N. J.—Smith Cat.
- argenteiceps** VAN DER WULP, Tijdschr. v. Ent., xxxv, 185 (*Hyalomyia*); Biologia, Dipt., II, 442 (id.).—Guerrero, Mex.
- diversa** COQUILLET, Revis. Tachin., 45.—Mass.; Oswego, N. Y.
- ecitonis** TOWNSEND, Annals and Mag. Nat. Hist., xx, 30 (*Hyalomyia*).—Vera Cruz, Mex.; hovering over an army of ants, *Eciton forcli*, and supposed to be parasitic on them.
- fenestrata** BIGOT, see *Phorantha*.
- fumosa** COQUILLET, Revis. Tachin., 46.—N. J., Va.
- grandis** COQUILLET, Revis. Tachin., 45.—Lufkin, Tex.; So. Ill.
- hebes** VAN DER WULP, Tijdschr. v. Ent., xxxv, 185 (*Hyalomyia*); Biologia, Dipt., II, 441 (id.).—Vera Cruz and Tabasco, Mex.
- luctuosa** BIGOT, see *Phorantha occidentis*.
- moerens** VAN DER WULP, Tijdschr. v. Ent., xxxv, 186 (*Hyalomyia*); Biologia, Dipt., II, 443 (id.).—Guerrero, Mex.

- munda** VAN DER WULP, Tijdschr. v. Ent., xxxv, 185 (*Hyalomyia*); Biologia, Dipt., II, 441, pl. XIII, f. 9 (id.).—Vera Cruz and Guerrero, Mex.
- nitida** COQUILLET, Revis. Tachin., 45.—Potomac Cr., Va.; Sherbrooke, Canada.
- ochriceps** VAN DER WULP, Tijdschr. v. Ent., xxxv, 185 (*Hyalomyia*); Biologia, Dipt., II, 442 (id.).—Guerrero, Mex.
- opaca** COQUILLET, Revis. Tachin., 44.—E. Wash.
- phasioides** COQUILLET, Revis. Tachin., 46.—Franconia, N. H.
- piceipes** VAN DER WULP, Tijdschr. v. Ent., xxxv, 186 (*Hyalomyia*); Biologia, Dipt., II, 443 (id.).—Guerrero, Mex.
- pulverea** COQUILLET, Revis. Tachin., 46.—Grimsby, Canada.
- splendida** COQUILLET, Proc. U. S. N. M., xxv, 105, footnote; Revis. Tachin., 46 *fenestrata* BIGOT.—N. H.
- subopaca** COQUILLET, Revis. Tachin., 47.—Woodbury, N. J.
- umbrifera** VAN DER WULP, Tijdschr. v. Ent., xxxv, 186 (*Hyalomyia*); Biologia, Dipt., II, 444 (id.).—Guerrero, Mex.
- umbrosa** VAN DER WULP, Tijdschr. v. Ent., xxxv, 186 (*Hyalomyia*); Biologia, Dipt., II, 444, pl. XIII, f. 10 (id.).—Guerrero, Mex.
- villosa** VAN DER WULP, Tijdschr. v. Ent., xxxv, 185 (*Hyalomyia*); Biologia, Dipt., II, 441 (id.).—Orizaba, Mex.

HIMANTOSTOMA.

- LOEW, Cent., iv, 87, 1863.
- sugens** LOEW, Cent., iv, 87.—Ill.

EUSCOPOLIA.

- TOWNSEND, Trans. Amer. Ent. Soc., XIX, 123, 1892.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 199, 1893.
- dakotensis** TOWNSEND, Trans. Amer. Ent. Soc., XIX, 123.—Brookings, S. D.

TRICHOPODA.

- LATREILLE, in Cuvier's Règne Anim., v, 512, 1829.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 147, 1889; VI, 155, 1893.
- COQUILLET, Revis. Tachin., 47, 1897.
- TOWNSEND, Ent. News, IV, 69, range and distribution of the genus; Proc. Ent. Soc. Wash., II, 137, numerous notes; Annals and Mag. Nat. Hist., XX, 273, notes and table of N. A. species.
- VAN DER WULP, Biologia, Dipt., II, 434, 1903, table of Mex. species.
- alipes** VAN DER WULP, Tijdschr. v. Ent., xxxv, 183, and Biologia, Dipt., II, 435.—Guerrero, Mex.
- cilipes** WIEDEMANN, Auss. Zweifl., II, 276, change of name and desc.
- FABRICIUS, Syst. Antl., 219 (*Thereva pennipes*).—Carolina.
- TOWNSEND, Proc. Ent. Soc. Wash., II, 140 (*aurantiaca*).—Va.
- COQUILLET, Revis. Tachin., 48.—Mass., D. C., Va., Ga., Fla., Mo., Kans., Tex.
- N. J.—Smith Cat.
- flava** ROEDER, Stett. Ent. Zeit., 1885, 343.—Porto Rico.
- TOWNSEND, Proc. Ent. Soc. Wash., II, 139, brief desc.
- formosa** WIEDEMANN, see *lanipes*.
- histrion** WALKER, see *plumipes*.
- lanipes** FABRICIUS, Syst. Antl., 220 (*Thereva*), male.—Carolina.
- WIEDEMANN, Auss. Zweifl., II, 268 and 270 (*lanipes* FABR., male, and *formosa*, female).—Carolina and Georgia.

- LOEW, *Cent.*, iv, 89 (*radiata*).—D. C.
 TOWNSEND, *Proc. Ent. Soc. Wash.*, ii, 138 (*radiata* Lw.)
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, v, 412, syn. of *formosa*.
 JOHNSON, *Ent. News*, xii, 294, same.
 GIGLIO-TOS, *Ditt. del Mess.*, iii, 6, oc. at Cuautla, Mex.
 COQUILLET, *Revis. Tachin.*, 47.—Fla.; Waco, Tex.; Col.
 COQUILLET, *Revis. Tachin.*, 48 (*formosa*).—D. C.; Waco, Tex.; Tehuantepec, Mex.
 TOWNSEND, *Annals and Mag. Nat. Hist.*, xx, 270, etc., varieties of *formosa* and *lanipes* in Mexico.
 VAN DER WULP, *Biologia. Dipt.*, ii, 434.—Mex., several places.
- mexicana** MACQUART, *Dipt. Exot., Suppl.*, i, 172.—Mex.
nigricauda BIGOT, *Annales*, 1876, 394.—Mex.
 BRAUER, *Sitzungsbericht K. Akad.*, cvii, 16, note, "related to *ciliata* F."
nigripes VAN DER WULP, *Tijdschr. v. Ent.*, xxxv, 184; *Biologia. Dipt.*, ii, 436.—Guerrero, Mex.
nitidiventris VAN DER WULP, *Tijdschr. v. Ent.*, xxxv, 183; *Biologia. Dipt.*, ii, 435.—Atoyac, Mex.
pennipes FABRICIUS, *Ent. Syst.*, iv, 348 (*Musca*); *Syst. Antl.*, 219 (*Thereva hirtipes* and *pennipes*); l. c., 315 (*Ocyptera ciliata*).—Carolina; Carolina; N. A.
 WIEDEMANN, *Auss. Zweifl.*, ii, 272, 273, 274 (*pyrrhogaster. ciliata*, and *pennipes*).—S. A. ?; S. A.; N. A.
 SAY, *Jour. Acad. Sci. Phil.*, vi, 172; *Compl. Works*, ii, 364 (*Phasia jugatoria*).—Indiana.
 DESVOIDY, *Myodaires*, 285 (*haitensis*).—Hayti. [Roeder.]
 GIGLIO-TOS, *Ditt. del Mess.*, iii, 6, oc. in Orizaba and Cuernavaca, Mex. (*pyrrhogaster*). Also p. 7, oc. in Presidio and Orizaba, Mex. (*pennipes*).
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, v, 412 (*pennipes* is the male, *ciliata* and *pyrrhogaster* the female).
 WILLISTON, *Trans. Ent. Soc. Lond.*, 1896, 352, pl. xi, f. 100, oc. in St. Vincent, W. I.
 COQUILLET, *Revis. Tachin.*, 48.—Grimsby, Canada, to Mexico; Fla. to S. Cal.; bred from *Anasa tristis* DEG.
 TOWNSEND, *Annals and Mag. Nat. Hist.*, xx, 279.—Vera Cruz, Mex.
 CHITTENDEN, *Bull.*, 33, n. ser., Div. of Ent., 25, fig., reared from *Leptoglossus oppositus*.
 VAN DER WULP, *Biologia. Dipt.*, ii, 434, oc. Orizaba and N. Yucatan; notes.
 Guadeloupe—Wulp; Fla.—Johnson; N. J.—Smith Cat.; Porto Rico—Roeder.
- phasiana** TOWNSEND, *Annals and Mag. Nat. Hist.*, xx, 282.—Vera Cruz, Mex.
pilipes FABRICIUS, *Syst. Antl.*, 220 (*Thereva*).—S. A.
 WIEDEMANN, *Auss. Zweifl.*, ii, 272.—S. A.
 PERTY, *Delectus Anim. art. Brasil.*, 186, pl. xxxvii, f. 5.—Brazil.
 TOWNSEND, *Annals and Mag. Nat. Hist.*, xx, 279 (var. of *pennipes*).—Vera Cruz, Mex.
 VAN DER WULP, *Biologia. Dipt.*, ii, 437.—Mexico, several places
- plumipes** FABRICIUS, *Syst. Antl.*, 220 (*Thereva*).—Carolina.
 WIEDEMANN, *Auss. Zweifl.*, ii, 277.
 WALKER, *List.*, iv, 697 (*histrice*).—No locality.

LOEW, Cent., IV, 90 (*trifasciata*).—Com.

COQUILLET, Revis. Tachin., 48.—D. C.: Texas; Napa Co., Cal.; bred from *Dissosteira venusta* STAL.

N. J.—Smith Cat.; Inverness, Fla.—Johnson.

pyrrhogaster WIEDEMANN, see *pennipes*.

squamipes VAN DER WULP, Tijdschr. v. Ent., XXXV, 184; Biologia, Dipt., II, 436, pl. XIII, f. 7.—Guerrero, Mex.

subciliipes TOWNSEND, Jour. N. Y. Ent. Soc., II, 78.—San Domingo.

tegulata TOWNSEND, Annals and Mag. Nat. Hist., XIX, 29; op. cit., 439, notes.—Vera Cruz, Mex.; N. Yucatan, etc.

ACAULONA.

VAN DER WULP, Biologia, Dipt., II, 4, 1888.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 388, 1891; VI, 156, 1893.

costata VAN DER WULP, Biologia, Dipt., II, 4, pl. III, f. 1.—Orizaba, Mex.

GIGLIO-TOS, Ditt. del Mess., III, 7, oc. in Orizaba, and notes.

TOWNSEND, Annals and Mag. Nat. Hist., XIX, 29, near Vera Cruz.

HOMOGENIA.

VAN DER WULP, Tijdschr. v. Ent., XXXV, 184, 1892; Biologia, Dipt., II, 437, 1903, table of species.

TOWNSEND, Canad. Ent., XXV, 166, 1893.

latipennis VAN DER WULP, Tijdschr. v. Ent., XXXV, 184; Biologia, Dipt., II, 438, pl. XIII, f. 8.—Guerrero, Vera Cruz and Jalisco, Mex.

nigroscutellata VAN DER WULP, Tijdschr. v. Ent., XXXV, 184; Biologia, Dipt., II, 439.—Guerrero, Mex.

rufipes VAN DER WULP, Tijdschr. v. Ent., XXXV, 184; Biologia, Dipt., II, 438.—Guerrero and N. Yucatan, Mex.

GYMNOPHANIA.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 143, 1889; VI, 154, 1893.

montana COQUILLET, Revis. Tachin., 50.—White Mts., N. H.

HEMITHRIXION.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 357, 1891; VI, 157, 1893.

œstriforme BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 357.—Col.

MYIOPHASIA.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 362, 1891; VI, 170, 1893.

TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 369.—Dec., 1891—(*Phasioclista*); I. c., 371 (*Ennyomma*).

COQUILLET, Revis. Tachin., 50, 1897, pt. desc.

ænea WIEDEMANN, Auss. Zweifl., II, 298 (*Tachina*).—Montevideo, S. A.

DESVOIDY, Myodaires, 288 (*Clytia atra*).—Carolina.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 362.—Montevideo, S. A., and Ga., N. A.

TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 370 (*Phasioclista metallica*); p. 371 (*Ennyomma clistoides*); Canad. Ent., XXIV, 77 (*Læwia ruficornis*

and *nigrifrons*); p. 78 (*Clytia americana*): Ent. News, III, 129 (*Larva globosa*).—Ill. and Fla.; Ill.; Mich.; Ill.; Ill.; Fla.

COQUILLET, Revis. Tachin., 50, syn., etc.—N. H., Mass., Ga., Fla., Col., N. M.; reared from *Balaninus nasicus* SAY, *Chalcodermus* sp., and *Conotrachelus juglandis* LEC.

WEBSTER, Ent. News, x, 53, fig., and records rearing from *Ampelogypter sesostris*, a snout-beetle making galls on the grape-vine.

N. J.—Smith Cat.; White Mts., N. H.—Slosson; Fla.—Johnson; Beulah, N. M.—Skinner.

Note.—I examined Townsend's types, and agree with Coquillett in the synonymy.

robusta COQUILLET, Revis. Tachin., 50.—Los Angeles Co., Cal.; bred from larva of *Sphenophorus robustus* HORN.

MERIANIA.

DESVOIDY, Myodaires, 69, 1830.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 112, 1893.

COQUILLET, Proc. U. S. N. M., XXV, 119, 1902, note.

chalybæa COQUILLET, Proc. U. S. N. M., XXV, 119.—N. Idaho, several places.

PHYTO.

DESVOIDY, Myodaires, 218, 1830.

RONDANI, Dipt. Ital. Prod., IV, 140, 1861 (*Sarvia*).

? **americana** MACQUART, Hist. Nat. Dipt., II, 173 (*Ptilocera*).—Philadelphia.

OSTEN SACKEN, Catalogue, 155, note on genus, referring doubtfully to *Phyto*.

clesides WALKER, List, IV, 757 (*Tachina*).—N. A.

COQUILLET, Jour. N. Y. Ent. Soc., III, 99 (*setosa*); Revis. Tachin., 51, syn. and brief desc.—N. Ill. and Mo.

nigricornis TOWNSEND, see *Leucostoma senilis*.

senilis TOWNSEND, see *Leucostoma*.

MAUROMYIA.

COQUILLET, Revis. Tachin., 51, 1897.

pulla COQUILLET, loc. cit.—White Mts., N. H.

CRYPTOMEIGENIA.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 311, 1891.

TOWNSEND, Trans. Amer. Ent. Soc., XIX, 120, 1892 (*Emphanopteryx*).

theutis WALKER, List, IV, 778 (*Tachina*); 780 (*Tachina prisca*).—Nova Scotia.

TOWNSEND, Trans. Amer. Ent. Soc., XIX, 121 (*Emphanopteryx cumyothyroides*).—N. Y.

COQUILLET, Revis. Tachin., 52.—Toronto, Canada; N. H., Mass., N. Y., D. C., and Ill.; bred from *Lachnosterna inversa* HORN.

N. J.—Smith Cat.; Montreal—Chagnon; Axton, N. Y.—M. and H.

MEIGENIELLA.

COQUILLET, Proc. U. S. N. M., XXV, 104, 1902.

hinei COQUILLET, loc. cit.—Hanging Rock, Ohio.

CERATOMYIELLA.

TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 370, 1891.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 189, 1893.

- conica* TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 380.—Carlville, Ill.
COQUILLET, Revis. Tachin., 52.—D. C., S. Ill., Ga. N. J.—Smith Cat.

LASIONA.

- VAN DER WULP, Biologia, Dipt., II, 127, 1890.
multisetosa VAN DER WULP, Biologia, Dipt., II, 128, pl. III, f. 20, 20a.—Costa Rica.

EULASIONA.

- TOWNSEND, Trans. Amer. Ent. Soc., XIX, 119, 1892.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 199, 1893.
 COQUILLET, Revis. Tachin., 52, brief desc., 1897.
comstocckii TOWNSEND, Trans. Amer. Ent. Soc., XIX, 120.—Ithaca, N. Y.
 COQUILLET, Revis. Tachin., 52.—N. Y., N. H., Ga.
setigena COQUILLET, Revis. Tachin., 53.—Opelousas, La.
spinosa COQUILLET, Revis. Tachin., 52.—Ft. Wrangel, Alaska.

ADMONTIA.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 104, 1889; VI, 150, 1893.
 COQUILLET, Revis. Tachin., 53, additional notes, 1897.
 VAN DER WULP, Biologia, Dipt., II, 484, 1903.
americana BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 410, listed, but not described.—N. A. See VAN DER WULP, Biologia, Dipt., II, 484.
degeerioides COQUILLET, Jour. N. Y. Ent. Soc., III, 58 (*Hypostena*); Revis. Tachin., 54.—N. H., Mass., D. C., Ill., Ga. Montreal—Chagnon; N. J.—Smith Cat.
demylus WALKER, List, IV, 779 (*Tachina*).—N. A.?
 COQUILLET, Revis. Tachin., 53.—Md., D. C., Va.; bred from *Lophyrus abbottii* and *L. lecontei* FITCH. N. J.—Smith Cat.; Fla.—Johnson.
hylotomæ COQUILLET, Canad. Ent., XXX, 233.—Wood's Hole, Mass.; bred from *Hylotoma humeralis* BEAUV.
limata COQUILLET, Proc. U. S. N. M., XXV, 105.—Moscow, Idaho.
nasoni COQUILLET, Jour. N. Y. Ent. Soc., III, 55; Rev. Tachin., 53.—N. Ill.
occidentalis VAN DER WULP, Tijdschr. v. Ent., XXXV, 195; Biologia, Dipt., II, 485.—Guerrero, Mex.
pergandei COQUILLET, Jour. N. Y. Ent. Soc., III, 54; Revis. Tachin., 54.—Mass., D. C., Miss. N. J.—Smith Cat.
polita COQUILLET, Canad. Ent., XXX, 234.—N. Y., Fla.
retiniæ COQUILLET, Revis. Tachin., 54.—Alameda, Cal.; bred from chrysalids of *Retinia* sp.
tarsalis COQUILLET, Canad. Ent., XXX, 234.—Opelousas, La.
unispinosa COQUILLET, Canad. Ent., XXX, 234.—Opelousas, La.

PARADMONTIA.

- COQUILLET, Proc. U. S. N. M., XXV, 106, 1902.
brevis COQUILLET, loc. cit.—Biscayne Bay, Fla.

RHINOPHORA.

- DESVOIDY, Myodaires, 258, 1830.
 SCHINER, Fauna Austr., I, 545, 1862.
 VAN DER WULP, Biologia, Dipt., II, 205, 1890.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 161, 1893.

lævigata VAN DER WULP, *Biologia*, Dipt., II, 205, pl. IV, f. 17, 17a.—Vera Cruz, Mex.

GIGLIO-TOS, *Ditt. del Mess.*, III, 53, oc. in Mex.

mexicana TOWNSEND, *Trans. Amer. Ent. Soc.*, XXIV, 168.—Las Cruces, N. M.

valida TOWNSEND, *Trans. Amer. Ent. Soc.*, XXIV, 167.—Las Cruces, N. M.

SARCOCLISTA.

TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 122, 1892.

dakotensis TOWNSEND, *loc. cit.*—Brookings, S. D.

CLISTA.

MEIGEN, *Syst. Besch.*, VII, 208, 1838.

SCHINER, *Fauna Austr.*, I, 541, 1862.

americana TOWNSEND, see *Myiophasia canca*.

muscæformis VAN DER WULP, *Biologia*, Dipt., II, 207, pl. IV, f. 18, 18a.—Vera Cruz, Mex.

MEDINA.

DESVOIDY, *Myodaires*, 138, 1830.

MEIGEN, *Syst. Besch.*, VII, 240, 1838 (*Degeeria*).

BRAUER and BERGENSTAMM, *Zweiff. d. Kaiserl. Mus.*, IV, 106 (*Amedoria*): V, 356, syn.

VAN DER WULP, *Biologia*, Dipt., II, 150, 1890, table of Mexican spp. (*Degeeria*).

COQUILLET, *Revis. Tachin.*, 55, 1897.

albomarginata VAN DER WULP, *Biologia*, Dipt., II, 155 (*Degeeria*).—Morelos and Orizaba, Mex.

? *anthracina* BIGOT, *Annales*, 1888, 259 (*Degeeria*).—Mex.

GIGLIO-TOS, *Ditt. del Mess.*, III, 47 (id.).—Mex.

BRAUER, *Sitzungsbericht k. Akad.*, CVI, 35, notes on type, genus doubtful.

basalis VAN DER WULP, *Biologia*, Dipt., II, 152 (*Degeeria*).—Guerrero, Mex.

? *compressa* VAN DER WULP, *Biologia*, Dipt., II, 152, pl. IV, f. 9, 9a (*Degeeria*).—Guerrero and Vera Cruz, Mex.

BRAUER, *Sitzungsbericht k. Akad.*, CVI, 34, doubts generic position; probably same genus as *cora* BIGOT.

? *cora* BIGOT, *Annales*, 1888, 259 (*Degeeria*).—Mex.

BRAUER, *Sitzungsbericht k. Akad.*, CVI, 34, type redesc.; genus doubtful.

cruralis GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 158, 1893; *Ditt. del Mess.*, III, 49 (both *Degeeria*).—Mex.

dicax GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 158, 1893; *Ditt. del Mess.*, III, 49 (both *Degeeria*).—Mex.

hyalinipennis VAN DER WULP, *Biologia*, Dipt., II, 152 (*Degeeria*).—Guerrero, Mex.

insecta GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 158, 1893; *Ditt. del Mess.*, III, 48 (both *Degeeria*).—Mex.

lateralis MACQUART (*Degeeria*), see *Mctopia leucocephala*.

leucocycla VAN DER WULP, *Biologia*, Dipt., II, 154 (*Degeeria*).—Guerrero and Vera Cruz, Mex. St. Augustine and Tick Id., Fla.—Johnson.

longifacies B. B., see *nigrifacies*.

longipes VAN DER WULP (*Degeeria*), see *nigrifacies*.

magnicornis VAN DER WULP, *Biologia*, Dipt., II, 153 (*Degeeria*).—Vera Cruz and Guerrero, Mex.

mexicana GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 158, 1893; *Ditt. del Mess.*, III, 46 (both *Degeeria*).—Orizaba, Mex.

- monochroma** VAN DER WULP, *Biologia, Dipt.*, II, 154 (*Degeeria*).—Vera Cruz, Mex.
- nervosa** VAN DER WULP, *Biologia, Dipt.*, II, 155 (*Degeeria*).—Guerrero, Mex.
- nigrifacies** BIGOT, *Annales*, 1888, 268 (*Oplisa*).—Mex.
- VAN DER WULP, *Biologia, Dipt.*, II, 155 (*Deg. longipes*); 264, synonymy. —Omitteme, Mex.
- BRÄUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, v, 356, note (*Degeeria longifacies*).
- nigriventris** WILLISTON, *Trans. Ent. Soc. Lond.*, 1896, 359, pl. XI, f. 96 (*Degeeria*).—St. Vincent, W. I.
- ? **nigrocostalis** VAN DER WULP, *Biologia, Dipt.*, II, 151, pl. IV, f. 10 (*Degeeria*).—Guerrero and Orizaba, Mex.
- BRÄUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, VI, 183, doubt generic position.
- nitidiuscula** VAN DER WULP, *Biologia, Dipt.*, II, 151 (*Degeeria*).—Guerrero, Mex.
- washingtonæ** COQUILLET, *Jour. N. Y. Ent. Soc.*, III, 104 (*Degeeria*); *Revis. Tachin.*, 55.—Mt. Washington, N. H.

SCHIZOTACHINA.

- WALKER, *Dipt. Saund.*, 61, 1856.
- convecta** WALKER, *Dipt. Saund.*, 276 (*Tachina*); 277 (*Tachina exul*).—U. S.
- COQUILLET, *Revis. Tachin.*, 55.—Mass., Tex., Col.

CLAUSICELLA.

- RONDANI, *Dipt. Ital. Prod.*, I, 61, 1856.
- BRÄUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, VI, 144, 1893 (*Argyromima*).
- COQUILLET, *Revis. Tachin.*, 55, additional desc., 1897.
- johnsoni** COQUILLET, *Revis. Tachin.*, 55.—Natrona, Penn.
- setigera** THOMSON, *Eugenies Resa*, 527 (*Lophosia*).—Cal.
- BRÄUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, v, 408, refer to *Argyromima*.
- COQUILLET, *Jour. N. Y. Ent. Soc.*, III, 56 (*antennalis*); *Rev. Tachin.*, 56.—S. Cal. and Wyoming.
- tarsalis** COQUILLET, *Jour. N. Y. Ent. Soc.*, III, 56; *Revis. Tachin.*, 56.—N. H., Md., Ill. White Mts., N. H.—Slosson.
- usitata** COQUILLET, *Revis. Tachin.*, 56.—White Mts., N. H., and Mass.

NEÆRA.

- DESVOIDY, *Myodaires*, 84, 1830.
- BRÄUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, IV, 103, 1889; VI, 98, 1893.
- longicornis** COQUILLET, *Proc. U. S. N. M.*, XXV, 106.—Oswego, N. Y.

PLECTOPS.

- COQUILLET, *Revis. Tachin.*, 57, 1897.
- melissopodis** COQUILLET, loc. cit.—D. C. and Kirkwood, Mo.; bred from *Melissopus latiferrcana* WLSM.

LISPIDEA.

- COQUILLET, *Jour. N. Y. Ent. Soc.*, III, 51, 1895; *Revis. Tachin.*, 51, 1897.
- palpiger** COQUILLET, *Jour. N. Y. Ent. Soc.*, III, 51; *Revis. Tachin.*, 57.—Canada and N. Ill.

THRYPTOCERA.

MACQUART, Hist. Nat. Dipt., II, 87, 1835.

DESVOIDY, Annales Soc. Ent. France, 1851, 184 (*Herbstia*, prooc.).

VAN DER WULP, Biologia, Dipt., II, 127, notes, 1890.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 150, 1843; p. 187, agree with Desvoidy, Dipt. Env. Paris, I, 722, in making this a synonym of *Actia*.

americana TOWNSEND, see *Actia pilipennis*.

atripes COQUILLET, Revis. Tachin., 58.—New Bedford, Mass.

Beulah, N. M.—Skinner.

dunningii COQUILLET, see *Hypostena*.

flavipes COQUILLET, Revis. Tachin., 58; Proc. Wash. Acad. Sci., II, 438, oc. in Alaska.

White Mts., N. H.

ANISIA.

VAN DER WULP, Biologia, Dipt., II, 186, 1890, def. and table of Mexican species.

aberrans VAN DER WULP, Biologia, Dipt., II, 198.—Guerrero, Mex.

accedens VAN DER WULP, Biologia, Dipt., II, 196.—Guerrero, Mex.

aegrota VAN DER WULP, Biologia, Dipt., II, 192.—Sierra de las Aguas Escondidas, Mex.

albifrons VAN DER WULP, see *Pseudodeciva*.

approximata VAN DER WULP, Biologia, Dipt., II, 202.—Guerrero, Mex.

candicans VAN DER WULP, Biologia, Dipt., II, 194.—Morelos, Mex.

ciliata VAN DER WULP, Biologia, Dipt., II, 203.—Morelos, Mex.

cineraria VAN DER WULP, Biologia, Dipt., II, 189.—Guerrero, Mex.

congerens VAN DER WULP, Biologia, Dipt., II, 194.—Guerrero, Mex.

conspicua VAN DER WULP, Biologia, Dipt., II, 199.—Guerrero, Mex.

fatua VAN DER WULP, Biologia, Dipt., II, 197.—Guerrero, Mex.

fulvipennis VAN DER WULP, Biologia, Dipt., II, 190, pl. IV, f. 15, 15a.—Guerrero and Tabasco, Mex.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 356, note.

gagatina VAN DER WULP, Biologia, Dipt., II, 201.—Guerrero, Mex.

inepta VAN DER WULP, Biologia, Dipt., II, 195.—Guerrero, Mex.

infima VAN DER WULP, Biologia, Dipt., II, 204.—Guerrero, Mex.

inflexa VAN DER WULP, Biologia, Dipt., II, 188.—Guerrero, Mex.

intrusa VAN DER WULP, Biologia, Dipt., II, 193.—Guerrero, Mex.

macroptera VAN DER WULP, Biologia, Dipt., II, 198.—Mexico City.

misella VAN DER WULP, Biologia, Dipt., II, 204.—Guerrero, Mex.

mionella VAN DER WULP, Biologia, Dipt., II, 195.—Guerrero, Mex.

mucorea VAN DER WULP, Biologia, Dipt., II, 199.—Guerrero and Morelos, Mex.

neglecta VAN DER WULP, Biologia, Dipt., II, 191.—Guerrero, Mex.

nigella VAN DER WULP, Biologia, Dipt., II, 193.—Tabasco, Mex.

GIGLIO-TOS, Ditt. del Mess., III, 51, note.—Mex.

nigrithorax VAN DER WULP, Biologia, Dipt., II, 197.—Vera Cruz and Tabasco, Mex.

nigrocincta VAN DER WULP, Biologia, Dipt., II, 201.—Guerrero, Mex.

niveomarginata VAN DER WULP, Biologia, Dipt., II, 200.—Guerrero, Mex.

obscurifrons VAN DER WULP, Biologia, Dipt., II, 197.—Tabasco, Mex.

opaca VAN DER WULP, Biologia, Dipt., II, 200.—Guerrero, Mex.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 356, "related to *Gymnostylia*."

- GIGLIO-TOS, Ditt. del Mess., III, 52, oc. at Coscom, Mex.
ophthalmica VAN DER WULP, Biologia, Dipt., II, 203.—Guerrero, Mex.
pallidipalpis VAN DER WULP, Biologia, Dipt., II, 190.—Tabasco, Mex.
palposa VAN DER WULP, Biologia, Dipt., II, 202.—Vera Cruz, Mex.
peregrina VAN DER WULP, Biologia, Dipt., II, 196.—Guerrero, Mex.
pulicaria VAN DER WULP, Biologia, Dipt., II, 191.—Orizaba, Mex.
pullata VAN DER WULP, Biologia, Dipt., II, 195.—Guerrero, Mex.
remissa VAN DER WULP, Biologia, Dipt., II, 201.—Guerrero, Mex.
rubripes VAN DER WULP, Biologia, Dipt., II, 189.—Vera Cruz, Mex.
ruficoxa VAN DER WULP, Biologia, Dipt., II, 190.—Tabasco, Mex.
signata VAN DER WULP, Biologia, Dipt., II, 193.—Vera Cruz, Mex.
similis VAN DER WULP, Biologia, Dipt., II, 203.—Guerrero, Mex.
stifida VAN DER WULP, Biologia, Dipt., II, 192.—Guerrero, Mex.
triflata VAN DER WULP, Biologia, Dipt., II, 192.—Guerrero, Mex.
umbrina VAN DER WULP, Biologia, Dipt., II, 200.—Tabasco, Mex.
vanderwulpi TOWNSEND, ENT. NEWS, III, 81.—Jamaica.

EURYCEROMYIA.

- TOWNSEND, Trans. Amer. Ent. Soc., XIX, 115, 1892.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 198, 1893.
robertsonii TOWNSEND, Trans. Amer. Ent. Soc., XIX, 115.—S. III.

SPHÆRINA.

- VAN DER WULP, Biologia, Dipt., II, 205, 1890.
nitidula VAN DER WULP, loc. cit., pl. IV, f. 16, 16a.—Tabasco, Mex.

ACTIA.

- DESVOIDY, Myodaires, 85 and 86 (*Actia* and *Ceromya*), 1830.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 103, 1889 (*Gymnopaeria*); VI, 226 and 228, syn., 1893.
 COQUILLET, Revis. Tachin., 58, note, 1897.
palloris COQUILLET, Jour. N. Y. Ent. Soc., III, 50 (*Lasioncura*); Revis. Tachin., 58.—White Mts., N. H.
pilipennis FALLÉN, Dipt. Suec. Muscides, 18, 1820 (*Tachina*).—Europe.
 MEIGEN, Syst. Besch., IV, 352 (*Tachina*).
 SCHINER, Fauna Austr., I, 518 (*Thryptocera*).
 ZETTERSTEDT, Dipt. Scand., III, 1045 (*Tachina*).
 TOWNSEND, Canad. Ent., XXIV, 69 (*Thryptocera americana*).—D. C.
 COQUILLET, Revis. Tachin., 59.—White Mts., N. H.; D. C.; So. Ill.; Germany.
 N. J.—Smith Cat.

LASIONEURA.

- COQUILLET, Jour. N. Y. Ent. Soc., III, 50, 1895.
johnsoni COQUILLET, Jour. N. Y. Ent. Soc., III, 50; Revis. Tachin., 59.—Santa Cruz Co., Cal.; Wash. Beulah, N. M.—Skinner.
palloris COQUILLET, see *Actia*.

CHÆTOPHLEPS.

- COQUILLET, Jour. N. Y. Ent. Soc., III, 51, 1895.
nebulosa COQUILLET, of Smith's New Jersey Catalogue, probably refers to *Sciasma nebulosa*, q. v.

- polita** COQUILLET, Proc. U. S. N. M., xxv, 107.—Brookings, S. D.
rostrata COQUILLET, Canad. Ent., xxx, 235.—Biscayne Bay, Fla., and Opelousas, La.
setosa COQUILLET, Jour. N. Y. Ent. Soc., III, 51; Revis. Tachin., 59.—Mass., Md., D. C.

CELATORIA.

- COQUILLET, Insect Life, II, 235, 1890; Psyche, 1895, 251.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 189, 1893.
diabroticæ SHIMER, Amer. Naturalist, v, 219 (*Melanosphora*). Bred from *Diabrotica vittata* FABR.
 COQUILLET, Insect Life, II, 235 (*cratæii*), bred from adult *Diabrotica soror* LEC. at Los Angeles, Cal.; Revis. Tachin., 59, bred from *Diabrotica duodecimpunctata* OLIV., and *D. vittata* FABR.—D. C., Texas, Cal.
spinosa COQUILLET, Revis. Tachin., 60.—N. H., S. Cal., Idaho, Mich. N. J.—Smith Cat.

POLYGASTER.

- VAN DER WULP, Biologia, Dipt., II, 139, 1890.
egregia VAN DER WULP, loc. cit., pl. IV, f. 3, 3a.—Tabasco, Mex.

HYPOSTENA.

- MEIGEN, Syst. Beschrl., VII, 239, 1838.
 SCHINER, Fauna Austr., I, 537, 1862.
 VAN DER WULP, Biologia, Dipt., II, 140, table of Mexican species, 1890.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 374, 1891; VI, 151, 1893 (*Gymnostylia*, pt.).
 TOWNSEND, Trans. Amer. Ent. Soc., XIX, 130, 1892 (*Tachinophyto* and *Pseudomyiothyria*).
abbreviata BIGOT, Annales, 1888, 262 (*Ceromasia*).—Mex.
 BRAUER, Sitzungsbericht k. Akad., CVI, 16, gen. ref., from type.
ænea COQUILLET, Jour. N. Y. Ent. Soc., III, 57; Revis. Tachin., 62.—Los Angeles Co., Cal.
albocingulata VAN DER WULP, Biologia, Dipt., II, 148.—Costa Rica.
albopicta BIGOT, Annales, 1888, 258 (*Chatolyga*).—Mex.
 BRAUER, Sitzungsbericht k. Akad., CVI, 23, gen. ref., from type (*Gymnostylia*).
barbata COQUILLET, Jour. N. Y. Ent. Soc., III, 57 and 58 (the latter as *pusilla*); Revis. Tachin., 62.—White Mts., N. H., to Allende, Mex.; Ga. to Wash.; reared from *Coptocycla clavata* FABR. and *Disomycha xanthomelena* DALM.
 Axton, N. Y.—M. and H.
blandita VAN DER WULP, see *triangulifera*.
concinna VAN DER WULP, Biologia, Dipt., II, 142.—Guerrero, Mex.
 GIGLIO-TOS, Ditt. del Mess., III, 51, note.—Mex.
cylindriventris VAN DER WULP, Biologia, Dipt., II, 145.—Guerrero, Mex.
degeerioides COQUILLET, see *Admontia*.
deplanata VAN DER WULP, Biologia, Dipt., II, 147.—Costa Rica.
dunningii COQUILLET, Jour. N. Y. Ent. Soc., III, 54 (*Thryptocera*); Revis. Tachin., 60.—Canada, Mass., Conn., D. C., N. C., N. Ill.
 N. J.—Smith Cat.
elegans VAN DER WULP, Biologia, Dipt., II, 143.—Guerrero, Mex.
flaveola COQUILLET, Revis. Tachin., 61.—Franconia, N. H.; N. C.
 N. J.—Smith Cat.

- flavocalyptrata** VAN DER WULP, *Biologia*, Dipt., II, 147, pl. IV, f. 8.—Costa Rica.
- floridensis** TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 131 (*Tachinophyto*).—Fla. COQUILLET, *Revis. Tachin.*, 62.—N. H., D. C., Va., N. C., Ga., Miss., Fla., Jamaica, N. Ill.; reared from *Blastobasis nubilella* ZELL. and *Schizocera ebena* NORTON, N. J.—Smith Cat.
- golvipes** COQUILLET, *Revis. Tachin.*, 61.—Mass., N. J., Ga.
- immunda** VAN DER WULP, *Biologia*, Dipt., II, 148.—Vera Cruz and Tabasco, Mex.
- indecisa** TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 132 (*Pseudomyiothyria*).—Ill. COQUILLET, *Revis. Tachin.*, 62, places this as a synonym of *floridensis*; an examination of the types of both convinces me that they are distinct.
Inverness, Fla.—Johnson.
- leucophæa** VAN DER WULP, *Biologia*, Dipt., II, 141.—Guerrero, Mex.
- maculosa** COQUILLET, *Proc. Acad. Nat. Sci.*, 1895, 313; *Revis. Tachin.*, 63.—St. Augustine, Fla.
- melaleuca** VAN DER WULP, *Biologia*, Dipt., II, 145, pl. IV, f. 6.—Tabasco, Mex.
- minima** VAN DER WULP, *Biologia*, Dipt., II, 148.—Tabasco, Mex.
- nigripalpis** BIGOT, *Annales*, 1888, 259 (*Chatolyga*).—Mex.
BRAUER, *Sitzungsbericht k. Akad.*, CVI, 21, refers to *Gymnostylia*, from type.
- nitens** COQUILLET, *Revis. Tachin.*, 63.—Biscayne Bay, Fla.
- nubilosa** VAN DER WULP, *Biologia*, Dipt., II, 149.—Guerrero, Mex.
- obumbrata** VAN DER WULP, *Biologia*, Dipt., II, 143.—Guerrero and Vera Cruz, Mex.
BRAUER and BERGENSTAMM, *Zwölf. d. Kaiserl. Mus.*, v, 375, make this the type of a new genus, *Ptilodegceria*; VI, 133, same is referred to the *Deriida*.
- pedestris** WALKER, *Dipt. Saund.*, 313 (*Deria*).—U. S.
COQUILLET, *Revis. Tachin.*, 61.—S. Cal.
Note.—Thè *Masicera cucrata* of Bigot, referred here by Coquillett, will be found in *Leskia*.
- pictigaster** BIGOT, *Annales*, 1888, 261 (*Ceromasia*).—Mex.
BRAUER, *Sitzungsbericht k. Akad.*, CVI, 15, refers to *Gymnostylia*, from type.
- pilosa** VAN DER WULP, *Biologia*, Dipt., II, 144, pl. IV, f. 7.—Guerrero and Morelos, Mex.
- quadristriata** VAN DER WULP, *Biologia*, Dipt., II, pl. IV, f. 5, 5a.—Costa Rica.
- quadrivittata** BIGOT, *Annales*, 1888, 261 (*Ceromasia*).—Mex.
BRAUER, *Sitzungsbericht k. Akad.*, CVI, 16, gen. ref., from type.
- setinervis** COQUILLET, *Canad. Ent.*, XXX, 230.—Biscayne Bay, Fla.
- spinipes** BIGOT, *Annales*, 1888, 262 (*Ceromasia*).—Mex.
BRAUER, *Sitzungsbericht k. Akad.*, CVI, 16, note; gen. ref., from type.
- strigosa** VAN DER WULP, *Biologia*, Dipt., II, 140.—Tabasco, Mex.
- subtilis** VAN DER WULP, *Biologia*, Dipt., II, 149.—Guerrero, Mex.
- tortricis** COQUILLET, *Jour. N. Y. Ent. Soc.*, III, 55 (*Pseudomyiothyria*); *Revis. Tachin.*, 60.—N. J., S. Cal., Ida.; bred from a Tortricid on *Solanum*.
Beulah, N. M.—Skinner.
- triangulifera** BIGOT, *Annales*, 1888, 268 (*Homoderia*).—Mex.
VAN DER WULP, *Biologia*, Dipt., II, 142, pl. IV, f. 4 (*blandita*); 264, syn.—Guerrero and Orizaba in Mex.; Costa Rica.
GIGLIO-TOS, *Ditt. del Mess.*, III, 51, note.—Mex.
- turbinata** VAN DER WULP, *Biologia*, Dipt., II, 140.—Vera Cruz, Mex.

- umbripennis** VAN DER WULP, *Biologia, Dipt.*, II, 144.—Tabasco, Mex.
vanderwulpi TOWNSEND, *Ent. News*, III, 131 (*Myothyria*).—S. Fla.
 COQUILLET, *Revis. Tachin.*, 63.—S. Cal., S. Fla. Also *Proc. U. S. N. M.*,
 XXII, 254, oc. in Porto Rico. Inverness, Fla.—Johnson.
variabilis COQUILLET, *Jour. N. Y. Ent. Soc.*, III, 57; *Revis. Tachin.*, 62.—N. H.
 to S. Cal.; bred from *Carpocapsa pomonella* LINN., *Pyrausta penitialis*
 GR., and a Tenthredinid. Montreal—Chagnon.

DIDYMA.

- VAN DER WULP, *Biologia, Dipt.*, II, 156, 1890, def. and table of Mexican
 species.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, v, 337, is a mixture
 of genera, according to their standards.
 COQUILLET, *Revis. Tachin.*, 63, notes, 1897.
albomicans VAN DER WULP, *Biologia, Dipt.*, II, 162.—Orizaba and Guerrero,
 Mex.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, v, 337; VI, 118, notes
ambulatrix VAN DER WULP, *Biologia, Dipt.*, II, 158.—Guerrero, Mex.
basilaris VAN DER WULP, *Biologia, Dipt.*, II, 159.—Guerrero, Mex.
calyptrata WILLISTON, *Trans. Ent. Soc. Lond.*, 1896, 359, pl. XI, f. 95.—St. Vin-
 cent, W. I.
commixta VAN DER WULP, *Biologia, Dipt.*, II, 163.—Tabasco, Mex.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, v, 402; VI, 122, refer
 to *Mesochata* (mentioned as *commixa*).
exigua VAN DER WULP, *Biologia, Dipt.*, II, 160.—Guerrero, Mex.
 COQUILLET, *Revis. Tachin.*, 63.—Kirkwood, Mo.
fuliginipennis VAN DER WULP, *Biologia, Dipt.*, II, 164.—Guerrero, Mex.
inconspicua VAN DER WULP, *Biologia, Dipt.*, II, 163.—Guerrero, Mex.
 COQUILLET, *Revis. Tachin.*, 63.—Fla.
modesta VAN DER WULP, *Biologia, Dipt.*, II, 160.—Guerrero, Mex.
moesta VAN DER WULP, see *Myiopharus metopia*.
nigricolor VAN DER WULP, *Biologia, Dipt.*, II, 158.—Vera Cruz and Tabasco,
 Mex.; Costa Rica.
otiosa VAN DER WULP, *Biologia, Dipt.*, II, 159.—Guerrero, Mex.
pavida VAN DER WULP, *Biologia, Dipt.*, II, 165.—Guerrero, Mex.
prompta VAN DER WULP, *Biologia, Dipt.*, II, 161.—Guerrero, Mex.
pullula VAN DER WULP, *Biologia, Dipt.*, II, 162.—Guerrero, Mex.
 COQUILLET, *Proc. Wash. Acad. Sci.*, II, 438, oc. in Alaska.
timida VAN DER WULP, *Biologia, Dipt.*, II, 161.—Guerrero, Mex.
 COQUILLET, *Revis. Tachin.*, 63.—D. C.
vagabunda VAN DER WULP, *Biologia, Dipt.*, II, 161.—Guerrero, Mex.
validinervis VAN DER WULP, see *Paradidyma*.
volucris VAN DER WULP, *Biologia, Dipt.*, II, 165.—Guerrero, Mex.

MACQUARTIA.

- DESVOIDY, *Myodaires*, 204, 207, 209 (*Macquartia, Amedea, and Albinia*),
 1830.
 MACQUART, *Dipt. Exot., Suppl.*, I, 168, 1846 (*Aporia*).
 VAN DER WULP, *Biologia, Dipt.*, II, 128, 1890, def. and table of Mexican
 species.
 COQUILLET, *Revis. Tachin.*, 64, 1897.
acuminata VAN DER WULP, *Biologia, Dipt.*, II, 130.—Guerrero, Mex.

atrifrons BIGOT, Annales, 1888, 259.—Mex.

caloptera BIGOT, Annales, 1888, 263 (*Tricholyga*).—Mex.

BRAUER, Sitzungsbericht k. Akad., cvl, 24, notes on type; refers to *Aporia*.

elegans GIGLIO-TOS, Boll. R. Univ. Torino, viii, No. 147, 1893; Ditt. del Mess., iii, 66, f. 15 (both *Aporia*).—Tuxpango, Mex.

johnsoni TOWNSEND, see *Hyalurgus*.

pristis WALKER, List, iv, 841 (*Dexia*).—Mass.

TOWNSEND, Psyche, vi, 275 (*Aporia limacodis*).—N. Y.; bred from *Lima-codes* sp.

COQUILLET, Revis. Tachin., 64.—N. H., Mass., D. C., Oreg., Cal.; bred from *Halisdota argentata* PACK.

N. J.—Smith Cat.

setiventris VAN DER WULP, Biologia, Dipt., ii, 129, pl. iii, f. 21, 21a.—Guerrero and Orizaba, Mex.

GIGLIO-TOS, Ditt. del Mess., iii, 50, note.—Solco, Mex.

venusta VAN DER WULP, Biologia, Dipt., ii, 130.—Guerrero, Mex.

versicolor VAN DER WULP, Biologia, Dipt., ii, 130.—Guerrero, Mex.

HYALURGUS.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., vi, 136, 1893.

johnsoni TOWNSEND, Canad. Ent., xxiv, 81 (*Macquartia*).—Pa.

COQUILLET, Revis. Tachin., 64.—Ill., Pa.

POLIDEA.

MACQUART, Annales Soc. Ent. France, 1848, 92.

MEIGEN, Syst. Besch., vii, 260, 1838 (*Harrisia*, preoc.).

RONDANI, Atti Soc. Ital. Sci. Nat., viii, 35, 1865 (*Somol:ja*).

COQUILLET, Revis. Tachin., 64, 1897.

americana TOWNSEND, Canad. Ent., xxiv, 78 (*Tryphera*).—Ill.

areos WALKER, List, iv, 766 (*Tachina*).—N. A.

TOWNSEND, Canad. Ent., xxiv, 79 (*Tryphera polidoides*); 82 (*Pol. americana*).—N. Y.; Mich.

COQUILLET, Revis. Tachin., 65.—Georgetown, Canada; N. H. to S. Cal. Montreal—Chagnon.

Note.—Coquillett makes Townsend's *Tryphera americana* a synonym of this also. I was able to ascertain from the types that Townsend's *Tryphera americana* is not identical with his *Polidca americana*, hence I separate the former from *areos*.

HYPOCHÆTA.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., iv, 93, 1889.

longicornis SCHNER, Fauna Austr., i, 527 (*Fricvaldsikia*).—Europe.

COQUILLET, Revis. Tachin., 65, and footnote.—White Mts., N. H.

N. J.—Smith Cat.

PARAHYPOCHÆTA.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 337, 1891.

heteroneura BRAUER and BERGENSTAMM, loc. cit.; vi, 117.—N. A.

METADORIA.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., vi, 117, 208, 1893.

barbata BIGOT, Annales, 1888, 260 (*Phorocera barbata*, and *melanocephs*).—Mex.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., vi, 117, 208 (*mcricana*).—Mex.

BRÄUER, Sitzungsbericht k. Akad., cvI, 19, syn.

VAN DER WULP, Biologia, Dipt., II, 79 (*Phorocera atriceps*): 483, syn with *melanoceps*, from Bigot's type.—Guerrero and Orizaba, Mex.

PELATACHINA.

MEADE, Ent. Mo. Mag., xxx, 109, 1894.

DESVOIDY, Dipt. Env. de Paris, 1100, 1863 (*Myria*, preoc.).

limata COQUILLET, Proc. U. S. N. M., xxv, 107.—Lewiston, Idaho.

pellucida COQUILLET, Revis. Tachin., 65.—N. A.

RACODINEURA.

RONDANI, Dipt. Ital. Prod., iv, 31, 1861.

DESVOIDY, Myodaires, 145, 1830 (*Raselia*, preoc.).

americana COQUILLET, Revis. Tachin., 66.—Tifton, Ga.

ERVIA.

DESVOIDY, Myodaires, 225, 1830.

MACQUART, Dipt. Exot., II, 3, 74, 1843.

triquetra OLIVIER, Encycl. Méthodique, viii, 423 (*Ocyptera*).—Carolina.

COQUILLET, Revis. Tachin., 66.—Miss., Texas.

LESKIA.

DESVOIDY, Myodaires, 100, 1830; loc. cit., 98 (*Myobia*, preoc.); Annales Soc. Ent. France, 1848, 461 (*Solicnia*): 474 (*Orillia*).

RONDANI, Dipt. Ital. Prod., v, 8, 1861 (*Anthoica*): 48 (*Pyrosia*).

VAN DER WULP, Biologia, Dipt., II, 132, 1890, notes and table of Mexican species (*Myobia*).

TOWNSEND, Trans. Amer. Ent. Soc., xxii, 75, 1895 (*Myobia*).

BRÄUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., vi, 140, 191, 1893 (*Myobia*).

COQUILLET, Revis. Tachin., 66, 1897, syn. and notes.

See also *Calodexia*.

analis SAY, Jour. Acad. Sci. Phil., vi, 177; Compl. Works, II, 366 (*Dexia*).—Ind.

COQUILLET, Proc. Acad. Nat. Sci. Phil., 1895, 313 (*Myobia depile*); Revis. Tachin., 67.—Fla., N. Y., Mass., Kans.

N. J.—Smith Cat.; Fla.—Johnson.

angulata VAN DER WULP, Biologia, Dipt., II, 136 (*Myobia*).—Guerrero, Mex.

argenteiceps VAN DER WULP, Biologia, Dipt., II, 135 (*Myobia*).—Guerrero, Mex.

diadema WIEDEMANN, Auss. Zweifl., II, 382 (*Dexia*).—Brazil.

VAN DER WULP, Biologia, Dipt., II, 137, pl. IV, f. 2 (*Myobia*).—Mexico, several places; Costa Rica.

TOWNSEND, Trans. Amer. Ent. Soc., xxii, 76, oc. at Ithaca, N. Y. (*Myobia*); Canad. Ent., xxiv, 70, note (id.).

eucerata BIGOT, Annales, 1888, 263 (*Masicera*).—Cal.

COQUILLET, Revis. Tachin., 61, refers to *Hypostena pedestris*.

BRÄUER, Sitzungsbericht k. Akad., cvI, 12, refers to *Myobia*, from type.

flavicornis VAN DER WULP, Biologia, Dipt., II, 133, pl. IV, f. II (*Myobia*).—Tasasco, Mex.

BRÄUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 376; vi, 131, notes

GIGLIO-TOS, Ditt. del Mess., III, 50, note (*Myobia*).—Mex.

flavipennis WIEDEMANN, see *Stomatodexia*.

- gilensis* TOWNSEND, Psyche, 1897, 40 (*Myobia*).—Gila R., N. M.
grata VAN DER WULP, Biologia, Dipt., II, 134 (*Myobia*).—Guerrero, Mex.
lepida VAN DER WULP, Biologia, Dipt., II, 135 (*Myobia*).—Guerrero, Mex.
longipalpis VAN DER WULP, Biologia, Dipt., II, 138 (*Myobia*).—Guerrero, Mex.
opima VAN DER WULP, Biologia, Dipt., II, 136 (*Myobia*).—Guerrero and Morelos, Mex.
 ? *rufopygata* BIGOT, Annales, 1888, 262 (*Uviciana*).—Mex.
 BRAUER, Sitzungsbericht k. Akad., CVI, 7, redesc. type; gen. ref. with a doubt.
scurra VAN DER WULP, Biologia, Dipt., II, 134 (*Myobia*).—Guerrero, Mex.
succincta VAN DER WULP, Biologia, Dipt., II, 133 (*Myobia*).—Guerrero, Mex.
thecata COQUILLET, Jour. N. Y. Ent. Soc., III, 105 (*Myobia*); Revis. Tachin., 67.—Bucks and Delaware Cos., Pa. N. J.—Smith Cat.

LESKIOMIMA.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 372, 1891; VI, 133, 1893.
tenera WIEDEMANN, Auss. Zweifl., II, 251 (*Stomoxys*).—No locality.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 133, pt. desc.—N. A.
 COQUILLET, Revis. Tachin., 67.—N. H., N. Y., Pa., Va., N. C., Fla.; reared from a Pyralid.
 N. J.—Smith Cat.

APINOPS.

- COQUILLET, Revis. Tachin., 67, 1897.
atra COQUILLET, Revis. Tachin., 67.—S. Ill.

PSEUDAPINOPS.

- COQUILLET, Proc. U. S. N. M., XXV, 108, 1902.
nigra COQUILLET, loc. cit.—Moscow, Idaho.

EUMYOTHYRIA.

- TOWNSEND, Trans. Amer. Ent. Soc., XIX, 121, 1892.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 199, 1892
illinoisensis TOWNSEND, Trans. Amer. Ent. Soc., XIX, 121.—Ill.

LEUCOSTOMA.

- MEIGEN, Illig. Mag., II, 280, 1803.
 DESVOIDY, Myodaires, 255, 1830 (*Clelia*).
 RONDANI, Dipt. Ital. Prod., I, 76, 1856 (*Psalida*).
 SCHINER, Fauna Austr., I, 542, 1862.
 VAN DER WULP, Biologia, Dipt., II, 205, 1890.
 COQUILLET, Revis. Tachin., 68, 1897, syn.
 ? *analis* MEIGEN, Syst. Besch., IV, 290 (*Tachina analis* and *tetraptera*).—Europe.
 SCHINER, Fauna Austr., I, 543.—Austria.
 VAN DER WULP, Biologia, Dipt., II, 206, doubtfully identified from Guerrero, Mex.
atra TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 380.—Carlinville, Ill.
 COQUILLET, Revis. Tachin., 69.—N. H., Mass., N. Ill.
gravipes VAN DER WULP, Biologia, Dipt., II, 207.—Guerrero, Mex.
 ? *neomexicana* TOWNSEND, Canad. Ent., XXIV, 169.—Las Cruces, N. M.

- Note*.—Coquillett, in his Revision, puts this as a synonym of *senilis*; but he has since changed this in Proc. U. S. N. M., xxv, 109. From the types, I thought them hardly of the same genus, hence the interrogation.
- senilis** TOWNSEND, Canad. Ent., xxiv, 81 (*Phyto*); 170 (*Phyto nigricornis*).—N. Y.; Las Cruces, N. M.
COQUILLET, Revis. Tachin., 69.—Md., Ga., N. M., Col., Wash.
N. J.—Smith Cat.
See note under *neomexicana*.
- subopaca** COQUILLET, Revis. Tachin., 68.—Clementon, N. J.

SCIASMA.

- COQUILLET, Revis. Tachin., 69, 1897.
nebulosa COQUILLET, loc. cit.—Mass., N. J., Ga.

HYALOMYODES.

- TOWNSEND, Psyche, 1893, 429.
dorsalis COQUILLET, Proc. U. S. N. M., xxv, 108.—Moscow, Idaho.
triangulifera LOEW, Cent., iv, 85 (*Hyalomyia*).—N. Y.
TOWNSEND, Psyche, 1893, 429 (*veedii*).—N. H., Pa.
COQUILLET, Revis. Tachin., 70.—N. H., Mass., Pa., Ga., Col. Also in Proc. U. S. N. M., xxv, 109, female desc.

ÆSTROPHASIA.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., iv, 145, 1889; loc. cit., 146 (*Phasiopteryx*); vi, 159, 1893 (id.).
VAN DER WULP, Biologia, Dipt., ii, 165, 1890 (*Neoptera*); loc. cit., 166 (*Ctenosoma*).
TOWNSEND, Trans. Amer. Ent. Soc., xix, 133, 1892 (*Euocstrophasia*).
COQUILLET, Revis. Tachin., 70, syn., etc., 1897.
- bilimekii** BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., iv, 147 (*Phasiopteryx*).—Orizaba, Mex.
VAN DER WULP, Biologia, Dipt., ii, 166, pl. iv, f. 11, 12 (*Neoptera rufa*).—Vera Cruz and Tabasco, Mex. [B. B.]
GIGLIO-TOS, Ditt. del Mess., iii, 52, identifies this with *ochracea* BIGOT; but Brauer's study of the type of the latter indicates the contrary.
TOWNSEND, Proc. Cal. Acad. Sci., iv, 619, doubtfully identified from Lower Cal.; Annals and Mag. Nat. Hist., xix, 33, oc. at Vera Cruz, and notes.
COQUILLET, Revis. Tachin., 71.—Texas.
Georgiana, Fla.—Johnson.
- calva** COQUILLET, Proc. U. S. N. M., xxv, 109.—Williams, Ariz.; Ottawa, Canada.
- clausa** BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., iv, 145.—Col. Also op. cit., vi, 158.
GIGLIO-TOS, Ditt. del Mess., iii, 52, note.—Cuautla, Mex.
COQUILLET, Revis. Tachin., 70.—Tewksbury, Mass., and Veta Pass, Col.
N. J.—Smith Cat.; Ormond, Fla.—Johnson.
- ochracea** BIGOT, Annales, 268, 1888 (*Pyrrhosia*).—Mex.
COQUILLET, Rev. Tachin., 71.—Ga., Texas, Col.
BRAUER, Sitzungsbericht k. Akad., cvi, 42, refers to *Phasiopteryx*, from type.
N. J.—Smith Cat.

- punctata** COQUILLET, Jour. N. Y. Ent. Soc., III, 52 (*Clytiomyia*); Revis. Tachin., 71.—Charlotte Harbor, Fla.
setosa COQUILLET, Proc. U. S. N. M., XXV, 110.—Col.
signifera VAN DER WULP, Biologia, Dipt., II, 167 (*Ccnosoma*).—Guerrero and Vera Cruz, Mex.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 159, note.
 COQUILLET, Revis. Tachin., 70.—Toronto, Can.; N. H., Pa., Fla.
 N. J.—Smith Cat.

CLYTIOMYIA.

- RONDANI, Dipt. Ital. Prod., IV, 9, 1861.
 DESVOIDY, Myodaires, 287, 1830 (*Clytia*, preoc.).
 TOWNSEND, Canad. Ent., XXIV, 79, 1892 (*Clistomorpha*).
 COQUILLET, Revis. Tachin., 71, 1897, notes.
atrata COQUILLET, Jour. N. Y. Ent. Soc., III, 53; Revis. Tachin., 71.—Wash.
didyma LOEW, Cent., IV, 86 (*Xysta*).—Ill.
 TOWNSEND, Canad. Ent., XXIV, 79 (*Clistomorpha hyalomoides*).—N. Y.
 COQUILLET, Canad. Ent., XXX, 233, syn.
exilis COQUILLET, see *Eutrixa masuria*.
flava TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 372 (*Clytia*).—Carlinville, Ill.
 COQUILLET, Revis. Tachin., 71.—N. H., Miss.
ochracea GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., III, 53 (both *Clistomorpha*).—Mex.
punctata COQUILLET, see *Aestrophasia*.

DIONÆA.

- DESVOIDY, Myodaires, 254, 1830.
 MACQUART, Dipt. du Nord France, 109, 1834 (*Labidigaster*).
 VAN DER WULP, Biologia, Dipt., II, 131, 1890 (*Labidigaster*).
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 155, 1893 (id.).
 COQUILLET, Canad. Ent., XXX, 234, syn., etc., 1898.
furcata VAN DER WULP, Biologia, Dipt., II, 131, pl. III, f. 22 (*Labidigaster*).—Vera Cruz, Mex.
nitoris COQUILLET, Canad. Ent., XXX, 235.—Corvallis, Ore.

TRIXA.

- MEIGEN, Syst. Besch., IV, 222, 1824.
 SCHINER, Fauna Austr., I, 445, 1862.
 VAN DER WULP, Biologia, Dipt., II, 87, 1890.
differens VAN DER WULP, Biologia, Dipt., II, 88.—Guerrero, Mex.
gillettei TOWNSEND, see *Paraphyto*.
obsoleta VAN DER WULP, Biologia, Dipt., II, 87.—Guerrero, Mex.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 416, would refer to *Macronychia*.

EUTRIXA.

- COQUILLET, Revis. Tachin., 72, 1897.
masuria WALKER, List, IV, 753 (*Tachina*).—N. A.
 COQUILLET, Jour. N. Y. Ent. Soc., III, 53 (*Clytiomyia exile*); Revis. Tachin., 72.—N. H., Md., D. C.; bred from *Lachnosterna arcuata* SMITH.

XANTHOMELANA.

- VAN DER WULP, Tijdschr. v. Ent., XXXV, 188, 1892; Biologia, Dipt., II, 451, def. and table of species, 1903.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 150, 1893.
 TOWNSEND, Canad. Ent., XXV, 167, 1893, note.
 COQUILLET, Revis. Tachin., 72, 1897.
- anceps** VAN DER WULP, Tijdschr. v. Ent., XXXV, 189; Biologia, Dipt., II, 453, pl. XIII, f. 15.—Vera Cruz, Mex.
- arcuata** SAY, Jour. Acad. Sci. Phil., VI, 173; Compl. Works, II, 363 (*Ocyptera*).—Ind.
 BIGOT, Annales, 1888, 254 (*Stevenia pictipes*).—Wash.
 TOWNSEND, Proc. Ent. Soc. Wash., II, 142 (*Wahlbergia*); Annals and Mag. Nat. Hist., XX, 285, oc. at Vera Cruz.
 COQUILLET, Revis. Tachin., 73.—Col., S. Cal., Kans.
- articulata** VAN DER WULP, Tijdschr. v. Ent., XXXV, 188; Biologia, Dipt., II, 452, pl. XIII, f. 13.—Vera Cruz and Orizaba, Mex.
 GIGLIO-TOS, Ditt. del Mess., III, 4, f. 12.—Orizaba, Mex.
- atripennis** SAY, Jour. Acad. Sci. Phil., VI, 172; Compl. Works, II, 363 (*Phasia*).—Ind.
 WALKER, List, IV, 797 (*Tachina corythus*).—Ga.
 GIRSCHNER, Zeitsch. f. Naturwiss., LX, 1887, sep. p. 38, refers to subg. *Paralophora*.
 ? TOWNSEND, Proc. Ent. Soc. Wash., II, 145 (*Wahlbergia*).—Va.
 COQUILLET, Revis. Tachin., 73.—N. Va., Ind.
 Inverness and St. Augustine, Fla.—Johnson.
- dorsalis** VAN DER WULP, Tijdschr. v. Ent., XXXV, 188; Biologia, Dipt., II, 453.—Guerrero and Vera Cruz, Mex.
- flavipes** COQUILLET, Revis. Tachin., 72.—Horse Neck Beach, Mass.
- gracilentata** VAN DER WULP, Tijdschr. v. Ent., XXXV, 189; Biologia, Dipt., II, 454, pl. XIII, f. 14.—Guerrero, Mex.
- rubicunda** VAN DER WULP, Tijdschr. v. Ent., XXXV, 188; Biologia, Dipt., II, 453.—Tabasco, Mex.
- trigonalis** VAN DER WULP, Tijdschr. v. Ent., XXXV, 188; Biologia, Dipt., II, 454.—Guerrero, Mex.

EVIBRISSA.

- RONDANI, Dipt. Ital. Prod., IV, 74, 1861.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 143, 1889; VI, 155, 1893.
americana BIGOT, Annales, 1888, 256.—Wash.

TELOTHYRIA.

- VAN DER WULP, Biologia, Dipt., II, 167, 1890.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 377, 1891.
- adscripta** VAN DER WULP, Biologia, Dipt., II, 170.—Vera Cruz, Mex.
- argentifrons** VAN DER WULP, Biologia, Dipt., II, 183.—Guerrero, Mex.
- assimulata** VAN DER WULP, Biologia, Dipt., II, 180.—Guerrero, Mex.
- carinata** VAN DER WULP, Biologia, Dipt., II, 184.—Vera Cruz, Mex.
- connexa** VAN DER WULP, Biologia, Dipt., II, 173.—Guerrero, Mex.
- comata** VAN DER WULP, Biologia, Dipt., II, 177.—Guerrero, Mex.
- costalis** VAN DER WULP, Biologia, Dipt., II, 178.—Guerrero and Vera Cruz, Mex.
- cupreiventris** VAN DER WULP, Biologia, Dipt., II, 182, pl. IV, f. 14.—Vera Cruz and Tabasco, Mex.
- curva** VAN DER WULP, Biologia, Dipt., II, 177.—Guerrero, Mex.
- disgrega** VAN DER WULP, Biologia, Dipt., II, 171.—Guerrero, Mex.
- dissepta** VAN DER WULP, Biologia, Dipt., II, 176.—Guerrero, Mex.

- fasciata* VAN DER WULP, *Biologia*, Dipt., II, 179.—Tabasco, Mex.
fimbricrura VAN DER WULP, *Biologia*, Dipt., II, 172.—Guerrero, Mex.
forticula VAN DER WULP, *Biologia*, Dipt., II, 174.—Guerrero, Mex.
hamata VAN DER WULP, *Biologia*, Dipt., II, 173.—Guerrero, Mex.
humeralis VAN DER WULP, *Biologia*, Dipt., II, 173.—Tabasco, Mex.
illucens VAN DER WULP, *Biologia*, Dipt., II, 183.—Tabasco, Mex.
lugens VAN DER WULP, *Biologia*, Dipt., II, 178.—Morelos and Vera Cruz, Mex.
murina VAN DER WULP, *Biologia*, Dipt., II, 180.—Guerrero, Mex.
nubecula VAN DER WULP, *Biologia*, Dipt., II, 170.—Tabasco, Mex.
occulta VAN DER WULP, *Biologia*, Dipt., II, 184.—Guerrero, Mex.
ochrifrons VAN DER WULP, *Biologia*, Dipt., II, 180.—Guerrero, Mex.
ovata VAN DER WULP, *Biologia*, Dipt., II, 182.—Guerrero, Mex.
pacata VAN DER WULP, *Biologia*, Dipt., II, 185.—Guerrero, Mex.
placida VAN DER WULP, *Biologia*, Dipt., II, 182.—Tabasco, Mex.
pollens VAN DER WULP, *Biologia*, Dipt., II, 174.—Guerrero, Mex.
rasilis VAN DER WULP, *Biologia*, Dipt., II, 175.—Guerrero, Mex.
rava VAN DER WULP, *Biologia*, Dipt., II, 178.—Guerrero, Mex.
recondita VAN DER WULP, *Biologia*, Dipt., II, 176.—Guerrero, Mex.
refuga VAN DER WULP, *Biologia*, Dipt., II, 185.—Guerrero, Mex.
relicta VAN DER WULP, *Biologia*, Dipt., II, 171.—Vera Cruz, Mex.
remota VAN DER WULP, *Biologia*, Dipt., II, 181.—Guerrero, Mex.
rufostriata VAN DER WULP, *Biologia*, Dipt., II, 172.—Vera Cruz and Tabasco, Mex.
striolata VAN DER WULP, *Biologia*, Dipt., II, 179.—Guerrero and Tabasco, Mex.
sublineata VAN DER WULP, *Biologia*, Dipt., II, 181.—Guerrero, Mex.
trifurca VAN DER WULP, *Biologia*, Dipt., II, 175.—Guerrero, Mex.
vaciva VAN DER WULP, *Biologia*, Dipt., II, 176.—Guerrero, Mex.
vicina VAN DER WULP, *Biologia*, Dipt., II, 184.—Guerrero and Tabasco, Mex.

CLINOASTER.

- VAN DER WULP, *Tijdschr. v. Ent.*, XXXV, 189, 1892; *Biologia*, Dipt., II, 457, 1903.
notabilis VAN DER WULP, *Tijdschr. v. Ent.*, XXXV, 189, 1892; *Biologia*, Dipt., II, 457, pl. XIII, f. 17.—Guerrero, Mex.

BESSERIA.

- DESVOIDY, *Myodaires*, 232, 1830.
 ZETTERSTEDT, *Dipt. Scand.*, III, 1223, 1844 (*Wahlbergia*).
 SCHINER, *Fauna Austr.*, I, 419, 1862.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 143, 1889; VI, 154, 1893.
 ? *brevipennis* LOEW, *Cent.*, IV, 91 (*Wahlbergia*).—Nebraska.
 TOWNSEND, *Annals and Mag. Nat. Hist.*, XX, 288, says is not *Xanthomelana* nor *Wahlbergia*; from a figure of head of type.

HEMYDA.

- DESVOIDY, *Myodaires*, 226, 1830.
 BIGOT, *Bull. Soc. Ent. France*, 1884, p. LXX (*Ancylogaster*).
 GIGLIO-TOS, *Ditt. del Mess.*, III, 9, 1894, syn.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 143, 1889; VI, 154, 1893.
 VAN DER WULP, *Biologia*, Dipt., II, 456, 1903 (*Ancylogaster*).

aurata DESVOIDY, *Myodaires*, 220.—Pa.

BIGOT, *Bull. Soc. Ent. France*, 1884, LXX (*Ancylogaster armatus*).—Mex.
ROEDER, *Berl. Ent. Zeitsch.*, XXV, 212, oc. in Mo.

WILLISTON, *Trans. Amer. Ent. Soc.*, XIII, 207 (*Hemyda* sp.).—Wash.

TOWNSEND, *Trans. Amer. Ent. Soc.*, XXII, 68, notes.—Ill., Wash.

GIGLIO-TOS, *Ditt. del Mess.*, III, 9, note on syn. of *Ancyl. armatus*.

BRÄUER, *Sitzungsbericht k. Akad.*, CVII, 15, syn. of same, from type.

COQUILLET, *Revis. Tachin.*, 73.—N. Ill.

VAN DER WULP, *Biologia, Dipt.*, II, 456, pl. XIII, f. 16 (*Anc. armatus*).—
Orizaba, Mex.

N. J.—Smith Cat.: Idaho—J. M. A.

BESKIA.

BRÄUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 130, 1889; VI,
200, 1893.

TOWNSEND, *Jour. N. Y. Ent. Soc.*, II, 79, 1894 (*Ocypterosiphia*).

VAN DER WULP, *Biologia, Dipt.*, II, 451, 1903.

ælops WALKER, *List*, IV, 796 (*Tachina*).—Ga.

BRÄUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 130, 170, f. 276
(*cornuta*).—Brazil.

TOWNSEND, *Jour. N. Y. Ent. Soc.*, II, 79 (*Ocypterosiphia willistonii*).—
San Domingo.

WILLISTON, *Trans. Ent. Soc. Lond.*, 1896, 300, pl. XI, f. 97a (*cornuta*).—
St. Vincent, W. I.

COQUILLET, *Revis. Tachin.*, 73.—Va., Ga., Texas.

VAN DER WULP, *Biologia, Dipt.*, II, 451, pl. XIII, f. 12 (*cornuta*).—Guer-
rero and Vera Cruz, Mex.

ISOGLOSSA.

COQUILLET, *Canad. Ent.*, XXVII, 125, 1895.

hastata COQUILLET, *Canad. Ent.*, XXVII, 126; *Revis. Tachin.*, 73.—Los Angeles
Co., Cal.

EPIGRYMYIA.

TOWNSEND, *Trans. Amer. Ent. Soc.*, XVIII, 375, 1891; loc. cit., 377 (*Dre-
panoglossa*); XIX, 117, 1892 (*Siphoclytia*); loc. cit., 127 (*Siphophyto*);
128 (*Coronimyia*).

BRÄUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 138, 1893, note.

COQUILLET, *Revis. Tachin.*, 74, 1897, notes and syn.

floridensis TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 128 (*Siphophyto floridensis*
and *neomeficana*).—Fla. and N. M.

COQUILLET, *Revis. Tachin.*, 75.—N. H., D. C., Va., S. Ill., West. S. D.,
Fla., N. M.; bred from *Plodia* sp. by T. D. A. Cockerell.

N. J.—Smith Cat.: Inverness, Fla.—Johnson.

geniculata TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 129 (*Coronimyia*).—S. Ill.
COQUILLET, *Revis. Tachin.*, 75.—Md.

illinoisensis ROBERTSON, *Canad. Ent.*, XXXIII, 286.—Carlinville, Ill.

Probably a reddish var. of *polita*—J. M. A.

lucens TOWNSEND, *Trans. Amer. Ent. Soc.*, XVIII, 378 (*Drepanoglossa*).—Las
Cruces, N. M.

COQUILLET, *Revis. Tachin.*, 74.—N. M.

occidentalis COQUILLET, *Canad. Ent.*, XXVII, 126 (*Drepanoglossa*); *Revis*
Tachin., 74.—S. Cal.

Beulah, N. M.—Skinner.

- opaca** COQUILLET, *Canad. Ent.*, xxvii, 128 (*Siphophyto*); *Revis. Tachin.*, 74.—Cal.
- polita** TOWNSEND, *Trans. Amer. Ent. Soc.*, xviii, 376.—Dixie Landing, Va.
COQUILLET, *Revis. Tachin.*, 74.—N. H., N. J., Va., Ga.
- robertsonii** TOWNSEND, *Trans. Amer. Ent. Soc.*, xix, 117 (*Siphoclytia*).—S. Fla.
COQUILLET, *Revis. Tachin.*, 74.—Ga.
Inverness, Fla.—Johnson.
- setigera** COQUILLET, *Canad. Ent.*, xxvii, 127 (*Siphophyto*); *Revis. Tachin.*, 75
—S. Cal.

SIPHONA.

- MEIGEN, *Illig. Mag.*, ii, 281, 1803.
- LATREILLE, *Gen. Crust. et Ins.*, iv, 339, 1809 (*Bucntes*).
- VAN DER WULP, *Biologia, Dipt.*, ii, 125, 1890; *Tijdschr. v. Ent.*, xxxix, 188, notes on dist.
- BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, vi, 149, 1893.
COQUILLET, *Revis. Tachin.*, 75, notes, 1897.
- brevirostris** COQUILLET, *Revis. Tachin.*, 76.—Kirkwood, Mo.
- diluta** VAN DER WULP, *Biologia, Dipt.*, ii, 126.—Vera Cruz, Mex.
- futilis** VAN DER WULP, *Biologia, Dipt.*, ii, 125.—Mexico, several places.
- geniculata** DEGEER, *Hist. Nat. Ins.*, vi, 20, 1776 (*Musca*).—Europe.
FABRICIUS, *Syst. Antl.*, 282, 1805 (*Stomoxys minuta*).
LATREILLE, *Gen. Crust. et Ins.*, iv, 339 (*Bucntes cinereus*).
MEIGEN, *Syst. Besch.*, iv, 154, 156, 157 (*geniculata, cinerca, nigrovittata* and *analís*).
- DESVOIDY, *Myodaires*, 92 (*persilla*); *Annales Soc. Ent. France*, 1850, 203, 205 (*tristis, fuscicornis* and *consimilis*).
- TOWNSEND, *Trans. Amer. Ent. Soc.*, xviii, 368 (*illinoisensis*).—Ill.
- COQUILLET, *Revis. Tachin.*, 75.—Toronto, Canada; N. H., Mass., D. C., N. C., N. Ill., Col., Wash.
Fla.—Johnson; Beulah, N. M.—Skinner.
- plusiæ** COQUILLET, *Canad. Ent.*, xxvii, 125; *Revis. Tachin.*, 76.—S. Cal.; bred from *Plusia californica* SPEYER.

GINGLYMYIA.

- TOWNSEND, *Trans. Amer. Ent. Soc.*, xix, 118, 1892.
- BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, vi, 198, 1893.
- acrirostris** TOWNSEND, *Trans. Amer. Ent. Soc.*, xix, 118.—Constantine, Mich.

HETEROPTERINA.

- MACQUART, *Annales Soc. Ent. France*, 1854, 426.
- SCHINER, *Fauna Austr.*, i, 502.
- BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, iv, 113, 1889; v, 359, 1891; vi, 169, 1893.
- nasoni** COQUILLET, *Ent. News*, vi, 207; *Revis. Tachin.*, 76.—N. Ill.; Col., Cal.
- spinulosa** BIGOT, see *Paraplaga*.

PLAGIPROSPHERYSA.

- TOWNSEND, *Trans. Amer. Ent. Soc.*, xix, 113, 1892.
- BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, vi, 124, 197, 1893.
- WILLISTON, *Trans. Ent. Soc. Lond.*, 1896, 355.
- COQUILLET, *Revis. Tachin.*, 77, 1897.

floridensis TOWNSEND, Trans. Amer. Ent. Soc., XIX, 114.—S. Fla.

Note.—I examined the types, and concluded that *valida* and *floridensis* are not, as Coquillett thought, the same species.

parvipalpis VAN DER WULP, Biologia, Dipt., II, 124 (*Prosphecrysa*).—Guerrero, N. Sonora, and Presidio, Mex.

TOWNSEND, Trans. Amer. Ent. Soc., XIX, 113 and 114 (*valida*).—Las Cruces, N. M.

METAPLAGIA.

COQUILLET, Jour. N. Y. Ent. Soc., III, 102, 1895.

occidentalis COQUILLET, Jour. N. Y. Ent. Soc., III, 103; Revis. Tachin., 77.—S. Cal.

PARAPLAGIA.

BRÄUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 354, 1891.

COQUILLET, Revis. Tachin., 77, 1897, notes.

erucicola COQUILLET, Revis. Tachin., 78.—Mo.; bred from undet. larva on *Triosteum*.

spinulosa BIGOT, Annales, 1888, 362 (*Heteropteryna*).—N. A.

COQUILLET, Ent. News, VI, 207, note; Jour. N. Y. Ent. Soc., III, 101 (*cinerica*); Revis. Tachin., 77.—D. C., N. Ill., Col.

TOWNSEND, Trans. Amer. Ent. Soc., XIX, 133, note on genus.

N. J.—Smith Cat.

CYRTOPHLEBA.

RONDANI, Dipt. Ital. Prod., I, 68, 1856.

BRÄUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 101, 1889; v, 354, 1891; VI, 147, 1893.

? **horrida** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., III, 40, f. 11.—Mex.

COQUILLET, Revis. Tachin., 78, does not belong to this genus; hence the interrogation.

horrida COQUILLET, Jour. N. Y. Ent. Soc., III, 101; Revis. Tachin., 78.—Toronto, Canada; Mass., N. Y., N. Ill.

Montreal—Chagnon; N. J.—Smith Cat.

PLAGIA.

MEIGEN, Syst. Besch., VII, 201, 1838.

VAN DER WULP, Biologia, Dipt., II, 101, table of Mexican species, 1890.

BRÄUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 147, 1893.

americana VAN DER WULP, Biologia, Dipt., II, 102, pl. III, f. 19.—Mexico, several places.

GIGLIO-TOS, Ditt. del Mess., III, 41.—Mex.

TOWNSEND, Canad. Ent., XXIV, 67 (*aurifrons*).—Pa.

COQUILLET, Revis. Tachin., 78.—N. Ill., Mo., Cal.; Allende and Diaz, Mex.

N. J.—Smith Cat.

dicta GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., III, 42.—Mex.

incognita VAN DER WULP, Biologia, Dipt., II, 103.—Guerrero, Mex.

mexicana GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., III, 42, f. 13.—Mex.

rigidirostris VAN DER WULP, see *Siphoplaga*.

setifrons VAN DER WULP, Biologia, Dipt., II, 101.—Guerrero, Mex.

PLAGIOMIMA.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v. 384, 1891; vi. 138, 1893.

disparata BRAUER and BERGENSTAMM, loc. cit.—Mex.

SIPHOPLAGIA.

TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 349, 1891.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., vi. 140, 1893, note.

COQUILLET, Revis. Tachin., 78, 1897.

anomala TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 350.—Las Cruces, N. M.
Also oc. in Ill., Canad. Ent., XXIV, 67.

COQUILLET, Revis. Tachin., 78.—Los Angeles Co., Cal.

rigidirostris VAN DER WULP, Biologia, Dipt., II, 102 (*Plagia*).—Guerrero, Mex. N. J.—Smith Cat.

GONIOCHÆTA.

TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 351, 1891.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., vi. 152, 1893.

plagioides TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 351.—Las Cruces, N. M.

PETEINA.

MEIGEN, Syst. Besch., VII, 214, 1838.

SCHINER, Fauna Austr., I, 439, 1862.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 138, 1889; v. 387, 1891; VI, 152, 1893.

stylata BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v. 387.—Greenland.

DISTICHONA.

VAN DER WULP, Biologia, Dipt., II, 44, 1890.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v. 352, 1891 (*Pseudogermaria*).

TOWNSEND, Trans. Amer. Ent. Soc., XIX, 114, 1892 (*Olenocheta*).

COQUILLET, Revis. Tachin., 79, 1897, syn. and notes.

BRAUER, Sitzungsbericht k. Akad., CVII, 522, important notes.

georgiæ BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v. 352 (*Pseudogermaria*).—Ga.

COQUILLET, Revis. Tachin., 79.—Ga.

varia VAN DER WULP, Biologia, Dipt., II, 44, pl. III, f. 2; p. 480, note.—Mexico, several places.

TOWNSEND, Trans. Amer. Ent. Soc., XIX, 115 (*Olenocheta kansensis*).—Kans.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v. 339; VI, 120.

COQUILLET, Revis. Tachin., 79.—D. C., Ga., Miss., Tex., N. M.

BRAUER, Sitzungsbericht k. Akad., CVII, 522, note.—Ga.

N. J.—Smith Cat.

CHÆTOGLOSSA.

TOWNSEND, Trans. Amer. Ent. Soc., XIX, 125, 1892.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 200, 1893.

COQUILLET, Revis. Tachin., 79, 1897.

picticornis TOWNSEND, Trans. Amer. Ent. Soc., XIX, 126.—So. Fla.

COQUILLET, Revis. Tachin., 79.—S. Fla.

Inverness, Fla.—Johnson.

- violæ** TOWNSEND, Trans. Amer. Ent. Soc., XIX, 126 (*viola* and *nigripalpis*).—
Both S. Fla. Inverness, Fla.—Johnson.
I confirmed the synonymy from the types.

PACHYOPHTHALMUS.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 117, 1891; VI, 170, 195, 1893.
TOWNSEND, Trans. Amer. Ent. Soc., XIX, 100, 1892 (*Sarcomacronychia*).
COQUILLET, Revis. Tachin., 79, notes, 1897.
floridensis TOWNSEND, Ent. News, III, 80; Trans. Amer. Ent. Soc., XIX, 101 (*Sarcomacronychia unica*); Canad. Ent., XXIV, 165 (*S. sarcophagoides*); Bull. Ohio Ex. Sta., Tech. ser., I, 3 (*S. tryporylonis*).—So. Fla.; Las Cruces, N. M.; Las Cruces, N. M.; Ohio. The types of the last were reared by Webster from *Tryporylon* sp.—or perhaps it was *Pelopæus* instead.
COQUILLET, Revis. Tachin., 80.—Ga., Fla., Tex., Col., Cal.
N. J.—Smith Cat.: Fla.—Johnson; Moscow, Ida.—J. M. A. "Also a parasite of *Pelopæus cementarius*"—Smith Cat.
Note.—I compared the types of all Townsend's species; they are the same, and *aurifrons* seemed scarcely different.
signatus MEIGEN, Syst. Besch., IV, 303 (*Tachina*).—Europe.
SCHINER, Fauna Austr., I, 502 (*Macronychia*).
TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 354 (*aurifrons*).—Carlinville, Ill.
COQUILLET, Rev. Tachin., 79.—N. H., Mass., W. Va., N. C., Fla., Ida.; reared from *Pelopæus cementarius* and *Tryporylon* sp. N. J.—Smith Cat.

SENOTAINIA.

- MACQUART, Dipt. Exot., Suppl., I, 167, 1846.
BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 360, 1891 (*Arrenopus*).
COQUILLET, Revis. Tachin., 80, 1897, pt. desc.
Note.—*Miltogramma* MEIGEN, at least in the sense of Van der Wulp and Townsend, seems to belong here.
biseta THOMSON, Eugen. Resa, 524 (*Miltogramma*).—Panama.
erythra VAN DER WULP, Biologia, Dipt., II, 89 (*Miltogramma*).—Presidio, Mex.
fasciata COQUILLET, Revis. Tachin., 81.—Las Cruces, N. M.
nana VAN DER WULP, Tijdschr. v. Ent., XXXV, 195, 1888 (*Miltogramma*); Biologia, Dipt., II, 483 (id.).—Guerrero, Mex.
nana COQUILLET, Revis. Tachin., 80, 1897.—Las Cruces, N. M.
rubriventris MACQUART, Dipt. Exot., Suppl., I, 167.—Texas.
THOMSON, Eugen. Resa, 523 (*Miltogramma erythroccra*).—Cal.
VAN DER WULP, Biologia, Dipt., II, 89 (*Miltogramma fulvicornis*).—Guerrero, Mex.
TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 355 (*M. flavicornis*); 357 (*M. similis*); Canad. Ent., XXIV, 68 (*M. kansensis*); Ent. News, III, 81 (*M. decisa*).—Carlinville, Ill.; Carlinville, Ill.; Kansas; So. Fla.
COQUILLET, Revis. Tachin., 80.—Toronto, Canada, to Fla.; Idaho to S. Cal.
Note.—I confirmed the identity of Townsend's species with each other, from the types.

- sarcophagina** VAN DER WULP, *Biologia, Dipt.*, II, 90 (*Miltogramma*).—Atoyac, Mex.
- trilineata** VAN DER WULP, *Biologia, Dipt.*, II, 89 (*Miltogramma*).—Presidio, Mex.
- BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, v, 361 (*Arrenopus americana*).—Ga.
- TOWNSEND, *Trans. Amer. Ent. Soc.*, XVIII, 357 (*Miltogramma argenti-frons*); 358 (*M. cinerascens*).—Both Carlinville, Ill.
- COQUILLET, *Revis. Tachin.*, 81.—Toronto, Canada, to Ga., and west to Wash. and S. Cal.; reared from *Sphæcius speciosus* DRURY.
- Note*.—I confirmed the identity of Townsend's species, from the types.

PSEUDOTRACTOCERA.

- TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 107, 1892.
- BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 196, 1893.
- calosomæ** COQUILLET MS., see *Biomyia georgia*.
- neomexicana** TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 108.—Las Cruces, N. M.
- COQUILLET, *Revis. Tachin.*, 81.—Same locality.

BIOMYIA.

- RONDANI, *Dipt. Ital. Prod.*, I, 72, 1850.
- MEIGEN, *Syst. Besch.*, VII, 250 (*Fabricia*, preoc.), 1838.
- RONDANI, *Dipt. Ital. Prod.*, IV, 53, 1861 (*Viviana*).
- BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, v, 313, 1891 (*Masi-phy*).
- COQUILLET, *Revis. Tachin.*, 81, notes, 1897.
- aurigera** COQUILLET, *Proc. Acad. Nat. Sci. Phil.*, 1895, 30 (*Masi-phy*); *Revis. Tachin.*, 82.—Fla.
- brasiliansa** BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, v, 313 (*Masi-phy*).—Brazil.
- TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 97 (*Tachinomyia floridensis*).—Fla.
- COQUILLET, *Revis. Tachin.*, 82.—D. C., Md., Va., Ga., Fla., S. Cal. St. Augustine, Fla.—Johnson.
- citrina** BIGOT, *Annales*, 1888, 262 (*Viviana*).—Mex.
- genalis** COQUILLET, *Revis. Tachin.*, 82.—Tifton, Ga.
- georgiæ** BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, v, 312 (*Viviana*).—Ga.
- TOWNSEND, *Trans. Amer. Ent. Soc.*, XVIII, 359 (*Masicera sordicolor*).—Carlinville, Ill.
- BURGESS, *Rept. Mass. State Board of Agric.*, 1897, 83 (*Pseudotractocera calosomæ* COQ. MS.).
- COQUILLET, *Revis. Tachin.*, 82.—Mass., S. Cal., Ga.; bred from *Calosoma calidum* FABR., and *C. peregrinator* GUÉR.
- ? **rufopygata** BIGOT, *Annales*, 1888, 262 (? *Viviana*).—Mex.

COMATACTA.

- COQUILLET, *Canad. Ent.*, XXXIV, 199, 1902.
- pallidula** VAN DER WULP, *Biologia, Dipt.*, II, 95 (*Brachycoma*).—Yucatan.
- COQUILLET, *Canad. Ent.*, XXXIV, 200, type of this genus.—San Rafael, Vera Cruz, Mex.

ATACTA.

SCHINER, Novara, 328, 1868.

apicalis COQUILLET, Revis. Tachin., 83.—Tifton, Ga.

brasiliensis SCHINER, Novara, 328.—Brazil.

VAN DER WULP, Biologia, Dipt., II, 92 (*Brachycoma laticeps*).—Guerrero and Tabasco, Mex.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 365, syn.; VI, 121.

nigripalpis VAN DER WULP, Biologia, Dipt., II, 98 (*Brachycoma*).—Guerrero and Tabasco, Mex.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 365, gen. ref.

SIPHOSTURMIA.

COQUILLET, Revis. Tachin., 83, 1897.

rostrata COQUILLET, Jour. N. Y. Ent. Soc., III, 106 (*Argyrophylax*); Revis. Tachin., 83.—Tifton, Ga.; Fla.

DÆCKE, Ent. News, XIII, 332, oc. in N. J.

BELVOSIA.

DESVOIDY, Myodaires, 103, 1830; loc. cit., 104 (*Latreillia*).

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 97, 1889 (*Hillistonia*); VI, 204, 1893, history, etc., important.

VAN DER WULP, Biologia, Dipt., II, 29, 1890 (includes *Blepharipeza*).

WILLISTON, Insect Life, v, 238, 1893, with plate.

analis MACQUART, Dipt. Exot., Suppl., I, 100, pl. XIV, f. 4.—Brazil?

GIGLIO-TOS, Ditt. del Mess., III, 29.—Tuxpango, Mex.

bella GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., III, 30, f. 6.—Mex.

bifasciata FABRICIUS, Syst. Ent., 777; Ent. Syst., IV, 325; Syst. Antl., 209 (all *Musca*).—West Indies.

LATREILLE, Dict. d'Hist. Nat., XXIV, 195 (*Ocyptera*).

WIEDEMANN, Auss. Zw., II, 305 (*Tachina*).—S. A.

DESVOIDY, Myodaires, 103 (*bicincta*); 104 (*Latreillia*).—Carolina and Antilles; Va.

MACQUART, Hist. Nat. Dipt., II, 104 (*Nemoræa*); 112 (*Scenometopia bicincta*); Dipt. Exot., II, 3, 57, pl. VI, f. 2.—Brazil and Philadelphia; bred from *Citheronia* (*Cerocampa* of MACQ.) *regalis* FABR.

WILLISTON, Trans. Amer. Ent. Soc., XIII, 302-3 (*bifasciata* and *bicincta*).—Wash. to San Domingo.

VAN DER WULP, Tijdschr. v. Ent., XXVI, 23; Biologia, Dipt., II, 30, pl. II, f. 8.—Guatemala.

RILEY, 5th Mo. Rept., 140, desc. and fig.; bred from *Anisota rubicunda*.—Mo.

RILEY, 4th Rept. U. S. Ent. Comm., App., 110, desc. of larva.

TOWNSEND, Trans. Amer. Ent. Soc., XIX, 89, pt. desc. (*bicincta*); Psyche, 1897, 128, oc. in N. M., etc.

COQUILLET, Revis. Tachin., 84.—Mass. to S. Cal. and Mex.; bred from *Citheronia regalis* FABR., *Dryocampa rubicunda* FABR., and *Hemiluca* sp.

N. J.—Smith Cat.; bred from *Eacles imperialis*. Porto Rico—Roeder.

ferruginosa TOWNSEND, Trans. Amer. Ent. Soc., XXII, 71.—Jamaica.

leucophrys WIEDEMANN, see *Blepharipeza*.

leucopyga VAN DER WULP, Notes from the Leyden Mus., IV, 84; Tijdsch. v. Ent., XXVI, 27; Biologia, Dipt., II, 470, oc.—Brazil; Brazil; N. Yucatan.

- luteola** COQUILLET, Proc. U. S. N. M., XXII, 253.—Vieques Id., near Porto Rico.
- slossonæ** COQUILLET, Proc. Acad. Nat. Sci. Phil., 1895, 312; Revis. Tachin., 84.
—Charlotte Harbor, Fla.
- unifasciata** DESVOIDY, Myodaires, 105 (*Lutrcillia*).
RILEY, 2d Mo. Rept., 51 (*Exorista flavicauda*); quoted in General Index
to Mo. Repts., 88.—Mo.: bred from *Leucania unipuncta*.
COQUILLET, Revis. Tachin., 84.—N. Y., Ill. Ga., Miss., Mo.: bred from
same.
N. J.—Smith Cat.
- vanderwulpi** WILLISTON, Trans. Amer. Ent. Soc., XIII, 303.—San Domingo.
- weyenberghiana** VAN DER WULP, Tijdsch. v. Ent., XXVI, 26, pl. 1, f. 16; Biologia,
Dipt., II, 470, oc.—Argentina, bred from *Saturnia argentina*; Mexico,
several places, bred from *Automeris cecrops*.

MELANOPHRYS.

- WILLISTON, Trans. Amer. Ent. Soc., XIII, 305, 1886.
- TOWNSEND, Trans. Amer. Ent. Soc., XIX, 92, 1892 (*Atropharista*).
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 169, 1893.
- COQUILLET, Revis. Tachin., 85, 1897, notes.
- insolita** WALKER, Dipt. Saund., 277 (*Tachina*).—U. S.
TOWNSEND, Trans. Amer. Ent. Soc., XIX, 92 (*Atropharista jurinoides*).—
Brookings, S. D.
- WILLISTON, Kans. Univ. Quart., III, 172; Psyche, 1893, 409 and 492, notes.
- TOWNSEND, Psyche, 1893, 461, notes.
- COQUILLET, Revis. Tachin., 85.—Grimsby, Canada; N. H., N. Ill., Col.
Aston, N. Y.—M. and H.
- flavipennis** WILLISTON, Trans. Amer. Ent. Soc., XIII, 306.—Wyo., Cal.
COQUILLET, Revis. Tachin., 85.—S. Cal., Idaho.

APHRIA.

- DESVOIDY, Myodaires, 89, 1830.
- MEIGEN, Syst. Besch., VII, 266, 1838 (*Olivicria*).
- MACQUART, Annales Soc. Ent. France, 1848, 87 (*Rhynchosisia*, to replace
Olivicria, prec.).
- SCHINER, Fauna Austr., I, 432, 1862.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 134, 1889; VI, 138
and 214, 1893.
- COQUILLET, Revis. Tachin., 85, 1897, notes.
- ocypterata** TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 361.—Brookings, S. D.,
and Minn.
- COQUILLET, Revis. Tachin., 85.—Toronto, Can., to Ga.; Wash. to S. Cal.;
bred from *Carnedus messoria*.

MASISTYLUM.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 138, 1893.
- macropogon** BIGOT, Annales, 1888, 259 (*Brachycoma*).—Cal.
- BRAUER, Sitzungsbericht d. K. Akad., CVI, 21, type redesc. and referred
here.

OCYPTERA.

- LATREILLE, Hist. Nat. Crust. et Ins., XIV, 378, 1804.
- DESVOIDY, Myodaires, 231, 1830 (*Parthunia*).
- SCHINER, Fauna Austr., I, 412, 1862.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 143, 1893.

COQUILLET, Revis. Tachin., 86, 1897, notes.

VAN DER WULP, Biologia, Dipt., II, 449, 1903, table of species.

Note.—The synonymy of this genus is very uncertain, particularly as to *carolinæ* and *dosiades*. Townsend has dissented from Coquillett's conclusions, which are presented below. Brauer, Sitzungsbericht d. K. Akad., CVII, 1, confirms the generic position of Bigot's species, without expressing any opinion as to the synonymy.

arcuata SAY, see *Xanthomelana*.

argentea TOWNSEND, Proc. Ent. Soc. Wash., II, 144.—D. C. and Iowa.

COQUILLET, Revis. Tachin., 86.—N. J., Pa., N. Va., Mo.

atra ROEDER, Stett. Ent. Zeit., 1885, 344.—Porto Rico. See *dosiades*.

VAN DER WULP, Biologia, Dipt., II, 450, oc.—N. Yucatan.

carolinæ DESVOIDY, Myodaires, 232 (*Parthunia*).—Carolina.

WALKER, List, IV, 604 (*dotades* and *epytus*); 606 (*cuchenor*).—Jamaica; Ga.; Mass. and Newfoundland.

BIGOT, Annales, 1878, 42-44 (*californica*, *funipennis* and *binotata*).—Cal.; Cal.; Baltimore.

TOWNSEND, Psyche, 1893, 466; Jour. N. Y. Ent. Soc., V, 176; Psyche, 1897, 149; loc. cit., 1898, 212;—notes on syn. and oc.; bred by Forbes from an *Aceridiid* and ?*Leucania unipuncta* HAW.

Province of Quebec—Fyles.

dosiades WALKER, List, IV, 605.—Nova Scotia.

BIGOT, Annales, 1878, 46, 47 (*soror* and *simplex*).—Both Mexico.

GIGLIO-TOS, Ditt. del Mess., III, 3, includes *binotata*, *atra*, and ?*cuchenor* as synonyms.—Orizaba, Mex.

COQUILLET, Revis. Tachin., 86.—N. II. to Ga.; S. D. to Nev.

VAN DER WULP, Biologia, Dipt., II, 4 (*soror*) and 450, oc. in Mexico, many places.

Montreal—Chagnon.

liturata OLIVIER, see *Euantha*.

minor ROEDER, Stett. Ent. Zeit., 1885, 344.—Porto Rico.

Guerrero, Mex.—Van der Wulp.

signatipennis VAN DER WULP, Tijdschr. v. Ent., XXXV, 187; Biologia, Dipt., II, 450, pl. XIII, f. 11.—Guerrero, Mex.

STEVENIA.

DESVOIDY, Myodaires, 221, 1830; Dipt. Env. Paris, II, 377, 1863.

RONDANI, Dipt. Ital. Prod., I, 80, 1856.

VAN DER WULP, Biologia, Dipt., II, 455, 1903, note.

Note.—Bigot's species probably do not belong to this genus.

flavocalyprata BIGOT, Annales, 1888, 255.—Mex.

pallidiventris BIGOT, Annales, 1888, 254.—Mex.

pictipes BIGOT, see *Xanthomelana arcuata*.

LINNÆMYIA.

DESVOIDY, Myodaires, 52-57 (*Linnæmyia*, *Bounettia*, *Bonnellia*, *Marshamia*), 1830.

MACQUART, Hist. Nat. Dipt., II, 80, 1835 (*Micropalpus*).

SCHINER, Fauna Austr., I, 427, 1862 (*Micropalpus*).

COQUILLET, Revis. Tachin., 86, 1897, notes.

Note.—Several of the species described as *Micropalpus* will be found under *Epalpus*.

- angustifrons** VAN DER WULP, Tijdschr. v. Ent., xxxv, 193 (*Micropalpus*); Biologia, Dipt., II, 475 (id.).—Tabasco, Mex.
- comta** FALLÉN, Kongl. svenska Vetenskap. Akad. Handl., xxxi, 1810 (*Tachina*); Muscides, 24, 1820 (id.).—Europe.
- MEIGEN, Syst. Besch., iv, 259 (*Tachina fulgens*); VII, 217, refers to *Micropalpus*.
- DESVOIDY, Myodaires, 53-58 (*heraclci, analis, distincta, æstivalis, borcalis, Marshamia analis* and *nigripes*).—Europe, Philadelphia and Carolina.
- MACQUART, Hist. Nat. Dipt., II, 84 (*Micropalpus piccus*).—Carolina.
- ZETTERSTEDT, Dipt. Scand., III, 1094 (*Tachina*).
- RONDANI, Dipt. Ital. Prod., III, 70 (*Micropalpus*).
- SCHINER, Fauna Austr., I, 428 (*Mic. fulgens*; his *comtus*, p. 429, is a different species).
- GIGLIO-TOS, Ditt. del Mess., III, II, notes (*Mic. fulgens* and *comtus*).—Mexico, several places.
- VAN DER WULP, Biologia, Dipt., II, 474 (*M. fulgens*), oc.—Guerrero, Mex.
- COQUILLET, Revis. Tachin., 87, syn., etc.—London, Ont.; U. S. generally; bred from *Agrotis ypsilon* ROTT. and *Carnecades messoria* HARR.
- nigrifrons** BIGOT, Annales, 1888, 263 (*Micropalpus*).—Mex.
- picta** MEIGEN, Syst. Besch., iv, 261 (*Tachina*); VII, 217, gen. ref.—Europe.
- SCHINER, Fauna Austr., I, 429.
- COQUILLET, Revis. Tachin., 87; Proc. Wash. Acad. Sci., II, 438, oc. in Alaska.—N. H.; Mass.
- Beulah, N. M.—Skinner.

NEMORÆA.

- DESVOIDY, Myodaires, 71, 1830.
- SCHINER, Fauna Austr., I, 447, 1862.
- VAN DER WULP, Biologia, Dipt., II, 47, note, and table of Mexican species, 1890.
- BRÄUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 116, 1889; VI, 171, 183, 1893.
- BRÄUER, Sitzungsbericht d. K. Akad., CVII, 5.
- clesides** WALKER, see *Phyto*.
- forreri** VAN DER WULP, Biologia, Dipt., II, 49, pl. II, f. 21.—Durango, Guerrero, Tepic and Vera Cruz, Mex.
- GIGLIO-TOS, Ditt. del Mess., III, 13 (*Microtrichomma*).—Guerrero, Mex., and Mexico City.
- Note*.—Giglio-Tos, in Boll. R. Univ. Torino, VIII, No. 158, 1, has proposed a new genus, *Microtrichomma*, for Van der Wulp's *Nemoræa intermedia, forreri*, and *smithi*; but Brauer and Bergenstamm, Zweifl. d. Kaiserl. Mus., VI, 183, mention these, with *obscurella*, as belonging to their genus *Arthrochata*. Not being able to clear up the situation, I content myself with calling attention to it.
- intermedia** VAN DER WULP, Biologia, Dipt., II, 50.—Guerrero and City of Mexico.
- GIGLIO-TOS, Ditt. del Mess., III, 13.
- intrita** WALKER, Trans. Ent. Soc., n. ser., v, 297.—Mex.
- labis** COQUILLET, Jour. N. Y. Ent. Soc., III, 104; Revis. Tachin., 87.—Wash.
- leucaniæ** KIRKPATRICK, see *Hinthemia quadripustulata*.
- masuria** WALKER, see *Eutirra*.
- minor** MACQUART, see *Panzeria radicum*.
- notata** BIGOT, Annales, 1888, 82 (*Echinomyia*).—Mex.
- BRÄUER, Sitzungsbericht d. K. Akad., CVII, 5, refers to *Arthrochata*.

- obscorella** VAN DER WULP, *Biologia, Dipt.*, II, 48.—Guerrero, Mex.
pyste WALKER, see *Exorista*.
setigera COQUILLET, *Proc. U. S. N. M.*, XXV, 111.—Medina, Ohio.
smithi VAN DER WULP, *Biologia, Dipt.*, II, 50.—Atoyac, Mex.
trixoides WALKER, see *Microphthalma disjuncta*.
variegata VAN DER WULP, *Biologia, Dipt.*, II, 48.—Guerrero, Mex.

PANZERIA.

- DESVOIDY, *Myodaires*, 62-68 (*Ernestia, Fausta, Erigone, Panzeria*), 1830.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 145, 1893.
 COQUILLET, *Revis. Tachin.*, 88, 1897, notes.
 BRAUER, *Sitzungsbericht d. K. Akad.*, CVII, 531, 1898.
flavicornis BRAUER, *Sitzungsbericht d. K. Akad.*, CVII, 532.—White Mts., N. H.
penitalis COQUILLET, *Revis. Tachin.*, 89.—Va., Mo.; bred from *Pyrausta penitalis* GROTE.
radicum FABRICIUS, *Syst. Ent.*, 778; *Ent. Syst.*, IV, 326; *Syst. Antl.*, 300 (all *Musca*; the reference to Linnaeus in the last is to a different species—ZTT.).—Europe.
 FALLÉN, *Muscides*, 26 (*Tachina lurida*). [Meig.]
 MEIGEN, *Syst. Besch.*, IV, 249 (*Tachina*); VII, 221, gen. ref.
 DESVOIDY, *Myodaires*, 66-68 (*Erigone anthophila, scutellaris, puparum, viridulans* and *dubia*).
 MACQUART, *Annales Soc. Ent. France*, 1848, 112 (*Nemorca minor*).
 WALKER, *List*, IV, 732 (*Tachina ampelus*).—Nova Scotia.
 TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 91 (*Hystricia aldrichi*).—Brookings, S. D.
 COQUILLET, *Revis. Tachin.*, 88, syn., etc.—U. S. generally; British Col.; bred from *Hyphantria cunea* DRURY and *Hyphantria* sp.
 Hudsonian Zone, N. M.—Cockerell; Alaska—Coquillett; Beulah, N. M.—Skinner.
ruficauda BRAUER, *Sitzungsbericht d. K. Akad.*, CVII, 539 (*Erigone*).—N. A.; attributed to Riley, but it must have been a MS. name of his.

MACROMEIGENIA.

- BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, V, 311, 1891.
chrysoprocta WIEDEMANN, *Auss. Zw.*, II, 309 (*Tachina*).—No locality.
 WALKER, *Dipt. Saund.*, 295 (*Tachina interrupta*).—Ga.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, V, 311.—S. C.
 COQUILLET, *Revis. Tachin.*, 89.—Va., Ga. N. J.—Smith Cat.

BOLOMYIA.

- BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, V, 347, 1891.
rufata BIGOT, *Annales*, 1888, 257 (*Exorista*).—Mex.
 VAN DER WULP, *Biologia, Dipt.*, II, 53 (*Mystacella violacea*).—Mexico, several places; Guatemala.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, V, 347; VI, 122.—Mex., Brazil.
 BRAUER, *Sitzungsbericht d. K. Akad.*, CVI, 341, syn.

GYMNOCHÆTA.

- DESVOIDY, *Myodaires*, 371, 1830.
alcedo LOEW, *Cent.*, VIII, 61.—U. S.

- COQUILLET, Revis. Tachin., 89 (inclusive of *ruficornis*).—N. J., Col., Kans.
rheinwardtii WIEDEMANN, Auss. Zw., II, 315 (*Tachina*).—Brazil.
 VAN DER WULP, Biologia, Dipt., II, 40.—Guatemala. Also p. 479, oc. in Mexico City and Guerrero.
ruficornis WILLISTON, Trans. Amer. Ent. Soc., XIII, 302.—Pa., Kans.
 COQUILLET, Revis. Tachin., 89, as a synonym of *alcedo*, with which I disagree, after examining Williston's types and other material.
subviridis VAN DER WULP, Tijdschr. v. Ent., XXXV, 194; Biologia, Dipt., II, 480.—Mex.
vivida WILLISTON, Trans. Amer. Ent. Soc., XIII, 302.—Pa. Moscow, Ida.—J. M. A.

METAPHYTO.

- COQUILLET, Revis. Tachin., 89, 1897.
genalis COQUILLET, Revis. Tachin., 89.—Col.

EXORISTOIDES.

- COQUILLET, Revis. Tachin., 90, 1897.
harringtoni COQUILLET, Proc. U. S. N. M., XXV, 110.—Ottawa, Canada.
johnsoni COQUILLET, Revis. Tachin., 91.—N. C., Nev.
slossonæ COQUILLET, Revis. Tachin., 90.—Me., N. H., N. J.

HYPHANTROPHAGA.

- TOWNSEND, Psyche, 1892, 247.
hyphantriæ TOWNSEND, Psyche, 1891, 176 (*Meigenia*).—Las Cruces, N. M.; reared from *Hyphantria cunea* DRURY. Op. cit., 1892, 258, bred from *Eucaterpa variaria* GROTE.
 BAKER, Ent. News, VI, 174, reared from *Fancssa milberti* GODT. at Fort Collins, Col.
 COQUILLET, Revis. Tachin., 91.—Las Cruces, N. M.

MYSTACELLA.

- VAN DER WULP, Biologia, Dipt., II, 51, 1890, def. and table of Mexican species.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 233, 1893, refer to this as a mixture of genera.
adjuncta VAN DER WULP, Biologia, Dipt., II, 55.—Guerrero, Mex.
flavifrons VAN DER WULP, Biologia, Dipt., II, 57.—Tabasco, Mex.
fuscicostalis VAN DER WULP, Biologia, Dipt., II, 57, pl. III, f. 5.—Mex.; Costa Rica.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 341 and VI, 122, desc., and type of their genus *Paramesochata*.
lineata VAN DER WULP, Biologia, Dipt., II, 54.—Tabasco, Mex.
lugubris VAN DER WULP, Biologia, Dipt., II, 53.—Guerrero, Mex.
postera VAN DER WULP, Biologia, Dipt., II, 56.—Guerrero, Mex.
rubriventris VAN DER WULP, see *Mystacomyia*.
setulosa VAN DER WULP, Biologia, Dipt., II, 58.—Guerrero, Mex.
solita VAN DER WULP, Biologia, Dipt., II, 55.—Guerrero, Mex.
subcyanea VAN DER WULP, Biologia, Dipt., II, 58.—Guerrero, Mex.
tessellata VAN DER WULP, Biologia, Dipt., II, 56.—Guerrero and Morelos, Mex.
violacea VAN DER WULP, see *Bolomyia rufata*.

MYSTACOMYIA.

- GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Dipt. del Mess., III, 30, 1894.
rubriventris VAN DER WULP, Biologia, Dipt., II, 52 (*Mystacella*).—Vera Cruz and Tuxpango, Mex.
 GIGLIO-TOS, Dipt. del Mess., III, 37.—Mexico City.

MEIGENIA.

- DESVOIDY, Myodaires, 198, 1830.
 RONDANI, Dipt. Ital. Prod., III, III, 1859.
 VAN DER WULP, Biologia, Dipt., II, 58, 1890, pt. desc., and table of Mexican species.
albidula VAN DER WULP, Biologia, Dipt., II, 59, pl. III, f. 6.—Tabasco, Mex.
albifacies VAN DER WULP, Tijdsch. v. Ent., XXXV, 194; Biologia, Dipt., II, 481.—Guerrero, Mex.
flaviventris VAN DER WULP, Biologia, Dipt., II, 59; p. 481, note.—Orizaba, Mex.; Guerrero.
gratiosa VAN DER WULP, Biologia, Dipt., II, 60.—Guerrero, Mex.
hyphantriæ TOWNSEND, see *Hyphantrophaga*.
promiscua TOWNSEND, see *Frontina frenchii*.
websteri TOWNSEND, see *Frontina frenchii*.

EXORISTA.

- MEIGEN, Illig. Mag., II, 280, 1803; Syst. Besch., VII, 255, 1838.
 DESVOIDY, Myodaires, 142, 143, 158, 176, 184 (*Lydella*, *Phryno*, *Phryxe*, *Carcclia*, *Aplomya*), 1830; Annales Soc. Ent. France, 1847, 601 (*Hübneria*).
 MACQUART, Hist. Nat. Dipt., II, 115 (*Eurygaster*), 1835.
 RONDANI, Dipt. Ital. Prod., I, 66 (*Xemorilla* and *Blepharidea*); III, 90 (*Aporomyia*), 1856 and 1859.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 87, 1889 (*Parxorista*); 163 (*Sisyropa*); V, 331, 1891 (*Myxororista*); VI, 123, 1893 (*Masipoda*).
 TOWNSEND, Psyche, 1896, 329, table of U. S. species.
 COQUILLETT, Revis. Tachin., 91, syn. and notes, 1897.
ærata COQUILLETT, Revis. Tachin., 100.—N. III.
affinis FALLÉN, Kongl. Vetensk. Akad. Handl., XXXI (*Tachina*); Muscides, 28 (id.).—Europe.
 MEIGEN, Syst. Besch., IV, 327 (*Tachina*); VII, 255, gen. rel.
 ZETTERSTEDT, Dipt. Scand., III, 1106 (*Tachina*).
 MACQUART, Hist. Nat. Dipt., II, 106 (*Scnomctopia*); Annales Soc. Ent. France, 1849, 380 (*polychata*).
 WALKER, List, IV, 786 (*Tachina epicydes*).—Martin Falls, Canada.
 SCHNER, Fauna Austr., I, 463 (*polychata*); 465 (*affinis*). See Coquillett, footnote.
 COQUILLETT, Revis. Tachin., 94.—Toronto, Canada; Franconia, N. H.; Col.
amplexa COQUILLETT, Revis. Tachin., 98.—White Mts., N. H.; Frankford, Pa.
angustata VAN DER WULP, Biologia, Dipt., II, 70.—Guerrero, Mex.
 COQUILLETT, Revis. Tachin., 90.—Texas.
areos WALKER, see *Polidca*.

- blanda** OSTEN SACKEN, *Canad. Ent.*, XIX, 162.—U. S. (no locality), bred by RILEY from *Pyramis cardui* LINN.
 WILLISTON, in Scudder's *Butterflies of New England*, p. 1918, quotes desc.; bred from *Nisoniades brizo* BD.-LEC.
 COQUILLET, *Revis. Tachin.*, 92.—N. H., Philadelphia, N. Ill., Kans., Col.; bred from *Eulca cippus* CRAM.
- blandita** COQUILLET, *Revis. Tachin.*, 96.—Franconia, N. H.
- boarmia** COQUILLET, *Revis. Tachin.*, 95.—Mass., D. C., Ark.; bred from *Boarmia pampinaria* GUEN. and *Loxostege similalis* GUEN.
 N. J.—Smith Cat.; infests *Cacacia fervidana*.
- brevis** VAN DER WULP, *Biologia, Dipt.*, II, 64.—Guerrero, Mex.
- cæruleiventris** VAN DER WULP, *Biologia, Dipt.*, II, 64.—Tabasco, Mex.
- cecropiæ** RILEY MS., see *Winthemia quadripustulata*.
- ceratomia** COQUILLET, *Revis. Tachin.*, 101.—Mo., Kans., Texas; bred from *Ceratomia undulosa* WALK., *Omphalocera cariosa* LED., *Pempelia* sp., and an undetermined Pyralid.
- ? **cessatrix** WALKER, *Trans. Ent. Soc.*, n. ser., v, 305 (sep. 38) (*Lydella*).—Mex. Query by J. M. A.
- chelonix** RONDANI, *Dipt. Ital. Prod.*, III, 120.—Europe.
 COQUILLET, *Revis. Tachin.*, 92.—N. H. to Cal.; bred from *Arachnis picta* PACK., and *Arctia docta* WLK.
- chrysophani** TOWNSEND, see *confinis*.
- ciliata** TOWNSEND, see *Winthemia quadripustulata*.
- commetans** WALKER, *Trans. Ent. Soc.*, n. ser., v, 300 (*Eurigaster*).—Mex.
- confinis** FALLÉN, *Muscides*, 32 (*Tachina*).—Europe.
 MEIGEN, *Syst. Besch.*, IV, 396 (*Tachina*); VII, 261, gen. ref.
 DESVOIDY, *Myodaires*, 159 (*Phyre zonata*, *scrillei*, and *sabulosa*).
 ZETTERSTEDT, *Ins. Lapp.*, 644; *Dipt. Scand.*, III, 1140 (*Tachina*).
 RONDANI, *Dipt. Ital. Prod.*, III, 458.
 SCUDDER, *Canad. Ent.*, XIX, 160 (*Tachina theclarum*).—Ontario? Bred by Wm. Saunders from *Thecla inornata* (*Thecla calanus* HUEB.).
 WILLISTON, in Scudder's *Butterflies of New England*, p. 1920, pl. LXXXIX, f. 17, 19 (*theclarum*); bred from *Lycena pseudargiolus* BD.-LEC.
 TOWNSEND, *Ent. News*, II, 197 (*chrysophani*).—Iowa; bred from *Chrysophanus dione* (*C. xanthoides* BOISD.).
 COQUILLET, *Revis. Tachin.*, 97.—N. H., La., Ida., Cal., etc.; bred from *Dendrobius howardi* DYAR and *Lycena exilis* BOISD.
- consobrina** VAN DER WULP, *Biologia, Dipt.*, II, 68.—Tabasco, Mex.
- curriei** COQUILLET, *Revis. Tachin.*, 94.—University, N. D.
- datana** TOWNSEND, see *Winthemia quadripustulata*.
- desita** WALKER, *Trans. Ent. Soc.*, n. ser., v, 299 (*Eurigaster*).—Mex.
- dorsalis** COQUILLET, *Canad. Ent.*, XXX, 230.—Pa., Ga.
- doryphoræ** RILEY, see *Phorocera*.
- dubia** FALLÉN, *Kongl. svenska Vetensk. Akad. Handl.*, XXXI (*Tachina*); *Muscides*, 29 (id.).—Europe.
 MEIGEN, *Syst. Besch.*, IV, 360 (*Tachina*); VII, 256, gen. ref.
 DESVOIDY, *Myodaires*, 141 (*Lypha*); 142 (*L. sylvatica*); 113 (*Lydella agrestis*, *nitida*, and *dubia*). [Schiner.]
 ZETTERSTEDT, *Ins. Lapp.*, 643; *Dipt. Scand.*, III, 1111 (both *Tachina*).
 RONDANI, *Dipt. Ital. Prod.*, III, 90, footnote (*Aporomyia*, n. gen.).
 SCHINER, *Fauna Austr.*, I, 460.
 COQUILLET, *Revis. Tachin.*, 95.—Colorado.
- elongata** VAN DER WULP, *Biologia, Dipt.*, II, 65, pl. III, f. 8.—Costa Rica.

- epicydes** WALKER, see *affinis*.
- eudryadis** TOWNSEND, Trans. Amer. Ent. Soc., XIX, 287.—N. Y. (*eudryæ*); bred from *Eudryas* sp.
- COQUILLET, Revis. Tachin., 100.—Canada; N. H., Mass., N. J., D. C., Md., Va., Ohio, Mo.; bred from nine species of Lepidoptera.
- Axton, N. Y.—M. and H.
- exilis** VAN DER WULP, Biologia, Dipt., II, 71.—Guerrero, Mex.
- fertoria** WALKER, Trans. Ent. Soc., n. ser., v, 300 (*Eurigaster*).—Mex.
- flavicans** VAN DER WULP, Biologia, Dipt., II, 74.—Orizaba, Mex.
- flavicauda** RILEY, see *Bekvosia unifasciata*.
- flavirostris** VAN DER WULP, Biologia, Dipt., II, 69, pl. III, f. 7.—Orizaba and Tabasco, Mex.
- COQUILLET, Revis. Tachin., 100.—D. C., Va., Fla., Miss.; bred from *Lagoa opercularis* S. and A., several times.
- fronto** COQUILLET, Revis. Tachin., 96.—Mt. Washington, N. H.
- futilis** OSTEN SACKEN, Canad. Ent., XIX, 161.—No locality, presumably Mass.; bred by T. W. Harris and S. H. Scudder from *Vanessa atalanta*.
- WILLISTON, in Scudder's Butterflies of New England, p. 1917, quotes desc.—Conn.
- COQUILLET, Revis. Tachin., 98.—Mass., N. Ill., Cal., Ore., Mich.; bred from *Clisiocampa thoracica* STRETCH and *Hadena apaniformis* GROTE.
- glabricula** VAN DER WULP, Biologia, Dipt., II, 73.—Guerrero, Mex.
- griseomicans** VAN DER WULP, Biologia, Dipt., II, 74.—Guerrero and Tabasco, Mex.; Costa Rica.
- COQUILLET, Revis. Tachin., 98.—D. C.; reared from *Orgyia leucostigma* SM. and ABBOTT. N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- habilis** WALKER, Trans. Ent. Soc., n. ser., v, 301 (*Eurigaster*).—Mex.
- helvina** COQUILLET, Revis. Tachin., 96.—White Mts., N. H.
- N. J.—Smith Cat.
- hirsuta** OSTEN SACKEN, see *vulgaris*.
- hispidia** VAN DER WULP, Biologia, Dipt., II, 65.—Orizaba and Guerrero, Mex.
- humilis** VAN DER WULP, Biologia, Dipt., II, 72.—Guerrero, Mex.
- hybreas** WALKER, see *Tachina*.
- ignobilis** VAN DER WULP, Biologia, Dipt., II, 71.—Guerrero, Mex.
- ? **indita** WALKER, Trans. Ent. Soc., n. ser., v, 306 (*Lydeella*).—Mex.
- infesta** WILLISTON, see *Hinthemia quadripustulata*.
- intersticta** VAN DER WULP, Biologia, Dipt., II, 69.—Guerrero, Mex.
- irrequieta** WALKER, see *Frontina*.
- isæ** COQUILLET, Revis. Tachin., 96.—D. C.; bred from *Isa inornata* G. and R.
- lagoæ** TOWNSEND, Ent. News, II, 159.—Guanajuato, Mex.; bred from *Lagoa opercularis*.
- latevittata** VAN DER WULP, Biologia, Dipt., II, 66.—Guerrero, Vera Cruz, Tabasco, and Orizaba, Mex.
- latimanus** VAN DER WULP, see *rufilatera*.
- lepada** DESVOIDY, Myodaires, 153 (*Zenillia*).—Cuba.
- leucaniæ** KIRKPATRICK, see *Hinthemia quadripustulata*.
- leuconota** VAN DER WULP, Tijdschr. v. Ent., XXXV, 195; Biologia, Dipt., II, 482.—Guerrero, Mex.
- lobeliæ** COQUILLET, Revis. Tachin., 97.—Md., D. C., W. Va.; bred from *Acronycta hamamelis* GUEN., *A. lobeliæ* GUEN., *A. sp.*, and *Orgyia leucostigma* S. and A.
- maura** VAN DER WULP, Biologia, Dipt., II, 72.—Guerrero, Mex.
- mella** WALKER, see *Tachina*.
- modesta** BIGOT, in Sagra's Cuba, 812 (*Eurigaster*).—Cuba.

- nigricauda* VAN DER WULP, *Biologia*, Dipt., II, 70.—Vera Cruz, Mex.
 ? *nigrifacies* BIGOT, *Annales*, 1888, 258 (*Chactolyga*).—Rocky Mts.
 BRAUER, *Sitzungsbericht d. K. Akad.*, CVI, 22, refers to *Paraxorista*, with a doubt.
- nigripalpis* TOWNSEND, *Psyche*, 1896, 330.—Ill?
 COQUILLET, *Revis. Tachin.*, 93.—Toronto, N. H., D. C., III, S. Cal.
- nigriventris* BIGOT, *Annales*, 1888, 257 (*Chactolyga*).—Mex.
 BRAUER, *Sitzungsbericht d. K. Akad.*, CVI, 21, notes on type, refers to *Sisyropa*.
- nitidiventris* BIGOT, *Annales*, 1888, 258 (*Chactolyga*).—Mex.
 BRAUER, *Sitzungsbericht d. K. Akad.*, CVI, 23, notes on type; refers to *Sisyropa*.
- nobilis* WILLISTON, *Trans. Ent. Soc. Lond.*, 1896, 354, pl. XI, f. 92.—St. Vincent, W. I.
- obscura* BIGOT, in Sagra's *Cuba*, 812 (*Eurigaster*).—Cuba. See also *tessellata*.
- obscurata* VAN DER WULP, *Biologia*, Dipt., II, 62.—Vera Cruz and Tabasco, Mex.
- occidentalis* BIGOT, *Annales*, 1888, 258 (*Chactolyga*).—Mex.
 BRAUER, *Sitzungsbericht d. K. Akad.*, CVI, 23, notes on type; refers to *Paraxorista*.
- ochracea* VAN DER WULP, *Biologia*, Dipt., II, 63.—Mexico, several places; Costa Rica.
- ordinaria* VAN DER WULP, *Biologia*, Dipt., II, 64.—Guerrero and Tabasco, Mex.
 COQUILLET, *Revis. Tachin.*, 94.—N. H., Mo., Ga., Texas.
- osten-sackenii* KIRKPATRICK, see *Winthemia quadripustulata*.
- panætius* WALKER, see *Tachina mella*.
- pansa* WALKER, see *Tachina mella*.
- parva* COQUILLET, *Revis. Tachin.*, 100.—Col.
- petiolata* COQUILLET, *Revis. Tachin.*, 98.—Va.; bred from *Lophyrus* sp.
- phycitæ* LEBARON, see *pyste*.
- platysamiæ* TOWNSEND, see *Winthemia quadripustulata*.
- polita* COQUILLET, *Revis. Tachin.*, 99.—Tifton, Ga.
- postica* WALKER, *Trans. Ent. Soc.*, n. ser., v, 301 (*Eurigaster*).—Mex.
- pyste* WALKER, *List*, IV, 754 (*Tachina*).—Nova Scotia.
 LEBARON, 2d Ill. Report, 123 (*phycitæ*).—Ill.; bred from *Phycita nebule*.
 RILEY, 4th Mo. Rept., 40 (*phycitæ*).
 WILLISTON, *Scudder's Butterflies of New England*, III, 1921, pl. LXXXIX, f. 20 (*scudderi*).—Texas; bred by Belfrage from *Thecla autolyceus* EDW.
 FORBES, Ill. Ent. Rept. for 1889-90, appendix, 22 (*phycitæ*).
 COQUILLET, *Revis. Tachin.*, 93.—E. and S. States; Mo., Tex.; Allende, Mex.; bred from *Hyponomeuta multipunctella* CLEM., *Mincola indiginella* ZELL., a Pyralid, and a Tortricid.
- rubrella* DESVOIDY, *Myodaires*, 179 (*Carcelia*); *Dipt. Env. Paris*, I, 241 (id.).—San Domingo.
- rubricornis* VAN DER WULP, *Biologia*, Dipt., II, 66.—Vera Cruz and N. Yucatan, Mex.
- rufata* BIGOT, see *Bolomyia*.
- rufilatera* RONDANI, *Nuovi Ann. Sci. Nat. Bologna*, 1850, 9.—Venezuela.
 ? BIGOT, *Annales*, 1888, 257 (*Chactolyga erythropyga*).—Mex. [Brauer, *Sitzb.*, CVI, 20, with doubt.]
 BRAUER and BERGENSTAMM, *Zweiff. d. Kaiserl. Mus.*, IV, 162; V, 402, 430 (*Masipoda geminata*).—Orizaba, Mex.
 VAN DER WULP, *Biologia*, Dipt., II, 67, pl. III, f. 10 (*latimana*); p. 482, notes.—Mexico, several places.

- GIGLIO-TOS, Ditt. del Mess., III, 37, syn. and desc.—Mex.
- ? **rufipalpis** BIGOT, Annales, 1888, 256.—Mex.
- BRAUER, Sitzungsbericht d. K. Akad., CVI, 13, desc.: thinks forms a new genus, hence the query.
- saginata** WALKER, Trans. Ent. Soc., n. ser., v, 298 (*Eurigaster*).—Mex.
- sororcula** VAN DER WULP, Biologia, Dipt., II, 68.—Morelos, Mex.
- spinipennis** COQUILLET, Revis. Tachin., 95.—Tifton, Ga.
- tenuipalpis** VAN DER WULP, Biologia, Dipt., II, 73.—Guerrero, Mex.
- tessellata** ROEDER, Stett. Ent. Zeit., 1885, 345.—Porto Rico.
- Perhaps the same as *obscurus* BIGOT, from Cuba.—Roeder.
- theclarum** SCUDDER, see *confinis*.
- tricolor** VAN DER WULP, Biologia, Dipt., II, 67, pl. III, f. 9.—Mexico, several places; Costa Rica.
- trisetosa** COQUILLET, Proc. U. S. N. M., XXV, 110.—Moscow and Lewiston, Ida.
- trivittata** WIEDEMANN, Auss. Zw., II, 300 (*Tachina*).—St. Thomas, W. I.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 328 (*Nemorilla*).
- trivittata** VAN DER WULP, Biologia, Dipt., II, 70.—Orizaba, Vera Cruz and Tabasco, Mex.
- GIGLIO-TOS, Ditt. del Mess., III, 38.—Orizaba.
- unicolor** VAN DER WULP, Biologia, Dipt., II, 63.—Morelos, Jalisco and Guerrero, Mex.
- violenta** WALKER, see *Frontina*.
- vorax** WIEDEMANN, Auss. Zw., II, 315 (*Tachina*).—Brazil.
- BIGOT, Annales, 1888, 258 (*Chetolyga flavolimbata*).—Mex.
- BRAUER, Sitzungsbericht d. K. Akad., CVI, 23, note on type, and syn.
- vulgaris** FALLÉN, Kongl. svenska Vetensk. Akad. Handl., XXXI; Muscides, 20 (both *Tachina*).—Europe.
- MEIGEN, Syst. Besch., IV, 391 (*Tachina*); VII, 255, gen. ref.
- DESVOIDY, Myodaires, 115 (*Lydella scutellaris*).
- MACQUART, Hist. Nat. Dipt., II, 118 (*Eurigaster*); Annales Soc. Ent. France, 1849, 387 (*distans*); 388 (*audax*); 400 (*florida*).
- ZETTERSTEDT, Dipt. Scand., III, 1130.
- RONDANI, Dipt. Ital. Prod., III, 140.
- SCHINER, Fauna Austr., I, 458.
- OSTEN SACKEN, Canad. Ent., XIX, 163 (*hirsuta*).—No locality; bred by Lintner from *Picris rapa*.
- WILLISTON, in Scudder's Butterflies of New England, p. 1919, pl. LXXXIX, f. 13-15 (*hirsuta*).
- COQUILLET, Revis. Tachin., 93.—White Mts. and Franconia, N. H.; Olympia, Wash.
- TOWNSEND, Psyche, 1893, 467, bred by Forbes from *Pyrausta penitatis* GROTE.
- Province of Quebec—Fyles.

EUPHOROCERA.

- TOWNSEND, Trans. Amer. Ent. Soc., XIX, 112, 1892.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 197, 1893.
- COQUILLET, Revis. Tachin., 101, 1897, notes.
- cinerea** VAN DER WULP, Biologia, Dipt., II, 81 (*Phorocera*).—Guerrero, Mex.
- COQUILLET, Revis. Tachin., 102.—Franconia, N. H.
- claripennis** MACQUART, Dipt. Exot., Suppl. III, 209, pl. v, f. 8 (*Phorocera*).—N. A.
- WALKER, in Lord's Naturalist in Vancouver Id., II, 339 (*Eurygaster septentrionalis*).—Vancouver Id.

- WILLISTON, Scudder's Butterflies of New England, III, 1921, pl. LXXXIX, f. 52 (*Phorocera edwardsii*).—No locality; bred from butterflies by Dimmock and Riley.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 351 (*Podotachina tibrisata*).—New York.
- TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 366 (*Phorocera edwardsii*).—Fla. and Ill.
- COQUILLETT, Revis. Tachin., 102; Proc. U. S. N. M., XXII, 253.—United States generally; reared from 26 hosts, mostly Lepidoptera, a few Coleoptera.
- HOWARD, Bull. Div. Ent., v, Tech. ser., 43, note on habit.
- MORGAN, Bull. 30, n. ser., Div. of Ent., 25, bred from *Melanoplus differentialis*.—Miss.
- gelida** COQUILLETT, Revis. Tachin., 101.—Pt. Barrows, Alaska.
- tachinomoides** TOWNSEND, Trans. Amer. Ent. Soc., XIX, 112.—Las Cruces, N. M.
Note.—Coquillett has placed this as a synonym of *claripennis* in his Revision; from the appearance of the type it seemed best to me to recognize it as a separate species.

PHOROCERA.

- DESVOIDY, Myodaires, 1830, 131 (*Phorocera*); 122 (*Blondelia*); 123 (*Rhinomyia*); 154 (*Pales*).
- VAN DER WULP, Biologia, Dipt., II, 75, desc. and table of Mexican spp.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 93, 1889; v, 333, 400, 1891; VI, 118, 1893.
- ænea** BIGOT, Annales, 1888, 259 (*Chactolyga*).—Mex.
 ? BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 209 (*Paradoria nigra*).—Venezuela.
- BRAUER, Sitzungsbericht d. K. Akad., CVI, 22, type of Bigot redesc.; syn. with a query.
- ? **antennata** WALKER, Dipt. Saund., 298 (*Tachina*).—U. S.
 COQUILLETT, Revis. Tachin., 105, not seen; gen. ref. with a doubt.
- appendiculata** VAN DER WULP, Biologia, Dipt., II, 85.—Guerrero, Mex.
- atriceps** VAN DER WULP, see *Metadoria barbata*.
- barbata** BIGOT, see *Metadoria*.
- botyvora** DESVOIDY, Myodaires, 138.—Cuba; bred from chrysalis of a *Botys*.
- carbonaria** VAN DER WULP, Biologia, Dipt., II, 78.—Guerrero, Mex.
- cinerea** VAN DER WULP, see *Euphorocera*.
- claripennis** MACQUART, see *Euphorocera*.
- comstocki** WILLISTON, in Scudder's Butterflies of New England, III, 1922.—No locality; reared by Riley from *Megathymus yuccæ*.
 TOWNSEND, Psyche, 1893, 467, bred by Forbes from *Lophyrus* sp. and *Pyrausta penitialis* GROTE.
- COQUILLETT, Revis. Tachin., 104.—D. C., S. C., Mo. N. J.—Smith Cat.
- cylindrata** VAN DER WULP, Biologia, Dipt., II, 82.—Guerrero, Mex.
- demylus** WALKER, see *Admontia*.
- doryphoræ** RILEY, 1st Mo. Rept., 111 (*Lydella*).—Mo.; reared from *Doryphora decemlineata* SAY.
 PETTIT, Bull. 186, Mich. Expt. Sta., and Rept. Mich. Bd. of Agric. for 1901, 189, reared from same beetle in Northern Mich.; good fig.
 COQUILLETT, Revis. Tachin., 104.—N. Ill., Mo., Col., N. M.; bred by Riley from *Vanessa antiopa* L.

- edwardsii** WILLISTON, see *Euphorocera claripennis*.
- erecta** COQUILLET, Proc. U. S. N. M., xxv, 112; Revis. Tachin., 103 (*parva* BIGOT).—Ark., S. Cal.; bred from *Tortrix citrana* FERN.
- facialis** COQUILLET, Revis. Tachin., 105.—San Diego, Texas.
- flavicauda** VAN DER WULP, Biologia, Dipt., II, 83.—Guerrero and Mexico City, Mex.
- fulviceps** VAN DER WULP, Biologia, Dipt., II, 80.—Guerrero and Orizaba, Mex.
- immaculata** VAN DER WULP, Biologia, Dipt., II, 82.—Guerrero, Mex.
- leucaniæ** COQUILLET, Revis. Tachin., 104.—D. C., Ky., Tenn.; bred from *Leucania unipuncta* HAW. and *Loxostege similalis* GUES.
- linearis** VAN DER WULP, Biologia, Dipt., II, 86.—Guerrero, Mex.
- lophyri** TOWNSEND, Trans. Amer. Ent. Soc., XIX, 281.—Ottawa, Canada; reared from *Lophyrus abietis*.
Note.—Coquillett has made this a synonym of *Euphorocera claripennis*, but from an examination of the type I think it should stand.
- macra** VAN DER WULP, Biologia, Dipt., II, 84.—Tabasco, Mex.
 COQUILLET, Revis. Tachin., 103.—Utica, Miss.
- melanoceps** BIGOT, see *Mctadoria barbata*.
- ? **melobosis** WALKER, List, IV, 743 (*Tachina*); Dipt. Saund., 200 (*T. addita*).—Fla.; U. S.
 COQUILLET, Revis. Tachin., 105, syn.; not seen, but perhaps a *Phorocera*.
- muscaria** VAN DER WULP, Biologia, Dipt., II, 83.—Tabasco, Mex.
- nigrifrons** VAN DER WULP, Biologia, Dipt., II, 81.—Guerrero, Mex.
- nigrita** VAN DER WULP, Biologia, Dipt., II, 77, pl. III, f. 11.—Costa Rica.
- parva** BIGOT, Annales, 1888, 200.—Rocky Mts.
 BRAUER, Sitzungsbericht d. K. Akad., cvI, 19, refers to *Paradoria*, from type.
Note.—For the *parva* of Coquillett's Revision, see *erecta*.
- parvula** VAN DER WULP, Biologia, Dipt., II, 78.—Orizaba, Mex.
 GIGLIO-TOS, Ditt. del Mess., III, 41, notes.—Mex.
- prisca** WALKER, see *Cryptomeigenia theutis*.
- promiscua** TOWNSEND, see *Frontina frenchii*.
- puer** WILLISTON, Trans. Ent. Soc. Lond., 1899, 354, pl. XI, f. 91.—St. Vincent, W. I.
- rufilabrum** VAN DER WULP, Biologia, Dipt., II, 79.—Guerrero, Mex.
 COQUILLET, Revis. Tachin., 103.—Newark, N. J.
 N. J.—Smith Cat.; Battle Creek, Mich.—J. M. A.
- saundersii** WILLISTON, in Scudder's Butterflies of New England, III, 1022.—No locality; bred by Riley from chrysalis of *Argynnis cybele*.
 COQUILLET, Revis. Tachin., 104.—Alameda Co., Cal.
- scutellaris** VAN DER WULP, Biologia, Dipt., II, 85.—Guerrero, Mex.
- setigera** VAN DER WULP, Biologia, Dipt., II, 84.—Vera Cruz and Tabasco, Mex.
- sobrina** VAN DER WULP, Biologia, Dipt., II, 84.—Tabasco, Mex.
- sternalis** COQUILLET, Proc. U. S. N. M., xxv, 112.—N. H., Me., Idaho.
- tenebricosa** VAN DER WULP, Biologia, Dipt., II, 77.—Guerrero and Tuxpango, Mex.
- tenuiseta** MACQUART, Dipt. Exot., Suppl. I, 160.—Cayenne, S. A.
 VAN DER WULP, Biologia, Dipt., II, 483, notes and oc.—Guerrero, Mex.
- theutis** WALKER, see *Cryptomeigenia*.
- tortricis** COQUILLET, Revis. Tachin., 103.—Mich., Mo.; bred by Gillette from a Tortricid.
- xanthura** VAN DER WULP, Biologia, Dipt., II, 80 and 483.—Guerrero, Mex.

CHÆTOGENA.

RONDANI, Dipt. Ital. Prod., III, 175, 1859.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 94, 1889 (emended into *Scutigena*); VI, 110, 1893 (*Scutigena*).

carbonaria GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., III, 31, f. 19.—Orizaba, Mex.

cincta GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., III, 32.—Orizaba, Mex.

gracilis GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., III, 33, f. 7.—Mex.

MYIOPHARUS.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 161, 1889; V, 340, 1891.

metopia BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 161; V, 340; VI, 120.—Tacubaya and Merida, Mex.

VAN DER WULP, Biologia, Dipt., II, 158 (*Didyma mæsta*).—Several places in Guerrero, Mex. [B. B.]

HYPERTROPHOCERA.

TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 360, 1891.

parvipis TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 360; Canad. Ent., XXIV, 166, oc. and note.—Las Cruces, N. M.

FRONTINA.

MEIGEN, Syst. Besch., VII, 247, 1838.

RONDANI, Dipt. Ital. Prod., IV, 36, 1861.

SCHINER, Fauna Austr., I, 496, 1862.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 334, 1891 (*Achaetoneura*); 340 (*Thysanomyia*); VI, 115, 1893 (*Parafrontina*).

COQUILLET, Revis. Tachin., 105, 1897, notes and syn.

acroglossoides TOWNSEND, see *Chactogadia analis*.

aletiæ RILEY, Canad. Ent., XI, 162 (*Tachina*). Bred from *Aletia argillacea* HUEB.

COMSTOCK, Rept. Commr. of Agric., 1879, 303 (*Tachina fraterna*).—Ala.; bred from *Aletia argillacea* HUEB.; the description is quoted by Riley, 4th Rept. U. S. Ent. Comm., Appendix, p. 109.

COQUILLET, Revis. Tachin., 107.—Toronto, Canada; Mass. to Fla. and S. Cal.; reared from *Cerura* sp., *Dasylopha anguina* S. and A., *Halisidota maculata* HARR., *H. tessellata* S. and A., *Lagoa opercularis* S. and A., and *Orgyia leucostigma* S. and A.

americana BIGOT, Annales, 1888, 260 (*Prosopea*).—Mex.

VAN DER WULP, Biologia, Dipt., II, 120 (*Prosphecrysta contigua*); 210, syn.—Morelos, Mex.

ancilla WALKER, Dipt. Saund., 299 (*Tachina*).—U. S.

COQUILLET, Revis. Tachin., 106.—Conn., Ga.

N. J.—Smith Cat.

apicalis BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 115 (*Parafrontina*).—N. A.

archippivora WILLISTON, in Scudder's Butterflies of New England, III, 1923, pl. LXXXIX, f. 18 (*Masicera*).—Greeley, Col.; bred from *Danaïs archippus*.

COQUILLET, Revis. Tachin., 106.—Mich., Mo., Tex., Cal., Wash.; bred from *Agrotis ypsilon* ROTT., *Clisiocampa constricta* STRETCH, *C. pluvialis*

DYAR, *Danaïs archippus* FABR., *Laphygma flavimaculata* HARV., *Pyramis cardui* L., and *P. carye* HUEB.

I reared this also from *Tanessa antiopa* at Moscow, Ida.—J. M. A. Beulah, N. M.—Skimmer.

armigera COQUILLETT, Insect Life, 1, 332 (*Masicera*); Revis. Tachin., 106.—Los Angeles, Cal.; Allende, Mex. Bred from *Heliothis armiger* HUEB.

VAN DER WULP, Biologia, Dipt., II, 119 (*Prospherysa comosa*).—Teapa, Mex.

Ormond, Fla.—Johnson.

[**chrysopygata** BIGOT, Annales, 1888, 84.—Mex.

BRAUER, Sitzungsbericht d. K. Akad., CVI, 28, the types are a mixture of two species, of which the one corresponding to the description has no locality label.]

dubia WILLISTON, in Scudder's Butterflies of New England, III, 1924 (*Masicera*).—No locality; bred by Riley from *Tanessa antiopa* L.

TOWNSEND, Trans. Amer. Ent. Soc., XIX, 286 (*Masicera sphingivora*).—Morgantown, W. Va.; bred by Hopkins from a Sphingid larva.

COQUILLETT, Revis. Tachin., 108, makes this a synonym of *violenta* WALKER, which seems to me uncommonly doubtful, so I do not follow it.—D. C.; bred from *Philampelus vitis* L.

? **dydas** WALKER, List, IV, 748 (*Tachina*).—Martin Falls, Canada.

COQUILLETT, gen. ref. from Walker's desc., with a doubt.

frenchii WILLISTON, in Scudder's Butterflies of New England, III, 1923, pl. LXXXIX, f. 23 (*Masicera*).—Mooshead L., Maine; bred from *Papilio glaucus*.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 334 (*Achatoncura hesperus*).—N. A.

TOWNSEND, Psyche, VI, 84 (*Phorocera promiscua*); Canad. Ent., XXIII, 206 (*Meigenia tcebsteri*); Psyche, VI, 187 (*Masicera schizura*); Trans. Amer. Ent. Soc., XIX, 287 (*Masicera datanarum*).—Orono, Maine, from *Clisiocampa sylvatica*; Lafayette, Ind.; Manhattan, Kans., from *Schizura unicornis*; N. Y., Canada and Minn., bred from *Datana* sp. and *Attacus polyphemus*.

RILEY, 5th Mo. Rept., 139; 7th Rept., 178; 8th Rept., 179 (*Tachina anonyma*, without description).—Mo. and Kans.; bred from *Anisota rubicunda*, *Caloptenus spretus*, and *Megathymus yucca*.

RILEY, PACKARD, and THOMAS, 1st Rept. U. S. Ent. Comm., 319, parasitic on Rocky Mt. Locust (*Tachina anonyma*).

COQUILLETT, Revis. Tachin., 107.—Canada; U. S. generally; list of *twenty-nine* hosts.

Note.—I examined types of *datanarum* and *schizura*; they seem to be the same.

fulvipalpis BIGOT, Annales, 1888, 263 (*Masicera*).—Rocky Mts.

BRAUER, Sitzungsbericht d. K. Akad., CVI, 12, gen. ref. from type.

insularis WIEDEMANN . . . (*Tachina*).

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 334.—St. Thomas, W. I.

Perhaps a manuscript name of Wiedemann's.

irrequieta WALKER, List, IV, 789 (*Tachina*).—Nova Scotia. See note to *rileyi*.

rileyi WILLISTON, in Scudder's Butterflies of New England, III, 1924, pl. LXXXIX, f. 22, 24 (*Masicera*).—No locality; bred by Riley from *Papilio cresphontes*.

- COQUILLET, Revis. Tachin., 108 (as *Tachina irrequieta* WALKER, which I do not consider recognizable).—Jacksonville, Fla.; bred from *Papilio thoas* L.
- rubentis** COQUILLET, Proc. Acad. Nat. Sci. Phil., 1895, 310 (*Achatoneura*); Revis. Tachin., 106.—Tifton, Ga.; Jacksonville and L. Worth, Fla.
- ruffrons** ROEDER, Stett. Ent. Zeit., 1885, 346.—Porto Rico.
- rufostylata** BIGOT, see *Prosphecrusa*.
- setipes** COQUILLET, Proc. U. S. N. M., xxv, 112.—Brookings, S. D.
- tenthredinidarum** TOWNSEND, Trans. Amer. Ent. Soc., xix, 285 (*Masicera*).—Ottawa, Can.; from sawfly.
- COQUILLET, in the errata attached to the revised index to Revis. Tachin., p. 156, refers here. See *Masicera exilis*.
- violenta** WALKER, List. iv, 788 (*Tachina*).—Nova Scotia. See note to *dubia*.

STURMIA.

- DESVOIDY, Myodaires, 171, 1830.
- RONDANI, Dipt. Ital. Prod., i, 71, 1856 (*Blepharipa*).
- KOWARZ, Verh. Zool.-Bot. Ges., xxii, 460, 1873 (*Ctenocnemis*).
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., iv, 96, 1889 (*Blepharipoda*); 163 (*Argyrophylax*).
- COQUILLET, Revis. Tachin., 108, 1897, syn. and notes.
- albifrons** WALKER, Dipt. Saund., 283 (*Tachina*); 296 (*T. obconica*).—Both U. S. COQUILLET, Revis. Tachin., 109.—Mass. to Fla. and S. Cal.; bred from *Ecpantheria scribonia* STOLL, and *Leucartia acraea* DRURY.
- albincisa** WIEDEMANN, AUSS. Zweifl., II, 334 (*Tachina*).—St. Thomas, W. I. BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., iv, 163; v, 343, pt. desc. and ref. to *Argyrophylax*.
- VAN DER WULP, Biologia, Dipt., II, 485, pl. XIII, f. 19.—Guerrero, Mex.
- australis** COQUILLET, Revis. Tachin., 110.—Jacksonville, Fla.
- austrina** COQUILLET, Proc. U. S. N. M., xxv, 113.—Nassau, Bahamas.
- bakeri** COQUILLET, Revis. Tachin., 112.—Col.
- discalis** COQUILLET, Proc. U. S. N. M., xxv, 114.—Wis.
- distincta** WIEDEMANN, AUSS. Zweifl., II, 334 (*Tachina*).—W. I. TOWNSEND, Jour. Jamaica Inst., i, 70 (*Masicera protoparcis*).—Jamaica; bred from *Protoparce jamaicensis* BUTLER.
- COQUILLET, Revis. Tachin., 111.—Va., Ga., Miss., Tex., Ill., Cal.; bred from *Protoparce celeus* and "a Sphingid."
- dubia** BIGOT, Annales, 1888, 257 (*Chatolyga*).—Mex.
- BRAUER, Sitzungsbericht d. K. Akad., cvI, 21, pt. desc. of type; ref. to *Argyrophylax*, but related to *Atacta*.
- fraudulenta** VAN DER WULP, Biologia, Dipt., II, 110 (*Masicera*).—Guerrero and Vera Cruz, Mex.
- COQUILLET, Revis. Tachin., 112.—Mass., Ill., Fla.
- harrisinae** COQUILLET, Revis. Tachin., 110.—U. S.; bred from *Harrisina americana*.
- inquinata** VAN DER WULP, Biologia, Dipt., II, 107 (*Masicera*).—Morelos, Mex. COQUILLET, Revis. Tachin., 111.—D. C., Ill., Mo., Ga., Miss., La., Col.; bred from eight lepidopterous hosts.
- N. J.—Smith Cat.; from *Eacles imperialis*.
- limata** COQUILLET, Proc. U. S. N. M., xxv, 113.—Opelousas, La.; Ohio.
- mexicana** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Dipt. del Mess., III, 33, f. 18 (*Blepharipoda*).—Tehuacan, Mex.

- nigrita** TOWNSEND, Trans. Amer. Ent. Soc., xviii, 358 (*Masicera*).—Carlville, Ill.
 COQUILLETT, Revis. Tachin., 111.—Col. Idaho—J. M. A.
occidentalis COQUILLETT, Revis. Tachin., 110.—Seattle, Wash. Idaho—J. M. A.
phyciodis COQUILLETT, Revis. Tachin., 109.—Cape Cod, Mass., and Piney Point, Md.; bred from *Phyciodes* sp.
pilatei COQUILLETT, Revis. Tachin., 111.—Tifton, Ga.
rostrata COQUILLETT, see *Siphosturmia*.
schizuræ COQUILLETT, Revis. Tachin., 112.—Pullman, Wash.; bred by Piper from *Schizura ipomæa* DOUBLEDAY.
sternalis COQUILLETT, Revis. Tachin., 108.—Mo.
strigata VAN DER WULP, Biologia, Dipt., II, 105 (*Masicera*).—Guerrero, Morelos, Vera Cruz and Tabasco, Mex.
 GIGLIO-TOS, Ditt. del Mess., III, 45 (id.), oc. in Mex.
 COQUILLETT, Revis. Tachin., 110.—Jacksonville, Fla.

MASICERA.

- MACQUART, Hist. Nat. Dipt., II, 118, 1835.
 MEIGEN, Syst. Besch., VII, 178, 1838.
 RONDANI, Dipt. Ital. Prod., I, 71 (*Cromasia*), 1850.
 SCHINER, Fauna Austr., I, 481, 1802.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 87, 1889 (*Derodex* and *Hemimasicera*).
 VAN DER WULP, Biologia, Dipt., II, 103, def. and table of Mexican species, 1890.
 COQUILLETT, Revis. Tachin., 113, 1897, notes.
abbreviata BIGOT, see *Hypostena*.
abdominalis VAN DER WULP, Biologia, Dipt., II, 106.—Yucatan, Mex.
archippivora WILLISTON, see *Frontina*.
armigera COQUILLETT, see *Frontina*.
aurifrons COQUILLETT, Revis. Tachin., 114.—White Mts., N. H.
bilineata VAN DER WULP, Biologia, Dipt., II, 112.—Yucatan, Mex.
 GIGLIO-TOS, Ditt. del Mess., III, 43, notes.—Mex.
bigstrigata VAN DER WULP, Biologia, Dipt., II, 109.—Tabasco, Mex.
calcarata VAN DER WULP, Biologia, Dipt., II, 114.—Cuernavaca, Mex.
castanifrons BIGOT, see *Prosphegysa*.
celer COQUILLETT, Revis. Tachin., 114, footnote.—N. J., Va., La.
chætoneura COQUILLETT, Revis. Tachin., 115.—White Mts., N. H.
? chrysocephala BIGOT, Annales, 1888, 261 (*Cromasia*).—Mex.
 BRAUER, Sitzungsbericht d. K. Akad., CVI, 15, redesc. type; it will form a new genus.
cubæcola JÆNNICKE, Neue Exot. Dipt., 74, pl. II, f. 6 (*Tachina*).—Cuba.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 209, refer to *Hemimasicera*.
 BRAUER, Sitzungsbericht d. K. Akad., CVI, 14, same ref., from type.
? cubensis MACQUART, Dipt. Exot., Suppl. III, 46, pl. V, f. 5.—Cuba.
 BIGOT, in Sagra's Cuba, 813. I should think the generic reference doubtful.
curta VAN DER WULP, Biologia, Dipt., II, 112.—Tabasco, Mex.
datanarum TOWNSEND, see *Frontina frenchii*.
dejecta VAN DER WULP, Biologia, Dipt., II, 113.—Guerrero, Mex.
disputans WALKER, Trans. Ent. Soc., n. ser., V, 303.—Mex. Unrecognizable—Wulp.

- dubia* WILLISTON, see *Frontina*.
- eucerata* BIGOT, see *Leskia*.
- eufitchiæ* TOWNSEND, Trans. Amer. Ent. Soc., XIX, 286.—Fort Collins, Col.; bred by Gillette from *Eufitchia ribcaria*.
BAKER, Ent. News, VI, 174, a common parasite of *Thamnonoma flavicaria* and *T. quadrilincaria* at Fort Collins, Col.
COQUILLET, Revis. Tachin., 115.—Grimsby, Canada; N. H., Md., D. C., Ill., Cal.
N. J.—Smith Cat.; bred from *Hyphantria cunea*.
- exilis* COQUILLET, Revis. Tachin., 114 (*tenthredinidarum* TOWNSEND); revised index to same, 156.—Mass. and Col.
- expergita* WALKER, Trans. Ent. Soc., n. ser., v, 304.—Mex. Unrecognizable—Wulp.
- festinans* MEIGEN, Syst. Besch., IV, 382 and 384 (*Tachina rutila* and *festinans*).—Europe.
MACQUART, Annales Soc. Ent. France, 1850, 460 (*florum*).
SCHNER, Fauna Austr., I, 484 (*rutila* MG.).
BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 330.
COQUILLET, Revis. Tachin., 114.—N. H.
- flavescens* VAN DER WULP, Biologia, Dipt., II, 112.—Cuernavaca, Mex.
- flavifacies* BIGOT, Annales, 1888, 263.—Mex.
BRAUER, Sitzungsbericht d. K. Akad., CVI, 12, notes on generic position.
- fraudulenta* VAN DER WULP, see *Sturmia*.
- frenchii* WILLISTON, see *Frontina*.
- fulvipalpis* BIGOT, see *Frontina*.
- gentica* WALKER, Trans. Ent. Soc., n. ser., v, 302.—Mex. Unrecognizable—Wulp.
- glauca* GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., III, 46.—Mex.
- impedita* VAN DER WULP, Biologia, Dipt., II, 107.—Cuernavaca, Mex.
- inquinata* VAN DER WULP, see *Sturmia*.
- luctuosa* VAN DER WULP, Biologia, Dipt., II, 105.—Guerrero, Vera Cruz and Tabasco, Mex. White Mts., N. H.—Stosson.
- myoidæa* DESVOIDY, Myodaires, 114 (*Lydella*); Dipt. Env. Paris, I, 856 (id.).—Europe.
MACQUART, Annales Soc. Ent. France, 1850, 468 (*Masicra*).
COQUILLET, Revis. Tachin., 114.—Canada, Mass., Ill.; bred from *Arzama obliquata* G. and R. and *Hydræcia nitela* GUEN.
- necopina* WALKER, Trans. Ent. Soc., n. ser., v, 303.—Mex. Unrecognizable—Wulp.
- nigrita* TOWNSEND, see *Sturmia*.
- normula* VAN DER WULP, Biologia, Dipt., II, 109.—Guerrero, Vera Cruz and Orizaba.
- pauciseta* COQUILLET, Revis. Tachin., 113.—Ga., S. Cal.
- picta* VAN DER WULP, Biologia, Dipt., II, 108, pl. III, f. 13.—Mexico, several places.
- pictigaster* BIGOT, see *Hypostena*.
- piliseta* VAN DER WULP, Biologia, Dipt., II, 110.—Yucatan, Mex.
- polita* COQUILLET, Proc. U. S. N. M., XXV, 114.—White Mts., N. H., 8,000 ft.
- protoparcis* TOWNSEND, see *Sturmia distincta*.
- pulverea* COQUILLET, Revis. Tachin., 114.—Tifton, Ga., and Fla.
- pumila* VAN DER WULP, Biologia, Dipt., II, 108.—Guerrero, Mex.
- quadrivittata* BIGOT, see *Hypostena*.

- rileyi** WILLISTON, see *Frontina*.
schizuræ TOWNSEND, see *Frontina frenchii*.
sesquiple GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., III, 43.—Mex.
sodalis VAN DER WULP, Biologia, Dipt., II, 106.—Guerrero and Tabasco, Mex. Ormond, Fla.—Johnson.
sordicolor TOWNSEND, see *Biomya georgiae*.
sordida VAN DER WULP, Biologia, Dipt., II, 113.—Guerrero, Vera Cruz and Tabasco, Mex.
sphingivora TOWNSEND, see *Frontina dubia*.
spinipes BIGOT, see *Hypostena*.
strigata VAN DER WULP, see *Sturmia*.
subpilosa VAN DER WULP, Biologia, Dipt., II, 110.—Vera Cruz, Mex.
tantilla VAN DER WULP, Biologia, Dipt., II, 106.—Tabasco, Mex.
tenthredinidarum TOWNSEND, see *Frontina*.
trichoneura VAN DER WULP, Biologia, Dipt., II, 111.—Guerrero, Mex.
usta GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., III, 44.—Mex.
vittata WALKER, Dipt. Saund., 301 (not p. 273) (*Tachina*).—S. A. GIGLIO-TOS, Ditt. del Mess., III, 45.—Mex.
zonata BIGOT, see *Chetona*.

ACEMYIA.

- DESVOIDY, Myodaires, 202, 1830.
 MACQUART, Annales Soc. Ent. France, 1855, 24 (*Agculocera*).
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 128, 1889; VI, 100, 1893.
 COQUILLET, Revision Tachin., 116, 1897, notes.
dentata COQUILLET, Proc. Acad. Nat. Sci. Phil., 1895, 311.—Georgetown, Fla., Mobile, Ala.; Los Angeles Co., Cal. Also Revis. Tachin., 116.—Mass., Conn., Ga., Fla., Ala., Miss., Mo., Cal.; bred from *Chortophaga viridifasciata* DEG.
 MORGAN, Bull. 30, II, ser., Div. of Ent., 25, reared from *Melanoplus differentialis*.—Miss.
tibialis COQUILLET, Revis. Tachin., 116.—Santa Cruz Mts., Cal.

MYOTHYRIA.

- VAN DER WULP, Biologia, Dipt., II, 208, 1890, def. and table of Mexican species.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 358, 1891; VI, 160, 1893.
degeerioides VAN DER WULP, Biologia, Dipt., II, 209.—Vera Cruz, Mex.
majorina VAN DER WULP, Biologia, Dipt., II, 209, pl. IV, f. 10.—Guerrero and Tabasco, Mex.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 358, note.
trichosoma VAN DER WULP, Biologia, Dipt., II, 208.—Vera Cruz, Mex.
 GIGLIO-TOS, Ditt. del Mess., III, 54, note.
vanderwulpi TOWNSEND, see *Hypostena*.

PSEUDOCHÆTA.

- COQUILLET, Proc. Acad. Nat. Sci. Phil., 1895, 309; Revis. Tachin., 116, 1897, notes.
argentifrons COQUILLET, Proc. Acad. Nat. Sci. Phil., 1895, 310; Revis. Tachin., 116.—Charlotte Harbor, Fla., and Los Angeles, Cal.; Ill., Ga.; bred from a Bombycid. N. J.—Smith Cat.

pyralidis COQUILLET, Revis. Tachin., 117.—D. C.; bred from a Pyralid larva on oak.

PROSPHERYSA.

- VAN DER WULP, *Biologia*, Dipt., II, 116, 1890, def. and table of Mexican species.
- BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, v, 374, 1891; VI, 336, 1893, call this a "Mischgattung."
- æmulans* VAN DER WULP, *Biologia*, Dipt., II, 117, pl. III, f. 14.—Vera Cruz and Tabasco, Mex.
- BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, v, 374; VI, 128, would make this the type of the new genus *Dexiophana*.
- GIGLIO-TOS, *Ditt. del Mess.*, III, 51, note.—Mex.
- COQUILLET, *Revis. Tachin.*, 117.—Anglesea, N. J.
- albifacies* VAN DER WULP, *Biologia*, Dipt., II, 121.—Jalisco, Mex.
- apicalis* VAN DER WULP, *Biologia*, Dipt., II, 122.—Guerrero, Mex.
- BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, v, 334 and 401, would refer this to *Achatoneura*.
- balteata* VAN DER WULP, *Biologia*, Dipt., II, 124.—Guerrero, Mex.
- ? *castanifrons* BIGOT, *Annales*, 1888, 261 (*Cromasia*).—Mex.
- BRAUER, *Sitzungsbericht d. K. Akad.*, CVI, 14, notes on type; perhaps a new genus.
- comosa* VAN DER WULP, see *Frontina armigera*.
- contigua* VAN DER WULP, see *Frontina americana*.
- crebra* VAN DER WULP, see *Chatogadia*.
- ingloria* VAN DER WULP, *Biologia*, Dipt., II, 119.—Guerrero, Mex.
- macilenta* VAN DER WULP, *Biologia*, Dipt., II, 122.—Orizaba, Mex.
- minuta* VAN DER WULP, *Biologia*, Dipt., II, 123, pl. III, f. 16.—Cuernavaca, Mex.
- ochricauda* VAN DER WULP, *Biologia*, Dipt., II, 118.—Guerrero, Mex.
- parvipalpis* VAN DER WULP, see *Plagiprospherysa*.
- plagioides* VAN DER WULP, *Biologia*, Dipt., II, 125.—Guerrero and Morelos, Mex.
- BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, v, 401, refer this to *Prosopodes*.
- rectinervis* VAN DER WULP, *Biologia*, Dipt., II, 123.—Guerrero, Mex.
- ruffrons* VAN DER WULP, see *Chatogadia*.
- rufostylata* BIGOT, *Bull. Soc. Ent. France*, 1887, cxli; *Annales*, 1888, 83 (*Frontina*).—Mex.
- BRAUER, *Sitzungsbericht d. K. Akad.*, CVI, 27, notes on type and gen. ref.
- serotina* VAN DER WULP, *Biologia*, Dipt., II, 124.—Mexico City.
- similis* WILLISTON, see *Tachina robusta*.
- trifasciata* VAN DER WULP, *Biologia*, Dipt., II, 118.—Guerrero, Mex.
- vilis* VAN DER WULP, see *Chatogadia*.

VANDERWULPIA.

- TOWNSEND, *Trans. Amer. Ent. Soc.*, XVIII, 381, 1891.
- BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, VI, 128, 1893.
- COQUILLET, *Revis. Tachin.*, 117, 1897, notes.
- atrophopodoides* TOWNSEND, *Trans. Amer. Ent. Soc.*, XVIII, 381.—Las Cruces, N. M.
- BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, VI, 128, brief desc.
- COQUILLET, *Revis. Tachin.*, 117.—Las Cruces, N. M.
- sequens* TOWNSEND, *Canad. Ent.*, XXIV, 172.—Las Cruces, N. M.
- COQUILLET, *Revis. Tachin.*, 117.—Texas.

WULPIA.

- BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, vi, 128, 1892.
aperta BRAUER and BERGENSTAMM, loc. cit. and p. 188.—Orizaba, Mex.

EUTHERA.

- LOEW, *Cent.*, vii, 85, 1866.
 BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, iv, 140, 1889; vi, 152, 1893.
bicolor COQUILLET, *Proc. U. S. N. M.*, xxv, 114.—Texas.
tentatrix LOEW, *Cent.*, vii, 85.—N. Y.
 COQUILLET, *Revis. Tachin.*, 120.—Pottstown, Pa., and Tifton, Ga.

HOUGHIA.

- COQUILLET, *Revis. Tachin.*, 118, 1897.
setipennis COQUILLET, *Revis. Tachin.*, 118.—Tifton, Ga.

TRICHOLYGA.

- RONDANI, *Dipt. Ital. Prod.*, iii, 184, 1859.
 BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, iv, 98, 1889, emended;
 vi, 124, 1893.
caloptera BIGOT, see *Macquartia*.
fulvidapex BIGOT, see *Winthemia*.
gracilens GIGLIO-TOS, *Boll. R. Univ. Torino*, viii, No. 158, 1893; *Ditt. del Mess.*,
 iii, 39, f. 16.—Mex.
insita GIGLIO-TOS, *Boll. R. Univ. Torino*, viii, No. 158, 1893; *Ditt. del Mess.*,
 iii, 39.—Mex.

TACHINA.

- MEIGEN, *Illig. Mag.*, ii, 280, 1803; *Syst. Besch.*, iv, 234, 1824; restricted
 in vii, 174, 189, 1838.
 FALLÉN, *Muscides*, 2, 1820.
 MACQUART, *Hist. Nat. Dipt.*, ii, 139, 1835.
 RONDANI, *Prod. Dipt. Ital.*, iii, 193, 1859.
 SCHINER, *Fauna Austr.*, i, 472, 1862.
 BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, iv, 98, 1889 (*Eu-*
tachina and *Chatotachina*); vi, 145, 1893.
 TOWNSEND, *Trans. Amer. Ent. Soc.*, xix, 96, 1892 (*Tachinomyia*).
 COQUILLET, *Revis. Tachin.*, 118, 1897.
addita WALKER, see ? *Phorocera melobosis*.
albifrons WALKER, see *Sturmia*.
albincisa WIEDEMANN, see *Sturmia*.
aletiæ RILEY, see *Frontina*.
ampelus WALKER, see *Panzeria radicum*.
ancilla WALKER, see *Frontina*.
anonyma RILEY, see *Frontina frenchii*.
antennata WALKER, see *Phorocera*.
armata WIEDEMANN, see *Dejcania*.
atra WALKER, see *Archytas aterrima*.
 ? *breviventris* WIEDEMANN, *Auss. Zw.*, ii, 297.—Brazil.
 WALKER, *List*, iv, 712, oc. in Jamaica.
 Walker's identification is very doubtful, hence the query.
clisiocampæ TOWNSEND, see *mella*.
convecta WALKER, see *Schizotachina*.

- corythus* WALKER, see *Xanthomclana arcuata*.
crudelis WIEDEMANN, see *Amobia*.
cubæcola JENNICKE, see *Masicera*.
degenera WALKER, see *Echinomyia algens*.
deilephilæ OSTEN SACKEN, see *Winthemia quadripustulata*.
distincta WIEDEMANN, see *Sturmia*.
elegans BIGOT, see *Winthemia*.
demylus WALKER, see *Admontia*.
disjuncta WIEDEMANN, see *Microphthalma*.
 ? *distincta* WIEDEMANN, *Analecta Ent.*, 45; *Auss. Zw.*, II, 334.—West Indies.
 MACQUART, *Dipt. Exot.*, II, 3, 59, refers to *Masicera*.
 Query by J. M. A.
dydas WALKER, see *Frontina*.
epicydes WALKER, see *Exorista affinis*.
exul WALKER, see *Schizotachina connecta*.
finitima WALKER, see *Bombyliomyia abrupta*.
fraterna COMSTOCK, see *Frontina alctica*.
 ? *hirta* DRURY, *Illustrations of Nat. Hist.*, 109, pl. XLV, f. 4 (*Musca*).—Jamaica.
 Gen. ref. uncertain.—J. M. A.
hirta CURTIS, see *Peleteria ancea*.
 ? *hybreas* WALKER, *List.*, IV, 785 (*Aplomyia*).—Martin Falls, Canada.
 COQUILLET, *Revis. Tachin.*, 119, ref. with a query; not recognized.
insolita WALKER, see *Melanophrys*.
interrupta WALKER, see *Macromicgenia chrysoprocta*.
mella WALKER, *List.*, IV, 767 (*mella* and *pauctius*); *op. cit.*, 787 (*pansa*).—All
 Nova Scotia.
 LEBARON, *1st Ill. Rept.*, 16 (*orgyia*).—Ill.; bred from *Orgyia leucostigma*.
 WILLISTON, in Forbush and Fernald's "The Gypsy Moth," 387 (*Achæ-
 toncurea fernaldi*).—Mass.; bred from *Porthetria dispar* L.
 TOWNSEND, *Psyche*, VI, 83 (*clisiocampæ*); *Trans. Amer. Ent. Soc.*, XIX,
 284 (*orgyia*, n. sp.).—Orono, Maine; Morgantown, W. Va.; bred from
 Clisiocampa distria HUEB. and *Orgyia leucostigma* S. and A.
 BAKER, *Ent. News*, VI, 174, reared from *Clisiocampa fragilis* at Fort Col-
 lins, Col.
 BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, v, 351 (*Podotachina
 americana*).—New York.
 COQUILLET, *Revis. Tachin.*, 119.—Toronto, Canada; U. S. generally;
 bred from *Acronycta populi* RILEY, *Arctia phyllira* DRURY, *Clisiocampa
 thoracica* STRETCH, *Clis. sp.*, *Leucarectia acraea* DRURY, *Orgyia leucos-
 tigma* S. and A., and *Pyrhractia isabella* S. and A.
melobosis WALKER, see *Phorocera*.
obconica WALKER, see *Sturmia albifrons*.
 ? *occidentalis* WIEDEMANN, *Auss. Zw.*, II, 335.—St. Thomas, W. I. Type in
 Hornbeck's Coll. in Copenhagen. Query by J. M. A.
orgyia LEBARON, see *mella*.
orgyia TOWNSEND, see *mella*.
phycitæ LEBARON, see *Exorista pyste*.
potens WIEDEMANN, see *Leptoda*.
pusilla WIEDEMANN, see *Sarcophilodes*.
robusta TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 96 (*Tachinomyia*).—Mich.,
 S. D.
 WILLISTON, *Death Valley Exped.*, 256 (*Prosphecrisa similis*).—Sonoma
 Co., Cal.

- COQUILLETT, Revis. Tachin., 118.—Toronto, Canada; U. S. generally, bred from *Agrotis ypsilon* ROTT. and *Clisiocampa* sp.
- rufostomata** BIGOT, Annales, 1888, 200.—Rocky Mts.
- BRAUER, Sitzungsbericht d. K. Akad., cvl, 22, note on type; said to have been first described as *rufostoma*.
- rustica** FALLÉN, Acta Holmiæ, 1810; Muscides, 5.—Europe.
- MEIGEN, Syst. Besch., iv, 305 (*larvarum* L.), 309 (*simulans*), 309 (*lucosoria*); VII, 193.
- MACQUART, Annales Soc. Ent. France, 1854, 377-390 (*vittata*, *flavipalpis*, *ludibunda*, *rectinervis*, *audens*, *flavifrons*, *pumila*, *albifrons*, *abacerr*).
- TOWNSEND, Trans. Amer. Ent. Soc., XIX, 285 (*tenthredinivora*); XVIII, 353 (*spinulosa*).—Ottawa, Canada; Carlinville, Ill.; bred from a Tenthredinid.
- COQUILLETT, Revis. Tachin., 119.—Ottawa, Canada; White Mts., N. H.; Col., S. D., Idaho, Wash., S. Cal.
- Montreal—Chagnon; Axton, N. Y.—M. and H.
- ? **saltatrix** WIEDEMANN, Auss. Zw., II, 300.—W. I. Query by J. M. A.
- signifera** WALKER, see *Épalpus*.
- speculifera** WALKER, see *Trichophora*.
- ? **subvaria** WALKER, Dipt. Saund., 29).—W. I. Genus doubtful—J. M. A.
- theclarum** SCUDDER, see *Exorista confinis*.
- trivittata** WIEDEMANN, see *Exorista*.
- trixoides** WALKER, see *Microphthalma disjuncta*.
- unifasciata** DESVOIDY, see *Bekosia*.
- vivida** HARRIS, see *Bombyliomyia abrupta*.

TETRAGRAPHA.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 351, 1891; VI, 124, 1893.
- tessellata** BRAUER and BERGENSTAMM, operis citatis—Cuba.

TACHINOPSIS.

- COQUILLETT, Revis. Tachin., 120, 1897.
- mentalis** COQUILLETT, Revis. Tachin., 120.—Wash.

DÆOCHÆTA.

- TOWNSEND, Trans. Amer. Ent. Soc., XIX, 97, 1892.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 113, 194, 1893.
- harveyi** TOWNSEND, Trans. Amer. Ent. Soc., XIX, 98.—Orono, Me.

NEOTRACTOCERA.

- TOWNSEND, Trans. Amer. Ent. Soc., XIX, 105, 1892.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 196, 1893.
- anomala** TOWNSEND, Trans. Amer. Ent. Soc., XIX, 105.—Las Cruces, N. M.

DEMOTICUS.

- MACQUART, Annales Soc. Ent. France, 1854, 442.
- SCHINER, Fauna Austr., I, 433, 1802.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 134, 1889; VI, 137, 1893.
- melitææ** COQUILLETT, Revis. Tachin., 121.—Siskiyou Co., Cal.; bred from *Melitæa palla*.

- pallidus* COQUILLET, Revis. Tachin., 121.—Denver, Col.
piperi COQUILLET, Revis. Tachin., 121.—Blue Mts., Wash.
venatoris COQUILLET, Canad. Ent., XXVII, 127 (*Drepanoglossa*); Revis. Tachin., 120.—Wash.; Phil., Cal., Col.

PARAPHYTO.

- COQUILLET, Jour. N. Y. Ent. Soc., III, 105, 1895.
borealis COQUILLET, Proc. Wash. Acad. Sci., II, 439.—Fox Point, Alaska.
chittendeni COQUILLET, Jour. N. Y. Ent. Soc., III, 105; Rev. Tachin., 122.—Ithaca, N. Y.; Agricultural College, Mich.
gillettei TOWNSEND, Canad. Ent., XXIV, 68 (*Trira*).—Col.
 COQUILLET, Revis. Tachin., 122.—Laggan, Canada. N. Ida.—J. M. A.
opaca COQUILLET, Revis. Tachin., 122.—Col. and Mesilla Park, N. M.
sarcophagina COQUILLET, Proc. U. S. N. M., XXV, 118.—Carlinville, Ill.

BLEPHARIPEZA.

- MACQUART, Dipt. Exot., II, 3, 211, 1843.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 121, 1893 (*Rileya*, *preoc.*).
 TOWNSEND, Ent. News, IV, 277, 1893, proposes *Rileymyia* for *Rileya*.
 COQUILLET, Revis. Tachin., 123, 1897 (*Blepharipeza* and *Parachata*).
adusta LOEW, Cent., X, 67.—Cal.; bred from *Leucartia acraea* DRURY.
 BIGOT, Annales, 1888, 92 (*fulvipes*).—Wash.
 TOWNSEND, Canad. Ent., XXIV, 64 (*crul*); Trans. Amer. Ent. Soc., XIX, 90 (*rufescens*).—N. H.; Md? Puparium desc. in Amer. Naturalist, April, 1893.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 121, 204 (*Rileya americana*).—"Sonoma."
 WILLISTON, Dipt. of Death Valley Exped., 256, note.—Sonoma Co., Cal.
 COQUILLET, Revis. Tachin., 124.—Toronto, Canada; N. Y., Col., Cal.; bred from *Arachnis picta* PACK, *Clisiocampa constricta* and *thoracica* STRETCH, and *Halisidota edwardsii* PACK.
 BRAUER, Sitzungsbericht d. K. Akad., CVI, 20, syn. of *fulvipes* BIGOT and adds *B. albifacies* BIGOT, Annales, 1888, 92, from Brazil; from types.
Note.—I confirmed the identity of Townsend's two species, from the types.

bicolor MACQUART, see *leucophrys*.

cyaniventris MACQUART, see *Paragædia*.

exul TOWNSEND, see *adusta*.

inermis BIGOT, Annales, 1888, 91.—N. A.

COQUILLET, Revis. Tachin., 123 (*Parachata bicolor* MACQ.).—Ithaca and New York, N. Y.

White Mts., N. H.—Stosson (*Thysanomyia*).

jurinioides TOWNSEND, Trans. Amer. Ent. Soc., XXII, 71.—Jamaica.

leucophrys WIEDEMANN, Auss. Zw., II, 308 (*Tachina*).—Brazil.

MACQUART, Dipt. Exot., II, 3, 55 (*rufipalpis*); Suppl. 1, 158 (*bicolor*).—Mex. and Cuba; Texas.

WALKER, Dipt. Saund., 284 (*Tachina latifrons* and *nigrorufa*).—S. A.; Colombia.

SCHINER, Novara, 336.

BIGOT, Sagra's Cuba, 343 (*rufipalpis*).—Cuba.

WILLISTON, Trans. Amer. Ent. Soc., XIII, 304, oc. in Conn., Pa., San Domingo, and S. A.

VAN DER WULP, Tijdschr. v. Ent., xxvi, 25; Biologia, Dipt., II, 30, pl. II f. 9 (*Belvosia*).—Mexico, several places; Costa Rica, etc.

TOWNSEND, Canad. Ent., xxiv, 64, oc. in Va. (*bicolor*).

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 120.—S. A.

GIGLIO-TOS, Ditt. del Mess., III, 28.—Mex.

COQUILLETT, Revis. Tachin., 124.—Franconia, N. H., and Wash.

BRAUER, Sitzungsbericht d. K. Akad., cvii, 30, syn. of *bicolor* MACQ.

Note.—For the *bicolor* of Coquillett's Revision, see *incermis* BIGOT

monticola BIGOT, see *Chatogaedia*.

nigrisquamis TOWNSEND, Ent. News, III, 80.—Jamaica.

rufipalpis MACQUART, Dipt. Exot., II, 3, 55, see *leucophrys*

trichopus BIGOT, Bull. Soc. Ent. France, 1887, cxi.—Mex

PARAGÆDIA.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 350, 1891.

cyaniventris MACQUART, Dipt. Exot., Suppl. I, 157, pl. XIII, f. 11; 158 (*rufipalpis*).—Brazil; Guiana. For Macquart's other *B. rufipalpis*, see *B. leucophrys*.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 350 (*hedemanni*).—Mex.

BRAUER, Sitzungsbericht d. K. Akad., cvI, 20, syn.; notes on type; gives Macquart's type locality as Mexico.

WINTHEMIA.

DESVOIDY, Myodaires, 173, 1830.

RONDANI, Dipt. Ital. Prod., I, 66, 1856 (*Chatoliga*).

COQUILLETT, Revis. Tachin., 124, 1897, notes.

ænea BIGOT, see *Phorocera*.

albopicta BIGOT, see *Hypostena*.

antennalis COQUILLETT, Proc. U. S. N. M., xxv, 115; Revis. Tachin., 125 (*nigrifacies* BIGOT).—Los Angeles Co., Cal.

dubia BIGOT, Annales, see *Sturmia*.

elegans BIGOT, in Sagra's Cuba, 810, pl. xx, f. 7 (*Tachina*).—Cuba.

BRAUER, Sitzungsbericht d. K. Akad., cvI, 13, gen. ref. to *Chatolyga*.

erythropgya BIGOT, see *Exorista rufilatera*.

flavolimbata BIGOT, see *Exorista vorax*.

[*fulvidapex* BIGOT, Annales, 1888, 265 (*Tricholygi*).—Mex.? or Celebes?

BRAUER, Sitzungsbericht d. K. Akad., cvI, 24, gen. ref., to *Chatolyga*.]

illinoisensis ROBERTSON, see *quadripustulata*.

nigrifacies BIGOT, see *Exorista*; for Coquillett's *nigrifacies* BIGOT, Revis. Tachin., 125, see *antennalis*.

nigripalpis BIGOT, see *Hypostena*.

nigriventris BIGOT, see *Exorista*.

nitidiventris BIGOT, see *Exorista*.

obscura COQUILLETT, Revis. Tachin., 124.—Md.

occidentalis BIGOT, see *Exorista*.

quadripustulata FABRICIUS, Ent. Syst., IV, 324 (*Musca*); Syst. Antl., 30 (*Tachina*).—Europe.

FALLÉN, Acta Holmiæ, 1810 (*Tachina cstuans*); Muscides, 30 (id.).

MEIGEN, Syst. Besch., IV, 255 (*Tachina*); VII, 221, refers to *Nemorca*.

MACQUART, Hist. Nat. Dipt., II, 103 (*Nemorca*).

ZETTERSTEDT, Ins. Lapp., 643; Dipt. Scand., III, 1103 (*Tachina*).

DESVOIDY, Annales Soc. Ent. France, 1847, 270 (*cinerea*).

KIRKPATRICK, Ohio Agric. Rept. for 1860, 757 (*Exorista leucania* and *ostensackenii*).—Ohio: bred from *Leucania unipuncta*.

SCHINER, Fauna Austr., I, 453 (*Nemoræa*).

RILEY, 2d Mo. Rept., 51 (*leucania*).—Mo. General Index Mo. Repts., 60, note on "var. *cecropia*."

WALSH, Trans. Ill. State Agric. Soc., IV, 367 (*Scenometopia militaris*).—Ill.

RILEY, PACKARD, and THOMAS, 3d Rept. U. S. Ent. Comm., 126, pl. I, f. 7, note on habits:—attacks the Army Worm.

WILLISTON, Ill. Ent. Rept., 65, 1885 (*Exorista infesta*).

OSTEN SACKEN, Canad. Ent., XIX, 164 (*Tachina deilephila*).—No locality: bred from *Dcilephila lineata*.

TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 363 (*Exorista ciliata*); XIX, 283 (*Exorista platysamic* and *datana*).—Carlinville, Ill.; Ithaca, N. Y.; Ithaca, N. Y. Bred from *Attacus cecropia* and *Datana* sp.

COQUILLETT, Revis. Tachin., 125.—London, Ont.: U. S. generally, very common; bred from 14 host species.

ROBERTSON, Canad. Ent., XXXIII, 286 (*illinoisensis*).—Ill.

STEDMAN, 34th Rept. State Bd. of Agric. of Mo., 105, 1902, fig. and notes.

rufonotata BIGOT, Annales, 1888, 257 (*Chatolyga*).—Rocky Mts.

BRAUER, Sitzungsbericht d. K. Akad., CVI, 21, note on type; gen. ref.

rufopicta BIGOT, Annales, 259, 1888 (*Chatolyga*).—Rocky Mts.

BRAUER, Sitzungsbericht d. K. Akad., CVI, 21, note on type; gen. ref.

MUSCOPTERYX.

TOWNSEND, Canad. Ent., XXIV, 170, 1892.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 186, 1893, notes.

chaetosula TOWNSEND, Canad. Ent., XXIV, 171.—Chihuahua, Mex.

COQUILLETT, Revis. Tachin., 125.—Mo.

obscura COQUILLETT, Proc. U. S. N. M., XXV, 116.—St. Paul Id., Alaska.

tibialis COQUILLETT, Proc. U. S. N. M., XXV, 115.—Moscow and Juliatta, Idaho.

PARADIDYMA.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 382, 1891; VI, 184, 1893, additional desc.

TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 373, 1891 (*Atrophopoda*); XIX, 103, 1892 (*Lachnomma*); XXII, 77, note.

WILLISTON, Trans. Ent. Soc. Lond., 1896, 356, table of species (*Atrophopoda*).

COQUILLETT, Revis. Tachin., 126, 1897, syn. and notes.

braueri WILLISTON, Trans. Ent. Soc. Lond., 1896, 357, pl. XI, f. 94 (*Atrophopoda*).—St. Vincent, W. I.

singularis TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 374 (*Atrophopoda*); XIX, 104 (*Lachnomma magnicornis*); XXII, 77, note.—Carlinville, Ill.; Las Cruces, N. M.

COQUILLETT, Revis. Tachin., 126.—U. S. generally.

townsendi WILLISTON, Trans. Ent. Soc. Lond., 1896, 356, pl. XI, f. 93 (*Atrophopoda*).—St. Vincent, W. I.

validinervis VAN DER WULP, Biologia, Dipt., II, 164 (*Didyma*).—Guerrero, Mex.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 404, gen. ref.; VI, 127, desc.

ATROPHOPALPUS.

TOWNSEND, Ent. News, III, 130, 1892.

- angusticornis** TOWNSEND, Ent. News, III, 130.—S. Fla.
COQUILLET, Revis. Tachin., 126.—Lake Worth, Fla.
Inverness, Fla.—Johnson.

METACHÆTA.

COQUILLET, Jour. N. Y. Ent. Soc., III, 98, 1895.

- helymus** WALKER, List, IV, 795 (*Tachina*).—Maine.
COQUILLET, Jour. N. Y. Ent. Soc., III, 99 (*atra*): Revision Tachin., 126—
Francônia, N. H., and N. Ill.; Toronto, Can., Col., and Santa Cruz
Mts., Cal.
N. J.—Smith Cat.; Montreal—Chagnon.

PENTHOSIA.

VAN DER WULP, Tijdschr. v. Ent., XXXV, 189, 1892.

TOWNSEND, Canad. Ent., XXV, 107, 1893, notes.

VAN DER WULP, Biologia, Dipt., II, 457, 1903.

- satanica** BIGOT, Annales, 1888, 254 (*Scopolia*).—Mex.
VAN DER WULP, Tijdschr. v. Ent., XXXV, 100, gen. ref.
GIGLIO-TOS, Ditt. del Mess., III, 7, f. 1.—Orizaba, Mex.
TOWNSEND, Annals and Mag. Nat. Hist., XIX, 32.—San Rafael, near Vera
Cruz, Mex.
VAN DER WULP, Biologia, Dipt., II, 458, pl. XIII, f. 18—Guerrero, Tabasco
and Jalisco, Mex.

PHORICHÆTA.

RONDANI, Dipt. Ital. Prod., IV, 8, 1861.

DESVOIDY, Myodaires, 268, 1830 (*Scopolia*, prooc.).

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 106, 1889; V, 356,
1891; VI, 148, 1893.

- cinerosa** COQUILLET, Proc. U. S. N. M., XXV, 116.—Flagstaff, Ariz.
?lateralis MACQUART, Dipt. Exot., II, 3, 71, pl. VIII, f. 3 (*Scopolia*).—America—
may be *S. A.*
COQUILLET, Rev. Tachin., 127, gen. ref. with a query.
nigra BIGOT, in Sagra's Cuba, 814, pl. XX, f. 8 (*Scopolia*).—Cuba.
satanica BIGOT, see *Penthosia*.
sequax WILLISTON, in Cook's Notes on Injurious Insects (Mich.), p. 5, 1884
(*Scopolia*).—Lansing, Mich.; bred from *Noctua fenica* TAUSCH.
COQUILLET, Revis. Tachin., 126.—N. H. to British Columbia and Cal.;
bred from a Noctuid. N. J.—Smith Cat.

CESTONIA.

RONDANI, Dipt. Ital. Prod., IV, 105, 1861.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 228, 1893, may
be same as *Erynnia* DESV.

- nigra** BIGOT, Annales, 1888, 259.—Mex.

CHÆTOPLAGIA.

COQUILLET, Jour. N. Y. Ent. Soc., III, 98, 1895.

- atripennis** COQUILLET, Jour. N. Y. Ent. Soc., III, 98; Revis. Tachin., 127.—
Westville, N. J., and D. C.; S. Ill.

METOPIA.

- MEIGEN, Illig. Mag., II, 280, 1803.
 DESVOIDY, Myodaires, 120, 1830 (*Ophelia*).
 SCHINER, Fauna Austr., I, 498, 1862.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 114, 1889; VI, 168, 1893.
 VAN DER WULP, Biologia, Dipt., II, 114, pt. desc., 1890.
leucocephala ROSSI, Fauna Etrusca, II, 1501 (*Musca*).—Europe.
 FABRICIUS, Ent. Syst., IV, 329 (*Musca labiata*); Syst. Antl., 304 (id.).
 LATREILLE, Dict. d'Hist. Nat., 24, 195 (id.).
 DESVOIDY, Myodaires, 130 (*Araba squamipallens*); 131 (*A. grisca*).
 ? MACQUART, Dipt. Exot., Suppl. III, 208, pl. v, f. 6 (*Degeeria lateralis*).—N. A. [Coquillett, but I question it.]
 ZETTERSTEDT, Ins. Lapp., 635 (*Tachina argyrocephala*); Dipt. Scand., III, 1026 (*Tachina*).
 SCHINER, Fauna Austr., I, 499.
 ? WALKER, List, IV, 770 (*Ophelia rynchus*).—Jamaica. [J. M. A.]
 TOWNSEND, Canad. Ent., XXIV, 69 (*tuggeri*).—Minn.
 COQUILLET, Revis. Tachin., 127.—N. H. to Texas; Wash., Cal.
 RIEDEL, Allg. Zeitsch. f. Ent., VI, 152, parasitic on *Halictus scircinctus* FAB. in Pomerania.
 BIGNELL, Ent. Mag., XXXIII, 221, says it is viviparous.
 MELANDER and BRUES, Biol. Bull., V, 20, is parasitic in nests of *Halictus priunus* REBIS. at Woods Hole, Mass.
 ANTON, N. Y.—M. and H.
perpendicularis VAN DER WULP, Biologia, Dipt., II, 115, pl. III, f. 18.—Guerrero and Morelos, Mex.
 GIGLIO-TOS, Ditt. del Mess., III, 43.—Solco, Mex.

ARABA.

- DESVOIDY, Myodaires, 127, 1830.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 114, 1889 (*Eumetopia*); V, 359, 1891; VI, 168, 1893.
nebulosa COQUILLET, Canad. Ent., XXXIV, 200.—Sierra Madre, Chihuahua, Mex.
tergata COQUILLET, Jour. N. Y. Ent. Soc., III, 103; Revis. Tachin., 127.—Ill., Cal., Los Angeles Co., Cal. N. J.—Smith Cat.

OPSIDIA.

- COQUILLET, Jour. N. Y. Ent. Soc., III, 102, 1895.
gonioides COQUILLET, loc. cit.; Revis. Tachin., 128.—Atlantic City, N. J.; Mass. and Ia.

HILARELLA.

- RONDANI, Dipt. Ital. Prod., I, 70, 1856.
 SCHINER, Fauna Austr., I, 504, 1862.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 114, 1889; VI, 168, 1893.
 TOWNSEND, Trans. Amer. Ent. Soc., XIX, 98 and 108, 1892 (*Eumacro-nychia* and *Gymnoprosopt*).
 COQUILLET, Revis. Tachin., 128, 1897, notes and syn.
aristalis COQUILLET, Revis. Tachin., 129.—S. Ill. and Cal.
decens TOWNSEND, Trans. Amer. Ent. Soc., XIX, 33 (*Eumacro-nychia*).—Las Cruces, N. M., and Cal.

COQUILLET, Revis. Tachin., 128.—N. M. and Los Angeles Co., Cal.

N. J.—Smith Cat.

elita TOWNSEND, Trans. Amer. Ent. Soc., XIX, 109; XXII, 74, notes (both *Eumacronychia*).—Las Cruces, N. M.

COQUILLET, Rev. Tachin., 129, gen. ref.; not seen.

fulvicornis COQUILLET, Jour. N. Y. Ent. Soc., III, 106 (*Gymnoprosope*); Rev. Tach., 128.—N. J. and N. Ill.; N. H., Mass.; from a puparium found among locust eggs.

polita TOWNSEND, Trans. Amer. Ent. Soc., XIX, 109 (*Gymnoprosope polita, argentifrons*, and *clarifrons*).—S. Fla.; S. Fla.; Carlisle, Ill.

COQUILLET, Revis. Tachin., 128.—Ill., Ga., Fla.

Note.—I confirmed the identity of Townsend's species with each other, from the types.

N. J.—Smith Cat.; Enterprise, Fla.—Castle and Laurent; Inverness, Fla.—Johnson.

rufiventris COQUILLET, Revis. Tachin., 129.—Holly Springs, Miss.

siphonina ZETTERSTEDT, Dipt. Scand., III, 1213 (*Miltogramma*).—Europe.

DESVOIDY, Myodaires, 95 (*Megera dira*). [Schiner: the prior name if synonymy is sufficiently secure.]

SCHINER, Fauna Austr., I, 504.

COQUILLET, Revis. Tachin., 129.—N. J., Ga., Col., Cal.

TRICHOGENA.

RONDANI, Dipt. Ital. Prod., I, 88, 1856 (*Thricogena*).

EGGER, Verh. Zool.-Bot. Ges., XV, 297, 1865 (*Frauenfeldia*).

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 238, 1893.

costalis COQUILLET, Revis. Tachin., 130.—Col.

setipennis COQUILLET, Revis. Tachin., 130.—Franconia, N. H.

BRACHYCOMA.

RONDANI, Dipt. Ital. Prod., I, 69, 1856; III, 203, 1859.

VAN DER WULP, Biologia, Dipt., II, 90, 1890, pt. desc. and table of Mexican species.

TOWNSEND, Trans. Amer. Ent. Soc., XVIII, 1895 (*Laccoprosope*); XIX, 110, 1892 (*Sarcotachinella*).

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 161 and 197, 1893.

COQUILLET, Revis. Tachin., 131, 1897, notes, etc.

GIRSCHNER, Wien. Ent. Zeit., XVII, 153, 1898.

afra VAN DER WULP, Biologia, Dipt., II, 92.—Tabasco, Mex.

apicalis COQUILLET, Revis. Tachin., 131.—Conn. and Va.

barbatula VAN DER WULP, Biologia, Dipt., II, 98.—Guerrero, Mex.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 334 and 401, notes.

biseriata VAN DER WULP, Biologia, Dipt., II, 95.—Guerrero, Vera Cruz and

Tabasco, Mex.

chihuahuensis TOWNSEND, Canad. Ent., XXIV, 165.—Chihuahua, Mex.

cinerea VAN DER WULP, Biologia, Dipt., II, 100.—Vera Cruz, Mex.

davidsoni COQUILLET, Ent. News, V, 172.—Los Angeles Co., Cal.; bred from larvæ of *Bombus fervidus* FABR.

COQUILLET, Revis. Tachin., 131.—S. Cal.

fimbriata VAN DER WULP, Biologia, Dipt., II, 97.—Guerrero and Vera Cruz, Mex.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 365, would put this in *Thysanomyia*.

- foveata* VAN DER WULP, *Biologia*, Dipt., II, 93, pl. III, f. 12.—Tabasco, Mex.
incompta VAN DER WULP, *Biologia*, Dipt., II, 99.—Guerrero, Mex.
intermedia TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 111 (*Sarcotachinella*).—
 Carlville, Ill.
 BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, VI, 197, note on
 position.
 COQUILLET, *Revis. Tachin.*, 132.—N. J., Va., Ga., Fla.
 Charlotte Harb., Fla.—Johnson.
irregularis VAN DER WULP, *Biologia*, Dipt., II, 98.—Tabasco, Mex.
laticeps VAN DER WULP, see *Atacta brasiliensis*.
longicornis VAN DER WULP, *Biologia*, Dipt., II, 99.—Vera Cruz, Mex.
macropogon BIGOT, see *Masistylum*.
nigripalpis VAN DER WULP, see *Atacta*.
pallidula VAN DER WULP, see *Comatacta*.
pubicornis COQUILLET, *Proc. U. S. N. M.*, XXV, 116.—Harrison, Idaho.
pulverea COQUILLET, *Revis. Tachin.*, 131.—San Diego, Texas.
pygmæa VAN DER WULP, *Biologia*, Dipt., II, 95.—Guerrero, Mex.
robusta VAN DER WULP, *Biologia*, Dipt., II, 92.—Guerrero and Vera Cruz, Mex.
ruficauda VAN DER WULP, *Biologia*, Dipt., II, 94.—Vera Cruz, Mex.
sarcophagina TOWNSEND, *Trans. Amer. Ent. Soc.*, XVIII, 366 (*Laccoprosopa*).—
 Carlville, Ill.
 COQUILLET, *Revis. Tachin.*, 132.—N. J., S. Ill.
setosa COQUILLET, *Proc. U. S. N. M.*, XXV, 117.—Beulah, N. M.
sheldoni COQUILLET, *Canad. Ent.*, XXX, 236.—Oswego, N. Y.
spuria VAN DER WULP, *Biologia*, Dipt., II, 101.—Guerrero, Mex.
striatella VAN DER WULP, *Biologia*, Dipt., II, 100.—Guerrero and Tabasco, Mex.
sublucens VAN DER WULP, *Biologia*, Dipt., II, 96.—Mexico City.
subtilipalpis VAN DER WULP, *Biologia*, Dipt., II, 96.—Guerrero and Vera Cruz,
 Mex.
 BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, V, 365, would refer
 this to *Argyrophylax*.
trifida VAN DER WULP, *Biologia*, Dipt., II, 96.—Guerrero, Mex.
 BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, V, 365, would place
 this in *Argyrophylax*.

EUTHYPROSOPA.

- TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 106, 1892.
 BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, VI, 196, 1893.
petiolata TOWNSEND, *loc. cit.*—Las Cruces, N. M.
 COQUILLET, *Revis. Tachin.*, 132.—Las Cruces, N. M.

GONIA.

- MEIGEN, *Hilig. Mag.*, II, 280, 1803; *Syst. Besch.*, V, 1, 1826.
 DESVOIDY, *Myodaires*, 1830, 74 (*Rhedia*); 79 (*Reaumuria*); *Annales Soc.*
Ent. France, 1851, 315 (*Isomera*); 318 (*Pissemia*).
 SCHINER, *Fauna Austr.*, I, 441, 1802.
 WILLISTON, *Canad. Ent.*, XIX, 6, 1887, desc. and table of species.
 SNOW, *Kans. Univ. Quart.*, III, 180.
 COQUILLET, *Revis. Tachin.*, 132, 1897.
 ? *auriceps* MEIGEN, *Syst. Besch.*, V, 5.—Europe.
 WALKER, *List*, IV, 798, oc. in Ga.—very doubtful.
capitata DEGEER, *Mém. Hist. Nat. Ins.*, VI, 12, pl. 1, f. 3 (*Musca*).—Europe.

- FALLÉN, Muscides, 11 (*Tachina*).
- MEIGEN, Syst. Besch., v, 3.
- SAY, Jour. Acad. Sci. Phil., vi, 175; Compl. Works, II, 365 (*frontosa*).—Upper Missouri R., U. S.
- MACQUART, Dipt. Exot., II, 3, 208 (*philadelphica*).—Pa.
- WALKER, List, IV, 798 (*albifrons*).—Martin Falls, Canada.
- SCHNER, Fauna Austr., I, 443.
- WILLISTON, Canad. Ent., XIX, 11 and 12 (*exul* and *sequax*).—Conn., Mass., N. Y.; Cal. I follow Coquillett in making these synonymous, but Williston does not accept this disposition of the species.
- COQUILLET, Revis. Tachin., 133.—Toronto, Canada; U. S. generally, very common; bred from *Hadena devastatrix* BRACE, *Laphygma frugiperda* S. and A., and *Peridroma saucia* HUEB.
- BRÄUER, Sitzungsbericht d. K. Akad., CVI, 24, notes on type of Macquart. Beulah, N. M.—Skinner; Province of Quebec—Fyles.
- chilensis** MACQUART, see *pallens*.
- crassicornis** FABRICIUS, Syst. Antl., 301 (*Musca*).—W. I.
- WIEDEMANN, Auss. Zw., II, 345.—W. I.
- exul** WILLISTON, see *capitata*.
- frontosa** SAY, see *capitata*.
- mexicana** VAN DER WULP, Biologia, Dipt., II, 40, pl. 19, 20; p. 479, oc.—Ciudad in Durango and Guerrero, Mex.
- pallens** WIEDEMANN, Auss. Zw., II, 346.—Brazil.
- MACQUART, Dipt. Exot., II, 3, 50 (*pallens* and *chilensis*); 51 (*angusta*); Suppl. IV, 2, 178 (*lineata*).—Brazil; Chili and Cuba; unknown; Patagonia.
- BLANCHARD, in Gay's Hist. fis. etc. Chile, VII, 242, Atlas, pl. IV, f. 20 (*chilensis*).—Chili.
- WALKER, List, IV, 798 (*angusta*), oc. in Jamaica.
- VAN DER WULP, Tijdschr. v. Ent., XXVI, 23; Biologia, Dipt., II, 39, syn., etc.—N. M.; Durango, Mex.
- LYNCH ARRIBALZAGA, An. Soc. Cient. Argent., X, p. viii.
- WILLISTON, Trans. Ent. Soc. Lond., 1896, 353, pl. XI, f. 90, syn. and desc.—St. Vincent, W. I. Porto Rico—Roeder.
- porca** WILLISTON, Canad. Ent., XIX, 10.—Ore., Mt. Hood.
- sagax** TOWNSEND, see *senilis*.
- senilis** WILLISTON, Canad. Ent., XIX, 10.—W. Kans.
- TOWNSEND, Canad. Ent., XXIV, 65 (*sagar*).—Ames, Ia.
- COQUILLET, Revis. Tachin., 133.—Md., Mo., Ga. N. J.—Smith Cat.
- sequax** WILLISTON, see *capitata*.
- turgida** COQUILLET, Revis. Tachin., 133.—Los Angeles Co., Cal.

SPALLANZANIA.

- DESVOIDY, Myodaires, 78, 1830.
- RONDANI, Dipt. Ital. Prod., I, 62, 1856 (*Cnephalia*).
- WILLISTON, Scudder's Butterflies of New England, III, 1916, 1889 (*Acroglossa*).
- BRÄUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 100, 1889 (*Pseudogonia*); VI, 214, 1893.
- SNOW, Kans. Univ. Quart., III, 181, 1895 (*Cnephalia*).
- GIGLIO-TOS, Ditt. del Mess., III, 34, 1814.
- COQUILLET, Psyche, 1895, 261, syn.; Revis. Tachin., 134, 1897.

- antennalis** COQUILLET, Revis. Tachin., 135.—Alameda Co., Cal.
- finitima** SNOW, Kans. Univ. Quart., III, 184 (*Cnephalia*).—N. M.
- hebes** FALLÉN, Muscides, II (*Tachina*).—Europe.
 DESVOIDY, Myodaires, 79 (*gallica*): Annales Soc. Ent. France, 1851, 315 (*Isomera parisiaca*).
 MACQUART, Dipt. du Nord de la France, v, 179 (*Gonia nudifacies*).
 RONDANI, Dipt. Ital. Prod., III, 38 (*Gonia cognata*); IV, 155 (*alpestris*).
 SNOW, Kans. Univ. Quart., III, 182 (*Cnephalia pansa*).—N. M., 9,500 ft.
 KOWARZ, Wien. Ent. Zeit., VII, 6, syn.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 125.
 COQUILLET, Revis. Tachin., 135.—N. C., Ga., Fla.
- hesperidarum** WILLISTON, in Scudder's Butterflies of New England, 1917 (*Acroglossa*).—N. H.; bred from *Eudamus tityrus* FABR.
 TOWNSEND, Canad. Ent., XXIV, 66 (*Pseudogonia ruficauda* and *obsoleta*).—Brookings, S. D.; N. Y.
 SNOW, Kans. Univ. Quart., III, 183 (*Cnephalia ruficauda*).—Ill., Kans., N. H., Mass., N. C., N. Y., S. D.
 COQUILLET, Psyche, 1895, 261, syn.; Revis. Tachin., 134.—N. H. to S. D. and Ga. Montreal—Chagnon; Inverness, Fla.—Johnson.
- obesula** VAN DER WULP, Biologia, Dipt., II, 46, pl. III, f. 3 (*Cnephalia*).—Tabasco, Mex.
- obsoleta** TOWNSEND, see *hesperidarum*.
- ochriceps** VAN DER WULP, Tijdschr. v. Ent., XXXV, 194 (*Cnephalia*); Biologia, Dipt., II, 481.—Jalisco and Guerrero, Mex.
- ochriventris** VAN DER WULP, Biologia, Dipt., II, 47 (*Cnephalia*).—Guerrero, Mex.
- onusta** VAN DER WULP, Biologia, Dipt., II, 46, pl. III, f. 4 (*Cnephalia*).—Atoyac in Vera Cruz, Mex.
- ruficauda** TOWNSEND, see *hesperidarum*.
- tessellata** GIGLIO-TOS, see *Chatogadia vilis*.

EUCNEPHALIA.

- TOWNSEND, Canad. Ent., XXIV, 166, 1892.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 186, 1893, notes.
 SNOW, Kans. Univ. Quart., III, 185, 1895, important notes on the type.
- gonoides** TOWNSEND, Canad. Ent., XXIV, 167.—Dona Ana Co., N. M.
 SNOW, Kans. Univ. Quart., III, 185.

GÆDIOPSIS.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 336, 1891; VI, 190, 1893.
 COQUILLET, Revis. Tachin., 136, 1897, note.
- cockerelli** COQUILLET, Proc. U. S. N. M., XXV, 117.—White Mts., N. H., 8,000 ft.
- facialis** COQUILLET, Proc. U. S. N. M., XXV, 117.—Ga.
- flavipes** COQUILLET, Jour. N. Y. Ent. Soc., III, 100; Revis. Tachin., 136.—Ga., Ala.
- mexicana** BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 336; VI, 190.—Mex.
 COQUILLET, Revis. Tachin., 136.—Philadelphia.
- monticola** TOWNSEND, Psyche, 1898, 269.—Organ Mts., N. M., 8,500 ft.
- ocellaris** COQUILLET, Proc. U. S. N. M., XXV, 118.—Ohio.
- setosa** COQUILLET, Revis. Tachin., 136.—Siskiyou Co., Cal.; from chrysalis of a Noctuid.

CHÆTOGÆDIA.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 336, 1891.
 COQUILLETT, Revis. Tachin., 137, 1897, note.
analis VAN DER WULP, Tijdschr. v. Ent., x, 148, pl. iv, f. 21-23 (*Baumhaueria*).
 —Wis.
 TOWNSEND, Trans. Amer. Ent. Soc., xviii, 367 (*Frontina acroglossoides*).
 —Carlville, Ill.
 COQUILLETT, Revis. Tachin., 137.—D. C. and Mescalero, N. M.
crebra VAN DER WULP, Biologia, Dipt., ii, 120 (*Prosphecrusa*).—Guerrero, Mex.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 336, refer here.
 COQUILLETT, Revis. Tachin., 137.—Las Cruces, N. M., and Cal.; bred from
Agrotis sp. and *Taniocampa rufula* GROTE.
 Beulah, N. M.—Skinner.
monticola BIGOT, Annales, 1888, 91 (*Blepharipeza*).—Rocky Mts.
 COQUILLETT, Revis. Tachin., 137.—Cal. and Hawaii; bred from *Carnadeis*
 sp. in Hawaii, in Cal. from *Peridroma saucia* HUEB. and *Pyramis car-*
dui LINN.
rufifrons VAN DER WULP, Biologia, Dipt., ii, 121 (*Prosphecrusa*).—Chilpancingo,
 Mex.
 COQUILLETT, Revis. Tachin., 137.—Santa Fe, N. M.
vilis VAN DER WULP, Biologia, Dipt., ii, 121 (*Prosphecrusa*).—Guerrero, Mex.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 336, gen. ref.; vi,
 116, desc.
 GIGLIO-TOS, Boll. R. Univ. Torino, viii, No. 158, 1893; Ditt. del Mess.,
 iii, 35 (*Acroglossa tessellata*).—Oaxaca, Mex. [Coq.]

BAUMHAUERIA.

- MEIGEN, Syst. Besch., vii, 251, 1838.
 SCHINER, Fauna Austr., i, 494, 1862.
 VAN DER WULP, Biologia, Dipt., ii, 115, 1890, pt. desc.
analis VAN DER WULP, see *Chatogadia*.
discrepans VAN DER WULP, Biologia, Dipt., ii, 115, pl. iii, f. 17.—Cuernavaca,
 Mex.

DICHOCERA.

- WILLISTON, Ent. News, vi, 31, 1895.
 MIK, Wien. Ent. Zeit., 1896, 54.
 BRAUER, Sitzungsbericht d. K. Akad., cvii, 521, notes on position of the
 genus, 1898.
Note.—Mik's published conclusions about the relationships of the genus
 were written before he had seen the species; he wrote me afterward that
 they were erroneous.
 WILLISTON, Kans. Univ. Quart., iv, 171, has an article on "Fissicorn
 Tachinidæ," describing several cases from other parts of the world.
lyrata WILLISTON, Ent. News, vi, 29.—Moscow, Idaho.
 COQUILLETT, Revis. Tachin., 137.—Wash.
 Wyoming—Wheeler; S. Dak.—J. M. A. See also the article by Brauer,
 cited as a generic reference.
orientalis COQUILLETT, Revis. Tachin., 137.—Beverly, Mass.

MICROPHTHALMA.

- MACQUART, Dipt. Exot., ii, 3, 84, 1843.
calogaster BIGOT, see *Macromctopia*.

- disjuncta** WIEDEMANN, *Analecta Ent.*, 45 (*Tachina*); *Auss. Zw.*, II, 295 (id.).—N. A.
 SAY, *Journ. Acad. Sci. Phil.*, VI, 174; *Compl. Works*, II, 363 (*Miltogramma trifasciata*).—Ind.
 MACQUART, *Dipt. Exot.*, II, 3, 242, pl. x, f. 2 (*nigra*).—N. A.
 WALKER, *List*, IV, 760 (*Tachina trivoides*).—Ga.
 TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 111 (*Mcgaprosofus michiganensis*).—Mich.
 COQUILLET, *Journ. N. Y. Ent. Soc.*, VII, 218, syn.; *Revis. Tachin.*, 138.—N. H. to Ga. and Cal.; S. D.; bred from *Lachnosterna arcuata* SMITH.
 WILLISTON, *Trans. Amer. Ent. Soc.*, XIII, 306 (*nigra*).—Pa., New England, Kans.
- pruinosa** COQUILLET, *Canad. Ent.*, 1902, 200.—White Mts., New Mexico; Chihuahua, Mex.
- sordida** GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 158, 1893; *Ditt. del Mess.*, III, 63.—Toluca, Mex.

AMOBIA.

- DESVOIDY, *Myodaires*, 96, 1830.
 RONDANI, *Dipt. Ital. Prod.*, III, 229, 1850 (*Macronychia*).
 TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 102, 1892 (*Triroclista*).
 BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, VI, 226, 1893 (*Amobia*, *proc.*); IV, 163, 1889 (*Angiorhina*).
 COQUILLET, *Revis. Tachin.*, 138, 1897, notes.
- aurata** COQUILLET, *Proc. U. S. N. M.*, XXV, 119.—N. H., Wis., N. Ida.
- californica** COQUILLET, *Journ. N. Y. Ent. Soc.*, III, 100; *Revis. Tachin.*, 139.—Los Angeles Co., Cal.
- crudelis** WIEDEMANN, *Auss. Zw.*, II, 300 (*Tachina*).—W. I.
 BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, V, 362, refer to *Angiorhina*.
- distincta** TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 103 (*Triroclista*).—Carlinville, Ill.
 COQUILLET, *Revis. Tachin.*, 138.—London, Ont., N. H., Col., Wash.; bred from *Acronycta dactylina* GROTE.

GYMNOMMA.

- VAN DER WULP, *Biologia. Dipt.*, II, 38, 1888.
 BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, V, 383, 1891; VI, 136, 214, 1893.
- discors** VAN DER WULP, *Tijdschr. v. Ent.*, XXV, 193; *Biologia. Dipt.*, II, 477.—Guerrero, Mex.
 BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, V, 406, oc. in Col.
- nitidiventris** VAN DER WULP, *Biologia. Dipt.*, II, 38, pl. v, f. 17.—Ciudad in Durango, Mex.
 BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, V, 406; VI, 136, pt. desc.—Brazil.
- nova** GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 158, 1893; *Ditt. del Mess.*, III, 12, f. 2.—Mex.
- quadrisetosa** COQUILLET, *Proc. U. S. N. M.*, XXV, 120.—Sierra Madre Mts., Mex., 7,300 ft.

TROCHILODES.

- COQUILLET, *Trans. Amer. Ent. Soc.*, XXIX, 102, 1903.
skinneri COQUILLET, *loc. cit.*—Beulah, N. M.

TRICHOPHORA.

- MACQUART, Dipt. Exot., Suppl. iv, 2, 62, 1847.
 RONDANI, Nuovi Ann. Sc. Nat. Bologna, II, 169, 1850 (*Elachipalpus*).
 VAN DER WULP, Biologia, Dipt., II, 35, 1888, def. and table of species in Mexico; p. 475, 1903, second table of species.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 137 and 214, 1893.
 TOWNSEND, Trans. Amer. Ent. Soc., XXII, 73, 1895.
 COQUILLET, Revis. Tachin., 139, 1897.
- analis** SCHINER, Novara, 330.—S. A.
 BIGOT, Bull. Soc. Ent. France, Jan. 14, 1885, p. 2 (*Siphoniomyia melas*).—Mex.
 BRAUER, Sitzungsbericht d. K. Akad., CVI, 31, syn.
 VAN DER WULP, Biologia, Dipt., II, 475 (*melas* BIG.).—Mex.; from Bigot's type.
- convexinervis** VAN DER WULP, Tijdschr. v. Ent., XXXV, 193; Biologia, Dipt., II, 476.—Guerrero, Mex.
- fucata** VAN DER WULP, see *Cuphocera*.
- macrocera** WIEDEMANN, Auss. Zw., II, 290 (*Tachina*).—Brazil.
 WILLISTON, Trans. Ent. Soc. Lond., 1896, 352, pl. XI, f. 99, oc. in St. Vincent, W. I. (*Elachipalpus*).
 Jamaica—Johnson (id.).
- miscelli** COQUILLET, Revis. Tachin., 139.—Los Angeles Co., Cal.; bred from *Adisophanes miscellus* GROTE.
- nigrifrons** BIGOT, Bull. Soc. Ent. France, 1887, cxli (*Elachipalpus*).—Mex.
- nitidifrons** VAN DER WULP, Biologia, Dipt., II, 37 and 477, note.—Mexico, several places.
- ruficauda** VAN DER WULP, Tijdschr. v. Ent., X, 146 (*Schinceria*).—Wis.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 406 (*Elachipalpus undulata* SAY-WB.—a manuscript name, explained in Coquillett's Revis., p. 139).—S. C.; no desc.
 WILLISTON, Trans. Amer. Ent. Soc., XIII, 305 (*Cuphocera*), oc. in E. States.
 COQUILLET, Revis. Tachin., 139.—Pa. to Fla.; S. D. to Texas.
- rufina** VAN DER WULP, Biologia, Dipt., II, 36, pl. II, f. 15; p. 475, oc.—Guatemala; Costa Rica; Vera Cruz, Mex.
- ? **speculifera** WALKER, List, IV, 731 (*Cuphocera*).—N. A. Query by J. M. A.
- trisetosa** VAN DER WULP, Biologia, Dipt., II, 36, pl. II, f. 16; p. 476, oc. and notes.—Costa Rica; Tampico and Atoyac, Mex.

CUPHOCERA.

- MACQUART, Annales Soc. Ent. France, 1845, 267.
 RONDANI, Annali Nat. Napoli, 1845 (*Palpibraca*); Dipt. Ital. Prod., I, 63, 1856; III, 60, 1859.
 SCHINER, Fauna Austr., I, 427, 1862.
 COQUILLET, Revis. Tachin., 140, 1897, notes.
 Note.—See Van der Wulp, Biologia, Dipt., II, 35, for discussion of relations of this genus and *Trichophora*.
- californiensis** MACQUART, Dipt. Exot., Suppl. iv, 2, 148 (*Micropalpus*).—Cal.
 COQUILLET, Revis. Tachin., 140.—Lake Worth, Fla., and Cal.
 BRAUER, Sitzungsbericht d. K. Akad., CVII, 11, confirms gen. ref.; notes.
 Beulah, N. M.—Skinner.
- fucata** VAN DER WULP, Tijdschr. v. Ent., XXXV, 193 (*Trichophora*); Biologia, Dipt., II, 476 (id.).—Vera Cruz and Tabasco, Mex.

COQUILLET, Revis. Tachin., 140.—N. H., Mass., N. J., N. Ill.

Montreal—Chagnon.

ruficauda VAN DER WULP, see *Trichophora*.

GÆDIOPHANA

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 201, 1893.

atra BRAUER and BERGENSTAMM, loc. cit.—Mex.

PELETERIA.

DESVOIDY, Myodaires, 39, 1830.

BIGOT, Bull. Soc. Ent. France, 1883, 108 (*Sphyromyia*).

MIK, Wien. Ent. Zeit., XIII, 100, 1894 (*Chetoplecteria*).

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VII, 611, 1894 (*Tetracheta*).

COQUILLET, Revis. Tachin., 140, 1897, notes.

ænea STEGER, in Zetterstedt's Dipt. Scand., VIII, 3217 (*Echinomyia*).—Greenland.

GERSTAECKER, Zweite Nordpolfahrt, 1874 (id.).—East Greenland.

CURTIS, in Ross's Voyage to Arctic Regions, 79 (? *Tachina hirta*).

COQUILLET, Revis. Tachin., 140.—Wyo., Col., Ida.

Hudsonian Zone, N. M.—Cockerell.

cora BIGOT, Annales, 1888, 81 (*Echinomyia*).—Mex.

BRAUER, Sitzungsbericht d. K. Akad., CVII, 5, gen. ref.

iterans WALKER, see *Archytas*.

macrocera BIGOT, Bull. Soc. Ent. France, 1887, cx1; Annales, 1888, 81 (both *Echinomyia*).—Mex.

GIGLIO-TOS, Ditt. del Mess., III, 10 (*Echinomyia*).—Oaxaca, Mex.

BRAUER, Sitzungsbericht d. K. Akad., CVII, 6, gen. ref.

robusta WIEDEMANN, Auss. Zw., II, 290 (*Tachina*).—S. A.

MACQUART, Dipt. Exot., Suppl. I, 144, pl. XII, f. 3 (*Echinomyia analis*).—Colombia.

WALKER, List, IV, 726 (*Tachina anaxias*).—Nova Scotia.

RONDANI, Archivio Zool., III, 15 (*Echinomyia filipalpis*).—S. A.

THOMSON, Eugen. Resa, 517 (*Echinomyia filipalpis*).—Cal.

VAN DER WULP, Tijdschr. v. Ent., X, 145, pl. IV, f. 13-16 (*Echinomyia hamorrhoea*).—Wis.; XXVI, sep. 17, oc. in Argentina.

BIGOT, Bull. Soc. Ent. France, 1883, 109 (*Sphyromyia mallecola*); Annales, 1888, 256 (*Ech. cinerascens*).—Mex. See also note to *Rhynchodexia rubricauda*.

WILLISTON, Trans. Amer. Ent. Soc., XIII, 301 (*Ech. thomsoni* for *filipalpis* of Thomson, and *hamorrhoea*).—N. H., Wash., Cal., N. M.

TOWNSEND, Trans. Amer. Ent. Soc., XXII, 71, 72 (*Echinomyia hamorrhoea* and *thomsoni*), notes.—Ariz.

GIGLIO-TOS, Ditt. del Mess., III, 9, notes (*Ech. robusta, filipalpis* and *cinerascens*).—Mexico, several places.

COQUILLET, Revis. Tachin., 140.—Toronto, Canada; N. H. to Ga., Tex., Ida., and Wyo.

BRAUER, Sitzungsbericht d. K. Akad., CVI, 29; CVII, 5, notes on Bigot's types, etc. Intimates that *robusta* is not a *Peleteria*.

VAN DER WULP, Biologia, Dipt., II, 471 (*Ech. robusta* and *cinerascens*), oc.—Orizaba and Guerrero, Mex.

Porto Rico—Roeder; Montreal—Chagnon; Beulah, N. M.—Skinner; Axton, N. Y.—M. and H.

- rubrifrons** BIGOT, Annales, 1888, 85 (*Echinomyia*).—Mex.
 BRAUER, Sitzungsbericht d. K. Akad., cvii, 6, gen. ref., from type.
- tessellata** FABRICIUS, Ent. Syst., iv, 324 (*Musca*); Syst. Antl., 309 (*Tachina*).
 —Europe.
 MEIGEN, Syst. Besch., iv, 242 (*Tachina*).
 DESVOIDY, Myodaires, 45 (*Echinomyia nigricornis*).
 WALKER, List, iv, 728 (*Tachina punctifera*).—Massachusetts.
 VAN DER WULP, Biologia, Dipt., ii, 32, pl. ii, f. 11 (*Echinomyia flaviventris*).—Durango, Mex.
 TOWNSEND, Annals and Mag. Nat. Hist., xix, 148 (*Echinomyia neglecta*).
 —Rio Tularosa, N. M.
 COQUILLET, Revis. Tachin., 141.—Georgetown, Canada; N. H., Mass., Mich., Ill., Col., Wash., S. D.
 Montreal—Chagnon; Hudsonian Zone, N. M.—Cockerell; Beulah, N. M.—Skinner; Axton, N. Y.—M. and H.
- thomsoni** WILLISTON, see *robusta*.

ARCHYTAS.

- JENNICKE, Neue Exot. Dipt., 392, 1867.
 VAN DER WULP, Biologia, Dipt., ii, 38, 1888 (*Xcmocheta*); p. 478, 1903 (id.), table of Mex. sp.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., iv, 133, 1889 (*Tachinodes*); vi, 146, 1893, syn.; vii, 612, 1894 (*Parafabricia*).
 COQUILLET, Revis. Tachin., 141, 1897.
- ? **aberrans** GIGLIO-TOS, Boll. R. Univ. Torino, viii, No. 158; Ditt. del Mess., iii, 18, f. 9 (both ?*Xcmocheta*).—Metztilan, Mex.
- analis** FABRICIUS, Syst. Antl., 311 (*Tachina*).—S. A.
 MACQUART, Dipt. Exot., ii, 3, 42, pl. iii, f. 7 (*Jurinia amethystina*); Suppl. i, 147 (id.).—Ga.; Colombia and Venezuela.
 WALKER, List, iv, 718 (*Tachina apicifera*); Dipt. Saund., 270 (*Tach. californica*).—N. A.; Cal.
 WILLISTON, Trans. Amer. Ent. Soc., xiii, 309 (*Jurinia apicifera*); Trans. Ent. Soc. Lond., 1896, 353, pl. xi, f. 89 (id.).—U. S., common, and San Domingo; St. Vincent, W. I.
 TOWNSEND, Jour. N. Y. Ent. Soc., v, 177 (*Jurinia apicifera*); Annals and Mag. Nat. Hist., xix, 145 (id.).—Brownsville, Texas; Rio Bonito, N. M.
 BAKER, Ent. News, vi, 174, reared from *Clisiocampa fragilis* at Fort Collins, Col.
 COQUILLET, Revis. Tachin., 142.—Toronto, Canada; U. S. generally; Jamaica.
 Montreal—Chagnon; Jamaica—Johnson; Beulah, N. M.—Skinner.
- aterrima** DESVOIDY, Myodaires, 35 and 37 (*Jurinia aterrima* and *leucostoma*).—U. S.
 MACQUART, Dipt. Exot., ii, 3, 196, pl. iii, f. 6 (*Jur. smaragdina*).—Brazil?
 WALKER, Dipt. Saund., 273 (*Tachina atra*).—Ga.
 COQUILLET, Revis. Tachin., 143.—N. H., Mass., N. Y., D. C., Va., N. C., Fla., Ga., Miss., Mo., Ia., Pa., Ind.; reared from *Acronycta occidentalis* G. and R., *Ac. ovata* Gr., *Cerura* sp., and *Lagoa crispata*.
 St. Augustine, Fla.—Johnson.
- basifulva** WALKER, List, iv, 725 (*Echinomyia*).—Jamaica.
 COQUILLET, Proc. U. S. N. M., xxii, 253, oc. in Porto Rico.
- bicolor** WIEDELMANN, Auss. Zw., ii, 282 (*Tachina*).—Brazil.

- SCHINER, Novara, 331 (*Fabricia demon* Wd.).—Brazil. [Brauer.]
 BIGOT, Bull. Soc. Ent. France, 1887, cxli; Annales, 1888, 85 (both *Fabricia infumata*).—Mex.
- BRAUER, Sitzungsbericht d. K. Akad., CVII, 495, 1898, syn. of Bigot.
Notc.—For Coquillett's *infumata*, Revis. Tachin., 144, see *palpalis*.
- chryseipes** DESVOIDY, Myodaires, 37 (*Jurinia*).—Brazil.
- JÆNNICKE, Neue Exot. Dipt., 82 (*Jurinia flavifrons*).—Mex.
 GIGLIO-TOS, Ditt. del Mess., III, 17 (*Nemochata*).—Mex.; syn.
- crucia** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893 (*Nemochata*); Ditt. del Mess., III, 16 (id.).—Tuxpango and Huastec, Mex.
- dissimilis** VAN DER WULP, Biologia, Dipt., II, 39, pl. v, f. 18 (*Nemochata*); p. 478, oc. (id.).—Costa Rica; Atoyac, Teapa and N. Yucatan, Mex.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 383, would refer to *Tachinodes*.
 GIGLIO-TOS, Ditt. del Mess., III, 14, oc. in Mex. (*Nemochata*).
- dubia** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., III, 15, f. 8 (both *Nemochata*).—Mex.
- frontalis** VAN DER WULP, Tijdschr. v. Ent., XXXV, 194 (*Nemochata*); Biologia, Dipt., II, 478 (id.).—Atoyac, Mex.
- hystrix** FABRICIUS, Syst. Ent., 777 (*Musca*); Ent. Syst., IV, 325 (id.); Syst. Antl., 310 (*Tachina*).—America.
 OLIVIER, Encycl. Méthodique, VIII, 22 (*Musca*).
 WIEDEMANN, AUSS. Zw., II, 283 (*Tachina*).—N. A.
 DESVOIDY, Myodaires, 35, 36 (*Jurinia metallica* and *boscii*).—U. S.
 DRURY, Illustrations, I, pl. XLV, f. 7 (*Musca pilosa*). [Wied.]
 MACQUART, Hist. Nat. Dipt., II, 79 (*Echinomyia hystrix* and *georgia*); Dipt. Exot., Suppl. IV, 2, 144 (*Jurinia virginicensis*).—N. A.; Ga.; Va.
 JÆNNICKE, Neue Exot. Dipt., 83 (*Jurinia fuscipennis*).—N. A.
 WILLISTON, Trans. Amer. Ent. Soc., XIII, 299 and 300 (the latter *hystrioides*).—U. S. generally.
 COQUILLET, Revis. Tachin., 142.—U. S. generally, common.
- incerta** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., III, 14, f. 3 (both *Nemochata*).—Oaxaca, Mex.
- infuscata** VAN DER WULP, Tijdschr. v. Ent., XXXV, 194 (*Nemochata*); Biologia, Dipt., II, 479 (id.).—Teapa, Mex.
- ? **innovata** WALKER, Trans. Ent. Soc., n. ser., v, 296 (*Jurinia*).—Mex. Query by J. M. A.
- jurinoides** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., III, 18, f. 5 (both *Nemochata*).—Oaxaca, Mex.
- lateralis** MACQUART, Dipt. Exot., II, 3, 42, pl. III, f. 10 (*Echinomyia*).—Mex.
 WALKER, List, IV, 720, 727 (*Tachina candens* and *iterans*).—Both Nova Scotia.
 JÆNNICKE, Neue Exot. Dipt., 82 (*Jurinia apicalis*).—Mex.
 BIGOT, Annales, 1878, 78 (*Jurinia gonoides*); Bull. Soc. Ent. France, 1888, Jul. II, syn.—Mex.
 WILLISTON, Trans. Amer. Ent. Soc., XIII, 300 (*lateralis* and *iterans*), oc. and notes.—New England to New Mex.
 TOWNSEND, Trans. Amer. Ent. Soc., XXII, 71 (*Echinomyia iterans*); Psyche, 1897, 150, oc. in N. M.; Annals and Mag. Nat. Hist., XIX, 148 (*Echinomyia victoria*); XXII, 72 (id.).—Rio Tularosa, N. M. (*victoria*).
 COQUILLET, Revis. Tachin., 1897, 143.—Mass., N. C., Ga., Fla., Col. Beulah, N. M.—Skinner.
- leschenaldi** DESVOIDY, Myodaires, 42 (*Pelcteria*); Dipt. Env. Paris, I, 658.—N.

A.; in the later work the same specimens are referred to South America.

BRAUER, Sitzungsbericht d. K. Akad., cvii, 5, mentions a Mexican specimen in Bigot's collection; gen. ref.

nitida VAN DER WULP, see *Echinomyia algens*.

pernox GIGLIO-TOS, Boll. R. Univ. Torino, viii, No. 158, 1893; Ditt. del Mess., III, 16 (both *Nemocheta*).—Orizaba, Mex.

piliventris VAN DER WULP, Tijdschr. v. Ent., xxvi, 22 (*Echinomyia*); Biologia, Dipt., II, 474 (id.), notes and oc.—Argentina: Guerrero and Vera Cruz, Mex.

COQUILLET, Revis. Tachin., 142.—Waco, Texas, and Jamaica.

seminigra WIEDEMANN, Auss. Zw., II, 296 (*Tachina*).—Brazil.

MACQUART, Dipt. Exot., II, 3, 39, pl. III, f. 8 (*Jurinia*).—Brazil and Mex.

WALKER, Dipt. Saund., 270 (*Tachina divisa*).—Para, S. A.

SCHINER, Novara, 331, oc. in Chili and Colombia (*Echinomyia*).

ROEDER, Stett. Ent. Zeit., 1885, 345, notes and oc. in Porto Rico (*Jur. analis* Mcq.).

GIGLIO-TOS, Ditt. del Mess., III, 14, bibliog., etc.—Orizaba and Oaxaca, Mex.

ECHINOMYIA.

DUMÉRIL, Expos. d'une Méthod p. Class. Ins., 1801; Consid. génér. Classe Ins., 231, 1823.

DESVOIDY, Myodaires, 42, 1830 (*Fabricia*).

KOWARZ, Wien. Ent. Zeit., IV, 51, 1885 (*Mikia*).

VAN DER WULP, Biologia, Dipt., II, 31, pt. desc. and table of Mexican species, 1888.

WACHTL, Wien. Ent. Zeit., xiii, 140, 1894 (*Parcudora* and *Noxickia*).

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VII, 614, 1894 (*Pararchytas*).

COQUILLET, Revis. Tachin., 143, 1897.

ænea ZETTERSTEDT, see *Pelcteria*.

algens WIEDEMANN, Auss. Zw., II, 285 (*Tachina*).—N. A.

DESVOIDY, Myodaires, 44 (*picca* and *lapilaci*).—Nova Scotia; America.

WALKER, List, IV, 732 (*Tachina degenera*).—Martin Falls, Canada.

WILLISTON, Trans. Amer. Ent. Soc., XIII, 298, notes (*Jurinia*).—New England to Ore.

VAN DER WULP, Notes from the Leyden Museum, IV, 82 (*Jurinia nitida*); Tijdschr. v. Ent., xxvi, sep. 18 (id.); 20 (*Jurinia picca* and *nitida*).—Arizona; Quebec.

TOWNSEND, Trans. Amer. Ent. Soc., XXII, 70, bred from *Hadena lignicolor* by Gillette in Col. (*Jurinia*).

COQUILLET, Revis. Tachin., 144.—Toronto, Canada; N. H., Vt., Mass., N. Y., Col., Mont., Br. Col., Wash., Ore., Cal., S. D. (Also in Alaska, Proc. Wash. Acad. Sci., II, 439.)

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 409, place *nitida* V. d. W., under *Tachinodes*, which they afterward unite with *Archytas*.

BRAUER, Sitzungsbericht d. K. Akad., cvii, 5, confirms synonymy of *picca* R. D., from Bigot's specimen, and alleges that it is the prior name, with reasons.

TOWNSEND, Annals and Mag. Nat. Hist., XIX, 145, oc. at Rio Tularosa, N. M. (*Jurinia*).

VAN DER WULP, Biologia, Dipt., II, 474, 479 (*picca* and *nitida*).—Guerrero, Vera Cruz and Morelos, Mex.

Beulah, N. M.—Skinner; Axton, N. Y.—M. and H.

- analis** FABRICIUS, Syst. Antl., 311 (*Tachina*).—S. A.
 WIEDEMANN, AUSS. ZW., II, 288 (id.).—Brazil.
 SCHÜNER, Novara, 331, brief note.—S. A.
 VAN DER WULP, Biologia, Dipt., II, 33, pl. II, f. 12; p. 473, oc.—Mexico,
 several places; Nicaragua, Costa Rica.
- anaxias** WALKER, see *Peleteria robusta*.
- basifulva** WALKER, see *Archytas*.
- californiæ** WALKER, see *Archytas analis*.
- cinerascens** BIGOT, see *Peleteria robusta*.
- compascua** VAN DER WULP, Tijdschr. v. Ent., xxxv, 192; Biologia, Dipt., II,
 473.—Guerrero, Mex.
- cora** BIGOT, Annales, see *Peleteria*.
- dakotensis** TOWNSEND, Trans. Amer. Ent. Soc., XIX, 94.—Brookings, S. D.
 COQUILLETT, Revis. Tachin., 144.—N. H., N. C., Col., Cal.
 N. J.—Smith Cat.
- decisa** WALKER, List, IV, 715 (*Tachina*).—Martin Falls and Nova Scotia, Canada.
 THOMSON, Eugenes Resa, 516 (*Jurinia echinata*).—Cal.
 WILLISTON, Trans. Amer. Ent. Soc., XIII, 301, notes and oc. in N. H.,
 Conn., Va., Col., N. M. (*Jurinia*).
 COQUILLETT, Revis. Tachin., 143.—Toronto, Canada; N. H., N. J., Col.,
 S. Cal., S. D.
 N. J.—Smith Cat; Beulah, N. M.—Skinner.
- diaphana** FABRICIUS, Syst. Antl., 308 (*Tachina*).—S. A.
 WIEDEMANN, AUSS. ZWEIFL., II, 281 (id.).—S. A.
 VAN DER WULP, Tijdsch. v. Ent., xxvi, 21 (*vittata*); Biologia, Dipt., II,
 473, syn. and oc.—Argentina; Guerrero, Mex.
- dispar** VAN DER WULP, Biologia, Dipt., II, 34, pl. II, f. 14.—N. Sonora, Mex.
- filipalpis** THOMSON, see *Peleteria robusta*.
- filipalpis** RONDANI, see *Peleteria robusta*.
- flaviventris** VAN DER WULP, see *Peleteria tessellata*.
- florum** WALKER, List, IV, 722 (*Tachina*).—Martin Falls and Nova Scotia, Can-
 ada.
 COQUILLETT, Revis. Tachin., 144.—Canada, N. H., Mass., N. J., N. C.,
 S. D.
 White Mts., N. H.—Sjösson; Axton, N. Y.—M. and H.; Province of
 Quebec—Fyles.
- generosa** VAN DER WULP, Tijdschr. v. Ent., xxxv, 192; Biologia, Dipt., II, 472.—
 Guerrero, Mex.
- hæmorrhœa** VAN DER WULP, see *Peleteria robusta*.
- lystricosa** WILLISTON, Trans. Amer. Ent. Soc., XIII, 297 (*Dejcania*).—Wash.,
 N. M., Ariz.
 COQUILLETT, Revis. Tachin., 144.—Col., Wash. Psyche, 1901, 150, "occurs
 from N. M. and Ariz. northwardly to Ida. and Wash."
 TOWNSEND, Annals and Mag. Nat. Hist., XIX, 145, oc. Rio Tularosa, N.
 M. (*Dejcania*).
 Beulah, N. M.—Skinner.
- immaculata** MACQUART, Dipt. Exot., Suppl. IV, 2, 169, pl. xv, f. 8.—Brazil.
 VAN DER WULP, Notes from the Leyden Museum, IV, 83; Tijdschr. v. Ent.,
 xxv, sep. 19, oc. in Ariz.
- infumata** BIGOT, see *Archytas bicolor*.
- iterans** WALKER, see *Archytas lateralis*.
- leschenaldi** DESVOIDY, see *Archytas*.
- macrocera** BIGOT, see *Peleteria*.

- neglecta** TOWNSEND, see *Peleteria tessellata*.
nigrocalypterata VAN DER WULP, *Biologia, Dipt.*, II, 33 and 473.—Mexico, several places.
notata BIGOT, see *Nemorca*.
palpalis COQUILLET, *Proc. U. S. N. M.*, XXV, 120; *Revis. Tachin.*, 144 (*infumata* BIGOT).—Los Angeles Co., Cal.
piliventris VAN DER WULP, see *Archytas*.
punctifera WALKER, see *Peleteria tessellata*.
robusta WIEDEMANN, see *Peleteria*.
rubrifrons BIGOT, see *Peleteria*.
thomsoni WILLISTON, *Trans. Amer. Ent. Soc.*, XIII, 301, see *Peleteria robusta*.
victoria TOWNSEND, see *Archytas lateralis*.

EPALPUS.

- RONDANI, *Nuovi Annali Sc. Nat. Bologna*, II, 170, 1850.
 SCHINER, *Novara*, 333, 1868 (*Saundersia*).
 VAN DER WULP, *Biologia, Dipt.*, II, 18, 1888, table of Mexican species (id.); p. 462 (id.), second table of species, 1903.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 132, 1888; VI, 146, 1893.
 COQUILLET, *Revis. Tachin.*, 145, 1897, note.
albomaculatus JENNICKE, *Neue Exot. Dipt.*, 80 (*Micropalpus*).—Mex.
 VAN DER WULP, *Biologia, Dipt.*, II, 21, pl. I, f. 17 (*Saundersia*); p. 464, oc. (id.).—Mexico, several places; Guatemala.
 GIGLIO-TOS, *Ditt. del Mess.*, III, 24, notes (id.).—Oaxaca, Mex.
aureus GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 158, 1893; *Ditt. del Mess.*, III, f. 4 (both *Saundersia*).—Angang, Mex.
bicolor WILLISTON, *Trans. Amer. Ent. Soc.*, XIII, 304 (*Saundersia*).—N. M., Ariz., Cal., Wash.
 TOWNSEND, *Trans. Amer. Ent. Soc.*, XXII, 69 (id.).—Ariz.
 GIGLIO-TOS, *Ditt. del Mess.*, III, 23, note (id.).—Mex.
 Beulah, N. M.—Skinner.
bipartitus VAN DER WULP, *Biologia, Dipt.*, II, 25, pl. II, f. 3; p. 465, oc. (*Saundersia*).—Mexico, several places; Costa Rica.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, V, 409, oc. in Col. (id.).
 GIGLIO-TOS, *Ditt. del Mess.*, III, 23, note (id.).
canus VAN DER WULP, *Biologia, Dipt.*, II, 25, pl. II, f. 2 (*Saundersia*).—Costa Rica.
consanguineus VAN DER WULP, *Tijdschr. v. Ent.*, XXXV, 191 (*Saundersia*); *Biologia, Dipt.*, II, 405 (id.).—Guerrero, Mex., and Guatemala.
femoratus VAN DER WULP, *Tijdschr. v. Ent.*, XXXV, 191 (*Saundersia*); *Biologia, Dipt.*, II, 464 (id.).—Guerrero, Mex.
flavitarsis MACQUART, *Dipt. Exot.*, II, 3, 47, pl. V, f. 3; *Suppl. I*, 152, pl. XIII, f. 13; *Suppl. III*, 45 (all *Micropalpus*).—Mex.
 BRAUER, *Sitzungsbericht d. K. Akad.*, CVII, 10, examined type and refers to *Epalpus*; the species referred to by Schiner, *Novara*, 334, from S. A., is not the same.
 WILLISTON, *Trans. Amer. Ent. Soc.*, XIII, 303 (*Saundersia*).—U. S.; oc. only.
jænnickei GIGLIO-TOS, *Ditt. del Mess.*, III, 22, change of name.
 JENNICKE, *Neue Exot. Dipt.*, 79 (*Micropalpus rufipes*; *rufipes* is preoc. in *Epalpus*).—Panama.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., vi, 209, gen. ref., to *Saundersia*.
- lætus** VAN DER WULP, Tijdschr. v. Ent., xxxv, 191 (*Saundersia*); Biologia, Dipt., II, 465 (id.).—Guerrero, Mex.
- laticornis** VAN DER WULP, Biologia, Dipt., II, 20, pl. 1, f. 15 (*Saundersia*).—Costa Rica.
- macula** MACQUART, Dipt. Exot., II, 3, 46, pl. v, f. 2 (*Micropalpus*).—S. A. SCHINER, Novara, 334, note (*Saundersia*).
VAN DER WULP, Biologia, Dipt., II, 21, pl. 1, f. 16 (id.).—Costa Rica.
GIGLIO-TOS, Ditt. del Mess., III, 24, note.—Mex., S. A.
- maculatus** WILLISTON, Trans. Amer. Ent. Soc., XIII, 304 (*Saundersia*).—N. M.
- montivagus** VAN DER WULP, Tijdschr. v. Ent., xxxv, 190 (*Saundersia*); Biologia, Dipt., II, 463 (id.).—Guerrero, Mex.
- nigripilosus** VAN DER WULP, Biologia, Dipt., II, 23 (*Saundersia*); p. 464, oc. (id.).—Cordova and Guerrero, Mex.; Costa Rica.
BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., vi, 209, probably the same as *jennickei*.
Note.—For Coquillett's *nigripilosus*, Revis. Tachin., 145, see *Parcpalpus flavidus*.
- nigriventris** MACQUART, Dipt. Exot., II, 3, 44, pl. IV, f. 3 (*Hystriicia*); Suppl. I, 150 (*Micropalpus*).—Bogota.
SCHINER, Novara, 334, refers to *Saundersia*.—S. A.
RONDANI, Arch. Zool., III, 1865, 18 (*Cryptopalpus hystrix*).
ROEDER, Stett. Ent. Zeit., XLVII, sep. 10, oc. in Colombia (*Saundersia*).
VAN DER WULP, Biologia, Dipt., II, 24 (*Saundersia rufitibia*).—Orizaba, Mex.
GIGLIO-TOS, Ditt. del Mess., III, 25, bibliog., etc. (*Saundersia*).—Mex.
- nitidus** MACQUART, Dipt. Exot., Suppl. IV, 2, 174, pl. xv, f. 14 (*Micropalpus*).—S. A.
BRAUER, Sitzungsbericht d. K. Akad., CVI, 41, notes on type, which he states is from Mexico.
- ochripes** VAN DER WULP, Biologia, Dipt., II, 19, pl. 1, f. 14 (*Saundersia*).—Costa Rica.
- ornatus** MACQUART, Dipt. Exot., II, 3, 47, pl. IV, f. 6 (*Micropalpus*).—Mex., Colombia.
SCHINER, Novara, 333 (type of *Saundersia*).—Colombia.
- picea** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., III, 25, f. 10 (both *Saundersia*).—Mex.
- rufipes** MACQUART, Dipt. Exot., Suppl. IV, 2, 172, pl. xv, f. 11 (*Hystriicia*).—Brazil.
VAN DER WULP, Biologia, Dipt., II, 27, note on genus.
GIGLIO-TOS, Ditt. del Mess., III, 24 (*Saundersia*).—Mex.
- rufipes** JENNICKE, see *jennickei*.
- rufitibia** VAN DER WULP, Biologia, Dipt., II, 24 and 464 (*Saundersia*).—Orizaba and Guerrero, Mex.
- rufopilosus** VAN DER WULP, Biologia, Dipt., II, 23 and 464 (*Saundersia*).—Costa Rica; Guatemala; Pueblo and Guerrero, Mex.
TOWNSEND, Annals and Mag. Nat. Hist., XIX, 32, pt. desc. (*Saundersia*).
- signiferus** WALKER, List, IV, 708 (*Tachina*).—Nova Scotia.
WILLISTON, Trans. Amer. Ent. Soc., XIII, 303, refers to *Saundersia*.
VAN DER WULP, Biologia, Dipt., II, 22, note on position.
COQUILLET, Revis. Tachin., 145.—N. H., Mass., Md., N. C., Col., Wash., Cal.; Vancouver, Br. Col.
N. J.—Smith Cat.; Montreal—Chagnon; Axton, N. Y.—M. and H.

- testaceus** VAN DER WULP, *Biologia, Dipt.*, II, 24, pl. II, f. 1 (*Saundersia*); p. 465 (id.), oc. and notes.—Costa Rica: Guerrero, Mex.
- truncaticornis** VAN DER WULP, *Biologia, Dipt.*, II, 26, pl. II, f. 4 (*Saundersia*).—Panama.
- unicolor** VAN DER WULP, *Biologia, Dipt.*, II, 23 and 464 (*Saundersia*).—Orizaba and Xucumanatlan, Mex.

PAREPALPUS.

COQUILLETT, *Proc. U. S. N. M.*, XXV, 120, 1902.

- flavidus** COQUILLETT, loc. cit.: *Revis. Tachin.*, 145 (*Epalpus nigripilosa* V. d. W.).—Col.
Beulah, N. M.—Skinner.

CRYPTOPALPUS.

RONDANI, *Nuovi Annali Sci. Nat. Bologna*, II, 171, 1850.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 132, 1889; VI, 146, 1893.

- ? **flaviceps** BIGOT, *Bull. Soc. Ent. France*, 1887, 141; *Annales*, 1888, 93.—Rocky Mts.
BRAUER, *Sitzungsbericht d. K. Akad.*, CVI, 42, notes on type; does not belong to this genus;—perhaps a new genus; near *Rhinomectopia*.

melanopygatus BIGOT, *Bull. Soc. Ent. France*, 1887, 141.—Wash.

BOMBYLIOMYIA.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 131, 1889; VI, 147, 1893.

- abrupta** WIEDEMANN, *Auss. Zw.*, II, 293 (*Tachina*).—N. A.
HARRIS, *Ins. Inj. to Vegetation*, 3d ed., 612 (*Tachina vivida*).—Mass.
MACQUART, *Dipt. Exot.*, II, 3, 44, pl. IV, f. 4 (*Hystrieca testacea*).—Mex. and N. A.
WALKER, *List.*, IV, 707 (*Tachina finitima*).—Nova Scotia and U. S.
GLOVER, *Rept. U. S. Entomologist*, 1866, 44, reared *T. vivida* from *Eacles imperialis*.
WILLISTON, *Trans. Amer. Ent. Soc.*, XIII, 298, oc. in New England and Wash. (*Hystrieca*).
BIGOT, *Bull. Soc. Ent. France*, 1888, cvi; *Annales*, 1888, 79 (both *Hystrieca fulvida*).—N. A.
VAN DER WULP, *Tijdschr. v. Ent.*, XXVI, sep. 17, oc. at Quebec (*H. vivida*); *Biologia, Dipt.*, II, 461 (*Hystrieca*), oc. in Rinconada, Mex.
COQUILLETT, *Revis. Tachin.*, 145.—Toronto, Canada; N. H., Mass., N. J., Pa., N. Y., Ohio, Col., Wash., Br. Col.
Montreal—Chagnon.

HYSTRICIA.

MACQUART, *Dipt. Exot.*, II, 3, 43, 1843.

VAN DER WULP, *Biologia, Dipt.*, II, 11, 1888, table of Mexican species.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 147, 1893.

- abrupta** WIEDEMANN, see *Bombyliomyia*.
- albiceps** VAN DER WULP, *Biologia, Dipt.*, II, 12, pl. 1, f. 6.—Costa Rica.
- albosignata** VAN DER WULP, *Tijdschr. v. Ent.*, XXXV, 190; *Biologia, Dipt.*, II, 461.—Guerrero, Mex.
- aldrichi** TOWNSEND, see *Panzzeria radicum*.
- ambigua** MACQUART, see *Jurinella*.

- amœna** MACQUART, Dipt. Exot., II, 3, 44.—Mex.
 VAN DER WULP, Biologia, Dipt., II, 16, pl. I, f. 11; p. 461, note.—Costa Rica.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 131, f. 230; VI, 147.—Cent. Amer.
 GIGLIO-TOS, Ditt. del Mess., III, 27, note.—Coscom, Mex.
- cyaneiventris** VAN DER WULP, Compt. Rend., Soc. Ent. Belg., XXXVIII, p. cxcxi; Biologia, Dipt., II, 13, transl. orig. desc.—Guanajuato, Mex.
- dorsalis** VAN DER WULP, Biologia, Dipt., II, 17, pl. I, f. 13; p. 461, oc.—Guatemala, Costa Rica, Panama; Guerrero, Mex.
- fulvida** BIGOT, see *Bombyliomyia abrupta*.
- infusca** VAN DER WULP, Biologia, Dipt., II, 12 and 460, note.—Vera Cruz, Mex.
- micans** VAN DER WULP, Biologia, Dipt., II, 16, pl. I, f. 12; p. 461, oc.—Costa Rica; Guerrero and Tuxpango, Mex.
 GIGLIO-TOS, Ditt. del Mess., III, 27.—Oaxaca, Mex.
- pollinosa** VAN DER WULP, Biologia, Dipt., II, 14, pl. I, f. 8; p. 461, oc.—Guatemala, Costa Rica; Mexico, several places.
 GIGLIO-TOS, Ditt. del Mess., III, 26, note.—Metztillan, Mex.
- pyrrhaspis** WIEDEMANN, see *Tropidopsis*.
- soror** WILLISTON, see *Jurinella*.
- testacea** MACQUART, see *Bombyliomyia abrupta*.
- testaceiventris** VAN DER WULP, Tijdschr. v. Ent., XXXV, 190; Biologia, Dipt., II, 460.—Guerrero, Mex.
- velutina** VAN DER WULP, Biologia, Dipt., II, 15, pl. I, f. 10.—Costa Rica.

DEJEANIA.

- DESVOIDY, Myodaires, 33, 1830.
 VAN DER WULP, Biologia, Dipt., II, 7, 1888, table of Mexican species.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 146, 1893.
- analis** MACQUART, Dipt. Exot., II, 3, 34, pl. III, f. 3 (*Echinomyia*).—Mex.
 BIGOT, in Sagra's Cuba, 80) (id.).—Cuba.
- armata** WIEDEMANN, Abss. Zw., II, 287 (*Tachina*).—Cuba.
 MACQUART, Dipt. Exot., Suppl. IV, 2, 168, pl. XV, f. 7.—Brazil.
 SCHINER, Novara, 337, oc. in Brazil.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 409, gen. ref. and oc. in Cuba and Brazil.
- atrata** VAN DER WULP, Biologia, Dipt., II, 8, pl. I, f. 2.—Costa Rica.
- aurea** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., III, 20.—Solco, Mex.
- corpulenta** WIEDEMANN, Abss. Zw., II, 280 (*Tachina*).—Mex.
 MACQUART, Dipt. Exot., II, 3, 35, pl. III, f. 1 (*rufipalpis*).—Mex.
 VAN DER WULP, Tijdschr. v. Ent., XXV, 17, oc. in Bogota; XXIX, p. xxxi; Biologia, Dipt., II, 9, pl. I, f. 4.—Bogota; same; Costa Rica and Panama.
 GIGLIO-TOS, Ditt. del Mess., III, 20, notes.—Oaxaca and Solco, Mex.
 TOWNSEND, Psyche, 1897, 40, oc. in N. M. and notes; Annals and Mag. Nat. Hist., XIX, 145, more of same.
 VAN DER WULP, Biologia, Dipt., II, 459, notes and oc.—Mexico, several places.
- hystricosa** WILLISTON, see *Echinomyia*.
- montana** VAN DER WULP, Tijdschr. v. Ent., XXXV, 190; Biologia, Dipt., II, 459.—Guerrero, Mex.
- pallipes** MACQUART, Dipt. Exot., II, 34, pl. II, f. 9.—Colombia.
 SCHINER, Novara, 337, oc. and note.—S. A.

- VAN DER WULP, *Biologia, Dipt.*, II, 8, pl. 1, f. 1.—Costa Rica and Panama.
- plumitarsis** VAN DER WULP, *Tijdschr. v. Ent.*, XXIX, p. XXXI, change of name.—Mex.
- MACQUART, *Hist. Nat. Dipt.*, II, 77 (*Echinomyia corpulenta* Wb.); *Dipt. Exot.*, II, 3, 35 (*Dejeania corpulenta* Wb.); *Suppl.*, I, 143, pl. XII, f. 2 (id.).—S. A.
- SCHINER, *Novata*, 337, note and oc. (id.).—S. A.
- VAN DER WULP, *Biologia, Dipt.*, II, 10, pl. 1, f. 5.—Guatemala and Costa Rica.
- rutilioides** JENNICKE, see *Paradejeania*.
- vexatrix** OSTEN SACKEN, *West. Dipt.*, 343; *Cat.*, 256.—Georgetown, Col.
- COQUILLETT, *Revis. Tachin.*, 146, footnote.—Col.
- Beulah, N. M.—Skinner.

PARADEJEANIA.

- BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 147 and 184, 183.
- rutilioides** JENNICKE, *Neue Exot. Dipt.*, 86 (*Dejeania*).—Mex.
- OSTEN SACKEN, *West. Dipt.*, 354, oc.; *Cat.*, 256, note (both *Dejeania*).
- WILLISTON, *Trans. Amer. Ent. Soc.*, XIII, 297, notes (id.).—N. M., Col., Cal.
- VAN DER WULP, *Tijdschr. v. Ent.*, XXV, 17; *Biologia, Dipt.*, II, 9, pl. 1, f. 3, and p. 459 (id.).—Costa Rica; Guerrero, Mex.
- COQUILLETT, *Revis. Tachin.*, 146.—N. M., Col., Cal., Mex.
- TOWNSEND, *Annals and Mag. Nat. Hist.*, XIX, 144, oc. at Rio Tularosa, N. M., etc.

JURINIA.

- DESVOIDY, *Myodaires*, 34, 1830.
- VAN DER WULP, *Biologia, Dipt.*, II, 27, table of Mexican species, 1888; p. 466, 1903, table of his own species.
- adusta** VAN DER WULP, *Biologia, Dipt.*, II, 28, pl. II, f. 7.—Durango, Mex.; Guatemala.
- COQUILLETT, *Revis. Tachin.*, 147 (*metallica* DESV.); *Proc. U. S. N. M.*, XXV, 120, correction.—W. Va., Ky., Ga., Fla., Tex., Col.; bred from *Epantheria scribonia* STOLL.
- VAN DER WULP, *Biologia, Dipt.*, II, 467, oc. in Mexico, several places.
- N. J.—Smith *Cat.* (*metallica*).
- algens** WIEDEMANN, see *Echinomyia*.
- amethystina** MACQUART, see *Archytas analis*.
- analis** MACQUART, see *Nemochata seminigra*.
- apicalis** JENNICKE, see *Archytas lateralis*.
- apicifera** WALKER, see *Archytas analis*.
- assimilis** VAN DER WULP, *Tijdschr. v. Ent.*, XXXV, 192; *Biologia, Dipt.*, II, 469.—Guerrero and Yucatan, Mex.
- aterrima** DESVOIDY, see *Archytas*.
- badiiventris** VAN DER WULP, *Biologia, Dipt.*, II, 28, pl. II, f. 6.—Costa Rica.
- barbata** BIGOT, *Annales*, 1888, 78.—Mex.
- BRAUER, *Sitzungsbericht d. K. Akad.*, CVII, 8, confirms the generic position.
- basalis** WALKER, *List*, IV, 713.—Jamaica.
- GIGLIO-TOS, *Ditt. del Mess.*, III, 19.—Huastec, Mex.
- boscii** DESVOIDY, see *Archytas hystrix*.
- candens** WALKER, see *Archytas lateralis*.

- congruens** VAN DER WULP, Tijdschr. v. Ent., xxxv, 192; *Biologia*, Dipt., II, 469.—N. Yucatan.
- ? **contraria** WALKER, List, IV, 116 (*Tachina*).—Mex. Query by J. M. A.
- debitrix** WALKER, Trans. Ent. Soc., n. ser., v, 296.—Mex.
- decisa** WALKER, see *Echinomyia*.
- dichroma** VAN DER WULP, *Biologia*, Dipt., II, 27, pl. II, f. 5.—Durango, Mex.; Costa Rica. Also p. 467, oc. in Misantla, Mex.
GIGLIO-TOS, Ditt. del Mess., III, 19, notes.—Cuernavaca, Mex.
- echinata** THOMSON, see *Echinomyia decisa*.
- ? **epileuca** WALKER, List, IV, 716 (*Tachina*).—Jamaica. Query by J. M. A.
- flavifrons** JENNICKE, see *Nemochata chrysiceps*.
- fuscipennis** JENNICKE, see *Archytas hystrix*.
- georgica** MACQUART, see *Archytas hystrix*.
- gonioides** BIGOT, see *Archytas lateralis*.
- hystricoides** WILLISTON, see *Archytas hystrix*.
- hystrix** FABRICIUS, see *Archytas*.
- innovata** WALKER, see *Archytas*.
- lateralis** MACQUART, see *Archytas*.
- leucostoma** DESVOIDY, see *Archytas aterrima*.
- metallica** DESVOIDY, see *Archytas hystrix*.
- "**myrrhea** SAY" is recorded from Pa. in the Imperial Museum by Brauer and Bergenstamm, Zweifl. d. Kaiserl. Mus., v, 409. It seems to be a manuscript name.
- nepticula** VAN DER WULP, Tijdschr. v. Ent., xxxv, 191; *Biologia*, Dipt., II, 468.—Guerrero, Mex.
- nitida** VAN DER WULP, see *Ecinomyia algens*.
- nitidula** VAN DER WULP, Tijdschr. v. Ent., xxxv, 191; *Biologia*, Dipt., II, 467.—Guerrero, Mex.
- punctata** VAN DER WULP, Tijdschr. v. Ent., xxxv, 191; *Biologia*, Dipt., II, 468.—Guerrero, Mex.
- smaragdina** MACQUART, see *Archytas aterrima*.
- spinigera** VAN DER WULP, Tijdschr. v. Ent., xxxv, 192; *Biologia*, Dipt., II, 467.—Guerrero, Mex.
- virginiensis** MACQUART, see *Archytas hystrix*.

JURINELLA.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 132, 1889 (*Jurincella* and *Pseudohystricia*); VI, 147, 1893 (id.).
- COQUILLET, Revis. Tachin., 147, notes, 1897.
- ambigua** MACQUART, Dipt. Exot., Suppl. IV, 2, 145 (*Hystricia*).—Mex.
? WILLISTON, Trans. Amer. Ent. Soc., XIII, 298, notes (id.).—Col., Mex.
Query by Van der Wulp.
- VAN DER WULP, *Biologia*, Dipt., II, 13, pl. I, f. 7 (id.).—Orizaba, Mex.; Guatemala, Costa Rica.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 132, f. 236; VI, 147 (both *Pseudohystricia*).—Mex.
- TOWNSEND, Trans. Amer. Ent. Soc., XXII, 69, redesc. from Mex. (*Pseudohystricia*).
- GIGLIO-TOS, Ditt. del Mess., III, 26 (*Hystricia*), oc. at Solco, Mex.
- VAN DER WULP, *Biologia*, Dipt., II, 461, oc. in Guerrero and Atoyac, Mex. (*Jurinia*).
- exilis** TOWNSEND, Ent. News, III, 1892, 146 (*Pseudohystricia*).—Jamaica. Jamaica—Johnson.

- soror** WILLISTON, Trans. Amer. Ent. Soc., XIII, 298 (*Hystriicia*).—Ariz.
 VAN DER WULP, Biologia, Dipt., II, 15, pl. 1, f. 9, pt. desc. (id.).—Guatemala, Costa Rica.
 GIGLIO-TOS, Ditt. del Mess., III, 28 (id.), note.—Mex.
 COQUILLET, Revis. Tachin., 147.—Col.

MICROCHIRA.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 188, 1893.
mexicana BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 188.—Mex.

TROPIDOPSIS.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 132, 1889; VI, 147, 1893.
pyrrhaspis WIEDEMANN, Auss. Zw., II, 307 (*Tachina*).—Brazil.
 WALKER, List, IV, 733 (*Tachina anthemon*).—Brazil.
 SCHINER, Novara, 332 (*Hystriicia*), notes.—S. A.
 VAN DER WULP, Biologia, Dipt., II, 18, pt. desc. (*Hystriicia*).—Cordova, Mex.; Guatemala.
 GIGLIO-TOS, Ditt. del Mess., III, 28, notes.—Tuxpango and Orizaba, Mex.
 VAN DER WULP, Biologia, Dipt., II, 461 (*Hystriicia*), oc.—Vera Cruz and Jalapa, Mex.

DEXIIDÆ.

- BIGOT, Revue d'Entomol., 1885, 266, table of all genera.
 VAN DER WULP, Biologia, Dipt., II, 211, table of Mexican genera, 1891.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 1891.
 TOWNSEND, Trans. Amer. Ent. Soc., XIX, 1892, 273, table of N. A. genera.
 VAN DER WULP, Tijdschr. v. Ent., XXVIII, 189, 1885, has a table of the long-legged genera, referring especially to those of Tropical America.

Note.—Brauer and Bergenstamm published an extensive work in the same year as Van der Wulp, 1891. I am unable to settle the question of actual priority; but as Van der Wulp allowed Brauer and Bergenstamm to use his types as a matter of courtesy, and they attributed his genera to him, it would seem unwise to disturb this arrangement.

The ideas of the authors named above differ widely as to the limits and validity of genera; frequently they are hopelessly contradictory. The work of Brauer and Bergenstamm is obviously of a preliminary character, undergoing material change with each succeeding instalment, which makes it undesirable to follow it for sequence of genera.

The differences between Tachinidæ and Dexiidæ are evanescent, and the prospect is that the families will ultimately be combined, or new family characters established. In the present work, most of the doubtful genera, if not in fact all of them, will be found in the Tachinidæ.

The following notes may be grouped together, for convenience of reference:

- Illigera ælops** WALKER is a *Beskia*.
Illigera corythus WALKER is *Xanthomclana atripennis*.
Illigera helymus WALKER is a *Metachata*.
Megerlea rufocaudata BIGOT goes in *Sarcophilodæ*s.
Oplisa albifacies BIGOT is a *Pseudodexia*.
Oplisa nigrifacies BIGOT; according to Brauer, Sitzungsbericht d. K. Akad., CVI, 32, the types include four species, referable to three genera.
Phorostoma appendiculata BIGOT is a *Myiomima*.

Phorostoma melanogaster BIGOT is *Sardiocera valida*.

Ptilodegeeria B. and B.; for the type species, see *Hypostena obumbrata* V. d. W.

Pyrrosia ochracea BIGOT is an *Æstrophasia*.

Sericocera pictipennis MACQ. is *Euantha dives*.

Tromodesia hæmorrhoidalis BIGOT is *Leptoda atrifrons*.

HYSTRISIPHONA.

BIGOT, Revue et Mag. Zool., 1859, 309.

VAN DER WULP, Biologia, Dipt., II, 213, 1891.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 174, 1893 (the reference in IV, 120, 1889, is a mistake; the species there mentioned is referred, VI, 182, to *Echinodexia*, n. g.).

bicolor GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147, 1893; Ditt. del Mess., III, 54, f. 17.—Mex.

nigra BIGOT, Rev. et Mag. Zool., 1859, 309; Bull. Soc. Ent. France, 1883, xlv.—Mex.

VAN DER WULP, Biologia, Dipt., II, 213, redesc.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 174, 1893.—Cent. Amer.

BRAUER, Sitzungsbericht d. K. Akad., CVII, 13 (*H. mclaus*, by mistake), note on type.

Oaxaca, Mex.—Giglio-Tos.

pseudohystricia BRAUER and BERGENSTAMM, see *Echinodexia*.

ECHINODEXIA.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 182, 1893.

pseudohystricia BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 120 (*Hystrisiphona*); VI, 182, gen. ref.—Mex.

VAN DER WULP, Biologia, Dipt., II, 219, pl. v, f. 3 (*Hystrichodexia*).—Guerrero, Mex. Solco, Mex.—Giglio-Tos.

PRORHYNCHOPS.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 364, 1891; VI, 174, 1893.

bilimeki BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 364.—Mazatlan, Mex.

PROSENA.

ST. FARGEAU et SERVILLE, Encycl. Méth., X, 500, 1825.

SCHINER, Fauna Austr., I, 557, 1862.

VAN DER WULP, Biologia, Dipt., II, 214, 1891, desc. and table of Mexican species.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 125, 1889; VI, 175, 1893.

BRAUER and BERGENSTAMM, loc. cit., IV, 127; VI, 175 (*Mochlosoma*).

analís GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147, 1893; Ditt. del Mess., III, 55 (both *Mochlosoma*).—Mex.

curvirostris BIGOT, Annales, 1888, 264.—Mex.

VAN DER WULP, Biologia, Dipt., II, 217.—Guerrero, Vera Cruz and Tabasco in Mex.; Costa Rica.

BRAUER, Sitzungsbericht d. K. Akad., CVIII, 13, note on types.

Orizaba, Mex.—Giglio-Tos; Beulah, N. M.—Skinner.

- lacertosa* VAN DER WULP, *Biologia*, Dipt., II, 215, pl. v, f. 1.—Durango, Mex.
Solco, Mex.—Giglio-Tos.
- maculifera* BIGOT, see *Stomatodexia cothurnata*.
- melæna* VAN DER WULP, *Biologia*, Dipt., II, 217.—Guerrero, Mex.
- mexicana* MACQUART, see *Thelaira*.
- obscura* BIGOT, see *Eudexia*.
- rufipes* COQUILLET, *Canad. Ent.*, 1902, 202 (*Mochlosoma*).—Sierra Madre. Chihuahua, Mex.
- sericea* GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 147, 1893; *Ditt. del Mess.*, III, 56 (both *Mochlosoma*).—Mex.
- ? *tessellans* VAN DER WULP, *Biologia*, Dipt., II, 216.—Guerrero and Durango, Mex. Van der Wulp says it may be the same as *mexicana*, which is *Thelaira*; hence I put the query.
- valida* BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, IV, 126, 168, pl. VIII, f. 102 (*Mochlosoma*).—Pa.: Mex.
VAN DER WULP, *Biologia*, Dipt., II, 215, pl. v, f. 2.—Guerrero, Mex.

PROSENOIDES.

- BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, V, 370, 1891; VI, 175, 1893.
- flavipes* COQUILLET, *Proc. Acad. Nat. Sci. Phil.*, 1895, 314.—Lake Worth and Charlotte Harbor, Fla.

MYIOMIMA.

- BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, IV, 119, 1889; V, 363, 1891; VI, 175, 1893.
- appendiculata* BIGOT, *Annales*, 1888, 269 (*Phorostoma*).—Mex.
- BRAUER, *Sitzungsbericht d. K. Akad.*, CVIII, 12, notes on type, and gen. ref.
- sarcophagina* BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, IV, 119, 167; V, 363; VI, 175.—Cent. Amer.
VAN DER WULP, *Biologia*, Dipt., II, 264, brief note.

HYSTRICHODEXIA.

- ROEDER, *Stett. Ent. Zeit.*, 1886, 266.
- VAN DER WULP, *Biologia*, Dipt., II, 218, 1891, def. and table of Mexican species.
- BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, VI, 182, 1893.
- aurea* GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 147, 1893; *Ditt. del Mess.*, III, 59.—Mex.
- brevicornis* MACQUART, *Dipt. Exot.*, Suppl. IV, 230 (*Proscna*).—Brazil.
GIGLIO-TOS, *Ditt. del Mess.*, III, 58.—Mex.
- contristans* VAN DER WULP, *Biologia*, Dipt., II, 221.—Guerrero, Mex.
- coracina* VAN DER WULP, *Biologia*, Dipt., II, 221.—Guerrero, Mex.
- echinata* VAN DER WULP, *Biologia*, Dipt., II, 220.—Costa Rica.
- formidabilis* BIGOT, see *Eudexia*.
- mellea* GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 147, 1893; *Ditt. del Mess.*, III, 58.—Oaxaca, Mex.
- pseudohystricia* BRAUER and BERGENSTAMM, see *Echinodexia*.
- ræderi* WILLISTON, *Kans. Univ. Quart.*, II, 77.—Ariz.
- ? *spinosa* BIGOT, *Annales*, 1888, 266 (*Rhynchodexia*).—Hayti.
BRAUER, *Sitzungsbericht d. K. Akad.*, CVI, 31, refers here, or to *Eudexia*, from type.

EUDEXIA.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., iv, 120, 1889; vi, 174, 1893.
- formidabilis** BIGOT, Annales, 1888, 264 (*Rhamphiniina*).—Mex.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., iv, 120 (*goliath*); vi, 174, 182 (id.).—Venezuela.
- VAN DER WULP, Biologia, Dipt., ii, 220, pl. v, f. 4 (*Hystrichodexia*).—Paso del Macho, Mex.; Nicaragua. Notes on the type of Bigot.
- BRAUER, Sitzungsbericht d. K. Akad., cvi, 31, syn. and gen. ref., from type.
- GIGLIO-TOS, Ditt. del Mess., iii, 58, oc. in Orizaba, Mex. (*Hystrichodexia*).
- obscura** BIGOT, Annales, 1888, 264 (*Proscna*); 265 (*Rhamphiniina anthracina*).—Mex.
- VAN DER WULP, Biologia, Dipt., ii, 234, desc. and synonymy, from types (*Rhynchodexia*).—Durango, Mex.
- BRAUER, Sitzungsbericht d. K. Akad., cviii, 14, gen. ref., from type of *anthracina*.
- Solco and Patzcuaro, Mex.—Giglio-Tos.

BATHYDEXIA.

- VAN DER WULP, Biologia, Dipt., ii, 222, 1891.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 363, 1891; vi, 173, 1893.
- albolineata** VAN DER WULP, Biologia, Dipt., ii, 223.—Costa Rica.
- appendiculata** BIGOT, Annales, 1888, 269 (*Phorostoma*).—Mex.
- VAN DER WULP, Biologia, Dipt., ii, 222.—Oaxaca, Mex.; Guatemala.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 363.—Cent. Amer.

GYMNODEXIA.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 364, 1891; vi, 173, 1893.
- zonata** COQUILLET, Proc. Acad. Nat. Sci. Phil., 1895, 315.—Jacksonville, Fla.

SCOTIPTERA.

- MACQUART, Dipt. Exot., ii, 3, 83, 1843.
- ? DESVOIDY, Myodaires, 317, 1830 (*Sophia* in part). [Van der Wulp, with a query.]
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., iv, 126, 1889; vi, 175, 1893.
- VAN DER WULP, Biologia, Dipt., ii, 223, 1891.
- ? **cyanea** GIGLIO-TOS, Boll. R. Univ. Torino, viii, No. 147, 1893; Ditt. del Mess., iii, 61.—Angang, Mex. Query by himself.
- melaleuca** WIEDEMANN, Auss. Zw., ii, 369 (*Dexia*).—Rio Janeiro.
- MACQUART, Dipt. Exot., ii, 3, 83, pl. ix, f. 1.—Brazil.
- PERTY, Delectus Animal., 186, pl. xxxvii, f. 7.—Brazil.
- ? DESVOIDY, Myodaires, 318 (*Sophia punctata*). [Van der Wulp, with a doubt.]
- VAN DER WULP, Biologia, Dipt., ii, 224, pl. v, f. 5.—Guatemala; Panama.
- varipennis** VAN DER WULP, Biologia, Dipt., ii, 224.—Vera Cruz, Mex.

MYIOSCOTIPTERA.

- GIGLIO-TOS, Boll. R. Univ. Torino, viii, No. 147, 1893; Ditt. del Mess., iii, 62, 1894.
- cincta** GIGLIO-TOS, locis citatis.—Solco, Mex.

RHYNCHODEXIA.

BIGOT, Bull. Soc. Ent. France, 1885, p. xi (*Rhynchiodexia* and *Rhamphiniina*).

VAN DER WULP, Biologia, Dipt., II, 225, 1891, def. and table of Mexican species; syn.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 182, 1893, suggest *Myiomina*, and in the index write "*? Myiomina*."

Note.—There is much confusion about the species of *Rhamphiniina*.

Most of Bigot's species certainly do not belong to *Rhynchodexia*.

angulata VAN DER WULP, Biologia, Dipt., II, 233.—Guerrero, Mex.

Orizaba, Mex.—Giglio-Tos.

anthracina BIGOT, of V. d. Wulp, see *Eudexia obscura*.

argentina BIGOT, see *Ptilodexia*.

carolinensis BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 119, 167; VI, 173.—S. Car.

conjuncta VAN DER WULP, Biologia, Dipt., II, 228.—Guerrero and Durango, Mex.

discolor VAN DER WULP, Biologia, Dipt., II, 227.—Guerrero, Vera Cruz and Durango, Mex.

dubia BIGOT, see *Ptilodexia*.

formidabilis BIGOT, see *Eudexia*.

fraterna VAN DER WULP, Biologia, Dipt., II, 229.—Orizaba, Guerrero, etc., Mex.

GIGLIO-TOS, Ditt. del Mess., III, 61, note.—Oaxaca, Orizaba, Tehuacan, Mex.

fumipennis BIGOT, see *Ptilodexia*.

imitatrix VAN DER WULP, Biologia, Dipt., II, 236.—Guerrero, Tabasco, and Jalisco, Mex.

macroptera VAN DER WULP, Biologia, Dipt., II, 232.—Guerrero and Mexico City, Mex.

major BIGOT, see *Ptilodexia*.

omissa VAN DER WULP, Biologia, Dipt., II, 235.—Guerrero, Jalisco and N. Yucatan, Mex.

picta BIGOT, see *Leptoda*.

planifrons VAN DER WULP, Biologia, Dipt., II, 234, pl. v. f. 7.—Durango, Mex.

præusta VAN DER WULP, Biologia, Dipt., II, 235.—Durango, Mex.

punctipennis VAN DER WULP, Biologia, Dipt., II, 233.—Guerrero and Durango, Mex.

rubricauda BIGOT, Annales, 1888, 265 (*Rhamphiniina*).—Cuba.

BRAUER, Sitzungsbericht d. K. Akad., CVIII, 14, has some enigmatical comments on the type, from which I gather that it is the same as *hamorrhœa* V. d. W., placed under *Peleteria robusta*.

rubricornis VAN DER WULP, Biologia, Dipt., II, 230.—Guerrero, N. Sonora, Tabasco, and Vera Cruz, Mex.

GIGLIO-TOS, Ditt. del Mess., III, 60, note.—Mex.

rufianalis VAN DER WULP, Biologia, Dipt., II, 231.—Guerrero, Jalisco, and N. Yucatan, Mex.

COQUILLET, Proc. U. S. N. M., XXII, 254, oc. in Porto Rico (*Myocera*).

rufipennis MACQUART, see *Ptilodexia*.

rutilans VAN DER WULP, Biologia, Dipt., II, 227.—Guerrero, Mex.

scutellata VAN DER WULP, Biologia, Dipt., II, 230.—Durango, Mex.

GIGLIO-TOS, Ditt. del Mess., III, 60, note.—Orizaba, Mex.

simulans VAN DER WULP, Biologia, Dipt., II, 229.—N. Sonora, Mex.

sororia WILLISTON, Trans. Ent. Soc. Lond., 360, pl. XI, f. 98.—St. Vincent, W. I.

spinosa BIGOT, see *Hystrichodexia*.

striata VAN DER WULP, *Biologia*, Dipt., II, 234, pl. v, f. 6.—Panama.

strigilata VAN DER WULP, *Biologia*, Dipt., II, 232.—Durango, Mex.

tibialis DESVOIDY, see *Ptilodexia*.

tincticornis BIGOT, see *Ptilodexia major*.

varipes VAN DER WULP, *Biologia*, Dipt., II, 231.—Guerrero, Mex.

MYIOCERA.

DESVOIDY, *Myodaires*, 328, 1830 (*Myocera*).

VAN DER WULP, *Biologia*, Dipt., II, 236, 1891.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 175, 1893, change to *Myiocera*.

appendiculata BIGOT, see *Myiomima*.

bivittata COQUILLET, *Proc. U. S. N. M.*, XXV, 121.—White Mts., N. Mexico.

cremides WALKER, *List*, IV, 842 (*Dexia*).—N. A. N. J.—Smith Cat.

Gen. ref. by Coquillett, in litt.

melanogaster BIGOT, see *Sardiocera*.

rava VAN DER WULP, *Biologia*, Dipt., II, 237.—Guerrero and Durango, Mex.

Beulah, N. M.—Skinner.

ruficornis BIGOT, see *Sardiocera*.

simplex BIGOT, *Annales*, 1888, 266.—Mex.

VAN DER WULP, *Biologia*, Dipt., II, 237, note on type.

BRAUER, *Sitzungsbericht d. K. Akad.*, CVIII, 15, same.

tibialis DESVOIDY, of Chagnon's List, see *Ptilodexia*.

PARAPROSENA.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 127, 1889; VI, 175, 1893.

apicalis DESVOIDY, *Myodaires*, 316 (*Zelia*).—Carolina.

N. J.—Smith Cat., with gen. ref.

STOMATODEXIA.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 125, 1889; V, 369, 373, 1891; VI, 133, 1893.

VAN DER WULP, *Biologia*, Dipt., II, 238, 1891.

cothurnata WIEDEMANN, *Auss. Zw.*, II, 249 (*Stomoxys*).—Brazil.

BIGOT, *Annales*, 1888, 264 (*Prosema maculifera*).—Mex.

VAN DER WULP, *Biologia*, Dipt., II, 239.—Guerrero, Vera Cruz and Jalisco, Mex.; syn. of Bigot, from type.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 133.—Brazil.

GIGLIO-TOS, *Ditt. del Mess.*, III, 64, note.—Orizaba, Mex.

BRAUER, *Sitzungsbericht d. K. Akad.*, CVIII, 13, refers from the type to *St. flavipennis*, but with a doubt; as Van der Wulp, also saw the type, I follow him in this point.

flavipennis WIEDEMANN, *Auss. Zw.*, II, 380 (*Dexia*).—Brazil.

VAN DER WULP, *Biologia*, Dipt., II, 138 (*Myobia*).—Guerrero, Mex.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, V, 407, gen. ref.

quadrimaculata WALKER, *Dipt. Saund.*, 319 (*Dexia*).—Brazil.

GIGLIO-TOS, *Ditt. del Mess.*, III, 64, note and gen. ref.; oc. in Mex.

similigena VAN DER WULP, *Biologia*, Dipt., II, 239.—Guerrero, Mex.

GIGLIO-TOS, *Ditt. del Mess.*, III, 64, oc. in Orizaba and Oaxaca, Mex.

MEGAPARIA.

VAN DER WULP, *Biologia, Dipt.*, II, 240, 1891.

BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, VI, 172, 1893.

Also mentioned by B. and B., V, 362, 1891, as a new genus, unnamed from Ciudad, Mex.

flaveola COQUILLET, *Proc. U. S. N. M.*, XXV, 121.—Col.

opaca COQUILLET, *Jour. N. Y. Ent. Soc.*, VII, 218.—Jacksonville, Fla. (by misprint Jackson, Fla.).

venosa VAN DER WULP, *Biologia, Dipt.*, II, 240, pl. V, f. 9.—Durango, Mex.

GIGLIO-TOS, *Ditt. del Mess.*, III, 64, notes.—Mex.

MELANOPHORA.

MEIGEN, *Illig. Mag.*, II, 279, 1803; *Syst. Besch.*, VII, 213, 1838.

SCHINER, *Fauna Austr.*, I, 552, 1862.

BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, IV, 111, 1889; VI, 159, 1893.

diabroticæ SHIMMER, see *Celatoria*.

distincta DESVOIDY, see *Limnomyia comta*.

nigripes DESVOIDY, see *Limnomyia comta*.

roralis LINNÉ, *Fauna Suec.*, 2d ed., p. 455 (*Musca*); p. 459 (*Musca grossificationis*).—Sweden.

FABRICIUS, *Syst. Antl.*, 304 and 324 (*Musca roralis* and *Tephritis grossificationis*).

MEIGEN, *Syst. Besch.*, IV, 284 (*Tachina*).

SCHINER, *Fauna Austr.*, I, 553.

• LOEW, in *Silliman's Journal*, 6c. in N. A.

BRUES, *Ent. News*, XIV, 291, reared from sow-bug, *Porcellio* sp.—Woods Hole, Mass.

N. J.—Smith Cat.; Lawrence, Kans.—J. M. A.

TRIXODES.

COQUILLET, *Canad. Ent.*, XXXIV, 201, 1902.

obesa COQUILLET, *loc. cit.*—Sierra Madre, Chihuahua, Mex.; Gila R., N. M.

CAMARONA.

VAN DER WULP, *Biologia, Dipt.*, II, 241, 1891.

BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, VI, 174, 1893, notes.

cæruleonigra VAN DER WULP, *Biologia, Dipt.*, II, 242.—Guerrero, Mex.

xanthogaster VAN DER WULP, *Biologia, Dipt.*, II, 241, pl. V, f. 11.—Guerrero, Mex. (*xanthogastra*).

DEXIA.

MEIGEN, *Syst. Besch.*, V, 33, 1826.

SCHINER, *Fauna Austr.*, I, 588, 1862.

BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, IV, 120, 1889; VI, 174, 1893.

VAN DER WULP, *Biologia, Dipt.*, II, 242, 1891.

abdominalis DESVOIDY, *Myodaires*, 306 (*Estheria*).—Nova Scotia.

abzoe WALKER, *List*, IV, 846.—Ga.

æneiventris WIEDEMANN, see *Mescombrinella*.

albifrons WALKER, *Dipt. Saund.*, 317.—U. S.

analis SAY, see *Leskia*.

analis DESVOIDY, *Myodaires*, 315 (*Zelia*).—Carolina.

apicalis DESVOIDY, see *Paraprosena*.

- canescens* WALKER, Dipt. Saund., 310.—U. S.
cerata WALKER, List, iv, 847.—N. A.
cremides WALKER, see *Myiocera*.
dives WIEDEMANN, see *Euantha*.
flavipennis WIEDEMANN, see *Stomatodexia*.
fuscanipennis MACQUART, Dipt. Exot., Suppl. i, 188, pl. xx, f. 11.—Yucatan.
genuina VAN DER WULP, Biologia, Dipt., ii, 243.—Guerrero, Mex.
gracilis WIEDEMANN, see *Leptoda*.
halone WALKER, List, iv, 837.—Ga.
harpasa WALKER, List, iv, 840.—N. A.
melanocera DESVOIDY, Myodaires, 312.—Carolina.
 ? *nigriceps* BIGOT, Annales, 1888, 267 (*Myostoma*).—Wash.
 BRAUER, Sitzungsbericht d. K. Akad., cviii, 11, says will form a new genus
 near *Dexia*, from type; hence I place here provisionally with query.
ogoa WALKER, List, iv, 841.—Nova Scotia.
pedestris WALKER, Dipt. Saund., 313.—U. S.
perfecta WALKER, Trans. Ent. Soc., n. ser., v, 307.—Mex.
 ? *plumosa* WIEDEMANN, Auss. Zweifl., ii, 370.—Brazil.
 BIGOT, in Sagra's Cuba, 815, oc. in Cuba. Very doubtful, hence the ques-
 tion.—J. M. A.
postica WALKER, Dipt. Saund., 310.—Ga.
prexaspes WALKER, List, iv, 837 (*Estheria*).—Ga.
pristis WALKER, see *Macquartia*.
punctata DESVOIDY, Myodaires, 308 (*Dincra*).—Philadelphia.
rostrata DESVOIDY, Myodaires, 315 (*Zelia*).—N. A.
rubiventris MACQUART, Dipt. Exot., Suppl. i, 188; pl. xx, f. 10.—Yucatan.
rufipennis MACQUART, see *Ptilodexia*.
strenua DESVOIDY, Myodaires, 315 (*Zelia*).—San Domingo.
 Porto Rico—Roeder.
suavis VAN DER WULP, Tijdschr. v. Ent., xxvi, sep. 33.—Guadeloupe.
thomæ WIEDEMANN, see *Leptoda*.
tibialis DESVOIDY, see *Ptilodexia*.
triangularis VAN DER WULP, Tijdschr. v. Ent., x, 149, pl. v, f. 1-5.—Wis.
 Fla.—Johnson (*Gymnodexia*).
velox DESVOIDY, Myodaires, 316 (*Zelia*).—Carolina.
vertebrata SAY, Jour. Acad. Sci. Phil., vi, 176; Compl. Works, ii, 366.—Ind.
 N. J.—Smith Cat. (*Zelia*); White Mts., N. H.—Slosson (id.); Ormond
 and Tampa, Fla.—Johnson (*Leptoda*).

ATELOGLOSSA.

- COQUILLET*, Jour. N. Y. Ent. Soc., vii, 219, 1899 (*Ateloglossa* by a mis-
 print).
cinerea COQUILLET, loc. cit.—Waldboro, Me.

PHASIOPS.

- COQUILLET*, Jour. N. Y. Ent. Soc., vii, 219, 1899.
flava COQUILLET, loc. cit.—Caldwell, N. Y.

MORPHOMYIA.

- RONDANI*, Dipt. Ital. Prod., i, 85, 1856.
BRAUER and *BERGENSTAMM*, Zweifl. d. Kaiserl. Mus., iv, 150, 1889; v, 389,
 1891; vi, 176, 1893.
rufonotata BIGOT, Annales, 1888, 269.—Cal.

ACRONACANTHA.

VAN DER WULP, *Biologia*, Dipt., II, 243, 1891.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 182, 1893.

nubilipennis VAN DER WULP, *Biologia*, Dipt., II, 243, pl. v, f. 12.—Costa Rica.

DEXIOSOMA.

RONDANI, *Dipt. Ital. Prod.*, I, 85, 1856.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 117, 1889; VI, 171, 1893.

VAN DER WULP, *Biologia*, Dipt., II, 244, 1891.

fumipennis BIGOT, see *Ptilodexia*.

partitum BIGOT, *Annales*, 1888, 270.—Mex.

VAN DER WULP, *Biologia*, Dipt., II, 245, note on type.

BRAUER, *Sitzungsbericht d. K. Akad.*, CVIII, 14, same; suggests *Pachygraphia*, a South American genus.

vibrissatum VAN DER WULP, *Biologia*, Dipt., II, 244, pl. v, f. 13.—Tabasco, Mex.
GIGLIO-TOS, *Ditt. del Mess.*, III, 63, note.—Tuxpango, Mex.

MEGAPROSOPUS.

MACQUART, *Dipt. Exot.*, II, 3, 83, 1843.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 117, 1889; VI, 171, 1893.

michiganensis TOWNSEND, see *Microphthalma disjuncta*.

rufiventris MACQUART, *Dipt. Exot.*, II, 3, 84, pl. x, f. 1.—Mex.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 117; VI, 171.

MACROMETOPA.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 117, 1889; V, 362, 1891; VI, 172, 1893.

VAN DER WULP, *Biologia*, Dipt., II, 245, 1891.

calogaster BIGOT, *Annales*, 1888, 266 (*Microphthalma*).—Mex.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 166 (*Macrometopa mexicana*); VI, 171 (id.).—Mex.

VAN DER WULP, *Biologia*, Dipt., II, 245, pl. v, f. 14, desc. and syn.—Guerrero and Morelos, Mex.

BRAUER, *Sitzungsbericht d. K. Akad.*, CVIII, 10, confirms syn. and gen. ref., from type.

STENODEXIA.

VAN DER WULP, *Biologia*, Dipt., II, 246, 1891.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, V, 379, 1891; VI, 133, 1893.

albincta VAN DER WULP, *Biologia*, Dipt., II, 246, pl. v, f. 15.—Tabasco and N. Yucatan, Mex.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 133.

PTILODEXIA.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 119, 1889 (*Ptilodexia* and *Clinoneura*); V, 363, notes and syn., 1891; VI, 173, 1893.

? **argentina** BIGOT, *Annales*, 1888, 265 (*Rhamphiniina*).—Argentina.

BRAUER, *Sitzungsbericht d. K. Akad.*, CVIII, 14; a species from Mexico in the Imperial Museum is probably the same, compared with the type; hence I list it with a question.

- dubia** BIGOT, Bull. Soc. Ent. France, 1885, p. xi (*Rhamphinina*).—Mex.
 VAN DER WULP, Biologia, Dipt., II, 236, note; perhaps *Rhynchodexia*.
 BRAUER, Sitzungsbericht d. K. Akad., CVIII, 15, gen. ref. and note, from type.
- fumipennis** BIGOT, Annales, 1888, 270 (*Dexiosoma*).—Mex.
 VAN DER WULP, Biologia, Dipt., II, 230, 245, is not a *Dexiosoma*.
 BRAUER, Sitzungsbericht d. K. Akad., CVIII, 14, notes and gen. ref., from type.
- longicornis** BIGOT, Annales, 1888, 270 (*Dexiosoma*).—Mex.
 VAN DER WULP, Biologia, Dipt., II, 230, 245, refers to *Rhynchodexia*, from type.
 BRAUER, Sitzungsbericht d. K. Akad., CVIII, 14, refers to *Ptilodexia*, from type, with additional notes.
 Note.—Van der Wulp included *Ptilodexia* in *Rhynchodexia*, hence there is no contradiction.
- major** BIGOT, Annales, 1888, 265 and 266 (*Rhamphinina major* and *tincticornis*).—Mex. and Wash.; Mex.
 VAN DER WULP, Biologia, Dipt., II, 228 (*Rhynchodexia tincticornis*).—Paso del Macho, Mex.; Costa Rica.
 GIGLIO-TOS, Ditt. del Mess., III, 60, notes (*Rhynchodexia*).—Mex.
 BRAUER, Sitzungsbericht d. K. Akad., CVIII, 14, 15, syn. of Bigot and gen. ref., from type.
- rufipennis** MACQUART, Dipt. Exot., II, 3, 87, pl. x, f. 3 (*Dexia*).—Nova Scotia.
 BRAUER, Sitzungsbericht d. K. Akad., CVIII, 14, determines Bigot's specimens (types?) to go in this genus.
 White Mts., N. H.—Mrs. Slosson.
- tibialis** DESVOIDY, Myodaires, 306 (*Esthcria*).—Nova Scotia.
 White Mts., N. H.—Slosson (*Ptilodexia*); Montreal—Chagnon (id.).
 Coquillett in litt. (id.).
 Beulah, N. M.—Skinner (*Myocera*).
- tincticornis** BIGOT, see *major*.

SARDIOCERA.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 119, 1889; VI, 173, 1893.
- ruficornis** BIGOT, Annales, 1888, 266 (*Myocera*).—Baltimore.
- valida** WIEDEMANN, Auss. Zw., II, 387 (*Musca*).—No locality.
 BIGOT, Annales, 1888, 269 (*Phorostoma melanogaster*).—N. Y.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 119, 167; V, 363, ref. to Wied.; VI, 173.—Carolina.
 BRAUER, Sitzungsbericht d. K. Akad., CVIII, 12, note on Bigot's type; syn.

CHOLOMYIA.

- BIGOT, Bull. Soc. Ent. France, 1884, xxxvii.
- VAN DER WULP, Biologia, Dipt., II, 246, 1891.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 375, notes.
- inæquipes** BIGOT, Bull. Soc. Ent. France, 1884, xxxvii.—Mex.
 VAN DER WULP, Biologia, Dipt., II, 247, pl. VI, f. I, 2.—Guerrero and Tabasco, Mex. (*Dexia longipes* FABR., of S. A., may be the same.)
 BRAUER, Sitzungsbericht d. K. Akad., CVI, 37, would put this in *Leptoda*, but Van der Wulp's figures seem to show too much difference.

MELALEUCA.

VAN DER WULP, *Biologia*, Dipt., II, 247, 1891.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 183, 1893.

spectabilis VAN DER WULP, *Biologia*, Dipt., II, 248, pl. VI, f. 3.—Guerrero, Mex.

EUANTHA.

VAN DER WULP, *Tijdschr. v. Ent.*, XXVIII, 198, 1885; *Biologia*, Dipt., II, 248, 1891.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 137, 188; VI, 128, 1893.

TOWNSEND, *Annals and Mag. Nat. Hist.*, XIX, 34, 1897, notes.

liturata OLIVIER, *Encycl. Méth.*, VIII, 423 (*Ocyptera*).—Carolina.

WIEDEMANN, *Auss. Zw.*, II, 377 (*Dexia dives*).—Ky.

MACQUART, *Dipt. Exot.*, II, 3, 67, pl. VII, f. 5 (*Sericocera pictipennis*).—Philadelphia.

VAN DER WULP, *Biologia*, Dipt., II, 249, pl. VI, f. 4 (*dives*).—Guerrero, Mex., and Guatemala; syn. of Macquart with Wiedemann.

TOWNSEND, *Annals and Mag. Nat. Hist.*, XIX, 34, notes (*dives*).—Vera Cruz.

COQUILLETT, *Revis. Tachin.*, 86, footnote, syn. of Wiedemann with Olivier. N. J.—Smith Cat.: St. Augustine, Fla.—Johnson.

pulchra VAN DER WULP, *Biologia*, Dipt., II, 249.—Guerrero, Mex.

LEPTODA.

VAN DER WULP, *Tijdschr. v. Ent.*, XXVIII, 196, 1885; *Biologia*, Dipt., II, 250, 1891.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 133, 1893.

atrifrons WIEDEMANN, *Auss. Zw.*, II, 403 (*Musca*).—No locality.

BIGOT, *Annales*, 1888, 267 (*Tromodesia hemorrhoidalis*).—Mex.

VAN DER WULP, *Biologia*, Dipt., II, 238, pl. V, f. 8 (id.), redesc. of Bigot's type.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 183, syn.

gracilis WIEDEMANN, *Auss. Zw.*, II, 373 (*Dexia*).—No locality.

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 125; VI, 133.—Central America; Mexico.

VAN DER WULP, *Biologia*, Dipt., II, 250, pl. VI, f. 5.—Guerrero, Mex.; Guatemala.

picta BIGOT, *Annales*, 1888, 265 (*Rhamphinina*).—Cuba.

BRAUER, *Sitzungsbericht d. K. Akad.*, CVI, 31, gen. ref., from type.

potens WIEDEMANN, *Auss. Zweifel.*, II, 312 (*Tachina*).—Rio Janeiro.

MACQUART, *Dipt. Exot.*, II, 3, 58, refers to genus *Eurigaster*.

BIGOT, in Sagra's *Cuba*, 8to, oc. in Cuba.

BRAUER, *Sitzungsbericht d. K. Akad.*, CVI, 30, gen. ref.

rufina BIGOT, *Bull. Soc. Ent. France*, 1885, 3 (*Homodexia*).—Cal.

BRAUER, *Sitzungsbericht d. K. Akad.*, CVIII, 8, gen. ref., from type; notes.

semirufa VAN DER WULP, *Biologia*, Dipt., II, 250.—N. Yucatan, Mex.

thomæ WIEDEMANN, *Auss. Zw.*, II, 379 (*Dexia*).—St. Thomas, W. I.

WALKER, *List*, IV, 840, oc. in Jamaica (*Dexia*).

BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, V, 406, gen. ref., from type.

URAMYIA.

DESVOIDY, Myodaires, 215, 1830.

BIGOT, Bull. Soc. Ent. France, 1885, xxxiii (*Oxydextia*). [V. d. W.]

VAN DER WULP, Biologia, Dipt., II, 251, 1891; Tijdschr. v. Ent., xxx, 168.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 130, 1889; VI, 135, 1893 (*Uromyia*).

acuminata BIGOT, Bull. Soc. Ent. France, 1885, xxxiii (*Oxydextia*).—Brazil.

VAN DER WULP, Biologia, Dipt., II, 251, pl. VI, f. 6 (*producta*); Tijdschr. v. Ent., xxx, 168, correction and extended notes on the two species, with figs. on pl. XI.—Cordova and Jalapa, Mex.

producta DESVOIDY, Myodaires, 216.—Brazil.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 130; VI, 135.—Central and S. Amer.; Venezuela. According to V. d. W., these may have been specimens of *acuminata*.

CORDYLIGASTER.

MACQUART, Dipt. Exot., II, 3, 90, 1843.

VAN DER WULP, Biologia, Dipt., II, 252, 1891.

GIGLIO-TOS, Ditt. del Mess., III, 67, 1891, proposes to change the name to *Cordylidextia*, on account of preoccupation. I am not certain that the name in Libellulidæ was originally spelled the same.

minuscua VAN DER WULP, Biologia, Dipt., II, 252, pl. VI, f. 7.—Guerrero and Tabasco, Mex.

GIGLIO-TOS, Ditt. del Mess., III, 67, note.—Orizaba, Mex.

CHÆTONA.

VAN DER WULP, Biologia, Dipt., II, 253, 1891.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 378, 1891.

congrua VAN DER WULP, Biologia, Dipt., II, 253.—Guerrero, Mex.

cruenta GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147, 1893; Ditt. del Mess., III, 65.—Mex.

flavipennis COQUILLET, Proc. U. S. N. M., XXV, 121.—Vinton, Ohio.

grisea COQUILLET, Jour. N. Y. Ent. Soc., VII, 222.—Ga.

longiseta WIEDEMANN, Auss. Zw., II, 381 (*Dextia*).—Brazil.

BIGOT, Annales, 1888, 262 (*Viviana citrina*).—Mex. [Brauer.]

VAN DER WULP, Biologia, Dipt., II, 253, pl. VI, f. 8.—Costa Rica.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 386, note.

nitens COQUILLET, Jour. N. Y. Ent. Soc., VII, 221.—Franconia, N. H.

? White Mts., N. H.—Slosson ("*tenebrosa* Coq. MSS."—this may be the species, described under a different name).

spinosa COQUILLET, Jour. N. Y. Ent. Soc., VII, 222.—Pa.

zonata BIGOT, Annales, 1888, 261 (*Cromasia*).—Mex.

BRAUER, Sitzungsbericht d. K. Akad., CVI, 15, type redesc.; gen. ref.

METADEXIA.

COQUILLET, Jour. N. Y. Ent. Soc., VII, 220, 1899.

tricolor COQUILLET, loc. cit.—La., Kans., N. M.

Thelairodcs basalis may also belong here.

THELAIRODES.

VAN DER WULP, Biologia, Dipt., II, 254, 1891, def. and table of species.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 377, 1891; VI, 131, 1893.

- basalis** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147, 1893; Ditt. del Mess., III, 65.—Mex.
N. J.—Smith Cat. (*Mctadexia*).
- cinereicollis** VAN DER WULP, Biologia, Dipt., II, 255.—Guerrero, Mex.
- pallida** VAN DER WULP, Biologia, Dipt., II, 255, pl. VI. f. 10.—Guerrero, Mex.
- spinosa** BIGOT, Annales, 1888, 268 (*Homodexia*).—Mex.
VAN DER WULP, Biologia, Dipt., II, 263, doubtfully refers to *Morinia*.
BRAUER, Sitzungsbericht d. K. Akad., CVII, 23, gen. ref., from type.
- vittigera** BIGOT, Annales, 1888, 267 (*Homodexia*).—Mex.
VAN DER WULP, Biologia, Dipt., II, 254, pl. VI. f. 9.—Guerrero, Vera Cruz and Tabasco, Mex.
BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 131.

THELAIRA.

- DESVOIDY, Myodaires, 214, 1830.
SCHINER, Fauna Austr., I, 554, 1862.
BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 110, 1889; v. 358, 1891; VI, 131, 1893.
- leucozona** PANZER, Fauna Germ., CIV, 19 (*Musca*); 18 (*Musca nigripes*).—Europe.
FALLÉN, Muscides, 42 (*Musca lateralis* and *nigrina*).
ZETTERSTEDT, Dipt. Scand., III, 1267.
SCHINER, Fauna Austr., I, 555.
Harrison, Idaho—J. M. A., identified for me by Coquillett.
- mexicana** MACQUART, Dipt. Exot., Suppl. IV, 231, pl. XXI. f. 12 (*Proscna*).—Mex.
BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 406, gen. ref.

XANTHODEXIA.

- VAN DER WULP, Biologia, Dipt., II, 256, 1891.
BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 377, 1891.
- sericea** WIEDEMANN, Auss. Zw., II, 316 (*Tachina*).—Brazil.
VAN DER WULP, Biologia, Dipt., II, 256, pl. VI. f. 11.—Guerrero, Vera Cruz and Tabasco, Mex.

PSEUDODEXIA.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 372, 378, 1891; VI, 131, 1893.
- albifacies** BIGOT, Annales, 1888, 268 (*Oplisa*).—Mex.
VAN DER WULP, Biologia, Dipt., II, 264, refers to *Anisia*.
BRAUER, Sitzungsbericht d. K. Akad., CVI, 32, gen. ref., from type.
- dubia** BIGOT.—Such a species is mentioned by Brauer, Sitzungsbericht d. K. Akad., CVI, 29, from Mexico, among Bigot's types. Brauer could not find the place of publication, nor can I. Probably it was never published.
- longicornis** BIGOT, Annales, 1888, 267 (*Homodexia*).—Mex.
VAN DER WULP, Biologia, Dipt., II, 264, suggests *Calodexia*.
BRAUER, Sitzungsbericht d. K. Akad., CVI, 29, redesc. of type and gen. ref.
- pallidicornis** BIGOT, Annales, 1888, 268 (*Anthracomyia*).—Mex.
VAN DER WULP, Biologia, Dipt., II, 264, note on generic position.
BRAUER, Sitzungsbericht d. K. Akad., CVI, 32, notes on type, and gen. ref.

CALODEXIA.

- VAN DER WULP, Biologia, Dipt., II, 257, 1891, def. and table of species.
BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 131, 1893—not v, 375, which was based on a misunderstanding.

- calceata* VAN DER WULP, *Biologia*, Dipt., II, 258.—Guerrero, Vera Cruz and Tabasco, Mex.
longicornis BIGOT, see *Pseudodexia*.
majuscula VAN DER WULP, *Biologia*, Dipt., II, 257, pl. VI, f. 12.—Tabasco, Mex.
pallidicornis BIGOT, see *Pseudodexia*.
obscuripes VAN DER WULP, *Biologia*, Dipt., II, 258.—Vera Cruz, Mex.

RHOMBOTHYRIA.

- VAN DER WULP, *Biologia*, Dipt., II, 259, 1891.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, v, 377, 1891; VI, 131, 1893.
flavicosta VAN DER WULP, *Biologia*, Dipt., II, 259, pl. VI, f. 13.—Guerrero, Mex.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 131.

PSEUDOMORINIA.

- VAN DER WULP, *Biologia*, Dipt., II, 259, 1891.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 183, 1893, notes.
pictipennis VAN DER WULP, *Biologia*, Dipt., II, 260, pl. VI, f. 14.—Guerrero, Mex.

MORINIA.

- DESVOIDY, *Myodaires*, 264, 1830.
 RONDANI, *Dipt. Ital. Prod.*, I, 87, 1856 (*Anthracomyia*). [B. B.]
 SCHINER, *Fauna Austr.*, I, 550, 1862.
 VAN DER WULP, *Biologia*, Dipt., II, 260, 1891.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 110, 1889; v, 381, 1891; VI, 183, 205, 1893.
fumata VAN DER WULP, *Biologia*, Dipt., II, 261.—Tabasco, Mex.
longitarsis VAN DER WULP, *Biologia*, Dipt., II, 261.—Guerrero and Orizaba, Mex.
spinosa BIGOT, see *Thelairodcs*.
trichopoda VAN DER WULP, *Biologia*, Dipt., II, 261.—Vera Cruz and Tabasco, Mex.
washingtoniana BIGOT, *Annales*, 1888, 269.—Wash.
 BRAUER, *Sitzungsbericht d. K. Akad.*, refers to *Anthracomyia* from type.

MELANODEXIA.

- WILLISTON, *Dipt. of Death Valley Exped.*, 256, 1893.
tristis WILLISTON, *loc. cit.*—Monterey Co., Cal., and S. Cal.

COMYOPS.

- VAN DER WULP, *Biologia*, Dipt., II, 262, 1891.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 135, 1893.
nigripennis VAN DER WULP, *Biologia*, Dipt., II, 262, pl. VI, f. 15.—Tabasco, Mex.
striaticollis VAN DER WULP, *Biologia*, Dipt., II, 262.—Guerrero, Mex.

CYRTOSOMA.

- BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 131, 132, 1893.
rufum BRAUER and BERGENSTAMM, *loc. cit.*—Guerrero, Mex.

THERESIA.

- DESVOIDY, *Myodaires*, 325, 1830.
tandrec DESVOIDY, *Myodaires*, 326.—Carolina.

HOMODEXIA.

BIGOT, *Annales*, Bull. Soc. Ent. France, 1885, xxvi.

VAN DER WULP, *Biologia*, Dipt., II, 263, shows that the genus is untenable, and distributes the species among other genera; this distribution however, is considerably modified by Brauer, on examination of the types.

BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, VI, 295, notes.

? *flavipes* BIGOT, Bull. Soc. Ent. France, 1885; *Annales*, 1888, 268.—Mex.

VAN DER WULP, *Biologia*, Dipt., II, 263, suggests *Tclothyria*.

BRAUER, *Sitzungsbericht d. K. Akad.*, CVII, 23, will form a new genus near *Calodexia*, from type.

longicornis BIGOT, see *Pseudodexia*.

rufina BIGOT, see *Leptoda*.

spinosa BIGOT, see *Thelairodcs*.

triangulifera BIGOT, see *Hypostena*.

? *vittigera* BIGOT, *Annales*, 1888, 267.—Mex. Query by Bigot.

SARCOPHAGIDÆ.

TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 279, table N. A. genera.

HOWARD, *Proc. Wash. Acad. Sci.*, II, 561, note on habits.

BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, VI, 161, table of genera.

RILEY, 4th Rept. U. S. Ent. Comm., App., 109-111, compares larvæ with those of Tachinidæ; quoted by Comstock, *Rept. Dept. Agr.*, 1879, 304.

MICROCHÆTINA.

VAN DER WULP, *Biologia*, Dipt., II, 240, 1891.

BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, VI, 162, 238, 1893 (the latter a note on an undescribed species of *Trichoprosopus*, as determined by Wulp, from Central America.—which they place here).

cinerea VAN DER WULP, *Biologia*, Dipt., II, 241, pl. v. f. 10.—Mazatlan, Mex. Ormond, Fla.—Johnson.

HESPEROMYIA.

BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, IV, 114, 1889; v. 359, 1891; VI, 162, 1893.

erythroceræ BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, IV, 114.—Texas.

PARAMINTHO.

BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, v, 366, 1891; VI, 162, 1893.

VAN DER WULP, *Biologia*, Dipt., II, 265, 1895.

modulata VAN DER WULP, *Biologia*, Dipt., II, 266, pl. VII, f. 1.—Guerrero, Mex.

ONESIA.

DESVOIDY, *Myodaires*, 365, 1830.

SCHINER, *Fauna Austr.*, I, 575, 1862.

VAN DER WULP, *Biologia*, Dipt., II, 288, 1896.

HENDEL, *Wien. Ent. Zeit.*, XXI, 83, notes on hypopygial structures in this and related genera.

lucilioides VAN DER WULP, *Biologia*, Dipt., II, 288, pl. VII, f. 11.—Mexico City.

PECKIA.

- DESVOIDY, Myodaires, 335, 1830.
 MACQUART, Hist. Nat. Dipt., II, 222, 1835 (*Phrissopodia*); Dipt. Exot., II, 3, 96, 1843 (*Phrissopoda*).
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 124, 1889; VI, 163, 1893 (*Phrissopoda*).
 JOHNSON, Proc. Acad. Nat. Sci. Phil., 1894, 279, mentions an undet. species of *Phrissopoda* bred from a snail in Jamaica.
fortipes WALKER, Trans. Ent. Soc., n. ser., v, 310 (*Sarcophaga*).—Hayti.
immanis WALKER, List, IV, 815 (*Sarcophaga*).—Honduras.
 GIGLIO-TOS, Ditt. del Mess., III, 68 (*Phrissopoda*).—Mexico.
lamanensis DESVOIDY, Myodaires, 335.—Lamana.
 GIGLIO-TOS, Ditt. del Mess., III, 68, oc. in Orizaba, Mex. (*Phrissopoda*).
plumipes DESVOIDY, Myodaires, 336.—Hayti.
 WALKER, Trans. Ent. Soc., n. ser., v, pt. VII, 41 (*Sarcophaga intermutans*).—Mexico.
 GIGLIO-TOS, Ditt. del Mess., III, 68, syn. and oc.—Mex.
præceps WIEDEMANN, Auss. Zw., II, 355 (*Sarcophaga*).—Cuba.
 DESVOIDY, Myodaires, 335 (*imperialis*).—Cuba.
 MACQUART, Hist. Nat. Dipt., II, 223 (*imperialis*).—Cuba.
 MACQUART, Dipt. Exot., II, 3, 96, note and doubtful oc. at Port Jackson, Australia (*Phrissopoda*).
 WILLISTON, Trans. Amer. Ent. Soc., XIII, 307, oc. in San Domingo (id.).
 GIGLIO-TOS, Ditt. del Mess., III, 67, note (id.).—Mex.

SARCOPHAGA.

- MEIGEN, Syst. Besch., v, 14, 1826.
 SCHINER, Fauna Austr., I, 568, 1862.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 122, 1889; VI, 164, 1893.
 VAN DER WULP, Biologia, Dipt., II, 266, 1895, notes and table of Mexican species.
 COQUILLET, Proc. Acad. Nat. Sci. Phil., 1895, 317 (*Helicobia*). [Hough.]
 WILLISTON, Trans. Ent. Soc. Lond., 1896, 362, table of St. Vincent species.
 MIK, Wien. Ent. Zeit., XVII, 162–166, parasitic habits of European species.
Note.—Several undetermined species have been reared from grasshoppers in the western part of the United States.
acanthoptera VAN DER WULP, Biologia, Dipt., II, 271, pl. VII, f. 5.—Guerrero, Vera Cruz and Tabasco, Mex.
acerba WALKER, List, IV, 824.—Nova Scotia.
ægra WALKER, List, IV, 821.—Mass.
 N. J.—Smith Cat.; Lake Worth, Fla.—Johnson.
æquata VAN DER WULP, Biologia, Dipt., II, 286.—Guerrero and Tabasco, Mex.
afficta VAN DER WULP, Biologia, Dipt., II, 286.—Morelos, Vera Cruz, and N. Yucatan, Mex.
anaces WALKER, List, IV, 833.—“N. A.?”
anxia WALKER, List, IV, 818.—“N. A.?”
 Fla.—Johnson.
argyrocephala MACQUART, Dipt. Exot., Suppl., I, 192.—Texas.
aspera WALKER, List, IV, 825.—“N. A.?”
assidua WALKER, Dipt. Saund., 328.—U. S.
 HOWARD, Proc. Wash. Acad. Sci., II, 566, figs. and life hist.; reared from human excrement.—D. C.

- MORGAN, Bull. 30, n. ser., Div. Ent., 1901, 25, figs. larva and adult; bred from *Melanoplus differentialis*.—Miss.
 St. Augustine and Palatka, Fla.—Johnson.
- aterrima** DESVOIDY, Myodaires, 366 (*Peckia*).—Carolina.
- avida** WALKER, List, IV, 822.—Nova Scotia.
- basalis** WALKER, Dipt. Saund., 328.—U. S.
- carnaria** LINNÉ, does not occur in the United States, as I am positively assured by Dr. Hough, who has examined vast quantities of material without finding it. The following references undoubtedly refer to other species, probably several:
 HARRIS, Cat. Ins. Mass., oc. in Mass.
 RILEY, 7th Mo. Rept., 180, 181; 9th Rept., 95, parasitic on eggs of Rocky Mountain locust.
 RILEY, 1st Rept. U. S. Ent. Comm., 289, 323, 324, fig., attacking eggs of the same, and also parasitic on the growing insects; 4th Rept. U. S. Ent. Comm., 107, fig.; app., 109; parasitic on *Aletia xyliua* in the south.
 HUGO SUMMA, M.D., in St. Louis Med. and Surg. Journal, May, 1889, records a case of nasal myiasis in man due to *S. carnaria*; abstract in Insect Life, III, 40.
 WALTER B. JOHNSON, M.D., in Ophthalmic Record, 1892, account of larva in ear of man; abstract in Insect Life, IV, 341.
 LUGGER, 2d Rept. Ent. Minn., 1896, 155, fig.; habits, etc.
- chætopygialis** WILLISTON, Trans. Ent. Soc. Lond., 1896, 366.—St. Vincent, W. I.
- chrysostoma** WIEDEMANN, Auss. Zw., II, 356.—W. I.
- SCHINER, Novara, 313, notes.—Brazil.
- cimbicis** TOWNSEND, Canad. Ent., XXIX, 126.—Brookings, S. D.; bred from *Cimber americana*.
 HUNTER (S. J.), Kans. Univ. Quart., VII, 206, reared from *Melanoplus differentialis* in Kansas; "Alfalfa, Grasshoppers and Bees," Bull. Ent. Dept., Univ. of Kans., 33, notes and fig.
- claripalpis** VAN DER WULP, Biologia, Dipt., II, 280.—Guerrero and N. Yucatan, Mex.
- comes** WALKER, Dipt. Saund., 323.—U. S.
- concinata** WILLISTON, Trans. Ent. Soc. Lond., 1896, 364.—St. Vincent, W. I.
- conclausa** WALKER, Trans. Ent. Soc., n. ser., v, 309.—Mex.
- conjungens** VAN DER WULP, Biologia, Dipt., II, 272.—Vera Cruz and Orizaba, Mex.
- consobrina** DESVOIDY, Myodaires, 344 (*Myophora*).—Philadelphia.
- cubensis** MACQUART, Dipt. Exot., II, 3, 106, pl. XII, f. 6.—Cuba.
 BIGOT, in Sagra's Cuba, 819.—Cuba.
 BRAUER, Sitzungsbericht d. K. Akad., CVII, 21, note.
- davidsonii** COQUILLET, Insect Life, v, 24.—Los Angeles Co., Cal.; larvæ feeding on eggs of the spider *Phidippus opifex* McC.
 DAVIDSON, Insect Life, VI, 268, reared from egg sacs of *Argiope argentata*, Santa Catalina Id., Cal.
- debilis** VAN DER WULP, Biologia, Dipt., II, 279, pl. VII, f. 9.—Guerrero, Vera Cruz and Tabasco, Mex.
- deleta** VAN DER WULP, Biologia, Dipt., II, 282.—Guerrero, Mex.
- derelicta** WALKER, Dipt. Saund., 322.—U. S.
- despensa** WALKER, Trans. Ent. Soc., n. ser., v, 309.—Mex.
- diversinervis** VAN DER WULP, Biologia, Dipt., II, 274, pl. VII, f. 7.—Tabasco, Mex.
- diversipes** COQUILLET, Proc. U. S. N. M., XXII, 255.—Porto Rico.
- effreneta** WALKER, Trans. Ent. Soc., n. ser., v, 309.—Mex.

- errabunda* VAN DER WULP, *Biologia*, Dipt., II, 278.—Guerrero and Tabasco, Mex.
- fervida* DESVOIDY, *Myodaires*, 341 (*Myophora*).—San Domingo.
- fortipes* WALKER, see *Peckia*.
- fulvipes* MACQUART, *Dipt. Exot.*, II, 3, 105. pl. XII, f. 5.—Cuba.
- fulvipes* (bis) WALKER, *Dipt. Saund.*, 328.—U. S.
St. Augustine, Fla.—Johnson.
- fuscianalis* VAN DER WULP, *Biologia*, Dipt., II, 275.—Vera Cruz and Tabasco, Mex.
- georgina* WIEDEMANN, *Auss. Zw.*, II, 357.—Ga.
HARRIS, *Ins. Inj. Veget.*, 3d edit., 613, oc. in Mass.
WALKER, *List*, IV, 829, oc. in Brit. Amer.
BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, v, 414, note.
- helicis* TOWNSEND, *Psyche*, Feb., 1892, 220.—Ohio; bred from *Helix thyroides*.
COQUILLET, *Proc. Acad. Nat. Sci. Phil.*, 1895, 317 (*Helicobia*); *Proc. U. S. N. M.*, XXII, 255, oc. in Porto Rico (id.).—Fla., Miss., Ill., Ohio, D. C., Cal.
HOWARD, *Ins. Life*, VI, 372, records breeding from *Loxostege sticticalis*.
TOWNSEND, *Psyche*, June, 1893, 468, reared from *Lachnosterna* sp., *Pieris rapæ*, and *Leucania unipuncta* by Forbes.
MORGAN, *Bull.* 30, n. ser., Div. of Ent., 1901, 25, bred from *Melanoplus differentialis*.—Miss.
N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- hunteri* HOUGH, *Kans. Univ. Quart.*, VII, 207-210, figs.; also in Hunter's "Alfalfa, Grasshoppers and Bees," *Bull. Ent. Dept.*, Univ. of Kans., 34, fig.—Kansas; bred from *Melanoplus differentialis*.
MORGAN, *Bull.* 30, n. ser., Div. of Ent., 1901, 25, bred from *Melanoplus differentialis*.—Miss.
- immanis* WALKER, see *Peckia*.
- importuna* WALKER, *List*, IV, 819.—"N. A.?"
- incerta* WALKER, *Dipt. Saund.*, 324.—Jamaica.
HOWARD, *Canad. Ent.*, XXXIII, 43, oc. Va., bred from cowdung.
Jamaica—Johnson; Cuba—Bigot, in Sagra.
- innota* WALKER, *Trans. Ent. Soc.*, n. ser., v, 308.—Mex.
- intermutans* WALKER, see *Peckia plumipes*.
- lambens* WIEDEMANN, *Auss. Zw.*, II, 365.—W. I.
HOWARD, *Proc. Wash. Acad. Sci.*, II, 567, note on habits.
Porto Rico—Roeder and Coquillett.
- lanipes* DESVOIDY, *Myodaires*, 336.—Carolina.
- leucaniæ* TOWNSEND, *Psyche*, June, 1893, 468.—Ill.; bred from *Leucania unipuncta* How.
- lherminieri* DESVOIDY, *Myodaires*, 339 (*Myophora*).—Carolina.
- micropyga* VAN DER WULP, *Biologia*, Dipt., II, 279.—Guerrero, Mex.
- micropygialis* WILLISTON, *Trans. Ent. Soc. Lond.*, 1896, 363.—St. Vincent, W. I.
- muscoïdes* BIGOT, in Sagra's Cuba, 816.—Cuba.
- oberrans* VAN DER WULP, *Biologia*, Dipt., II, 283.—Guerrero, Mex.
- obsoleta* WIEDEMANN, *Auss. Zweifel.*, II, 367.—W. I.
? GIGLIO-TOS, *Ditt. del Mess.*, III, 68, doubtful oc. in Tuxpango, Mex.
- occidua* FABRICIUS, *Syst. Ent.*, IV, 315; *Syst. Antl.*, 288 (both *Musca*).—W. I.
WIEDEMANN, *Auss. Zweifel.*, II, 368.—W. I.
COQUILLET, *Proc. U. S. N. M.*, XXII, 254, oc. in Porto Rico.
- ochripyga* VAN DER WULP, *Biologia*, Dipt., II, 285.—Guerrero, Tabasco and N. Yucatan, Mex.

- opifera** COQUILLET, Insect Life, v, 22.—Los Angeles, Cal.: parasitic on *Melanoplus devastator* SCUD.
- otiosa** WILLISTON, Trans. Ent. Soc. Lond., 1896, 364.—St. Vincent, W. I.
- pallinervis** THOMSON, Eugenes Resa, 535.—California and Honolulu.
- pallipes** WALKER, Dipt. Saund., 329.—U. S.
- pavida** WILLISTON, Trans. Ent. Soc. Lond., 1896, 365.—St. Vincent, W. I.
- perneta** WALKER, Trans. Ent. Soc., n. ser., v, 368.—Mexico.
- pexata** VAN DER WULP, Biologia, Dipt., II, 284.—Guerrero, Vera Cruz and Tabasco, Mex.
- plinthopyga** WIEDEMANN, Auss. Zweifl., II, 360.—St. Thomas, W. I.
WALKER, Lind. Trans., XVII, 352, oc. in Brazil.
GIGLIO-TOS, Ditt. del Mess., III, 69.—Orizaba and Tuxpango, Mex.
Porto Rico—Roeder and Coquillett; Jamaica—Johnson.
- plumigera** VAN DER WULP, Biologia, Dipt., II, 273, pl. VII, f. 6.—Tabasco, Mex.
- plumipes** DESVOIDY, see *Peckia*.
- prævolans** VAN DER WULP, Biologia, Dipt., II, 275, pl. VII, f. 8.—Guerrero and Orizaba, Mex.
- protrita** WALKER, Trans. Ent. Soc., n. ser., v, 317 (*Anthomyia*).—Mexico.
The type is a female *Sarcophaga*—STEIN, 205.
- pusilla** BIGOT, in Sagra's Cuba, 817.—Cuba.
- pusiola** VAN DER WULP, Biologia, Dipt., II, 278.—Mexico City, Guerrero and Orizaba, Mex.
- quadrisetosa** COQUILLET, Ent. News, XII, 17 (*Helicobia*).—Md., D. C., Va.
HOWARD, Proc. Wash. Acad. Sci., II, 568 (id.), note on habits; breeds in human excrement; Canad. Ent., XXXIII (id.), oc. in Va., bred from cow-dung.
- querula** WALKER, List, IV, 821.—"N. A.?"
- rabida** WALKER, List, IV, 823.—Nova Scotia.
- rapax** WALKER, List, IV, 818.—"N. A.?"
- rediviva** WALKER, List, IV, 823.—Martin Falls, Canada.
- rubella** WIEDEMANN, Auss. Zweifl., II, 357.—Antigua.
- rufipalpis** MACQUART, Dipt. Exot., II, 3, 102.—Brazil.
VAN DER WULP, Notes from the Leyden Museum, IV, 88; Tijdschr. v. Ent., XXVI, sep. 36, oc. in Curaçao and note.
- rufitibia** VAN DER WULP, Biologia, Dipt., II, 270, pl. VII, f. 3.—Guerrero, Mex.
- rufiventris** WIEDEMANN, Auss. Zweifl., II, 362.—Brazil.
BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 414, notes; occurs in Texas.
- sarraceniæ** RILEY, Trans. Acad. Sci. St. Louis, III, 238; App. to 4th Rept. U. S. Ent. Comm., quotes orig. desc. of larva and pupa.—Mo.
RILEY, 2d Rept. U. S. Ent. Comm., 262; Gen. Index Mo. Repts., 60.
COMSTOCK, Rept. Dept. Agr., 1881, 304, pl. XIV, f. 2, reared from pupa of *Aletia argillacea* in the south.
HOWARD, Proc. Wash. Acad. Sci., II, 565, figs. and life hist.; bred from human excrement.
MORGAN, Bull. 30, n. ser., Div. Ent., 1901, 25, figs. larva and adult; bred from *Melanoplus differentialis*.—Miss.
Fla.—Johnson; White Mts., N. H.—Slosson; Axton, N. Y.—M. and H. Province of Quebec—Fyles.
- setulosa** VAN DER WULP, Biologia, Dipt., II, 276.—Durango, Mex.
- ? **spinigena** RONDANI, Arch. Zool., III, 20.—Valdivia, S. A.
GIGLIO-TOS, Ditt. del Mess., III, 68, note.—Mexico.
VAN DER WULP, Biologia, Dipt., II, 287, note; doubts the generic ref.

- stellata* VAN DER WULP, *Biologia*, Dipt., II, 272.—Guerrero, Vera Cruz and Tabasco, Mexico.
- stimulans* WALKER, *List*, IV, 817.—"N. A.?"
- sueta* VAN DER WULP, *Biologia*, Dipt., II, 281.—Guerrero, Mex.
- surrubea* VAN DER WULP, *Biologia*, Dipt., II, 273.—Tabasco, Mex.
- taitensis* SCHINER, *Novara*, 314.—Tahiti.
VAN DER WULP, *Tijdschr. v. Ent.*, XXVI, sep. 36, oc. in Guadeloupe and note.
- tenuiventris* VAN DER WULP, *Biologia*, Dipt., II, 282.—Guerrero and Tabasco, Mex.
- tridens* VAN DER WULP, *Biologia*, Dipt., II, 281.—Guerrero, Mex.
- trigonomaclulata* MACQUART, *Dipt. Exot.*, II, 3, 106, pl. XII, f. 2.—Mex.
- tripartita* VAN DER WULP, *Biologia*, Dipt., II, 284.—Jalisco, Mex.
- triplasia* VAN DER WULP, *Biologia*, Dipt., II, 283, pl. VII, f. 10.—Guerrero, Mex.
- trivialis* VAN DER WULP, *Biologia*, Dipt., II, 277.—Mexico, numerous places.
HOWARD, *Proc. Wash. Acad. Sci.*, II, 567, oc. in Md., D. C. and Va.: bred from human excrement.
- trivittata* MACQUART, *Dipt. Exot.*, II, 3, 105, pl. XII, f. 3.—Cuba, Mex.
BIGOT, *Sagra's Cuba*, 816.—Cuba.
- turbata* VAN DER WULP, *Biologia*, Dipt., II, 276.—Guerrero, Tabasco and Orizaba, Mex.
- uncata* VAN DER WULP, *Biologia*, Dipt., II, 277.—Guerrero and N. Yucatan, Mex.
- vagabunda* VAN DER WULP, *Biologia*, Dipt., II, 270, pl. VII, f. 4.—Guerrero, etc., in Mexico.
- ventricosa* VAN DER WULP, *Biologia*, Dipt., II, 274.—Guerrero and Tabasco, Mex.
- vigil* WALKER, *List*, IV, 831.—Nova Scotia.
- villipes* VAN DER WULP, *Biologia*, Dipt., II, 269, pl. VII, f. 2.—N. Sonora and Guerrero, Mex.
- viridescens* DESVOIDY, *Myodaires*, 342 (*Myophora*).—Nova Scotia.
- volucris* VAN DER WULP, *Biologia*, Dipt., II, 285.—Guerrero, Mex.
- xanthopyga* VAN DER WULP, *Biologia*, Dipt., II, 271.—Guerrero, Morelos and Orizaba, Mex.
Note.—Brauer and Bergenstamm, in *Zweifl. d. Kaiserl. Mus.*, v, 414, record "*Sarcophaga xanthophyga* S." from South Carolina. I presume this refers to *S. xanthophora* SCHINER, *Novara*, 313, from South America.

SARCODEXIA.

- TOWNSEND, *Jour. Inst. of Jamaica*, I, 105, 1892.
- BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, VI, 193, "from the description a *Sarcophaga*."
- sternodontis* TOWNSEND, *op. cit.*—Kingston, Jamaica; bred from a Cerambycid. In the same *Journal* for Dec., 1892, it is recorded as bred from the scorpion *Centrurus edwardsii*.

SARCOPHAGULA.

- VAN DER WULP, *Tijdschr. v. Ent.*, XXX, 173, 1887; *Biologia*, Dipt., II, 289, 1896, def. and table of Mexican species.
- canuta* VAN DER WULP, *Biologia*, Dipt., II, 289, pl. VII, f. 12.—Guerrero, etc., in Mexico.
- imbecilla* VAN DER WULP, *Biologia*, Dipt., II, 289.—Guerrero, etc., in Mexico.
- tenuis* VAN DER WULP, *Biologia*, Dipt., II, 290.—Guerrero, etc., in Mexico.

ERYTHRANDRA.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 368, 1891; vi, 165, 1893.

picipes BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 368; vi, 165.—Ga.

SARCOPHILODES.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., iv, 164, 1883; vi, 166, 1893.

puella WILLISTON, Trans. Ent. Soc. Lond., 1896, 361, pl. xii, f. 120 bis.—St. Vincent, W. I.

pusilla WIEDEMANN, Auss. Zweifl., II, 337 (*Tachina*).—W. I.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., iv, 164; v, 369; vi, 166, gen. ref. from type.

? **rufocaudata** BIGOT, Annales, 1888, 269 (*Megerleca*).—Mex.

COQUILLET, Jour. N. Y. Ent. Soc., VII, 1899, 218, gen. ref., with a doubt.

BRAUER, Sitzungsbericht d. K. Akad., CVII, 22, would locate in a new genus near *Tephromyia*, from type.

SAROTHROMYIA.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 365, 1891; vi, 160, 1893, place near *Brachycoma*.

femorialis SCHINER, Novara, 315 (*Sarcophila*).—Brazil.

Lake Worth, Fla.—Johnson, with gen. ref.

JOHNSONIA.

COQUILLET, Proc. Acad. Nat. Sci. Phil., 1895, 316.

elegans COQUILLET, loc. cit.—St. Augustine, Fla.

MUSCIDÆ.

BIGOT, Bull. Soc. Zool. France, 1887, 586, table of all genera.

TOWNSEND, Trans. Amer. Ent. Soc., XIX, 1892, table of genera.

GIRSCHNER, Berl. Ent. Zeitsch., XXXVIII, 297, 312, 1893, new system of the family; Ent. Nachrichten, XXI, 82-86, 1895; Ill. Woch. f. Ent., I, 12-16, and in a few following numbers, 1896.

VAN DER WULP, Biologia, Dipt., II, 291, 1896, table of Mexican genera.

BRAUER, Sitzungsbericht d. K. Akad., CVIII, 495, 1899, table of genera of Caliphorinæ. In the same paper he remarks that some of Bigot's supposedly North American specimens belong to genera hitherto confined to the eastern hemisphere, "so that I must assume that the locality assigned to many of the species in the Bigot collection is erroneous."

HOUGH, Proc. Acad. Nat. Sci. Phil., 1898, 165-172, gives a valuable article on the anatomy of Muscidæ; in Ent. News, x, 62-66, 1899, he discusses the classification of the family; see also his article in Biol. Bull., I, 21, 1899.

TYREOMMA.

VAN DER WULP, Biologia, Dipt., II, 292, 1896.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 381, 1891, described as Wulp's genus, from his MS. name on the specimens; vi, 135, 1893, full desc.

muscinum VAN DER WULP, Biologia, Dipt., II, 293, pl. VII, f. 13.—Guerrero, Mex.

POLLENIA.

- DESVOIDY, *Myodaires*, 412, 1830.
 SCHINER, *Fauna Austr.*, I, 585, 1862.
 BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, IV, 155, 1899; VI, 179, 1893.
 HOUGH, *Ent. News*, X, 63, 1899; *Zool. Bull.*, II, 283, 1899, figs. chætotaxy.
glabricula BIGOT, *Bull. Soc. Zool. France*, 1887, 594 (*Nitellia*).—Cal.
 BRAUER, *Sitzungsbericht d. K. Akad.*, CVIII, 521, gen. ref. from type.
obscura BIGOT, *Bull. Soc. Zool. France*, 1887, 597.—N. A.
 HOUGH, *Zool. Bull.*, II, 283, says the desc. is unrecognizable.
 BRAUER, *Sitzungsbericht d. K. Akad.*, CVIII, 517, gen. ref. confirmed from type.
rudis FABRICIUS, *Ent. Syst.*, IV, 314 (*Musca*); 315 (*M. obscura*); *Syst. Antl.*, 287 (*Musca*).—Europe.
 FALLÉN, *Muscides*, 48 (*Musca*).
 MEIGEN, *Syst. Besch.*, V, 66, 67 (*Musca rudis, varia, and depressa*). [Hgh.]
 SCHINER, *Fauna Austr.*, I, 586.
 DALL, *Proc. U. S. N. M.*, 1883, 635, habits, notes by Riley.—Geneva, N. Y.
 LINTNER, 4th N. Y. Rept., 309-314; the Cluster Fly, sometimes gathers in houses in immense numbers in the cooler season.—N. Y.
 RILEY and HOWARD, *Insect Life*, V, 263, notes from correspondence on clustering in houses.
 HOUGH, *Zool. Bull.*, II, 283, syn.
 HOWARD, *Canad. Ent.*, XXXIII, 44, oc. in Va.; bred from cowdung. Quebec—Wulp; N. J.—Smith Cat.; Montreal—Chagnon; Ohio—Webster.
vespillo FABRICIUS, *Ent. Syst.*, IV, 318 (*Musca*); *Syst. Antl.*, 292 (id.).—Europe.
 MEIGEN, *Syst. Besch.*, V, 65 (id.).
 WALKER, *List*, IV, 907, oc. in Nova Scotia.
 SCHINER, *Fauna Austr.*, I, 586.
 HOUGH, *Biol. Bull.*, II, 283, fig. 1, confirms oc. in N. A.

CHRYSOMYIA.

- DESVOIDY, *Myodaires*, 444, 1830.
 BRAUER and BERGENSTAMM, *Zweifl. d. Kaiserl. Mus.*, V, 391, 1891 (*Paralucilia* in part).
 GIGLIO-TOS, *Ditt. del Mess.*, IV, 5, 1895, def.
 HOUGH, *Ent. News*, X, 64, 1899, def., and includes the species formerly called *Compsomyia*.
aztequina BIGOT, *Annales*, 1877, 252.—Mex.
 GIGLIO-TOS, *Ditt. del Mess.*, IV, 5, makes a syn. of *macellaria*.
 BRAUER, *Sitzungsbericht d. K. Akad.*, CVIII, 523, confirms gen. ref. from type.
cærulescens DESVOIDY, *Myodaires*, 447, 8.—Carolina.
callipes BIGOT, *Annales*, 1877, 249 (*Somomyia*).—Mex.
 BRAUER, *Sitzungsbericht d. K. Akad.*, CVIII, 524, gen. ref. (*Compsomyia*).
certina WALKER, *List*, IV, 873 (*Musca*).—Fla.
 Probably same as *Pseudopyrellia cornicina*.
decora DESVOIDY, *Myodaires*, 448.—W. I.
flavigena BIGOT, *Annales*, 1877, 249 (*Somomyia*).—Mex.
 BRAUER, *Sitzungsbericht d. K. Akad.*, CVIII, 522, refers the type to *Compsomyia*.

fulvipes MACQUART, see *macellaria*.

? **hyacinthina** DESVOIDY, Myodaires, 450.—S. A.

MACQUART, Dipt. Exot., II, 3, 148.—N. A. Very doubtful—J. M. A.

HOUGH, Kans. Univ. Quart., IX, 204, syn., etc., under the name of *segmentaria* FABR.; as it is scarcely a North American species, I do not rectify the nomenclature.

herminieri DESVOIDY, Myodaires, 446.—Carolina.

macellaria FABRICIUS, Syst. Ent., 776 (*Musca*); Ent. Syst., IV, 319 (id.); Syst. Antl., 292 (id.).—W. I.

WIEDEMANN, AUSS. ZW., II, 405 (id.).

OLIVIER, Encycl. Méth., VIII, 405 (id.).

MACQUART, Dipt. Exot., II, 3, 132, pl. XVI (*Calliphora fulvipes*); 147, pl. XVII (*Lucilia*).—Chili; Brazil and Cuba.

WALKER, List, IV, 873-878 (*Musca lyrca, verena, caruca, gamelia*).—Montevideo and Venezuela.

RONDANI, Ann. Soc. Nat. Modena, III, 3, 9 (*Somomyia fulvipes*).—S. A.

BIGOT, in Sagra's Cuba, 820 (*Lucilia*).—Cuba.

COQUEREL, Ann. Soc. Ent. France, 1858, 173, pl. IV, f. 2 (*Lucilia hominivorax*).

THOMSON, Engenies Resa, 543, 544 (*Lucilia picierus* and *taniaria*).—Panama; no locality. [J. M. A. and Giglio-Tos.]

BIGOT, Annales, 1877, 252 (*Somomyia aztequina*).—Mex.

BRÄUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., V, 391 (*Paralucilia fulvipes*).

SCHINER, Novara, 309 (*Calliphora fulvipes*).—Chili.

LYNCH A., An. Soc. Cientif. Argentina, X, 1880, 71.—Argentina.

GIGLIO-TOS, Ditt. del Mess., IV, 5 and 6, syn. and bibliog. (*macellaria* and *fulvipes*).—Mex. [Wulp.]

VAN DER WULP, Tijdschr. v. Ent., XXVII, 38; Biologia, Dipt., II, 297, bibliog., etc.—Mexico, various places.

MORGAN, Bull. 2, sec. ser., La. Ex. Sta., 1890, "The Screw-worm Fly," larvæ infest open sores on mules, etc.; abstract by Riley and Howard, Ins. Life, III, 131.—Miss.

FRANCIS, Bull. Tex. Ex. Sta., 1890, same; also abstracted in Ins. Life, III, 362.—Texas.

MURTFELDT, Ins. Life, IV, 200, "hominivorous habits" of, in St. Louis.

? RILEY and HOWARD, Ins. Life, VI, 56, notes on two cases of larvæ in human ear, supposed to be this species.

WEED, H. E., Canad. Ent., XXIII, 243; natural food of larvæ is decaying flesh.

LUGGER, 2d Rept. Ent. Minn., 158-160, fig., 131, popular account.

MOTTER, Jour. N. Y. Ent. Soc., VI, 223, oc. in human graves.

HERRICK, Bull. 53, Miss. Ex. Sta., 1900, habits and remedies.

HOUGH, Zool. Bull., II, 283, brief desc. and figs.

HOWARD, Proc. Wash. Acad. Sci., II, 562, figs. and habits.

Porto Rico—Roeder; N. J.—Smith Cat.; Jamaica—Johnson; Fla.—Johnson.

plæi DESVOIDY, Myodaires, 448.—W. I.

tibialis DESVOIDY, Myodaires, 446.—San Domingo.

turbida WALKER, Dipt. Saund., 336 (*Musca*).—Jamaica.

Probably *macellaria*—J. M. A.

wheeleri HOUGH, Zool. Bull., II, 284, figs.—Cal.

CHLOROPROCTA.

- VAN DER WULP, *Biologia, Dipt.*, II, 296, 1896.
semiviridis VAN DER WULP, loc. cit., pl. VII, f. 16.—N. Yucatan, Mex.

MESEMBRINELLA.

- GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 147, 1893; *Ditt. del Mess.*, IV, II, 1895.
 VAN DER WULP, *Biologia, Dipt.*, II, 300, notes, 1896.
 BRAUER, *Sitzungsbericht d. K. Akad.*, CIV, 594, 1897.
 HOUGH, *Ent. News*, X, 64, 1899.
æneiventris WIEDEMANN, *Auss. Zw.*, II, 376 (*Doria*).—Brazil.
 VAN DER WULP, *Biologia, Dipt.*, II, 301, pl. VII, f. 19.—N. Yucatan, Mex.
bicolor GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 147; *Ditt. del Mess.*, IV, II, f. 1.—Mexico.
 VAN DER WULP, *Biologia, Dipt.*, II, 301, pl. VII, f. 18, oc. and notes.—Costa Rica.
 ? *secors* WALKER, *Trans. Ent. Soc.*, II, ser., V, 311 (*Calliphora*).—Mex.
 VAN DER WULP, *Biologia, Dipt.*, II, 311, doubtful gen. ref.
xanthorhina BIGOT, *Bull. Soc. Ent. France*, 1887, clxxii (*Somomyia*).—Mex.
 BRAUER, *Sitzungsbericht d. K. Akad.*, CVIII, 526, refers type here, and adds "*? chrysorrhæa* McQ."

CYNOMYIA.

- DESVOIDY, *Myodaires*, 363, 1830.
 SCHINER, *Fauna Austr.*, I, 574, 1862.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, IV, 122, 1889; VI, 163, 1893.
 HOUGH, *Ent. News*, IX, 5, 1898; X, 64, 1899.
alpina ZETTERSTEDT, *Ins. Lapp.*, 651; *Dipt. Scand.*, IV, 1304.—N. Europe.
 GERSTLECKER, *Die Zweite Nordpolfahrt*, etc., oc in East Greenland.
americana HOUGH, see *cadaverina*.
cadaverina DESVOIDY, *Myodaires*, 365, 436, 437, 438 (*Cynomyia cadaverina*, *Calliphora myoidæ*, *aurulans*, and *compressa*).—Carolina; Philadelphia; Carolina and Nova Scotia; Carolina. [Hough.]
 KIRBY, *N. Amer. Zool. Ins.*, 317 (*Calliphora mortisequa*).—N. A., lat. 65° [Hough.]
 HOUGH, *Ent. News*, IX, 105, figs. (*americana*).—Canada, Mass., Penn., Ga., La., Ind., Col., Ill., S. D. Synonymy acknowledged in *Zool. Bull.*, II, 285.
 COQUILLET, *Proc. Wash. Acad. Sci.*, II, 440, oc. in Alaska.
 HOWARD, *Proc. Wash. Acad. Sci.*, II, 567, notes on habits.
 N. J.—Smith Cat.
elongata HOUGH, *Ent. News*, IX, 106, figs.—S. D., Wyo.
flavipalpis MACQUART, *Dipt. Exot., Suppl.*, IV, 2, 236.—"America, Terre Nueve."
 VAN DER WULP, *Tijdschr. v. Ent.*, XXVI, sep. 37, oc. in Quebec and "Fernambuc."
 White Mts., N. H.—Slosson.
hirta HOUGH, *Ent. News*, IX, 166, figs.—St. Paul Id., Alaska.
 COQUILLET, *Proc. Wash. Acad. Sci.*, II, 440, oc. in Alaska (as *mortisequa* KBY.).
mortuorum LINNÉ, *Fauna Suec.*, 2d edit., 452 (*Musca*).—Europe; "habitat in cadaveribus et putridis."

- FABRICIUS, Spec. Ins., II, 439 (*M. vomitoria* and *mortuorum*); Ent. Syst., IV, 318 (id.); Syst. Antl., 290 (id.).—Europe.
 DEGEER, Mém. Hist. Nat. Ins., VI, 30 (*M. chrysocephala*).
 FALLÉN, Muscides, 45 (*Musca*).
 LATREILLE, Gen. Crust., IV, 345 (*Sarcophaga*).
 MEIGEN, Syst. Besch., V, 16 (id.).
 SCHINER, Fauna Austr., I, 575.
 OSTEN SACKEN, Berl. Ent. Zeitsch., XXXI, 1887, 20, abstract of an interesting paper in Russian by Portchinsky on the larval habits, etc.
 COQUILLET, Dipt. of Commander Ids., 344, oc. on Bering Id.
 HENDEL, Wien. Ent. Zeit., XX, 32, notes.

CALLIPHORA.

- DESVOIDY, Myodaires, 433, 1830.
 SCHINER, Fauna Austr., I, 583, 1862.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 157, 1889; VI, 180, 1893.
 VAN DER WULP, Biologia, Dipt., II, 294, table of Mexican species, 1896.
 HOUGH, Ent. News, X, 65, 1899; Zool. Bull., II, 285, 1899, table of species of the United States.
- aurulans** DESVOIDY, see *Cynomyia cadaverina*.
coloradensis HOUGH, Zool. Bull., II, 286.—Col.
compressa DESVOIDY, see *Cynomyia cadaverina*.
erythrocephala MEIGEN, Syst. Besch., V, 62 (*Musca*).—Europe.
 WIEDEMANN, Auss. Zweifl., II, 395 (id.).—Cape of Good Hope and Egypt.
 MACQUART, Hist. Nat. Dipt., II, 262 (*vomitoria*).
 ? O. FABRICIUS, Fauna Grœnl., 207 (*Volucella vomitoria*);—Schiödte, quoted by Ostén Sacken).—Greenland.
 DESVOIDY, Myodaires, 435 (*vicina*).—Philadelphia. [Hgh.]
 WALKER, List, IV, 894 (*lilca*).—Martin Falls, Canada. [Hgh.]
 RILEY, PACKARD, and THOMAS, 1st Rept. U. S. Ent. Comm., 324, parasitic on Rocky Mountain locust.
 OSTEN SACKEN, Berl. Ent. Zeitsch., XXXI, 1887, 19, abstract of a very interesting Russian article by Portchinsky on the larval habits, egg-laying, etc.
 VAN DER WULP, Biologia, Dipt., II, 295, oc. and bibliog.—Mexico.
 COQUILLET, Dipt. of the Commander Ids., 344, oc. on Copper Id., Alaska.
 HOWARD, Proc. Wash. Acad. Sci., II, 564, fig. and habits; the common "Blow-Fly."
 Fla.—Johnson; White Mts., N. H.—Slosson; N. J.—Smith Cat.; Montreal—Chagnon.
- femorata** WALKER, Trans. Ent. Soc., n. ser., V, 310.—Mex.
fulvibarbis FITCH, Trans. N. Y. Ag. Soc., 1849, 803, popular account.—N. Y.
grœnlandica ZETTERSTEDT, see *Phormia terra-nova*.
ilerda WALKER, List, IV, 895 (*Melinda*).—Martin Falls, Canada.
latifrons HOUGH, Zool. Bull., II, 286, figs.—Wash., Ida., S. Cal., Mex.
melanaria VAN DER WULP, Biologia, Dipt., II, 295, pl. VII, f. 15.—Guerrero, Mex.
mortisequa KIRBY, see *Cynomyia cadaverina*.
myoidea DESVOIDY, Myodaires, see *Cynomyia cadaverina*.
nigrina BIGOT, Annales, 1877, 247 (*Somomyia*).—Ill.
 BRAUER, Sitzungsbericht d. K. Akad., CVIII, 523, refers type to this genus.
præpes GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 1.—Mex.

- præscia** GIGLIO-TOS, Ditt. del Mess., iv, 3 (*Lucilia*).—Mexico.
 VAN DER WULP, Biologia, Dipt., ii, 294, notes and oc.—Orizaba and Guerrero, Mex.; Costa Rica.
- ? **punctata** DESVOIDY, Myodaires, 428 (*Ormia*).—W. I.
 MACQUART, Hist. Nat. Dipt., ii, 250 (*Ochromyia*).—Jamaica.
 Porto Rico—Roeder (*Ormia*).
 I refer here on the strength of Macq., Dipt. Exot., ii, 3, 132.
- rectinervis** BIGOT, Bull. Soc. Ent. France, 1887, clxxiii (*Somomyia*).—Rocky Mts.
 BRAUER, Sitzungsbericht d. K. Akad., cviii, 521, gen. ref., from type.
- ? **rutilans** FABRICIUS, Spec. Ins., ii, 436 (*Musca*).—The locality given by Fabricius is "in *America insulis*"—that is, the West Indies; but Wiedemann mentions South America. Probably extra-limital.
- secors** WALKER, see *Mesembrinella*.
- semiatra** SCHINER, Novara, 308.—Colombia.
 ROEDER, Stett. Ent. Zeit., 1886, 269.—Mexico.
 GIGLIO-TOS, Ditt. del Mess., iv, 1.—Mex.
 VAN DER WULP, Biologia, Dipt., ii, 295, pl. vii, f. 14.—Guerrero and Durango, Mexico; Costa Rica.
- splendida** MACQUART, Dipt. Exot., Suppl., i, 196.—Texas.
- ? **stygia** FABRICIUS, Spec. Ins., ii, 438, etc.
 OSTEN SACKEN, Cat., note 276, shows that this is probably from New Zealand.
- viridescens** DESVOIDY, Myodaires, 537.—Carolina.
 MEIGEN, Syst. Besch., vii, 301 (*Musca violacca*).—Europe.
 MACQUART, Dipt. Exot., Suppl., iv, 244 (*terra-novæ*).—Newfoundland.
 HOUGH, Zool. Bull., ii, 286, syn. and notes.
 N. J.—Smith Cat.; Alaska—Coquillett; Axton, N. Y.—M. and H.
- vomitória** LINNÉ, Fauna Suec., 2d edit., 452 (*Musca*).—Sweden; "habitat in cadaveribus et in carnibus calori expositis." The common blow-fly.
 FABRICIUS, Syst. Antl., 285 (*M. carnivora*).—Germany and probably Philadelphia.
 DEGEER, Mém. Hist. Nat. Ins., vi, 29 (*M. carnaria cærulca*).
 FALLÉN, Muscides, 47 (*Musca*).
 MEIGEN, Syst. Besch., v, 60, desc. and habits.
 MACQUART, Hist. Nat. Dipt., ii, 262 (*fukivarbis*).
 SCHINER, Fauna Austr., i, 584.
 ESCHHOLZ, Entomographien, i, 113 (*Musca obscæna*). [Hgh.]
 FITCH, Trans. N. Y. Agl. Soc., 1849, ix, 802, pop. acct.
 OSTEN SACKEN, Berl. Ent. Zeitsch., 1887, xxxi, 17, abstract of an important Russian paper on the habits by Portschinsky.
 HUGO SUMMA, M.D., St. Louis Med. and Surg. Journal, 1889, May, records nasal myiasis due to this species; abstract by Townsend, Ins. Life, iii, 39.
 LUGGER, 2d Minn. Rept., 1896, 162, pl. xii, f. 135.
 N. J.—Smith Cat.; Beulah, N. M.—Skinner; White Mts., N. H.—Slosson; Montreal—Chagnon; Alaska—Coquillett.
- xanthorhina** BIGOT, see *Mesembrinella*.

LUCILIA.

- DESVOIDY, Myodaires, 452, 1830.
 SCHINER, Fauna Austr., i, 589, 1862.
 HOUGH, Ent. News, x, 66, 1899; Zool. Bull., ii, 287, table of species, 1899.

BRAUER and BERGENSTAMM, Zweil. d. Kaiserl. Mus., IV, 157, 1889; VI, 180, 1893; also as *Paralucilia*, v, 391, 1891; VI, 180, 1893.

For a supposed species of *Lucilia* infesting the turtle, see Riley and Howard, Insect Life, v, 269; also True, Science, IV, 511, and Packard, Amer. Naturalist, XVI, 598.

argentifera BIGOT, see *Pseudopyrellia cornicina*.

brunnicornis MACQUART, see *sericata*.

brunicosa DESVOIDY, see *sylvarum*.

cæruleiviridis MACQUART, see *sericata*.

cæsar LINNÉ, Fauna Suec., 451 (*Musca*).—Sweden: "habitat ubique in cadaveribus, carnis et putridis." A common and widespread carrion fly.

FABRICIUS, Syst. Antl., 289 (id.).

MEIGEN, Syst. Besch., v, 51 (id.).

DESVOIDY, Myodaires, 452, 453 (*cæsar* and *lepida*).—Philadelphia; France and Nova Scotia.

MACQUART, Dipt. Exot., II, 2, 29), pl. XVIII, f. 5 (*parcensis*); Suppl. III, 57 (*fraterna* and *consobrina*).—Para; N. A.; N. A.

FITCH, Trans. N. Y. State Agr. Soc., 1849, 801, popular account of "sheep maggots."

WALKER, List, IV, 879, oc. in Mass. and Martin Falls, Canada.

SCHINER, Fauna Austr., I, 589.

RONDANI, Esame Ditt. Brazil, sep. 17 (*Lucilia princeps*).—Brazil.

OSTEN SACKEN, Berl. Ent. Zeitsch., XXXI, 1887, 20, abstract of Portchinsky's Russian work on habits of larvæ, etc.—valuable.

VAN DER WULP, Tijdschr. v. Ent., XXVI, 38; Biologia, Dipt., II, 207, bibliog., etc.—Durango, Mex.; Costa Rica.

TOWNSEND, Psyche, June, 1893, records supposed rearing from *Leucania unipuncta*.

GIGLIO-TOS, Ditt. del Mess., IV, 2, bibliog. and notes.—Orizaba, etc., Mex.

MOTTER, Jour. N. Y. Ent. Soc., VI, 223, oc. in human graves.

HOUGH, Zool. Bull., II, 288, notes and synonymy; Kans. Univ. Quart., IX, 203, oc. in S. A. and syn.

HOWARD, Proc. Wash. Acad. Sci., II, 563, figs. and habits; reared from human excrement.

MORGAN, Bull. 30, n. ser., Div. of Ent., 25, 1901, reared from *Melanoplus differentialis*.—Miss.

Common everywhere in North America, within the inhabited limits.

Note.—The species in Riley, Rept. U. S. Entomol., 1890, 249, should have been *Pseudopyrellia cornicina*.

callipes BIGOT, see *Chrysomyia*.

carolinensis DESVOIDY, see *Pseudopyrellia cornicina*.

cluvia WALKER, see *ruficornis*.

compar DESVOIDY, see *Pseudopyrellia cornicina*.

cornicina FABRICIUS, see *Pseudopyrellia*.

flavigena BIGOT, see *Chrysomyia*.

fulvifacies DESVOIDY, see *Phormia regina*.

fulvinota BIGOT, Annales, 1877, 251.—Mex.

BRAUER, Sitzungsbericht d. K. Akad., CVIII, 524, refers type to *Paralucilia*.

heræa WALKER, see *Pseudopyrellia cornicina*.

insularis WALKER, see *ruficornis*.

iridicolor BIGOT, Bull. Soc. Ent. France, 1887, 509 (*Somomyia*).—Cuba.

macellaria FABRICIUS, see *Chrysomyia*.

meridensis MACQUART, see *Pyrellia*.

- mexicana* MACQUART, Dipt. Exot., II, 3, 143, pl. XVIII, f. 7.—Mexico.
- mollis* WALKER, List, IV, 892 (*Phormia*).—Martin Falls, Canada.
- muralis* WALKER, List, IV, 888.—Martin Falls, Canada.
- mutabilis* BIGOT, Annales, 1887, 248 (*Somomyia*).—Mex.
BRAUER, Sitzungsbericht d. K. Akad., CVIII, 523, confirms Osten Sacken in referring here.—examined type.
- nigriceps* MACQUART, Dipt. Exot., II, 3, 143.—Mex.
- nigrina* BIGOT, see *Calliphora*.
- nobilis* MEIGEN, Syst. Besch., v, 56 (*Musca*).—Europe.
SCHINER, Fauna Austr., I, 590.
MEINERT, Sætertryk af Ent. Meddelelser, I, 3 Heft, 1888, on larva in man's ear; transl. of, by Linell, in Ins. Life, v, 36.
HOUGH, Ent. News, x, 60, oc. in the United States.
- pallidibasis* BIGOT, Annales, 1877, 247.—Mex.
GIGLIO-TOS, Ditt. del Mess., IV, 4, notes.—Tuxpango, Mex.
BRAUER, Sitzungsbericht d. K. Akad., CVIII, 524, confirms gen. ref. from type.
- philadelphica* DESVOIDY, see *Phormia regina*.
- picircus* THOMSON, see *Chrysomyia macellaria*.
- pilatei* HOUGH, Zool. Bull., II, 287, fig.—Tifton, Ga.
- præscia* GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 3.—Tampico, Mex.
- proxima* WALKER, Dipt. Saund., 341 (*Musca*).—Cal.
GIGLIO-TOS, Ditt. del Mess., IV, 4, oc. in Mexico.
- pueblensis* BIGOT, Annales, 1877, 250 (*Somomyia*).—Mex.
- putrida* FABRICIUS, Ent. Syst., IV, 316 (*Musca*); Syst. Antl., 228 (id.).—S. A.
WIEDEMANN, Auss. Zweifl., II, 404.—S. A.
JENNICKE, Neue Exot. Dipt., 4, oc. in Cuba.
- quieta* GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 4.—Mex.
- regina* MEIGEN, see *Phormia*.
- ruficornis* MACQUART, Dipt. Exot., Suppl. I, 198.—S. A.
WALKER, List, IV, 885 (*Musca cluvia*); Dipt. Saund., 340 (*Musca insularis*).—Both W. I.
RODER, Stett. Ent. Zeit., 1885, 347, desc.—Porto Rico.
WILLISTON, Trans. Ent. Soc. Lond., 1896, 367, syn. and oc.—St. Vincent, W. I.
- rufipalpis* JENNICKE, Neue Exot. Dipt., 67.—Ill.
- sayi* JENNICKE, see *sericata*.
- semiviolacea* BIGOT, Annales, 1877, 46 (*Somomyia*).—Porto Rico.
BRAUER, Sitzungsbericht d. K. Akad., CVIII, 523, gen. ref. from type.
- sericata* MEIGEN, Syst. Besch., v, 53 and 55 (*Musca sericata* and *cærulescens*).—Europe.
MACQUART, Dipt. Exot., Suppl. v, 113 (*cæruleiviridis*).—Baltimore.
? MACQUART, Dipt. Exot., II, 3, 142 (*brunnicornis*).—Mexico. [J. M. A.]
SCHINER, Fauna Austr., I, 590.
JENNICKE, Neue Exot. Dipt., 67 (*sayi*).—Ill.
BRAUER and BERGENSTAMM, Zweifl. d. Kais.-l. Mus., VI, 210, note on type of *sayi*.
BRAUER, Sitzungsbericht d. K. Akad., CVIII, 522, note on type of *cæruleiviridis*.
HOUGH, Zool. Bull., II, 288, syn. of *cæruleiviridis* and *sayi*.
N. J.—Smith Cat.: Fla.—Johnson.

soulouquina BIGOT, Annales, 1877, 47 (*Somomyia*).—Hayti.

BRAUER, Sitzungsbericht d. K. Akad., CVIII, 523, gen. ref. from type.

stigmatalis THOMSON, see *Phormia regina*.

surrepens WALKER, Trans. Ent. Soc., n. ser., v, 312.—Mex.

sylphida BIGOT, Annales, 1877, 45 (*Somomyia*).—New Orleans.

BRAUER, Sitzungsber. d. Kaiserl. Akad., CVIII, 523, gen. ref. from type.

sylvarum MEIGEN, Syst. Besch., v, 53 (*Musca*).—Europe.

? DESVOIDY, Myodaires, 459 (*brunicosa*).—N. A. [Hgh., with a doubt.]

SCHINER, Fauna Austr., I, 591.

HOUGH, Biol. Bull., II, 287, oc. in N. A.; Zool. Bull., II, 288, syn.—Pa., S. D.

N. J.—Smith Cat.; Ida.—J. M. A.

terræ-novæ DESVOIDY, see *Phormia*.

terræ-novæ MACQUART, Dipt. Exot., Suppl. IV, 2, 251, pl. XXIII, f. I.—Newfoundland.

violacea MACQUART, Dipt. Exot., Suppl. II, 83.—Mexico.

BRAUER, Sitzungsber. d. K. Akad., CVIII, 522, refers to *Paralucilia*.

PHORMIA.

DESVOIDY, Myodaires, 465, 1830.

HOUGH, Ent. News, x, 66, 1899, defined.

regina MEIGEN, Syst. Besch., v, 58 (*Musca*).—Europe.

DESVOIDY, Myodaires, 466 (*philadelphica*); 467 (*fukrifacies*).—Philadelphia.

MACQUART, Dipt. Exot., Suppl. IV, 251, pl. XXIII, f. I (*Lucilia terræ-novæ*).—Newfoundland.

? WALKER, List, IV, 892 (*mollis*).—Martin Falls, Canada.

SCHINER, Fauna Austr., I, 589 (*Lucilia*).

JENNICKE, Neue Exot. Dipt., 67 (*Lucilia rufipalpis*).—Ill.

THOMSON, Eugen. Resa, 544 (*Lucilia stigmatalis*).—Cal.

HOUGH, Zool. Bull., II, 288, preceding synonymy; he also adds Bigot's *Somomyia rectinervis*, *rufigena*, and *rupicola*, but Brauer's examination of the types does not seem to bear this out (Sitzungsber. d. Kaiserl. Akad., CVIII, 521, et seq.).

N. J.—Smith Cat.; Montreal—Chagnon; Beulah, N. M.—Skinner.

terræ-novæ DESVOIDY, Myodaires, 467.—Newfoundland.

ZETTERSTEDT, Ins. Lapp., 657 (*Musca granlandica*); Dipt. Scand., IV, 1330 (id.).—Greenland.

STEEGER, Grœn. Antl., 363 (*Calliphora granlandica* ZETT.).—Greenland.

GERSTAECKER, Die Zweite Nordpohlfahrt, etc. (id.).

HOLMIGREN, Ins. Nordgrœn., 101 (id.).

RONDANI, Dipt. Ital. Prod., v, 196 (*Pollenia granlandica*).

HOUGH, Zool. Bull., II, 289, syn. and desc.—N. A., common.

HOWARD, Proc. Wash. Acad. Sci., II, 568, fig. and note on habits.

RIEDEL, Allgem. Zeitsch. f. Ent., VI, 152, oc. in Pomerania, common the whole season (*Calliphora granlandica*).

HENDEL, Wien. Ent. Zeit., XX, 30, doubtfully refers to *Azihospita*,—that is, to *Protocalliphora*.

N. J.—Smith Cat.; Alaska—Coquillett.

PROTOCALLIPHORA.

HOUGH, Ent. News, x, 66, 1899.

HENDEL, Wien. Ent. Zeit., XX, 29, 1901 (*Azihospita*); syn. by Aldrich, op. cit., 68.

- azurea** FALLÉN, Acta Holmiæ, 1816, 245; Dipt. Suec., Muscides, 46 (both *Musca*).—Europe.
 MEIGEN, Syst. Besch., v, 63 (id.).
 DUFOUR, Annales Soc. Ent. France, 1845, III, pl. 3, reared from larvæ on nestlings of sparrow.
 ROSSI, Verzeichniss d. Zweifl. Ins. (Esterr., Wien, 1848, mentions Schef-fer rearing the species from larvæ on young larks.
 SCHINER, Fauna Austr., I, 585 (*Calliphora*).
 RONDANI, Dipt. Ital. Prod., v, 197 (*Pollenia*).
 HOUGH, Zool. Bull., II, 289, fig.; very rare in N. A.
 HENDEL, Wien. Ent. Zeit., XX, 29, references to parasitism of the species on young birds (*Arthropita*, n. gen.).
- chrysothoræa** MEIGEN, Syst. Besch., v, 60 (*Musca*).—Europe.
 SCHINER, Fauna Austr., I, 585 (*Calliphora*).
 HOUGH, Zool. Bull., II, 289, very rare in N. A.
 HENDEL, Wien. Ent. Zeit., XX, 29, thinks Meigen's desc. indicates a different species from Schiner's (*Arthropita*).
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 546, reared from young of swallow.

SOMOMYIA.

- RONDANI, Dipt. Ital. Prod., IV, 9, 1861, change of name; op. cit., I, 90, 1856 (*Mya*, preoc.).
Note.—This genus, as founded, and as used by Bigot, seems to have had no definite meaning.
- flavigena** BIGOT, see *Chrysomyia*.
iridicolor BIGOT, see *Lucilia*.
rectinervis BIGOT, see *Calliphora*.
rufigena BIGOT, Bull. Soc. Ent. France, 1887, clxxxiii.—Rocky Mts.
 BRAUER, Sitzungsber. d. K. Akad., CVIII, 521, says the type will form a new genus; oc in Ga.
rupicola BIGOT, Bull. Soc. Zool. France, XII, 603.—Rocky Mts.
 HOUGH, Zool. Bull., II, 289, makes a syn. of *Phormia regina*, but I think this is doubtful.
semiviolacea BIGOT, see *Lucilia*.
soulouquina BIGOT, see *Lucilia*.
sylphida BIGOT, see *Lucilia*.
xanthorhina BIGOT, see *Calliphora*.

PSEUDOPYRELLIA.

- GIRSCHNER, Berl. ent. Zeitsch., XXXVIII, 306, 1893.
 DESVOIDY, Dipt. Env. Paris, II, 799, 1863 (*Euphoria*, preoc.).
 HOUGH, Biol. Bull., I, 26, 1899.
- cornicina** FABRICIUS, Spec. Ins., II, 438 (*Musca*); Ent. Syst., IV, 317 (id.); Syst. Antl., 289 (id.).—Europe.
 FALLÉN, Muscides, 47 (*Musca*).
 MEIGEN, Syst. Besch., v, 57 (*M. cesarion*).
 DESVOIDY, Myodaires, 457 (*carolinensis* and *compar*).—Carolina and Philadelphia.
 ZETTERSTEDT, Dipt. Scand., IV, 1316 (*Lucilia*).
 SCHINER, Fauna Austr., I, 590 (id.).
 VAN DER WULP, Tijdschr. v. Ent., IV, 80, oc. in N. A. (*Lucilia*); loc. cit., XXVI, 39 (id.); Biologia, Dipt., II, 289, oc. in Mexico and syn.

- BIGOT, Annales, 1877, 251 (*Somomyia argentifera*).—Mexico.
 RILEY, Rept. U. S. Ent. for 1890, 248, pl. vii (*Lucilia cesar*). [Howard.]
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 420, oc. of *carolinensis* in Mexico.
 HOUGH, Biol. Bull., 1, 27, figs. and syn.
 HOWARD, Proc. Wash. Acad. Sci., II, 579, figs. early stages; larvæ breed abundantly in cowdung.
 BRUES, Psyche, June, 1902, 354, the brilliant blue larvæ in cowdung.—Tex.
 Common and widespread in the United States—J. M. A.

PYRELLIA.

- DESVOIDY, Myodaires, 462, 1830.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., iv, 157, 1889; vi, 181, 1893.
 HOUGH, Biol. Bull., 1, 26, 1890; Kans. Univ. Quart., ix, 218, 1900, distinguishes this from *Morellia*.
- basalis** WALKER, see *Morellia*.
- ? **cadaverina** LINNÉ, Fauna Suec., 2d edit., 451 (*Musca*).—Europe; "habitat in cadaveribus."
 MEIGEN, Syst. Besch., v, 59 (*Musca*).
 SCHINER, Fauna Austr., 1, 593.
 FITCH, Survey, etc., 801, oc. in N. A.
 HOUGH, Biol. Bull., 1, 27, not seen, doubtful if it occurs in N. A.
- cadaverum** KIRBY, Fauna Bor. Amer., Ins., 316 (*Musca*).—Arctic America.
 Canad. Ent., XIII, 168, quotes orig. desc.
- centralis** LOEW, see *Morellia violacea*.
- cyanicolor** ZETTERSTEDT, Dipt. Scand., iv, 1323.—Europe.
 LOEW, Cent., VIII, 63 (*setosa*).—Ill.
 ? WALKER, Dipt. Saund., 347 (*Musca occidentis*).—U. S. [Hgh., with a doubt.]
 HOUGH, Biol. Bull., 1, 27, figs. and syn.; compared Loew's types with European specimens.
- flora** BIGOT, Annales, 1878, 36.—Hayti.
 BRAUER, Sitzungsber. d. K. Akad., CVIII, 527, gen. ref. confirmed.
- frontalis** THOMSON, Eugen. Resa, 545.—Cal.
- iris** BIGOT, Annales, 1878, 36.—Mex.
 HOUGH, Biol. Bull., 1, 30, notes; Kans. Univ. Quart., ix, 216. The references of Hough are not confirmed by Brauer.
 BRAUER, Sitzungsber. d. K. Akad., CVIII, 527, confirms gen. ref. from type.
- meridensis** MACQUART, Dipt. Exot., Suppl. 1, 199 (*Lucilia*).—Merida, Yucatan.
 BRAUER, Sitzungsber. d. K. Akad., CVIII, 522, gen. ref. from type.
- obscuripes** BIGOT, Bull. Soc. Zool. France, 1887, XII, 616.—Mex.
 BRAUER, Sitzungsber. K. Akad., CVIII, 520, type is unrecognizable.
- occidentis** WALKER, see *cyanicolor*.
- ochricornis** WIEDEMANN, Auss. Zweifl., II, 408 (*Musca*).—Brazil.
 MACQUART, Dipt. Exot., II, 3, 149, pl. XX, f. 5.—Cuba.
 BIGOT, in Sagra's Cuba, 821.—Cuba.
 HOWARD, Proc. Wash. Acad. Sci., II, 580, note on habits.
 Porto Rico—Roeder and Coquillett.
- ochrifacies** DESVOIDY, see *Morellia*.

- sarcophagina** VAN DER WULP, *Biologia*, Dipt., II, 302, pl. VII, f. 20 (*Morellia*).—Vera Cruz and Tabasco, Mex.
HOUGH, *Kans. Univ. Quart.*, IX, 218, oc. in Corumba, Brazil.
- scapulata** BIGOT, *Annales*, 1878, 35 and 36 (*scapulata* and *flora*).—Mexico and Hayti.
GIGLIO-TOS, *Ditt. del Mess.*, IV, 7, oc. and note.—Mexico.
VAN DER WULP, *Biologia*, Dipt., II, 300, oc. and notes.—Orizaba, etc., Mex.
HOUGH, *Biol. Bull.*, I, 31, figs., desc. and syn. (*Morellia*).
BRAUER, *Sitzungsber. K. Akad.*, CVIII, 527, confirms gen. ref. from types.
- scordalus** WALKER, *Trans. Ent. Soc.*, N. SER., V, 313.—Mex.
- specialis** WALKER, see *Morellia violacea*.
- suspicax** WALKER, see *Morellia bipuncta*.
- violacea** FABRICIUS, see *Morellia*.

MORELLIA.

- DESVOIDY, *Myodaires*, 405, 1830.
- VAN DER WULP, *Biologia*, Dipt., II, 301, 1896.
- HOUGH, *Biol. Bull.*, I, 26, 1899; *Kans. Univ. Quart.*, IX, 218, 1900, distinguishes between this and *Pyrellia*.
- basalis** WALKER, *Dipt. Saund.*, 347 (*Musca*).—Jamaica.
HOUGH, *Biol. Bull.*, I, 30, makes a syn. of *Morellia violacea*; later, in *Kans. Univ. Quart.*, IX, 212, 1900, he inclines toward making it a syn. of *Morellia ochrifacies* ROND.
- bipuncta** WIEDEMANN, *Auss. Zweifl.*, II, 417 (*Musca*).—Brazil.
? WALKER, *Trans. Ent. Soc.*, N. SER., V, 312 (*Pyrellia suspicax*).—Mex. [Hough, with a doubt.]
VAN DER WULP, *Biologia*, Dipt., II, 299 (*Pyrellia suspicax*).—Guerrero and Orizaba, Mex.
HOUGH, *Kans. Univ. Quart.*, IX, 216, notes.
- callimera** BIGOT, *Bull. Soc. Zool. France*, 1887, 615 (*Cyrtoneura*).—Mexico.
GIGLIO-TOS, *Ditt. del Mess.*, IV, 12 (id.).—Mex.
VAN DER WULP, *Biologia*, Dipt., II, 302, oc. and notes.—Guerrero, Mex.
BRAUER, *Sitzungsber. K. Akad.*, CVIII, 526, refers type to *Cyrtoneura*.
- fulvipes** BIGOT, *Bull. Soc. Zool. France*, 1887, 613 (*Cyrtoneura*).—Mex.
Gen. ref. by Wulp, in *Biologia*, Dipt., II, 311.
BRAUER, *Sitzungsber. K. Akad.*, CVIII, 526, refers type to *Cyrtoneura*.
- micans** MACQUART, *Dipt. Exot.*, Suppl. v, 116 (*Cyrtoneura*).—Baltimore.
BRAUER, *Sitzungsber. K. Akad.*, CVIII, 526, refers the type in Bigot's coll. to *Cyrtoneura*.
HOUGH, *Biol. Bull.*, I, 29, figs. and pt. desc.; occurs all over the United States.
HOWARD, *Proc. Wash. Acad. Sci.*, II, 573, figs. and habits; breeds in human excrement; *Canad. Ent.*, XXXIII, 44, oc. in Va., breeds in cowdung.
N. J.—Smith Cat.; Montreal—Chagnon; Beulah, N. M.—Skinner; White Mts., N. H.—Slosson.
- nigriceps** BIGOT, see *Muscina*.
- ochrifacies** RONDANI, *Nuov. Ann. Sci. Nat. Bologna*, 1850, sep. 15.—Isle St. Sebastian.
DESVOIDY, *Myodaires*, 463 (*Pyrellia violacea*, preoc.).
? WALKER, *Dipt. Saund.*, 347 (*Pyrellia basalis*).—Jamaica.
GIGLIO-TOS, *Ditt. del Mess.*, IV, 7, oc. in Mex. and notes.

- HOUGH, Kans. Univ. Quart., IX, 212, syn. of Walker, with a doubt, etc.
sarcophagina VAN DER WULP, see *Pyrellia*.
scapulata BIGOT, see *Pyrellia*.
violacea FABRICIUS, Syst. Anth., 288 (*Musca*).—S. A.
 WIEDEMANN, Auss. Zweifl., II, 409 (*Musca*).—S. A.
 MACQUART, Dipt. Exot., Suppl. IV, 252, pl. XXIII, f. 7 (*Pyrellia maculipennata*); Suppl. I, 199, pl. XVII, f. 6 (*Pyrellia maculipennis*).—Brazil; Columbia and Brazil.
 WALKER, Trans. Ent. Soc., n. ser., v, 212 (*Pyrellia specialis*).—Mex.
 LOEW, Cent., VIII, 62 (*Pyrellia centralis*).—Cuba.
 SCHINER, Novara, 304.
 VAN DER WULP, Tijdschr. v. Ent., XXVI, 39 (*Cyrtoncurea*); Biologia. Dipt., II, 311, bibliog., etc.—Guadeloupe.
 HOUGH, Biol. Bull., I, 30, syn. and figs.; Kans. Univ. Quart., IX, 215, revised synonymy and full discussion.
 Porto Rico—Roeder.

MESEMBRINA.

- MEIGEN, Syst. Besch., v, 10, 1826.
 SCHINER, Fauna Austr., I, 582, 1862.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 157, 1889; v, 391, 1891; VI, 180, 1893.
 HOUGH, Biol. Bull., I, 26, 1899.
anomala JENNICKE, see *Spilogaster*.
pallida SAY, Jour. Acad. Sci. Phil., VI, 175; Compl. Works, II, 306.—Ind. Unrecognizable—Hough.
resplendens WAILBERG, K. Vetensk. Akad. Förh., 1844, 66.—Europe.
 ? DESVOIDY, Myodaires, 401 (*latrillei*).—Nova Scotia. [Hough, with a doubt.]
 LOEW, in Silliman's Journal, oc. in N. A.
 HOUGH, Biol. Bull., I, 28, notes.
 ? COQUILLET, Proc. Wash. Acad. Sci., II, 441, oc. in Alaska and Penn.: ident. with a doubt, as *latrillei*.
 White Mts., N. H.—Slosson.

MUSCA.

- LINNÉ, Syst. Nat., 10th ed., No. 222, 1758; Fauna Suec., 439, 1761.
 MEIGEN, Syst. Besch., v, 49, 1826.
 DESVOIDY, Myodaires, 394, 1830.
 SCHINER, Fauna Austr., I, 593, 1862.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 156, 1889; VI, 179, 1893.
 HOUGH, Biol. Bull., I, 26, 1899.
atrifrons BIGOT, Bull. Soc. Zool. France, 1887, 607.—Cuba, Mexico.
 BRAUER, Sitzungsber. K. Akad., CVIII, 527, confirms gen. ref. from type.
cadaverum KIRBY, see *Lucilia*.
cloacaris O. FABRICIUS, Fauna Grœn., 204.—Greenland.
 SCHIÖTTE, Berl. Ent. Zeitsch., 1859, 153, may be *Scatophaga litorca* FALL.
 LUNDBECK, Dipt. Grœn., II, 310, notes (it is evidently unrecognizable).
corvina FABRICIUS, Spec. Ins., II, 440; Ent. Syst., IV, 320; Syst. Anth., 294.—Europe.
 DEGEER, Hist. Nat. Ins., VI, 41 (*autumnalis*). [Fabr.]
 SCHRANK, Enum. Ins. Austr., 931 (*tau*).

- PANZER, Fauna Germ., LX, 13 (*nigripes*); CV, 13 (*ludifica*).
 MEIGEN, Syst. Besch., v, 69.
 SCHINER, Fauna Austr., I, 594.
 WALKER, List, IV, 900, oc. in Nova Scotia.
 HOUGH, Biol. Bull., I, 28, notes; not seen.
- domestica** LINNÉ, Syst. Nat., 10th ed., No. 54 under *Musca*, 1758; Fauna Suec., 453.—Europe; "larvæ in fimo equino." The House-fly.
 FABRICIUS, Syst. Antl., 287.
 MEIGEN, Syst. Besch., v, 67.
 MACQUART, Dipt. Exot., II, 3, 153, 154 (*basilaris* and *analisis*); Suppl. IV, 253 (*vicina*).—Brazil; Chili; America.
 RONDANI, Esame ditt. Brasil., 18, 29, 1848 (*consanguinea*).—Brazil.
 FITCH, Trans. N. Y. Agr. Soc., 1849, 803, pop. acct.
 SCHINER, Fauna Austr., I, 594; Novara, 306.—Madeira, Cape of Good Hope, China, Australia, etc.
 SNOW, Psyche, III, 340, 1882, oc. far from dwellings in west, etc.
 ROEDER, Stett. Ent. Zeit., 1885, 347.
 PACKARD, Proc. Boston Soc. Nat. Hist., XVI, 136–150, transformations, 1 pl.; the larvæ live in horse-dung.
 OSTEN SACKEN, Berl. Ent. Zeitsch., XXXI, 1887, 21, abstract of Portchinsky's important Russian paper on the larval habits, etc.
 VAN DER WULF, Dipt. Sumatra Exped., 43; Tijdschr. v. Ent., XXVI, sep. 37; Biologia, Dipt., II, 294, bibliog., etc.—Mexico, Costa Rica, etc.
 LUGGER, 2d Rept. Ent. Minn., 1896, 145–155, figs., life-history.
 COQUILLET, Proc. U. S. N. M., XXII, 256, oc. in Porto Rico.
 HOWARD and MARLATT, Bull. 4, n. ser., Div. of Ent., 43, figs. and biol., etc.
 HOWARD, Bull. 10, n. ser., Div. of Ent., 63–65, biology, etc.; Farmers' Bull., 155, Dept. of Agr., figs. all stages; Proc. Wash. Acad. Sci., II, 569, figs. and extended notes on breeding habits (occasionally breeds in human excrement); Canad. Ent., XXXIII, 44, bred from cow-dung.
 GIGLIO-TOS, Ditt. del Mess., IV, 7, bibl. and note.
 HOUGH, Biol. Bull., I, 28, figs. and notes; Kans. Univ. Quart., IX, 219, oc. at Rio Janeiro.
- flavinervis** THOMSON, Eugen. Resa, 547.—Honolulu.
 GIGLIO-TOS, Ditt. del Mess., IV, 8, oc. in Mex.
- flavipennis** BIGOT, Bull. Soc. Zool. France, 1887, 605.—Rocky Mts.
 BRAUER, Sitzungsber. K. Akad., CVIII, 528, note on type, "*? domestica*."
- mortisequa** KIRBY, see *Cynomyia cadaverina*.
- occidentis** WALKER, Dipt. Saund., 332.—U. S.
- pusilla** MACQUART, Dipt. Exot., Suppl. III, 59.—Hayti.
 BRAUER, Sitzungsber. K. Akad., CVIII, 527, note on type; it is not a *Musca*, very dirty, unrecognizable.
- roralis** O. FABRICIUS, Fauna Grœnl., 205, 164.—Grœnland.
 LUNDBECK, Dipt. Grœnl., II, 310, notes; unrecognizable.
- sensifera** WALKER, Trans. Ent. Soc., n. ser., v, 314.—Mex.
- vivax** O. FABRICIUS, Fauna Grœnl., 206.—Grœnland.
 LUNDBECK, Dipt. Grœnl., II, 310, notes (type is a Syrphid, but unrecognizable).

GRAPHOMYIA.

- DESVOIDY, Myodaires, 403, 1830.
 SCHINER, Fauna Austr., I, 581, 1862.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 156, 1889; VI, 179, 1893.

- contigua** WALKER, Dipt. Saund., 344 (*Musca*).—U. S.
idessa WALKER, List, iv, 908.—Martin Falls, Canada.
maculata SCOPOLI, Ent. Carn., 326 (*Musca*).—Europe.
 FABRICIUS, Spec. Ins., II, 439 (*Musca vulpina*); Ent. Syst., IV, 314 (id.);
 Syst. Ent., 292 (id.).
 DEGEER, Hist. Nat. Ins., VI, 84 (*Musca*).
 PANZER, Fauna German., XLIV, 22 (id.).
 FALLÉN, Muscides, 49 (id.).
 MEIGEN, Syst. Besch., V, 78 (id.).
 DESVOIDY, Myodaires, 404 (*americana*).—N. A. [Hough.]
 SCHINER, Fauna Austr., I, 582.
 ? WALKER, Dipt. Saund., 348 (*Musca stipata*).—Demerara. [Hough, with
 a doubt.]
 SCHINER, Novara, 304 (*americana*, preoc.).—S. A.
 OSTEN SACKEN, Berl. Ent. Zeitsch., XXXI, 1887, 22, note on eggs, etc.
 HOUGH, Biol. Bull., I, 29, figs., syn., etc.; Kans. Univ. Quart., IX, 219, oc.
 in Brazil, syn., etc.
 Alaska—Coquillett: Montreal—Chagnon: N. J.—Smith Cat.
mexicana GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV,
 9.—Mexico.
 VAN DER WULP, Biologia, Dipt., II, 300, pl. VII, f. 17, oc. and notes.—Guer-
 rero and Tabasco, Mexico.
serva WALKER, Dipt. Saund. 349 (*Musca*).—U. S.

SYNTHESIOMYIA.

- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 96, 110, etc., 1893.
 HOUGH, Biol. Bull., I, 26, 1899.
brasiliانا BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., VI, 96, 100.—
 Brazil.
 HOUGH, Biol. Bull., I, 29, figs. and oc. in Fla. and Ga.
 Citrus Co., Fla., in a cave—Johnson.

STOMOXYS.

- GEOFFROY, Hist. Abr. d. Ins., II, 538, 1764.
 MEIGEN, Syst. Besch., IV, 158, 1824.
 SCHINER, Fauna Austr., I, 577, 1862.
 BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 155, 1889; VI, 178,
 1893.
calcitrans LINNÉ, Syst. Nat., 10th ed. (*Conops*); Fauna Suec., 467 (id.).—
 Sweden. The Biting House-fly.
 FABRICIUS, Spec. Ins., 467; Ent. Syst., IV, 394 and 395 (*calcitrans* and
tescellata); Syst. Antl., 280 and 281 (id.).
 DEGEER, Hist. Nat. Ins., VI, 39, pl. IV, f. 12-18 (*Musca pungens*).
 GEOFFROY, Hist. Abr. d. Ins., II, 539, pl. XVIII, f. 2.
 FALLÉN, Hæmatomyzides, 6.
 MEIGEN, Syst. Besch., IV, 160.
 DESVOIDY, Myodaires, 386, 387 (*sugillatrix*, *aculeata*, *pungens*, *dira* and
inimica).—Brazil, France and N. A.
 MACQUART, Dipt. Exot., II, 3, 114.—Canary Ids.
 FITCH, Trans. N. Y. Agl. Soc., 1849, 803, popular acct.: oc. in United
 States.
 SCHINER, Fauna Austr., I, 578; Novara, 311.—Europe, Hong Kong, Ba-
 tavia, Ceylon and Sydney.

RONDANI, Arch. Zool., III, 32.

ROEDER, Stett. Ent. Zeit., 1886, 347.

PACKARD, Proc. Boston Soc. Nat. Hist., XVI, 136-150, pl., numerous refer-
ences to the transformations.

VAN DER WULP, Biologia, Dipt., II, 292, bibliog. and oc. in Mexico.

GIGLIO-TOS, Dipt. del Mess., IV, 10, bibliog. and oc. in Mexico.

LUGGER, 2d Rept. Ent. Minn., 1896, 160-162, figs.

HOUGH, Biol. Bull., I, 21, figs. and desc.

HOWARD, Proc. Wash. Acad. Sci., II, 577, figs. and habits; breeds in fresh
horse-dung.

WASHEURN, Bull. 77, Minn. Ex. Sta., 33, figs.

Very common throughout the inhabited parts of North America.

Porto Rico—Roeder and Coquillett.

cybira WALKER, List, IV, 1159.—Nova Scotia.

parasita FABRICIUS, Ent. Syst., IV, 394; Syst. Antl., 280.—N. A.

HÆMATOBIA.

DESVOIDY, Myodaires, 388, 1830; Dipt. Env. Paris, II, 611, 1863 (the latter
as *Priophora*).

MACQUART, Hist. Nat. Dipt., II, 242, 1835.

RONDANI, Dipt. Ital. Prod., V, 230, 1862 (*Lyperosia*).

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 155, 1889; VI, 178,
1893.

alcis SNOW, Canad. Ent., XXIII, 88; 22d Rept. Ent. Soc. Ontario, 96.—N. Minn.;
the adults attack the moose, in the dung of which the larvæ live.

serrata DESVOIDY, Myodaires, 389; Dipt. Env. Paris, II, 611 (the latter as *Pri-*
ophora).—S. France.

MACQUART, Hist. Nat. Dipt., II, 244.

RONDANI, Dipt. Ital. Prod., V, 230 (*Lyperosia*).

WILLISTON, Entom. Americana, V, 180 (*cornicola*).—Va.

LINTNER, Country Gentleman, Sept. 20, 1888, an unknown fly occurring on
horns of cattle; Oct. 11, specimens received and sent to Osten Sacken;
Nov. 29, determined as *H. serrata*, on authority of Kowarz.

LINTNER, 5th N. Y. Rept., 1889, 220-227, bibliog., habits, figs.; "The Horn
Fly."—N. Y.

RILEY and HOWARD, Ins. Life, II, 60 (*cornicola*); 93, full biology, syn., etc.

Note.—It appears from the article just mentioned that this European
species was first observed in New Jersey and Maryland, on cattle, in the
summer and fall of 1887, although the first reference in print was by
Lintner, supra, in 1888. Williston saw it from Pennsylvania in 1887 also.
The subsequent spread of the fly was traced by frequent references in
Insect Life, in the second and following volumes; the references may be
found in the general index of the periodical. Other references which I
have collected are mostly to brief notes; the principal ones I list.

WILLISTON, Amer. Nat., 1889, sep., 7 pp. and pl.

SMITH, Bull. 62, N. J. Expt. Sta.; Psyche, V, 343, figs., 1890.

LUGGER, 2d Rept. Ent. Minn., 1896, 162-166, pl. XII, f. 136.

RILEY, Dept. Agr. Rept., 1889, 345-348, pl. IV, V; life hist., etc.; 1891, 239,
notes on spread; 1892, 159, same.

FLETCHER, Bull. 14, Cent. Exp. Farm, Ottawa, Canada; Trans. Royal Soc.
Canada, Sec. ser., V, 229, notes decrease.

HERRICK, Bull. 53, Miss. Ex. Sta., 1900.

WASHEURN, Bull. 77, Minn. Ex. Sta., 31, fig.

HOUGH, Biol. Bull., 1, 22, figs.: comparison with *alcis*.

Generally distributed throughout the United States and Eastern Canada: it reached Idaho in 1901; the larvæ are found in fresh cow-dung.

HEMICHLORA.

VAN DER WULP, Biologia, Dipt., II, 303, 1896.

vittigera BIGOT, Bull. Soc. Zool. France, 1887, 613 (*Cyrtoneura*).—Mexico.

? WIEDEMANN, Auss. Zweifl., II, 354 (*Idia viridis*).—N. A.

GIGLIO-TOS, Ditt. del Mess., IV, 13 (*Cyrtoneurina*).—Mex.

VAN DER WULP, Biologia, Dipt., II, 303, pl. VII, f. 21, oc. and notes.—Guerrero, Mex.; Guatemala.

WILLISTON, Manual, 143, may be *Idia viridis* WIED.

BRAUER, Sitzungsber. d. K. Akad., CVIII, 526, notes on Bigot's type.—refers it to the Anthomyidæ.

HOUGH, Biol. Bull., 1, 22, syn. of *viridis*, with a little doubt.

MYIOSPILA.

RONDANI, Dipt. Ital. Prod., 1, 91, 1856 (*Myospila*).

SCHINER, Fauna Austr., 1, 598, 1862 (id.).

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 156, 1889; VI, 179, 1893.

VAN DER WULP, Biologia, Dipt., II, 303, 1896.

meditabunda FABRICIUS, Spec. Ins., II, 444 (*Musca*); Syst. Antl., 297 (id.).—Europe.

MEIGEN, Syst. Besch., v, 79 (*Musca*).

SCHINER, Fauna Austr., 1, 598.

? THOMSON, Eugen. Resa, 549 (*Cyrtoneura quadrisetosa*).—Cal. [Hgh., with a doubt.]

OSTEN SACKEN, Berl. Ent. Zeitsch., XXXI, 22, note on eggs, from Portchinsky.

VAN DER WULP, Biologia, Dipt., II, 303, oc.—Durango, Orizaba and Guerrero, Mex.

COQUILLET, Proc. Wash. Acad. Sci., II, 441, oc. in Alaska.

HOUGH, Biol. Bull., 1, 23, figs.

HOWARD, Proc. Wash. Acad. Sci., II, 576, figs. and habits: reared from human excrement; Canad. Ent., XXXIII, 44, oc. in Va.: breeds abundantly in cow-dung.

Common throughout the United States.

MUSCINA.

DESVOIDY, Myodaires, 406, 1830.

BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 391, 1891; VI, 179, 1893 (both *Pararicia*); syn. in index, VI, 235.

VAN DER WULP, Biologia, Dipt., II, 304, 1896.

HOUGH, Biol. Bull., 1, 24, 1899; table of species.

assimilis FALLÉN, Muscides, 56 (*Musca*).—Europe.

MEIGEN, Syst. Besch., v, 76 (*Musca casia*).

DESVOIDY, Myodaires, 408 (*Muscina fungivora* and perhaps *concolor*).

MACQUART, Dipt. Nord France, II (*Cyrtoneura aperta*).

ZETTERSTEDT, Ins. Lapp., 660 (*Musca borealis*); Dipt. Scand., IV, 1350 (*Cyrtoneura assimilis* and *casia*).

SCHINER, Fauna Austr., 1, 597, 598 (id.).

- RONDANI, Dipt. Ital. Prod., v, 214, 216 (*Cyrtoncurea*).
- BIGOT, Bull. Soc. Zool. France, XII, 614 (*Cyrtoncurea anthomydca*).—Rocky Mts., N. A.
- STROBL, Dipt. Steiermark, II, 76 (*Cyrtoncurea*).
- GIGLIO-TOS, Ditt. del Mess., IV, 15 (*Cyrtoncurea anthomydca*).—Mex.
- VAN DER WULP, Biologia, Dipt., II, 311 (*Clinopora anthomydca*).—Mex.
- HOWARD, Proc. Wash. Acad. Sci., II, 577, oc. in "many different parts of the United States."
- BRAUER, Sitzungsber. d. K. Akad., CVIII, 526. notes on Bigot's type—related to *Phasiophana*, a South American genus.
- HOUGH, Biol. Bull., I, 25, syn. and oc. in U. S.—Rocky Mts.; figs., but no desc.
- N. J.—Smith Cat.; Montreal—Chagnon; Axton, N. Y.—M. and H.
- aurantiaca** HOUGH, Biol. Bull., I, 25, figs.—Tifton, Ga.
- fulvipes** BIGOT, Bull. Soc. Zool. France, 1887, 613 (*Cyrtoncurea*).—Mex.
- linea** VAN DER WULP, Biologia, Dipt., 304, pl. VII, f. 22.—Guerrero, Mex.
- mexicana** MACQUART, Dipt. Exot., II, 3, 158, pl. XXI, f. 9 (*Cyrtoncurea*).—Mex.
- GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 13 (id.).—Mex.
- VAN DER WULP, Biologia, Dipt., II, 311, gen. ref.
- nigriceps** BIGOT, Bull. Soc. Zool. France, 1887, 615 (*Cyrtoncurea*).—Rocky Mts.
- GIGLIO-TOS, Ditt. del Mess., IV, 13 (*Cyrtoncurea*).—Mex.
- VAN DER WULP, Biologia, Dipt., II, 311, refers to *Morellia*.
- BRAUER, Sitzungsber. d. K. Akad., CVIII, 526, refers type to *Pararicia*.
- omole** WALKER, List, IV, 930 (*Anthomyia*).—Martin Falls, Canada.
- STEIN, Die Walk. Anth., 203, 202, notes and syn. (*Pararicia*).
- pallidicornis** BIGOT, Bull. Soc. Zool. France, 1887, 614 (*Cyrtoncurea*).—Mexico.
- VAN DER WULP, Biologia, Dipt., II, 311, gen. ref.
- BRAUER, Sitzungsber. d. K. Akad., CVIII, 526, refers type to *Pararicia*.
- HOUGH, Kans. Univ. Quart., IX, 222.—Brazil.
- parilis** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 14 (both *Cyrtoncurea*).—Mexico.
- VAN DER WULP, Biologia, Dipt., II, 311, gen. ref.
- ? **recurva** THOMSON, Eugen. Resa, 548 (*Cyrtoncurea*).—Cal.
- similis** WALKER, List, IV, 930 (*Anthomyia*); 931 (*Anth. nigra*).—Martin Falls, Canada.
- STEIN, Die Walk. Anth., 202, 209, notes on types and syn.
- stabulans** FALLÉN, K. Vetenskap. Akad. Förh., 1816, 252 (*Musca*); Muscides, 52 (id.).—Sweden.
- WIEDEMANN, Zool. Mag., I, 79 (*M. cinerascens*).
- MEIGEN, Syst. Besch., v, 75 (id.).
- SCHINER, Fauna Austr., I, 597 (*Cyrtoncurea*). Larvæ have been reared from fungi and from lepidopterous larvæ.
- LABOULBENE, Bull. Soc. Ent. France, 1883, No. 14, larvæ in human stomach.
- RILEY, 4th Rept. Ent. Comm., 108, bred from pupæ of *Aletia xyliua*.
- RILEY, Rept. Dept. Agr., 1892, 167, pl. v, f. 4 (*Cyrtoncurea*), larvæ of destroy pupæ of elm leaf-beetle.
- VAN DER WULP, Tijdschr. v. Ent., XXVI, oc. in Argentina.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., v, 391, one of the types of *Pararicia*.
- BAKER, Ent. News, VI, 174, reared from rotting squash roots at Fort Collins, Col.
- HOUGH, Biol. Bull., I, 24, fig., etc.—U. S. everywhere.

- HOWARD, Proc. Wash. Acad. Sci., II, 574, fig. and habits; reared from human excrement (Coquillett doubts the vegetable feeding habit, but I have reared it from rotting radishes at Moscow, Idaho).
- texana** HOUGH, Biol. Bull., I, 25, figs.—Texas.
- tripunctata** VAN DER WULP, Biologia, Dipt., II, 305.—Guerrero, Morelos and N. Yucatan, Mexico.
- HOWARD, Proc. Wash. Acad. Sci., II, 576, note on habits.
Porto Rico—Coquillett.
- vecta** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 14 (*Cyrtoneurina*).—Mexico.
- VAN DER WULP, Biologia, Dipt., II, 311, gen. ref.

CLINOPERA.

- VAN DER WULP, Biologia, Dipt., II, 305, 1896, def. and table of species.
- anthomydea** BIGOT, see *Muscina assimilis*.
- digramma** VAN DER WULP, Biologia, Dipt., II, 308.—Guerrero and Orizaba, Mex.
- dorsilinea** VAN DER WULP, Biologia, Dipt., II, 308.—Guerrero, Mex.
- frontina** VAN DER WULP, Biologia, Dipt., II, 306.—Tabasco, Mex.
- gluta** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147, 1893; Ditt. del Mess., IV, 15 (*Cyrtoneurina* in both).—Mexico.
- VAN DER WULP, Biologia, Dipt., II, 311, gen. ref.
- hieroglyphica** VAN DER WULP, Biologia, Dipt., II, 307, pl. VII, f. 23.—Guerrero and Tabasco, Mex.
- inuber** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 15 (both *Cyrtoneurina*).—Mexico.
- VAN DER WULP, Biologia, Dipt., II, 308, pl. VII, f. 24; oc., gen. ref., etc.—Tabasco, Mex.
- HOUGH, Biol. Bull., I, 25, figs., no desc.
- monstrata** VAN DER WULP, Biologia, Dipt., II, 309.—Guerrero, Mex.
- pellex** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 16 (both *Cyrtoneurina*).—Mex.
- VAN DER WULP, Biologia, Dipt., II, 311, gen. ref.
- polystigma** VAN DER WULP, Biologia, Dipt., II, 309, pl. VII, f. 25.—Guerrero and Vera Cruz, Mex.
- pterostigma** VAN DER WULP, Biologia, Dipt., II, 309.—Tabasco, Mex.
- uber** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 17 (both *Cyrtoneurina*).—Mexico.
- VAN DER WULP, Biologia, Dipt., II, 307.—Guerrero, Vera Cruz, and Tabasco, Mexico.

CYRTONEURINA.

- GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147, 1893; Ditt. del Mess., IV, 13, 1895.
- VAN DER WULP, Biologia, Dipt., II, regards this genus as unavailable. Without making any direct reference to it, he distributes the species among *Hemichlora*, *Muscina* and *Clinopera*. See also Hough, Biol. Bull., I, 24.

HYADESIMYIA.

- BIGOT, Miss. du Cap Horn, VI, Zool. Dipt., 1888, 26.
- BRAUER and BERGENSTAMM, Zweifl. d. Kaiserl. Mus., IV, 161, may be an *Cestrid*.
- ? **grisea** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 8, f. 2.—Oaxaca, Mex. Doubtful if it be this genus—J. M. A.

ANTHOMYIDÆ.

Besides the tables of Schiner and Williston, the following literature may be consulted:

- BIGOT, *Annales*, 1882, 13, table of all genera.
 HAGEN, *Canad. Ent.*, XIII, 43-51, publishes Meade's comments on the collection at Harvard, 1881.
 LINTNER, 1st N. Y. Report, 168-172, valuable discussion of larval habits, with list of New York species.
 TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 290, table of N. A. genera.
 VAN DER WULP, *Biologia*, Dipt., II, 312, table of Mexican genera.
 MEADE, *Desc. List Brit. Anthomyidæ*, London, 1897, table of genera.
 HOUGH, *Ent. News*, x, 63, 1899, gives Girschner's definition of the family—not accepted herein.
 COQUILLET, *Jour. N. Y. Ent. Soc.*, IX, 134, 1901, on the types of the genera.
 SCHNABL, *Wien. Ent. Zeit.*, XXI, 127-135, 1902, discussion of the hypopygium in several genera.

HYDROTÆA.

- DESVOIDY, *Myodaires*, 509, 1830.
 SCHINER, *Fauna Austr.*, I, 613, 1862.
 RONDANI, *Dipt. Ital. Prod.*, VI, 19, 1877.
 VAN DER WULP, *Biologia*, Dipt., II, 322, 1896.
 MEADE, *Descr. List Brit. Anth.*, 24, 1897.
 STEIN, *Verh. Zool.-Bot. Ges.*, 1903, 285-337, mon. of European species.
acuta STEIN, *Berl. Ent. Zeitsch.*, XLII, 167.—Ga. Montreal—Chagnon.
armipes FALLÉN, *Muscides*, 75 (*Musca*).—Europe.
 MEIGEN, *Syst. Besch.*, v, 138 (*Anthomyia*).
 ZETTERSTEDT, *Dipt. Scand.*, IV, 1434 (*Aricia*).
 SCHINER, *Fauna Austr.*, I, 616. Larvæ in cowdung.
 LEOW, in *Silliman's Journal*, oc. in N. A.
 RONDANI, *Dipt. Ital. Prod.*, VI, 23.
 HAGEN, *Canad. Ent.*, XIII, 47, oc. in Mass. and Nebr.
 MEADE, *Desc. List*, 27.
 STEIN, *Berl. Ent. Zeitsch.*, XLII, 165, oc. in Ida., Kans., S. D., Mass.
 HOWARD, *Canad. Ent.*, XXXIII, 44, oc. in Va.; breeds in cowdung.
 N. J.—Smith Cat.; Montreal—Chagnon.
bispinosa ZETTERSTEDT, *Dipt. Scand.*, IV, 1428 (*Aricia*).—N. Europe and Greenland.
 HOLMGREN, *Ins. Nordgrœnl.*, 101 (id.).—Greenland.
 SCHINER, *Fauna Austr.*, I, 615.
 LUNDBECK, *Dipt. Grœnl.*, I, 309, oc. in Greenland.
 Montreal—Chagnon; White Mts., N. H.—Slosson.
ciliata FABRICIUS, *Ent. Syst.*, IV, 333 (*Musca*).—Europe.
 FALLÉN, *Muscides*, 61 (*Musca spinipes*).
 MEIGEN, *Syst. Besch.*, v, 159, 160 (*Anthomyia ciliata* and *bimacula*).
 DESVOIDY, *Myodaires*, 517 (*Pcronia rostrata*).
 SCHINER, *Fauna Austr.*, I, 614; syn., etc.
 STÆGER, *Grœnl. Antl.*, oc. in Greenland.
 MEADE, *Desc. List*, 24.
dentipes FABRICIUS, *Syst. Antl.*, 303 (*Musca*).—Europe.
 FALLÉN, *Muscides*, 60 (*Musca*).
 MEIGEN, *Syst. Besch.*, v, 144 (*Anthomyia*).

- ZETTERSTEDT, Dipt. Scand., IV, 1426 (*Aricia*).
- SCHINER, Fauna Austr., I, 615; larvæ in decaying vegetable matter.
- LOEW, in Silliman's Jour., oc. in N. A.
- RONDANI, Dipt. Ital. Prod., VI, 21.
- HAGEN, Canad. Ent., XIII, 47, oc. in Canada and Alaska.
- VAN DER WULP, Biologia, Dipt., II, 323, oc. and syn.—Guerrero, Mex., and Costa Rica.
- MEADE, Desc. List, 25.—England.
- STEIN, Berl. Ent. Zeitsch., XLII, 165.—Ida., Ont., Ga., S. D.
- HOWARD, Proc. Wash. Acad. Sci., II, 584, habits; reared from human excrement.—D. C., Md. N. J.—Smith Cat.: Montreal—Chagnon.
- fuscula** FALLÉN, in Chagnon's List, is probably a mistake for *Homalomyia fuscula*. q. v.
- impexa** LOEW, Besch. Eur. Dipt., III, 243.—Europe.
- MEADE, Desc. List, 26.
- STEIN, Berl. Ent. Zeitsch., XLII, 165, oc. in Mass. N. J.—Smith Cat.
- irritans** FALLÉN, Muscides, 62 (*Musca*).—Europe.
- ZETTERSTEDT, Dipt. Scand., IV, 1431 (*Aricia*).
- SCHINER, Fauna Austr., I, 617.
- STEGGER, Grœnl. Antl., 363, oc. in Greenland.
- RONDANI, Dipt. Ital. Prod., VI, 24.
- MEADE, Desc. List, 26.
- lata** WALKER, List. IV, 963 (*Eriphia*).—Martin Falls, Canada.
- STEIN, Die Walk. Anth., 199, gen. ref.
- metatarsata** STEIN, Berl. Ent. Zeitsch., XLII, 166.—Mass., Pa.
- HOWARD, Proc. Wash. Acad. Sci., II, 585, oc. in Md.; note.
- occulta** MEIGEN, Syst. Besch., V, 133 (*Anthomyia*); VII, 324 (*Lasiops*).
- ZETTERSTEDT, Dipt. Scand., IV, 1486 (*Aricia*).
- SCHINER, Fauna Austr., I, 614.
- MEADE, Desc. List, 25.
- STEIN, Berl. Ent. Zeitsch., XLII, 165, oc. in N. A.—III.
- White Mts., N. H.—Slosson.
- stygia** MEIGEN, see *Limnophora*.
- succedens** STEIN, Die Walk. Anth., 212.—U. S.
- unispinosa** STEIN, Berl. Ent. Zeitsch., XLII, 165.—Ont., Col.

DRYMEIA.

- MEIGEN, Syst. Besch., V, 204, 1826.
- SCHINER, Fauna Austr., I, 620, 1862.
- HAGEN, Canad. Ent., XIII, 46, 1881, quotes Meade on the occurrence of a species in N. A.—Hudson Bay Terr.

ERIPHIA.

- MEIGEN, Syst. Besch., V, 206, 1826.
- RONDANI, Dipt. Ital. Prod., VI, 31, 1877.
- POKORNY, Wien. Ent. Zeit., XII, 53, 1893.
- TOWNSEND, Trans. Amer. Ent. Soc., XIX, 292, notes.
- acela** WALKER, see *Lispa tentaculata*.
- arelate** WALKER, see *Prosalpia*.
- biquadrata** WALKER, see *Limnophora*.
- ciliata** WALKER, see *Chortophila muscaria*.

flavifrons WALKER, see *Pegomyia*.

grisea WALKER, see *Prosalpia silvestris*.

? *lamnia* WALKER, List, iv, 964.—Martin Falls, Canada.

Not mentioned by Stein; almost certainly belongs to some other genus.

lata WALKER, see *Hydrotaea*.

marginata WALKER, see *Phorbia fusciceps*.

pretiosa WALKER, see *Prosalpia arclate*.

POGONOMYIA.

RONDANI, Dipt. Ital. Prod., vi, 32, 1877.

VAN DER WULP, Biologia, Dipt., ii, 334, 1896.

MEADE, Desc. List, 29, 1897.

? *alpicola* RONDANI, Dipt. Ital. Prod., vi, 32.—Italy.

MEADE, Desc. List, 29.

? STEIN, Berl. Ent. Zeitsch., XLII, 169.—Idaho; identified with a doubt.

aterrima VAN DER WULP, Biologia, Dipt., ii, 335, pl. VIII, f. 13.—Durango, Mex.

OPHYRA.

DESVOIDY, Myodaires, 516, 1830.

SCHINER, Fauna Austr., i, 619, 1862.

RONDANI, Dipt. Ital. Prod., vi, 34, 1877.

VAN DER WULP, Biologia, Dipt., ii, 323, 1896.

MEADE, Desc. List, 28, 1897.

ænescens WIEDEMANN, Auss. Zw., ii, 435 (*Anthomyia*).—New Orleans, La.; West Indies.

MACQUART, Dipt. Exot., Suppl. i, 203.—Texas.

WILLISTON, Trans. Ent. Soc. Lond., 1896, 367.—St. Vincent, W. I.

STEIN, Berl. Ent. Zeitsch., XLII, 170, oc. in Ga.

Porto Rico—Roeder; Fla.—Johnson.

argentina BIGOT, Annales, 1885, 302.—Buenos Ayres, S. A.

GIGLIO-TOS, Ditt. del Mess., iv, 26, oc. in Orizaba and Tehuacan, Mex.

VAN DER WULP, Biologia, Dipt., ii, 323, note and oc.—Mexico City.

grœnlandica LUNDBECK, Dipt. Grœnl., ii, 281.—Greenland.

leucostoma WIEDEMANN, Zool. Mag., i, 82 (*Anthomyia*).—Europe.

MEIGEN, Syst. Besch., v, 160 (id.).

DESVOIDY, Myodaires, 516 (*nitida* and *pubescens*).

WALKER, List, iv, 956 (*Anthomyia opalia*).—Nova Scotia. [Stein.]

SCHINER, Fauna Austr., i, 620.

LOEW, in Silliman's Jour., oc. in N. A.

MEADE, Ent. Mo. Mag., 1878, 251, oc. in N. A.; Desc. List, 28.

STEIN, Berl. Ent. Zeitsch., XLII, 170, oc. in Kans., Ida., S. D., Ont., Mass., Ill., Col.

RONDANI, Dipt. Ital. Prod., vi, 35.

HOWARD, Proc. Wash. Acad. Sci., ii, 582, habits; reared from human excrement; Canad. Ent., XXXIII, 44, oc. in Va.; breeds in cowdung.—D. C., Va.

MOTTER, Jour. N. Y. Ent. Soc., vi, 223, oc. in human graves.

N. J.—Smith Cat.; Montreal—Chagnon; Province of Quebec—Fyles.

BRACHYOPHYRA.

GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147, 1893; Ditt. del Mess., iv, 26, 1895.

effrons GIGLIO-TOS, locis citatis, f. 6.—Tuxpango, Mex.

AZELIA.

DESVOIDY, Myodaires, 592, 1830.

MACQUART, Hist. Nat. Dipt., II, 329, 1835 (*Atomogaster*).

LOEW, Die Deutsche Arten d. Gatt. Azelia, in Ent. Miscellen, Breslau, 1874.

RONDANI, Dipt. Ital. Prod., VI, 37, 1877.

MEADE, Desc. List, 67, 1897.

albicincta FALLÉN (*Atomogaster*), see *Anthomyia*.

cilipes HALIDAY, Ann. Nat. Hist., II, 105.—Europe.

ZETTERSTEDT, Dipt. Scand., IV, 1502 (*Aricia stegeri*); Ins. Lapp., 685 (*A. triquetra* McQ.).

RONDANI, Dipt. Ital. Prod., VI, 41.

MEADE, Ent. Mo. Mag., April, 1878, oc. in N. A. (*stegeri*); Desc. List, 68, syn.

STEIN, Berl. Ent. Zeitsch., XLII, 170, oc. in Pa.

gibbera MEIGEN, Syst. Besch., V, 152 (*Anthomyia*).—Europe.

MEADE, Desc. List, 69.

STEIN, Berl. Ent. Zeitsch., XLII, 170, oc. in N. A.—Ill.

HOMALOMYIA.

BOUCHÉ, Naturgesch. d. Ins., I, 88, 1834.

SCHINER, Fauna Austr., I, 653, 1862.

RONDANI, Dipt. Ital. Prod., VI, 42, 1877.

VAN DER WULP, Biologia. Dipt., II, 331, 1896.

MEADE, Desc. List, 1897, 59.

STEIN, Berl. Ent. Zeitsch., XL, 1895, 141 pp., full monograph of European species.

? RILEY, Rept. Dept. Agr., 1892, 167, pl. v, f. 3, notes larva of, destroying pupæ of elm leaf-beetle; gen. ref. by Williston, with doubt.

armata MEIGEN, Syst. Besch., V, 139 (*Anthomyia*).—Europe.

ZETTERSTEDT, Dipt. Scand., IV, 1563 (*Aricia*).

SCHINER, Fauna Austr., I, 655.

STEIN, Berl. Ent. Zeitsch., XL, 66, 19.

MEADE, Desc. List, 63.

LUNDBECK, Dipt. Grœnl., II, 289, oc. in Greenland.

brevis RONDANI, Dipt. Ital. Prod., VI, 47.—Europe.

STEIN, Berl. Ent. Zeitsch., XL, 51; XLII, 176, oc. in Ga., and notes.

HOWARD, Proc. Wash. Acad. Sci., II, 580, figs. and habits; breeds abundantly in human excrement.—Wash., Va.

canicularis LINNÉ, Fauna Suecica, 2d edit., 454 (*Musca*).—Sweden.

FABRICIUS, Syst. Antl., 303 (id.).

MEIGEN, Syst. Besch., V, 143 (*Anthomyia*).

ZETTERSTEDT, Dipt. Scand., IV, 1573 (*Aricia*).

WALKER, List, IV, 951 (*Anthomyia isura*).—Nova Scotia. [Stein, from type.]

SCHINER, Fauna Austr., I, 654; Novara, 298.—Madeira, St. Paul Id., and the Nicobar Ids.

LOEW, Silliman's Jour., oc. in N. A.

BIGOT, Annales, 1885, 284, oc. in Buenos Ayres.

VAN DER WULP, Biologia. Dipt., II, 331, oc. and bibl.—Costa Rica.

MEADE, Desc. List, 63.

STEIN, Berl. Ent. Zeitsch., XL, 55; XLII, 171, oc. in Ida., Kans., S. D., Ont., Mass., Col., Pa., Ill.

- HOWARD, Proc. Wash. Acad. Sci., II, 581, habits; reared from human excrement.
- N. J.—Smith Cat.: White Mts., N. H.—Slosson; Greenland—Lundbeck; Axton, N. Y.—M. and H.
- corvina** VERRALL, Ent. Mo. Mag., XXVIII, 149, 1892.—England.
MEADE, Desc. List, 65.
STEIN, Berl. Ent. Zeitsch., XL, 102; XLII, 177, oc. in N. A.—S. D.
- dentata** BIGOT, Annales, 1885, 284.—Rocky Mts.
- depressa** STEIN, Berl. Ent. Zeitsch., XLII, 173.—Mass.
- fasciculata** LOEW, Berl. Ent. Zeitsch., XVII, 47, 51, 1873.—Europe.
STEIN, Berl. Ent. Zeitsch., XL, 54.
N. J.—Smith Cat.
- femorialis** STEIN, Berl. Ent. Zeitsch., XLII, 282.—N. A., no locality.
- femorata** LOEW, Wien. Ent. Monatsch., v, 42; Cent., x, 68.—Cuba.
BIGOT, Annales, 1885, 268, note.
STEIN, Berl. Ent. Zeitsch., XLII, 176, oc. in Ga. and Fla.
St. John's R., Fla.—Johnson; "Bred in large numbers from the dead fresh-water shells."
- flavibasis** STEIN, Berl. Ent. Zeitsch., XLII, 171.—Ill.
COQUILLET, Proc. Wash. Acad. Sci., II, 447, oc. in Alaska.
- flavivaria** COQUILLET, Proc. Wash. Acad. Sci., II, 446.—Metlakatla, etc., in Alaska.
- fuscula** FALLÉN, Muscides, 86 (*Musca*).—Europe.
MEIGEN, Syst. Besch., v, 145 (*Anthomyia floricola*).
ZETTERSTEDT, Dipt. Scand., IV, 1686 and VIII, 3310 (*Anthomyza*).
SCHINER, Fauna Austr., I, 656 (*floricola*).
LOEW, Berl. Ent. Zeitsch., XVII, 47, 52 (*obesa*); Cent., x, 69 (*tetracantha*).—Europe; U. S. [Stein.]
RONDANI, Dipt. Ital. Prod., VI, 56 (*cilicrura*).
MEADE, Brit. Anth., 1882, 202 and 205 (the latter *floricola*); Suppl., 1887; Desc. List, 61.
STEIN, Berl. Ent. Zeitsch., XL, 25, full syn., desc., etc.
See *Phorbia fusciceps*.
- glaucescens** ZETTERSTEDT, Dipt. Scand., IV, 1586 (*Aricia*).—Europe.
RONDANI, Dipt. Ital. Prod., VI, 54 (*herniosa*).
MEADE, Brit. Anth., 204 (*heruiosa*); Desc. List, 66, syn.
STEIN, Berl. Ent. Zeitsch., XL, 112; XLII, 171, oc. in S. D. and Ont.
- incisurata** ZETTERSTEDT, Ins. Lapp., 679 and 683 (*Anthomyza incisurata* and *impura*); Dipt. Scand., IV, 1577 (*Aricia*).—N. Europe.
SCHINER, Fauna Austr., I, 656.
RONDANI, Dipt. Ital. Prod., VI, 50 (*prostrata* ROSSI).
MEADE, Ent. Mo. Mag., 1878, oc. in N. A. (quoted by O. S., Cat., 170); Brit. Anth., 1882, 202; Desc. List, 66.
GIGLIO-TOS, Ditt. del Mess., IV, 27, note and oc. in Mex. (*prostrata*).
STEIN, Berl. Ent. Zeitsch., XL, 115; XLII, 171, oc. in Minn.
- lævis** STEIN, Berl. Ent. Zeitsch., XLII, 174.—Mass.
- manicata** MEIGEN, Syst. Besch., v, 140 (*Anthomyia*).—Europe.
DUFOUR, Annales Sci. Nat., 1838 (*Anthomyia paradoxalis*).
ZETTERSTEDT, Ins. Lapp., 679 (*Anthomyza armillaris*); Dipt. Scand., IV, 1576 (*Aricia*).
WALKER, List, IV, 951 (*Anthomyia acra*).—Martin Falls, Canada. [Stein.]
LOEW, in Silliman's Jour., oc. in N. A.—Sitka; see also Hagen, Canad. Ent., XIII, 48.

- MEADE, Brit. Anthomyidæ, 203; Desc. List, 62.
 STROBL, Anth. Steiermarks, 237.
 STEIN, Berl. Ent. Zeitsch., XL, 39, syn., etc.
- mexicana** BIGOT, Annales, 1885, 284.—Mexico.
 GIGLIO-TOS, Ditt. del Mess., IV, 27, note.
 VAN DER WULP, Biologia, Dipt., II, 332.—Guerrero, Mex.; Costa Rica.
- minutipalpis** STEIN, Berl. Ent. Zeitsch., XL, 106; XLII, 283, oc.—Europe; Mass.
- pellucida** STEIN, Berl. Ent. Zeitsch., XLII, 283.—Ga.
- polychæta** STEIN, Berl. Ent. Zeitsch., XL, 108; XLII, 171, oc.—Europe; Mass.
 ? WIEDEMANN, Zool. Mag., 82 (*Anthomyia lepida*).
 SCHINER, Fauna Austr., I, 655 (*lepida* WIED.).
- prostrata** ROSSI, see *incisurata*.
- prunivera** WALSH, Amer. Entomologist, II, 137, larva and adult.—Ill.
 Note.—In the same place, Walsh describes *H. leydii* and *H. wilsonii*, in the larval state only; I presume they can never be identified.
- rupecula** BIGOT, Annales, 1885, 285.—Rocky Mts.
- scalaris** FABRICIUS, Ent. Syst., IV, 332 (*Musca*); Syst. Antl., 305 (id.).—Europe.
 MEIGEN, Syst. Besch., V, 141 (*Anthomyia*).
 ZETTERSTEDT, Dipt. Scand., IV, 1575 (*Aricia*).
 DUFOUR, Ann. di Sci. Nat., extr. 5, no. 2 (*Anth. manicata*). [Rond.]
 DESVOIDY, Myodaires, 567 (*Faunia saltatrix*).
 SCHINER, Fauna Austr., I, 654; larvæ reared from human excrement.
 RONDANI, Dipt. Ital. Prod., VI, 55.
 MEADE, Brit. Anth., 202; Desc. List, 63.
 LOEW, in Silliman's Jour., oc. in N. A.
 STEIN, Berl. Ent. Zeitsch., XL, 46, full desc. and syn.
 HOWARD, Proc. Wash. Acad. Sci., II, 582, habits; reared from human excrement.
 Widespread in North America—J. M. A.
- serena** FALLÉN, Muscides, 76 (*Musca*).—Europe.
 MEIGEN, Syst. Besch., V, 200 (*Anthomyia*).
 ZETTERSTEDT, Ins. Lapp., 685 (*Anthomyza*); Dipt. Scand., IV, 1594 (*Aricia*).
 OSTEN SACKEN, Cat., 170, oc. in N. A., on authority of "Loew in litt."
 HAGEN, Canad. Ent., XIII, 48, identified from British Amer. by Loew.
 MEADE, Brit. Anth., 204; Desc. List, 65.
 STEIN, Berl. Ent. Zeitsch., XL, 100.
- spathulata** ZETTERSTEDT, see *Calomyia*.
- splendida** STEIN, Berl. Ent. Zeitsch., XLII, 170.—Ida.
- subpellucens** ZETTERSTEDT, see *Calomyia*.
- tetracantha** LOEW, see *fuscata*.
- trimaculata** STEIN, Berl. Ent. Zeitsch., XLII, 176.—Jamaica.

CELOMYIA.

- HALIDAY, in Westwood's Introduction, II, 143, 1840.
 SCHINER, Fauna Austr., I, 656, note, 1862.
 MEADE, Brit. Anth., 1882.
 STEIN, Berl. Ent. Zeitsch., XL, 12 and 133, 1895.
- spathulata** ZETTERSTEDT, Dipt. Scand., IV, 1543 (*Aricia*).—N. Europe.
 HALIDAY, in Westwood's Introduction, II, App., 143 (*mollissima*, without desc.).—Europe.
 RONDANI, Dipt. Ital. Prod., VI, 52 (*Homalomyia mollissima*).
 OSTEN SACKEN, Cat., 170, oc. in N. A., on authority of "Loew in litt."
 MEADE, Brit. Anth., 224, 1882 (*mollissima*).

STROBL, Anth. Steiermarks, 238 (id.).

STEIN, Berl. Ent. Zeitsch., XL, 131.

subpellucens ZETTERSTEDT, Dipt. Scand., IV, 1561 (*Aricia*).—N. Europe.

OSTEN SACKEN, Cat., 170, oc. in N. A., on authority of "Loew in litt."
(*Homalomyia*).

HAGEN, Canad. Ent., XIII, 48, identified by Loew from Sitka (id.).

STEIN, Berl. Ent. Zeitsch., XL, 134.

CHORISTOMMA.

STEIN, Berl. Ent. Zeitsch., XL, 138, 1895.

pokornyi STEIN, Berl. Ent. Zeitsch., XL, 138; XLII, 284, oc.—Europe; La.

EURYOMMA.

STEIN, Ent. Nachrichten, XXV, 19, 1899.

communis WALKER, Dipt. Saund., 366 (? *Anthomyia*).—U. S.

STEIN, Ent. Nachrichten, XXV, 1899, 20 (*hispanicuse*, from Spain); Die Walk. Anth., 193, syn. and gen. ref.

Note.—The *Pegomyia communis* WALKER, mentioned by Cockerell, Jour. N. Y. Ent. Soc., VI, 206, from New Mexico, is probably a different species, judging from the generic reference.

HYETODESIA.

RONDANI, Dipt. Ital. Prod., VI, 110, 1877.

DESVOIDY, Myodaires, 486 (*Aricia*, preoc.), 1830.

SCHINER, Fauna Austr., I, 599 (id.), 1862.

SCHNABEL, Horæ Soc. Ent. Ross., XX, 271-440; XXII, 378-486; XXIII, 313-347; XXIV, 493-501, 1887-1890, discussion of this and related genera (*Aricia*).

VAN DER WULP, Biologia. Dipt., II, 314, def. and table of Mexican spp., 1896.

MEADE, Desc. List, 4, 1897.

Note.—*Aricia parviceps*, *schinophora*, and *consors* are mentioned by Hagen, Canad. Ent., XIII, 44, as being thus labeled by Loew in his N. A. material. I take these to be manuscript names.

abacta GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147, 1893; Ditt. del Mess., IV, 20.—Mexico.

VAN DER WULP, Biologia, Dipt., II, 316, oc. and note.—Guerrero, Mex.

White Mts., N. H.—Slosson.

abdicta GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 21.—Mex.

barpana WALKER, List, IV, 933 (*Anthomyia*).—Nova Scotia.

STEIN, Die Walk. Anth., 188, redesc. from type (*Aricia*).

bispinosa ZETTERSTEDT, see *Hydrotaea*.

brevis STEIN, Berl. Ent. Zeitsch., XLII, 180 (*Aricia*).—Ill., Ark.

brunneinervis STEIN, Berl. Ent. Zeitsch., XLII, 183 (*Aricia*).—Idaho.

COQUILLET, Proc. Wash. Acad. Sci., II, 442, oc.; Psyche, Jan., 1901, oc.—Alaska and N. M.

cærulescens STEIN, Berl. Ent. Zeitsch., XLII, 187 (*Aricia*).—Idaho.

cinerella VAN DER WULP, Tijdschr. v. Ent., X, 150 (*Aricia*).—Wis.

circulatrix WALKER (*Aricia*), see *Spilogaster*.

deleta STEIN, Berl. Ent. Zeitsch., XLII, 178 (*Aricia*).—Ill., Pa.

? **deflorata** HOLMGREN, Ins. Nordgrœnl., 102 (*Aricia*).—Greenland.

Note.—According to Stein, Holmgren followed Zetterstedt in including all the black-legged Anthomyidæ in *Aricia*; hence it is doubtful whether this species belongs here.

denudata HOLMGREN, see *Limnophora*.

dorsata ZETTERSTEDT, Dipt. Scand., iv, 1472 (*Aricia*).—N. Europe.

HOLMGREN, Ins. Spetsb., 29; Ins. Nordgrœnl., 101 (id.).—Spitzbergen, Greenland.

errans MEIGEN, Syst. Besch., v, 112 (*Anthomyia*).—Europe.

DESVOIDY, Myodaires, 484 (*Tremnia nigricornis*). [Schiner.]

SCHINER, Fauna Austr., i, 604 (*Aricia*).

N. J.—Smith Cat.

fabricii HOLMGREN, see *Chortophila*.

frenata HOLMGREN, see *Lasiops*.

houghii STEIN, Berl. Ent. Zeitsch., XLII, 177 (*Aricia*).—Canada.

N. J.—Smith Cat.

icterica HOLMGREN, see *Phorbia*.

incerta WALKER, see *lucorum*.

insons GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., iv, 21.—Mex.

longiseta VAN DER WULP, Biologia, Dipt., II, 315.—Guerrero, Mex.

lucorum FALLÉN, Muscides, 55 (*Musca*).—Europe.

MEIGEN, Syst. Besch., v, 85 (*Anthomyia*).

DESVOIDY, Myodaires, 500 (*Mydina latifica*).

WALKER, List, iv, 928 (*Anthomyia pylone*); Dipt. Saund., 354 (*Anthomyia solita*).—Martin Falls, Canada; U. S. [Stein.]

? WALKER, Dipt. Saund., 354 (*Anthomyia incerta*).—U. S. [Stein, with doubt.]

SCHINER, Fauna Austr., i, 600 (*Aricia*).

RONDANI, Prod. Dipt. Ital., vi, 143.

COQUILLET, Proc. Wash. Acad. Sci., II, 442, oc. in Alaska.

STEIN, Berl. Ent. Zeitsch., XLII, 182, oc. in Idaho, Kans., Mass., Pa.

N. J.—Smith Cat.; Montreal—Chagnon.

Note.—The *Hycodestia pylone* mentioned in Mrs. Slosson's White Mts. list and in Smith's N. J. catalogue must have been an erroneous identification.

luteva WALKER, List, iv, 934 (*Anthomyia*).—Nova Scotia.

STEIN, Die Walk. Anth., 201, pt. desc. of type; refers to *Aricia*.

marmorata ZETTERSTEDT, Dipt. Scand., XIV, 6197 (*Aricia*).—N. Europe.

SCHINER, Fauna Austr., i, 601 (id.).

White Mts., N. H.—Slosson (det. Coquillett).

mæsta HOLMGREN, see *Chortophila*.

? **morio** ZETTERSTEDT, Dipt. Scand., iv, 1399 (*Aricia*).—N. Europe.

? LOEW, in Silliman's Jour., oc. in N. A.; refers to it as *Aricia morioides* ZETT., which does not exist, as far as I can learn.

mulcata GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., iv, 20.—Mexico.

VAN DER WULP, Biologia, Dipt., II, 315 (may be the male of *proccdens* WALK.).—Guerrero, Mex.

nitida STEIN, Berl. Ent. Zeitsch., XLII, 185 (*Aricia*).—Ontario, Canada.

orbitaseta STEIN, Berl. Ent. Zeitsch., XLII, 186 (*Aricia*).—Idaho.

orichalcea STEIN, Berl. Ent. Zeitsch., XLII, 183 (*Aricia*).—Idaho.

pallidula COQUILLET, Proc. U. S. N. M., XXV, 122 (*Phaonia*).—S. Ga.

- parsura** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 20.—Mex.
- pauvilla** HOLMGREN, see *Limnophora*.
- plumbea** MEIGEN, Syst. Besch., v, 85 (*Anthomyia*).—Europe.
SCHINER, Fauna Austr., I, 601 (*Aricia*).
LUNDBECK, Dipt. Grœnl., I, 308, oc. in Greenland (id.).
- procedens** WALKER, Trans. Ent. Soc. Lond., v, 315 (*Aricia*).—Mex.
GIGLIO-TOS, Ditt. del Mess., IV, 20, note.—Mex.
VAN DER WULP, Biologia, Dipt., II, 315, pt. desc.—Guerrero, Mex.
STEIN, Die Walk Anth., 205, type partly redescribed, but no longer recognizable.
- proxima** VAN DER WULP, Tijdschr. v. Ent., XII, 85 (*Aricia*).—Wis.
? STEIN, Berl. Ent. Zeitsch., XLII, 187, doubtfully identified from Wash. (*Aricia*).
- pruinosa** MACQUART, Dipt. Exot., Suppl. I, 201 (*Aricia*).—Galveston, Tex.
- punctata** STEIN, Berl. Ent. Zeitsch., XLII, 182 (*Aricia*).—S. D., Col.
- ranunculi** HOLMGREN, see *Limnophora denudata*.
- rescita** WALKER, see *Spilogaster*.
- rubella** VAN DER WULP, Biologia, Dipt., II, 314, pl. VIII, f. I.—Guerrero, Mex.
- rugia** WALKER, List, IV, 923 (*Anthomyia*).—Martin Falls, Canada.
STEIN, Die Walk. Anth., 207, type redesc. (*Aricia*).
White Mts., N. H.—Slosson.
- rufitibia** STEIN, Berl. Ent. Zeitsch., XLII, 181.—Ill., Kans., Ga., Pa., La., N. M.—Coquillett, Psyche, Jan., 1901.
- septentrionalis** STEIN, Berl. Ent. Zeitsch., XLII, 184.—Alaska.
Common in Alaska—Coquillett.
- serva** MEIGEN, Syst. Besch., v, 86 (*Anthomyia*).—Europe.
SCHINER, Fauna Austr., I, 601 (*Aricia*).
N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- solita** WALKER, see *lucorum*.
- striata** STEIN, Berl. Ent. Zeitsch., XLII, 179 (*Aricia*).—Idaho.
- tarsalis** WALKER, see *Canosia*.
- tristicula** HOLMGREN, see *Anthomyia radicum*.
- ? **troëne** WALKER, List, IV, 936 (*Anthomyia*).—Nova Scotia.
STEIN, Die Walk. Anth., 215, type redesc.; gen. ref. with a doubt (*Aricia*).
- umbratica** MEIGEN, Syst. Besch., v, 88 (*Anthomyia*).—Europe.
SCHINER, Fauna Austr., I, 605 (*Aricia*).
RONDANI, Dipt. Ital. Prod., VI, 139.
HOWARD, Canad. Ent., XXXIII, oc. Va.; breeds in cowdung.
Montreal—Chagnon.
- vagans** FALLÉN, Muscides, 78 (*Musca*).—Europe.
MEIGEN, Syst. Antl., v, 112 (*Anthomyia*).
SCHINER, Fauna Austr., I, 604 (*Aricia*).
White Mts., N. H.—Slosson (det. Coquillett).
- varipes** COQUILLET, Proc. Wash. Acad. Sci., II, 441.—Sitka, Yakutat, Kadiak and Popof Id., all in Alaska.
- villicrura** COQUILLET, Proc. Wash. Acad. Sci., II, 443.—Yakutat, etc., Alaska.

TRICOPHTHICUS.

- RONDANI, Dipt. Ital. Prod., IV, 9, 1861 (*Tricophthicus*); VI, 145, 1877.
RONDANI, Dipt. Ital. Prod., I, 96, 1856 (*Trichops*, preoc.).
SCHNABL, Horæ Soc. Ent. Ross., XXIV, 497.
VAN DER WULP, Biologia, Dipt., II, 330, 1896.

crenatus BIGOT, Annales, 1885, 282.—Mex.

GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Dipt. del Mess., IV, 28 (*Lasiops mexicana*).—Orizaba, Mex.

VAN DER WULP, Biologia, Dipt., II, 331 (syn. on p. 347).—Guerrero, Mex.

nigrifrons WALKER, List, IV, 932 (*Anthomyia*).—Martin Falls, Canada.

STEIN, Die Walk. Anthl., 203, type redesc.

Notc.—In Mrs. Slosson's List, this species is mentioned as occurring in the White Mts., but is referred to *Aricia*; the correctness of the identification is doubtful.

LASIOPS.

MEIGEN, Syst. Besch., VII, 323, 1838.

RONDANI, Dipt. Ital. Prod., VI, 148, 1877.

KOWARZ, Mittheil. d. Münchener Ent. Ver., 1880, 123-140, revision of the European species.

VAN DER WULP, Biologia, Dipt., II, 337, 1896.

MEADE, Desc. List, 41, 1897.

calvicrura COQUILLET, Proc. Wash. Acad. Sci., II, 444.—Popof Id., Alaska.

cunctans MEIGEN, Syst. Besch., V, 133 (*Anthomyia*).—Europe.

SCHINER, Fauna Austr., I, 618.

White Mts., N. II.—Slosson (det. Coquillett).

frenata HOLMGREN, Ins. Nordgrönl., 103 (*Aricia*).—Greenland.

LUNDBECK, Dipt. Grönl., I, 310, oc. in Greenland, and gen. ref.

COQUILLET, Proc. Wash. Acad. Sci., II, 444, oc. at Muir Inlet, Alaska.

STEIN, Wien. Ent. Zeit., XXI, 58, type redesc.

hirsutula ZETTERSTEDT, Ins. Lapp., 673 (*Anthomyza*); Dipt. Scand., IV, 1494 (*Aricia*).—N. Europe.

COQUILLET, Proc. Wash. Acad. Sci., II, 444, oc. in Popof Id., Alaska.

mexicana GIGLIO-TOS, see *Trichophthicus crenatus*.

MYDÆA.

DESVOIDY, Myodaires, 479, 1830.

VAN DER WULP, Biologia, Dipt., II, 316, def. and table of Mexican species, 1896.

MEADE, Desc. List, 14, 1897.

concinna VAN DER WULP, Biologia, Dipt., II, 317.—Guerrero, Mex.

confinis VAN DER WULP, Biologia, Dipt., II, 319.—Orizaba, Mex.

diaphana WIED., of Chagnon's List, see *Limnophora*.

fasciventris VAN DER WULP, Biologia, Dipt., II, 318.—Tabasco, Mex.

flavicornis COQUILLET, Proc. U. S. N. M., XXI, 123.—Quebec, Canada; St. Louis, Mo.

leucocephala VAN DER WULP, Biologia, Dipt., II, 318.—Tabasco, Mex.

pansa GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Dipt. del Mess., IV, 24 (both *Spilogaster*).—Mex.

VAN DER WULP, Biologia, Dipt., II, 316, pl. VIII, f. 2.—Guerrero and N. Yucatan, Mex.

obscura VAN DER WULP, Biologia, Dipt., II, 317, pl. VIII, f. 3.—N. Yucatan, Mex.

spermophilæ TOWNSEND, Trans. Amer. Ent. Soc., XXII, 79.—Jamaica, from nestling of *Spermophila* sp.; notes on Anthomyidæ affecting young birds.

SPILOGASTER.

MACQUART, Hist. Nat. Dipt., II, 293, 1835.

RONDANI, Dipt. Ital. Prod., VI, 65, 1877.

- VAN DER WULP, *Biologia, Dipt.*, II, 319, 1896, def. and table of Mexican species.
 Recent papers on the European species:
- STEIN, *Berl. Ent. Nachricht.*, XIX, 1893.
 MEADE, *Desc. List.*, 17, 1897.
 CZERNY, *Wien. Ent. Zeit.*, XX, 34, 1901.
- abdita** GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 147; *Ditt. del Mess.*, IV, 23.—Mex.
- abiens** STEIN, *Berl. Ent. Zeitsch.*, XLII, 193.—Mass., Ontario.
 N. J.—Smith Cat.
- amœba** STEIN, see *lysinoë*.
- angelicæ** SCOPOLI, *Ent. Carniolica*, 880 (*Musca*).—Europe.
 GMELIN, *Syst. Nat.*, v, 2844 (*M. deceptor*).
 SCHRANK, *Ins. Austr.*, 932 (id.).
 FALLÉN, *Muscides*, 78 (*Musca*).
 MEIGEN, *Syst. Besch.*, v, 117 (*Anthomyia*).
 SCHINER, *Fauna Austr.*, I, 612.
 LOEW, in *Silliman's Jour.*, oc. in N. A.
 RONDANI, *Dipt. Ital. Prod.*, VI, 85.
 OSTEN SACKEN, *Berl. Ent. Zeitsch.*, XXXI, 25, note on eggs.
- ? **anomala** JÆNNICKE, *Neue Exot. Dipteren*, 69, pl. II, f. 4 (*Mesembrina*).—Cuba.
 BRAUER and BERGENSTAMM, *Zweifel. d. Kaiserl. Mus.*, VI, 209, gen. ref., from type with a doubt.
- bysia** WALKER, *List*, IV, 936 (*Anthomyia*).—Nova Scotia.
 STEIN, *Die Walk. Anth.*, 190, type redesc.
- carbonella** ZETTERSTEDT, *Dipt. Scand.*, IV, 1414 (*Aricia*).—N. Europe.
 SCHINER, *Fauna Austr.*, I, 608.
 White Mts., N. H.—Slosson (det. Coquillett).
- ? **circulatrix** WALKER, *Trans. Ent. Soc. Lond.*, v, 316 (*Aricia*).—Mexico.
 STEIN, *Die Walk. Anth.*, 192, type redesc.; gen. ref. with a query.
- copiosa** VAN DER WULP, *Biologia, Dipt.*, II, 321.—Guerrero, Mex.
- cothurnata** RONDANI, *Dipt. Ital. Prod.*, VI, 95.—Italy.
 STEIN, *Berl. Ent. Zeitsch.*, XLII, 197, oc. in Idaho.
- crepuscularis** STEIN, *Berl. Ent. Zeitsch.*, XLII, 201.—Col.
Note.—In Smith's N. J. Catalogue this species is placed as a synonym of Walker's *Anthomyia palposa*, but Stein has since ascertained from the type that the latter is a *Lispa*.
- demigrans** ZETTERSTEDT, *Dipt. Scand.*, IV, 1699 (*Anthomyia*).—N. Europe.
 SCHINER, *Fauna Austr.*, I, 610.
 N. J.—Smith Cat.
- diruta** STEIN, *Berl. Ent. Zeitsch.*, XLII, 188.—Pa.
 N. J.—Smith Cat.
- discreta** VAN DER WULP, *Biologia, Dipt.*, II, 322.—Guerrero, Mex.
- duplicata** MEIGEN, *Syst. Besch.*, v, 92 (*Anthomyia*).—Europe.
 DESVOIDY, *Myodaires*, 498 (*Mydina nigripes*).
 SCHINER, *Fauna Austr.*, I, 607.
 RONDANI, *Dipt. Ital. Prod.*, VI, 101.
 STEIN, *Berl. Ent. Zeitsch.*, XLII, 199, oc. in Ontario and Colorado.
- etesia** GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 147; *Ditt. del Mess.*, IV, 23.—Tuxpango, Mex.
- fulviventris** BIGOT, *Annales*, 1885, 291.—Cal.
- fulva** BIGOT, *Annales*, 1885, 289.—Wash.

- fusca** STEIN, Berl. Ent. Zeitsch., XLII, 189.—Kans., Mass., Va., La.
N. J.—Smith Cat.
- hilariformis** STEIN, Berl. Ent. Zeitsch., XLII, 196.—Va., Pa.
- humeralis** ZETTERSTEDT, Dipt. Scand., IV, 1697 (*Anthomyza*); XIV, 6284, oc. in N. Y.—N. Europe and New York.
STEIN, Berl. Ent. Zeitsch., XLII, 192, oc. in Mass.
N. J.—Smith Cat.
- limnophorina** STEIN, Berl. Ent. Zeitsch., XLII, 200.—Pa.
- lysinoë** WALKER, IV, 938 (*Anthomyia*).—Nova Scotia.
STEIN, Berl. Ent. Zeitsch., XLII, 190 (*amaba*); Die Walk. Anth., 201, syn.—Ida., Mass., Ill. N. J.—Smith Cat. (*amaba*).
- meracula** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 24.—Mex.
- narina** WALKER, List, IV, 933 (*Anthomyia*).—Nova Scotia.
STEIN, Die Walk. Anth., 202, pt. desc. of types.
- nigricans** STEIN, Berl. Ent. Zeitsch., XLII, 198.—Col.
- nigripennis** WALKER, List, IV, 929 (*Anthomyia*).—Martin Falls, Canada.
STEIN, Die Walk. Anth., 203, type redesc.
- nitens** STEIN, Berl. Ent. Zeitsch., XLII, 199.—Mass.
- obscura** STEIN, Berl. Ent. Zeitsch., XLII, 197.—Pa.
- obscurinervis** STEIN, Berl. Ent. Zeitsch., XLII, 199.—Ga.: the male is described on p. 285 of the same work.
- pagana** FABRICIUS, Ent. Syst., IV, 326 (*Musca*); Syst. Antl., 288 (id.).—Europe.
MEIGEN, Syst. Besch., V, 116 (*Anthomyia*).
DESVOIDY, Myodaires, 480 (*Mydca scutellaris*).
SCHINER, Fauna Austr., I, 611.
RONDANI, Dipt. Ital. Prod., VI, 82.
STEIN, Berl. Ent. Zeitsch., XLII, 192, oc. in Colorado.
N. J.—Smith Cat.; White Mts., N. H.—Slosson; Montreal—Chagnon.
- pansa** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 24.—Mex.
- parvula** VAN DER WULP, Biologia, Dipt., II, 321.—Guerrero, Mex.
- plumifer** BIGOT, Annales, 1885, 288.—Cuba.
- pubiceps** STEIN, Berl. Ent. Zeitsch., XLII, 194.—Idaho.
- refusa** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 22.—Tuxpango, Mex.
White Mts., N. H.—Slosson (*Limnophora*).
- ? **rescita** WALKER, Trans. Ent. Soc., V, 315 (*Aricia*).—Mex.
STEIN, Die Walk. Anth., 207, type redesc.; gen. ref. with a doubt.
- rubripalpis** VAN DER WULP, Biologia, Dipt., II, 320.—Guerrero and Morelos, Mex.; Costa Rica.
- scabra** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 25.—Mex.
- sera** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 25.—Mex.
- signatipennis** VAN DER WULP, Biologia, Dipt., II, 322, pl. VIII, f. 6.—Guerrero and Orizaba, Mex.
- signia** WALKER, List, IV, 939 (*Anthomyia*); 940 (*Anthomyia geldria*).—Nova Scotia.
STEIN, Die Walk. Anth., 196, 208, types redesc., syn.
- soccata** WALKER, List, IV, 941 (*Anthomyia*).—Martin Falls, Canada.
STEIN, Die Walk. Anth., 209, redesc.—“Is a *Spilogaster* or an *Aricia*.”
- socialis** STEIN, Berl. Ent. Zeitsch., XLII, 193 and 284.—Ga., N. C., La.

terminalis WALKER, Dipt. Saund., 356 (*Anthomyia*).—U. S.

Note.—Osten Sacken refers to this genus; it may be an oversight, however, as he does not indicate that his reference is different from Walker's.

trigonota VAN DER WULP, Biologia, Dipt., II, 320, pl. VIII, f. 4.—Nicaragua.

uliginosa FALLÉN, Muscides, 81 (*Musca*).—Europe.

MEIGEN, Syst. Besch., v, 121 (*Anthomyia*).

DESVOIDY, Myodaires, 492 (*Rohrella punctata*).

SCHINER, Fauna Austr., I, 609.

RONDANI, Dipt. Ital. Prod., VI, 77.

STEIN, Berl. Ent. Zeitsch., XLII, 192, oc. in Ill.

uniseta STEIN, Berl. Ent. Zeitsch., XLII, 192.—Conn., Mass., Ontario, Ill.

urbana MEIGEN, Syst. Besch., v, 118 (*Anthomyia*).—Europe.

DESVOIDY, Myodaires, 477 (*Fellca fera*).

SCHINER, Fauna Austr., I, 612.

LOEW, Silliman's Jour., oc. in N. A.

RONDANI, Dipt. Ital. Prod., VI, 86.

STEIN, Berl. Ent. Zeitsch., XLII, 196, oc. in Mass. and Pa.

N. J.—Smith Cat.; White Mts.—Slosson; Montreal—Chagnon.

vespertina FALLÉN, Muscides, 58 (*Musca*).—Europe.

MEIGEN, Syst. Besch., v, 107 (*Anthomyia*).

SCHINER, Fauna Austr., I, 608.

RONDANI, Dipt. Ital. Prod., VI, 93.

STEIN, Berl. Ent. Zeitsch., XLII, 199, oc. in Kans., S. D., Mass., Ga., Ontario, and Ill.

CHARADRELLA.

VAN DER WULP, Biologia, Dipt., II, 341, 1896.

macrosoma VAN DER WULP, loc. cit., pl. VIII, f. 16.—N. Yucatan, Mex.

LIMNOPHORA.

DESVOIDY, Myodaires, 517, 1830.

SCHINER, Fauna Austr., I, 621, 1862.

RONDANI, Dipt. Ital. Prod., VI, 103, 1877.

SCHNABL, Horæ Soc. Ent. Ross., XXIV, 495.

VAN DER WULP, Biologia, Dipt., II, 324, 1896, def. and table of Mexican species.

æquifrons STEIN, Berl. Ent. Zeitsch., XLII, 205.—Idaho, S. D.

N. J.—Smith Cat.

anthrax BIGOT, Annales, 1885, 274.—Mex.

arcuata STEIN, Berl. Ent. Zeitsch., XLII, 201 and 285.—Ga., La.

COQUILLET, Proc. U. S. N. M., XXII, 256, oc. in D. C. and Porto Rico.

HOWARD, Proc. Wash. Acad. Sci., II, 582, fig. and habits; bred from human excrement.—D. C. and Va.

biquadrata WALKER, List, IV, 963 (*Anthomyia*).—Martin Falls, Canada.

STEIN, Die Walk. Anth., 189, type redesc.

compuncta WIEDEMANN, Zool. Mag., I, 80, 1817 (*Anthomyia*).—Europe.

MEIGEN, Syst. Besch., v, 147 (*Anthomyia*).

SCHINER, Fauna Austr., I, 621.

RONDANI, Dipt. Ital. Prod., VI, 106.

COQUILLET, Dipt. of Commander Ids., 344, oc. in Bering Id.

contractifrons ZETTERSTEDT, Ins. Lapp., 683 (*Anthomyza*); 669 (var. of *A. arcuata*); Dipt. Scand., IV, 1463 (*Aricia*).—N. Europe.

STÆGER, Grœnl. Antl., oc. in Greenland (*Anthomyza arctica*).

LUNDBECK, Dipt. Grœnl., I, 311, oc. in Greenland.

- cyrtoneurina* STEIN, see *narona*.
- debilis* WILLISTON, Trans. Ent. Soc. Lond., 1896, 369.—St. Vincent, W. I.
- delecta* VAN DER WULP, Biologia, Dipt., II, 325.—Guerrero, Mex.
- denudata* HOLMGREN, Ins. Spetsb., 30 (*Aricia*); Ins. Nordgrœnl., 101 (*Aricia denudata* and *ranunculi*).—Spitzbergen and Greenland.
STEIN, Wien. Ent. Zeit., XXI, 57, type redesc.; syn.
- diaphana* WIEDEMANN, Zool. Mag., I, 81 (*Anthomyia*).—Europe.
MEIGEN, Syst. Besch., v, 189 (id.).
SCHINER, Fauna Austr., I, 623 (says that Fallén and Zetterstedt had the wrong species under this name).
LOEW, in Silliman's Jour., oc. in N. A.
Montreal—Chagnon (*Mydaa*); Axton, N. Y.—M. and H.
- discreta* STEIN, Berl. Ent. Zeitsch., XLII, 204.—Ill.
- exilis* WILLISTON, Trans. Ent. Soc. Lond., 1896, 369.—St. Vincent, W. I.
- ? *exul* WILLISTON, Trans. Ent. Soc. Lond., 1896, 370, pl. XII, f. 122.—St. Vincent, W. I.; may be *Spilogaster*—Will.
- fumipennis* VAN DER WULP, Biologia, Dipt., II, 324, pl. VIII, f. 7.—Guerrero, Mex.
- limbata* BIGOT, Annales, 1885, 271.—Mexico and Chile.
- litorea* FALLÉN, Muscides, 63 (*Musca*).—Europe.
ZETTERSTEDT, Dipt. Scand., IV, 1473 (*Aricia*).
SCHINER, Fauna Austr., I, 622 (says that Meigen's species is different).
White Mts., N. H.—Slosson (det. Coquillett).
- meraca* VAN DER WULP, Biologia, Dipt., II, 325.—Guerrero, Mex.
- narona* WALKER, List, IV, 945 (*Anthomyia*).—Fla.
STEIN, Berl. Ent. Zeitsch., XLII, 203 (*cyrtoneurina*); Die Walk. Anth., 202, syn.—S. D., Kans., Minn., N. Dak.
N. J.—Smith Cat.—"equals *Lucomelina garrula* G. T.?"
- nobilis* STEIN, Berl. Ent. Zeitsch., XLII, 207.—Alaska.
Alaska, several places—Coq.
- normata* BIGOT, Annales, 1885, 272.—Mex.
- pauvilla* HOLMGREN, Ins. Spetsb., 32; Ins. Nordgrœnl., 101 (both *Aricia*).—Spitzbergen and Greenland.
STEIN, Wien. Ent. Zeit., XXI, 61, type redesc.
- rufipes* BIGOT, Annales, 1885, 272.—Mex.
- socia* VAN DER WULP, Biologia, Dipt., II, 326.—Guerrero, Mex.
- stygia* MEIGEN, Syst. Besch., v, 155 (*Anthomyia*).—Europe.
SCHINER, Fauna Austr., I, 624, no desc.—"Weibchen einer *Hydrotæa*?"
LOEW, in Silliman's Jour., oc. in N. A.
- surda* ZETTERSTEDT, Dipt. Scand., IV, 1476 (*Aricia*).—Europe.
RONDANI, Dipt. Ital. Prod., VI, 105.
STEIN, Berl. Ent. Zeitsch., XLII, 208, oc. in Minn., Ida., S. D., Ontario.
Montreal—Chagnon.
- triangulifera* ZETTERSTEDT, Ins. Lapp., 680 (*Anthomyza*); Dipt. Scand., IV, 1467 (*Aricia*).—N. Europe.
STEEGER, Grœnl. Antl., 364, oc. in Greenland.
- trigonifera* ZETTERSTEDT, Ins. Lapp., 669 (*Anthomyza*); Dipt. Scand., IV, 1458 (*Aricia*).—N. Europe.
STEEGER, Grœnl. Antl., 364, oc. in Greenland.
- umbrosa* VAN DER WULP, Biologia, Dipt., II, 326.—Costa Rica.

LEUCOMELINA.

- MACQUART, Dipt. Exot., Suppl. IV, 261, 1850.
BIGOT, Annales, 1888, 263, notes.

- VAN DER WULP, *Biologia*, Dipt., II, 326. def. and table of Mexican species, 1896.
- corvina* GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 147; *Ditt. del Mess.*, IV, 19.
—Solco and Mexico City, Mex.
- VAN DER WULP, *Biologia*, Dipt., II, 328.—Mexico, common.
- deleta* VAN DER WULP, *Biologia*, Dipt., II, 329.—Guerrero, Mex.
- garrula* GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 147; *Ditt. del Mess.*, IV, 18.—
Tuxpango, Mex.
- VAN DER WULP, *Biologia*, Dipt., II, 330. pl. VIII, f. 9.—Guerrero, Mex.
Fla., several places—Johnson. See *Limnophora naroua*.
- minuscula* VAN DER WULP, *Biologia*, Dipt., II, 330.—Vera Cruz and Guerrero,
Mex.
- pica* MACQUART, *Dipt. Exot.*, Suppl. IV, 262, pl. XXIV, f. 3.—Brazil.
GIGLIO-TOS, *Ditt. del Mess.*, IV, 18.—Solco and Orizaba, Mex.
VAN DER WULP, *Biologia*, Dipt., II, 328, pl. VIII, f. 8.—Guerrero and Ori-
zaba, Mex.
BIGOT, *Annales*, 1885, 264 (*Limnophora ? pica*).
- sæva* WIEDEMANN, *Auss. Zw.*, II, 430 (*Anthomyia*).—Brazil.
MACQUART, *Dipt. Exot.*, II, 3, 165, pl. XXII, f. 6 (*Limnophora elegans*).—
Guiana.
SCHINER, *Novara*, 300 (*Spilogaster*), syn.—S. A.
VAN DER WULP, *Biologia*, Dipt., II, 329.—Guerrero and Tabasco, Mex.
- strigata* GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 147; *Ditt. del Mess.*, IV,
19.—Solco, Mex.

PROBOSCIDOMYIA.

- BIGOT, *Bull. Soc. Ent. France*, 1883, 35; *Annales*, 1885, 266.
TOWNSEND, *Trans. Amer. Ent. Soc.*, XIX, 293, 1893, part. quoted.
- siphonina* BIGOT, *Annales*, 1885, 267.—Rocky Mts.

ANTHOMYIA.

- MEIGEN, *Illiger's Mag.*, II, 281, 1803; *Syst. Besch.*, V, 81, 1826.
SCHINER, *Fauna Austr.*, I, 633, 1862.
RONDANI, *Dipt. Ital. Prod.*, VI, 150, 1877.
MEADE, *Ent. Mo. Mag.*, 1882, 109; *Desc. List*, 42, 1897.
- acra* WALKER, see *Homalomyia manicata*.
- æmene* WALKER, see *Hylemyia*.
- alaba* WALKER, see *Chortophila*.
- albicincta* FALLÉN, *Muscides*, 73 (*Musca*).—Europe.
MEIGEN, *Syst. Besch.*, V, 161 (*Anthomyia*).
SCHINER, *Fauna Austr.*, I, 648 (id.).
OSTEN SACKEN, *Cat.*, 170, oc. in Nebr. and Texas, on authority of "Loew
in litt." (*Atomogaster*).
STEIN, *Berl. Ent. Zeitsch.*, XLII, 208, oc. in Ida., S. D., Mass., Va., Ill.
MEADE, *Desc. List*, 43.
N. J.—Smith Cat.
- alcathoë* WALKER, see *Hylemyia*.
- alone* WALKER, see *Canosia ausoba*.
- anane* WALKER, *List*, IV, 927.—Martin Falls, Canada.
STEIN, *Die Walk. Anth.*, 186, type is a female *Chortophila*, unrecognizable
without the male. Hence the recorded occurrence of this species in
N. J. (Smith Cat.) and Montreal (Chagnon) may be set down as
erroneous.

- angustifrons** MEIGEN, see *Phorbia fusciceps*.
- anthracina** BIGOT, Annales, 1885, 298.—Rocky Mts.; may be a variety of *monticola*.
- apina** WALKER, see *Prosalpia silvestris*.
- ausoba** WALKER, see *Canosia*.
- badia** WALKER, see *Phorbia*.
- barpana** WALKER, see *Aricia*.
- brassicæ** BOUCHÉ, see *Phorbia*.
- brixia** WALKER, see *Eustalomyia*.
- bysia** WALKER, see *Spilogaster*.
- campestris** DESVOIDY, Myodaires, 585 (*Eglc*).—Europe and N. A.—Philadelphia.
- ceparum** MEIGEN, see *Phorbia*.
- communis** WALKER, see *Euryomma*.
- dejeanii** DESVOIDY, Myodaires, 558 (*Neria*).—Philadelphia.
- determinata** WALKER, see *Phorbia muscaria*.
- donuca** WALKER, see *Prosalpia silvestris*.
- dorsimaculata** VAN DER WULP, Biologia, Dipt., II, 336.—Guerrero, Mex.
- ? **dubia** CURTIS, Ins. Ross's Exped., lxxix.—Arctic America.
Gen. ref. with a query in O. S. Cat.
- elongata** VAN DER WULP, Biologia, Dipt., II, 335, pl. VIII, f. 14.—Guerrero, Mex.
- geldria** WALKER, see *Spilogaster signia*.
- idyla** WALKER, List, IV, 948.—Martin Falls, Canada.
STEIN, Die Walk. Anth., 107, says the types are a mixture of three species, one female *Hydrotica*, one female *Ophyra leucostoma*, one unrecognizable.
- isura** WALKER, see *Homalomyia canicularis*.
- lata** WALKER, see *Canosia*.
- latitarsis** ZETTERSTEDT, Dipt. Scand., v, 1754 (*Anthomyza*).—N. Europe.
SCHINER, Fauna Austr., I, 635.
HAGEN, Canad. Ent., XIII, 48 (identified by Meade from N. H. and N. Y.).
White Mts., N. H.—Slosson.
- ? **leucoprocta** WIEDEMANN, Auss. Zweif., II, 433.—W. I.
Gen. ref. with a query in O. S. Cat.
- lipsia** WALKER, see *Hylemyia*.
- luteva** WALKER, see *Hycetodesia*.
- lysinoë** WALKER, see *Spilogaster*.
- micropteryx** THOMSON, Eugen. Resa, 555.—Cal.
- monticola** BIGOT, Annales, 1885, 297.—Rocky Mts.
See also *anthracina*.
- mystacea** COQUILLET, Proc. Wash. Acad. Sci., II, 447.—Juneau, Alaska.
- narina** WALKER, see *Spilogaster*.
- narona** WALKER, see *Limnophora*.
- nigra** WALKER, see *Muscina similis*.
- nigrifrons** WALKER, see *Trichophthicus*.
- nigripennis** WALKER, List, IV, 929.—Martin Falls, Canada.
- ochripes** THOMSON, Eugen. Resa, 553.—Cal.
- ochrogaster** THOMSON, Eugen. Resa, 557.—Cal.
- oculifera** BIGOT, Annales, 299.—Baltimore, Md.
- omole** WALKER, see *Muscina*.
- opalial** WALKER, see *Ophyra leucostoma*.
- palposa** WALKER, see *Lispa*.
- perrima** WALKER, see *Phorbia fusciceps*.

- pluvialis** LINNÉ, Syst. Nat., 10th ed. (*Musca*); Fauna Suec., 2d edit., 455 (id.)
—Europe.
DEGEER, Mém. Hist. Nat. Ins., vi, 14 (id.).
FABRICIUS, Spec. Ins., ii, 443 (id.); Ent. Syst., iv, 329 (id.); Syst. Antl.,
304 (id.).
FALLÉN, Muscides, 68 (id.).
LATREILLE, Gen. Crust. et Ins., 346; Cons. Gén., 444.
GEOFFROY, Ins., ii, 529.
MEIGEN, Syst. Besch., v, 163.
SCHINER, Fauna Austr., i, 647.
RONDANI, Dipt. Ital. Prod., vi, 155.
MEADE, Ent. Mo. Mag., Apr., 1878, oc. in N. A.; Desc. List, 42.
STEIN, Berl. Ent. Zeitsch., XLII, 208, oc. in Ida., Mass., La., Pa.
N. J.—Smith Cat.
- pratricula** PANZER, Fauna German., CVIII, 12.—Europe.
MEIGEN, Syst. Besch., v, 163.
ZETTERSTEDT, Dipt. Scand., iv, 1559 (*Aricia pratricula*).
SCHINER, Fauna Austr., i, 648.
MEADE, Desc. List, 43.
N. J.—Smith Cat.
- protitra** WALKER, see *Sarcophaga*.
- pylone** WALKER, see *Hycodestia lucorum*.
- radicum** LINNÉ, Fauna Suec., 2d edit., 454 (*Musca*); Syst. Nat., 12th edit., ii,
992 (id.).—Europe; in the former he says, "Habitat in radicibus
raphani."
GMELIN, Syst. Nat., v, 2846 (id.).
FABRICIUS, Spec. Ins., ii, 443 (id.); Syst. Antl., 300 (id.).
FALLÉN, Muscides, 72 (id.).
WIEDEMANN, Zool. Mag., i, 78.
MEIGEN, Syst. Besch., v, 168.
SCHINER, Fauna Austr., i, 645.
RONDANI, Dipt. Ital. Prod., vi, 157.
MEADE, Desc. List, 43.
American references:
HOLMGREN, Ins. Nordgrœnl., 102 (*Aricia tristicula*).—Greenland. [Stein,
Wien. Ent. Zeit., XXI, 64, from type.]
MEADE, Ent. Mo. Mag., Apr., 1878, oc. in N. A.
LINTNER, 1st N. Y. Rept., 191–194, bibl., desc., habits, etc.
SLINGERLAND, Bull. 78, Cornell Ex. Station, full discussion and bibliog-
raphy. Larvæ in roots of cabbage and radish; rare in N. A.
STEIN, Berl. Ent. Zeitsch., XLII, 208, oc. in Ida., N. Y., Ont., Mass., Pa.
COQUILLET, Proc. Wash. Acad. Sci., ii, 447, oc. in Alaska.
LUNDBECK, Dipt. Grœnl., ii, 283, oc. in Greenland.
N. J.—Smith Cat.; White Mts., N. H.—Slosson; Province of Quebec—
Fyles.
- raphani** HARRIS, see *Phorbia brassica*.
- rufaceps** MEIGEN, see *Phorbia*.
- rugia** WALKER, see *Hycodestia*.
- scatophagina** ZETTERSTEDT, Ins. Lapp., 677 (*Anthomyza*); Dipt. Scand., iv, 1510
(*Aricia*).—N. Europe.
STÆGER, Grœnl. Antl., oc. in Greenland.
SCHINER, Fauna Austr., i, 637.
- segmentata** VAN DER WULP, Biologia, Dipt., ii, 336.—Guerrero, Mex.
- sigma** WALKER, see *Spilogaster*.

- similis* WALKER, see *Muscina*.
similis FITCH, Trans. N. Y. State Agl. Soc., 1855, xv, 533; 1st and 2d Repts., 1856, 301, desc. (all *Hylemyia*).—N. Y.
 LINTNER, 1st N. Y. Rept., 202, notes.
soccata WALKER, List, see *Spilogaster*.
spinosa WALKER, List, iv, 926.—Martin Falls, Canada.
 Type unrecognizable—Stein.
striolata FALLÉN, of Stæger, see *Phorbia fugax*.
tarsata VAN DER WULP, Tijdschr. v. Ent., x, 151, pl. v, f. 6.—Wis.
teate WALKER, see *Hydrophoria*.
tinia WALKER, see *Phorbia fusciceps*.
trifilis GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., iv, 28.—Coscom, Mex.
troëne WALKER, see *Hycetodesia*.
uxama WALKER, List, iv, 948.—Martin Falls, Canada.
 STEIN, Die Walk. Anth., 215, type examined; is an unrecognizable female *Homalomyia*.
viana WALKER, see *Phorbia fusciceps*.
zææ RILEY, see *Phorbia fusciceps*.

HYDROPHORIA.

- DESVOIDY, Myodaires, 503, 1830.
 RONDANI, Dipt. Ital. Prod., vi, 168, 1877.
 VAN DER WULP, Biologia, Dipt., II, 332, 1896, def. and table of Mexican species.
 MEADE, Desc. List, 29, 1897.
ambigua FALLÉN, Muscides, 56 (*Musca*).—Europe.
 MEIGEN, Syst. Besch., v, 192 (*Anthomyia*).
 ZETTERSTEDT, Dipt. Scand., XII, 4719 (*Aricia*).
 SCHINER, Fauna Austr., I, 612 (*Spilogaster*).
 RONDANI, Dipt. Ital. Prod., VI, 175.
 STEIN, Berl. Ent. Zeitsch., XLII, 208, oc. in Mass. and Ill.
 COQUILLET, Proc. Wash. Acad. Sci., II, 447, oc. in Alaska.
 ? *calopus* BIGOT, Annales, 1885, 275.—Mex. Query by Bigot.
collaris VAN DER WULP, Biologia, Dipt., II, 333, pl. VIII, f. 11.—Guerrero, Mex.
divisa MEIGEN, Syst. Besch., v, 99 (*Anthomyia*).—Europe.
 ZETTERSTEDT, Dipt. Scand., IV, 1415 (*Aricia ambigua*, in part); XII, 4723 (*Aricia*).
 SCHINER, Fauna Austr., I, 609 (*Spilogaster*).
 RONDANI, Dipt. Ital. Prod., VI, 175 (under *ambigua*).
 MEADE, Desc. List, 30.
 STEIN, Berl. Ent. Zeitsch., XLII, 208.—Ida., Wash., Ill.
flavipalpis VAN DER WULP, Biologia, Dipt., II, 334.—Guerrero, Mex.
nigricauda BIGOT, Annales, 1885, 276.—Rocky Mts.
 ? *pictipes* BIGOT, Annales, 1885, 275.—Mex. Query by Bigot.
plumosa VAN DER WULP, Biologia, Dipt., II, 332.—Guerrero, Mex.
teate WALKER, List, iv, 931 (*Anthomyia*).—Martin Falls, Canada.
 STEIN, Die Walk. Anth., 213, type redesc.
transversalis VAN DER WULP, Biologia, Dipt., II, 334, pl. VIII, f. 12.—Guerrero, Mex.

HYLEMYIA.

- DESVOIDY, Myodaires, 550, 1830.
 SCHINER, Fauna Austr., I, 626, 1862.

- RONDANI, Dipt. Ital. Prod., vi, 176, 1877.
 VAN DER WULP, Biologia, Dipt., II, 337, 1896, def. and table of Mexican species.
 MEADE, Descriptive List, 32, 1897.
- abrepta** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., iv, 30.
 —Mex.
- æmene** WALKER, List, iv, 937 (*Anthomyia*).—Nova Scotia.
 STEIN, Die Walk. Anth., 186, pt. desc. of type.
- alcathoë** WALKER, List, iv, 937 (*Anthomyia*).—Nova Scotia.
 BIGOT, Annales, 1885, 299 (*flavicaudata*).—Wash. [J. M. A.]
 STEIN, Berl. Ent. Zeitsch., XLII, 211 (*strigata*).—Ida., Wash. [Syn. by Stein, from Walker's type.]
 COQUILLET, Proc. Wash. Acad. Sci., II, 448, oc. in Alaska and N. H., and syn. of *strigata*, from desc.
 Montreal—Chagnon.
- anane** WALKER, of the Smith Cat. and Chagnon's Montreal list, is a mistake, being an erroneous identification of *Anthomyia anane* WALKER, which is an unrecognizable *Phorbia*.
- angusta** STEIN, Berl. Ent. Zeitsch., XLII, 218 and 285.—Col. and Germany.
- brunneifrons** ZETTERSTEDT, Ins. Lapp., 690 (*Anthomyza*); Dipt. Scand., iv, 1660 (id.).—N. Europe.
 LUNDBECK, Dipt. Grœnl., I, 313, oc. in Greenland.
- coarctata** FALLÉN, Muscides, 84 (*Musca*).—Europe.
 MEIGEN, Syst. Besch., v, 130 (*Anthomyia*).
 ZETTERSTEDT, Ins. Lapp., 666 (*Anthomyza*); Dipt. Scand., iv, 1644 (id.).
 SCHINER, Fauna Austr., I, 629.
 RONDANI, Dipt. Ital. Prod., vi, 195.
 STEIN, Berl. Ent. Zeitsch., XLII, 215, oc. in Col.
 MEADE, Desc. List, 37.
- deceptiva** FITCH, see *Phorbia fusciceps*.
- depressa** STEIN, Berl. Ent. Zeitsch., XLII, 214.—Pa.
- fabricii** HOLMGREN, of Coquillett, see *Phorbia*.
- flavicans** STEIN, Berl. Ent. Zeitsch., XLII, 213.—Idaho.
- flavicaudata** BIGOT, see *alcathoë*.
- frontata** ZETTERSTEDT, Ins. Lapp., 699 (*Anthomyza*); Dipt. Scand., 30, 1453 (*Aricia*).—N. Europe.
 STÆGER, Grœnl. Antl., 363, oc. in Greenland.
- inornata** STEIN, Berl. Ent. Zeitsch., XLII, 220.—Mass.
- johnsoni** STEIN, Berl. Ent. Zeitsch., XLII, 215, 285.—Pa. and La.
- juvenilis** STEIN, Berl. Ent. Zeitsch., XLII, 211.—Pa.
 HOWARD, Proc. Wash. Acad. Sci., II, 584, oc. in Md.; bred from human excrement.
- levipes** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., iv, 30.—Mex.
- linearis** STEIN, Berl. Ent. Zeitsch., XLII, 219.—Minn.
 COQUILLET, Proc. Wash. Acad. Sci., II, 449, oc. in Alaska.
- lipsia** WALKER, List, iv, 928 (*Anthomyia*); 971 (*Carnosia substituta*).—Martin Falls, Canada: Mass.
 STEIN, Berl. Ent. Zeitsch., XLII, 209, full desc.; Die Walk. Anth., 200, 211, syn.—Mass., Pa., Me., Ill.
 N. J.—Smith Cat.: Montreal—Chagnon: White Mts., N. H.—Slosson.
 Note.—The recognition of *substituta* as a *Caricca* from N. J. (Smith Cat.) and White Mts., N. H. (Slosson), is of course totally wrong.

marginata STEIN, Berl. Ent. Zeitsch., XLII, 221.—Col.

Sitka—Coquillett.

monticola VAN DER WULP, Biologia, Dipt., II, 338.—Guerrero, Mex.

pici MACQUART, Annales Soc. Ent. France, 1853, 657, pl. xx, f. 2 (*Aricia*).—San Domingo; the larva lives in a swelling on the wing of *Picus striatus*.

LOEW, Wien. Ent. Monatschr., v, 41 (*angustifrons*).—Cuba. [O. S. Cat., 167, on authority of "Loew in litt."]

probata WALKER, Trans. Ent. Soc., n. ser., v, 38.—Mex.

STEIN, Die Walk. Anth., 204, examined type; is a Tachinid near *Morinia*.

relata STEIN, Die Walk. Anth., 206.—U. S.

rhodina GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 31.—Tuxpango, Mex.

setiventris STEIN, Berl. Ent. Zeitsch., XLII, 216.—Idaho.

similis FITCH, see *Anthomyia*.

simplicis COQUILLET, Proc. Wash. Acad. Sci., II, 450.—Sitka, Alaska.

spiniventris COQUILLET, Proc. Wash. Acad. Sci., II, 449.—Popof Id., Alaska.

strigata STEIN, see *alcathoë*.

"**tarsata** SIK." is a name mentioned by Hagen, Canad. Ent., XIII, 49, as given by Loew to specimens from N. Y. and Ill. in the collection at Harvard. I do not know what it means.

tenuirostris VAN DER WULP, Biologia, Dipt., II, 337, pl. VIII, f. 15.—Guerrero, Mex.

testacea STEIN, Berl. Ent. Zeitsch., XLII, 208.—Idaho.

urbica VAN DER WULP, Biologia, Dipt., II, 338.—Mexico City.

variata FALLÉN, Muscides, 59 (*Musca*).—Europe.

MEIGEN, Syst. Besch., v, 97 (*Anthomyia*).

ZETTERSTEDT, Dipt. Scand., IV, 1418 (*Aricia*).

SCHINER, Fauna Austr., I, 628.

RONDANI, Dipt. Ital. Prod., VI, 188.

MEADE, Desc. List, 34.

STEIN, Berl. Ent. Zeitsch., XLII, 218, oc. in S. D., La., Ida., Mass., Ont., Va., Md.

EUSTALOMYIA.

KOWARZ, Verh. Zool.-Bot. Ges. Wien., 1873, 461.

MEADE, Desc. List, 37, 1897.

brixia WALKER, List, IV, 946 (*Anthomyia*).—Nova Scotia.

STEIN, Die Walk. Anth., 190, type redesc.; may be identical with *E. histrio* ZETT. of Europe.

vittipes ZETTERSTEDT, Dipt. Scand., IV, 1649 (*Anthomyza*).—N. Europe.

STEIN, Berl. Ent. Zeitsch., XLII, 222.—Pa.

N. J.—Smith Cat.

PROSALPIA.

POKORNY, Wien. Ent. Zeit., 1893, 54.

arelate WALKER, List, IV, 962 (*Eriphia*); 965 (*Eriphia pretiosa*).—Both Martin Falls, Canada.

STEIN, Die Walk. Anth., 187, 204, syn. and type redesc.

? COQUILLET, Proc. Wash. Acad. Sci., II, 451, oc. in Alaska, several places (*Eriphia*). Query by J. M. A.

silvestris FALLÉN, Muscides, 70 (*Musca*).—N. Europe.

ZETTERSTEDT, Dipt. Scand., IV, 1527 (*Aricia*).

? WALKER, List, IV, 927, 946, 962 (*Anthomyia apina*, *Anthomyia donuca*, *Eriphia grisea*).—Martin Falls, Canada; Nova Scotia; Martin Falls, Canada.

STEIN, Die Walk. Anth., 186, 195, 197, syn., with a little doubt in all the cases.

Note.—The *Hylemyia grisca* WALK., of Mrs. Slosson's White Mountain list, may not be the same species.

EREMOMYIA.

STEIN, Berl. Ent. Zeitsch., XLII, 223, 1898.

apicalis STEIN, Berl. Ent. Zeitsch., XLII, 227.—Idaho.

cylindrica STEIN, Berl. Ent. Zeitsch., XLII, 226.—Mass., Ind., Minn.

humeralis STEIN, Berl. Ent. Zeitsch., XLII, 224.—Ida., Ill.

incompleta STEIN, Berl. Ent. Zeitsch., XLII, 228.—Minn.

HAMMOMYIA.

RONDANI, Dipt. Ital. Prod., VI, 236, 1877.

CHARBONNIER, Ent. Mo. Mag., 1901, 48, discusses parasitism of European spp. of this genus on burrowing bees; see Hendel, Wien. Ent. Zeit., XX, 150.

maculata STEIN, Berl. Ent. Zeitsch., XLII, 228.—Idaho.

unilineata ZETTERSTEDT, Ins. Lapp., 675 (*Anthomyza*); Dipt. Scand., IV, 1518 (*Aricia*).—N. Europe.

SCHINER, Fauna Austr., I, 638 (*Anthomyia*).

STEIN, Berl. Ent. Zeitsch., XLII, 230, oc. in Idaho.

DOLICHOGLOSSA.

STEIN, Berl. Ent. Zeitsch., XLII, 230, 1898.

americana STEIN, loc. cit., and p. 286.—S. D.

PHORBIA.

DESVOIDY, Myodaires, 559, 1830.

MACQUART, Hist. Nat. Dipt., II, 323, 1835 (*Chortophila*).

RONDANI, Dipt. Ital. Prod., VI, 196, 1877 (id.).

VAN DER WULP, Biologia, Dipt., II, 339, 1896 (*Phorbia* and *Chortophila*).

MEADE, Desc. List, 43 and 47, 1897 (*Phorbia* and *Chortophila*).

TOWNSEND, Trans. Amer. Ent. Soc., XIX, 293, 1892, notes.

Note.—Van der Wulp, and Meade following him, make a distinction between *Phorbia* and *Chortophila* in that the former has the abdomen narrow and depressed and in the latter it is cylindrical. Stein, however, in Berl. Ent. Zeitsch., XLII, 231, recognizes the equivalence of the two names, although adopting *Chortophila*, the later.

acra WALKER, of Mrs. Slosson's White Mt. list, is an error; see *Homalomyia manicata*.

alaba WALKER, List, IV, 948 (*Anthomyia*).—N. A.

STEIN, Die Walk. Anth., 186, pt. desc. of type (*Chortophila*).

badia WALKER, List, IV, 950 (*Anthomyia*).—Martin Falls, Canada.

STEIN, Die Walk. Anth., 188, type redesc. (*Chortophila*).

betarum LINTNER, 1st N. Y. Rept., 203, 209, fig. (*Chortophila*).—N. Y.; the larvæ mine in beet leaves.

biciliata COQUILLET, Proc. Wash. Acad. Sci., II, 451.—Berg Bay, Alaska.

brassicæ BOUCHÉ, Naturgesch. d. Garten-Insekten, 131, 1833; same, 1834, p. 73 (both *Anthomyia*).—Germany; larvæ in roots of cabbage.

MEIGEN, Syst. Besch., V, 165, 1826 (*Anthomyia floralis* FALLÉN).

MACQUART, Hist. Nat. Dipt., II, 326, 1835 (*Chortophila floccosa*).

- ZETTERSTEDT, Dipt. Scand., IV, 1536 (*Aricia floralis* MEIG. non FALLÉN).
 HARRIS, Cat. Animals of Mass., 80, 1835; Ins. Inj. to Vegetation, 1841, 494 (*Anthomyia raphani*).—Mass.; larvæ in radishes.
 CURTIS, Farm. Insects, 1860, 141, fig. (*Anthomyia radicum* LINNÉ).
 SCHINER, Fauna Austr., I, 646 (*Anth. floralis* MEIG., from a Zetterstedt specimen).
 FITCH, 11th N. Y. Rept., 59-61 and 40-43 (*Anth. raphani* and *brassicæ*).
 LINTNER, 1st N. Y. Rept., 184-191, habits, figs., etc.; 5th Rept., 157, remedies.—N. Y.
 RILEY, Dept. Agric. Rept., 1884, 319-321, life hist., etc.; pl. VIII, f. 5 (*Anthomyia*).
 SLINGERLAND, Bull. 78, Cornell Univ. Ag'l Experiment Station, 1894: an admirable treatise on this insect from the biological, economic and systematic standpoints; many illustrations, full bibliography, etc. Perhaps the best entomological bulletin yet issued from an American agricultural experiment station.
 MEADE, Desc. List Brit. Anth., 48 (*floccosa*).—England.
 FLETCHER, Rept. Ent. and Bot., 1898, larvæ in turnips in Alberta.
 STEIN, Berl. Ent. Zeitsch., XLII, 236, oc. in Ont. and Mass. (*Chortophila floccosa*).
 CHITTENDEN, Bull. 33, II. ser., Div. of Ent., 80, larvæ in celery.
Note.—This species, commonly called the Cabbage Maggot, infests in its larval stage the roots of cabbage, radish, cauliflower, turnip, winter cress, hedge mustard, celery, and doubtless other plants.
ceparum MEIGEN, Syst. Besch., VI, 376, 1830 (*Anthomyia*).—Europe; larvæ infesting onions.
 BOUCHÉ, Naturgeschichte d. Garten-Insekten, I, 73 (id.).
 SCHINER, Fauna Austr., I, 643 (as syn. of *Anth. antiqua* MEIG.).
 FITCH, 11th N. Y. Rept., 487-494 (sep. 31-38), habits, etc. (*Anthomyia*).—N. Y.
 WALSH, Amer. Entomologist, II, 110, fig. 72 (id.).
 LINTNER, 1st N. Y. Rept., 172-181, bibliog., habits, remedies, etc.
 SLINGERLAND, Bull. 78, Cornell Univ. Ag'l Experiment Station, 495, figs.: biology, desc., etc.—N. Y.
 SMITH, Ent. News, VIII, 101-104; habits, remedies, etc.
 N. J.—Smith Cat. (*antiqua*).
cilicrura RONDANI, see *fusciceps*.
[cilioraca, mentioned by HAGEN, Canad. Ent., XIII, 50, as recognized from N. A. by Loew, must be only a misprint for *cilicrura*.]
cinerella FALLÉN, Muscides, 77 (*Musca*).—N. Europe.
 ZETTERSTEDT, Ins. Lapp., 686 (*Anthomyza*); Dipt. Scand., IV, 1611 (*Aricia*).
 RONDANI, Dipt. Ital. Prod., VI, 220.
 MEADE, Desc. List, 45 (*Chortophila*).
 STEIN, Berl. Ent. Zeitsch., XLII, 235, oc. in Ia., Ida., S. D., Mass., Ont., Ill. (id.).
 LUNDBECK, Dipt. Grœnl., II, 284, oc. in Greenland (id.).
 WEBSTER, Canad. Ent., 1900, 212, reared from wheat plants in Ohio.
 HOWARD, Proc. Wash. Acad. Sci., II, 583, fig. and habits; bred from human excrement in D. C. and Va.
 N. J.—Smith Cat.: Montreal—Chagnon (both *Chortophila*).
fabricii HOLMGREN, Ins. Nordgrœnl., 101 (*Aricia*).—Greenland.
 COQUILLET, Proc. Wash. Acad. Sci., II, 451, oc. in Alaska and White Mts., N. H. (*Hylemyia*).

- LUNDBECK, Dipt. Grœnl., II, 285, oc. in Greenland.
 STEIN, Wien. Ent. Zeit., XXI, 58, type redesc. (*Chortophila*).
- floccosa** MACQUART, see *brassica*.
- fugax** MEIGEN, Syst. Besch., v, 147 (*Anthomyia*).—Europe.
 SCHINER, Fauna Austr., I, 646 (id.).
 STÆGER, Grœnl. Antl., 355, 42 (*Anthomyia striolata* FALLÉN), oc. in Greenland.
 SCHIÖDTE, Tillag til Rink's Grœnland, etc., 69, oc. in Greenland (id.).
 STROEL, Anthomyidæ Steiermarks, 206 (*Anthomyia*).
 LUNDBECK, Dipt. Grœnl., II, 284, syn., and oc. in Greenland.
- fusciceps** ZETTERSTEDT, Dipt. Scand., IV, 1552 (*Aricia*).—Denmark.
 WALKER, List, IV, 949, 950, 951, 964, 966 (*Anthomyia tinia*, *perrima*, *viana*, *Eriphia marginata*, and ? *Dialyta cupreifrons*).—All Martin Falls, except *viana*, from Nova Scotia. Syn. by Stein, from types; that of *cupreifrons* is a little doubtful.
 FITCH, Trans. N. Y. Ag'l Soc., xv, 1855, 533; 1st and 2d Repts., 1856, 301. pl. I, f. 3 (*Hylemyia deceptiva*).—N. Y.
 RONDANI, Att. Soc. Ital. Sci. Nat., IX, 1866, 165; Dipt. Ital. Prod., VI, 213 (*Chortophila cilicrura*).
 RILEY, 1st Mo. Rept., 154, figs.; larvæ attack seed-corn when sprouting (*Anthomyia zeæ*).—N. J. Desc. quoted in Gen. Index to Mo. Repts., p. 89.
 RILEY, 9th Mo. Rept., 92, figs.; larvæ live on eggs of Rocky Mt. locust (*Anthomyia radicum*, var. *calopteni*).—Minn.
 ? RILEY, PACKARD, and THOMAS, 1st Rept. U. S. Ent. Comm., 285-289, figs. and desc.; larvæ devour eggs of Rocky Mt. locust. Referred to *angustifrons* MEIG., which Rondani (Dipt. Ital. Prod., VI, 216) regards as the first name of *fusciceps*.
 HAGEN, Canad. Ent., XIII, 49, reports *Hylemyia deceptiva* in the Harvard collection.
 LINTNER, 1st N. Y. Rept., 199-202, fig. and notes (*Phorbia* ? *deceptiva* and *zeæ*); 181-184, habits, fig., etc. (*cilicrura*).
 HOWARD, Ins. Life, VI, 372, records as *parasite* of *Loxostege sticticalis*, the sugar-beet web-worm (mentioned as *P. fuscipes*, corrected Ins. Life, VII, 278); VII, 429, note on injury to wax beans by larvæ, in Wis.
 COQUILLETT, Ins. Life, VI, 372, syn. of *deceptiva*, from type.
 SLINGERLAND, Bull. 78, Cornell Univ. Experiment Station, 499-502, habits, syn., etc.; larvæ feed in cabbage, radish, onion, beans, potatoes, and hedge mustard.
 HOWARD, Proc. Wash. Acad. Sci., II, 584, habits; reared from human excrement.—D. C., Va., Md.
 CHITTENDEN, Bull. 33, n. ser., Div. of Ent., 84, figs., affecting the planted seed of beans and peas.
 CHITTENDEN, Bull. 43, Div. of Ent., 68-70, biol., figs., etc. (*Pegomyia*). The Seed-Corn Maggot. Also lives in roots of beet.
 N. J.—Smith Cat.; Montreal—Chagnon; White Mts., N. H.—Slosson; Fla.—Johnson; Beulah, N. M.—Skinner.
Note.—The *Phorbia perrima* from White Mts., in Mrs. Slosson's list, must be an erroneous determination.
- fuscisquama** VAN DER WULP, Biologia, Dipt., II, 340.—Guerrero, Mex.
icterica HOLMGREN, Ins. Nordgrœnl., 102 (*Aricia*).—Greenland.
 LUNDBECK, Dipt. Scand., II, 286.—Greenland.
- lævis** STEIN, Berl. Ent. Zeitsch., XLII, 231 (*Chortophila*).—Mass.
 N. J.—Smith Cat. (id.).

- latipennis** ZETTERSTEDT, Ins. Lapp., 676 (*Anthomyza*); Dipt. Scand., iv, 1509 (*Aricia*).—N. Europe.
STEIN, Berl. Ent. Zeitsch., XLII, 235, oc. in Mass. and Pa. (*Chortophila*).
- lupini** COQUILLETT, Ent. News, XII, 206.—Los Angeles Co., Cal.; bred from stems of *Lupinus albus*.
- mæsta** HOLMGREN, Ins. Nordgrœnl., 102 (*Aricia*).—N. Greenland.
LUNDBECK, Dipt. Grœnl., II, 286.—Greenland.
STEIN, Wien. Ent. Zeit., XXI, 59, type redesc. (*Chortophila*); occurs also at Genthin, Prussia.
- morosa** VAN DER WULP, Biologia, Dipt., II, 339.—Mexico City.
- muscaria** FABRICIUS, Ent. Syst., iv, 395 (*Stomyrrys*); Syst. Antl., 282 (id.).—Europe.
ZETTERSTEDT, Ins. Lapp., 683 (*Anthomyza brevicornis*); Dipt. Scand., iv, 1534 (*Aricia brevicornis*). [Stein.]
SCHINER, Fauna Austr., I, 644 (*Anthomyia*).
WALKER, List, iv, 954 and 961 (*Anthomyia determinata* and *Eriphia ciliata*).—Nova Scotia and Martin Falls, Canada. [Stein, from the types.]
MEADE, Desc. List, 51.
STEIN, Berl. Ent. Zeitsch., XLII, 236, recognizes a specimen from N. A. (Vancouver Id.?) ; Die Walk. Anth., 192, 195, syn. (*Chortophila*).
- planipalpis** STEIN, Berl. Ent. Zeitsch., XLII, 234 (*Chortophila*).—Idaho.
- platyura** MEIGEN, Syst. Besch., v, 171 (*Anthomyia*).—Europe.
SCHINER, Fauna Austr., I, 645; the larvæ have been bred from the bulb of a species of *Allium*.
COQUILLETT, Psyche, Jan., 1901, 150, oc. in N. M.; "Hitherto reported as occurring over the greater part of the United States, east of Idaho and Kans."
Beulah, N. M.—Skinner.
- pretiosa** WALKER, of Coquillett, see *Prosalpia arlate*.
- prisca** VAN DER WULP, Biologia, Dipt., II, 340.—Durango, Patzcuaro, and Jalisco, Mex.
- rubivora** COQUILLETT, Canad. Ent., XXIX, 162.—Ithaca, N. Y.; the larvæ boring in the stems of the cultivated raspberry.
LINTNER, 11th N. Y. Rept., 170 (*Anthomyia* sp.?), same habits.
SLINGERLAND, Bull. 126, Cornell Univ. Expt. Station, 54-60, life hist.
BRITTON, Rept. Conn. Ex. Station for 1902, 167, pl. xiv, biology, etc.—Conn.
- ruficeps** ZETTERSTEDT, Ins. Lapp., 698 (*Anthomyza*); Dipt. Scand., v, 1770 (id.).—N. Europe.
MEIGEN, Syst. Besch., v, 177 (*Anthomyia*).
SCHINER, Fauna Austr., I, 644 (id.).
STÆGER, Grœnl. Antl., 366, oc. in Greenland (id.).
WEBSTER, Canad. Ent., 1900, 212, reared from young wheat plants in Ohio.
- spinipes** BIGOT, Annales, 1885, 279 (*Chortophila*).—Rocky Mts.
- stlemba** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Dipt. del Mess., iv, 29 (*Chortophila*).—Mex.
- substriata** STEIN, Berl. Ent. Zeitsch., XLII, 233 (*Chortophila*).—Ida., Mass., Pa.

HYLEPHILA.

- RONDANI**, Dipt. Ital. Prod., vi, 233, 1877.
- silvestris** FALLÉN, Muscides, 70 (*Musca*).—Europe.
ZETTERSTEDT, Ins. Lapp., 682 (*Anthomyza murina*); Dipt. Scand., iv, 1454 and 1527 (*Aricia decrepita* and *silvestris*). [Stein, from Zetterstedt's types.]

COQUILLET, Proc. Wash. Acad. Sci., II, 452, oc. at Kukak Bay, Popof Id., and Kadiak, Alaska.

PEGOMYIA.

DESVOIDY, Myodaires, 598, 1830 (*Pegomya*).

MACQUART, Hist. Nat. Dipt., II, 350, 1835.

MEADE, Ent. Mo. Mag., 1882, July, p. 13; Desc. List, 53, 1897.

LINTNER, 1st N. Y. Rept., 181, 1882.

TOWNSEND, Trans. Amer. Ent. Soc., XIX, 293, notes.

affinis STEIN, Berl. Ent. Zeitsch., XLII, 239 (as *vicina* LINTNER); 286 (corrected and name changed).—Pa., Va., Ill.

bicolor WIEDEMANN, Zool. Mag., I, 77 (*Anthomyia*).—Europe.

FALLÉN, Muscides, 91 (*Musca*).

MEIGEN, Syst. Besch., v, 185 (id.).

ZETTERSTEDT, Dipt. Scand., v, 1773 (*Anthomyza*).

SCHINER, Fauna Austr., I, 635 (*Anthomyia*).

RONDANI, Dipt. Ital. Prod., VI, 205 (*Chortophila*).

STEIN, Berl. Ent. Zeitsch., XXXII, 239, oc. in Wash.

calyprata ZETTERSTEDT, Dipt. Scand., v, 1775 (*Anthomyza*).—N. Europe.

STEIN, Berl. Ent. Zeitsch., XLII, 237.—Wash., Minn., Mass., Pa., Ill.

communis WALKER, see *Euryomma*.

? **conformis** FALLÉN, Muscides, 82 (*Musca*).—Europe.

MEIGEN, Syst. Besch., v, 180 (*Anthomyia*).

LUNDBECK, Dipt. Grœnl., II, 287, doubtfully reported from Greenland.

costalis STEIN, Berl. Ent. Zeitsch., XLII, 243.—S. D.

COQUILLET, Proc. Wash. Acad. Sci., II, 451, oc. in Saldovia and Kukak Bay, Alaska. N. M.—Coq.

debilis STEIN, Die Walk. Anth., 195.—U. S.

finitima STEIN, Berl. Ent. Zeitsch., XLII, 241.—S. D., Ill.

flavifrons WALKER, List, IV, 966 (*Eriphia*).—Martin Falls, Canada.

STEIN, Die Walk. Anth., 196, is a female *Pegomyia*, unrecognizable without the male.

latitarsis ZETTERSTEDT, Dipt. Scand., v, 1754 (*Anthomyza*).—N. Europe.

SCHINER, Fauna Austr., I, 635 (*Anthomyia*).

RONDANI, Dipt. Ital. Prod., VI, 161 (*Anthomyia*).

MEADE, Desc. List, 47.

STEIN, Berl. Ent. Zeitsch., XLII, 249, oc. in Mass.

N. J.—Smith Cat.

nitidula COQUILLET, Trans. Amer. Ent. Soc., XXIX, 103.—Beulah, N. M.

rufescens STEIN, Berl. Ent. Zeitsch., XLII, 238.—Ontario, Canada.

ruficeps STEIN, Berl. Ent. Zeitsch., XLII, 286.—La.

setosa STEIN, Berl. Ent. Zeitsch., XLII, 247.—Idaho.

spinossissima STEIN, Berl. Ent. Zeitsch., XLII, 242.—Kans.

trilineata STEIN, Berl. Ent. Zeitsch., XLII, 245.—S. D.

trivittata STEIN, Berl. Ent. Zeitsch., XLII, 246.—Mass., Wash.

unicolor STEIN, Berl. Ent. Zeitsch., XLII, 236.—Pa. N. J.—Smith Cat.

vicina LINTNER, 1st N. Y. Rept., 203-211, fig., habits, etc.; larvæ mine in beet leaves.—N. Y.

? RILEY and HOWARD, Insect Life, III, 470, note. Query by J. M. A.

HOWARD, Ins. Life, VII, 379, fig. and life hist., same habit.—N. Y. and Cal.

FORBES, Bull. 60, Ill. Expt. Station, 407, fig. and notes; larvæ mining leaves of sugar beets.

PETTIT, Bull. 175. Mich. Expt. Station, July, 1899, notes and original fig.; repeated in Annual Rept. Mich. Expt. Station for 1899, 135.—Mich. FORBES, 21st Ill. Rept., 59–61. fig.

CHITTENDEN, Bull. 43, Div. of Ent., 50–52, life hist., figs., etc.

Note.—Stein's description of the species, Berl. Ent. Zeitsch., XLII, 239, turned out to be based on specimens of what he afterwards called *affinis* (loc. cit., p. 286). The latter species had been to some extent distributed among American collections by Mr. Coquillett, under the name of *vicina*.

PENTACRICIA.

STEIN, Berl. Ent. Zeitsch., XLII, 249, 1898.

aldrichii STEIN, loc. cit.—Kans., Ga., Ill.

CHIROSLA.

RONDANI, Dipt. Ital. Prod., vi, 238, 1876.

MEADE, Desc. List, 77, 1897.

capito COQUILLET, Proc. U. S. N. M., xxv, 123.—Manumuskine, N. J.

glaucata COQUILLET, Proc. Wash. Acad. Sci., II, 452.—Farragut Bay, Alaska.

idahensis STEIN, Berl. Ent. Zeitsch., XLII, 251.—Idaho.

thinobia THOMSON, of Coquillett, see *Scatophaga*.

HOPLOGASTER.

RONDANI, Dipt. Ital. Prod., vi, 246, 1877.

nigritarsis STEIN, Berl. Ent. Zeitsch., XLII, 252.—N. Y. N. J.—Smith Cat.

TETRACHÆTA.

STEIN, Berl. Ent. Zeitsch., XLII, 254, 1898.

unica STEIN, loc. cit.—Mass.

PHYLLOGASTER.

STEIN, Berl. Ent. Zeitsch., XLII, 256, 1898.

cordyluroides STEIN, loc. cit.—Fla., Mass.

CARICEA.

DESVOIDY, Myodaires, 530, 1830.

RONDANI, Dipt. Ital. Prod., vi, 272, 1877.

MEADE, Desc. List, 70, 1897.

SCHNABL, Horæ Soc. Ent. Ross., xxiv, 495, 1890, as a subgenus of *Canosia*; op. cit., xxxvi, 170, 1902.

STEIN, Berl. Ent. Zeitsch., XLII, 257, 1898.

Note.—There is much difference of opinion as to the essential characters which distinguish this from *Canosia*; some good authorities do not regard it as distinct. Until the species have been adequately studied with reference to the decisive points, it seems hardly possible to avoid confusion.

albicornis MEIGEN, Syst. Besch., v, 220 (*Canosia*).—Europe.

SCHINER, Fauna Austr., I, 664 (id.).

White Mts., N. H.—Slosson; det. by Coq.

antica WALKER, Dipt. Saund., 367 (*Canosia*).—U. S.

STEIN, Die Walk. Anth., 186, says the type is broken, but apparently the same as his *insignis*.

N. J.—Smith Cat.; Fla., several places—Johnson.

insignis STEIN, Berl. Ent. Zeitsch., XLII, 257.—Fla.

See *antica*.

- fuscopunctata** MACQUART, of Slosson's and Johnson's lists, see *Canosia*.
?intacta WALKER, Dipt. Saund., 369 (*Canosia?*).—U. S.
 Montreal—Chagnon.
- nana** ZETTERSTEDT, Dipt. Scand., iv, 1716 (*Anthomyza*).—N. Europe.
 SCHINER, Fauna Austr., I, 667 (*Canosia*).
 RONDANI, Dipt. Ital. Prod., vi, 274.
 STEIN, Berl. Ent. Zeitsch., XLII, 259.—Mich., Ia., Mass., La.
- tigrina** FABRICIUS, Spec. Ins., II, 444 (*Musca*); Syst. Antl., 297 (id.).—Europe.
 ZETTERSTEDT, Dipt. Scand., iv, 1712 (*Anthomyza*).
 WALKER, List, iv, 1970 (*Canosia scymaculata*).—Martin Falls, Canada.
 SCHINER, Fauna Austr., I, 663 (*Canosia*).
 STEIN, Die Walk. Anth., 208, syn.

CÆNOSIA.

- MEIGEN, Syst. Besch., v, 210, 1826.
 SCHINER, Fauna Austr., I, 662, 1862, inclusive of *Caricca*.
 RONDANI, Dipt. Ital. Prod., vi, 253, 1877.
 VAN DER WULP, Biologia, Dipt., II, 343, def. and table of Mexican spp., 1896.
 MIK, Wien. Ent. Zeit., XIV, 296–300, pl., describes a European species breeding in flowers of *Trollius*.
 Compare also the species of *Caricca*, some of which may be better placed here.
- albifrons** ZETTERSTEDT, see *Limnospila*.
antennalis STEIN, Berl. Ent. Zeitsch., XLII, 272.—Ga.
antica WALKER, see *Caricca*.
atrata WALKER, see *lata*.
aurifrons STEIN, see *ausoba*.
ausoba WALKER, List, xv, 938 (*Anthomyia*); 941 (*Anthomyia alone*).—Nova Scotia; Martin Falls, Canada. [Stein.]
 STEIN, Berl. Ent. Zeitsch., XLII, 260 (*aurifrons*); Die Walk. Anth., syn.—Ont., Mass., Pa., Ill.
 N. J.—Smith Cat.: Montreal—Chagnon.
- bicolor** BIGOT, Annales, 1885, 302 (*Dialya*).—Mex.
 GIGLIO-TOS, Ditt. del Mess., iv, 33, note.—Tuxpango, Mex.
- bistriata** VAN DER WULP, Biologia, Dipt., II, 345.—Orizaba and Tabasco, Mex.
calopyga LOEW, Cent., x, 71.—Pa.
 STEIN, Berl. Ent. Zeitsch., XLII, 272, oc. in Ill.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson (the latter *Caricca*).
- canescens** STEIN, see *lata*.
femorialis VAN DER WULP, Biologia, Dipt., II, 345.—Guerrero, Orizaba, Mexico City and Vera Cruz, Mex.
flavicoxa STEIN, Berl. Ent. Zeitsch., XLII, 271.—Ill.
 HOWARD, Canad. Ent., XXXIII, 44, oc. Va.; bred from cow-dung.
- flavifrons** STEIN, Berl. Ent. Zeitsch., XLII, 261.—Ga.
flavipes WILLISTON, Trans. Ent. Soc. Lond., 1896, 370.—St. Vincent, W. I.
flavipes (bis) STEIN, Berl. Ent. Zeitsch., XLII, 268 and 288.—Mass., Ga.
 According to Stein, this comes very near to *lata* (his *canescens*), so that the preoccupation may be immaterial, if it prove a synonym.
- fuscopunctata** MACQUART, Dipt. Exot., Suppl. iv, 2, 270.—N. A.
 See note to *ovata*.
geniculata FALLÉN, Muscides, 89 (*Musca*).—Europe.

ZETTERSTEDT, Dipt. Scand., iv, 1720 (*Anthomyza*).

SCHINER, Fauna Austr., i, 665.

MEADE, Desc. List, 75.

STEIN, Berl. Ent. Zeitsch., XLII, 267, oc. in N. A.—No locality.

AXTON, N. Y.—M. and H.

hypopygialis STEIN, Berl. Ent. Zeitsch., XLII, 268.—Mass., Ga., Ill.

incisurata VAN DER WULP, Tijdschr. v. Ent., XII, 84.—Wis.

insularis WILLISTON, Trans. Ent. Soc. Lond., 1896, 371, pl. XII, f. 123.—St. Vincent, W. I.

intacta WALKER, see *Dexiopsis lacticipennis*.

lata WALKER, Dipt. Saund., 368 and 369 (*lata* and *atrata*).—U. S.

STEIN, Berl. Ent. Zeitsch., XLII, 265 (*caneescens*).—Mass. to Fla. and Ida.

COQUILLETT, Proc. Wash. Acad. Sci., II, 445, oc. in Alaska, and syn. of Stein.

HOWARD, Canad. Ent., XXXIII, 44, oc. in Va.; bred from cow-dung.

STEIN, Die Walk. Anthl., 187, 199, partially confirms from types the identity of *lata* and *atrata*, which the descriptions certainly indicate, as far as they can be trusted.

N. J.—Smith Cat. (*caneescens*); White Mts., N. H.—Slosson (*Caricca*); Fla.—Johnson.

macrocera VAN DER WULP, Biologia, Dipt., II, 344, pl. VIII, f. 17.—Guerrero, Mex.

modesta LOEW, Cent., x, 72.—Wash.

nivea LOEW, Cent., x, 70.—Pa.

STEIN, Berl. Ent. Zeitsch., XLII, 272, oc. in Pa.

White Mts., N. H.—Slosson (*Caricca*); N. J.—Smith Cat.; Fla.—Johnson.

nudiseta STEIN, Berl. Ent. Zeitsch., XLII, 273.—Mass.

N. J.—Smith Cat.; White Mts., N. H.—Slosson.

oscillans VAN DER WULP, Biologia, Dipt., II, 344.—Guerrero, Mex.

ovata STEIN, Berl. Ent. Zeitsch., XLII, 263 and 288.—Ga., Ill., La.

Note.—I do not agree with Mr. Coquillett in calling this a synonym of *fuscopunctata*; the named specimens returned to me by Stein, through Dr. Hough, are not the same species which Coquillett determined as *fuscopunctata* for Dr. Nason, and sent by him to me. I should call *fuscopunctata* unrecognizable.

pacifera GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., IV, 31.—Tuxpango, Mex.

pallipes STEIN, Berl. Ent. Zeitsch., XLII, 270.—Ont., Ill.

HOWARD, Proc. Wash. Acad. Sci., II, 585, oc. in Va. and note.

punctulata VAN DER WULP, Biologia, Dipt., II, 343.—Guerrero and Patzcuaro, Mex.

? **pygmæa** ZETTERSTEDT, Dipt. Scand., iv, 1721 (*Anthomyza*).—N. Europe.

MEADE, Ent. Mo. Mag., Apr., 1878, oc. in N. A., with a slight doubt.

sexmaculata WALKER, see *Caricca tigrina*.

? **sexnotata** MEIGEN, Syst. Besch., v, 213.—Europe.

SCHINER, Fauna Austr., i, 665.

MEADE, Desc. List, 75.

STEIN, Berl. Ent. Zeitsch., XLII, 263.—Wash.; recognized with a doubt,—may be a new species.

solita WALKER, Dipt. Saund., 368.—Martin Falls, Canada.

CHITTENDEN, Bull. 27, n. ser., Div. of Ent., adult reported as feeding on adults of *Sciara inconstans* in greenhouses; also observed to feed on adults of *Gymnopternus spectabilis*.

- White Mts., N. H.—Slosson; St. Augustine and Ormond, Fla.—Johnson.
 ? *spinosa* WALKER, List. iv, 967.—Martin Falls, Canada.
 STEIN, Die Walk. Anth., 210, type redesc.; scarcely a *Canosia*.
substituta WALKER, see *Hylemyia lipsia*.
tarsalis WALKER, Dipt. Saund., 355 (*Anthomyia*).—U. S.
 STEIN, Die Walk. Anth., 213, type redesc.
tenuicornis VAN DER WULP, Biología, Dipt., ii, 343.—Vera Cruz, Mex.
tibialis STEIN, Berl. Ent. Zeitsch., XLII, 275.—Ga., Pa., Ill., La.
triangula FALLÉN, Muscides, 74, 82 (*Musca*).—Europe.
 ZETTERSTEDT, Ins. Lapp., 685 (*Anthomyia*); Dipt. Scand., iv, 1482 (*Aricia*).
 SCHINER, Fauna Austr., i, 664.
 MEADE, Desc. List, 74.
 LUNDBECK, Dipt. Greenl., ii, 289, oc. in Greenland.
tricincta LOEW, see *Cordylura*.
triseta STEIN, Berl. Ent. Zeitsch., XLII, 262.—Mass. N. J.—Smith Cat.
uens GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., iv, 32.—
 Mex.
varicornis COQUILLET, Proc. U. S. N. M., XXII, 256.—Porto Rico.
verna FABRICIUS, Syst. Ent., iv, 330 (*Musca*); Syst. Antl., 304 (id.).—Europe.
 COQUEBERT, Illustr., 106, pl. XXIV, f. 2 (*Musca*).
 MEIGEN, Syst. Besch., v, 214.
 SCHINER, Fauna Austr., i, 666.
 WEBSTER, Canad. Ent., 1900, 213, oc. in Ohio; det. Coquillett.
 White Mts., N. H.—Slosson.
vitilis GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 147; Ditt. del Mess., iv, 32.—
 Tuxpango, Mex.

DEXIOPSIS.

- POKORNY, Verh. Zool.-Bot. Ges., 1893, 533.
basalis STEIN, Berl. Ent. Zeitsch., XLII, 259.—Ill.
lacteipennis ZETTERSTEDT, Dipt. Scand., iv, 1722 (*Anthomyza*).—N. Europe.
 ? WALKER, Trans. Ent. Soc., n. ser., v, 318 (*Canosia intacta*).—N. A.
 STEIN, Berl. Ent. Zeitsch., XLII, 259 (*Lispocephala*), oc. in S. D., Kans.,
 La., Wash., Ga., Mass., Col., Ill.
 STEIN, Die Walk. Anth., 198, syn. of Walker, with a doubt.
 N. J.—Smith Cat.: Montreal—Chagnon.
Note.—The *Canosia intacta* of Mrs. Slosson's list, from the White Mts.,
 is probably an error of identification.

LIMNOSPILA.

- SCHNABL, Wien. Ent. Zeit., XXI, 111, 1902.
albifrons ZETTERSTEDT, Dipt. Scand., VIII, 3301 (*Aricia*).—N. Europe.
 ? RONDANI, Dipt. Ital. Prod., VI, 267 (*Canosia obscuripes*). [Syn. by
 Schnabl, with a doubt.]
 STEIN, Berl. Ent. Zeitsch., XLII, 276 (*Canosia*).—Mass.
 COQUILLET, Proc. Wash. Acad. Sci., II, 446, oc. in Alaska.

DIALYTA.

- MEIGEN, Syst. Besch., v, 208, 1826.
 SCHINER, Fauna Austr., i, 656, 1862.
bicolor BIGOT, see *Canosia*.
cupreifrons WALKER, see *Phorbia fusciceps*

SCHENOMYZA.

HALIDAY, Ent. Mo. Mag., 1, 106, 1838.

RONDANI, Dipt. Ital. Prod., vi, 239, 1877.

VAN DER WULP, Biologia, Dipt., II, 346, brief diagnosis, 1896.

MEADE, Desc. List Brit. Anth., 78, 1897.

chrysostoma LOEW, Cent., IX, 86.—N. H.

STEIN, Berl. Ent. Zeitsch., XLII, 277, oc. in Ont., Mass., Ill.

N. J.—Smith Cat.

dorsalis LOEW, Cent., X, 73.—D. C.

STEIN, Berl. Ent. Zeitsch., XLII, 288.—La.

N. J.—Smith Cat.; Ohio—Webster; Beulah, N. M.—Skinner.

pulicaria VAN DER WULP, Biologia, Dipt., II, 346, pl. VIII, f. 18.—Guerrero, Mex.

LISPA.

LATREILLE, Précis caract. gén. Ins., 169, 1796.

MEIGEN, Syst. Besch., v, 224, 1826 (*Lispe*).

LOEW, Stett. Ent. Zeit., 1847, 23 (*Lispe*).

SCHINER, Fauna Austr., I, 658, 1862 (*Lispe*).

RONDANI, Dipt. Ital. Prod., vi, 282, 1877.

VAN DER WULP, Biologia, Dipt., II, 342 (*Lispe*), 1896.

MEADE, Desc. List Brit. Anth., 69, 1897.

albitarsis STEIN, Berl. Ent. Zeitsch., XLII, 277.—Kans., Ga., Mass., Pa., Ill., La.

consanguinea LOEW, Wien. Ent. Monatsch., II, 8.—Europe.

SCHINER, Fauna Austr., I, 661.

OSTEN SACKEN, Cat., 171, oc. in Texas, on authority of "Loew in litt."

See also references under *tentaculata*.

flavicincta LOEW, Stett. Ent. Zeit., VIII, 27.—Europe.

OSTEN SACKEN, Cat., 171, oc. in Hudson Bay Terr., on authority of "Loew in litt."

hispidia WALKER, List, IV, 971.—Martin Falls, Canada.

White Mts., N. H.—Slosson.

nasoni STEIN, Berl. Ent. Zeitsch., XLII, 280.—S. D., Ga., Ill., La.

nigromaculata STEIN, see *palposa*.

palposa WALKER, List, IV, 926 (*Anthomyia*).—Martin Falls, Canada.

? WALKER, List, IV, 972 (*simillima*).—Martin Falls, Canada. [Stein, with a doubt.]

STEIN, Die Walk. Anth., 203, 209, syn.

Note.—The *Mydaa palposa* of Mrs. Slosson's list is a mistake.

rufitibialis MACQUART, Dipt. Exot., II, 3, 168, pl. XXII, f. 7.—Brazil or Chile.

COQUILLET, Proc. U. S. N. M., XXII, 256, oc. in Porto Rico.

serotina VAN DER WULP, Biologia, Dipt., II, 342.—Vera Cruz, Tabasco and Mexico City, Mex.

sociabilis LOEW, Cent., II, 72.—D. C.

STEIN, Berl. Ent. Zeitsch., XLII, 281.—Mass.

White Mts., N. H.—Slosson; Col.—J. M. A.

tentaculata DEGEER, Mém. Hist. Nat. Ins., VI, 42 (*Musca*).—Europe.

LATREILLE, Gen. Crust. et Ins., IV, 347.

FALLÉN, Muscides, 93.

MEIGEN, Syst. Besch., v, 226, pl. XLV, f. 15.

MACQUART, Hist. Nat. Dipt., II, 314.

ZETTERSTEDT, Dipt. Scand., v, 1796.

WALKER, Ins. Brit., II, 147; List, IV, 962 (*Eriphia accla*).—England; Martin Falls, Canada. [Syn. by Stein, with a doubt.]

- SCHINER, Fauna Austr., I, 660.
 VAN DER WULP, Tijdschr. v. Ent., XI, 1868, pl. II, f. 6.
 RONDANI, Dipt. Ital. Prod., VI, 289.
 MEADE, Desc. List, 69.
 KOWARZ, Wien. Ent. Zeit., XI.
 WILLISTON, Dipt. of Death Valley Exped., 257, bibliog.; oc. in New England, Mich., S. D., and Cal.
 STEIN, Berl. Ent. Zeitsch., XLII, 281, explains difference between this and *consanguinea*.—Ida., S. D., Kans., Wash.
 SCHNABL, Wien. Ent. Zeit., XXI, 66, difference between this and some European species, including *consanguinea*, described and figured.
- uliginosa** FALLÉN, Muscides, 93.—Europe.
 LOEW, Stett. Ent. Zeit., VIII, 24.
 SCHINER, Fauna Austr., I, 661.
 RONDANI, Dipt. Ital. Prod., VI, 292.
 MEADE, Ent. Mo. Mag., XIV, 252, oc. in N. A.; Desc. List, 70.
 KOWARZ, Wien. Ent. Zeit., XI.
 WILLISTON, Trans. Ent. Soc. Lond., 1896, 368, oc. in St. Vincent, W. I.
 VAN DER WULP, Biologia, Dipt., II, 342, oc. at Patzcuaro and Mexico City, Mex.
 STEIN, Berl. Ent. Zeitsch., XLII, 280, oc. in Ida., Pa., Ont., Ill.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson; Fla.—Johnson.

FUCELLIA.

- DESVOIDY, Annales Soc. Ent. France, 1841, 269.
 HALIDAY, Ann. Nat. Hist., 1838 (*Halithca*, preoc.).
 SCHINER, Fauna Austr., II, 15, 1864.
 BECKER, Berl. Ent. Zeitsch., XXXIX, 80, 1894.
- ariciiformis** HOLMGREN, Ins. Nordgrönl., 103 (*Scatophaga*).—Greenland.
 LUNDBECK, Dipt. Grönl., II, 292, fig.—Greenland.
- fucorum** FALLÉN, Scatomyzides, 5 (*Scatomyza*).—Europe.
 MEIGEN, Syst. Besch., v, 253 (*Scatophaga*).
 ZETTERSTEDT, Dipt. Scand., v, 1982 (*Scatomyza*).
 SCHINER, Fauna Austr., II, 15.
 CURTIS, Ins. Ross's Exped., LXXX, oc. in Arctic America.
 STEGER, Grönl. Antl., oc. in Greenland.
 COQUILLET, Dipt. of Commander Ids., 344; Proc. Wash. Acad. Sci., II, 453.—Commander Ids.; Alaska, various places.
 HOWARD, Proc. Wash. Acad. Sci., II, 599, oc. in Ga. and Porto Rico.
 N. J.—Smith Cat.; Fla.—Johnson; Greenland—Lundbeck.
- Note*.—This species is common on sea-beaches, about sea-weeds and other refuse.
- intermedia** LUNDBECK, Dipt. Grönl., II, 291, fig.—Greenland.

SCATOPHAGIDÆ.

- BECKER, Berl. Ent. Zeitsch., XXXIX, 77-196, 1894, monograph of the European portion of the family.
 COQUILLET, Jour. N. Y. Ent. Soc., VI, 161, 1898, table of genera.
- Note*.—Some of the species placed in *Scatophaga* and *Cordylura* may belong to the smaller genera; it has been impossible for me to make a thorough generic revision of the species.

CORDYLURA.

- FALLÉN, Specim. ent., nov. Dipt., etc., 1810.
 MEIGEN, Syst. Besch., v, 229, 1826.
 SCHINER, Fauna Austr., II, 1, 1864.
 RONDANI, Dipt. Ital. Prod., VII, 11, 1866.
 BECKER, Berl. Ent. Zeitsch., XXXIX, 88, 1894.
 VAN DER WULP, Biologia, Dipt., II, 348, 1898, table of Mexican species.
- acuticornis** LOEW, Cent., IX, 94.—Huds. Bay Terr.
adusta LOEW, Cent., III, 41.—N. J. White Mts., N. H.—O. S.
æa WALKER, List, IV, 978.—Martin Falls, Canada.
albibarba LOEW, Cent., IX, 96.—White Mts., N. H.
angustifrons LOEW, Cent., III, 45.—Wis.
bicolor WALKER, List, IV, 974.—Martin Falls, Canada.
bimaculata LOEW, see *Parallelomma varipes*.
brevicornis VAN DER WULP, Biologia, Dipt., II, 349, pl. IX, f. 1.—Guerrero, Mex.
capillata LOEW, Cent., X, 77.—White Mts., N. H.
 St. Augustine, Fla.—Johnson (*Cleigastra*).
carbonaria WALKER, List, IV, 1047 (*Lissa*).—N. Y.
 White Mts., N. H.—Slosson. Gen. ref. by Coquillett.
cincta LOEW, Cent., III, 47.—D. C.
confusa LOEW, Cent., III, 43.—Fort Resolution, Huds. Bay Terr.
 WALKER, List, IV, 972 (*pubera* LINN.).—Martin Falls, Canada. [O. S.]
cornuta LOEW, Cent., III, 48.—English River, Canada. White Mts., N. H.—O. S.
cupricrus WALKER, List, IV, 974.—Martin Falls, Canada.
flavipennis WALKER, List, IV, 975.—Martin Falls, Canada.
flavipes LOEW, Cent., III, 46.—Wis.
fulvibarba LOEW, Cent., X, 76.—Fort Resolution, Canada.
gagatina LOEW, Cent., IX, 93.—Canada.
gilvipes LOEW, Cent., III, 49.—English R., Canada.
glabra LOEW, Cent., IX, 90.—White Mts., N. H.
gracilipes LOEW, Cent., IX, 87.—White Mts., N. H. N. J.—Smith Cat.
hæmorrhoidalis MEIGEN, see *Microprosopa*.
imperator WALKER, List, IV, 975.—Martin Falls, Canada.
impudica REICHE, Bull. Soc. Ent. France, 1857, 77 (*Anthomyia*).—Greenland.
 LOEW, Berl. Ent. Zeitsch., 1858, 347, gen. ref.
inermis LOEW, Cent., IX, 88.—White Mts., N. H.
latifrons LOEW, Cent., IX, 92.—Middle States. N. J.—Smith Cat.
longa WALKER, List, IV, 976.—Martin Falls, Canada.
lutea LOEW, Cent., X, 75.—Sitka.
megacephala LOEW, Cent., IX, 94.—D. C.
munda LOEW, Cent., IX, 91.—Fort Resolution, Canada.
 White Mts.—Slosson.
nana LOEW, Cent., V, 94.—Canada. White Mts., N. H.—Slosson (*Scatophaga*).
nebulosa COQUILLET, Jour. N. Y. Ent. Soc., VI, 164.—Algonquin, Ill.
pallida FALLÉN, Scatomyzides, 8.—Europe.
 MEIGEN, Syst. Besch., v, 242.
 ZETTERSTEDT, Ins. Lapp., 726; Dipt. Scand., v, 2008.
 VAN DER WULP, Tijdschr. v. Ent., XXVI, 48, oc. in N. A.—Quebec.
pictipennis LOEW, Wien. Ent. Monatsch., VIII, 22.—Siberia and N. A.
pleuriticæ LOEW, Cent., III, 42.—English R., Canada.
 Mass., Conn.—O. S.; White Mts., N. H.—Slosson; N. J.—Smith Cat.;
 Montreal—Chagnon.
præusta LOEW, Cent., V, 93.—Canada.

- COQUILLET, Proc. Wash. Acad. Sci., II, 456, oc. at Berg Bay, Alaska and Franconia, N. H.—N. J.—Smith Cat.
- ? **qualis** SAY, Jour. Acad. Sci. Phil., VI, 176; Compl. Works, II, 366.—Ind. OSTEN SACKEN, Cat., 173, note by Loew. "Cannot be *Cordylura*."
- rufina** VAN DER WULP, Biologia, Dipt., II, 349, pl. IX, f. 2.—Guerrero, Mex. This may be the same as *Scatophaga rseses* GIGLIO-TOS, which Wulp suspects to be a *Cordylura*.—Wulp, loc. cit.
- scapularis** LOEW, Cent., IX, 89.—English R., Canada.
- setosa** LOEW, Wien. Ent. Monatsch., IV, 81; Cent., III, 44.—D. C. N. J.—Smith Cat.
- slossonæ** COQUILLET, Jour. N. Y. Ent. Soc., VI, 164.—White Mts., N. H., and Mass.
- tenuior** WALKER, List, IV, 977.—Martin Falls, Canada.
- terminalis** LOEW, Cent., III, 39.—Pa.
- tricincta** LOEW, Cent., IX, 83 (*Canosia*).—White Mts., N. H. OSTEN SACKEN, Cat., 173, gen. ref. by "Loew in litt."
- variabilis** LOEW, Zeitsch. f. Ges. Naturwiss., 1876, 326.—Mass. COQUILLET, Proc. Wash. Acad. Sci., II, 456, oc. in Alaska and from "N. H. to N. C., and westward to Texas and Col."
- varipes** WALKER, see *Parallelomma*.
- vicina** VAN DER WULP, Biologia, Dipt., II, 350.—Guerrero, Mex.
- vittipes** LOEW, Cent., X, 74.—Sitka. COQUILLET, Proc. Wash. Acad. Sci., II, 456, oc. in Alaska, several places. Hudsonian Zone, N. M.—Cockerell.
- volucricaput** WALKER, List, IV, 977.—Martin Falls, Canada. White Mts., N. H.—Slosson (*Hydromyza*).
- unilineata** ZETTERSTEDT, see *Mcgophthalma*.

ACICEPHALA.

- COQUILLET, Jour. N. Y. Ent. Soc., VI, 163, 1898.
- pilosella** COQUILLET, Jour. N. Y. Ent. Soc., VI, 163.—Col. and Reno, Nev.
- polita** COQUILLET, Jour. N. Y. Ent. Soc., VI, 163.—Col.

PARALLELOMMA.

- BECKER, Berl. Ent. Zeitsch., XXXIX, 94, 1894.
- varipes** WALKER, List, IV, 1046 (*Lissa*).—Ohio. LOEW, Wien. Ent. Monatsch., IV, 81 (*Cordylura bimaculata*); Cent., III, 40 (id.).—Ill., Wis. [O. S.] VAN DER WULP, Tijdschr. v. Ent., X, 152, pl. v, f. 7, 9 (*Cordylura maculipennis*).—Wis. [Loew, Zeitsch. f. Ges. Naturwiss., XXXVI, 116.] Generic reference by Hough, in specimens sent me. N. J.—Smith Cat.; Montreal—Chagnon.

CHÆTOSA.

- COQUILLET, Jour. N. Y. Ent. Soc., VI, 163, 1898.
- punctipes** MEIGEN, Syst. Besch., V, 239 (*Cordylura punctipes* and *flavipes*).—Europe. ZETTERSTEDT, Dipt. Scand., V, 2046 (*Cordylura*). SCHINER, Fauna Austr., II, 10 (*Cleigastra*). BECKER, Berl. Ent. Zeitsch., XXXIX, 158 (*Trichopalpus*). COQUILLET, Jour. N. Y. Ent. Soc., VI, 163, generic relations, oc. in N. A., etc.—Minn., Col.

ORTHOCHÆTA.

- BECKER, Berl. Ent. Zeitsch., xxxix, 101, 1894 (*Orthachæta*).
pilosa ZETTERSTEDT, Ins. Lapp., 732; Dipt. Scand., v, 2064 (*Cordylura*).—Europe.
 SCHINER, Fauna Austr., ii, 12 (*Cligastra*).
 COQUILLET, Proc. Wash. Acad. Sci., ii, 456, oc. in N. A.—Metlakatla,
 Alaska.

MEGOPHTHALMA.

- BECKER, Berl. Ent. Zeitsch., xxxix, 105, 1894 (*Megaphthalma*).
unilineata ZETTERSTEDT, Ins. Lapp., 727; Dipt. Scand., v, 2010 (both *Cordylura*).
 —Europe.
 BECKER, Berl. Ent. Zeitsch., xxxix, 107.
 OSTEN SACKEN, Cat., 173, oc. in Sitka, Alaska (*Cordylura*).

HEXAMITOCERA.

- BECKER, Berl. Ent. Zeitsch., xxxix, 107, 1894.
cornuta WALKER, List, iv, 1047 (*Lissa*).—Martin Falls, Canada.
 COQUILLET, Proc. Wash. Acad. Sci., ii, 456, oc. and gen. ref.—Yakutat,
 Alaska.
flavida COQUILLET, Proc. U. S. N. M., xxiii, 612.—Franconia, N. H.
vittata COQUILLET, Jour. N. Y. Ent. Soc., vi, 165.—Col.

PSELAPHEPHILA.

- BECKER, Berl. Ent. Zeitsch., xxxix, 122, 1894.
similis COQUILLET, Proc. U. S. N. M., xxv, 124.—Beverly, Mass.

HYDROMYZA.

- FALLÉN, Hydromyzides, 1, 1823.
 SCHINER, Fauna Austr., ii, 1864.
 BECKER, Berl. Ent. Zeitsch., xxxix, 132, 1894.
confluens LOEW, Cent., iii, 50.—English R., Canada.

POGONOTA.

- BECKER, Berl. Ent. Zeitsch., xxxix, 1894, 138 and 141 (*Pogonota* and
Okenia).
 COQUILLET, Proc. Wash. Acad. Sci., ii, 456, 1900, unites the preceding.
kincaidi COQUILLET, Proc. Wash. Acad. Sci., ii, 455.—Popof Id., Alaska.

MICROPROSOPA.

- BECKER, Berl. Ent. Zeitsch., xxxix, 147, 1894.
hæmorrhoidalis MEIGEN, Syst. Besch., v, 237 (*Cordylura*).—Europe.
 ZETTERSTEDT, Ins. Lapp., 731 and 732 (*Cordylura hæmorrhoidalis* and *pallipes*);
 Dipt. Scand., v, 2042, 2047, 2049 (*C. lividipes*, *hæmorrhoidalis*,
 and *pallipes*).
 STEGER, Grœnl. Antliater, 366, oc. in Greenland.
 OSTEN SACKEN, Cat., 172, oc. on White Mts., N. H.
 BECKER, Berl. Ent. Zeitsch., xxxix, 149, syn. and desc.
 LUNDBECK, Dipt. Grœnl., ii, 290, oc. in Greenland (*Cligastra*).

OPSIOMYIA.

- COQUILLET, Jour. N. Y. Ent. Soc., vi, 162, 1898.
palpalis COQUILLET, loc. cit.—White Mts., N. H.

SPATHIOPHORA.

RONDANI, Dipt. Ital. Prod., I, 99, 1856 (*Spaziophora*); VII, pt. I, 7 (id.).

BECKER, Berl. Ent. Zeitsch., XXXIX, 158, 1894.

I have an undetermined species from South Haven, Mich.

SCATOPHAGA.

MEIGEN, Illig. Mag., II, 277, 1803; Syst. Besch., v, 246, 1826.

FALLÉN, Scatomyzides, 2, 1819 (*Scatomyza*).

DESVOIDY, Myodaires, 629, 1830 (*Scatina*).

SCHINER, Fauna Austr., II, 15, 1864.

BECKER, Berl. Ent. Zeitsch., XXXIX, 161, 1894.

VAN DER WULP, Biologia, Dipt., II, 348, 1898.

ariciiformis HOLMGREN, see *Fucellia*.

bicolor WALKER, List, IV, 982.—Martin Falls, Canada.

White Mts., N. H.—Slosson (*Scatina*).

canadensis WALKER, Trans. Ent. Soc., n. ser., IV, 218.—Canada.

White Mts., N. H.—Slosson.

cænosa GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158; Ditt. del Mess., IV, 34.—

Popocatepetl, Mex., 3,800 meters.

trinita COQUILLET, Proc. U. S. N. M., XXIII, 612.—Bering Id.

dasythrix BECKER, Berl. Ent. Zeitsch., XXXIX, 173.—Bering Straits.

COQUILLET, Dipt. Commander Ids., 345, oc. on Bering Id.

? *diadema* WIEDEMANN, Auss. Zw., II, 448.—Montevideo, S. A.

? RONDANI, Archiv., etc., Canestrini, III, fasc. I, p. 35, oc. in Labrador.

Query by J. M. A.

estotilandica RONDANI, Archiv., etc., Canestrini, III, fasc. I, p. 35 (*Scatina*).—

Labrador.

exotica WIEDEMANN, Auss. Zw., II, 448.—New Orleans, La.

COQUILLET, Proc. U. S. N. M., XXII, 257, oc. in Porto Rico.

frigida COQUILLET, Proc. Wash. Acad. Sci., II, 454.—Kukak Bay and Popof Id.,

Alaska.

furcata SAY, Jour. Acad. Sci. Phil., III, 98, 1823 (*Pyropha*); Compl. Works, II,

85 (id.).—Mo.

MEIGEN, Syst. Besch., v, 252, 1826 (*squalida*); VII, 342 (*nigricans* MACQ.).

—Europe. [Coq.]

MACQUART, Hist. Nat. Dipt., II, 395 (*nigricans*).

ZETTERSTEDT, Ins. Lapp., 733 (*Cordylura fuscipennis*); Dipt. Scand., v,

1973, and 1975 (the latter *fuscincris*).

CURTIS, in Ross's Expedition, LXXX (*apicalis*).—Arctic America. [Coq.]

SCHINER, Fauna Austr., II, 18 (*squalida*).

BECKER, Berl. Ent. Zeitsch., XXXIX, 172 (*squalida*).

TOWNSEND, Canad. Ent., XXIII, 153 (*Cleigastrea suisterci*).—D. C.; larvae in swine dung. [Coq.]

HOWARD, Proc. Wash. Acad. Sci., II, 598, figs. and habits; reared from human excrement.—D. C., W. Va.

White Mts., N. H.—Slosson; Brit. Col. and Alaska—Coquillett; Greenland—Lundbeck; Montreal—Chagnon.

intermedia WALKER, List, IV, 980.—Nova Scotia.

COQUILLET, Dipt. Commander Ids., 345, oc. on Bering Id.; Proc. Wash. Acad. Sci., II, 454, oc. in Alaska, Me., and Mass.

White Mts., N. H.—Slosson.

Note.—Walker's description of *intermedia* seems unrecognizable to me.

- islandica** BECKER, Berl. Ent. Zeitsch., xxxix, 175.—Labrador and Iceland.
COQUILLET, Dipt. Commander Ids., 345, oc. on Copper Id.; Proc. Wash. Acad. Sci., II, 454, oc. in Alaska.
- lanata** LUNDBECK, Dipt. Grœn., II, 294.—Greenland.
- litorea** FALLÉN, Scatomyzides, 4.—Europe.
MEIGEN, Syst. Besch., v, 254.
ZETTERSTEDT, Ins. Lapp., 722; Dipt. Scand., v, 1975.
SCHINER, Fauna Austr., II, 18.
O. FABRICIUS, Fauna Grœlandica, 203 (*Musca stercoraria*).—Greenland. [Lundbeck.]
STÆGER, Grœn. Antl., 366, oc. in Greenland.
HOLMGREN, Ins. Spetsb., 34; Ins. Nordgrœn., 103 (*nigripes*).—Greenland. [Lundbeck.]
BECKER, Berl. Ent. Zeitsch., xxxix, 172.
LUNDBECK, Dipt. Grœn., II, 296, oc. in Greenland, syn., etc.
- merdaria** FABRICIUS, Ent. Syst., IV, 344 (*Musca*); Syst. Antl., 306.—Europe.
MEIGEN, Syst. Besch., v, 249.
DESVOIDY, Myodaires, 628 (*claripennis*). [Becker.]
MACQUART, Hist. Nat. Dipt., II, 294.
ZETTERSTEDT, Dipt. Scand., v, 1970.
SCHINER, Fauna Austr., II, 18.
BECKER, Berl. Ent. Zeitsch., xxxix, 169.
White Mts., N. H.—Slosson; Montreal—Chagnon.
- nigripes** HOLMGREN, see *litorea*.
- nubifera** COQUILLET, Proc. U. S. N. M., xxiii, 612.—Pt. Barrow, Alaska.
- pallida** WALKER, List, IV, 981.—Martin Falls, Canada.
N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- pubescens** WALKER, List, IV, 982.—Martin Falls, Canada.
- reses** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, 158; Ditt. del Mess., IV, 34.—Mex. See *Cordylura rufina*.
- stercoraria** LINNÉ, Fauna Suecica, 2d edit., p. 458, No. 1861 (*Musca*).—Europe; "habitat ubique in stercore humano, equino, bovino."
RÉAUMUR, Mém. Hist. Ins., IV, 118, pl. xxvi.
DEGEER, Mém. Hist. Ins., VI, 42.
FABRICIUS, Spec. Ins., II, 449 (*Musca*); Ent. Syst., IV, 345 (id.); Syst. Antl., 307 (id.).
MEIGEN, Syst. Besch., v, 248.
MACQUART, Hist. Nat. Dipt., II, 393.
ZETTERSTEDT, Ins. Lapp., 721; Dipt. Scand., v, 1968.
SCHINER, Fauna Austr., II, 18.
LOEW, in Silliman's Jour., oc. in N. A.
BECKER, Berl. Ent. Zeitsch., xxxix, 169, syn., etc.
COQUILLET, Dipt. Commander Ids., 345, oc. on Copper Id., Alaska; Proc. Wash. Acad. Sci., II, 453, oc. in Alaska, "almost cosmopolitan."
HOWARD, Proc. Wash. Acad. Sci., II, 599, note on.
Montreal—Chagnon; White Mts., N. H.—Slosson; N. J.—Smith Cat.; Axton, N. Y.—M. and H.
- suilla** FABRICIUS, Ent. Syst., IV, 343 (*Musca*); Syst. Antl., 206.—Europe.
FALLÉN, Scatomyzides, 5, var.
DESVOIDY, Myodaires, 625 (*nemorosa*).
MEIGEN, Syst. Besch., v, 250 (*spurca*).
ZETTERSTEDT, Ins. Lapp., 721 (*glabrata*); Dipt. Scand., v, 1965 and 1967 the latter *spurca*).

SCHINER, Fauna Austr., II, 17 (*spurca*).

BECKER, Berl. Ent. Zeitsch., XXXIX, 167, syn., etc.

COQUILLET, Proc. Wash. Acad. Sci., II, 454, oc. in Alaska, N. H., Col., Wash., and Canada.

Beulah, N. M.—Skimmer.

thinobia THOMSON, Eugenes Resa, 563.—Cal.

Note.—Coquillett records this from Alaska, but he has evidently made a mistake, as he puts it under *Chirosia*, and Thomson says the cheeks are scarcely narrower than the eyes.

vittata VAN DER WULP, Biologia, Dipt., II, 350.—Mexico City, Mex.

vulpina COQUILLET, Jour. N. Y. Ent. Soc., VI, 162.—Pt. Barrow, Alaska.

PLETHOCHÆTA.

COQUILLET, Proc. U. S. N. M., XXIII, 613, 1901.

varicolor COQUILLET, Proc. U. S. N. M., XXIII, 614.—Delaware Co., Pa.

PYCNOGLOSSA.

COQUILLET, Proc. U. S. N. M., XXIII, 613, 1901.

flavipennis COQUILLET, Proc. U. S. N. M., XXIII, 613.—Washington.

HETERONEURIDÆ.

KERTÉSZ, Annales Mus. Nat. Hung., I, 1903, 566, table of genera of the world.

HETERONEURA.

FALLÉN, Agromyzides, 2, 1823.

MEIGEN, Syst. Besch., VI, 126, 1830.

SCHINER, Fauna Austr., II, 37, 1864.

WILLISTON, Trans. Ent. Soc. Lond., 1896, 386, table of St. Vincent species, 1896.

CZERNY, Wien. Ent. Zeit., XXII, 61, 1903, revision of genus and family.

albimanus MEIGEN, Syst. Besch., VI, 128.—Europe.

SCHINER, Fauna Austr., II, 38, desc. and biology; larvæ reared from trunk of a decayed willow, in Europe.

LOEW, in Silliman's Jour., oc. in N. A.

CZERNY, Wien. Ent. Zeit., XXII, 69, 81, biology and desc.

N. J.—Smith Cat.

concinna WILLISTON, Trans. Ent. Soc. Lond., 1896, 387.—St. Vincent, W. I.

CZERNY, Wien. Ent. Zeit., XXII, 101, orig. desc. and notes.

flavipes WILLISTON, Trans. Ent. Soc. Lond., 1896, 387, pl. XIII, f. 135.—St. Vincent, W. I.

CZERNY, Wien. Ent. Zeit., XXII, 101, quotes orig. desc.; notes.

? **latifrons** LOEW, Wien. Ent. Monatsch., IV, 82; Cent., IV, 93.—D. C.

CZERNY, Wien. Ent. Zeit., XXII, 99, quotes desc.; genus doubtful.

N. J.—Smith Cat.

lumbalis WILLISTON, Trans. Ent. Soc. Lond., 1896, 388.—St. Vincent, W. I.

CZERNY, Wien. Ent. Zeit., XXII, 103, quotes desc.

melanostoma LOEW, Cent., V, 97.—N. Y.

CZERNY, Wien. Ent. Zeit., XXII, 77, quotes desc.

Note.—The "*Heteroncurea flavifacies* Coq. MS." of Smith's N. J. Cat. is the female of this. [Coq. in litt.]

- pictipes** ZETTERSTEDT, Dipt. Scand., XII, 481b.—Europe.
 CZERNY, Wien. Ent. Zeit., XXII, 80.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- pleuralis** WILLISTON, Trans. Ent. Soc. Lond., 1896, 387.—St. Vincent, W. I.
 CZERNY, Wien. Ent. Zeit., XXII, 102, quotes desc.
- spectabilis** LOEW, see *Clusia lateralis*.
- valida** WILLISTON, Trans. Ent. Soc. Lond., 1896, 388, pl. XIII, f. 136.—St. Vincent, W. I.
 CZERNY, Wien. Ent. Zeit., XXII, 102, quotes desc.; notes.
- ? **xanthops** WILLISTON, Trans. Ent. Soc. Lond., 1896, 386.—St. Vincent, W. I.
 CZERNY, Wien. Ent. Zeit., XXII, 100, quotes desc.; genus doubtful.

CLUSIA.

- HALIDAY, Ann. Nat. Hist., II, 188, 1838.
 SCHINER, Fauna Austr., II, 36, 1864.
 CZERNY, Wien. Ent. Zeit., XXII, 80, 1903.
- ? **flava** MEIGEN, Syst. Besch., VI, 40.—Europe.
 CZERNY, Wien. Ent. Zeit., XXII, 88.
 Doubtfully recorded from N. J. in Smith Cat.
- lateralis** WALKER, List, IV, 1095 (*Helomyza*).—N. A.
 LOEW, Wien. Ent. Monatsch., IV, 82 (*Heteroneura spectabilis*); Cent., IV, 92 (id.).—D. C. [Czerny, from Walker's type.]
 CZERNY, Wien. Ent. Zeit., XXII, 89.
 Montreal—Chagnon; doubtfully reported from N. J. in Smith Cat., as *Clusia spectabilis*. Province of Quebec—Fyles (*H. spectabilis*).

PERATOCHÆTUS.

- RONDANI, Dipt. Ital. Prod., I, 119, 1856; Bull. Ent., VI, 1874, 8.
 SCHINER, Novara, 236, 1868 (*Heterochroa*, in part).
 CZERNY, Wien. Ent. Zeit., XXII, 1903, 96.
- ornatus** JOHNSON, Proc. Acad. Nat. Sci., 1895, 306 (*Heterochroa*).—Drayton's Id., Fla.
 CZERNY, Wien. Ent. Zeit., XXII, 97, quotes desc.; gen. ref.

HELOMYZIDÆ.

LOEW, Zeitschr. f. Ent. zu Breslau, 1859, 1-80, monograph of the family in Europe.

HELOMYZA.

- FALLÉN, Heteromyzides, 3, 1820.
 RONDANI, Dipt. Ital. Prod., I, 102, 1856.
 LOEW, Zeitsch. f. Ent. zu Breslau, 1859, 17.
 SCHINER, Fauna Austr., II, 23, 1864.
 RILEY and HOWARD, Ins. Life, II, 374, notes on a species found in caves in Indiana.
 VAN DER WULP, Biologia, Dipt., II, 350, table of Mexican species.
- apicalis** LOEW, Cent., II, 86.—D. C.
- assimilis** LOEW, Cent., II, 87.—Huds. B. Terr.
- borealis** BOHEMAN, of Holmgren, see *Leria geniculata*.
- distigma** VAN DER WULP, Biologia, Dipt., II, 352, pl. IX, f. 5.—Guerrero, Mex.
- fasciata** WALKER, List, IV, 1094.—Nova Scotia.

- iniens** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158; Ditt. del Mess., IV, 35. f. 9, 10.—Mex.
 VAN DER WULP, Biologia, Dipt., II, 352, pl. IX, f. 3.—Guerrero, Mex.
- lateralis** WALKER, see *Clusia*.
- latericia** LOEW, Cent., II, 89.—Conn. White Mts., N. H.—Slosson.
- limbata** THOMSON, Eugenes Resa, 569.—Cal.
 Osten Sacken states that this name is preoccupied.
- longipennis** LOEW, Cent., II, 90.—N. Y. N. J.—Smith Cat.
- polystigma** VAN DER WULP, Biologia, Dipt., II, 353, pl. IX, f. 6.—Guerrero, Mex.
- punctulata** VAN DER WULP, Biologia, Dipt., II, 352, pl. IX, f. 4.—Guerrero, Mex.
- quinquepunctata** SAY, Jour. Acad. Sci. Phil., III, 101; Compl. Works, II, 86.—
 Cow Id., Missouri River.
 WIEDEMANN, AUSS. ZW., II, 588.
 LOEW, Cent., II, 88 (*plumata*).—N. Y. [J. M. A.]
 N. J.—Smith Cat.; Montreal—Chagnon.
- tibialis** ZETTERSTEDT, see *Leria*.
- tincta** WALKER, List, IV, 1092.—Nova Scotia.
 Beulah, N. M.—Skinner.
- zetterstedti** LOEW, Zeitsch. f. Ent. zu Breslau, 1859, 63.—Europe.
 OSTEN SACKEN, Cat., 175, oc. in N. A., "Loew in litt."
 COQUILLET, Proc. Wash. Acad. Sci., II, 457, oc. in Alaska, Brit. Amer.,
 and White Mts., N. H.
 Beulah, N. M.—Skinner.

ALLOPHYLIA.

- LOEW, Zeitsch. f. Ent. zu Breslau, 1859, 43.
- lævis** LOEW, Cent., II, 85.—English River, Canada.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson.

SCOLIOCENTRA.

- LOEW, Zeitsch. f. Ent. zu Breslau, 1859, 43.
- fraterna** LOEW, Cent., III, 51.—Sitka.
 COQUILLET, Proc. Wash. Acad. Sci., II, 457, oc. in Alaska, Brit. Col., and
 Mt. Washington, N. H. (*Leria*).
- helvola** LOEW, Cent., II, 80.—Ill. N. J.—Smith Cat.; Montreal—Chagnon.

ANOROSTOMA.

- LOEW, Zeitsch. f. Ent. zu Breslau, 1859, 47.
- marginata** LOEW, Cent., II, 81.—English River, Canada.
 Beulah, N. M.—Skinner.
- opaca** COQUILLET, Proc. U. S. N. M., XXIII, 614.—Los Angeles Co., Cal.

ECOTHEA.

- HALIDAY, in Westwood's Introduction to Classif. of Ins., II, App., 145.
 1840.
- LOEW, Zeitsch. f. Ent. zu Breslau, 1859, 54.
- fenestralis** FALLÉN, Heteromyzides, 5 (*Hclomyza*).—Europe.
 MEIGEN, Syst. Besch., VI, 56 (id.).
 HALIDAY, in Westwood's Introd., II, App., 145.
 LOEW, Zeitsch. f. Ent. zu Breslau, 1859, 54.
 SCHINER, Fauna Austr., II, 30 (*Leria*).
 OSTEN SACKEN, Cat., 176, oc. in N. A., "Loew in litt."—N. Y.
 Montreal—Chagnon.

TEPHROCHLAMYS.

LOEW, Zeitsch. f. Ent. zu Breslau, 1859, 72.

rufiventris MEIGEN, Syst. Besch., vi, 58 (*Hclomyza*).—Europe.

LOEW, Zeitsch. f. Ent. zu Breslau, 1859, 77.

OSTEN SACKEN, Cat., 176, oc. in N. A., "Loew in litt."—Canada.

HOWARD, Proc. Wash. Acad. Sci., II, 600, oc. in Newport, Ore.

Montreal—Chagnon; White Mts., N. H.—Slosson.

LERIA.

DESVOIDY, Myodaires, 653, 1830.

MACQUART, Hist. Nat. Dipt., II, 412, 1835 (*Blepharoptera*).

LOEW, Zeitsch. f. Ent. zu Breslau, 1859, 57 (*Blepharoptera*).

SCHINER, Fauna Austr., II, 28.

OSTEN SACKEN, Cat., 175 (*Blepharoptera*).

MIK, Wien. Ent. Zeit., XVII, 65, larvæ of a European species in bee-hives.

Note.—A list of the Arthropoda, including Diptera, found in the caves of Europe was published by Simon, Bedel, and Ganglbauer in Mittheilungen d. Section f. Naturkunde des Oesterreichischen Touristen-Club, Zweite Jahrgang, Wien, 1890.

biseta LOEW, Zeitsch. f. Ent. zu Breslau, 1859, 62 (*Blepharoptera*).—Europe.

OSTEN SACKEN, Cat., 175, oc. at Sitka.—"Loew in litt."

White Mts., N. H.—Slosson.

carolinensis DESVOIDY, Myodaires, 629 (*Scatophaga*); Ann. Soc. Ent. France, 1841, 258, footnote, gen. ref.—Carolina.

cineraria LOEW, Zeitsch. f. Ent. zu Breslau, 1859, 67 (*Blepharoptera*); Cent., II, 83 (*B. armipes*).—Europe; Huds. Bay Terr. [O. S. Cat., 175.]

defessa OSTEN SACKEN, Bull. Geol. Surv., III, No. 1, p. 168, footnote and figs. (*Blepharoptera*).—Col., Ky., Ind.; inhabits caverns.

ALDRICH, 21st Rept. Geol. Ind., 1896, 188, same habit; notes (*Blepharoptera*).—Ind.

discolor LOEW, Cent., X, 78 (*Blepharoptera*).—White Mts., N. H.

geniculata ZETTERSTEDT, Ins. Lapp., 767 (*Hclomyza*); Dipt. Scand., VI, 245t (id.).—N. Europe.

STÆGER, Grœnl. Antl., 366, 1845, oc. in Greenland.

HOLMGREN, Ins. Nordgrœnl., 104, oc. in same; also refers part of his specimens to *Hclomyza borealis* BOHEMAN, according to Lundbeck.

LUNDBECK, Dipt. Grœnl., II, 298, oc. in Greenland, etc.

humeralis ZETTERSTEDT, Ins. Lapp., 767; Dipt. Scand., VI, 2455 (both *Hclomyza*).—N. Europe.

LUNDBECK, Dipt. Grœnl., II, 297, oc. in Greenland.

iners MEIGEN, Syst. Besch., VI, 57 (*Hclomyza*).—Europe.

LOEW, Zeitsch. f. Ent. zu Breslau, 1859, 63 (*Blepharoptera*); Silliman's Jour., oc. in N. A.

latens ALDRICH, 21st Rept. Geol. Indiana, 1896, 188 (*Blepharoptera*).—Indiana, in caverns.

leucostoma LOEW, Cent., III, 54 (*Blepharoptera*).—Sitka.

COQUILLET, Proc. Wash. Acad. Sci., II, 457, oc. in Alaska and White Mts., N. H.

lutea LOEW, Cent., III, 52 (*Blepharoptera*).—Sitka. Province of Quebec—Fyles.

pectinata LOEW, Cent., X, 79 (*Blepharoptera*).—Texas.

HUBBARD, Proc. Ent. Soc. Wash., IV, 362, found in Arizona in upper burrows of desert rodents.

- HOWARD, Proc. Wash. Acad. Sci., II, 600, note and oc.—Newport, Ore.
 MELANDER, Psyche, 1902, 328, captured at Austin, Texas, in bottle traps in
 nests of *Pogonomyrma molefaciens* BUCKLEY.
pubescens LOEW, Cent., II, 82 (*Blepharoptera*).—Mass.
 ALDRICH, 21st Rept. Geol. Ind., 1896, 188 (id.).—Indiana, in cavern.
 N. J.—Smith Cat.
specus ALDRICH, 21st Rept. Geol. Ind., 1896, 189 (*Blepharoptera*).—Indiana, in
 caverns.
tibialis ZETTERSTEDT, Ins. Lapp., 767 (*Hclomyza*); Dipt. Scand., VI, 2456 (id.).—
 N. Europe.
 STÆGER, Grœnl. Antl., 366 (id.), oc. in Greenland.
 HOLMGREN, Ins. Nordgrœnl., 104 (id.); Ent. Tidskr., IV, 177 (id.), oc. in
 Greenland and Nova Zembla.
 LUNDBECK, Dipt. Grœnl., II, 297, oc. in Greenland, etc.
tristis LOEW, Berl. Ent. Zeitsch., 1862, 225 (*Blepharoptera*).—Lake Winnipeg.
 COQUILLET, Dipt. of Commander Ids., 345, oc. in Commander Ids., Alaska.
 N. J.—Smith Cat.

HETEROMYZA.

- FALLÉN, Heteromyzides, I, 1820.
 LOEW, Zeitsch. f. Ent. zu Breslau, 1859, 70.
 SCHINER, Fauna Austr., II, 33, 1864.
 COLLIN, Ent. Mo. Mag., 1901, 106 and 113, two articles; full discussion,
 which is reviewed by Hendel, Wien. Ent. Zeit., 1901, 151.
? buccata FALLÉN, Heteromyzides, 2.—Europe.
 MEIGEN, Syst. Besch., VI, 47.
 SCHINER, Fauna Austr., II, 34.
 LOEW, Zeitsch. f. Ent. zu Breslau, 1859, 70, does not belong to *Heteromyza*.
 WALKER, List, IV, 1088, oc. in Nova Scotia.
Note.—Collin and Hendel (vide supra) do not agree as to the proper
 genus to receive this species. As in all probability Walker was wrong in
 recognizing it from Nova Scotia, it seems unnecessary to discuss the
 question.
eriphides WALKER, List, IV, 1088.—Martin Falls, Canada.
flavipes WALKER, List, IV, 1089.—Martin Falls, Canada.
fusca MACQUART, Dipt. Exot., II, 3, 263, pl. XXV, f. 12.—N. A.

BORBORIDÆ.

APTILOTUS.

- MIK, Wien. Ent. Zeit., XVII, 206, 1898; XIX, 71, 1900.
politus WILLISTON, Dipt. of Death Valley Exped., 1893, 259 (*Apterina*).—Death
 Valley, S. Cal.
 MIK, Wien. Ent. Zeit., 1900, 71, refers with a doubt to this genus, on the
 authority of Williston, in litt.
 COQUILLET, Proc. Acad. Sci. Wash., II, 464, oc. at Farragut Bay, Alaska.
 Beulah, N. M.—Skinner.

LIMOSINA.

- MACQUART, Hist. Nat. Dipt., II, 571, 1835.
 SCHINER, Fauna Austr., II, 327, 1864.
 RONDANI, Bull. Soc. Ent. Ital., XII, 17, 1880.

- WILLISTON, Trans. Ent. Soc. Lond., 1896, 431, table of St. Vincent species.
- albipennis** RONDANI, Bull. Soc. Ent. Ital., xii, 39.—Europe.
HOWARD, Proc. Wash. Acad. Sci., ii, 595, fig. and habits; bred from cowdung.—D. C., Va., W. Va., Md.
HOWARD, Canad. Ent., xxxiii, 44, bred from cowdung.
- aldrichi** WILLISTON, Dipt. of Death Valley Exped., 259.—Argus Mts., Cal.
- atra** ADAMS, Kans. Univ. Sci. Bull., ii, 223.—Douglass Co., Kans.
- crassimanus** HALIDAY, Ent. Mag., iii, 328.—Europe.
STENHAMMAR, Mon. Copromyz., 376.
ZETTERSTEDT, Ins. Lapp., 771; Dipt. Scand., vi, 2503 (*pygmaea*).
DUFOUR, Annales Soc. Ent. France, 1839 (*lugubris*).
SCHINER, Fauna Austr., ii, 329, syn. and desc.
WEBSTER, Canad. Ent., 1900, 213, oc. in N. A.—Ohio.
HOWARD, Proc. Wash. Acad. Sci., ii, 595, fig., etc.—D. C., Md., W. Va.
- dolorosa** WILLISTON, Trans. Ent. Soc. Lond., 1896, 432.—St. Vincent, W. I.
- fontinalis** FALLÉN, Dipt. Suec., Suppl. ii, p. 16 (*Copromyza*).—Europe.
STENHAMMAR, Mon. Copromyz., 371.
MACQUART, Hist. Nat. Dipt., ii, 571.
SCHINER, Fauna Austr., ii, 329.
JOHNSON, Proc. Acad. Nat. Sci. Phil., 1895, 349, oc. in N. A.—St. Augustine, Fla.
HOWARD, Proc. Wash. Acad. Sci., ii, 595, oc. and habits; reared from human excrement.—D. C., Va.
Porto Rico—Coquillett; White Mts., N. H.—Slosson.
- illota** WILLISTON, Trans. Ent. Soc. Lond., 1896, 434, pl. xiv, f. 164 (*Borborus*).—St. Vincent, W. I.
- limosa** MEIGEN, Syst. Besch., vi, 207, pl. LXII, f. 20 (*Borborus*).—Europe.
DESVOIDY, Mýodaires, 802 (*Nerca riparia*).
STENHAMMAR, Mon. Copromyz., 379.
SCHINER, Fauna Austr., ii, 329.
N. J.—Smith Cat.: Montreal—Chagnon; White Mts., N. H.—Slosson.
- lugubris** WILLISTON, Trans. Ent. Soc. Lond., 1896, 433, pl. xiv, f. 162.—St. Vincent, W. I. Porto Rico—Coquillett.
- perparva** WILLISTON, Trans. Ent. Soc. Lond., 1896, 433, pl. xiv, f. 161.—St. Vincent, W. I. Porto Rico—Coquillett.
- pumila** WILLISTON, Trans. Ent. Soc. Lond., 1896, 432, pl. xiv, f. 160.—St. Vincent, W. I.
- scutellaris** WILLISTON, Trans. Ent. Soc. Lond., 1896, 432.—St. Vincent, W. I.
- setigera** ADAMS, Kans. Univ. Sci. Bull., ii, 223.—Douglass Co., Kans., and Magdalena Mts., N. M.
- stygia** COQUILLET, Amer. Naturalist, xxxi, 384, 1897.—Mammoth Cave, Ky., in decaying fungus (*Coprinus*).
- tenebrarum** ALDRICH, 21st Rept. Geol. Ind., 1896, 100, fig.—Ind., in caverns.
- venalicia** OSTEN SACKEN, Cat., 263 (*Borborus*).—Cuba and Africa; supposed to have been introduced into Cuba by the slave trade.
WILLISTON, Trans. Ent. Soc. Lond., 1896, 434, pl. xiv, f. 163 (id.).—St. Vincent, W. I., and Brazil.
COQUILLET, Proc. U. S. N. M., xxii, 269, oc. in Porto Rico and Biscayne Bay, Fla.

BORBORUS.

- MEIGEN, Hlig. Mag., ii, 276, 1803; Syst. Besch., vi, 198, 1830.
FALLÉN, Heteromyzides, 5, 1820 (*Copromyza*).

- ZETTERSTEDT, Dipt. Scand., vi, 2475, 1847 (id.).
 SCHINER, Fauna Austr., ii, 320, 1864.
 RONDANI, Bull. Soc. Ent. Ital., xii, 6, 1880.
- annulus** WALKER, List, iv, 1129.—York Factory and Martin Falls, Canada.
 Popof Id., Alaska—Coquillett.
- carolinensis** DESVOIDY, Myodaires, 811 (*Scatophora*).—Carolina.
- equinus** FALLÉN, Heteromyzides, 6 (*Copromyza*).—Europe.
 STENHAMMAR, Mon. Copromyz., 340 (id.).
 DESVOIDY, Myodaires, 807 (*Sphærocera communis, fuliginosus, and copri-*
vara).
 HALIDAY, Ent. Mag., iii, 335, 1836, larva and puparium.
 SCHINER, Fauna Austr., ii, 323, syn. and desc.
 LOEW, in Silliman's Jour., oc. in N. A.
 RONDANI, Bull. Soc. Ent. Ital., xii, 11.
 HOWARD, Proc. Wash. Acad. Sci., ii, 594, habits.
 Everywhere abundant on horse-dung, in which the larvæ live.
- geniculatus** MACQUART, Hist. Nat. Dipt., ii, 567.—Europe.
 HALIDAY, Ent. Mag., iii, 325 (*ater*).
 STENHAMMAR, Mon. Copromyz., 356, 98.
 SCHINER, Fauna Austr., ii, 322.
 HOWARD, Proc. Wash. Acad. Sci., ii, 594, oc. in N. A.—N. H., D. C., Md.,
 W. Va.
 Hudsonian Zone, N. M.—Cockerell.
- illotus** WILLISTON, see *Limosina*.
- venalicus** OSTEN SACKEN, see *Limosina*.

SPHÆROCERA.

- LATREILLE, Hist. Nat. Crust. et Ins., xiv, 391, 1804.
 SCHINER, Fauna Austr., ii, 325, 1864.
 RONDANI, Bull. Soc. Ent. Ital., xii, 12, 1880.
- bimaculata** WILLISTON, Trans. Ent. Soc., 435, pl. xiv, f. 165.—St. Vincent, W. I.
- pusilla** FALLÉN, Heteromyzides, 8 (*Copromyza*).—Europe.
 MEIGEN, Syst. Besch., vii, 407 (*Borborus crenatus*; the *Borborus pusillus*
 of vi, 206, is a different species, according to Schiner).
 STENHAMMAR, Mon. Copromyz., 435.
 ZETTERSTEDT, Ins. Lapp., 770 (*Copromyza*); Dipt. Scand., vi, 2489 (*Cop-*
renata); 2490 (*Cop. pusilla*).
 SCHINER, Fauna Austr., ii, 326, syn. and desc.
 RONDANI, Bull. Soc. Ent. Ital., xii, 14, 1880.
 HOWARD, Proc. Wash. Acad. Sci., ii, 596, habits; reared from human ex-
 crement.—D. C.
- subsultans** FABRICIUS, Spec. Ins., ii, 444 (*Musca*); Syst. Antl., 264 (*Calobata*).
 —Europe.
 FALLÉN, Heteromyzides, 7 (*Copromyza*).
 MEIGEN, Syst. Besch., vi, 200, pl. LXII, f. 17.
 DESVOIDY, Myodaires, 809 (*Lordatia merdarum, stercoraria, cadaverina,*
and necrophaga).
 SCHINER, Fauna Austr., ii, 326, syn. and desc.
 RONDANI, Bull. Soc. Ent. Ital., xii, 13.
 HOWARD, Proc. Wash. Acad. Sci., ii, 596, oc. in N. A., fig. and habits;
 Canad. Ent., xxxiii, 44, oc. and habits.—D. C., reared from human
 excrement; Va., reared from cow-dung.
 Montreal—Chagnon; White Mts., N. H.—Slosson.

PHYCODROMIDÆ.

CÆLOPA.

- MEIGEN, Syst. Besch., vi, 194, 1830.
 STENHAMMAR, Copromyz. Scand., 1853.
 SCHINER, Fauna Austr., ii, 319, 1864.
frigida FALLÉN, Hydromyzides, 6.—Europe.
 SCHINER, Fauna Austr., ii, 319.
 HAGEN, Canad. Ent., xvii, 140, oc. in Mass.; breeds in dead and probably living seaweed on ocean beach.
 COQUILLET, Dipt. of Commander Ids., 345, oc. in Alaska; Proc. Wash. Acad. Sci., ii, 460, same.
parvula HALIDAY, Ent. Mag., i, 167.—Europe.
 ZETTERSTEDT, Dipt. Scand., vi, 2473 (*nitidula*).
 STENHAMMAR, Copromyz. Scand., 6 (*nitidula*).
 SCHINER, Fauna Austr., ii, 320, desc. and syn.
 OSTEN SACKEN, Cat., 197, oc. in N. A. (id.).
 COQUILLET, Proc. Wash. Acad. Sci., ii, 460, oc. in Kadiak, Alaska (id.).

SCIOMYZIDÆ.

SCIOMYZA.

- FALLÉN, Sciomyzides, ii, 1820.
 LOEW, Mon. N. A. Dipt., i, 104, 1862.
 SCHINER, Fauna Austr., ii, 44, 1864.
 VAN DER WULP, Biologia. Dipt., ii, 354, table of Mexican species, 1898.
albocostata FALLÉN, Sciomyzides, 12.—Europe.
 ZETTERSTEDT, Dipt. Scand., v, 2098.
 SCHINER, Fauna Austr., ii, 47.
 LOEW, Silliman's Jour., oc. in N. A.
 White Mts., N. H.—Slosson.
antica WALKER, Dipt. Saund., 400.—U. S.
apicata LOEW, Zeitsch. f. Ges. Naturwiss., 1876, 331.—Ft. Resolution, Canada.
glabricula FALLÉN, Sciomyzides, 15.—Europe.
 MEIGEN, Syst. Besch., vi, 13.
 ZETTERSTEDT, Dipt. Scand., v, 2091.
 STÆGER, in Krøyer's Tidsskr., i, 40 (*angustipennis*). [Schiner.]
 SCHINER, Fauna Austr., ii, 44.
 COQUILLET, Proc. Wash. Acad. Sci., ii, 458, oc. in Popof Id., Alaska.
guttata COQUILLET, Proc. U. S. N. M., xxiii, 615.—Texas.
humilis LOEW, Zeitsch. f. Ges. Naturwiss., 1876, 330.—Texas.
 St. Augustine, Fla.—Johnson.
infusca VAN DER WULP, Biologia, Dipt., ii, 355, pl. ix, f. 7.—Guerrero, Mex.
longipes LOEW, Zeitsch. f. Ges. Naturwiss., 1876, 328.—White Mts., N. H.
luctifera LOEW, Cent., i, 71; Mon. N. A. Dipt., i, 107.—Pa.
nana FALLÉN, Sciomyzides, 15.—Europe.
 MEIGEN, Syst. Besch., vi, 18.
 MACQUART, Hist. Nat. Dipt., ii, 408.
 ZETTERSTEDT, Dipt. Scand., v, 2109.
 SCHINER, Fauna Austr., ii, 49.
 LOEW, Mon. N. A. Dipt., i, 104, oc. in N. A., etc.—Middle States.
 VAN DER WULP, Biologia, Dipt., ii, 355, pl. ix, f. 8, oc. at Mexico City.

- N. J.—Smith Cat.; White Mts., N. H.—Slosson; Montreal—Chagnon;
 Fla.—Johnson; Ida.—J. M. A.
nigripalpus WALKER, List, iv, 1068.—Martin Falls, Canada.
obscuripennis BIGOT, see *Physogenua vittata*.
obtusa FALLÉN, Sciomyzides, 13.—Europe.
 MEIGEN, Syst. Besch., vi, 12.
 ZETTERSTEDT, Dipt. Scand., v, 2099.
 SCHINER, Fauna Austr., ii, 47.
 LOEW, Mon. N. A. Dipt., i, 105, oc. in N. A., etc.—Ill. N. J.—Smith Cat.
parallela WALKER, Dipt. Saund., 401.—U. S.
pubera LOEW, Mon. N. A. Dipt., i, 106.—Middle States. Seattle—J. M. A.
serena VAN DER WULP, Biologia, Dipt., ii, 356.—Mexico City and Vera Cruz.
squalens VAN DER WULP, Biologia, Dipt., ii, 356. pl. ix, f. 10.—Mexico City.
strigata VAN DER WULP, Biologia, Dipt., ii, pl. ix, f. 9.—Vera Cruz and Mexico
 City.
tenuipes LOEW, Cent., x, 80.—Middle States.
trabeculata LOEW, Cent., x, 81.—Texas.
transducta WALKER, Trans. Ent. Soc., n. ser., v, 320.—N. A.
vittata HALIDAY, Ent. Mag., 1833.—Europe.
 OSTEN SACKEN, Cat., 177, oc. in N. A. on authority of "Loew in litt."
Note.—I have not succeeded in tracing this species any farther than
 the data of the O. S. catalogue.

ACTORA.

- MEIGEN, Syst. Besch., v, 403, 1826.
 ZETTERSTEDT, Dipt. Scand., vi, 2468, 1847.
 SCHINER, Fauna Austr., ii, 40, 1864.
 ? **ferruginea** WALKER, List, iv, 1066.—Nova Scotia.
Note.—This probably goes near *Scatophaga*; it has oral vibrissæ.

HETEROCHEILA.

- RONDANI, Dipt. Ital. Prod., i, 104, 1856 (*Heterostoma*, preoc.); ii, 13, 1857
 (changed to *Heterochcila*); Atta Soc. Ital. Sci. Nat., xi, 1868, 154
 (changes again to *Exochcila*, because *Heterochcila* resembles other gen-
 eric names).
 LOEW, Zeitsch. f. Ent. zu Breslau, 1859, 10 (*Ædoparca*).
 COQUILLET, Proc. Wash. Acad. Sci., ii, 458, notes; accepts *Ædoparca*.
glauca COQUILLET, Proc. Wash. Acad. Sci., ii, 458 (*Ædoparca*).—Metlakahtla
 and Farragut Bay, Alaska.

DRYOMYZA.

- FALLÉN, Sciomyzides, 15, 1820.
 MEIGEN, Syst. Besch., v, 255, 1826.
 ZETTERSTEDT, Dipt. Scand., v, 2081, 1846.
 SCHINER, Fauna Austr., ii, 39, 1864.
aristalis COQUILLET, Proc. U. S. N. M., xxiii, 617.—Ottawa, Canada.
convergens WALKER, List, iv, 983.—Nova Scotia.
maculiceps WALKER, Trans. Ent. Soc., n. ser., v, 319.—Mex.
pallida DAY, see *Neuroctena anilis*.
simplex LOEW, Mon. N. A. Dipt., i, 128.—Middle States.

NEUROCTENA.

- RONDANI, Prodrôme Dipt. Ital., vii, pt. 3, 9, 1869.
anilis FALLÉN, Sciomyzides, 16 (*Dryomyza*).—Europe.

DESVOIDY, Myodaires, 619 (*Dryope liturata*).

MEIGEN, Syst. Besch., v, 257 (*Dryomyza*).

ZETTERSTEDT, Dipt. Scand., v, 2082 (id.).

SCHINER, Fauna Austr., II, 39, 1864.

LOEW, Mon. N. A. Dipt., I, 128, oc. in N. A.

DAY, Canad. Ent., 1881, 8) (*Dryomyza pallida*).—Conn. [Will.]

COQUILLET, Proc. Wash. Acad. Sci., II, 457, oc. in Alaska, N. J., N. H., Wash.

N. J.—Smith Cat.; Montreal—Chagnon.

fumida COQUILLET, Proc. U. S. N. M., XXIII, 616.—Beulah, N. M.
Beulah, N. M.—Skinner.

TETANOCERA.

DUMÉRIE, Mag. Encyclopédique, IV, 433, 1798 (see Osten Sacken, Verh. Zool.-Bot. Ges., 1900, 450, where the original is quoted, etc.).

LATREILLE, Gen. Crust. et Ins., IV, 350, 1809.

MEIGEN, Syst. Besch., VI, 31, 1820.

ZETTERSTEDT, Dipt. Scand., v, 2122, 1846.

SCHINER, Fauna Austr., II, 52, 1864.

VAN DER WULP, Biologia, Dipt., II, 357, 1897, table of Mexican species.

acuticornis VAN DER WULP, Biologia, Dipt., II, 358, pl. IX, f. 13.—N. Sonora, Mex.

ambigua LOEW, Cent., v, 95.—Me.

arcuata LOEW, Wien. Ent. Monatsch., III, 292; Mon. N. A. Dipt., I, 115.—Middle States.

N. J.—Smith Cat.; White Mts., N. H.—Slosson; Axton, N. Y.—M. and H.

boscii DESVOIDY, Myodaires, 608.—Carolina.

LOEW, Mon. N. A. Dipt., I, 108, said to be unrecognizable.

NEEDHAM, Bull. 47, N. Y. State Mus. Nat. Hist., 575, identified from Saranac Inn, N. Y.

canadensis MACQUART, Dipt. Exot., II, 3, 181, pl. XXIV, f. 5.—Canada.
Beulah, N. M.—Skinner.

clara LOEW, Mon. N. A. Dipt., I, 109.—Trenton Falls, N. Y.

DAY, Canad. Ent., XIII, 85, note and oc.—Mass., Conn.

N. J.—Smith Cat.; Saranac Inn, N. Y.—Needham.

combinata LOEW, Wien. Ent. Monatsch., III, 295; Mon. N. A. Dipt., I, 110.—Middle States.

DAY, Canad. Ent., XIII, 85, notes and oc.—Mass., Conn., Pa.

U. S. and Canada—O. S.; Montreal—Chagnon; N. J.—Smith Cat.

costalis LOEW, Mon. N. A. Dipt., I, 118.—Ill. White Mts., N. H.—Slosson.

flavescens LOEW, Stett. Ent. Zeit., VIII, 123; Wien. Ent. Monatsch., III, 291; Mon. N. A. Dipt., I, 113.—Carolina.

OSTEN SACKEN, Cat., 177, note.—West. N. Y.; may be only a larger *arcuata*.

N. J.—Smith Cat.; White Mts., N. H.—Slosson; Axton, N. Y.—M. and H.

lineata DAY, Canad. Ent., XIII, 88.—Conn.

montana DAY, Canad. Ent., XIII, 87.—Wyo.

pallida LOEW, Wien. Ent. Monatsch., III, 294; Mon. N. A. Dipt., I, 113.—Middle States.

N. J.—Smith Cat.; Montreal—Chagnon.

pectoralis WALKER, Trans. Ent. Soc., n. ser., v, 321.—Mex.

pictipes LOEW, see *unbrarum*.

plebeia LOEW, Mon. N. A. Dipt., I, 120.—Middle States.

- DAY, *Canad. Ent.*, XIII, 87, note and oc.—Wash.
Atlantic States and Canada—O. S.; White Mts., N. H.—Slosson; N. J.—Smith Cat.; Montreal—Chagnon; Axton, N. Y.—M. and H.; Province of Quebec—Fyles.
- plumifera* VAN DER WULP, *Biologia*, Dipt., II, 359.—Durango, Mex.
- plumosa* LOEW, *Stett. Ent. Zeit.*, VIII, 201; *Wien. Ent. Monatsch.*, III, 296; *Mon. N. A. Dipt.*, I, 121.—Sitka; Middle States.
- MACQUART, *Dipt. Exot.*, II, 3, 180, pl. XXIV, f. 7 (*vicina*, preoc.).—Philadelphia. [Lw.]
- WALKER, *List*, IV, 1086 (*struthio*).—Martin Falls, Canada; N. A. [Lw.]
- DAY, *Canad. Ent.*, XIII, 87, note and oc.—Conn.
- COQUILLET, *Proc. Wash. Acad. Sci.*, II, 457, oc. in Alaska, Cal., and U. S. generally. N. J.—Smith Cat.; White Mts., N. H.—Slosson; Beulah, N. M.—Skinner.
- pubescens* DAY, *Canad. Ent.*, XIII, 86.—Wash.
- rotundicornis* LOEW, *Cent.*, I, 70; *Mon. N. A. Dipt.*, I, 123.—North Red. R.; English R., Canada. White Mts., N. H.—Slosson.
- saratogensis* FITCH, 1st N. Y. Rept., 772.—N. Y.
LOEW, *Wien. Ent. Monatsch.*, III, 256; *Mon. N. A. Dipt.*, I, 119.—Middle States.
Atlantic States and Canada—O. S.; Montreal—Chagnon; N. J.—Smith Cat.; White Mts., N. H.—Slosson; Saranac Inn, N. Y.—Needham; Axton, N. Y.—M. and H.
- setosa* COQUILLET, *Proc. U. S. N. M.*, XXIII, 615.—New Bedford and Barnstable, Mass.; Ga.
- sparsa* LOEW, *Mon. N. A. Dipt.*, I, 117.—Middle States.
N. J.—Smith Cat.; Montreal—Chagnon; White Mts., N. H.—Slosson.
- spinicornis* LOEW, *Cent.*, VI, 86.—Cuba.
St. Augustine and Ormond, Fla., and Jamaica—Johnson.
- spretta* VAN DER WULP, *Biologia*, Dipt., II, 358.—Jalisco and Mexico City, Mex.
- straminata* VAN DER WULP, *Biologia*, Dipt., II, 357, pl. IX, f. 11.—Guerrero, Mex.
- triangularis* LOEW, *Cent.*, I, 69; *Mon. N. A. Dipt.*, I, 122.—North Red. R.; English R., Canada. White Mts., N. H.—Slosson.
- umbrarum* LINNÉ, *Fauna Suecica*, 458, no. 1864 (*Musca*).—Europe.
MEIGEN, *Syst. Besch.*, VI, 39 (*Dictya*).
SCHINER, *Fauna Austr.*, II, 56.
LOEW, *Wien. Ent. Monatsch.*, III, 292 (*pictipes*); *Mon. N. A. Dipt.*, I, 111 (id.).—D. C.
DAY, *Canad. Ent.*, XIII, 85, note and oc.—Conn., Pa., Kans., Wash. (id.).
GIGLIO-TOS, *Ditt. del Mess.*, IV, 38, notes.—Morelia, Mex. (id.).
VAN DER WULP, *Biologia*, Dipt., II, 357, pl. IX, f. 12 (id.).—Mexico, several places.
NEEDHAM, *Bull.* 47, N. Y. State Mus. Nat. Hist., 580, pl. XIV, f. 9-14 (id.), life hist.; the larvæ float at surface of water in creeks, among vegetation. Colored figs. of larva, puparium, and adult.—Adirondacks, N. Y.
KERTÉSZ, *Termész. Füzetek*, 1901, 419, asserts absolute identity of *pictipes* with *umbrarum*; places in his genus *Monochatophora*.
Montreal—Chagnon; White Mts., N. H.—Slosson.
- valida* LOEW, *Mon. N. A. Dipt.*, I, 110.—No locality; O. S. gives N. Y., Quebec. White Mts., N. H.—Slosson; Montreal—Chagnon.

SEPEDON.

- LATREILLE, *Hist. Nat. Crust. et Ins.*, XIV, 305, 1804.
FALLÉN, *Sciomyzides*, 2, 1820.

MEIGEN, Syst. Besch., vi, 27, 1830.

SCHINER, Fauna Austr., ii, 64, 1864.

LOEW, Mon. N. A. Dipt., i, 124, 1862.

VAN DER WULP, Biologia, Dipt., ii, 359, table of Mexican species, 1897.

armipes LOEW, Wien. Ent. Monatsch., iii, 298; Mon. N. A. Dipt., i, 126.—Middle States.

WEBSTER, Canad. Ent., 1900, 213, oc. in Ohio. N. J.—Smith Cat.

Common in the upper Mississippi Valley—J. M. A.

fuscipennis LOEW, Wien. Ent. Monatsch., iii, 299; Mon. N. A. Dipt., i, 124.—Middle States.

DAY, Canad. Ent., xiii, 88, notes and oc.—Wash.

NEEDHAM, Bull. 47, N. Y. State Mus. Nat. Hist., 577, pl. xiv, f. 1-8, life hist.; larva floats at surface of water in creek, among vegetation. Colored figs. of larva, puparium, and adult.—Adirondacks, N. Y.

N. J.—Smith Cat.

macropus WALKER, List, iv, 1078.—Jamaica.

LOEW, Mon. N. A. Dipt., i, 125.—Middle States. Porto Rico—Roeder.

nigriventris VAN DER WULP, Biologia, Dipt., ii, 359.—Vera Cruz, Mex.

nubilipennis VAN DER WULP, Biologia, Dipt., ii, 360, pl. ix, f. 14.—Mazatlan and Vera Cruz, Mex.

præmiosus GIGLIO-TOS, Boll. R. Univ. Torino, viii, No. 158; Ditt. del Mess., iv, 38.—Morelia, Mex.

pusillus LOEW, Wien. Ent. Monatsch., iii, 299; Mon. N. A. Dipt., i, 127.—Middle States.

N. J.—Smith Cat.; White Mts., N. H.—Slosson.

relictus VAN DER WULP, Biologia, Dipt., ii, 359.—Mexico City.

SAPROMYZIDÆ.

WILLISTON, Ent. News, v, 196, 1894, table of and notes on species.

BECKER, Berl. Ent. Zeitsch., xl, 171-204, 1895, a monograph of the European genera and species.

LONCHÆA.

FALLÉN, Orthalides, 25, 1820.

SCHINER, Fauna Austr., ii, 88, 1864.

BECKER, Berl. Ent. Zeitsch., xl, 1895, 322, full discussion of the genus and the European species.

PACKARD, Guide to Study of Insects, 412, figs. and life history of "*Lonchæa* sp." the larva of which makes blister-like swellings on twigs of willow at Brunswick, Me.; 5th Rept. U. S. Ent. Comm., 598, notice of same.

albitarsis ZETTERSTEDT, Ins. Lapp., 754; Dipt. Scand., vi, 2351.—Europe.

COQUILLET, Proc. Wash. Acad. Sci., ii, 458, oc. in Sitka, Alaska.

brevicornis WILLISTON, Trans. Ent. Soc. Lond., 1896, 379.—St. Vincent, W. I.

cærulea WALKER, List, iv, 1004.—Ga.

chalybea WIEDEMANN, Auss. Zw., ii, 476.—S. A.

SCHINER, Novara, 282, note.

VAN DER WULP, Tijdschr. v. Ent., 1883, 55.—Brazil.

GIGLIO-TOS, Ditt. del Mess., iv, 52, oc. in Tuxpango, Mex.

deutsch ZETTERSTEDT, Ins. Lapp., 753; Dipt. Scand., vi, 2348.—Europe.

COQUILLET, Proc. Wash. Acad. Sci., ii, 458, oc. in Sitka, Alaska.

discrepans WALKER, Trans. Ent. Soc., n. ser., v, 322.—Mex.

- glaberrima* WIEDEMANN, AUSS. ZW., II, 475.—W. I.
Lake Worth, Fla.—Johnson.
- hyalipennis* ZETTERSTEDT, Dipt. Scand., VI, 2350.—Europe.
COQUILLET, Proc. Wash. Acad. Sci., II, 459, oc. in Yakutat and Virgin Bay, Alaska (*hyalinipennis*).
- longicornis* WILLISTON, Trans. Ent. Soc. Lond., 1896, 378.—St. Vincent, W. I.
COQUILLET, Proc. U. S. N. M., XXII, 258, oc. in Porto Rico.
- nigra* WIEDEMANN, AUSS. ZW., II, 476.—Brazil.
BIGOT, Sagra's Cuba, 827, oc. in Cuba.
White Mts., N. H.—Slosson.
- orchidearum* TOWNSEND, Trans. Amer. Ent. Soc., XXII, 80.—Jamaica; bred from flower-stem of an orchid, *Oncidium luridum*.
- polita* SAY, Jour. Acad. Sci. Phil., VI, 188; Compl. Works, II, 371.—Ind.
HOWARD, Proc. Wash. Acad. Sci., II, 586, reared from human excrement. Mass.—Harris Cat., quoted by O. S.
- rufitarsis* MAQUART, Dipt. Exot., Suppl. IV, 300, pl. XXVIII, f. 2.—N. A.
? WALKER, List, IV, 1004 (*tarsata* FALL.).—Martin Falls, Canada. [O. S., with a doubt.]
GIGLIO-TOS, Ditt. del Mess., IV, 53, oc., etc.—Mex.
N. J.—Smith Cat., "Larvæ and pupæ in decayed wood"; White Mts., N. H.—Slosson; Axton, N. Y.—M. and H.

PALLOPTERA.

- FALLÉN, Orthalides, 1820, 23.
SCHINER, Fauna Austr., II, 107, 1864.
BECKER, Berl. Ent. Zeitsch., XL, 1895, 313, discussion of genus, with table of European species.
- arcuata* FALLÉN, Orthalides, 25.—Sweden.
MEIGEN, Syst. Besch., V, 267 (*Sapromyza inusta*).
ZETTERSTEDT, Dipt. Scand., VI, 2275.
SCHINER, Fauna Austr., II, 108.
White Mts., N. H.—Slosson (det. by Coq.).
- juvunda* LOEW, Cent., III, 55.—Sitka.
COQUILLET, Proc. Wash. Acad. Sci., II, 459, oc. in Alaska, Idaho and Col.
- superba* LOEW, Cent., I, 75.—Pa. Quebec—O. S.; White Mts., N. H.—Slosson; Province of Quebec—Fyles.
- terminalis* LOEW, Cent., III, 54.—Sitka.

PACHYCERINA.

- MACQUART, Hist. Nat. Dipt., II, 511, 1835.
SCHINER, Fauna Austr., II, 93, 1864.
BECKER, Berl. Ent. Zeitsch., 1895, XL, 250.
- clavipennis* COQUILLET, Canad. Ent., XXX, 280.—St. Augustine, Fla.
- dolorosa* WILLISTON, in Adams's paper, Kans. Univ. Sci. Bull., II, 37.—Col.
- verticalis* LOEW, Cent., I, 82.—Fla.
TOWNSEND, Canad. Ent., 1893, 303 (*Sapromyza vulgaris* FITCH). [Kahl.]
N. J.—Smith Cat.; Florida—Johnson; "Over the greater part of the U. S."—Williston; Beulah, N. M.—Skinner.
- Note.*—Mr. Kahl informs me that *verticalis* and the true *vulgaris* FITCH belong to the same genus, which is neither *Pachycerina* nor *Sapromyza*.

PHYSOGENUA.

MACQUART, Dipt. Exot., Suppl. III, 60, 1847 (*Physogenua*).

SCHINER, Novara, 277, 1868, notes.

BECKER, Berl. Ent. Zeitsch., XL, 1895, 255.

ferruginea SCHINER, Novara, 277.—S. A.

GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893 (*urine*); Ditt. del Mess., IV, 50 (*urina*).—Tuxpango, Mex.

WILLISTON, Ent. News, 1894, 107, syn., with a doubt; Kans. Univ. Quart., VI, 8, oc. in Brazil, and syn.

? **nigra** WILLISTON, Trans. Ent. Soc. Lond., 1896, 379, pl. XIII, f. 133; Kans. Univ. Quart., VI, 8, refers to Becker's "genus incertum," Berl. Ent. Zeitsch., XL, pl. I, f. 12.—St. Vincent, W. I.; Brazil.

obscuripennis BIGOT, see *vittata*.

urina GIGLIO-TOS, see *ferruginea*.

variegata LOEW, see *vittata*.

vittata MACQUART, Dipt. Exot., Suppl. III, 60, pl. VII, f. 2.—Brazil.

BIGOT, in Sagra's Cuba, 826 (*Sciomyza obscuripennis*).—Cuba. [Roeder.]

LOEW, Cent., I, 83 (*Lauxania variegata*).—Cuba.

SCHINER, Novara, 277, oc. in S. A. (*variegata*).

ROEDER, Stett. Ent. Zeit., 1885, 349.—Porto Rico.

BECKER, Berl. Ent. Zeitsch., XL, 255, pl. I, f. 4, 5, full discussion.

Jamaica—Johnson.

GRIPHONEURA.

SCHINER, Novara, 281, 1868.

BECKER, Berl. Ent. Zeitsch., XL, 256, 1895.

imbuta WIEDEMANN, Auss. Zw., II, 474.—Brazil.

SCHINER, Novara, 281, pl. III, f. 5.—S. A.

GIGLIO-TOS, Ditt. del Mess., IV, 52, oc. in Tuxpango, Mex.

LAUXANIA.

LATREILLE, Hist. Nat. Crust. et Ins., XIV, 390, 1804.

MEIGEN, Syst. Besch., V, 295, 1826.

SCHINER, Fauna Austr., II, 94, 1864.

BECKER, Berl. Ent. Zeitsch., XL, 246, 1895.

COQUILLET, Canad. Ent., XXX, 279, 1898, table of new species.

albiseta COQUILLET, Canad. Ent., XXX, 289.—Santa Cruz Mts., Cal.

albovittata LOEW, Cent., II, 79.—Cuba. Porto Rico—Roeder; Jamaica—Johnson.

argyrostoma WIEDEMANN, Auss. Zw., II, 471.—W. I.

SCHINER, Novara, 282, oc. in S. A.

cineracea COQUILLET, Jour. N. Y. Ent. Soc., X, 179.—Biscayne Bay, Fla.

cylindricornis FABRICIUS, Ent. Syst., IV, 332 (*Musca*); Syst. Antl., 212.—Europe.

FALLÉN, Orthalides, 27.

MEIGEN, Syst. Besch., V, 296.

MACQUART, Hist. Nat. Dipt., II, 508.

ZETTERSTEDT, Dipt. Scand., VI, 2360.

SCHINER, Fauna Austr., II, 95.

LOEW, in Silliman's Mag., oc. in N. A.

*BECKER, Berl. Ent. Zeitsch., XL, 247, full bibliog., etc.

COQUILLET, Proc. Wash. Acad. Sci., II, 460, oc. in Alaska, and from Nova Scotia to Ga. Axton, N. Y.—M. and H.

? **elisa** MEIGEN, Syst. Besch., V, 297.—Europe.

SCHINER, Fauna Austr., II, 95.

- WALKER, List. IV, 1003, oc. in Nova Scotia; which is very doubtful.
- eucephala** LOEW, Cent., x, 83.—Texas. Miss.—J. M. A.
- facialis** COQUILLET, Canad. Ent., xxx, 279.—Fla., Ga.
- femoralis** LOEW, Cent., i, 89.—Ga. Kans., Tenn.—J. M. A.
- flaviceps** LOEW, Cent., vii, 91.—D. C.
- flavipennis** FABRICIUS, Syst. Antl., 207 (*Scatophaga*).—S. A.
WIEDEMANN, Auss. Zw., ii, 471.—S. A.
SCHINER, Novara, 281, note.—Brazil, Colombia.
? MACQUART, Dipt. Exot., Suppl. iv, 300, pl. xxviii, f. 3 (*ruficornis*).—
Bahia, Brazil. [G.-T., with a doubt.]
- GIGLIO-TOS, Ditt del Mess., iv, 82, oc. in Tuxpango, Mex.
- frontalis** LOEW, see *Sapromyza*.
- gacilipes** LOEW, Cent., i, 85.—Pa. N. J.—Smith Cat.; Kans.—J. M. A.
- latipennis** COQUILLET, Canad. Ent., xxx, 279.—Fla., Ga. N. J.—Smith Cat.
- longicornis** COQUILLET, Jour. N. Y. Ent. Soc., x, 178.—Williams and Oracle,
Ariz.; Mesilla Park, N. M.
- lutea** COQUILLET, Jour. N. Y. Ent. Soc., x, 179.—L. Worth and Biscayne Bay,
Fla.
- manuleata** LOEW, Cent., i, 88.—Pa.
- muscaria** LOEW, Cent., i, 87.—Cuba.
SCHINER, Novara, 382, oc. in S. A.
WILLISTON, Trans. Ent. Soc. Lond., 1896, 383, doubtful oc. in St. Vincent.
N. J.—Smith Cat.
- nasalis** THOMSON, Eugen. Resa, 568.—Cal.
- nigrimanus** COQUILLET, Jour. N. Y. Ent. Soc., x, 179.—Williams, Ariz.
- obscura** LOEW, Cent., i, 86.—English R., Canada; Pa.
N. J.—Smith Cat.; Montreal—Chagnon; White Mts., N. H.—Slosson.
- opaca** LOEW, Cent., i, 84.—Fla. N. J.—Smith Cat.; Fla., several places—John-
son.
- planiscutum** THOMSON, see *Sapromyza*.
- quadrisetosa** THOMSON, see *Sapromyza*.
- trivittata** LOEW, Cent., i, 90.—Ga. Georgetown, Fla.—Johnson.
- variceps** COQUILLET, Jour. N. Y. Ent. Soc., x, 178.—Williams, Ariz.
- variegata** LOEW, see *Physogenua*.

SAPROMYZA.

- FALLÉN, Ortalides, 1820, 29.
- MEIGEN, Syst. Besch., v, 258, 1826.
- SCHINER, Fauna Austr., ii, 96, 1864.
- BECKER, Berl. Ent. Zeitsch., xl, 179, 1895.
- WILLISTON, Trans. Ent. Soc. Lond., 1896, 379, table of St. Vincent species.
- TOWNSEND, Canad. Ent., xxiv, 301, table of species, 1892.
- F. LYNCH A., Ann. Soc. Cient. Argentina, xxxiv, 253-303, 1893, table and
desc. of all American species.
- COQUILLET, Canad. Ent., xxx, 277, partial table of species, 1898.
- amida** WALKER, List. IV, 988.—Ga.
- angustipennis** WILLISTON, Trans. Ent. Soc. Lond., 1896, 381, pl. xiii, f. 134.—
St. Vincent, W. I.
- apta** WALKER, see *late limbata*.
- bipunctata** SAY, Jour. Acad. Sci. Phil., vi, 178; Compl. Works, ii, 367.—Mex.
WILLISTON, Kans. Univ. Quart., vi, ii, doubtful oc. in Rio Janeiro.
- bispina** LOEW, Cent., i, 79.—Nebr. N. J.—Smith Cat.
- brachysoma** COQUILLET, Canad. Ent., xxx, 278; Proc. Wash. Acad. Sci., ii, 460,
oc.—White Mts., N. H.; Muir Inlet and Sitka, Alaska.

- cincta** LOEW, Cent., 1, 81.—Cuba.
GIGLIO-TOS, Ditt. del Mess., iv, 48, note.—Tuxpango, Mex.
Porto Rico—Roeder; White Mts., N. H.—Slosson.
Probably is same as *vulgaris* FITCH.—Williston.
- compedita** LOEW, Cent., 1, 76.—Pa. N. J.—Smith Cat.; Montreal—Chagnon;
White Mts., N. H.—Slosson; Pacific Coast—Will.
- connexa** SAY, Jour. Acad. Sci. Phil., vi, 177; Compl. Works, ii, 367.—Ind.
- contigua** FABRICIUS, Ent. Syst., iv, 347 (*Musca*); Syst. Antl., 206 (*Scatophaga*).
—Brazil.
WIEDEMANN, AUSS. ZW., II, 450.—Brazil.
SCHINER, Novara, 279, oc. in Brazil.
GIGLIO-TOS, Ditt. del Mess., iv, 49, oc. in Mexico.
- crevecœuri** COQUILLET, Canad. Ent., xxx, 278.—Onaga, Kans.
- decora** LOEW, Cent., v, 96.—Lake George, N. Y. Canada—O. S.
N. J.—Smith Cat.; Montreal—Chagnon; collected in Wis. by Wheeler—
J. M. A.
- exul** WILLISTON, Trans. Ent. Soc. Lond., 1896, 382.—St. Vincent, W. I.
Rio Janeiro—Will.
- flaveola** COQUILLET, Canad. Ent., xxx, 279.—Seattle, Wash.; Ore.: Los Angeles
Co., Cal.
- fraterna** LOEW, Cent., 1, 77.—Pa. N. J.—Smith Cat.
- frontalis** LOEW, Wien. Ent. Monatsch., II, 14 (*Laurania*).—Europe.
SCHINER, Fauna Austr., II, 96 (id.).
LOEW, Silliman's Jour., oc. in N. A.
BECKER, Berl. Ent. Zeitsch., XL, 240, gen. ref. and desc.
- geminata** FABRICIUS, Syst. Antl., 331 (*Dictya*).—S. A.
WIEDEMANN, AUSS. ZW., II, 450.—S. A.
GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158 (*plagosa*); Ditt. del Mess.,
iv, 47.—Tuxpango, Mex.
WILLISTON, Ent. News, 1894, 197, syn.; Kans. Univ. Quart., vi, 9, notes.
- glauca** COQUILLET, Jour. N. Y. Ent. Soc., x, 177.—Marlboro, Md.
- houghii** COQUILLET, Canad. Ent., xxx, 277.—Mass.
- hubbardii** COQUILLET, Canad. Ent., xxx, 277.—Chiric Mts., Ariz.
- ingrata** WILLISTON, Trans. Ent. Soc. Lond., 1896, 385.—St. Vincent, W. I.
- innuba** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158; Ditt. del Mess., iv, 49.
—Mex.
N. J.—Smith Cat.
- latelimbata** MACQUART, Dipt. Exot., Suppl. v, 120, pl. vi, f. 18.—Brazil.
WALKER, Trans. Ent. Soc., n. ser., v, 54 (*apta*).—Mex. [G.-T.]
SCHINER, Novara, 279, as syn. of *rubescens* MACQ.
GIGLIO-TOS, Ditt. del Mess., iv, 49, notes on the syn., etc.—Tuxpango, Mex.
- lineata** WILLISTON, Trans. Ent. Soc., 1896, 385.—St. Vincent, W. I.
- livingstoni** COQUILLET, Canad. Ent., xxx, 278.—Vancouver Id.
- longipennis** FABRICIUS, Ent. Syst., iv, 323 (*Musca*); Syst. Antl., 299 (id.).—Eu-
rope.
MEIGEN, Syst. Besch., v, 300 (*Laurania*).
DESVOIDY, Myodaires, 646 (*Minettia luctuosa*).
SCHINER, Fauna Austr., II, 97.
VAN DER WULP, Tijdschr. v. Ent., 1867, oc. in N. A. N. J.—Smith Cat.
- lupulina** FABRICIUS, Mant. Insect., II, 344 (*Musca*); Ent. Syst., iv, 323 (id.);
Syst. Antl., 298 (id.).—Europe.
MEIGEN, Syst. Besch., v, 301 (*Laurania*).
DESVOIDY, Myodaires, 647 (*Minettia testacea*).

- SCHINER, Fauna Austr., II, 97.
 LOEW, in Silliman's Jour., oc. in N. A.
 BECKER, Berl. Ent. Zeitsch., XL, 213.
 COQUILLET, Proc. Wash. Acad. Sci., II, 460, oc. in Alaska, Kans., Col., N. C.
 N. J.—Smith Cat.; Pacific Coast—Will.; White Mts., N. H.—Slosson; Axton, N. Y.—M. and H.
- macula** LOEW, Cent., x, 82.—Texas.
 WILLISTON, Ent. News, 1894, 197, may be syn. of *octopunctata*; Trans. Ent. Soc. Lond., 1896, 380, oc. in St. Vincent, W. I., and Brazil.
 N. J.—Smith Cat.
- magna** COQUILLET, Canad. Ent., XXX, 279.—D. C.
- notata** FALLÉN, Ortalides, 30.—Europe.
 MEIGEN, Syst. Besch., v, 271.
 MACQUART, Hist. Nat. Dipt., II, 402 (*duodecimpunctata*).
 LOEW, Dipt. Beitr., III, 40.
 SCHINER, Fauna Austr., II, 99.
 VAN DER WULP, Tijdschr. v. Ent., 1867, oc. in N. A.
 BECKER, Berl. Ent. Zeitsch., XL, 203.
 White Mts., N. H.—Slosson; Axton, N. Y.—M. and H.
- ocellaris** TOWNSEND, see *vulgaris*.
- octopunctata** WIEDEMANN, AUSS. ZW., II, 454.—W. I.
 ROEDER, Stett. Ent. Zeit., 1885, 349, pt. desc.—Porto Rico.
 See *macula*.
- octovittata** WILLISTON, Trans. Ent. Soc. Lond., 1896, 382.—St. Vincent, W. I.
- philadelphica** MACQUART, Dipt. Exot., II, 3, 191.—N. A.
 Atlantic States—O. S.; Quebec—Wulp; White Mts., N. H.—Slosson; N. J.—Smith Cat.
- planiscutum** THOMSON, Eugen. Resa, 586 (*Laurania*).—Cal.
 Identified from Ore. by Coquillett, in the Oregon Agricultural College collection.
- puella** WILLISTON, Trans. Ent. Soc. Lond., 1896, 381.—St. Vincent, W. I.
- puncticeps** COQUILLET, Jour. N. Y. Ent. Soc., x, 178.—Mt. Washington, N. H.
- quadrilineata** LOEW, Cent., I, 78.—Pa.
 N. J.—Smith Cat.; Montreal—Chagnou; White Mts., N. H.—Slosson.
- quadrisetosa** THOMSON, Eugen. Resa, 569 (*Laurania*).—Cal.
- resinosa** WIEDEMANN, AUSS. ZW., II, 456.—Ga. Fla.—Johnson; Axton, N. Y.—M. and H.
- rotundicornis** LOEW, Cent., III, 56.—Sitka. White Mts., N. H.—Slosson.
- sheldoni** COQUILLET, Canad. Ent., XXX, 277.—N. Y.
- slossonæ** COQUILLET, Canad. Ent., XXX, 277.—Biscayne Bay, Fla.
- sonax** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., IV, 48.—Tuxpango, Mex.
- sordida** WIEDEMANN, AUSS. ZW., II, 456.—W. I.
 WILLISTON, Trans. Ent. Soc. Lond., 1896, 383, doubtfully recognized from St. Vincent, W. I.
 COQUILLET, Proc. U. S. N. M., XXII, 258, oc. in Porto Rico, Fla. and Ga.
- sororia** WILLISTON, Trans. Ent. Soc. Lond., 1896, 385.—St. Vincent, W. I.
- stata** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., IV, 47.—Orizaba, Mex.
- stictica** LOEW, Cent., III, 58.—D. C. Texas—O. S.
- tenuispina** LOEW, Cent., I, 80.—Nebr.
- umbrosa** LOEW, Cent., III, 57.—D. C.
 N. J.—Smith Cat.; Ormond, Fla.—Johnson.

- venusta** WILLISTON, Trans. Ent. Soc. Lond., 1896, 384.—St. Vincent, W. I.
vinnula GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., IV, 48.—Tuxpango, Mex.
vittigera COQUILLET, Jour. N. Y. Ent. Soc., x, 178.—Ga.
vulgaris FITCH, 1st N. Y. Rept., 300, pl. 1 (*Chlorops*).—N. Y.
 VAN DER WULP, Tijdschr. v. Ent., x, 159 (*plumata*).—Wis. [O. S.]
 TOWNSEND, Canad. Ent., 1893, 303 (*ocellaris*).—N. M. [Kahl.]
 F. LYNCH A., Ann. Soc. cient. Argentina, xxxiv, 283.—Argentina
 WILLISTON, Trans. Ent. Soc. Lond., 1896, 384, notes.—St. Vincent, W. I.
 COCKERELL, Jour. N. Y. Ent. Soc., vi, 206, oc at Agency, N. M.
 OSTEN SACKEN, Cat., 261, note 311.
 Pacific Coast—Will.; N. J.—Smith Cat.
 See note to *Pachycerina verticalis*.

CHÆTOCÆLIA.

- GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., IV, 50, 1895.
palens GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158; Ditt. del Mess., IV, 51, f. 14.—Orizaba, Mex.
vergens GIGLIO-TOS, Ditt. del Mess., IV, 51, f. 15.—Tuxpango, Mex.

TRIGONOMETOPUS.

- MACQUART, Hist. Nat. Dipt., II, 419, 1835.
 LOEW, Centuries, App., p. 290, note.
 WILLISTON, Manual, 127, footnote, 1896.
 CZERNY, Wien. Ent. Zeit., xxii, 62, discusses relations, 1903.
punctipennis COQUILLET, Canad. Ent., xxx, 280.—Col.
rotundicornis WILLISTON, Trans. Ent. Soc. Lond., 1896, 388, pl. XIII, f. 137.—St. Vincent, W. I.
vittatus LOEW, Cent., VIII, 98; App., p. 290, note.—Ga.

ORTALIDÆ.

- VAN DER WULP, Biologia, Dipt., II, 377, 1897, def. and table of genera of the Mexican region, including *Rhopalomera* and *Toxotrypana*.

PYRGOTA.

- WIEDEMANN, Auss. Zw., II, 580, 1830.
 MACQUART, Dipt. Exot., II, 3, 197, 1843 (*Oxycephala*).
 SCHINER, Fauna Austr., II, 66, 1804.
 LOEW, Mon. N. A. Dipt., III, 72, 1872.
chagnoni JOHNSON, Canad. Ent., 1900, 246.—Montreal Id., Canada.
fenestrata MACQUART, Dipt. Exot., Suppl. IV, 281, pl. xxvi, f. 1 (*Oxycephala*).—No locality; Osten Sacken gives N. A. in Cat., 181.
filiola LOEW, Zeitsch. f. Ges. Naturwiss., 1876, 332.—Tex.
 OSTEN SACKEN, West. Dipt., 343 (*debilis*).—Ky. [O. S.]
 Ormond, Fla.—Johnson.
lucens VAN DER WULP, Biologia, Dipt., II, 378, pl. x, f. 1.—Guatemala.
pterochorina GERSTÆCKER, Steit. Ent. Zeit., XXI, 190, pl. II, f. 6.—Carolina.
 LOEW, Mon. N. A. Dipt., III, 81, transl. of desc., with notes.
undata WIEDEMANN, Auss. Zw., II, 581, pl. x, f. 6.—N. A.

- MACQUART, Hist. Nat. Dipt., II, 423, pl. XVIII, f. 23; Dipt. Exot., II, 3, 198, pl. XXVI, f. 6 (*Oxyccra fuscipennis*).—N. A.; no locality for the second, but America is given in Suppl. IV, 281.
- GRAY, in Griffith's Animal Kingdom, pl. CXXV, f. 5 (*Myopa nigripennis*), 1832. [Gerstæcker.]
- HARRIS, Ins. Inj. to Vegetation, 3d ed., 610, f. 268 (*Sphcomyia*).—Mass.
- GERSTÆCKER, Stett. Ent. Zeit., XXI, 188, pl. II, f. 7.
- LOEW, Mon. N. A. Dipt., III, 77, syn., etc.—U. S.
- Mass. to Kans.—O. S. Montreal—Chagnon; N. J.—Smith Cat.; Province of Quebec—Fyles.
- I collected it at light in Lawrence, Kans.—J. M. A.
- valida** HARRIS, Ins. Inj. to Veg., 3d ed., 611 (*Sphcomyia*).—Mass.
- ? MACQUART, Dipt. Exot., Suppl. 1, 210, pl. XVIII, f. 12 (*Oxycephala maculipennis*).—Galveston, Tex. [O. S., with a query.]
- LOEW, Neue Beitr., II, 22 (*millepuncta*); Mon. N. A. Dipt., III, 74 (id.).—D. C., N. Y., Ill.
- N. and Mid. States—O. S.; N. J.—Smith Cat.
- vespertilio** GERSTÆCKER, Stett. Ent. Zeit., XXI, 189, pl. II, f. 8.—Carolina.
- LOEW, Mon. N. A. Dipt., III, 79, transl. and notes.

OSTRACOCÆLIA.

- GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., IV, 44, 1895.
- mirabilis** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158; Ditt. del Mess., IV, 44, f. 13.—Mex.
- VAN DER WULP, Biologia, Dipt., II, 392, pl. IX, f. 27.—Guerrero, Vera Cruz, and Tampico, Mex.

AMPHICNEPHES.

- LOEW, Mon. N. A. Dipt., III, 83, 1873.
- fasciola** COQUILLETT, Jour. N. Y. Ent. Soc., VIII, 21.—Onaga, Kans.
- pertusus** LOEW, Mon. N. A. Dipt., III, 84, pl. VIII, f. 1.—Carolina, D. C., Conn.
- WIEDEMANN, Auss. Zw., II, 506 (*Trypeta pulla*).—No locality.
- OSTEN SACKEN, Berl. Ent. Zeitsch., 1883, 298, syn., and remarks on the right of priority of species published without locality.
- N. J.—Smith Cat.; Georgetown and Ormond, Fla.—Johnson.
- stellatus** VAN DER WULP, Biologia, Dipt., II, 390, pl. X, f. 23.—Guerrero and Yucatan, Mex.

AUTOMOLA.

- LOEW, Mon. N. A. Dipt., III, 118, 1873.
- VAN DER WULP, Biologia, Dipt., II, 390, 1899.
- atomaria** WIEDEMANN, Auss. Zw., II, 461 (*Ortalis*).—Brazil.
- VAN DER WULP, Biologia, Dipt., II, 390, pl. X, f. 22.—Vera Cruz, Mex.

PLATYSTOMA.

- MEIGEN, Illig. Mag., II, 277, 1803; Syst. Besch., V, 390, 1826.
- SCHINER, Fauna Austr., II, 82, 1864.
- ? **mexicanum** GIGLIO-TOS, Boll. R. Univ. Torino, No. 158, 1893; Ditt. del Mess., IV, 46.—Tuxpango, Mex.; the question is raised in the second reference.

RIVELLIA.

- DESVOIDY, Myodaires, 729, 1830.
- SCHINER, Fauna Austr., II, 80, 1864.

- LOEW, Mon. N. A. Dipt., III, 44 and 87, 1873.
- VAN DER WULP, Biologia, Dipt., II, 381, 1899, table of Mexican species.
- basilaris** COQUILLET, Jour. N. Y. Ent. Soc., VII, 21.—Col., Kans.
- boscii** DESVOIDY, Myodaires, 730.—Carolina.
? MACQUART, Hist. Nat. Dipt., II, 459 (*Urophora interrupta*).—N. A.
[Coquillett; query by J. M. A.]
- LOEW, Mon. N. A. Dipt., III, 93, obs.; not recognized.
- brevifasciata** JOHNSON, Ent. News, XI, 326.—Atco, N. J.; Tifton, Ga.
- conjuncta** LOEW, Mon. N. A. Dipt., III, 88, pl. VIII, f. 3.—Md.
VAN DER WULP, Biologia, Dipt., II, 383, pl. x, f. 11.—Morelos and Guerrero, Mex.; Costa Rica. N. J.—Smith Cat.
- connecta** VAN DER WULP, Biologia, Dipt., II, 383, pl. x, f. 12.—Guerrero, Mex.
- flavimanus** LOEW, Mon. N. A. Dipt., III, 92, pl. VIII, f. 7.—Nebr.
? VAN DER WULP, Tijdschr. v. Ent., X, 154, pl. v, f. 10 (*Herina metallica*).
—Wis. [O. S., with a query.]
- OSTEN SACKEN, Cat., 182, note.
N. J.—Smith Cat.; Montreal—Chagnon.
- flexuosa** VAN DER WULP, Biologia, Dipt., II, 383, pl. x, f. 13.—Guerrero, Mex.
- floridana** JOHNSON, Canad. Ent., 1900, 247.—L. George, Fla.
- ligata** SAY, Jour. Acad. Sci. Phil., VI, 83; Compl. Works, II, 368 (*Ortalis*).—Mex.
LOEW, Mon. N. A. Dipt., III, 197, quotes desc.; gen. ref.
- longicornis** VAN DER WULP, Biologia, Dipt., II, 384, pl. x, f. 15.—Guerrero, Mex.
- micans** LOEW, Mon. N. A. Dipt., III, 94.—Texas.
VAN DER WULP, Biologia, Dipt., II, 382, pl. x, f. 9, oc. and note.—N. Sonora, Mex.
Ga.—Williston MS.
- occulta** VAN DER WULP, Biologia, Dipt., II, 382, pl. x, f. 8.—Guerrero, Mex.
- pallida** LOEW, Mon. N. A. Dipt., III, 95, pl. VIII, f. 8.—D. C.
HOWARD, Proc. Wash. Acad. Sci., II, 585, note.—D. C.
N. J.—Smith Cat.; St. Augustine and Georgiana, Fla.—Johnson.
- pilosula** VAN DER WULP, Biologia, Dipt., II, 384, pl. x, f. 14.—Tabasco, Mex.
- quadrifasciata** MACQUART, Hist. Nat. Dipt., II, 433 (*Herina*).—N. A.
LOEW, Mon. N. A. Dipt., III, 90, pl. VIII, f. 5.—Nebr.
N. J.—Smith Cat.; Fla., several places—Johnson; Mont.—Williston MS.
- submetallica** VAN DER WULP, Biologia, Dipt., II, 382, pl. x, f. 10.—Guerrero, Mex.
- variabilis** LOEW, Mon. N. A. Dipt., III, 91, pl. VIII, f. 6.—D. C.; locality questioned
by O. S. N. J.—Smith Cat.; Fla., several places—Johnson; Ga.—Williston MS.
- viridulans** DESVOIDY, Myodaires, 729.—N. A.
MACQUART, Dipt. Exot., Suppl. v, 123, pl. VII, f. 5 (*Herina rufitarsis*).—
Baltimore, Md. [Lw.]
- FITCH, 1st N. Y. Report, 65 (*Tephritis melliginis*).—N. Y.; attending the
apple aphid.
- WALKER, List, IV, 992, 993 (*Ortalis quadrifasciata* FITCH and *Ortalis
otrada*).—Both N. A.
- COQUILLET, Jour. N. Y. Ent. Soc., VIII, 22, would also place *Ortalis bipars*
WALKER here as a synonym; but the description shows several dis-
crepancies.
- LOEW, Mon. N. A. Dipt., III, 88, pl. VIII, f. 4, desc., syn., etc.—N. Y., Ga.,
D. C.
Quebec—V. d. Wulp; N. J.—Smith Cat.

MYRMECOMYIA.

DESVOIDY, *Myodaires*, 721, 1830.

MACQUART, *Hist. Nat. Dipt.*, II, 483, 1835 (*Michogaster*; amended into *Mischogaster* by V. d. Wulp).

LOEW, *Mon. N. A. Dipt.*, III, 99, 1873.

myrmecoides LOEW, *Wich. Ent. Monatsch.*, IV, 83 (*Cephalia*); *Mon. N. A. Dipt.*, III, 100, pl. VIII, f. 9.—D. C.

nitidipennis VAN DER WULP, *Biologia, Dipt.*, II, 385, pl. x, f. 16 16a (*Mischogaster*).—Panama.

HIMAROËSSA.

LOEW, *Mon. N. A. Dipt.*, III, 85, 1873.

pretiosa LOEW, *loc. cit.*, pl. VIII, f. 2.—Cuba.

STENOPTERINA.

MACQUART, *Hist. Nat. Dipt.*, II, 453 (*Stenopterina*), 1835.

LOEW, *Mon. N. A. Dipt.*, III, 96 and 22, 1873.

VAN DER WULP, *Biologia, Dipt.*, II, 380, 1898, table of Mexican species.

alligata VAN DER WULP, *Biologia, Dipt.*, II, 381, pl. x, f. 7.—Paso del Macho, Mex.

bicolor JOHNSON, see *varia*.

mexicana MACQUART, *Dipt. Exot.*, II, 3, 208, pl. XXIX, f. 2 (*Herina*); *Suppl.*, I, 209, pl. XVIII, f. 8 (*Herina splendens*).—Mex.; Colombia.

LOEW, *Mon. N. A. Dipt.*, III, 97 (*cærulescens*).—Texas.

VAN DER WULP, *Biologia, Dipt.*, II, 380, pl. x, f. 6, oc., syn., and notes.—Guerrero, Jalisco, and N. Yucatan, Mex.

varia COQUILLET, *Jour. N. Y. Ent. Soc.*, VIII, 25.—Fla.

JOHNSON, *Canad. Ent.*, 1900, 246 (*bicolor*).—St. Augustine, Fla. [Johnson, in litt.]

BRICINNIA.

WALKER, *Trans. Ent. Soc.*, II, ser., v, 57, 1857 (original p. 324).

LOEW, *Mon. N. A. Dipt.*, III, 202, 1873, quotes desc., and states that it did not appear until 1861.

SNOW, in Williston's *Manual*, 118, 1896, cannot separate from *Stenopterina*.

flexivitta WALKER, *loc. cit.*—Mex.

LOEW, *Mon. N. A. Dipt.*, III, 203, quotes desc.

GIGLIO-TOS, *Ditt. del Mess.*, IV, 45, recognized from Mex.

BRICINIELLA.

GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 158, 1893; *Ditt. del Mess.*, IV, 45, 1895.

cyanea GIGLIO-TOS, *locis citatis*.—Cuernavaca, Mex.

CEPHALIA.

MEIGEN, *Syst. Besch.*, v, 293, 1826.

SCHINER, *Fauna Austr.*, II, 176, 1864.

fenestrata COQUILLET, *Jour. N. Y. Ent. Soc.*, VIII, 24.—Onaga, Kans.

? *fulvicornis* BIGOT, *Annales*, 1886, 386.—Cal. Query by Bigot.

? *maculipennis* BIGOT, *Annales*, 1886, 385.—Rocky Mts. Query by Bigot.

TRITOXIA.

LOEW, *Mon. N. A. Dipt.*, III, 102, 1873.

cuneata LOEW, *Mon. N. A. Dipt.*, III, 107, pl. VIII, f. 11.—Nebr.

? *rufipes* MEIGEN, *Syst. Besch.*, v, 294.—Europe.

SCHINER, Fauna Austr., II, 177.

WILLISTON, Trans. Amer. Ent. Soc., XIII, 307, doubtful oc. in Va. Mont.—Williston MS.; Beulah, N. M.—Skimmer.

flexa WIEDEMANN, Auss. Zw., II, 483 (*Trypeta*).—Aus Neugeorgien."

WALKER, Dipt. Saund., 383, pl. VIII, f. 10 (*Trypeta arcuata*).—U. S. [Lw.]

SHIMER, Practical Entomologist, I, 4, figs.: biology,—the larvæ live in the bulbs of onions, hence the species is called the "Onion Fly."

SHIMER, American Entomologist, II, 110, further notes on same.

LOEW, Mon. N. A. Dipt., III, 102, pl. VIII, f. 10.—N. Wisconsin R.; Ill.

N. J.—Smith Cat.

incurva LOEW, Mon. N. A. Dipt., III, 104, pl. VIII, f. 12.—Ill.; this has the same habits as the preceding, and was included as a variety in the articles on habits just mentioned.

Kans., D. C., Texas—O. S.; N. J.—Smith Cat.

CAMPTONEURA.

MACQUART, Dipt. Exot., II, 3, 200, 1843.

LOEW, Mon. N. A. Dipt., III, 108, 1873.

picta FABRICIUS, Ent. Syst., IV, 355 (*Musca*); Syst. Aml., 318 and 330 (*Tephritis conica* and *Dictya picta*).—Both N. A. [Wd.]

WIEDEMANN, Auss. Zw., II, 489 (*Trypeta*).—N. A.

DESVOIDY, Myodaires, 720 (*Delphinia thoracica*). [Lw.]

MACQUART, Dipt. Exot., II, 3, 201, pl. XXVII, f. 4; Suppl. v, 124 (*Urophora nigricentris*).—N. A.; Baltimore.

LOEW, Mon. N. A. Dipt., III, 109, pl. VIII, f. 13.—U. S., common.

OSTEN SACKEN, Cat., 259, note 298, syn. of Macquart.

N. J.—Smith Cat.; Fla., several places—Johnson.

IDANA.

LOEW, Mon. N. A. Dipt., III, 115, 1873.

marginata SAY, Jour. Acad. Sci. Phil., VI, 183; Compl. Works, II, 368 (*Ortalis*).—Ind.

LOEW, Mon. N. A. Dipt., III, 115, pl. VIII, f. 16.—Va., Pa.

N. J.—Smith Cat.

DIACRITA.

GERSTÄCKER, Stett. Ent. Zeit., XXI, 195, 1860.

LOEW, Mon. N. A. Dipt., III, 111, 1873.

BIGOT, Bull. Soc. Ent. France, 1877, 38 (*Carlottemyia*).

æmula LOEW, Mon. N. A. Dipt., III, 114, pl. VIII, f. 15.—Cal.

costalis GERSTÄCKER, Stett. Ent. Zeit., XXI, 197, pl. II, f. 10.—Oaxaca, Mex.

LOEW, Mon. N. A. Dipt., III, 111, pl. VIII, f. 14.—Mex.

BIGOT, Bull. Soc. Ent. France, 1877, 38 (*Carlottemyia marcens*); syn. by himself, loc. cit., 1877, cxxxii.—Mex. Huastec, Mex.—Giglio-Tos.

TETROPISMENUS.

LOEW, Zeitsch. f. Ges. Naturwiss., 1876, 333.

hirtus LOEW, loc. cit.—San Francisco, Cal.

TEPHRONOTA.

LOEW, Zeitsch. f. Ges. Naturwiss., 1868, 6; Mon. N. A. Dipt., III, 110, 1873.

canadensis JOHNSON, Ent. News, XIII, 144, figs.—Rigaud, Quebec, Canada.

ruficeps VAN DER WULP, Tijdschr. v. Ent., X, 156, pl. v, f. II (*Ierina*).—Wis.

? WALKER, List, IV, 1020 (*Trypeta narytia*).—Fla. [Syn. with a query by Osten Sacken, Cat., p. 260; see also Coquillett, Jour. N. Y. Ent. Soc., VIII, 22.]

LOEW, Mon. N. A. Dipt., III, 123, pl. VIII, f. 24 (name changed to *humilis*, on account of alleged preoccupation).—N. Y., Va., Tex.

JOHNSON, Ent. News, XIII, 143, oc. in Fla., Ga., Va., and N. J. Montreal—Chagnon.

MELIERIA.

DESVOIDY, Myodaires, 715, 1830.

MACQUART, Hist. Nat. Dipt., II, 437, 1835 (*Ceroxys*).

SCHINER, Fauna Austr., II, 73, 1864 (id.).

LOEW, Mon. N. A. Dipt., III, 125, 1873 (id.).

COQUILLET, Jour. N. Y. Ent. Soc., VIII, 22, 1900, syn.

cana LOEW, Berl. Ent. Zeitsch., II, 374, 1858 (*Ortalis*); Mon. N. A. Dipt., III, 129, pl. VIII, f. 22 (*Ceroxys*).—Yukon R., Alaska and Nebr.

OSTEN SACKEN, Cat., 184, note (*Ceroxys*).

COQUILLET, Proc. Wash. Acad. Sci., II, 459, oc. in Alaska and Col.

obscuricornis LOEW, Mon. N. A. Dipt., III, 126, pl. VIII, f. 20 (*Ceroxys*).—Nebr.

ochricornis LOEW, Mon. N. A. Dipt., III, 126, pl. VIII, f. 21 (*Ceroxys*).—N. Wisconsin R. Montreal—Chagnon.

? *philadelphica* DESVOIDY, Myodaires, 715 (*Meckelia*).—Phil. Query by J. M. A. A very doubtful species.

similis LOEW, Mon. N. A. Dipt., III, 127, pl. VIII, f. 23.—Conn., Quebec.

OSTEN SACKEN, Cat., 184, note.

Saranac Inn, N. Y.—Needham.

ANACAMPTA.

LOEW, Zeitsch. f. Ges. Naturwiss., 1868, 7; Mon. N. A. Dipt., III, 129, 1873.

latiuscula LOEW, Mon. N. A. Dipt., III, 130, pl. VIII, f. 19.—Cal.

VAN DER WULP, Biologia, Dipt., II, 393, pl. x, f. 26.—Mexico City.

North and South Idaho—J. M. A.

pyrrhocephala LOEW, Zeitsch. f. Ges. Naturwiss., 1876, 335.—Cal.

TETANOPS.

FALLÉN, Ortalides, 1820, p. 2.

MEIGEN, Syst. Besch., v, 353, 1826.

SCHINER, Fauna Austr., II, 72, 1864.

LOEW, Mon. N. A. Dipt., III, 119, 1873.

integra LOEW, Mon. N. A. Dipt., III, 121, pl. VIII, f. 18.—Ill.

luridipennis LOEW, Mon. N. A. Dipt., III, 119, pl. VIII, f. 17.—Nebr. N. J.—Smith Cat.

polita COQUILLET, Jour. N. Y. Ent. Soc., VIII, 22.—Col.

rufifrons VAN DER WULP, Biologia, Dipt., II, 391, pl. x, f. 25.—Mazatlan and Guerrero, Mex.

vittifrons VAN DER WULP, Biologia, Dipt., II, 391, pl. x, f. 24.—Guerrero and Morelos, Mex.

ORTALIS.

FALLÉN, Ortalides, 18, 1820.

SCHINER, Fauna Austr., II, 69, 1864.

Note.—Only a few problematical species are attributed to this genus, which in the strict sense probably does not occur in North America.

bipars WALKER, Trans. Ent. Soc., n. ser., v, 326.—U. S.

OSTEN SACKEN, Cat., 188, not found in the British Museum.

See note under *Rivellia viridulans*.

costalis WALKER, List, IV, 995.—Martin Falls, Canada.

? **diopsides** WALKER, List, IV, 995.—Martin Falls, Canada. Query by Walker.

Belongs perhaps to the Ulidiinæ—LOEW, in O. S. Cat.

See note under *Scoptera vibrans*.

platycnema THOMSON, see *Eucneta*.

PTEROCALLA.

RONDANI, Ins. ditt. Brasil., Torino, 1848, 23.

LOEW, Mon. N. A. Dipt., III, 132, 1873.

VAN DER WULP, Biologia, Dipt., II, 393, 1899, table of Mexican species.

bella GIGLIO-TOS, Ditt. del Mess., IV, 39, f. 11.—Orizaba, Mex.

costalis VAN DER WULP, Biologia, Dipt., II, 396, pl. XI, f. 5, 6.—Guerrero, Mex.

fenestrata VAN DER WULP, Biologia, Dipt., II, 394, pl. X, f. 30.—Vera Cruz and Tabasco, Mex.

obscura WIEDEMANN, AUSS. ZW., II, 499 (*Trypeta*).—Brazil.

MACQUART, Dipt. Exot., II, 3, 202, pl. XXVIII, f. 5 (*Camptoncura*).—Guiana.

SCHINER, Novara, 286 and 287, notes.—S. A.

LOEW, Mon. N. A. Dipt., III, 13.—S. A.

GIGLIO-TOS, Ditt. del Mess., IV, 41, oc. in Tuxpango, Mex.

ocellata FABRICIUS, Syst. Antl., 330 (*Dictya*).—S. A.

WIEDEMANN, AUSS. ZW., II, 495 (*Trypeta*).—S. A.

MACQUART, Dipt. Exot., Suppl. I, 206, pl. XVIII, f. 4 (*Platystoma*).—Columbia, S. A.

RONDANI, Ins. Ditt. Brasil., 1848, 24, 40.—Brazil.

SCHINER, Novara, 286.—S. A.

LOEW, Mon. N. A. Dipt., III, 13 and 60.—S. A.

GIGLIO-TOS, Ditt. del Mess., IV, 40, oc. in Orizaba, Mex.

VAN DER WULP, Biologia, Dipt., II, 395, pl. XI, f. 2.—Vera Cruz, Mex.

quadrata VAN DER WULP, Biologia, Dipt., II, 394, pl. XI, f. 1.—Tabasco, Mex.

strigula LOEW, Mon. N. A. Dipt., III, 133, pl. VIII, f. 30.—Ga.

tarsata SCHINER, Novara, 287.—S. A.

GIGLIO-TOS, Ditt. del Mess., IV, 40, oc. and note.—Orizaba, Mex.

VAN DER WULP, Biologia, Dipt., II, 395, pl. XI, f. 3, 4.—Tabasco, Mex.

CALLOPISTRIA.

LOEW, Mon. N. A. Dipt., III, 140, 1873.

annulipes MACQUART, Dipt. Exot., Suppl. V, 121 (*Platystoma*).—Baltimore, Md.

LOEW, Mon. N. A. Dipt., III, 141, pl. VIII, f. 27.—United States; very common.

N. J.—Smith Cat.

MYENNIS.

DESVOIDY, Myodaires, 717, 1830.

LOEW, Mon. N. A. Dipt., III, 142, 173.

scutellaris WIEDEMANN, AUSS. ZW., II, 484 (*Trypeta*).—Mex.

LOEW, Mon. N. A. Dipt., I, 60, 92 (♀ *Trypeta*): III, 143.—Mex.

GIGLIO-TOS, Ditt. del Mess., IV, 39, oc. in Tuxpango, Mex.

XANTHACRONA.

VAN DER WULP, Biologia, Dipt., II, 392, 1899.

bipustulata VAN DER WULP, loc. cit., pl. X, f. 20.—Mazatlan, Mex.

PARAGORGOPIIS.

- GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., IV, 41, 1895.
maculata GIGLIO-TOS, locis citatis, f. 12.—Tuxpango, Mex.

PSEUDOTEPHRITIS.

- JOHNSON, Ent. News, XIII, 144, 1902, change of name.
 LOEW, Mon. N. A. Dipt., III, 134, 1873 (*Stictocephala*, preoc.).
corticalis LOEW, Mon. N. A. Dipt., III, 136, pl. VIII, f. 28 (*Stictocephala*).—N. Y.
cribellum LOEW, Mon. N. A. Dipt., III, 134, pl. VIII, f. 26 (*Stictocephala*).—Nebr.
 Province of Quebec—Fyles; Minn.—J. M. A.
cribrum LOEW, Mon. N. A. Dipt., III, 135, pl. VIII, f. 25 (*Stictocephala*).—Middle
 States.
vau SAY, Jour. Acad. Sci. Phil., VI, 184; Compl. Works, II, 369 (*Ortalis*).—Ohio.
 LOEW, Mon. N. A. Dipt., III, 138, pl. VIII, f. 29 (*Stictocephala*).—United
 States.
 JOHNSON, Ent. News, 1899, 220 (id.), larva common under bark, Over-
 brook, N. J.
 Montreal—Chagnon.

PSAIROPTERA.

- WAHLBERG, K. Vetensk. Akad. Abhandl., 1838, 2.
 SCHINER, Fauna Austr., II, 80, 1864.
sp. undet. is reported from White Mts., N. H., by Mrs. Slosson; Mr. Kahl
 showed me specimens in the Univ. of Kans. coll., which he collected in
 Kans.; Snow, in Williston's Manual, 116, mentions N. M. as a locality.

ÆDOPA.

- LOEW, Berl. Ent. Zeitsch., 1867, 287; Mon. N. A. Dipt., III, 146, 1873.
capito LOEW, Berl. Ent. Zeitsch., 1867, 287; Mon. N. A. Dipt., III, 146, pl. IX,
 f. 1-3.—Nebr. Ariz.—Williston MS.
elegans GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess.,
 IV, 42.—Oaxaca, Mex.

PARÆDOPA.

- COQUILLET, Jour. N. Y. Ent. Soc., VIII, 22, 1900.
punctigera COQUILLET, loc. cit.—Catalina Spr. and Gailuro Mts., Ariz.; Santa
 Fe, N. M.

EURYCEPHALA.

- ROEDER, Berl. Ent. Zeitsch., XXV, Heft 2, 1881.
myopæformis ROEDER, loc. cit.—Sacramento, Cal.

STICTOMYIA.

- BIGOT, Bull. Soc. Ent. France, 1885, clxvi.
longicornis BIGOT, Bull. Soc. Ent. France, 1885, clxvi.—Mex.
 VAN DER WULP, Biologia, Dipt., II, 380, pl. x, f. 5, notes.—Mex.
punctata COQUILLET, Jour. N. Y. Ent. Soc., VIII, 23.—Mesilla Valley, N. M.

NOTOGRAMMA.

- LOEW, Berl. Ent. Zeitsch., 1867, 289; Mon. N. A. Dipt., III, 148, 1873.
stigma FABRICIUS, Ent. Syst., Suppl., 563 (*Musca*); Syst. Antl., 278 and 303
 (*Dacus obtusus* and *Musca stigma*).—W. I.

WIEDEMANN, AUSS. ZW., II, 565, syn. and desc. (*Ulidia*).—S. A.

LOEW, Berl. Ent. Zeitsch., XI, 289, pl. II, f. 5 (*cimiciformis*); Mon. N. A. Dipt., III, 148, pl. IX, f. 5.—Cuba.

CHRYSOMYZA.

FALLÉN, Scenopini, 1817, 3.

SCHINER, Wien. Ent. Monatsch., VI, 151, 1862 (*Chloria*); Fauna Austr., II, 85, 1864 (id.).

demandata FABRICIUS, Ent. Syst. Suppl., 564 (*Musca*); Syst. Antl., 324 (*Tephritis*).—Sweden.

FALLÉN, Scenopini, 4 (*Chrysomyza splendida*).

MEIGEN, Syst. Besch., v, 386 (*Ulidia*).

MACQUART, Hist. Nat. Dipt., II, 504 (*Ulidia bicolor*).

ZETTERSTEDT, Dipt. Scand., VI, 236 (*Ulidia*).

LOEW, Dipt. Beitr., 1845, 28 (*Ulidia*).

SCHINER, Fauna Austr., II, 85 (*Chloria*).

JOHNSON, Ent. News, XI, 609, oc. in N. A., about Philadelphia; adults on decayed berries and grapes.

"Bouché found the larvæ in horse-dung, where they live in numbers through the fall and winter"—Schiner, loc. cit.

MIK, Wien. Ent. Zeit., XV, 241, note on habits.

ULIDIA.

MEIGEN, Syst. Besch., v, 385, 1826.

SCHINER, Fauna Austr., II, 86, 1864.

LOEW, Mon. N. A. Dipt., III, 63, 1873.

fulvifrons BIGOT, in Sagra's Cuba, 826.—Cuba.

rubida LOEW, Zeitsch. f. Ges. Naturwiss., 1876, 377.—Cal.

ACROSTICTA.

LOEW, Berl. Ent. Zeitsch., 1867, 293; Mon. N. A. Dipt., III, 151, 1873.

dichroa LOEW, Berl. Ent. Zeitsch., 1874, 384.—San Francisco.

fulvipes COQUILLET, Jour. N. Y. Ent. Soc., VIII, 24.—Los Angeles Co., Cal.

scrobiculata Berl. Ent. Zeitsch., 1867, 293, pl. II, f. 5; Mon. N. A. Dipt., III, 151, ref.—Brazil.

GIGLIO-TOS, Ditt. del Mess., IV, 42, oc. in Tuxpango, Mex.

EUXESTA.

LOEW, Berl. Ent. Zeitsch., XI, 1867, 297; Mon. N. A. Dipt., III, 153, 1873.

VAN DER WULP, Biologia, Dipt., II, 396, 1899, table of Mexican species.

abdominalis LOEW, Berl. Ent. Zeitsch., XI, 307, pl. II, f. 15; Mon. N. A. Dipt., III, 164, pl. IX, f. 15.—Cuba.

alternans LOEW, Berl. Ent. Zeitsch., XI, 308, pl. II, f. 16; Mon. N. A. Dipt., III, 165, pl. IX, f. 16.—Probably Brazil or Cuba.

GIGLIO-TOS, Ditt. del Mess., IV, 46, oc. in Tuxpango, Mex.

VAN DER WULP, Biologia, Dipt., II, 399, pl. XI, f. 12.—Mexico, several places.

annona FABRICIUS, Ent. Syst., IV, 358 (*Musca*); Syst. Antl., 320 (*Tephritis*).—W. I.

WIEDEMANN, AUSS. ZW., II, 463 (*Ortalis*).—W. I.

MACQUART, Hist. Nat. Dipt., II, 456 (*Urophora quadrivittata*).—Cuba. [Lw.]

- SCHINER, Novara, 283 (*Amethysa*).—S. A.
 LOEW, Berl. Ent. Zeitsch., XI, 305; Mon., III, 162, pl. IX, f. 13.—Cuba.
 St. Vincent, W. I.—Williston; Porto Rico—Roeder; Fla. and Jamaica,
 Johnson.
- apicalis** WILLISTON, Trans. Ent. Soc. Lond., 1896, 375, pl. XII, f. 128.—St. Vincent, W. I.
 COQUILLET, Proc. U. S. N. M., XXII, 258, oc. in Porto Rico.
- basalis** WALKER, Dipt. Saund., 373 (*Ortalis*).—U. S.
 COQUILLET, Jour. N. Y. Ent. Soc., VIII, 24, gen. ref. and oc. in Fla.
- binotata** LOEW, Berl. Ent. Zeitsch., XI, 304; Mon. N. A. Dipt., III, 160, pl. IX, f. 12.—Cuba.
- conserta** VAN DER WULP, Biologia, Dipt., II, 399, pl. XI, f. 14.—Vera Cruz, Mex.
costalis FABRICIUS, Ent. Syst., IV, 360 (*Musca*); Syst. Antl., 275 and 278 (*Dacus aculeatus* and *costalis*).—W. I. [Wd.]
 WIEDEMANN, Auss. Zw., II, 464 (*Ortalis*).—W. I.
 LOEW, Berl. Ent. Zeitsch., XI, 301; Mon. N. A. Dipt., III, 158, pl. IX, f. 10.—W. I.
 Porto Rico—Roeder; Jamaica—Johnson.
- eluta** LOEW, Berl. Ent. Zeitsch., XI, 312; Mon. N. A. Dipt., III, 168, pl. IX, f. 18.—Cuba.
- fascipennis** VAN DER WULP, Biologia, Dipt., II, 398, pl. XI, f. 10.—Guerrero, Vera Cruz, and Tabasco, Mex.
- laticeps** VAN DER WULP, Biologia, Dipt., II, 397, pl. XI, f. 7.—Tabasco, Mex.
latifasciata VAN DER WULP, Biologia, Dipt., II, 397, pl. XI, f. 9.—Morelos, Mex.
major VAN DER WULP, Biologia, Dipt., II, 398, pl. XI, f. 11.—Orizaba, Mex.
nigricans VAN DER WULP, Biologia, Dipt., II, 397, pl. XI, f. 8.—Guerrero, Mex.
nitidiventris LOEW, Mon. N. A. Dipt., III, 157.—Texas.
 BRUES, Psyche, 1902, 353, found a hundred or more larvæ under bark of dead pecan tree in Texas; larva desc. and figured.
 Charlotte Harbor, Fla.—Johnson.
- notata** WIEDEMANN, Auss. Zw., II, 462 (*Ortalis*).—Savannah and New York.
 LOEW, Berl. Ent. Zeitsch., XI, 300; Mon. N. A. Dipt., III, 156, pl. IX, f. 9.—D. C., N. Y., Ill., Conn.; bred from pulp of an "Osage orange."
 RILEY and HOWARD, Insect Life, VI, 270, note the following rearings:
 From onions (J. B. Smith in N. J.).
 pulp of Osage orange (O. S.).
 cotton bolls in Alabama.
 sumac fruits in Virginia.
 bolls of *Solanum carolinense* D. C.
 apple previously infested with Codling Moth in California.
 HOWARD, Proc. Wash. Acad. Sci., II, 585, reared from human excrement.
 Inverness, Fla.—Johnson; N. J.—Smith Cat.
- platystoma** THOMSON, Eugen. Resa, 572 (*Ortalis*).—Panama.
 VAN DER WULP, Biologia, Dipt., II, 397, notes.
- pusio** LOEW, Berl. Ent. Zeitsch., XI, 299; Mon. N. A. Dipt., III, 155, pl. IX, f. 8.—Cuba.
- quaternaria** LOEW, Berl. Ent. Zeitsch., XI, 302; Mon. N. A. Dipt., III, 159, pl. IX, f. 11.—Cuba. Lake Worth, Fla.—Johnson.
- scoriacea** LOEW, Zeitsch. f. Ges. Naturwiss., 1876, 336.—Texas.
 N. J.—Smith Cat.; Charlotte Harbor, Fla.—Johnson.
- spoliata** LOEW, Berl. Ent. Zeitsch., XI, 298, pl. II, f. 7; Mon. N. A. Dipt., III, 154, pl. IX, f. 7.—Cuba.
 COQUILLET, Proc. U. S. N. M., XXII, 258, oc. in Porto Rico.

VAN DER WULP, *Biologia*, Dipt., II, 397, note under *laticeps*.
Porto Rico—Roeder.

spoliata WILLISTON. see *willistonii*.

stigmatias LOEW, Berl. Ent. Zeitsch., XI, 310, pl. II, f. 18; Mon. N. A. Dipt., III, 166, pl. IX, f. 17.—Cuba, Brazil.

VAN DER WULP, *Biologia*, Dipt., II, 399 pl. XI, f. 13.—Orizaba, Guerrero, Vera Cruz, and Tabasco, Mex.

Porto Rico—Roeder and Coquillett; St. Vincent, W. I.—Williston.

thomæ LOEW, Berl. Ent. Zeitsch., XI, 306, pl. II, f. 14; Mon. N. A. Dipt., III, 163, pl. VIII, f. 14.—St. Thomas, W. I.

COQUILLET, Proc. U. S. N. M., XXII, 257, oc. in Porto Rico.

willistonii COQUILLET, Jour. N. Y. Ent. Soc., VIII, 24, change of name.

WILLISTON, Dipt. of Death Valley Exped., 257 (*spoliata*, preoc.)—Death Valley and Panamint Mts., Cal.

ZACOMPSIA.

COQUILLET, Ent. News, XII, 15, 1901.

fulva COQUILLET, loc. cit.—Texas, and Opelousas, La.

CHÆTOPSIS.

LOEW, Berl. Ent. Zeitsch., XI, 305, 1867; Mon. N. A. Dipt., III, 169, 1873.

ænea WIEDEMANN, ABSS. ZW., II, 462, 1830 (*Ortalis*).—New Orleans.

SAY, Jour. Acad. Sci. Phil., VI, 184, 1830; Compl. Works, II, 368 (*Ortalis trifasciata*).—U. S.

MACQUART, Dipt. Exot., Suppl. v, 125, pl. VII, f. 8 (*Urophora fulvifrons*).—Baltimore, Md.

WALKER, List, IV, 992 (*Ortalis massyla*).—N. A.

LOEW, Berl. Ent. Zeitsch., XI, 315; Mon. N. A. Dipt., III, 170, pl. IX, f. 19.—U. S., rather common; Cuba, Canada and the Bermudas—O. S.

RILEY and HOWARD, Insect Life, II, 281, record the rearing by Gillette from larvæ boring in the pith of cornstalk.

HOWARD, Insect Life, VII, 352, mentions damage by larvæ to sugar-cane, corn, and oats; La, Ohio, Fla., Md.

White Mts., N. H.—Slosson; Province of Quebec—Fyles.

apicalis JOHNSON, Ent. News, XI, 326, fig.—N. J., Fla.

debilis LOEW, Berl. Ent. Zeitsch., XI, 318; Mon. N. A. Dipt., III, 172, pl. IX, f. 20.—Cuba.

trifasciata SAY, Desc. of new spp. of N. A. Ins. found in La. by Jos. Barabino, 1831 (*Trypeta*); quoted by Scudder, Psyche, 1890, 306, with notes by Osten Sacken. *Debilis* may be the same—O. S.

Note.—This description was omitted from the Complete Works of Say.

As will be seen above, Say had already described a *trifasciata* of the same genus a year earlier.

SEOPTERA.

KIRBY, Introd. to Ent., II, 305, 1817, Letter XXIII (*Scioptera*).

DESVOIDY, Myodaires, 727, 1830 (*Myodina*).

SCHINER, Fauna Austr., II, 84, 1864 (*Myodina*).

LOEW, Berl. Ent. Zeitsch., 1867, 295 (amended to *Scioptera* and defined for the first time); Mon. N. A. Dipt., III, 151, 1873.

colon LOEW, Berl. Ent. Zeitsch., XI, 296, pl. II, f. 6; Mon. N. A. Dipt., III, 152, pl. IX, f. 6.—Ill. N. J.—Smith Cat.

vibrans LINNÉ, Syst. Naturæ, 11th ed., p. 599 (*Musca*); Fauna Suec., 2d ed., p. 459 (id.).—Europe.

FABRICIUS, Species Ins., II, 450 (*Musca*); Syst. Antl., 324 (*Tephritis*).

MEIGEN, Syst. Besch., v, 284 (*Ortalis*).

DESVOIDY, Myodaires, 728 (*Myodina urticae*).

SCHINER, Fauna Austr., II, 85 (*Myodina*).

LOEW, Mon. N. A. Dipt., II, 153, notes; Appendix, note by O. S. on oc. in N. A.; Province of Quebec—Fyles.

N. J.—Smith Cat.; Montreal—Chagnon; White Mts., N. H.—Slosson.

Widespread in U. S.; Idaho—J. M. A.

Note.—Coquillett, Jour. N. Y. Ent. Soc., VIII, 24, would make *Ortalis diopsides* Walker a synonym of this; from the description this would seem very doubtful.

STENOMYIA.

LOEW, Berl. Ent. Zeitsch., XI, 320, 1867; Mon. N. A. Dipt., III, 173, 1873.

tenuis LOEW, locis citatis.—Ga., Texas. N. J.—Smith Cat.

EUMETOPIA.

MACQUART, Dipt. Exot., Suppl. II, 87, 1847.

LOEW, Berl. Ent. Zeitsch., XI, 322, 1867; Mon. N. A. Dipt., III, 175, 1873.

rufipes MACQUART, loc. cit., pl. VI, f. 2.—Philadelphia.

LOEW, Berl. Ent. Zeitsch., XI, 322; Mon. N. A. Dipt., III, 175, pl. IX, f. 22.

—U. S., not rare. D. C., Texas—O. S. N. J.—Smith Cat.

varipes LOEW, Cent., VI, 87; Berl. Ent. Zeitsch., XI, 323; Mon. N. A. Dipt., III, 176, pl. IX, f. 23.—Cuba.

CONICEPS.

LOEW, Mon. N. A. Dipt., III, 177, 1873; see also Besch. Europ. Dipt., III, 292.

niger LOEW, Mon. N. A. Dipt., III, 178.—Texas.

STENERETMA.

LOEW, Mon. N. A. Dipt., III, 186, 1873.

latiuscula LOEW, loc. cit.—Texas.

EPIPLATEA.

LOEW, Berl. Ent. Zeitsch., XI, 324, 1867; Mon. N. A. Dipt., III, 194, 1873.

amabilis WILLISTON, Trans. Ent. Soc. Lond., 1896, 376.—St. Vincent, W. I.

erosa LOEW, Berl. Ent. Zeitsch., XI, 325; Mon. N. A. Dipt., III, 194, pl. IX, f. 24.

—Cuba.

gracilis COQUILLET, Jour. N. Y. Ent. Soc., VIII, 25.—Allende, Mex.

scutellaris COQUILLET, Jour. N. Y. Ent. Soc., VIII, 25.—Dunsmuir, Cal.

CÆLOMETOPIA.

MACQUART, Dipt. Exot., Suppl. II, 91, 1847 (*Coilometopia*).

LOEW, Mon. N. A. Dipt., III, 188, 1873, amended, with desc.

bimaculata LOEW, Mon. N. A. Dipt., III, 189.—Cuba.

NEOIDIOTYPA.

OSTEN SACKEN, Cat., 187, 1878, change of name.

LOEW, Mon. N. A. Dipt., III, 183, 1873 (*Idiotypa*, preoc.).

appendiculata LOEW, loc. cit. (*Idiotypa*).—Cuba.

RICHARDIA.

- DESVOIDY, Myodaires, 728, 1830.
 LOEW, Mon. N. A. Dipt., III, 178, 1873.
 VAN DER WULP, Biologia, Dipt., II, 385, 1890, table of Mexican species.
concinna VAN DER WULP, Biologia, Dipt., II, 387, pl. x, f. 18.—Santiago Iscuintla and Guerrero, Mex.
elegans VAN DER WULP, Biologia, Dipt., II, 386, pl. x, f. 17.—Tabasco, Mex.
podagrica FABRICIUS, Syst. Anil., 272 (*Dacus*).—S. A.
 WIEDEMANN, Abss. Zw., II, 445, pl. 10a, f. 5 (*Cordylura*).—Brazil. The ref. to fig. 9 in the text is a mistake—Wulp.
 DESVOIDY, Myodaires, 728 (*sallatoria*).—Cayenne.
 MACQUART, Dipt. Exot., II, 3, 205, pl. XXVII, f. 8.—Guiana.
 RONDANI, Studi Ent., I, 82.—Brazil.
 GERSTÄCKER, Stett. Ent. Zeit., XXI, 163.
 SCHINER, Novara, 250.—S. A.
 VAN DER WULP, Biologia, Dipt., II, 385, oc. in N. A.—Guerrero and Vera Cruz, Mex.
viridiventris VAN DER WULP, Biologia, Dipt., II, 386.—Tabasco, Mex.

STENOMACRA.

- LOEW, Mon. N. A. Dipt., III, 180, 1873.
guerini BIGOT, in Sagra's Cuba, 822, pl. xx, f. 9 (*Scpsis*).—Cuba.
 LOEW, Mon. N. A. Dipt., III, 180, pl. IX, f. 25.—Cuba.
 VAN DER WULP, Biologia, Dipt., II, 389, pl. x, f. 21.—Vera Cruz and Tabasco, Mex. Porto Rico—Roeder.

PANERYMA.

- VAN DER WULP, Biologia, Dipt., II, 387, 1890.
elongata VAN DER WULP, loc. cit., pl. x, f. 19.—Tabasco, Mex.

CYRTOMETOPA.

- LOEW, Mon. N. A. Dipt., III, 179, 1873.
 MACQUART, Dipt. Exot., II, 3, 372, 215, 1843 (*Odontomera*, preoc.).
 VAN DER WULP, Biologia, Dipt., II, 388, notes.
cinctella VAN DER WULP, Biologia, Dipt., II, 389, pl. x, f. 20.—Cordova and Tabasco, Mex.
ferruginea MACQUART, Dipt. Exot., II, 3, 215, pl. XXIX, f. 6 (*Odontomera*).—No locality.
 LOEW, Mon. N. A. Dipt., III, 179, recognized from America.
 GIGLIO-TOS, Ditt. del Mess., IV, 61, oc. in Orizaba, Mex., and partial desc.
 VAN DER WULP, Biologia, Dipt., II, 389.—Morelos and Vera Cruz, Mex.
 ? **setosa** BIGOT, Annales, 1886, 386 (*Odontomera*).—Wash. Query by Bigot.

RHOPALOMERIDÆ.

RHINOTORA.

- SCHINER, Novara, 233, 1868.
diversa GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158; Ditt. del Mess., IV, 43, f. 25, 26.—Tuxpango, Mex.

RHOPALOMERA.

WIEDEMANN, AUSS. ZW., II, 570, 1830.

LOEW, Mon. N. A. Dipt., III, 14, 15, 1873, would place in Sapromyzidæ.

VAN DER WULP, Biologia, Dipt., II, 379, 1899, puts in Ortalidæ.

WILLISTON, Psyche, 1895, 183, puts in a separate family with *Rhinotora*.

BECKER, Berl. Ent. Zeitsch., XL, 1895, 200, notes.

pleuropunctata WIEDEMANN, AUSS. ZW., II, 572.—S. A.

GIGLIO-TOS, Ditt. del Mess., IV, 43, oc. in Mex.—at Playa Vicente.

xanthops WILLISTON, Psyche, 1895, 213.—Yucatan.

WILLISTONIELLA.

MIK, Wien. Ent. Zeit., XIV, 136, change of name.

WILLISTON, Psyche, 1895, 184 (*Rhopalomyia*, preoc.).

The genus is reported from North America by Williston, Ent. News, VII, 185. The described species are South American.

TRYPETIDÆ.

LOEW, Mon. N. A. Dipt., III, 327, 1873, table of genera.

COQUILLETT, Jour. N. Y. Ent. Soc., VII, 267, 1899, table of genera.

Note.—The order followed is essentially that of the table in Williston's Manual, although Coquillett has pointed out some seeming defects in the relation of genera therein. The genera of this family are closely interwoven, and mostly based on plastic characters; hence a slight difference in the emphasis placed on one set of characters has the effect of throwing a large number of species into other genera than they previously occupied. This change of emphasis Mr. Coquillett seems to have adopted, as compared with Loew, who established most of the genera; but as he has not published anything to justify his new generic references in most cases, I have been slow to accept them. The synonymy of species by Mr. Coquillett in Jour. N. Y. Ent. Soc., VII, 259-268, seems to me to do a great injustice to Mr. Doane, whose species were very carefully and accurately worked out. From an examination of Doane's material, I am satisfied that Coquillett was wrong in all, or nearly all, of the assertions he made regarding the synonymy of Doane's species; this was shown in a rejoinder published by Doane, op. cit., VIII, 47.

TOXOTRYPANA.

GERSTÆCKER, Stett. Ent. Zeit., XXI, 191, 1860.

BIGOT, Bull. Soc. Ent. France, 1884, XXIX (*Mikimyia*).

ROEDER, Wien. Ent. Zeit., X, 31, 1891, refers to Ortalidæ.

SNOW, Kans. Univ. Quart., IV, 117-119, figs., 1895, full discussion.

curvicauda GERSTÆCKER, Stett. Ent. Zeit., XXI, 194, pl. II, f. 9.—St. John, Antigua, in the West Indies.

BIGOT, Bull. Soc. Ent. France, 1884, XXIX (*Mikimyia furcifera*).—Brazil. [V. d. W.]

ROEDER, Wien. Ent. Zeit., X, 31.—Peru.

SNOW, Kans. Univ. Quart., IV, 117, fig., etc.—Yucatan.

VAN DER WULP, Biologia, Dipt., II, 379, oc. in N. Yucatan, Mex.

CERATITIS.

MACLEAY, Zool. Jour., XVII, 1829.

SCHINER, Fauna Austr., II, 173, 1864.

ROEDER, Berl. Ent. Zeitsch., XXIX, 132, 1885.

[**capitata** WIEDEMANN, *Analecta Ent.*, 54 (*Trypeta*); *Auss. Zw.*, II, 496 (id.).—East Indies.

MACLEAY, *Zool. Jour.*, IV, 1829, 475 (*Ceratitis citriperda*).—Madeira; destructive to oranges.

WESTWOOD, *Gardener's Chronicle*, 1848, 604, fig.—Azores.

PENZIG, *Annali di Agricoltura*, 1887, important article; abstract in *Ins. Life*, III, 80.

HENSLOW, *Gardiner's Chronicle*, 1890, May 24, 655, biology, with figs.—Malta, seriously injuring oranges.

RILEY and HOWARD, *Insect Life*, III, 5, life history, figures, etc.—Bermuda, where the larvæ injure peaches by mining in them.]

Note.—Although this insect is at present not known within the faunal limits of this catalogue, its economic importance and proximity justify its insertion.

HEXACHÆTA.

LOEW, *Mon. N. A. Dipt.*, III, 219, 1873.

VAN DER WULP, *Biologia, Dipt.*, II, 402, 1899, table of Mexican species.

amabilis LOEW, *Mon. N. A. Dipt.*, III, 219.—Mexico, in v. Roeder's collection.

ROEDER, *Wien. Ent. Zeit.*, XIII, 97, fig.—Peru; says the type locality was Peru, not Mex.

TOWNSEND, *Zoe*, IV, 15, notes and desc. of female.—Mex.

GIGLIO-TOS, *Ditt. del Mess.*, IV, 59, oc. in Orizaba, Mex.

VAN DER WULP, *Biologia, Dipt.*, II, 403, pl. XI, f. 16.—Yucatan, Mex.

?**dinia** WALKER, *List*, IV, 1040 (*Trypeta*).—Jamaica. Gen. ref. with a doubt by Loew—may be same as *crimia*.

eximia WIEDEMANN, *Auss. Zw.*, II, 477.—Surinam.

MACQUART, *Dipt. Exot.*, *Suppl.* IV, 291, pl. XXVII, f. 3 (*Tephritis fasciventris*).—Brazil. [Lw.]

LOEW, *Mon. N. A. Dipt.*, III, 216.—Mex.

VAN DER WULP, *Biologia, Dipt.*, II, 402, pl. XI, f. 15, oc. in Vera Cruz.

pulchella VAN DER WULP, *Biologia, Dipt.*, II, 403, pl. XI, f. 18.—Tabasco, Mex.

rupta VAN DER WULP, *Biologia, Dipt.*, II, 404, pl. XI, f. 19.—Tabasco, Mex.

socialis WIEDEMANN, *Auss. Zw.*, II, 491 (*Trypeta*).—Brazil.

MACQUART, *Dipt. Exot.*, *Suppl.* II, 93, pl. VI, f. 6 (*Tephritis major*).—Brazil. [Lw.]

LOEW, *Mon. N. A. Dipt.*, III, 219, obs. 2, note.

GIGLIO-TOS, *Ditt. del Mess.*, IV, 59, oc. in Tuxpango, Mex.

VAN DER WULP, *Biologia, Dipt.*, II, 403, pl. XI, f. 17.—Vera Cruz, Mex.

splendida GIGLIO-TOS, *Boll. R. Univ. Torino*, VIII, No. 158; *Ditt del Mess.*, IV, 58, f. 20 (both *Blepharocura*).—Mex.

VAN DER WULP, *Biologia, Dipt.*, II, 404, pl. XI, f. 20.—Costa Rica.

ANASTREPHA.

SCHINER, *Novara*, 263, 1868.

LOEW, *Mon. N. A. Dipt.*, III, 227, 1873 (*Acrotaxa*).

OSTEN SACKEN, *Cat.*, 260, 1878, makes the *Leptoryda* of Macquart, *Dipt. Exot.*, II, 452, 1835, the same as this; it was amended by Macquart, *Dipt. Exot.*, *Suppl.*, II, 2, 216, 1841, to *Leptorys*, which is apparently preoccupied. This raises a peculiar question of nomenclature. Coquillett, *Jour. N. Y. Ent. Soc.*, VII, 259, 1890, asserts that *Leptorys* is not the same genus. I deem it safest to make no change under these con-

- ditions. The same question, with the synonymy of *Acrotora*, is discussed by Van der Wulp, *Biologia, Dipt.*, II, 404, 1899.
- acidusa** WALKER, List, IV, 1014 (*Trypeta*).—Jamaica.
 LOEW, Mon. N. A. Dipt., III, 335, note—not seen.
 Fla.—Johnson.
- fraterculus** WIEDEMANN, AUSS. ZW., II, 524 (*Dacus*).—Brazil.
 LOEW, Mon. N. A. Dipt., I, 70, pl. II, f. 6 (*Trypeta unicolor*); III, 222, pl. X, f. 6, syn. (*Acrotora*).—Brazil, Peru, Colombia, Cuba.
 VAN DER WULP, *Biologia, Dipt.*, II, 404, pl. XI, f. 21.—Yucatan, Mex. Porto Rico—Roeder (*Acrotora*).
- ludens** LOEW, Mon. N. A. Dipt., III, 223, pl. XI, f. 19 (*Acrotora*).—Mex.
 RILEY and HOWARD, *Ins. Life*, I, 45, life-history with figures; the larvæ live in oranges in Mexico, and injure the crop considerably.
 HERRERA, Bol. Comis. Parisit. Agric. Mex., I, No. I, 1900, biology, figs., etc.; larvæ in oranges, same as preceding.
 JOHNSON, Proc. Ent. Soc. Wash., IV, 56, both sexes; bred at Champaign, Ill., from Mexican oranges, coming from near City of Mexico.
- mucida** GIGLIO-TOS, see *Polionota*.
- obliqua** MACQUART, Hist. Nat. Dipt., II, 464 (*Tephritis*); Dipt. Exot., II, 3, 225, pl. XXX, f. II (id.).—Cuba.
 LOEW, Mon. N. A. Dipt., III, 337, note; not seen.
 OSTEN SACKEN, Cat., 195, note on type.
- ocresia** WALKER, List, IV, 1016 (*Trypeta*).—Jamaica.
 LOEW, Mon. N. A. Dipt., III, 337, note; not seen.
 OSTEN SACKEN, Cat., 195, note on type.
- suspensa** LOEW, Mon. N. A. Dipt., I, 69, pl. II, f. 5 (*Trypeta*); III, 219, pl. X, f. 5 (*Acrotora*).—Cuba.
 SCHINER, Novara, 203, oc. in S. A.
 GIGLIO-TOS, Ditt. del Mess., IV, 59, oc. in Tuxpango, Mex. (*Acrotora*).
- tricincta** LOEW, Mon. N. A. Dipt., III, 225 (*Acrotora*).—Hayti.
- tripuncta** VAN DER WULP, *Biologia, Dipt.*, II, 405, pl. XI, f. 22.—Guerrero, Mex.

POLIONOTA.

- VAN DER WULP, *Biologia, Dipt.*, II, 409, 1899.
- mucida** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., IV, 58, f. 21 (both *Acrotora*).—Mex.
 VAN DER WULP, *Biologia, Dipt.*, II, 410, pl. XII, f. 1, type of this genus.—Guerrero, Mex.
- radians** VAN DER WULP, *Biologia, Dipt.*, II, 410, pl. XII, f. 2.—Sierra de las Aguas Escondidas, Mex., 9,500 ft.

STRAUSSIA.

- DESVOIDY, *Myodaires*, 718, 1830 (*Strausia*).
 LOEW, Mon. N. A. Dipt., III, 243, 1873, def. and change of name.
- longipennis** WIEDEMANN, AUSS. ZW., II, 483 (*Trypeta*), 1830.—N. A.
 DESVOIDY, *Myodaires*, 718 and 719 (*incrmis* and *armata*).—Philadelphia.
 MACQUART, Dipt. Exot., II, 3, 226, pl. XXXI, f. 3 (*Tephritis trimaculata*).—N. A.
 WALKER, List, IV, 1010, 1011 (*Trypeta cornigera* and *cornifera*).—N. A.??; no locality.
 LOEW, Mon. N. A. Dipt., I, 65, pl. II, f. 2, 3; III, 238, pl. X, f. 2, 3; several varieties named and distinguished.—Conn. to Nebr.

OSTEN SACKEN, West. Dipt., 345. oc. in Col.

LINTNER, 3d N. Y. Rept., 137, notes on oviposition, etc.

SNOW, Kans. Univ. Quart., II, 159.—Kansas, Conn., Cal.; extended notes on varieties.

DOANE, Jour. N. Y. Ent. Soc., VII, 178, notes.—S. D., Col., Ohio.

N. J.—Smith Cat.; Montreal—Chagnon; Beulah, N. M.—Skinner.

MOLYNOCÆLIA.

GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., IV, 59, 1895.

lutea GIGLIO-TOS, locis citatis, f. 23.—Tuxpango, Mex.

STENOPA.

LOEW, Mon. N. A. Dipt., III, 234, 1873.

vulnerata LOEW, Mon. N. A. Dipt., III, 232.—Mass.

ACIDIA.

DESVOIDY, Myodaires, 720, 1830.

SCHINER, Fauna Austr., II, 114, 1864.

LOEW, Europ. Bohrliegen, 34, 1862; Mon. N. A. Dipt., III, 235, note, 1873.

fratria LOEW, Mon. N. A. Dipt., I, 67, pl. II, f. 4 (*Trypeta*); III, 245, pl. X, f. 4.—U. S. (O. S. gives Atlantic States).

THOMSON, Eugenes Resa, 578 (*Trypeta liogaster*).—Cal.

COQUILLETT, Ins. Life, VII, 383, life history, fig., etc.; larvæ mine in leaves of parsnip in Mo.

DOANE, Jour. N. Y. Ent. Soc., VII, 178, notes and syn.; larva mine leaves of *Heracleum*; may be the same as the European *heraclei* L.—Wash.

N. J.—Smith Cat.

fausta OSTEN SACKEN, West. Dipt., 346.—Alpine region of Mt. Washington, N. H.

COQUILLETT, Jour. N. Y. Ent. Soc., VII, 260, note.

Montreal—Chagnon.

suavis LOEW, Mon. N. A. Dipt., I, 75, pl. II, f. 10 (*Trypeta*); III, 235, pl. X, f. 10.—Middle States.

COQUILLETT, Jour. N. Y. Ent. Soc., VII, 260, note.

BABB, Ent. News, XIII, 242, 1 pl., life hist.; larvæ live in outer covering of fruit of black walnut.—Amherst, Mass. (*Rhagoletis*).

tortilis COQUILLETT, Canad. Ent., XXVI, 71.—Wash.

uncinata COQUILLETT, Jour. N. Y. Ent. Soc., VII, 260.—Ft. Wrangle, Alaska.

EPOCHRA.

LOEW, Mon. N. A. Dipt., III, 238, 1873.

canadensis LOEW, Mon. N. A. Dipt., III, 235.—Canada and Maine.

GILLETTE, Bull. 19, Colo. Expt. Sta., 1892, larva infests gooseberries in Col.

HARVEY, Rept. Maine Expt. Sta., 1895, 111–124, plates and figs.; biology; Bull. Maine Expt. Sta., No. 35, 1897, habits, etc.—Maine, infesting gooseberries and currants.

BAKER, Ent. News, VI, 174, 1895, infesting gooseberries at Ft. Collins, Col.

FLETCHER, Trans. R. Soc. Canada, 2d ser., V, 223, reports serious damage to currants in Vancouver Id.

- DOANE, Jour. N. Y. Ent. Soc., VII, 178, attacks both currants and gooseberries in Washington.
 PIPER and DOANE, Bull. 36, Wash. Ex. Sta., biology, with figs.; same habits.—Wash.
rubida COQUILLET, Jour. N. Y. Ent. Soc., VII, 260.—Colo.

SPILOGRAPHA.

- LOEW, Europ. Bohrfliegen, 39, 1862 (*Spilographa* and *Zonoscema*; united in Mon., III, 245); Mon. N. A. Dipt., III, 247 (*Edicarena*).
 SCHINER, Fauna Austr., II, 118, 1864, inclusive of *Rhagoletis*.
 VAN DER WULP, Biologia, Dipt., II, 406, syn. of *Edicarena*; table of Mexican species, 1899.
basiolum OSTEN SACKEN, West. Dipt., 348 (*Zonoscema*).—Mass.
concolor VAN DER WULP, Biologia, Dipt., II, 408, pl. XI, f. 28.—Mexico City.
diffusa SNOW, Kans. Univ. Quart., II, 161, pl. VII, f. 9 (*Edicarena*).—Kans., Wash.
 DOANE, Jour. N. Y. Ent. Soc., VII, 179, note.—Wash., S. D., Col.
 ? *dubia* JOHNSON, Trans. Amer. Ent. Soc., XXIX, 102, fig.—Beulah, N. M. (? *Zonoscema*).
electa SAY, Jour. Acad. Sci. Phil., VI, 185; Compl. Works, II, 369 (*Trypeta*).—Ind.
 LOEW, Mon. N. A. Dipt., I, 71, pl. II, f. 7 (*Trypeta*); III, 244, pl. X, f. 7.—Fla.
 WILLISTON, Kans. Univ. Quart., XIII, 307, bred in Mo. from berries of *Solanum carolinense*.
 SNOW, Kans. Univ. Quart., II, 161, notes.—Kans., Conn., Ga.
flavotata MACQUART, Dipt. Exot., Suppl. V, 125, pl. VII, f. 9 (*Tephritis*).—Baltimore.
 LOEW, Mon. N. A. Dipt., III, 245.—Yukon R., Alaska.
 COQUILLET, Jour. N. Y. Ent. Soc., VII, 261, note.
 N. J.—Smith Cat; Beulah, N. M.—Skinner.
fractura COQUILLET, Proc. U. S. N. M., XXV, 125.—White Mts. of New Mexico; Col.
latifrons VAN DER WULP, Biologia, Dipt., II, 407, pl. XI, f. 26.—Durango, Mex.
maculosa COQUILLET, Jour. N. Y. Ent. Soc., VII, 261.—Colo.
obfuscata VAN DER WULP, Biologia, Dipt., II, 406, pl. XI, f. 25.—Guerrero, Mex.
persuasa OSTEN SACKEN, West. Dipt., 344 (*Edicarena*).—Col.
rufata VAN DER WULP, Biologia, Dipt., II, 407, pl. XI, f. 27.—Guerrero, Mex.
setosa DOANE, Jour. N. Y. Ent. Soc., VII, 178, pl. III, f. 1.—Wash., Ida., Mich., S. D., Minn.
striata VAN DER WULP, Biologia, II, 406, pl. XI, f. 24.—Guerrero, Mex.
tetanops LOEW, Mon. N. A. Dipt., III, 245, pl. XI, f. 15 (*Edicarena*).—Mex.
vittigera COQUILLET, Jour. N. Y. Ent. Soc., VII, 261 (*Zonoscema*).—Eagle Pass, Tex.; Las Cruces and Mesilla, N. M.

TRYPETA.

- MEIGEN, Illig. Mag., II, 277, 1803; Syst. Besch., V, 210, 1826.
 LOEW, Eur. Bohrfliegen, 51, 1862, restricted; Mon. N. A. Dipt., III, 253, 1873, notes.
 SCHINER, Fauna Austr., II, 125, 1864.
baccharis COQUILLET, Canad. Ent., XXVI, 73.—Cal.; larvæ in galls on *Baccharis*.
cerasi Fauna Suec., 2d ed., p. 461, 1761 (*Musca*).—Europe.

Notv.—Hagen, *Canad. Ent.*, xv, 159, records finding in cherries at Cambridge Mass., the larvæ of this European species, which is referred by Schiner to *Rhagoletis* (*Fauna Austr.*, II, 121). As nothing further has been brought to light, it is very likely that the species found by Hagen was the native *Rhagoletis cingulata*, q. v.

flaveola COQUILLET, *Dipt. of Commander Ids.*, 345.—Bering Id.

florescentiæ LINNÉ, see *ruficauda*.

fratria LOEW, see *Acidia*.

ludens LOEW, see *Anastrepha*.

narytia WALKER, see *Tephronota ruficeps*.

notata COQUILLET, *Jour. N. Y. Ent. Soc.*, VII, 262.—Albuquerque, N. M.

COCKERELL, *Jour. N. Y. Ent. Soc.*, VIII, 198, bred from spherical galls on "*Bigelovia graveolens* (sens. lat.)" at Santa Fe, N. M.

occidentalis SNOW, *Kans. Univ. Quart.*, II, 163, pl. VII, f. 11.—Cal., Col.

DOANE, *Jour. N. Y. Ent. Soc.*, VII, 179, pt. desc.—Wash., Idaho, Col., S. D. Beulah, N. M.—Skinner.

palposa LOEW, *Mon. N. A. Dipt.*, I, 74; III, 253, pl. x, f. 9.—N. Wisconsin R.

OSTEN SACKEN, *West. Dipt.*, 345, note.

SNOW, *Kans. Univ. Quart.*, II, 162, oc. in *Kans.* and note on wing.

N. J.—Smith Cat.; Minn., Ia.—Doane.

ruficauda FABRICIUS, *Ent. Syst.*, IV, 353 (*Musca*); *Syst. Antl.*, 276 (*Dacus*).—Europe.

FALLÉN, *K. Vetensk. Akad. Handl.*, 1814, 167 (*Tephritis ? punctata*); Ortalides, 7 (*Tephritis florescentiæ* LINNÉ).

MEIGEN, *Syst. Besch.*, v, 321 (*florescentiæ*).

LOEW, *Europ. Bohrfiegen*, 59 (id.); *Mon. N. A. Dipt.*, III, 254 (id.), oc. in N. A.—Canada.

SCHINER, *Fauna Austr.*, II, 132; shows in a footnote that this cannot be the *florescentiæ* of Linné.

Notv.—The larvæ have been bred from thistle heads in Europe.

? **scutellata** WIEDEMANN, *Auss. Zw.*, II, 494.—Mex.

"A Trypetid of doubtful position"—Loew, in *O. S. Cat.*

* **stelligera** COQUILLET, *Canad. Ent.*, XXVI, 74.—Cal.

straminea DOANE, *Jour. N. Y. Ent. Soc.*, VII, 179, pl. III, f. 2.—Wash.

undosa COQUILLET, *Jour. N. Y. Ent. Soc.*, VII, 262.—Col.

varipennis COQUILLET, *Jour. N. Y. Ent. Soc.*, x, 180.—Coconino Co., Ariz.

PERONYMA.

LOEW, *Mon. N. A. Dipt.*, III, 250, 1873.

sarcinata LOEW, *Cent.*, II, 73; *Mon. N. A. Dipt.*, III, 247, pl. XI, f. 16.—S. Car.

? MACQUART, *Dipt. Exot.*, II, 3, 226, pl. XXX, f. 8 (*Tephritis quadrijasciata*).—Ga. [Loew, with a doubt.]

PLAGIOTOMA.

LOEW, *Mon. N. A. Dipt.*, III, 252, 1873.

discolor LOEW, *Mon. N. A. Dipt.*, I, 64 (*Trypeta*); III, 250, pl. x, f. 1.—Cuba.

incompleta WILLISTON, *Trans. Ent. Soc. Lond.*, 1896, 378.—St. Vincent, W. I.

obliqua SAY, *Jour. Acad. Sci. Phil.*, VI, 186; *Compl. Works*, II, 370 (*Trypeta*).—Ind.

LOEW, *Mon. N. A. Dipt.*, I, 99 (id.); III, 251, pl. XI, f. 14.—Pa., Tex.; on *Vernonia* in August.

SCHINER, *Novara*, 267, oc. in Brazil; but this is doubtless the related

form described later by Loew as *biseriata*.

VAN DER WULP, *Biologia, Dipt.*, II, 405, pl. XI, f. 23.—Orizaba and Vera Cruz, Mexico. Ariz.—Williston MS. N. J.—Smith Cat.

POLYMORPHOMYIA.

SNOW, *Kans. Univ. Quart.*, II, 165, 1894.

basilica SNOW, *Kans. Univ. Quart.*, II, 165, pl. VII, f. 1.—San Domingo.

pilosula VAN DER WULP, *Biologia, Dipt.*, II, 411, pl. XII, f. 4.—Vera Cruz and Tabasco, Mex.

EDASPIS.

LOEW, *Europ. Bohrfliiegen*, 46, 1862; *Mon. N. A. Dipt.*, III, 260, 1873.

SCHINER, *Fauna Austr.*, II, 122, 124 (*Edaspis* and *Orellia*), 1864.

anthracina DOANE, *Jour. N. Y. Ent. Soc.*, VII, 180, pl. III, f. 3.—Ida., Mich.

atra LOEW, *Cent.*, II, 74; *Mon. N. A. Dipt.*, III, 256, pl. XI, f. 17.—Mex.; N. Y.

PATTON, *Canad. Ent.*, XXIX, 247, larvæ in *solidago* heads, forming galls the same as those of *polita*.—Conn.

VAN DER WULP, *Biologia, Dipt.*, II, 408, pl. XI, f. 29, oc. in N. Sonora, Mex.

N. J.—Smith Cat.

gibba LOEW, *Mon. N. A. Dipt.*, III, 260.—Texas.

minuta SNOW, *Kans. Univ. Quart.*, II, 164, pl. VI, f. 2.—Mont.

montana SNOW, *Kans. Univ. Quart.*, II, 163, pl. VI, f. 5.—Mont.

penelope OSTEN SACKEN, *West. Dipt.*, 346.—Western N. Y.

polita LOEW, *Mon. N. A. Dipt.*, I, 77; III, 257, pl. X, f. 12.—D. C., Conn., N. Y., Miss.

OSTEN SACKEN, *Trans. Amer. Ent. Soc.*, II, 301, describes gall made by the larva on *Solidago*. N. J.—Smith Cat.

setigera COQUILLET, *Jour. N. Y. Ent. Soc.*, VII, 262.—R. I., Va., Ga., Mo., Kans.

RHAGOLETIS.

LOEW, *Europ. Bohrfliiegen*, 44, 1862; *Mon. N. A. Dipt.*, III, 267, 1873.

DOANE, *Ent. News*, IX, 69, 1898, table of species.

caurina DOANE, *Jour. N. Y. Ent. Soc.*, VII, 182, pl. III, f. 5.—Oregon.

cingulata LOEW, *Mon. N. A. Dipt.*, I, 76 (*Trypeta*); III, 263, pl. X, f. 11.—Long Branch, N. J.

SLINGERLAND, *Bull.* 172, Cornell Expt. Sta., Sept., 1899; larva mines in fruit of cherry. Life history, figs., etc. The identity of the species is confirmed from reared specimens, in *Canad. Ent.*, XXXIV, 28.

See note under *Trypeta cerasi*.

formosa COQUILLET, *Canad. Ent.*, XXVI, 71.—Cal.

pomonella WALSH, *First Ill. Rept.*, 29-33, fig. (*Trypeta*).—Ill.; larva mines in fruits of *Crataegus*, and in apples. The Apple Maggot.

LOEW, *Mon. N. A. Dipt.*, III, 265.—Ill.

GLOVER, *Rept. Ent.*, 1867, 72, note on habits.

COMSTOCK, *Rept. Dept. Agric.*, 1881-2, 195-198, pl. XIV, life history.

LINTNER, *Bull.* LXXV, N. Y. Agr. Expt. Sta., Dec. 29, 1883, brief acct.; 2d N. Y. *Rept.*, 117-125, figs., biology; 8th N. Y. *Rept.*, 245-249, popular acct.—N. Y.

HARVEY, *Annual Rept. Me. State College and Expt. Sta.*, 1889, 190-241, 4 pl.; full account of life history, all stages.—Me.

RILEY and HOWARD, *Insect Life*, III, 253, abstract of preceding.

WEED, N. H. *Expt. Sta., Bull.* 35, 1896, 31-35, figs., biol., etc.

- FLETCHER, Trans. R. Soc. Canada, 2d ser., v, 223, notes on damage to apples; oc. in Canada.
 N. J.—Smith Cat.; Col.—J. M. A.; N. C.—Howard, Ins. Life, vii, 279.
- ribicola** DOANE, Ent. News, ix, 69-72, 1 pl.—Washington; larvæ mine in currants and gooseberries. See also note by Doane, Jour. N. Y. Ent. Soc., vii, 181, with f. 4, pl. iii.
 PIPER and DOANE, Bull. 36, Wash. Ex. Sta., biology with figs. and desc.—Wash.; same habits.
- striatella** VAN DER WULP, Biologia, Dipt., ii, 408, pl. xi, f. 30.—Guerrero, Mex.
- tabellaria** FITCH, 1st N. Y. Rept., 66 (*Trypeta*).—N. Y.
 LOEW, Mon. N. A. Dipt., iii, 263.—Canada. N. J.—Smith Cat.
- zephyria** SNOW, Kans. Univ. Quart., ii, 104, pl. vi, f. 1.—Cal.

ACIURA.

- DESVOIDY, Myodaires, 773, 1830.
 LOEW, Entop. Bohrliegen, 29, 1862.
 SCHINER, Fauna Austr., ii, 112, 1854.
- aplopappi** COQUILLET, Canad. Ent., xxvi, 72.—Cal.; larvæ in galls on *Aplopappus*.
- ferruginea** DOANE, Jour. N. Y. Ent. Soc., vii, 182, pl. iii, f. 6.—Wash.
- insecta** LOEW, Mon. N. A. Dipt., i, 72, pl. ii, f. 8 (*Trypeta*); iii, 268, pl. x, f. 7.—Cuba.
 SCHINER, Novara, 265, oc. in S. A.
 VAN DER WULP, Biologia, Dipt., ii, 410, pl. xii, f. 3, oc. in Mexico, several places.
 Hayti—O. S.; Porto Rico—Roeder; Jamaica and Fla.—Johnson.
- limata** COQUILLET, Jour. N. Y. Ent. Soc., vii, 263.—New Bedford, Mass.
- lutea** COQUILLET, Jour. N. Y. Ent. Soc., vii, 264.—Pareah, Utah.
- nigricornis** DOANE, Jour. N. Y. Ent. Soc., vii, 183, pl. iii, f. 7.—Penn.
 Axton, N. Y.—M. and H.
- opaca** COQUILLET, Jour. N. Y. Ent. Soc., vii, 263.—Elko, Nev.
- phœnicura** LOEW, Mon. N. A. Dipt., iii, 269, pl. xi, f. 12.—Brazil.
 WILLISTON, Trans. Ent. Soc. Lond., 1896, 376, oc. in St. Vincent, W. I.

BLEPHARONEURA.

- LOEW, Mon. N. A. Dipt., iii, 271, obs., 1873.
 VAN DER WULP, Biologia, Dipt., ii, 411, 1899, table of Mexican species.
- biseriata** VAN DER WULP, Biologia, Dipt., ii, 413, pl. xii, f. 8.—Guerrero, Mex.
- diva** GIGLIO-TOS, Boll. R. Univ. Torino, viii, No. 158, 1893; Ditt. del Mess., iv, 57, f. 17.—Tuxpango, Mex.
- femoralis** VAN DER WULP, Biologia, Dipt., ii, 412, pl. xii, f. 6.—Guerrero, Mex.
- fulvicollis** VAN DER WULP, Biologia, Dipt., ii, 411, pl. xii, f. 5.—Guerrero, Vera Cruz, and Tabasco, Mex.
- io** GIGLIO-TOS, Boll. R. Univ. Torino, viii, No. 158; Ditt. del Mess., iv, 57, f. 18.—Tuxpango, Mex.
- pœcilogaster** LOEW, Mon. N. A. Dipt., iii, 270.—Cuba.
- quadristriata** VAN DER WULP, Biologia, Dipt., ii, 413, pl. xii, f. 7.—Tabasco, Mex.
- regina** GIGLIO-TOS, Boll. R. Univ. Torino, viii, No. 158, 1893; Ditt. del Mess., iv, 56, f. 16.—Mex.
- saga** GIGLIO-TOS, Boll. R. Univ. Torino, viii, No. 158, 1893; Ditt. del Mess., iv, 56, f. 19.—Cordova, Mex.
- splendida** GIGLIO-TOS, see *Hexacheta*.

ACROTÆNIA.

- LOEW, Mon. N. A. Dipt., III, 274, 1873.
 VAN DER WULP, Biologia, Dipt., II, 414, 1899, table of Mexican species.
apiata VAN DER WULP, Biologia, Dipt., II, 415, pl. XII, f. 15.—Guerrero, Mex.
incisa VAN DER WULP, Biologia, Dipt., II, 415, pl. XII, f. 13.—Guerrero, Mex.
otopappi DOANE, Jour. N. Y. Ent. Soc., VII, 183, pl. III, f. 8.—Mex.; breeds in heads of *Otopappus acuminatus*.
tarsata VAN DER WULP, Biologia, Dipt., II, 414, pl. XII, f. 11.—Guerrero, Mex.
testudinea LOEW, Mon. N. A. Dipt., III, 272, pl. XI, f. 13.—Cuba.

EUTRETA.

- LOEW, Mon. N. A. Dipt., III, 275, 1873.
 SCHINER, Novara, 267, 1868 (*Icaria*, preoc.).
aurantiaca DOANE, Jour. N. Y. Ent. Soc., VII, 185, pl. III, f. 10.—Wash.
 COQUILLET, Jour. N. Y. Ent. Soc., VII, 264, note.
diana OSTEN SACKEN, West. Dipt., 347.—Mo.
 DOANE, Jour. N. Y. Ent. Soc., VII, 184, note.—Nebr., Wash.; reared from galls of *Artemisia tridentata*. Mont.—Williston MS.
 SNOW, Kans. Univ. Quart., II, 168, var. *tricolor*.—Nev., Mont.; bred from *Artemisia* sp.
longicornis SNOW, Kans. Univ. Quart., II, 168, pl. VI, f. 12.—Mont.
patagiata VAN DER WULP, Biologia, Dipt., II, 414, pl. XII, f. 10.—Guerrero, Mex.
rotundipennis LOEW, Mon. N. A. Dipt., I, 79 (*Trypeta*); III, 276, pl. X, f. 14.—Middle States.
sparsa WIEDEMANN, Auss. Zw., II, 492.—No locality.
 SAY, Jour. Acad. Sci. Phil., VI, 187; Compl. Works, II, 370 (*Trypeta calipetra*).—Ind.
 MACQUART, Dipt. Exot., II, 3, 200, pl. XXVI, f. 8 (*Platystoma latipennis*).—No locality.
 FITCH, 1st N. Y. Rept., 67 (*Acinia novaboracensis*).—N. Y.
 LOEW, Mon. N. A. Dipt., I, 78, pl. II, f. 13, syn. and desc. (*Trypeta*); III, 274, pl. X, f. 13.—Tex., Col., Cal., Canada.
 SNOW, Kans. Univ. Quart., II, 167, pl. VI, f. 10, II, notes on varieties, etc.—N. H., Me., N. Y., Wash., Col.
 DOANE, Jour. N. Y. Ent. Soc., VII, 184, notes.—S. D., Cal., Pa., Col.
 VAN DER WULP, Biologia, Dipt., II, 413, pl. XII, f. 9, oc. in Mexico, several places. Montreal—Chagnon; Quebec—V. d. W. and Fyles.

CARPHOTRICHA.

- LOEW, Europ. Bohrfiegen, 77, 1862; Mon. N. A. Dipt., III, 279, 1873.
 SCHINER, Fauna Austr., II, 144, 1864.
Note.—Coquillett, Jour. N. Y. Ent. Soc., VII, 264, 1892, establishes a genus *Paracantha* for *culta*; as this is directly contrary to the opinion of LOEW, Mon., III, 279, I do not accept it.
culta WIEDEMANN, Auss. Zw., II, 486 (*Trypeta*).—Savannah, Ga.
 MACQUART, Dipt. Exot., II, 3, 228, pl. XXXI, f. 5 (*Acinia fimbriata*).—Carolina.
 LOEW, Mon. N. A. Dipt., I, 94, pl. II, f. 29 (*Trypeta*); III, 276, pl. XI, f. 3.—Texas.
 COQUILLET, Canad. Ent., XXVI, 72 (*cultaris*).—S. Cal.
 DOANE, Jour. N. Y. Ent. Soc., VII, 185, syn. of *cultaris*, etc.—Wash., Ida., Ore., S. D., Fla.

VAN DER WULP, *Biologia*, Dipt., II, 422, pl. XII, f. 30, oc. in Mex., several places. Fla.—Johnson; Beulah, N. M.—Skinner.

Note.—I have seen this species depositing eggs in flower-buds of *Helianthus biennis*, the cultivated form—J. M. A.

? *marginepunctata* MACQUART, *Hist. Nat. Dipt.*, II, 464 (*Tephritis*).—Philadelphia.

Perhaps the same as *culta*—Loew, in *O. S. Cat.*, and *Mon.*, III, 337.

ACIDOGONA.

LOEW, *Mon. N. A. Dipt.*, III, 285, 1873.

melanura LOEW, *loc. cit.*, pl. XI, f. 6.—D. C.

EUROSTA.

LOEW, *Mon. N. A. Dipt.*, III, 280, 1873.

aterrima DOANE, *Jour. N. Y. Ent. Soc.*, VII, 187, pl. IV, f. 2.—Col.

bigeloviae COCKERELL, *Ent. Mo. Mag.*, Dec., 1890, 324; *Canad. Ent.*, XXV, 112, *note*.—Reared from round woolly gall on *Bigelovia* at West Cliff, Col. TOWNSEND, *Canad. Ent.*, XXV, 49 (as *bigeloviae*, n. sp.).—Col., N. M.; reared from gall on *Bigelovia*.

BAKER, *Ent. News*, VI, 174, *note*; oc. at Dolores, Col.

CAUDELL, *Bull.* 38, n. ser., Div. of Ent., 37, *notes* (*Aciura*).—Col. S. Ida.—J. M. A.

comma WIEDEMANN, *Auss. Zw.*, II, 478 (*Trypeta*).—Ky.

MACQUART, *Dipt. Exot.*, II, 3, 229 (*Acinia*).—Philadelphia.

LOEW, *Mon. N. A. Dipt.*, I, 93 (*Trypeta*); III, 280, pl. XI, f. 2.—Md., Mass.

SNOW, *Kans. Univ. Quart.*, II, 169, pl. VII, f. 3, *note*.—Comm., Va.

DOANE, *Jour. N. Y. Ent. Soc.*, VII, 186, *note*.

N. J.—Smith Cat.

conspurcata DOANE, *Jour. N. Y. Ent. Soc.*, VII, 186, pl. IV, f. 1.—Wash., N. H., N. J.

fenestrata SNOW, *Kans. Univ. Quart.*, II, 169, pl. VII, f. 7.—Ariz.

latifrons LOEW, *Mon. N. A. Dipt.*, I, 89 (*Trypeta*); III, 283, pl. X, f. 22.—Carolina, Conn.

VAN DER WULP, *Tijdschr. v. Ent.*, X, 158, pl. V, f. 15 (*Trypeta cribrata*).—Wis. [Lw.]

Detroit, Mich.; White Mts., N. H.—O. S.

reticulata SNOW, *Kans. Univ. Quart.*, II, 170, pl. VII, f. 6.—Conn., Mont.

DOANE, *Jour. N. Y. Ent. Soc.*, VII, 186, oc. in Col., S. D., Minn.

solidaginis FITCH, 1st *N. Y. Rept.*, 66 (*Acinia*).—N. Y.; makes round galls in the stalks of several species of *Solidago*.

HARRIS, *Ins. Inj. to Veget.*, 3d edit., 620 (*Trypeta asteris*).—Mass. [Lw.]

LOEW, *Mon. N. A. Dipt.*, I, 82 (*Trypeta*); III, 279, pl. X, f. 16.—N. Y.

D. C., New England. (Osten Sacken says Atlantic States and Canada.)

BRODIE, *Canad. Ent.*, XXIV, 137-139, *biology*.

SNOW, *Kans. Univ. Quart.*, II, 169, pl. VII, f. 5.—Me., Conn., Ill.

BAKER, *Ent. News*, VI, 174, *notes and oc.* at Ft. Collins, Col.; makes galls on *Solidago canadensis*.

FYLES, *Canad. Ent.*, XXVI, 120, *desc.*, parasites, etc.—Quebec.

HARRINGTON, *Canad. Ent.* XXVII, 197, occupants of the galls.

MRS. A. J. SNYDER, *Canad. Ent.* XXX, 99, *desc. of emergence*.

Charlotte Harbor, Fla.—Johnson; N. J.—Smith Cat.; Montreal—Chagnon.

XENOCHÆTA.

- SNOW, Kans. Univ. Quart., II, 166, 1894.
dichromata SNOW, loc. cit., pl. VII, f. 2.—Mt. Hood, Ore.

NEASPILOTA.

- OSTEN SACKEN, Cat., 102, 1878, change of name.
 LOEW, Mon. N. A. Dipt., III, 286, 1873 (*Aspilota*, preoc.).
achilleæ JOHNSON, Ent. News, XI, 328, fig.—Pa., Ga. "Common on yarrow or milfoil (*Achillea millefolium*)."
 N. J.—Smith Cat.
alba LOEW, Cent., I, 72 (*Trypeta*); Mon. N. A. Dipt., I, 100 (id.); III, 285, pl. XI, f. 11.—Pa.; captured on a sp. of *Vernonia*.
 OSTEN SACKEN, Cat., 260, "bred by Riley from seeds of *Vernonia*."
 Mo., Col.—O. S.; N. J.—Smith Cat.
albidipennis LOEW, Cent., I, 73 (*Trypeta*); Mon. N. A. Dipt., I, 100 (id.); III, 286, pl. XI, f. 10.—Pa.; captured on a sp. of *Vernonia*.
 N. J.—Smith Cat.
brunneistigmata DOANE, Jour. N. Y. Ent. Soc., VII, 187, pl. IV, f. 3.—No locality.
signifera COQUILLET, Canad. Ent., XXVI, 73.—S. Cal.
vernoniæ LOEW, Cent., I, 74 (*Trypeta*); Mon. N. A. Dipt., I, 74 (id.); III, 286, pl. XI, f. 8.—Pa.; captured on a sp. of *Vernonia*.
 COQUILLET, Jour. N. Y. Ent. Soc., VII, 262, refers to *Trypeta*.
 N. J.—Smith Cat.; Inverness, Fla.—Johnson.

ICTERICA.

- LOEW, Mon. N. A. Dipt., III, 287, 1873.
circinata LOEW, Mon. N. A. Dipt., III, 288.—N. Y. N. J.—Smith Cat.
lichtensteinii WIEDEMANN, Auss. Zw., II, 497 (*Trypeta*).—Mex.
 LOEW, Mon. N. A. Dipt., I, 92 (*Trypeta*); III, 289, pl. XI, f. 9.—Mex.
seriata LOEW, Mon. N. A. Dipt., I, 84 (*Trypeta*); III, 287, pl. X, f. 18.—Ill.
 SNOW, Kans. Univ. Quart., II, 171, note on female.—Nebr.
 Detroit, Mich., and Mass.—O. S.; N. J.—Smith Cat.; Montreal—Chagnon.

BARYPLEGMA.

- VAN DER WULP, Biologia, Dipt., II, 416, 1899.
gilva VAN DER WULP, loc. cit., pl. XII, f. 14.—Jalisco, Mex.

ENSINA.

- DESVOIDY, Myodaires, 751, 1830.
 LOEW, Europ. Bohrfiegen, 64, 1862; Mon. N. A. Dipt., III, 291, 1873.
 SCHINER, Fauna Austr., II, 143, 1864.
 VAN DER WULP, Biologia, Dipt., II, 416, table of Mexican species, 1899.
aurifera THOMSON, Eugen. Resa, 585 (*Trypeta*).—Cal.
 OSTEN SACKEN, Cat., 195, gen. ref. by Loew.
 COQUILLET, Jour. N. Y. Ent. Soc., VII, 264, refers to *Rhagoletis*, as a synonym of *humilis* LOEW.
conspersa VAN DER WULP, Biologia, Dipt., II, 417, pl. XII, f. 18.—Guerrero, Mex.
despecta VAN DER WULP, Biologia, Dipt., II, 418, pl. XII, f. 19.—Guerrero, Mex.
guttularis VAN DER WULP, Biologia, Dipt., II, 418, pl. XII, f. 21.—Guerrero, Mex.
humilis LOEW, Mon. N. A. Dipt., I, 81 (*Trypeta*); III, 291, pl. X, f. 17, and note on Bigot's types.—Cuba.
 BIGOT, in Sagra's Cuba, 824, pl. XX, f. 10 (*Acinia picciola*).—Cuba.
 OSTEN SACKEN, West. Dipt., 345, oc. in Colorado.

VAN DER WULP, *Biologia*, Dipt., II, 417, pl. XII, f. 15.—Guerrero and Tabasco, Mex.

COQUILLET, *Jour. N. Y. Ent. Soc.*, VII, 264, gen. ref. (*Tephritis picciola*). Porto Rico—Roeder; Jamaica—Johnson; Key West, Fla.—Osten Sacken.

Note.—Loew's note rejecting Bigot's name shows a valid ground, in my opinion, although there has been a tendency the other way in recent years.

luculenta VAN DER WULP, *Biologia*, Dipt., II, 417, pl. XII, f. 17.—Guerrero, Mex.

mediana VAN DER WULP, *Biologia*, Dipt., II, 418, pl. XII, f. 20.—Guerrero, Mex.

peregrina LOEW, *Mon. N. A. Dipt.*, III, 292, pl. X, f. 30.—Brazil.

WILLISTON, *Trans. Ent. Soc. Lond.*, 1896, 377, pl. XIII, f. 130.—St. Vincent, W. I.

COQUILLET, *Proc. U. S. N. M.*, XXII, 258, oc. in Porto Rico (*Tephritis*).

VAN DER WULP, *Biologia*, Dipt., II, 417, pl. XII, f. 16.—Orizaba and Guerrero, Mex.

picciola BIGOT, see *humilis*.

TEPHRITIS.

LATREILLE, *Hist. Nat. Crust. et Ins.*, XIV, 383, 1804.

LOEW, *Europ. Bohrfliegen*, 96, 1862; *Mon. N. A. Dipt.*, III, 295, 1873.

SCHNER, *Fauna Austr.*, II, 151, 1864.

VAN DER WULP, *Biologia*, Dipt., II, 419, 1899, table of Mexican species.

? **acutangula** THOMSON, *Eugen. Resa*, 583 (*Trypeta*).—Cal.

LOEW, *Mon. N. A. Dipt.*, III, 335, note, not seen.

COQUILLET, *Jour. N. Y. Ent. Soc.*, VII, 265, makes a syn. of *abstersa*, in *Euaesta*.

affinis SNOW, *Kans. Univ. Quart.*, II, 172, pl. VII, f. 12.—Wash., Mont., Cal.

COQUILLET, *Jour. N. Y. Ent. Soc.*, VII, 264, note.

albiceps LOEW, *Mon. N. A. Dipt.*, III, 302, pl. XI, f. 5.—Canada, Me.

N. H. and N. J.—Snow; White Mts., N. H.—Slosson; Axton, N. Y.—M. and H.; Province of Quebec—Fyles.

angustipennis LOEW, *Germ. Zeitsch.*, V, 382, pl. II, f. 4 (*Trypeta*); *Europ. Bohrfliegen*, 113; *Mon. N. A. Dipt.*, III, 293.—Europe; Europe; Yukon R., N. A.

ZETTERSTEDT, *Dipt. Scand.*, VI, 2229.

californica DOANE, *Jour. N. Y. Ent. Soc.*, VII, 190, pl. IV, f. 7.—Cal.

COQUILLET, *Jour. N. Y. Ent. Soc.*, VII, 266, note.

cancellata VAN DER WULP, *Biologia*, Dipt., II, 420, pl. XII, f. 25.—Guerrero, Mex.

clathrata LOEW, *Mon. N. A. Dipt.*, I, 80 (*Trypeta*); III, 297, pl. X, f. 5.—Middle States.

euryptera LOEW, *Mon. N. A. Dipt.*, III, 304.—West Point, N. Y.

fibulata VAN DER WULP, *Biologia*, Dipt., II, 421, pl. XII, f. 26.—Orizaba, Mex.

finalis LOEW, *Cent.*, II, 78 (*Trypeta*); *Mon. N. A. Dipt.*, III, 296, pl. XI, f. 4.—Texas, Cal.

Beulah, N. M.—Skimmer.

DOANE, *Jour. N. Y. Ent. Soc.*, VII, 188, oc. and note; "reared from the heads of various Compositæ."—Ida., S. D., Colo., Cal., N. M.

VAN DER WULP, *Biologia*, Dipt., II, 419, pl. XII, f. 22.—Mexico, several places.

Coscom and Orizaba, Mex.—Giglio-Tos.

fucata FABRICIUS, *Ent. Syst.*, IV, 359 (*Musca*); *Syst. Antl.*, 321.—W. Indies?

WIEDEMANN, *Auss. Zw.*, II, 505 (*Trypeta*).—S. A.

LOEW, *Mon. N. A. Dipt.*, III, 300.—Argentina.

- WILLISTON, Trans. Ent. Soc. Lond., 1896, 377, pl. XII, f. 129.—St. Vincent, W. I.
- JOHNSON, Ent. News, XIV, 100, oc. in N. J. Jamaica and St. Augustine, Fla.—Johnson.
- gemella* COQUILLET, Jour. N. Y. Ent. Soc., x, 181.—Las Vegas Hot Spr., N. M.
- geminata* LOEW, Cent., II, 75 (*Trypeta*); Mon. N. A. Dipt., III, 298, pl. XI, f. 1.—Pa.
- N. J.—Smith Cat.
- ? *genalis* THOMSON, Eugen. Resa, 585 (*Trypeta*).—Cal.
- LOEW, Mon. N. A. Dipt., III, 336, note, not seen.
- Hudsonian Zone, N. M.—Cockerell; Beulah, N. M.—Skimmer.
- inornata* COQUILLET, Jour. N. Y. Ent. Soc., x, 181.—Las Vegas Hot Spr., N. M.
- intricata* VAN DER WULP, Biologia, Dipt., II, 422, pl. XII, f. 29.—Durango, Mex.
- melliginis* FITCH, see *Rivellia viridulans*.
- murina* DOANE, Jour. N. Y. Ent. Soc., VII, 189, pl. IV, f. 5.—Wash.
- COQUILLET, Proc. Wash. Acad. Sci., II, 459, oc. in Alaska.
- obscuripennis* SNOW, Kans. Univ. Quart., II, 174, pl. VII, f. 8.—No locality.
- COQUILLET, Jour. N. Y. Ent. Soc., VII, 264, note.
- obsoleta* VAN DER WULP, Biologia, Dipt., II, 421, pl. XII, f. 27.—Orizaba, Mex.
- picturata* SNOW, Kans. Univ. Quart., II, 173.—Fla.
- platyptera* LOEW, Mon. N. A. Dipt., III, 306.—Conn.
- Hudsonian Zone, N. M.—Cockerell.
- rufipennis* DOANE, Jour. N. Y. Ent. Soc., VII, 190, pl. IV, f. 8.—Cal.
- semifusca* VAN DER WULP, Biologia, Dipt., II, 422, pl. XII, f. 28.—Durango, Mex.
- staminea* VAN DER WULP, Biologia, Dipt., II, 419, pl. XII, f. 23.—Orizaba, Mex.
- subradiata* VAN DER WULP, Biologia, Dipt., II, 420, pl. XII, f. 24.—Guerrero, Mex.
- tabellaria* FITCH, 1st N. Y. Rept., 770.—N. Y.
- LOEW, Mon. N. A. Dipt., III, 263.—Canada.
- tenebrosa* COQUILLET, Jour. N. Y. Ent. Soc., VII, 264.—Custer Co., Col.
- variabilis* DOANE, Jour. N. Y. Ent. Soc., VII, 188, pl. IV, f. 4.—Wash., Ore.
- webbii* DOANE, Jour. N. Y. Ent. Soc., VII, 189, pl. IV, f. 6.—Ida., Minn.
- COQUILLET, Jour. N. Y. Ent. Soc., VII, 266, note.

EUARESTA.

- LOEW, Mon. N. A. Dipt., III, 295, 308, 1873.
- VAN DER WULP, Biologia, Dipt., II, 423, 1899, table of Mexican species.
- æqualis* LOEW, Mon. N. A. Dipt., I, 86 (*Trypeta*); III, 308, pl. X, f. 20.—Ill.
- OSTEN SACKEN, West. Dipt., 345 (*Euaersta* sp.).
- MARLATT, Ent. News, I, 168, reared from seed-pods of *Xanthium*; Proc. Ent. Soc. Wash., II, No. 1, "The *Xanthium Trypeta*"; same habits; Insect Life, III, 129 and 312, notes on same habits.
- SNOW, Kans. Univ. Quart., II, 171, pl. VII, f. 10, correction of Loew's desc.—Pa., Va., Ill., N. M., Col.
- COQUILLET, Jour. N. Y. Ent. Soc., VII, 264, refers to *Tephritis*.
- Md., Ohio—O. S.; Idaho—J. M. A.
- N. J.—Smith Cat., "On *Ambrosia artemisiaefolia*, ragweed."
- angustipennis* VAN DER WULP, Biologia, Dipt., II, 425, fig.—Mexico City.
- araneosa* COQUILLET, Canad. Ent., XXVI, 74; Jour. N. Y. Ent. Soc., VII, 266, note.—S. Cal.
- audax* GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., IV, 55, f. 22.—Tuxpango, Mex.
- bella* LOEW, Mon. N. A. Dipt., I, 88 (*Trypeta*); III, 311, pl. X, f. 23.—N. Y., D. C.
- "Rather common everywhere in the U. S."—O. S.

- Montreal—Chagnon; White Mts., N. H.—Slosson; Fla.—Johnson.
- bellula** SNOW, Kans. Univ. Quart., II, 172.—Ariz.
- DOANE, Jour. N. Y. Ent. Soc., VII, 192, oc. in Cal.
- californica** COQUILLET, Canad. Ent., XXVI, 73.—S. Cal.
- crenulata** VAN DER WULP, Biologia, Dipt., II, 423, fig.—Morelos and Guerrero, Mex.
- festiva** LOEW, Mon. N. A. Dipt., I, 80 (*Trypeta*); III, 309, pl. X, f. 21.—Pa., Conn.
- SNOW, Kans. Univ. Quart., II, 171, pl. VI, f. 9.—Kans., Va.
- N. J., Ill., Ohio, Quebec—O. S.
- latipennis** TOWNSEND, Zoc., IV, 13.—Chacaltianguis, Mex.
- melanogaster** LOEW, Mon. N. A. Dipt., I, 90, pl. II, f. 24; III, 315, pl. X, f. 24.—Cuba.
- WILLISTON, Trans. Ent. Soc. Lond., 1896, 377, pl. XIII, f. 131, oc. and notes.—St. Vincent, W. I. Porto Rico—Roeder.
- mexicana** WIEDEMANN, Abss. Zw., II, 551 (*Trypeta*).—Mex.
- LOEW, Mon. N. A. Dipt., III, 317, pl. X, f. 28.—Texas.
- munda** COQUILLET, Jour. N. Y. Ent. Soc., VII, 265.—Elko, Nev.
- mundula** COQUILLET, Jour. N. Y. Ent. Soc., VII, 265.—Pareah, Utah.
- pura** LOEW, Mon. N. A. Dipt., III, 320.—Mass.
- rufula** VAN DER WULP, Biologia, Dipt., II, 424, fig.—Vera Cruz, Mex.
- scitula** VAN DER WULP, Biologia, Dipt., II, 425, fig.—N. Sonora, Mex.
- sobrinata** VAN DER WULP, Biologia, Dipt., II, 425, fig.—Guerrero and Orizaba, Mex.
- stigmatica** COQUILLET, Jour. N. Y. Ent. Soc., X, 180.—Flagstaff and Williams, Ariz.
- tapetis** COQUILLET, Canad. Ent., XXVI, 75.—N. M.
- DOANE, Jour. N. Y. Ent. Soc., VII, 191, oc. in Col.
- timida** LOEW, Cent., II, 76 (*Trypeta*); Mon. N. A. Dipt., III, 312, pl. X, f. 25.—Mex.
- VAN DER WULP, Biologia, Dipt., II, 424, fig.—Several places in Mexico.
- tricolor** DOANE, Jour. N. Y. Ent. Soc., VII, 191, pl. IV, f. 9.—S. D.
- COQUILLET, Jour. N. Y. Ent. Soc., VII, 264, note.

URELLIA.

- DESVOIDY, Myodaires, 774, 130.
- LOEW, Europ. Bohrfliegen, 117, 1862.
- VAN DER WULP, Biologia, Dipt., II, 426, 1899, table of species in Mexico.
- abstersa** LOEW, Cent., II, 77 (*Trypeta*); Mon. N. A. Dipt., III, 323, pl. XI, f. 7.—N. A.; Cuba.
- VAN DER WULP, Biologia, Dipt., II, 426, fig., oc. in Mexico City.
- COQUILLET, Jour. N. Y. Ent. Soc., VII, 264, note.
- N. J.—Smith Cat.; Key West, Fla.—Johnson; Hudsonian Zone, N. M.—Cockerell; Beulah, N. M.—Skinner (*Euaersta*).
- actinobola** LOEW, Mon. N. A. Dipt., III, 326.—Texas.
- COQUILLET, Jour. N. Y. Ent. Soc., VII, 266, note.
- aldrichii** DOANE, Jour. N. Y. Ent. Soc., VII, 192, pl. IV, f. 11.—S. D.
- COQUILLET, Jour. N. Y. Ent. Soc., VII, 266, note.
- bisetosa** COQUILLET, Jour. N. Y. Ent. Soc., VII, 266.—Las Cruces, N. M., and Marysvale, Utah.
- eugenia** VAN DER WULP, Biologia, Dipt., II, 427, fig.—Guerrero, Mex.
- femoralis** THOMSON, Eugen. Resa, 585 (*Trypeta*).—Cal.
- LOEW, Mon. N. A. Dipt., III, 336, note, not seen.

- imperfecta* COQUILLET, Jour. N. Y. Ent. Soc., x, 181.—Williams, Ariz.
- mevarna* WALKER, List, iv, 1023 (*Trypeta*).—Fla. (Is perhaps *solaris*—O. S.)
Hudsonian Zone, N. M.—Cockerell, det. by Coquillett.
Beulah, N. M.—Skinner.
- nigricornis* COQUILLET, Jour. N. Y. Ent. Soc., vii, 266.—Col.
- pacifica* DOANE, Jour. N. Y. Ent. Soc., vii, 192, pl. iv, f. 10.—Oregon (the locality was omitted in printing—Doane in litt.).
COQUILLET, Jour. N. Y. Ent. Soc., vii, 266, note.
- polyclona* LOEW, Mon. N. A. Dipt., iii, 324.—Cuba.
VAN DER WULP, Biologia, Dipt., ii, 426, fig.—N. Sonora, Mex.
- radifera* COQUILLET, Jour. N. Y. Ent. Soc., vii, 267.—Tucson, Ariz.
- solaris* LOEW, Mon. N. A. Dipt., i, 84, pl. ii, f. 19; iii, 325, pl. x, f. 19.—Ga.
OSTEN SACKEN, West. Dipt., 345, probably the same in Cal.
WILLISTON, Trans. Ent. Soc. Lond., 1896, 377, pl. xiii, f. 132, oc. and note.
—St. Vincent, W. I.
VAN DER WULP, Biologia, Dipt., ii, 427, fig., oc. in Guerrero, Mex.
COQUILLET, Jour. N. Y. Ent. Soc., vii, 266, note.
Puebla, Mex.—Giglio-Tos; N. J.—Smith Cat.; Fla.—Johnson.
See also *mevarna*.
- stigmatica* COQUILLET, Jour. N. Y. Ent. Soc., vii, 266.—Col.
- vicina* VAN DER WULP, Biologia, Dipt., ii, 427, fig.—Orizaba, Mex.

UROPHORA.

- DESVOIDY, Myodaires, 769, 1830.
SCHINER, Fauna Austr., ii, 134, 1864.
- antillarum* MACQUART, Dipt. Exot., Suppl. iv, 289, pl. xxvi, f. 17.—Antilles.
- avala* WALKER, List, iv, 1020.—Jamaica. "A small Ortalid"—O. S., from type.
- quadrifasciata* MEIGEN, Syst. Besch., v, 331, pl. XLIX, f. 3 (*Trypeta*).—Europe.
SCHINER, Fauna Austr., ii, 139.
MACQUART, Dipt. Exot., ii, 3, 221, oc. in Cuba (mentioned as *quadricittata*); see O. S. Cat., 195.
Note.—None of the three preceding, probably, belong to *Urophora* at all.

PRIONELLA.

- DESVOIDY, Myodaires, 1830.
- beauvoisii* DESVOIDY, Myodaires, 760.—N. A.?
- villosa* DESVOIDY, Myodaires, 760.—U. S.
LOEW, in O. S. Cat., 195, thinks it altogether uncertain whether these two species belong to Trypetidæ or Ortalidæ. They seem to be quite unrecognizable from the descriptions.

MICROPEZIDÆ.

- VAN DER WULP, Biologia, Dipt., ii, 360–363, 1897.
Note.—For Bigot's species of *Taniptera*, see *Tanyptera* and *Calobata*.
I do not find any described species of *Tetanura* (Fallén, Opomyz., 10, 1820; Schiner, Fauna Austr., ii, 190, 1864), although the genus is mentioned in Williston's Manual.

NERIUS.

- FABRICIUS, Syst. Antl., 264, 1805.
MACQUART, Hist. Nat. Dipt., ii, 492, 1835.

- bistriatus** WILLISTON, Trans. Ent. Soc. Lond., 1896, 373, pl. XII, f. 126.—St. Vincent, W. I.
- cinereus** ROEDER, Stett. Ent. Zeit., 1885, 348.—Porto Rico.
- flavifrons** BIGOT, Annales, 1886, 372.—Mex.
VAN DER WULP, Biologia, Dipt., II, 364.—Tabasco and N. Yucatan, Mex.
HUBBARD, Psyche, May, 1899, suppl., 14, referred to as bred from giant cactus (*Cercus giganteus*) in Ariz.
- pilifer** FABRICIUS, Syst. Antl., 264.—S. A.
WIEDEMANN, Auss. Zw., II, 550.—S. A.
VAN DER WULP, Biologia, Dipt., II, 364, oc. in Tabasco, Mex.
- plurivittatus** BIGOT, Annales, 1886, 372.—Mex.
- xanthopus** SCHINER, Novara, 247.—S. A.
GIGLIO-TOS, Ditt. del Mess., IV, 64, oc. in Orizaba, Mex.

CARDIACEPHALA.

- MACQUART, Dipt. Exot., II, 3, 242, 1843.
- VAN DER WULP, Biologia, Dipt., II, 375, 1898, table of Mexican spp.
- myrmex** SCHINER, Novara, 254.—S. A.
GIGLIO-TOS, Ditt. del Mess., IV, 63, oc. at Mexico City, and in Tuxpango, Mex.
VAN DER WULP, Biologia, Dipt., II, 376, oc. in Vera Cruz and Tabasco, Mex.
- nigra** SCHINER, Novara, 255.—S. A.
VAN DER WULP, Biologia, Dipt., II, 376, oc. in Vera Cruz, Mex., and Guatemala.

MICROPEZA.

- MEIGEN, Illig. Mag., II, 276, 1803; Syst. Besch., V, 382, 1826.
- SCHINER, Fauna Austr., II, 195, 1864.
- LOEW, Berl. Ent. Zeitsch., XII, 1868, 161-167 and 393.
- VAN DER WULP, Biologia, Dipt., II, 364, 1897, table of Mexican species.
- bilineata** VAN DER WULP, Biologia, Dipt., II, 366.—Guerrero, Mex.
- bisetosa** COQUILLET, Jour. N. Y. Ent. Soc., X, 177.—Prescott, Ariz., and Las Vegas Hot Spr., N. M.
- divisa** WIEDEMANN, Auss. Zw., II, 540 (*Calobata*).—Mex.
- incisa** WIEDEMANN, Auss. Zw., II, 547.—Brazil.
SCHINER, Novara, 250 (*appendiculata*).—S. A.
GIGLIO-TOS, Ditt. del Mess., IV, 64, oc. in Tuxpango, Mex., and syn.
- limbata** ROEDER, Stett. Ent. Zeit., 1885, 347.—Porto Rico.
COQUILLET, Proc. U. S. N. M., XXII, 257, oc. in same.
- nigricornis** VAN DER WULP, Biologia, Dipt., II, 366.—Guerrero, Mex.
- obscura** BIGOT, Annales, 1886, 387.—Mex.
VAN DER WULP, Biologia, Dipt., II, 305, redesc.—Vera Cruz and Tabasco, Mex.
- occipitalis** VAN DER WULP, Biologia, Dipt., II, 365.—Guerrero, Mex.
- pectoralis** WIEDEMANN, Auss. Zw., II, 540 (*Calobata*).—Mex.
- producta** WALKER, List, IV, 1056.—Ga. Cuba—Loew; Jamaica—Johnson.
- ruficeps** VAN DER WULP, Biologia, Dipt., II, 365.—N. Sonora, Mex.
- stigmatica** VAN DER WULP, Biologia, Dipt., II, 366, pl. IX, f. 17.—Mexico, several places.
- turcana** TOWNSEND, Trans. Kans. Acad. Sci., XIII, 136.—Turkey Tanks, Ariz. S. D., Kans., Ida.—J. M. A.

CALOBATA.

- MEIGEN, Illig. Mag., II, 276, 1803; Syst. Besch., v, 376, 1826.
 SCHINER, Fauna Austr., II, 191, 1864.
 VAN DER WULP, Biologia, Dipt., II, 367, 1897, table of Mexican species.
- albiceps** VAN DER WULP, Tijdschr. v. Ent., XXVI, sep. 50.—Quebec.
- alesia** WALKER, List, IV, 1048.—Martin Falls, Canada.
 New England—O. S.; N. J.—Smith Cat.
- alva** WALKER, List, IV, 1053.—Jamaica.
- angulata** LOEW, Cent., VII, 87.—Colombia, S. A.
 SCHINER, Novara, 253.—Brazil.
 WILLISTON, Trans. Ent. Soc. Lond., 1896, 372, oc. in St. Vincent, W. I.,
 and remarks on the synonymy.
- annulata** FABRICIUS, Ent. Syst., IV, 338 (*Musca*); Syst. Antl., 262.—Cayenne,
 S. A.
 WIEDEMANN, AUSS. ZW., II, 534, same locality.
 VAN DER WULP, Tijdschr. v. Ent., XXVI, 49; Biologia, Dipt., II, 373.—
 Tabasco, Mex., and Panama.
- antennipes** SAY, Jour. Acad. Sci. Phil., III, 97; Compl. Works, II, 83 (*antennipes*).—Pa.
 WIEDEMANN, AUSS. ZW., II, 546.
 OSTEN SACKEN, Cat., 179, oc. in Md. and Ky.; name changed to *antennipes*, which destroys the original significance, of the insect waving its fore feet like antennae.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- bracteata** VAN DER WULP, Biologia, Dipt., II, 371, pl. IX, f. 23.—Vera Cruz, Mex.
- callichroma** BIGOT, Annales, 1886, 373.—Mex.
 GIGLIO-TOS, Ditt. del Mess., IV, 63, note.
 VAN DER WULP, Biologia, Dipt., II, 375, pl. IX, f. 30.—Vera Cruz and
 Yucatan, Mex.; Costa Rica.
- calocephala** BIGOT, Annales, 1886, 575.—Mex.
- calosoma** BIGOT, Annales, 1886, 379 (*Taniaptera*).—Mex.
 Orizaba, Mex.—Giglio-Tos.
- conveniens** VAN DER WULP, Biologia, Dipt., II, 373.—Panama.
- diversa** SCHINER, Novara, 250.—S. A.
 VAN DER WULP, Tijdschr. v. Ent., XXVI, sep. 49, oc. in Mex.
- erythrocephala** FABRICIUS, Syst. Antl., 260.—S. A.
 WIEDEMANN, AUSS. ZW., II, 532.—Brazil.
 WALKER, List, IV, 1055, oc. in Brazil and Mexico.
 SCHINER, Novara, 250, notes.—S. A.
 VAN DER WULP, Tijdschr. v. Ent., XX, 49; Biologia, Dipt., II, 369.—Guadeloupe;
 Orizaba and Vera Cruz, Mex., Guatemala, Costa Rica.
 Guadeloupe—O. S.
- fasciata** FABRICIUS, Syst. Ent., 781 (*Musca*); Ent. Syst., IV, 336 (id.); Syst.
 Antl., 262.—W. I.
 WIEDEMANN, AUSS. ZW., II, 536.—W. I.
 COQUILLET, Proc. U. S. N. M., XXII, 257, oc. in Porto Rico (on human
 excrement—Howard).
 Porto Rico—Roeder; Jamaica—Johnson; Fla.—Johnson.
- geometra** DESVOIDY, Myodaires, 736 (*Neria*).—Carolina. Texas, Ky.—O. S.
 ? DESVOIDY, Myodaires, 736-738 (*Neria atripes*, *carolinensis*, and *longipes*
 FAB.).—Car. [O. S. Cat., 180, with a doubt.]
- grata** VAN DER WULP, Biologia, Dipt., II, 371, pl. IX, f. 24.—Guerrero and N.
 Yucatan, Mex.

- ichneumonæa** BRAUER, Sitzungsbericht d. K. Akad., xci, 388, pl. iv, 1885.—Mex.
BIGOT, Annales, 1886, 381 (*Grallomyia caloptera*).—Mex.
- GIGLIO-TOS**, Ditt. del Mess., iv, 63 (*Calobata caloptera* BIG.).—Mex.
- VAN DER WULP**, Biologia, Dipt., ii, 373, syn. and desc.—Guerrero, Mex., and Guatemala.
- lasciva** FABRICIUS, Ent. Syst., Suppl., 574 (*Musca*); Syst. Antl., 262.—Cayenne, S. A.
WIEDEMANN, Auss. Zw., ii, 535.—Cayenne.
- MACQUART**, Hist. Nat. Dipt., ii, 491, pl. xx, f. 9 (*Tacnioptera tricittata*); Dipt. Exot., ii, 3, 245, pl. xxxiii, f. 3 (*Calobata albimana*).—N. A.; the latter reference mentions Philadelphia, Cuba, Java and Australia, of which the two last certainly require confirmation.
- GUÉRIN**, Iconographie, iii, 553, pl. ciii, f. 7 (*Calobata ruficeps*).—Cuba.
? WALKER, Dipt. Saund., 390 (*valida*).—U. S. [O. S., with a doubt.]
- JENNICKE**, Neue Exot. Dipt., 4, oc. in Cuba.
- SCHINER**, Novara, 253, desc. and syn. of *albimana*.—S. A.
- OSTEN SACKEN**, Cat., 259, note and syn.
- COQUILLET**, Proc. U. S. N. M., xxii, 257, oc. in Porto Rico.
N. J.—Smith Cat.; Jamaica and Fla.—Johnson; Porto Rico—Roeder.
- latifascia** VAN DER WULP, Biologia, Dipt., ii, 372, pl. ix, f. 25.—Costa Rica and Panama.
- lunulata** VAN DER WULP, Biologia, Dipt., ii, 372, pl. ix, f. 26.—Presidio, Vera Cruz, Tabasco, and N. Yucatan, all in Mex.
- maculosa** LOEW, Cent., vii, 88.—Cuba.
- manifesta** VAN DER WULP, Biologia, Dipt., ii, 370, pl. ix, f. 20.—Costa Rica.
- mellea** WILLISTON, Trans. Ent. Soc. Lond., 1896, 373, pl. xii, f. 126.—St. Vincent, W. I.
- munda** VAN DER WULP, Biologia, Dipt., ii, 374, pl. ix, f. 29.—Guerrero, Mex.
- nebulosa** LOEW, Cent., vii, 89.—Fla. Fla., several places—Johnson.
- pallipes** SAY, Jour. Acad. Sci. Phil., iii, 97; Compl. Works, ii, 84.—Mo.
WIEDEMANN, Auss. Zw., ii, 548 (*Micropeza*).
Hudson B. Terr.—O. S.; White Mts., N. H.—Slosson.
- placida** LOEW, Cent., vii, 90.—Cuba.
- plectilis** GIGLIO-TOS, Boll. R. Univ. Torino, viii, No. 158, 1893; Ditt. del Mess., iv, 62.—Mex.
VAN DER WULP, Biologia, Dipt., ii, 370, pl. ix, f. 21.—Guerrero, Mex.
- pleuritica** JOHNSON, Proc. Acad. Nat. Sci. Phil., 1894, 279.—Jamaica.
- rubella** VAN DER WULP, Biologia, Dipt., ii, 368, pl. ix, f. 18.—Guerrero, Mex.
- russula** VAN DER WULP, Biologia, Dipt., ii, 370, pl. ix, f. 22.—Guerrero, Mex.
- stellata** VAN DER WULP, Biologia, Dipt., ii, 375.—Tabasco, Mex.
- univitta** WALKER, List, iv, 1049.—N. Y. and Martin Falls, Canada.
N. J.—Smith Cat.; Montreal—Chagnon.
- varipes** JOHNSON, Proc. Acad. Nat. Sci. Phil., 1895, 306.—Jacksonville, Fla.
- vittipennis** COQUILLET, Proc. U. S. N. M., xxv, 125.—Frontera in Tabasco, Mex.

TANYPEZA.

- FALLÉN, Opomyzides, 4, 1820.
- MEIGEN, Syst. Besch., vi, 100, 1830.
- SCHINER, Fauna Austr., ii, 283, 1804.
- VAN DER WULP, Biologia, Dipt., ii, 362, 1897, table of species in Mexico.
- HENDEL, Wien. Ent. Zeit., xxii, 201, 1903, places in Ortalidæ.
- claripennis** SCHINER, Novara, 247.—Brazil.

- WILLISTON, Trans. Ent. Soc. Lond., 1896, 371, pl. XII, f. 124.—St. Vincent, W. I.
- claripennis** SCHINER, Novara, 247.—Brazil.
- VAN DER WULP, Biologia, Dipt., II, 362.—Guerrero, Morelos, and Tabasco, Mex.; Costa Rico.
- mexicana** GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893; Ditt. del Mess., IV, 61.—Mex.
- VAN DER WULP, Biologia, Dipt., II, 363, note; may be same as *ornatipes* BIG.
- ornatipes** BIGOT, Annales, 1886, 380 (*Taniaptera*).—Mex.
- VAN DER WULP, Biologia, Dipt., II, 363, gen. ref.
- pallidipennis** BIGOT, Annales, 1886, 380 (*Taniaptera*).—Mex.
- VAN DER WULP, Biologia, Dipt., II, 363, footnote, gen. ref.; may be same as *claripennis*.
- rutila** VAN DER WULP, Biologia, Dipt., II, pl. IX, f. 15.—Guerrero, Mex.

TETRADISCUS.

- BIGOT, Annales, 1886, 374.
- VAN DER WULP, Biologia, Dipt., II, 363, note on position of genus.
- notatus** BIGOT, Annales, 1886, 374.—Mex.
- pictus** BIGOT, Annales, 1886, 370.—Rocky Mts.

SEPSIDÆ.

Note.—For *Madiza annulicornis*, see *Siphonella*.

PROCHYLIZA.

- WALKER, List, IV, 1045, 1849.
- xanthostoma** WALKER, loc. cit.—Martin Falls, Canada.
- OSTEN SACKEN, Cat., 199, note on family.
- COQUILLET, Proc. Wash. Acad. Sci., II, 461, oc. in Alaska, Ga., Texas, Kansas.
- N. J.—Smith Cat.; White Mts.—Slosson.

TYLEMYIA.

- GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1893, 14, change of name.
- MACQUART, Dipt. Exot., II, 3, 231, 1843 (*Omaloccephala*, preoc.).
- fusca** MACQUART, Dipt. Exot., II, 3, 232, pl. XXXI, f. 12 (*Omaloccephala*).—Guiana.
- GIGLIO-TOS, Ditt. del Mess., IV, 61, oc. in Tuxpango, Mex.

THEMIRA.

- DESVOIDY, Myodaires, 746, 1830.
- MACQUART, Hist. Nat. Dipt., II, 479, 1835 (*Cheligaster*).
- SCHINER, Fauna Austr., II, 181, 1864.
- putris** LINNÉ, Fauna Suecica, 2d edit., 456, No. 1850, var. *fimcti* (*Musca*).—Europe; "habitat in fimetis copiosissime et instar grandinum."
- FABRICIUS, Spec. Ins., II, 445 (*Musca*); Ent. Syst., IV, 334 (id.); Syst. Antl., 323 (*Tephritis*).
- FALLÉN, Ortalides, 21 (*Scpsis*).
- MEIGEN, Syst. Besch., V, 292 (*Scpsis*).

ST. EGER, Mon. Sepsis. Kroyer's Tidsskr., 1845, 29 (*Scpsis*).

MACQUART, Hist. Nat. Dipt., II, 479 (*Chellogaster*).

ZETTERSTEDT, Dipt. Scand., VI, 2290.

SCHINER, Fauna Austr., II, 182.

White Mts., N. H.—Slosson; Montreal—Chagnon; S. D.—J. M. A.

Note.—I found the adults in abundance attending plant-lice on cotton-wood.

SEPSIS.

FALLÉN, Ortalides, 20, 1820.

MEIGEN, Syst. Besch., V, 285, 1826.

SCHINER, Fauna Austr., II, 177, 1864.

discolor BIGOT, in Sagra's Cuba, 823.—Cuba. Porto Rico—Roeder.

ecalcarata THOMSON, Eugenes Resa, 588.—Cal.

flavimanus MEIGEN, Syst. Besch., V, 288.—Europe.

SCHINER, Fauna Austr., II, 180.

COQUILLET, Proc. Wash. Acad. Sci., II, 461, oc. in N. A.—Saldovia and Juneau, Alaska.

insularis WILLISTON, Trans. Ent. Soc. Lond., 1896, 431, pl. XIV, f. 159.—St. Vincent, W. I.

COQUILLET, Proc. U. S. N. M., XXII, 259, oc. in Porto Rico.

referens WALKER, List. IV, 999.—N. A.

COQUILLET, Proc. Wash. Acad. Sci., II, 461, oc. at Lowe Inlet, Brit. Col.

scabra LOEW, Wien. Ent. Monatsch., V, 42.—Cuba.

similis MACQUART, Dipt. Exot., Suppl. IV, 296, pl. XXVII, f. 11.—N. A.

vicaria WALKER, List. IV, 998.—Fla.

St. Augustine and Inverness, Fla.—Johnson.

violacea MEIGEN, Syst. Besch., V, 289.—Europe.

ZETTERSTEDT, Dipt. Scand., VI, 2289.

SCHINER, Fauna Austr., II, 179.

GIGLIO-TOS, Ditt. del Mess., IV, 60, oc. in Coscom, Mex.

HOWARD, Proc. Wash. Acad. Sci., II, 586, figs. and habits; reared abundantly from human excrement; Canad. Ent., XXXIII, 44, bred from cow-dung.—N. H., N. J., D. C., Md., Va.; Va.

Montreal—Chagnon; Hudsonian Zone, N. M.—Cockerell; Beulah, N. M. Skinner.

NEMOPODA.

DESVOIDY, Myodaires, 743, 1830.

SCHINER, Fauna Austr., II, 180, 1864.

aterrima BIGOT, Annales, 1886, 390.—Cal.

cubensis BIGOT, Annales, 390.—Cuba.

cylindrica FABRICIUS, Ent. Syst., IV, 336 (*Musca*); Syst. Antl., 263 (*Calobata*).—Europe.

FALLÉN, Ortalides, 21 (*Scpsis nitidula*).

MEIGEN, Syst. Besch., V, 290 (*Scpsis*).

DESVOIDY, Myodaires, 744 (*putris*).

MACQUART, Hist. Nat. Dipt., II, 480.

ZETTERSTEDT, Dipt. Scand., VI, 2301 (*Scpsis*).

VAN DER WULP, Tijdschr. v. Ent., XXVI, 51, oc. in N. A.—Quebec.

N. J.—Smith Cat.; Montreal—Chagnon.

fulvicoxalis BIGOT, Annales, 1886, 390.—Cal.; Cuba?

minuta WIEDEMANN, Auss. Zw., II, 468 (*Scpsis*).—N. Y.

HOWARD, Proc. Wash. Acad. Sci., II, 588, fig. and habits; reared from human excrement.—Va., D. C. N. J.—Smith Cat.

cæruleiformis MACQUART, Dipt. Exot., Suppl. II, 2, 94.—Philadelphia.

obscuripennis BIGOT, Annales, 1886, 392.—Cal.

MYCETAULUS.

LOEW, Dipt. Beitr., I, 37, 1845.

SCHINER, Fauna Austr., II, 187, 1864.

longipennis LOEW, Cent., IX, 100.—Huds. Bay Terr.

PIOPHILA.

FALLÉN, Heteromyzides, 8, 1820.

MEIGEN, Syst. Besch., v, 394, 1826.

SCHINER, Fauna Austr., II, 184, 1864.

affinis MEIGEN, Syst. Besch., VI, 383.—Europe.

ZETTERSTEDT, Dipt. Scand., VI, 2511.

SCHINER, Fauna Austr., II, 186.

STEEGER, Grenl. Antl., 368 (*casei* LINN.), oc. in Greenland.

SCHLÖDTE, Tillag til Rink: Greenland, etc., 69 (id.), same.

HOLMIGREN, Ins. Nordgrœnl., 104 (*pilosa* STÆG.).—Greenland.

LUNDBECK, Dipt. Grœnl., II, 299, fig.—Greenland.

casei LINNÉ, Fauna Suecica, 456, No. 1850 (*Musca putris*, var. *casei*).—Europe; "habitat in caseo, ejus larva caseum consumit."

FABRICIUS, Spec. Ins., II, 333 (*Musca atrata*).

MEIGEN, Syst. Besch., v, 395, pl. LIV, f. 4.

ZETTERSTEDT, Dipt. Scand., VI, 2510.

DUFOUR, Ann. de Science Nat., 1844, 369, pl. XVI, f. 7 (*pectasionis*). [Schiner.]

SCHINER, Fauna Austr., II, 186.

LOEW, in Silliman's Jour., oc. in N. A. (*casei* and *pectasionis*).

KELLOGG, Kans. Acad. Sci., XIII, 112, damaging smoked meats at Kansas City; Insect Life, v, 116, same.

MURTFELDT, Ins. Life, v, 135, similar habit; VI, 170, article on habits—affecting smoked pork.

RILEY and HOWARD, Ins. Life, VI, 208, notes.

HOWARD and MARLATT, Bull. 4, n. ser., Div. of Ent., 102, figs., biol., etc.

LINTNER, 12th N. Y. Report, 229–234, figs.; life history.

MÖTTER, Jour. N. Y. Ent. Soc., VI, 223, oc. in human graves.

HOWARD, Proc. Wash. Acad. Sci., II, 588, pl. XXX, all stages figured.

Cosmopolitan: reported from Alaska to New Mexico, etc.

concolor THOMSON, Eugenes Resa, 596.—Cal.

nigerrima LUNDBECK, Dipt. Grœnl., II, 301, fig.—Greenland.

nigriceps MEIGEN, Syst. Besch., v, 397.—Europe.

ZETTERSTEDT, Dipt. Scand., VI, 2516.

SCHINER, Fauna Austr., II, 185.

LOEW, in Silliman's Jour., oc. in N. A.

nigriceps MACQUART, Suppl. IV, 303, pl. XXVIII, f. 6.—N. A.

nitida VAN DER WULP, Tijdschr. v. Ent., X, 160, pl. v, f. 16–18.—Wis.

pilosa STÆGER, Grenl. Antl., 368.—Greenland.

ZETTERSTEDT, Dipt. Scand., VI, 2514.—N. Europe.

SCHLÖDTE, Tillag til Rink: Greenland, etc., 69, oc. in Greenland.

LUNDBECK, Dipt. Grœnl., II, 301, oc. in Greenland.

ENICOPUS.

WALKER, Ent. Mag., i, 253, 1833.

? **fuscus** BIGOT, Annales, 1886, 387.—Mex. Query by Bigot.

PSILIDÆ.

VAN DER WULP, Biologia, Dipt., ii, 360, 1897, def. and table of genera.

LOXOCERA.

MEIGEN, Illig. Mag., ii, 275, 1803; Syst. Besch., v, 362, 1826.

ZETTERSTEDT, Dipt. Scand., vi, 2382, 1847.

SCHINER, Fauna Austr., ii, 196, 1864.

LOEW, Schles. Ent. Zeit., 1857, European species.

BIGOT, Annales, 1887, 17-19, table of all species.

collaris LOEW, Cent., ix, 97.—D. C.

cylindrica SAY, Jour. Acad. Sci. Phil., iii, 98; Compl. Works, ii, 84.—Pa.

WIEDEMANN, Auss. Zw., ii, 528.

? LOEW, Cent., viii, 65 (*pleuritica*).—Conn., N. Y. [J. M. A., in spite of Loew's note to the contrary.]

N. J.—Smith Cat.; Montreal—Chagnon; White Mts., N. H.—Slosson.

The two last mentioned as *pleuritica*.

fallax LOEW, Cent., ix, 98.—Canada.

Axton, N. Y.—M. and H.

fumipennis COQUILLET, Proc. U. S. N. M., xxiii, 617.—Baldwin, Kans.; Texas.

pectoralis LOEW, Cent., viii, 64.—D. C.

N. J.—Smith Cat.; White Mts., N. H.—Slosson.

quadrilinea WALKER, Trans. Ent. Soc., n. ser., v, 329.—U. S.

CHYLIZA.

FALLÉN, Opomyzides, 6, 1820.

MEIGEN, Syst. Besch., v, 367, 1826.

SCHINER, Fauna Austr., ii, 199, 1864.

apicalis LOEW, Wien. Ent. Monatsch., iv, 82; Cent., viii, 72.—D. C.

GIGLIO-TOS, Ditt. del Mess., iv, 64, oc. in Tuxpango, Mex.

N. J.—Smith Cat.

euthea GIGLIO-TOS, Boll. R. Univ. Torino, viii, No. 158, 1893; Ditt. del Mess., iv, 64.—Tuxpango, Mex.

metallica WALKER, List, iv, 1045.—Martin Falls, Canada.

nigroviridis WALKER, Trans. Ent. Soc., n. ser., v, 330.—U. S.

notata LOEW, Cent., ix, 99.—D. C.

N. J.—Smith Cat.; White Mts., N. H.—Slosson.

varipes VAN DER WULP, Biologia, Dipt., ii, 361.—Guerrero and Tabasco, Mex.

PSILA.

MEIGEN, Illig. Mag., ii, 278, 1803; Syst. Besch., v, 355, 1826.

SCHINER, Fauna Austr., ii, 202, 1864.

bicolor MEIGEN, Syst. Besch., v, 358.—Europe.

ZETTERSTEDT, Dipt. Scand., vi, 2394.

SCHINER, Fauna Austr., ii, 204.

LOEW, Silliman's Journal, oc. in N. A.—Sitka and L. Winnipeg.

White Mts., N. H.—Slosson.

- bivittata* LOEW, Cent., VIII, 67.—Conn. Quebec—O. S.; N. J.—Smith Cat.
collaris LOEW, Cent., VIII, 68.—Conn.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson.
dimidiata LOEW, Cent., VIII, 69.—Red R. of the North.
exigua VAN DER WULP, Biologia, Dipt., II, 361.—Guerrero, Mex.
frontalis COQUILLET, Proc. U. S. N. M., XXIII, 617.—Franconia, N. H.
lateralis LOEW, Wien. Ent. Monatsch., IV, 81; Cent., VIII, 66.—D. C.
 N. J.—Smith Cat.
levis LOEW, Cent., VIII, 71.—White Mts., N. H.
 COQUILLET, Proc. Wash. Acad. Sci., II, 459, oc. in Alaska, several places.
rosæ FABRICIUS, Ent. Syst., IV, 356 (*Musca*); Syst. Antl., 319 (*Tephritis*).—
 Europe.
 MEIGEN, Syst. Besch., v, 358.
 ZETTERSTEDT, Dipt. Scand., VI, 2402 (*Scatophaga*).
 MACQUART, Hist. Nat. Dipt., II, 421 (*Psilomyia*).
 SCHINER, Fauna Austr., II, 206.
 FLETCHER, Rept. Ent. and Bot., Canada Dept. Agric., 1897, 196–198, oc.
 in Canada; biology; larva burrows in carrots; op. cit., 1898, 193, habits,
 distribution, etc.; op. cit., 1899, 161, notes on damage; Trans. Roy. Soc.
 Can., 2d ser., v, 213, figs. and notes.—Quebec and New Brunswick.
 Called the Carrot Rust Fly.
 CHITTENDEN, Bull. 33, n. ser., Div. of Ent., 26, fig., habits, oc.—N. Y.
 FELT, 18th N. Y. Rept., 1902, 99, biol., bibliog., figs.—N. Y.
sternalis LOEW, Cent., VIII, 70.—Middle States.

MEGAMERINA.

- RONDANI, Dipt. Ital. Prod., IV, 10, 1861, change of name.
 MEIGEN, Syst. Besch., v, 370, 1826 (*Lissa*, preoc.).
 SCHINER, Fauna Austr., II, 189, 1864 (*Lissa*).
carbonaria WALKER, List, IV, 1047 (*Lissa*).—Martin Falls, Canada.
carbonaria WALKER, see *Cordylura*.
fulvida BIGOT, Annales, 1886, 384.—Mex.

DIOPSIDÆ.

- BIGOT, Annales, 1874, 107, gives a list of the published species, showing that
 only one belongs to the western continent, while some fifty belong to the
 tropical parts of the old world. He also gives a table of genera of the world,
 Annales, 1880, 90–94.

SPHYRACEPHALA.

- SAY, American Entomology, pl. LII, 1828; Compl. Works, I, 116, pl. LII.
brevicornis SAY, Jour. Acad. Sci. Phil., I, 23; Compl. Works, I, 116, pl. LII.—
 Pa., Mo.
 WIEDEMANN, Auss. Zw., II, 563 (*Diopsis*); Aclias, etc., pl. II, f. 3 (id.).
 GRAY, in Griffith's Animal Kingdom, Ins., 774, pl. LXI, f. 2.
 MACQUART, Hist. Nat. Dipt., II, 486 (*Diopsis*).
 WESTWOOD, Trans. Linn. Soc., XVII, 311, pl. IX, f. 20.
 FITCH, 1st N. Y. Rept., 773 (*brevicornis* and *subbifasciata*), notes; col-
 lected on skunk cabbage, as Say also did.—N. Y.
 LOEW, Zeitsch. f. Ges. Naturwissenschaft, XLII, 101.
 KEEN, Canad. Ent., XV, 200, oc. in Philadelphia.

C. O. HOUGHTON, Ent. News, XIII, 160, note on habits of adult; oc. at Ithaca, N. Y. N. J.—Smith Cat.; Montreal—Chagnon.

Note.—In midsummer of 1901 I found this species by hundreds on foliage in one of the shady glens adjoining the campus of Cornell University, Ithaca, N. Y. There is nothing to show that the larva has anything to do with the skunk cabbage.

EPHYDRIDÆ.

BECKER, Berl. Ent. Zeitsch., XLI, 91-276, 1896, has given an excellent monograph of the European species.

DICHÆTA.

MEIGEN, Syst. Besch., VI, 61, 1830.

LOEW, Mon. N. A. Dipt., I, 132, 1862.

SCHINER, Fauna Austr., II, 235, 1864.

BECKER, Berl. Ent. Zeitsch., XLI, 102, 1896.

brevicauda LOEW, Neue Beitr., VII, 5; Mon. N. A. Dipt., I, 133.—Middle States.

SCHINER, Fauna Austr., II, 236.—Europe.

BECKER, Berl. Ent. Zeitsch., XLI, 103.—Europe.

N. J.—Smith Cat.; St. Augustine, Fla.—Johnson.

caudata FALLÉN, Hydromyzides, 8 (*Notiphila*).—Europe.

MEIGEN, Syst. Besch., VI, 62.

SCHINER, Fauna Austr., II, 236.

LOEW, Mon. N. A. Dipt., I, 133.—Mass., N. H.

BECKER, Berl. Ent. Zeitsch., XLI, 103.

White Mts., N. H.—Slonson.

furcata COQUILLET, Jour. N. Y. Ent. Soc., X, 182.—Biscayne Bay and L. Worth, Fla.

NOTIPHILA.

FALLÉN, Hydromyzides, 7, 1823.

SCHINER, Fauna Austr., II, 236, 1864.

BECKER, Berl. Ent. Zeitsch., XLI, 105, 1896.

avia LOEW, Zeitsch. f. Ges. Naturwiss., 1878, 103.—Hudson Bay Terr.

bella LOEW, Mon. N. A. Dipt., I, 135.—Middle States.

bellula WILLISTON, Trans. Ent. Soc. Lond., 1896, 390.—St. Vincent, W. I.; reported by Williston from Brazil later.

carinata LOEW, Mon. N. A. Dipt., I, 137.—Middle States. N. J.—Smith Cat.

decorata WILLISTON, Trans. Ent. Soc. Lond., 1896, 389.—St. Vincent, W. I.

decoris WILLISTON, Dipt. of Death Valley Exped., 258.—Panamint Valley, Cal.

erythroceræ LOEW, Zeitsch. f. Ges. Naturwiss., 1878, 104.—Cuba.

Porto Rico—Roeder.

macrochæta LOEW, Zeitsch. f. Ges. Naturwiss., 1878, 102.—Texas.

producta WALKER, List, IV, 1099.—Martin Falls, Canada.

pulchrifrons LOEW, Cent., X, 84.—Texas.

quadrisetosa THOMSON, Eugen. Resa, 504.—Cal.

repleta WALKER, see *Scatella*.

scalaris LOEW, Mon. N. A. Dipt., I, 134.—Middle States. N. J.—Smith Cat.

solita WALKER, Dipt. Saund., 406.—U. S.

transversa WALKER, Dipt. Saund., 407.—U. S.

unicolor LOEW, Mon. N. A. Dipt., I, 137.—Middle States.

virgata COQUILLET, Proc. U. S. N. M., XXII, 259.—Porto Rico.

vittata LOEW, Mon. N. A. Dipt., I, 134.—Middle States. N. J.—Smith Cat.

PARALIMNA.

- LOEW, Mon. N. A. Dipt., 1, 138, 1862.
 OSTEN SACKEN, Cat., 201, note.
 BECKER, Berl. Ent. Zeitsch., xli, 114, 1896.
appendiculata LOEW, Mon. N. A. Dipt., 1, 138.—Middle States.
 N. J.—Smith Cat.; St. Augustine, Fla.—Johnson.
decipiens LOEW, Zeitsch. f. Ges. Naturwiss., 1878, 196.—Texas.
 COQUILLET, Proc. U. S. N. M., xxii, 259, oc. in Porto Rico, Ga., and Fla.
multipunctata WILLISTON, Trans. Ent. Soc. Lond., 1896, 290; Kans. Univ. Quart.,
 vi, 5, oc. in Brazil.—St. Vincent, W. I.; Williston suggests that this,
 with *secunda* SCHINER from S. A., and *appendiculata*, may all be one
 species.
nuda COQUILLET, Jour. N. Y. Ent. Soc., x, 182.—Frontera in Tabasco, Mex.
obscura WILLISTON, Trans. Ent. Soc. Lond., 1896, 391.—St. Vincent, W. I.
 Porto Rico—Coquillett.

PTILOMYIA.

- COQUILLET, Proc. U. S. N. M., xxii, 261, 1900.
enigma COQUILLET, loc. cit.—Porto Rico.

ALLOTRICHOMA.

- BECKER, Berl. Ent. Zeitsch., xli, 1896, 121.
 WILLISTON, Kans. Univ. Quart., vi, 4, 1897, note.
abdominalis WILLISTON, Trans. Ent. Soc. Lond., 1896, 398 (*Hecamede*); Kans.
 Univ. Quart., vi, 4, gen. ref.—St. Vincent, W. I.; Brazil.
 COQUILLET, Proc. U. S. N. M., xxii, 260, oc. in Porto Rico.

GASTROPS.

- WILLISTON, Kans. Univ. Quart., vi, 3, 1897.
nebulosus COQUILLET, Canad. Ent., xxxii, 34.—N. C., Ga.
niger WILLISTON, Kans. Univ. Quart., vi, 3.—Grenada, W. I., and Rio Janeiro.

DISCOMYZA.

- MEIGEN, Syst. Besch., vi, 76, 1830.
 SCHINER, Fauna Austr., ii, 240, 1864.
 BECKER, Berl. Ent. Zeitsch., xli, 128, 1896.
balioptera LOEW, Mon. N. A. Dipt., 1, 140.—Cuba.
dubia WILLISTON, Trans. Ent. Soc. Lond., 1896, 392, pl. xiii, f. 138.—St. Vin-
 cent, W. I.

PSILOPA.

- FALLÉN, Hydromyzides, 6, 1820.
 SCHINER, Fauna Austr., ii, 241, 1864 (*Ephygrobia*).
 BECKER, Berl. Ent. Zeitsch., xli, 135, 1896, adopts and defends *Ephy-*
grobia.
 WILLISTON, Trans. Ent. Soc. Lond., 1896, 392, table of St. Vincent species.
aciculata LOEW, Mon. N. A. Dipt., 1, 142.—Cuba.
 WILLISTON, Trans. Ent. Soc. Lond., 1896, 394, pl. xiii, f. 140; Kans. Univ.
 Quart., vi, 4, oc.—St. Vincent, W. I.; Rio Janeiro.
 COQUILLET, Proc. U. S. N. M., xxii, 260, reports from Porto Rico, Ga.,
 and La.
æneonigra LOEW, Zeitsch. f. Ges. Naturwiss., 1878, 196.—Texas.
atra LOEW, Mon. N. A. Dipt., 1, 142.—Middle States.

- atrimanus** LOEW, Zeitsch. f. Ges. Naturwiss., 1878, 197.—D. C., Texas.
N. J.—Smith Cat.
- cæruleiventris** LOEW, Mon. N. A. Dipt., 1, 144.—Cuba.
- desmata** WILLISTON, Trans. Ent. Soc. Lond., 1896, 395.—St. Vincent, W. I.
- flavida** COQUILLET, Canad. Ent., xxxii, 33.—New Bedford, Mass.
- mellipes** COQUILLET, Proc. U. S. N. M., xxii, 260.—Porto Rico.
- nigra** WILLISTON, Trans. Ent. Soc. Lond., 1896, 393, pl. xiii, f. 139.—St. Vincent, W. I.
- nigrimanus** WILLISTON, Trans. Ent. Soc. Lond., 1896, 393; Kans. Univ. Quart., vi, 4, oc.—St. Vincent, W. I.; Rio Janeiro.
- nigropunctum** WILLISTON, Trans. Ent. Soc. Lond., 1896, 393.—St. Vincent, W. I.
- nitidula** FALLÉN, K. Vetenskap. Akad. Handl., 1813, 252; Hydromyzides, 7, 1823.—Europe.
BECKER, Berl. Ent. Zeitsch., xli, 143 (*Ephygrobia*).
WALKER, List, iv, 1098 (*Notiphila*), oc. in N. A.—Martin Falls, Canada.
- nobilis** LOEW, Cent., ii, 92.—D. C.
- petrolei** COQUILLET, Canad. Ent., xxxi, 1899, 8.—S. Cal.; larvæ live in crude petroleum!
HOWARD, Scientific American, Feb. 4, 1899, vol. lxxx, p. 75; life hist. and figs. of different stages—same habits.
HOWARD and COQUILLET, Entomologist, 1899, 235. same.
- pulchripes** LOEW, Zeitsch. f. Ges. Naturwiss., 1878, 197.—Texas.
- scoriacea** LOEW, Mon. N. A. Dipt., 1, 142.—N. Y. N. J.—Smith Cat.
- similis** COQUILLET, Canad. Ent., xxxii, 33.—Fla., La.
- umbrosa** LOEW, Mon. N. A. Dipt., 1, 143.—Cuba.
- varipes** COQUILLET, Canad. Ent., xxxii, 33.—Vancouver Id., Br. Col.

ILYTHERA.

- HALIDAY, Ann. Nat. Hist., iii, 408, 1839.
- SCHINER, Fauna Austr., ii, 262, 1864.
- BECKER, Berl. Ent. Zeitsch., xli, 132, 1896.
- flavipes** WILLISTON, Trans. Ent. Soc. Lond., 1896, 403.—St. Vincent, W. I.; gen. ref. with a doubt. Also Kans. Univ. Quart., vi, 4, oc. in Rio Janeiro; confirms gen. ref.
Porto Rico—Coquillett.
- ? **oscitans** WALKER, Trans. Ent. Soc., n. ser., iv, 233 (*Ephydra*).—U. S.
OSTEN SACKEN, Cat., 262, note 319, says there is an earlier *Eph. oscitans* by Walker himself; refers with a doubt to *Ilythea spilota* CURT.
COQUILLET, Proc. U. S. N. M., xxii, 260, recognizes as a distinct and valid species.—Porto Rico. See *Ephydra* and *Scatella*.
- spilota** CURTIS, Brit. Ent., 413.—Europe.
WALKER, Ins. Brit., ii, 264.
STENHAMMAR, Mon. Ephyd., 186 (*notata*).
LOEW, Neue Beitr., vii, 37; Silliman's Jour., oc. in N. A.
SCHINER, Fauna Austr., ii, 263.
BECKER, Berl. Ent. Zeitsch., xli, 133, 1896.

ATHYROGLOSSA.

- LOEW, Neue Beitr., vii, 12, 1860; Mon. N. A. Dipt., 1, 132, 1862.
- SCHINER, Fauna Austr., ii, 244, 1864.
- BECKER, Berl. Ent. Zeitsch., xli, 133, 1896.
- glabrata** MEIGEN, Syst. Besch., vi, 69 (*Notiphila*).—Europe.

- LOEW, Neue Beitr., VII, 12.
 SCHINER, Fauna Austr., II, 245.
 WALKER, Ills. Brit., II, 254.
 BECKER, Berl. Ent. Zeitsch., XLI, 134, 1896.
 HOUGH, in litt., reports it from Wash.

glaphyropus LOEW, Zeitsch. f. Ges. Naturwiss., 1878, 198.—Texas.
nitida WILLISTON, Trans. Ent. Soc. Lond., 1896, 397, pl. XIII, f. 142.—St. Vincent, W. I.
 Porto Rico—Coquillett.

DISCOCERINA.

- MACQUART, Hist. Nat. Dipt., II, 527, 1835.
 STENHAMMAR, Mon. Ephyd., 251, 1844 (*Clasiopa*).
 LOEW, Mon. N. A. Dipt., I, 145, 1862.
 SCHINER, Fauna Austr., II, 243 (*Clasiopa*).
 BECKER, Berl. Ent. Zeitsch., XLI, 144, 1896 (*Clasiopa*).
 WILLISTON, Trans. Ent. Soc. Lond., 1896, 395, table of St. Vincent species.
facialis WILLISTON, Trans. Ent. Soc. Lond., 1896, 396, pl. XIII, f. 141.—St. Vincent, W. I.
incisa COQUILLET, Jour. N. Y. Ent. Soc., X, 182.—Porto Rico.
lacteipennis LOEW, Mon. N. A. Dipt., I, 145.—D. C. N. J.—Smith Cat.
leucoprocta LOEW, Berl. Ent. Zeitsch., 1861, 255; Mon. N. A. Dipt., I, 148.—Md.
 ? WILLISTON, Trans. Ent. Soc. Lond., 1896, 395, doubtfully recognized from St. Vincent, W. I. Porto Rico—Coquillett.
nana WILLISTON, Trans. Ent. Soc. Lond., 1896, 396.—St. Vincent, W. I.
obscura WILLISTON, Trans. Ent. Soc. Lond., 1896, 397.—St. Vincent, W. I.
orbitalis LOEW, Cent., I, 91; Mon. N. A. Dipt., I, 147.—D. C.
 BECKER, Mittheilungen Zool. Mus. Berl., II, 160, 1903, oc. in Egypt (*Clasiopa*).
parva LOEW, Mon. N. A. Dipt., I, 146.—D. C.
 COQUILLET, Proc. U. S. N. M., XXII, 261, oc. in Porto Rico.
 HOWARD, Proc. Wash. Acad. Sci., II, 592, note.
simplex LOEW, Cent., I, 92; Mon. N. A. Dipt., I, 147.—Md.

PAREPHYDRA.

- COQUILLET, Jour. N. Y. Ent. Soc., X, 183, 1902.
humilis COQUILLET, loc. cit.—Hot Spr., Yavapai Co., Ariz.

PARATISSA.

- COQUILLET, Canad. Ent., XXXII, 36, 1900.
pollinosa WILLISTON, Trans. Ent. Soc. Lond., 1896, 414 (*Drosophila*).—St. Vincent, W. I.
 COQUILLET, Canad. Ent., XXXII, 36, gen. ref.—Biscayne Bay, Fla.

HYDRELLIA.

- DESVOIDY, Myodaires, 790, 1830.
 LOEW, Mon. N. A. Dipt., I, 150, 1862.
 SCHINER, Fauna Austr., II, 246, 1864.
 BECKER, Berl. Ent. Zeitsch., XLI, 167, 1896.
conformis LOEW, Cent., VIII, 73.—Newport, R. I.
formosa LOEW, Cent., I, 94; Mon. N. A. Dipt., I, 154.—Pa.

- HOWARD, Proc. Wash. Acad. Sci., II, 593, oc. and note.—D. C.
gilvipes COQUILLET, Proc. U. S. N. M., XXXII, 261.—Porto Rico.
hypoleuca LOEW, Mon. N. A. Dipt., I, 151.—Middle States.
ischiaca LOEW, Mon. N. A. Dipt., I, 150.—Middle States.
obscuripes LOEW, Mon. N. A. Dipt., I, 152.—Middle States.
 White Mts., N. H.—Slosson.
parva WILLISTON, Trans. Ent. Soc. Lond., 1896, 399, pl. XIII, f. 143.—St. Vincent, W. I.
pulchra WILLISTON, Trans. Ent. Soc. Lond., 1896, 400, pl. XIII, f. 144.—St. Vincent, W. I.
scapularis LOEW, Mon. N. A. Dipt., I, 153.—Middle States.
 COQUILLET, Proc. Wash. Acad. Sci., II, 461, oc. in Br. Col., Alaska, Cal., and Ill. N. J.—Smith Cat.
valida LOEW, Mon. N. A. Dipt., I, 153.—Middle States.

NOSTIMA.

- COQUILLET, Canad. Ent., XXXII, 35, 1900.
slossonæ COQUILLET, loc. cit.—Biscayne Bay, Fla.

PHILYGRIA.

- STENHAMMAR, Mon. Ephyd., 238, 1844.
 LOEW, Mon. N. A. Dipt., I, 155, 1862.
 SCHINER, Fauna Austr., II, 251, 1864.
 BECKER, Berl. Ent. Zeitsch., XLI, 186, 1896.
 ? DESVOIDY, Myodaires, 1830—*Hydrina*.
debilis LOEW, Cent., I, 96; Mon. N. A. Dipt., I, 157.—Pa.
 White Mts., N. H.—Slosson (*Hydrina*).
fuscicornis LOEW, Mon. N. A. Dipt., I, 155.—Middle States.
 White Mts., N. H.—Slosson (*Hydrina*).
nitida WILLISTON, Trans. Ent. Soc. Lond., 1896, 400, pl. XIII, f. 145 (*Hydrina*).—St. Vincent, W. I.
nitifrons WILLISTON, Trans. Ent. Soc. Lond., 1896, 401 (*Hydrina*).—St. Vincent, W. I.
opposita LOEW, Cent., I, 95; Mon. N. A. Dipt., I, 156.—Pa.; D. C.
 Quebec—O. S.; White Mts., N. H.—Slosson (*Hydrina*).
vittipennis ZETTERSTEDT, Ins. Lapp., 716 (*Notiphila*); Dipt. Scand., v, 1924 (id.).—Europe.
 STENHAMMAR, Mon. Ephyd., 250.
 STEGER, Grœnl. Antl., 369 (*Notiphila*), oc. in Greenland.
 BECKER, Berl. Ent. Zeitsch., XLI, 1896, 103.
 ? LUNDBECK, Dipt. Grœnl., II, 302, doubtfully recognized from Greenland.

HYADINA.

- HALIDAY, Annals of Nat. Hist., III, 406, 1839.
 SCHINER, Fauna Austr., II, 254, 1864.
 BECKER, Berl. Ent. Zeitsch., XLI, 103, 1896.
albovenosa COQUILLET, Canad. Ent., XXXII, 34.—Ga., La.
gravida LOEW, Cent., IV, 98.—Sitka.

OCHTHERA.

- LATREILLE, Hist. Nat. Crust. et Ins., II, 462, 1802; XIV, 391, 1804.
 LOEW, Mon. N. A. Dipt., I, 159, 1862.

- SCHINER, Fauna Austr., II, 256, 1864.
 BECKER, Berl. Ent. Zeitsch., XLI, 204, 1896.
 WHEELER, Ent. News, VII, 123, 1896, table of species and notes.
cuprilineata WILLISTON, Trans. Ent. Soc. Lond., 1896, 402, pl. XIII, f. 148.—St. Vincent, W. I.
 WHEELER, Ent. News, VII, 123, pt. desc.
exsculpta LOEW, Mon. N. A. Dipt., I, 160.—Cuba.
 WILLISTON, Trans. Amer. Ent. Soc., XIII, 307, oc. in So. States. Jamaica and Fla.—Johnson.
lauta WHEELER, Ent. News, VII, 121.—Wis.
mantis DEGEER, Mém. Hist. Ins., VI, 143, pl. VIII, f. 15 (*Musca*).—Europe.
 FABRICIUS, Ent. Syst., IV, 334 (*Musca manicata*); Syst. Antl., 323 (*Tephritis* id.).
 FALLÉN, Hydromyzides, 2 (*manicata*).
 LATREILLE, Gen. Ins., IV, 348, pl. XV, f. 10; Consid. Générales, 444.
 MEIGEN, Syst. Besch., VI, 78.
 SCHINER, Fauna Austr., II, 256.
 BECKER, Berl. Ent. Zeitsch., XLI, 205, pl. V, f. 3; pl. VI, f. 20.
 LOEW, Mon. N. A. Dipt., I, 161.—Middle States.
 WHEELER, Ent. News, VII, 123, oc.—Conn. to Cal., common.
 GIGLIO-TOS, Ditt. del Mess., IV, 66, bibliog. and oc.—Tuxpango, Mex. White Mts., N. H.—Slosson.
rapax LOEW, Mon. N. A. Dipt., I, 162.—Carolina.
tuberculata LOEW, Mon. N. A. Dipt., I, 161.—Ill.
 WHEELER, Ent. News, VII, 123, oc. and pt. desc.—Wis. St. Augustine, Fla.—Johnson.

OCHTHEROIDEA.

- WILLISTON, Trans. Ent. Soc. Lond., 1896, 401.
atra WILLISTON, loc. cit., pl. XIII, f. 146.—St. Vincent, W. I.

PELINA.

- HALIDAY, Annals of Nat. Hist., III, 407, 1839.
 SCHINER, Fauna Austr., II, 255, 1864.
 BECKER, Berl. Ent. Zeitsch., XLI, 196, 1896.
truncatula LOEW, Zeitsch. f. Ges. Naturwiss., 1878, 198.—Texas.

PELOMYIA.

- WILLISTON, Dipt. of Death Val. Exped., 259, 1893.
 BECKER, Berl. Ent. Zeitsch., XLI, 274, 1896, quotes orig. desc.
occidentalis WILLISTON, loc. cit.—Monterey, Cal.
 COQUILLET, Proc. Wash. Acad. Sci., II, 461, oc. at Saldovia, Alaska.

BRACHYDEUTERA.

- LOEW, Mon. N. A. Dipt., I, 162, 1862.
 BECKER, Berl. Ent. Zeitsch., XLI, 201, 1896.
argentina WALKER, Dipt. Saund., 407 (*Notiphila*).—U. S.
 LOEW, Mon. N. A. Dipt., I, 163 (*dimidiata*).—D. C., Cuba. [Lw.]
 WILLISTON, Kans. Univ. Quart., VI, 4, oc. in Brazil, Bolivia, and Paraguay.

HOWARD, Proc. Wash. Acad. Sci., II, 592, bred from a pond "strongly impregnated with horse manure."—D. C.
Charlotte Harbor, Fla.—Johnson (*dimidiata*).

PARYDRA.

STENHAMMAR, Mon. Ephyd., 144, 1844.

LOEW, Mon. N. A. Dipt., I, 164, 1862.

SCHINER, Fauna Austr., II, 257, 1864.

BECKER, Berl. Ent. Zeitsch., XLI, 208, 1896.

abbreviata LOEW, Cent., I, 97; Mon. N. A. Dipt., I, 168.—Pa.

appendiculata LOEW, Zeitsch. f. Ges. Naturwiss., 1878, 202.—Texas.

bituberculata LOEW, Mon. N. A. Dipt., I, 165.—Middle States.

N. J.—Smith Cat.; S. D., Kans., Ida., common—J. M. A.

breviceps LOEW, Mon. N. A. Dipt., I, 167.—Middle States.

imitans LOEW, Zeitsch. f. Ges. Naturwiss., 1878, 201.—Mass.

limpidipennis LOEW, Zeitsch. f. Ges. Naturwiss., 1878, 201.—D. C.

paullula LOEW, Mon. N. A. Dipt., I, 167.—Locality omitted; U. S.—O. S.

COQUILLET, Proc. Wash. Acad. Sci., II, 462, oc. on Popof Id., Alaska.

pinguis WALKER, Dipt. Saund., 400 (*Ephydra*).—U. S.

LOEW, Zeitsch. f. Ges. Naturwiss., 1878, 199.—D. C., Texas.

N. J.—Smith Cat.

quadrituberculata LOEW, Mon. N. A. Dipt., I, 165.—Middle States.

Ormond, Fla.—Johnson.

unituberculata LOEW, Zeitsch. f. Ges. Naturwiss., 1878, 200.—D. C.

varia LOEW, Cent., IV, 100.—Sitka, Alaska.

EPHYDRA.

FALLÉN, Hydromyzides, 3, 1820.

LOEW, Mon. N. A. Dipt., I, 169, 1862.

SCHINER, Fauna Austr., II, 260, 1864.

PACKARD, Proc. Essex Inst., VI, 1869, and Amer. Jour. of Arts and Sciences, 1st ser., I, 1872, discusses in both the species of *Ephydra* which in the larval stage inhabit salt or alkaline waters.

WILLISTON, Trans. Conn. Acad., VI, July, 1883, on "Dipterous Larvæ in Western Alkaline Lakes, and their Use as Human Food."

SCHWARZ, Canad. Ent., XXIII, 236, on larvæ in Great Salt Lake.

BECKER, Berl. Ent. Zeitsch., XLI, 216, 1896.

atrovirens LOEW, Mon. N. A. Dipt., I, 169.—Middle States.

austrina COQUILLET, Canad. Ent., XXXII, 36.—Georgiana, Fla.

brevis WALKER, Trans. Ent. Soc., n. ser., IV, 233.—U. S.

crassimanus LOEW, Cent., VI, 88.—Mex.

halophila PACKARD, Proc. Essex Inst., VI, 46, fig.—Ill. The name is preoccupied.

californica PACKARD, Amer. Jour. Arts and Sci., 3d ser., I, 103 (larva and pupa only).—Cal.: larva in alkaline lake.

? WILLISTON, Trans. Conn. Acad., VI, July, 1883, adult desc.: larvæ in Soda Lake, Nev., also in Mono Lake. Identity not quite certain.

gracilis PACKARD, Amer. Jour. Arts and Sci., 3d ser., I, 103, larva only.—Cal.

SCHWARZ, Canad. Ent., XXIII, 235, extended notes on the larvæ—abundant in Great Salt Lake.

- hians** SAY, Jour. Acad. Sci. Phil., vi, 188; Compl. Works, ii, 371.—Mex.
lata WALKER, Trans. Ent. Soc., n. ser., iv, 233.—U. S.
lutea WIEDEMANN, Auss. Zw., ii, 593.—W. I.
nana WALKER, Trans. Ent. Soc., n. ser., iv, 234.—U. S.
 N. J.—Smith Cat.; Ormond, Fla.—Johnson.
Note.—The description is embraced in two lines, and suggests a *Psilopa*.
obscuripes LOEW, Cent., vii, 92.—Mass.
oscitans WALKER, Trans. Ent. Soc., n. ser., iv, 233.—U. S.
Note.—The name is preoccupied, and I should call the species unrecognizable, although Mr. Coquillett believes that he has identified it from Porto Rico and Mr. Johnson reported it from N. J.; see under *Ilythca* and *Scatella*.
pilicornis COQUILLET, Jour. N. Y. Ent. Soc., x, 184.—Biscayne Bay, Fla.
pygmæa WILLISTON, Trans. Ent. Soc. Lond., 1896, 402, pl. xiii, f. 147.—St. Vincent, W. I.
subopaca LOEW, Cent., v, 99.—Conn.
 N. J.—Smith Cat.; Charlotte Harbor, Fla.—Johnson.
tarsata WILLISTON, Dipt. of Death Valley Exped., 257.—Owen's Valley, Cal.
thomæ WIEDEMANN, Auss. Zw., ii, 593.—St. Thomas, W. I.

SCATELLA.

- DESVOIDY, Myodaires, 801, 1830.
 SCHINER, Fauna Austr., ii, 264, 1864.
 LOEW, Mon. N. A. Dipt., i, 170, 1862.
 BECKER, Berl. Ent. Zeitsch., xli, 225, 1896.
cribrata STENHAMMAR, Mon. Ephyd., 269 (*Ephydra*).—Sweden.
 ZETTERSTEDT, Dipt. Scand., v, 1835 (id.).
 SCHINER, Fauna Austr., ii, 265.
 LUNDBECK, Dipt. Greenl., ii, 303, oc. in Greenland.
favillacea LOEW, Mon. N. A. Dipt., i, 170.—Middle States.
 N. J.—Smith Cat.
lugens LOEW, Mon. N. A. Dipt., i, 171.—Middle States. Ormond, Fla.—Johnson.
mesogramma LOEW, Cent., viii, 74.—Newport, R. I.
obscura WILLISTON, see *stagnalis*.
obsoleta LOEW, Cent., i, 98; Mon. N. A. Dipt., i, 172.—D. C.
octonotata WALKER, List, iv, 1106 (*Ephydra*).—Martin Falls, Canada.
 ? **oscitans** WALKER, List, iv, 1106 (*Ephydra*).—Martin Falls, Canada.
 N. J.—Smith Cat. See *Ephydra* and *Ilythca*.
pentastigma THOMSON, Eugen. Resa, 591 (*Ephydra*).—Cal.
picea WALKER, List, iv, 1105.—Martin Falls, Canada.
quadrata FALLÉN, Hydromyzides, 5.—Europe.
 HALIDAY, Ent. Mag., i, 176 (*Ephydra graminum*).
 STENHAMMAR, Mon. Ephyd., 182.
 ZETTERSTEDT, Dipt. Scand., v, 1840.
 SCHINER, Fauna Austr., ii, 265.
 LOEW, in Silliman's Jour., oc. iii N. A.
 BECKER, Berl. Ent. Zeitsch., xli, 230.
repleta WALKER, List, iv, 1099 (*Notiphila*).—Martin Falls, Canada. Gen. ref. by J. M. A.

- sejuncta** LOEW, Cent., IV, 99.—Sitka.
- setosa** COQUILLET, Proc. Wash. Acad. Sci., II, 462.—Saldovia, Alaska.
- stagnalis** FALLÉN, Acta Holm., 248; Hydromyzides, 5 (*Ephydra*).—Europe.
 MEIGEN, Syst. Besch., VI, 118 (id.).
 STENHAMMAR, Mon. Ephyd., 178.
 LOEW, Neue Beitr., VII, 42.
 SCHINER, Fauna Austr., II, 206.
 STEGER, Grœnl. Antl., oc. in Greenland.
 HOLMGREN, His. Nordgrœnl., same.
 COQUILLET, Proc. Wash. Acad. Sci., II, 462, oc. in Alaska, N. J., Ga., Ariz.
 WILLISTON, Trans. Ent. Soc., Lond., 1896, 403 (*obscura*).—St. Vincent, W. I. [Will.]
 BECKER, Berl. Ent. Zeitsch., XLI, 235.
 HOWARD, Proc. Wash. Acad. Sci., II, 593, oc. and note.—D. C.
 LUNDBECK, Dipt. Grœnl., II, 303, oc. in Greenland.
 Hudsonian Zone, N. M.—Cockerell; White Mts., N. H.—Mrs. Slosson; Montreal—Chagnon; N. J.—Smith Cat.
- stenhammari** ZETTERSTEDT, Dipt. Scand., V, 1842.—Europe.
 SCHINER, Fauna Austr., II, 206.
 LOEW, in Silliman's Jour., oc. in N. A.
 BECKER, Berl. Ent. Zeitsch., XLI, 230.
- striata** WALKER, List, IV, 1107 (*Ephydra*).—Martin Falls, Canada.
- trisetæ** COQUILLET, Jour. N. Y. Ent. Soc., X, 184.—Williams, Ariz.

CÆNIA.

- DESVOIDY, Myodaires, 800, 1830.
 SCHINER, Fauna Austr., II, 203, 1864.
 BECKER, Berl. Ent. Zeitsch., XLI, 207, 1896.
- bisetosa** COQUILLET, Jour. N. Y. Ent. Soc., X, 183.—Salt Lake, Utah.
- spinosa** LOEW, Cent., V, 100.—Mass.
 N. Y.—O. S.; N. J.—Smith Cat.; St. Augustine, Fla.—Johnson.

LIPOCHÆTA.

- COQUILLET, Ent. News, VII, 220, 1896.
 BECKER, Berl. Ent. Zeitsch., XLI, 274, quotes orig. desc.
 WILLISTON, Kans. Univ. Quart., VI, 7, 1897, generic relations.
 TOWNSEND, Ent. News, IX, 168, 1898, notes on generic position.
- slossonæ** COQUILLET, Ent. News, VII, 221, fig.—Fla.
 TOWNSEND, Ent. News, IX, 168 (*texensis*).—Texas. [Will. in litt.]
 N. J.—Smith Cat.
Note.—Mr. R. W. Doane found the species by thousands on the sea-beach in southern California.

OSCINIDÆ.

ELLIPONEURA.

- LOEW, Cent., VII, 79, 1860.
- debilis** LOEW, Cent., VII, 79.—D. C.

MEROMYZA.

- MEIGEN, Syst. Besch., v, 163, 1830.
 SCHNER, Fauna Austr., II, 209, 1864.
americana FITCH, 1st N. Y. Rept., 299; 2d N. Y. Rept., 531.—N. Y.
 RILEY, 1st Mo. Rept., 159-161, fig. 90; pl. II, f. 28; larvæ in wheat stalks.—Mo.
 LINTNER, 39th Rept. N. Y. State Ag'l Soc.; reprinted with a few changes in 1st N. Y. Rept., 221-227; bibliog., figs., habits, etc.
 FORBES, Ill. Rept., 1883, 13-29, pl. 1, f. 1-8, full treatment; Rept., 1886, 35-39, additional notes on life history.
 WEBSTER, Dept. Agric. Rept., 1884, 389 and 1886, 574, notes on life hist.; Ins. Life, II, 87, notes on susceptibility of different varieties of wheat.
 GARMAN, Ins. Life, III, 332, note on placing of eggs.
 LUGGER, 2d Minn. Rept., 1896, 10, pl. XIV, notes on oc.—Minn.
 COQUILLET, Bull. 10, n. ser., Div. of Ent., 70, larvæ in wheat and rye straws.—Ind., Mo., Wis.
 FLETCHER, Rept. Ent. and Bot., 1898, 175, habits, figs., etc.
 MARLATT, Farmers' Bull. 132, Dept. of Agric., 29-30, fig., remedies, etc.
 LOCHHEAD, Bull. 116, Ontario Ag. Coll. and Ex. Sta., 7, 8, fig.
 PETTIT, Bull. 186, Mich. Ex. Sta., oc. at Chatham, Northern Mich., and notes.
 WEBSTER, Bull. 42, Div. of Ent., 1903, 43-51, figs.; life history, etc. Called the Greater Wheat Stem-Maggot.
 STEDMAN, 34th Rept. Bd. of Agric. Mo., 86-94, figs., life hist., etc.
 St. Augustine, Fla.—Johnson; N. J.—Smith Cat.; Hudsonian Zone, N. M.—Cockerell; Beulah, N. M.—Skinner; Axton, N. Y.—M. and H.
Notæ.—The preceding has also been called the Wheat Bulb-worm.

CHLOROPS.

- MEIGEN, Illig. Mag., II, 278, 1803; Syst. Besch., VI, 138, 1830.
 SCHNER, Fauna Austr., II, 210, 1864.
 LOEW, Zeitsch. f. Ent. zu Breslau, XX, 3-94, 1866, divided into subgenera and monographically considered. I have separated the subgenera below as far as practicable; but under the subgenus *Chlorops* are doubtless some that only belong to the genus.
 RILEY and HOWARD, Ins. Life, I, 86, early accounts of injury to wheat.
 WEBSTER, Ins. Life, I, 373, notes on affecting stems of grasses.

Subgenus Centor.

- procera* LOEW, Cent., X, 92.—Conn.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson.

Subgenus Anthracophaga.

- eucera* LOEW, Cent., III, 85.—D. C. N. J.—Smith Cat.
maculosa LOEW, Cent., X, 99.—Texas.
sanguinolenta LOEW, Cent., III, 84.—Carolina.

Subgenus Haplegis.

- fossulata* LOEW, Cent., III, 82.—Cuba.

Subgenus *Diptotoxa*.

See LOEW, Cent., x, 98, 1872.

- alternata* LOEW, Cent., x, 97.—Texas.
confluens LOEW, Cent., x, 94.—Texas.
microcera LOEW, Cent., x, 95.—Texas.
nigricans LOEW, Cent., x, 98.—Texas.
pulchripes LOEW, Cent., x, 96.—Texas.
versicolor LOEW, Cent., III, 97.—D. C. U. S. and Canada—O. S.
 N. J.—Smith Cat.; White Mts., N. H.—Slosson.
gundlachi LOEW, Cent., x, 93.—Cuba.

Subgenus *Chlorops*.

Inclusive of *Chloropisca* and a few species that have not been assigned to any subgenus; notes on some of these are given by Loew in O. S. Cat., p. 209.

- abdominalis* COQUILLET, Proc. Acad. Nat. Sci. Phil., 1895, 318.—Charlotte Harbor, Fla.
albifacies ADAMS, Kans. Univ. Sci. Bull., II, 43 (*albifascies*).—Atherton, Mo.
antennalis FITCH, 2d N. Y. Rept., 532.—N. Y.
annulata WALKER, List, IV, 1110.—Martin Falls, Canada.
appropinqua ADAMS, Kans. Univ. Sci. Bull., II, 39.—Kans., Wyo. and Col.
aristalis COQUILLET, Jour. N. Y. Ent. Soc., VI, 46.—N. C. Ga.
assimilis MACQUART, Dipt. Exot., Suppl. IV, 2, 306, pl. XXVIII, f. 9.—N. A.
 WALKER, List, IV, 1120 (*bistriatus*).—Martin Falls, Canada.
 FITCH, 1st N. Y. Rept., 299 (*Siphonella obesa*).—N. Y.
 LOEW, Cent., III, 87 (*trivialis*).—D. C.
 GIGLIO-TOS, Ditt. del Mess., IV, 65, oc. at Puebla, Mex.
 COQUILLET, Jour. N. Y. Ent. Soc., VI, 47, above synonymy; Bull. 10, n. ser., Div. of Ent., records larvæ among roots of *Poa* and in sugar-beet leaves; also in earth about roots of horse-radish.—Cal., D. C.
 CHITTENDEN, Bull. 17, n. ser., Div. Ent., 86, larvæ affecting roots of millet.
 N. J.—Smith Cat.; Montreal—Chagnon; St. Augustine, Fla.—Johnson;
 White Mts., N. H.—Slosson; Beulah, N. M.—Skinner.
atra MACQUART, Dipt. Exot., Suppl. IV, 2, 307, pl. XXVIII, f. 12.—N. A.
bilineata ADAMS, Kans. Univ. Sci. Bull., II, 40.—North Park, Col.
cinereipennis ADAMS, Kans. Univ. Sci. Bull., II, 40 (*cinerapennis*).—Riley Co., Kans.
crocata LOEW, Cent., III, 89.—Pa. N. J.—Smith Cat.
graminea COQUILLET, Jour. N. Y. Ent. Soc., VI, 47; Bull. 10, n. ser., Div. of Ent., 71, larvæ in grass.—Lancaster, Cal.
grata LOEW, Cent., III, 92 (*Chloropisca*).—Pa.
 N. J.—Smith Cat.; Montreal—Chagnon; White Mts., N. H.—Slosson;
 St. Augustine, Fla.—Johnson.
halteralis ADAMS, Kans. Univ. Sci. Bull., II, 41.—Ariz.
ingrata WILLISTON, Bull. Ohio Expt. Sta., Tech. ser., 1, No. 3, p. 156.—Ohio;
 larvæ in gall on *Muhlenbergia mexicana*.
 COQUILLET, Bull. 10, n. ser., Div. Ent., 71, larvæ in gall on *Muhlenbergia*.
 —Ind.
liturata ADAMS, Kans. Univ. Sci. Bull., II, 41.—Lusk, Wyo.
melanocera LOEW, Cent., III, 91.—D. C. N. J.—Smith Cat.
mella LOEW, Cent., x, 100.—Texas.
obscuricornis LOEW, Cent., III, 90.—D. C.
 N. J.—Smith Cat.; Montreal—Chagnon.

- palpalis** ADAMS, Kans. Univ. Sci. Bull., 11, 42.—Atherton, Mo.
- parva** ADAMS, Kans. Univ. Sci. Bull., 11, 42.—Douglass Co., Kans.
- perflava** WALKER, List, IV, 1120.—Martin Falls, Canada.
- producta** LÖEW, Cent., III, 96.—Sitka.
COQUILLET, Proc. Wash. Acad. Sci., 11, 463, recognized from Sitka.
- prolifera** OSTEN SACKEN, see *variceps*.
- proxima** SAY, Jour. Acad. Sci. Phil., VI, 187; Compl. Works, 11, 370.—Ind.
COMSTOCK, Rept. Dept. Agric., 1879, 257, life hist.; larvæ between blades of wheat stalk.
COQUILLET, Bull. 10, n. ser., Div. of Ent., 70, 71, larvæ in stems of wheat and *Elymus* (rye grass).—Ky., Cal.
Montreal—Chagnon; White Mts., N. H.—Slosson.
- pubescens** LÖEW, Cent., III, 88.—Fla. St. Augustine and Orlando, Fla.—Johnson.
- pullipes** COQUILLET, Jour. N. Y. Ent. Soc., VI, 47.—Santa Fé, N. M., and Canon City, Col.
- quinquepunctata** LÖEW, Cent., III, 94.—Nebr.
- recurva** ADAMS, Kans. Univ. Sci. Bull., 11, 41.—Lusk, Wyo.
- rubicunda** ADAMS, Kans. Univ. Sci. Bull., 11, 43.—Lusk, Wyo.
- rubida** COQUILLET, Jour. N. Y. Ent. Soc., VI, 46.—Col. and Placer Co., Cal.
Hagerman, Idaho—J. M. A.
- sahlbergi** LÖEW, Cent., III, 95.—Sitka.
Muir Inlet, Virgin Bay and Saldovia, Alaska—Coquillett.
- scabra** COQUILLET, Jour. N. Y. Ent. Soc., VI, 46.—Oswego, N. Y.
Saldovia, Alaska—Coquillett.
- sulphurea** LÖEW, Cent., III, 83.—English River, Canada.
N. J.—Smith Cat.
- testacea** MACQUART, Dipt. Exot., Suppl. IV, 2, 306, pl. XXVIII, f. 10.—N. A.
- tibialis** FITCH, 1st N. Y. Rept., 300, pl. 1, f. 5.—N. Y.
- trivialis** LÖEW, see *assimilis*.
- trivittata** WILLISTON, Trans. Ent. Soc. Lond., 1896, 425.—St. Vincent, W. I.
Porto Rico—Coquillett.
- unicolor** LÖEW, Cent., III, 93.—Miss. N. J.—Smith Cat.
- variceps** LÖEW, Cent., III, 86.—Sitka.
OSTEN SACKEN, in Lintner's 4th N. Y. Rept., 70, 71, fig. (*Chloropisca prolifera*).—N. Y.
LINTNER, *ibid.*, 67-72, occurrence of adults in large numbers (*id.*); 7th N. Y. Rept., 234-241, habit of assembling, several instances noted, new figures (*id.*).
COQUILLET, Jour. N. Y. Ent. Soc., VI, 48, syn.
N. J.—Smith Cat.; White Mts., N. H.—Slosson; Montreal—Chagnon.
- versicolor** LÖEW, see *Diptora*.
- ? **vittata** WIEDEMANN, AUSS. ZW., 11, 594.—W. I.
OSTEN SACKEN, Cat., 209, note; genus doubtful.
- ? **vulgaris** FITCH, 2d N. Y. Rept., 532, pl. 1, f. 4.—N. Y.
OSTEN SACKEN, Cat., 261, note; genus uncertain.

ECTECEPHALA.

- MACQUART, Dipt. Exot., Suppl. IV, 2, 280, 1850.
- albistylum** MACQUART, *loc. cit.*, pl. XXV, f. 17.—N. A.

EURINA.

MEIGEN, Syst. Besch., vi, 3, 1830.

SCHINER, Fauna Austr., ii, 220, 1804.

COQUILLET, Jour. N. Y. Ent. Soc., vi, 45, notes; oc. in N. A.

exilis COQUILLET, Jour. N. Y. Ent. Soc., vi, 45.—Beverly, Mass.; Col.

CERATOBARYS.

COQUILLET, Jour. N. Y. Ent. Soc., vi, 45, 1898 (no desc.; *culophus* designated as type).

eulophus LOEW, Cent., x, 88 (*Hippelates*).—Texas.

HIPPELATES.

LOEW, Cent., iii, 67, 1863; x, 90, 1872 (*Opctiophora*).

WILLISTON, Trans. Ent. Soc. Lond., 417, 1896, table of St. Vincent species; 418, *Siphomyia*, subgenus novum.

Note.—This is an artificial group; the cinereous species are hardly distinguishable from *Siphonella*, and the rest from *Oscinis*.

bicolor COQUILLET, Jour. N. Y. Ent. Soc., vi, 48.—Lake Worth, Fla.

N. J.—Smith Cat.

capax COQUILLET, Jour. N. Y. Ent. Soc., vi, 48.—N. Ill.

convexus LOEW, Cent., vi, 94.—Cuba.

COQUILLET, Bull. 10, n. ser., Div. of Ent., 73; larvæ in burrows in sugarcane in Florida; Proc. U. S. N. M., xxii, 205, oc. in Porto Rico and Mex.

St. Augustine, Fla.—Johnson.

dorsalis LOEW, Cent., vii, 75.—Cuba.

St. Vincent, W. I.—Williston.

dorsatus WILLISTON, Trans. Ent. Soc. Lond., 1896, 419.—St. Vincent, W. I.

equalis WILLISTON, Trans. Ent. Soc. Lond., 1896, 419.—St. Vincent, W. I.

eulophus LOEW, see *Ceratobarys*.

flavipes LOEW, Cent., vii, 95.—Cuba.

? WILLISTON, Trans. Ent. Soc. Lond., 1896, 420, oc. in St. Vincent, W. I.

SCHWARZ, Ins. Life, vii, 374, "The Hippelates Plague in Florida"; fig. and habits—the adults annoy people, dogs, etc.—Fla.

COQUILLET, Proc. U. S. N. M., xxii, 205, oc. in Porto Rico and notes; doubts the correctness of Williston's determination.

HOWARD, Proc. Wash. Acad. Sci., ii, 590, pl. xxxi, f. 1; occurs on human excrement, and perhaps carries putrefactive germs to open wounds, inducing blood poisoning. "Widely distributed in the United States."

N. J.—Smith Cat.; White Mts., N. H.—Slosson.

Note.—I think this is the same as *Oscinis pallipes* LOEW, which I found in abundance attending the horn fly on cattle at Lawrence, Kans.

genalis THOMSON, Eugen. Resa, 608.—Cal.

nobilis LOEW, Cent., iii, 67.—Ill. N. J.—Smith Cat.

pallidus LOEW, Cent., vi, 93.—Cuba.

plebeius LOEW, Cent., iii, 68.—D. C.

SCHWARZ, Ins. Life, vii, 374, fig. and habits; same habits as *flavipes*, above.—Fla. N. J.—Smith Cat.

plumbellus WIEDEMANN, Auss. Zw., ii, 574 (*Homalura*).—W. I.

LOEW, Mon. N. A. Dipt., i, 46, refers to *Siphonella*.

N. J.—Smith Cat., oc. and gen. ref.

proboscideus WILLISTON, Trans. Ent. Soc. Lond., 1896, 418.—St. Vincent, W. I.

- pusio** LOEW, Cent., x, 87.—Texas.
 SCHWARZ, Ins. Life, vii, 376, annoys people in Fla.
 COQUILLET, Proc. U. S. N. M., xxii, 265, oc. in Porto Rico and "as far north as New Bedford, Mass." N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- scutellaris** WILLISTON, Trans. Ent. Soc. Lond., 1896, 420.—St. Vincent, W. I.
- stramineus** LOEW, Cent., x, 90 (*Opetiophora*, n. gen.).—Texas.
 COQUILLET, Jour. N. Y. Ent. Soc., vi, 44, gen. ref. N. J.—Smith Cat.
- tener** COQUILLET, Proc. U. S. N. M., xxii, 265.—Porto Rico.

ELACHIPTERA.

- MACQUART, Hist. Nat. Dipt., ii, 621, 1835.
 VON ROSER, Verz. Württemb. Dipt., Nachtrag, 1840 (*Crassiseta*).
 LOEW, Dipt. Beitr., i, 48, 1845 (id.).
 SCHINER, Fauna Austr., ii, 231, 1864, desc. and syn.
- costata** LOEW, Cent., iii, 62 (*Crassiseta*).—D. C.
 COQUILLET, Bull. 10, n. ser., Div. of Ent., 72, larvæ in wheat, oats, radish, and root of melon.—Ohio, Ill., Pa.
 HOWARD, Proc. Wash. Acad. Sci., ii, 591, note.
 St. Augustine, Fla.—Johnson; N. J.—Smith Cat.
- dispar** WILLISTON, in Forbush and Fernald's Rept. on Gypsy Moth, 390.—Mass.
 COQUILLET, Jour. N. Y. Ent. Soc., vi, 48, would make this a syn. of *Gaurax anchora*.
- eunota** LOEW, Cent., x, 89 (*Crassiseta*).—Texas. N. J.—Smith Cat.
- flavida** WILLISTON, Trans. Ent. Soc. Lond., 1896, 417.—St. Vincent, W. I.
- formosa** LOEW, Cent., iii, 61 (*Crassiseta*).—D. C.
 White Mts., N. H.—Slosson; Ormond, Fla.—Johnson.
- longula** LOEW, Cent., iii, 64 (*Crassiseta*).—D. C.
 WEBSTER, Canad. Ent., 1900, 213, reared from wheat plants in Ohio.
 COQUILLET, Bull. 10, n. ser., Div. of Ent., 72, larvæ infesting *Panicum*, oats, and wheat.—Ind., Ohio. White Mts., N. H.
- nigriceps** LOEW, Cent., iii, 63 (*Crassiseta*).—D. C.
 COQUILLET, Bull. 10, n. ser., Div. of Ent., 72, 73; larvæ in decaying pond-lilies, also in *Panicum* and oats.—D. C., Ind. N. J.—Smith Cat.
 CHITTENDEN, Bull. 33, n. ser., 76, note.
- nigricornis** LOEW, Cent., iii, 65 (*Crassiseta*).—D. C.
 COQUILLET, Bull. 10, n. ser., Div. of Ent., 72; larvæ in wheat.—Ind. White Mts., N. H.—Slosson.

MOSILLUS.

- LATREILLE, Hist. Nat. Crust. et Ins., xiv, 389, 1804.
 FALLÉN, Oscinides, 10, 1820 (*Gymnopa*).
 MEIGEN, Syst. Besch., vi, 135 (id.), 1830.
 ZETTERSTEDT, Dipt. Scand., vii, 2678, 1848 (id.).
 SCHINER, Fauna Austr., ii, 234, 1864.
 LOEW, Jahrbuch d. K. K. Gelehrt. Ges. Krakau, 1870, 15 (*Gymnopa*).
 OSTEN SACKEN, Cat., 1878, 262, note 323.
- nigroæneus** WALKER, Dipt. Saund., 413 (*Gymnopa*).—U. S.
 Unrecognizable—perhaps a *Psilopa*—J. M. A.
- tarsalis** WALKER, Dipt. Saund., 413 (*Gymnopa*).—U. S.
 Unrecognizable—perhaps a *Psilopa*—J. M. A.

GAURAX.

- LOEW, Cent., III, 66, 1863.
anchora LOEW, Cent., VII, 94.—N. Y.; larvæ inquilinous in cocoons of *Attacus cecropia* L.
 COQUILLET, Bull. 10, n. ser., Div. of Ent., 71; larvæ in egg-shells of *Corydalis*, also in old cocoons of *Orgyia*.—D. C.
 See *Elachiptera dispar*.
araneæ COQUILLET, Ent. News, VII, 320.—Cal.; reared from egg-sacs of spider.
 COQUILLET, Bull. 10, n. ser., Div. of Ent., 72, reared from egg-sacs of *Argiope riparia* in Cal.
 ? **ephippium** ZETTERSTEDT, Dipt. Scand., VII, 2664 (*Oscinis*).—Sweden.
 Beulah, N. M.—Skinner, with a doubt.
festivus LOEW, Cent., III, 66.—Pa.
lancifer COQUILLET, Proc. U. S. N. M., XXII, 205.—Porto Rico and Montserrat, W. I.; bred from egg-sacs of spiders.
montanus COQUILLET, Jour. N. Y. Ent. Soc., VI, 48.—White Mts., N. H.
signatus LOEW, Zeitsch. f. Ges. Naturwiss., 1870, 338.—Texas.

SIPHONELLA.

- MACQUART, Hist. Nat. Dipt., II, 584, 1835.
 LOEW, Wien. Ent. Monatsch., II, note to *Oscinis gilvipes*. [O. S.]
 SCHINER, Fauna Austr., II, 228, 1864.
annulitarsis ZETTERSTEDT, Dipt. Scand., VII, 2674 (*Madiza*).—Europe.
 SCHINER, Fauna Austr., II, 231, gen. ref.
 VAN DER WULP, Tijdschr. v. Ent., X, 80, oc. in N. A.—Wis.
cinerea LOEW, Cent., III, 81.—Fla.
 N. J.—Smith Cat.; Charlotte Harbor, Fla.—Johnson.
inquilina COQUILLET, Jour. N. Y. Ent. Soc., VI, 48.—St. Louis and Kirkwood, Mo.; Va.
 COQUILLET, Bull. 10, n. ser., Div. of Ent., 75; larvæ found in cecidomyid gall on *Aster*, in cavity in apple, in twigs of *Cephalanthus*, and in berry of *Solanum carolinense*.—Mo., Va., Md.
lævigata FALLÉN, Oscinides, 9 (*Madiza*).—Europe.
 ZETTERSTEDT, Dipt. Scand., VII, 2668 (*Madiza oscinina* FALL.).
 SCHINER, Fauna Austr., II, 229, desc. and syn.
 White Mts., N. H.—Slosson, det. by Coquillet.
 Beulah, N. M.—Skinner.
latifrons LOEW, Cent., X, 91.—Texas. White Mts., N. H.—Slosson.
obesa FITCH, see *Chlorops assimilis*.
oscinina FALLÉN, Oscinides, 9 (*Madiza*).—Europe.
 SCHINER, Fauna Austr., II, 229, note.
 COQUILLET, Bull. 10, n. ser., Div. of Ent., 75.—Md.; larvæ in egg-sac of a spider.
plumbella WIEDEMANN, see *Hippelates*.
pumilionis BJERKANDER, K. Vetensk. Akad. Handl., 1778, 240 (*Musca*).—Europe.
 ZETTERSTEDT, Dipt. Scand., VII, 2662.
 SCHINER, Fauna Austr., II, 229.
 Occurs in N. J.—Smith Cat.
reticulata LOEW, Cent., VIII, 78.—Cuba.

OSCINIS.

- LATREILLE, Hist. Nat. Crust. et Ins., XIV, 385, 1804.
 FALLÉN, Oscinides, 3, 1820.

- SCHINER, Fauna Austr., II, 223, 1864.
- WILLISTON, Trans. Ent. Soc. Lond., 1896, 421, 1896, table of St. Vincent species.
- WEBSTER, Dept. Agric. Rept., 1886, 574, notes on a species infesting wheat straws; op. cit., 582, notes on a species infesting clover stems; Ins. Life, III, 81, on the infestation of wheat in U. S. and Canada.
- RILEY and HOWARD, Ins. Life, I, 346, note on a species affecting chrysanthemums in Pa.
- anonyma** WILLISTON, Trans. Ent. Soc. Lond., 1896, 423.—St. Vincent, W. I. Porto Rico—Coquillett.
- apicalis** WILLISTON, Trans. Ent. Soc. Lond., 1896, 422.—St. Vincent, W. I.
- atriceps** LOEW, Cent., III, 74.—Pa.
- brassicæ** RILEY, see *Agromyza trifolii*.
- carbonaria** LOEW, Cent., VII, 76.—D. C.
FLETCHER, Trans. Royal Soc. Canada, 2d ser., v, 209, ref. and fig.
GARMAN, Bull. 30, Ky. Expt. Sta. (probably *variabilis*).—Ky.; larvæ live in young wheat plants.
FLETCHER, Rept. Ent. and Bot., 1898, 176, figs. and habits; additional items are given in the 1890 report; Trans. Royal Soc. Canada, 2d ser., v, 209, ref. and figure.—Ottawa, Can.
- WEBSTER, Canad. Ent., 1900, 212, reared from wheat plants in Ohio.
- COQUILLET, Bull. 10, n. ser., Div. of Ent., 74; larvæ in wheat and in *Agropedium caninum*.—Ind., Nebr., Ottawa, Canada.
- HOWARD, Proc. Wash. Acad. Sci., II, 591, note.—D. C., Va.
- WEBSTER, Bull. 42, Div. of Ent., 1903, 51–56, life hist. The Lesser Wheat Stem-Maggot.
Hudsonian Zone, N. M.—Cockerell; Alaska—Coquillett.
- collusor** TOWNSEND, Proc. Cal. Acad. Sci., IV, 619.—Lower Cal.; causes irritation to the eyes of travelers, and the disease called "mal de ojo."
- concinna** WILLISTON, Trans. Ent. Soc. Lond., 1896, 424.—St. Vincent, W. I.
- coxendix** FITCH, 2d N. Y. Rept., 533.—N. Y.
COQUILLET, Proc. U. S. N. M., XXII, 266, oc. in Porto Rico, and "from N. H. to Fla., and westward to Col."
- COQUILLET, Bull. 10, n. ser., Div. of Ent., 73, habits; larvæ in burrows of *Elasmopalpus lignosellus* ZELL. in corn-stalks; also in *Poa* and wheat.—Ga., Va., Ind., D. C.
- WEBSTER, Canad. Ent., 1900, 212, reared from wheat plants.
HOWARD, Proc. Wash. Acad. Sci., II, 591, larvæ in roots of *Ambrosia artemisiifolia*.—D. C.
- crassifemoris** FITCH, see *Platypalpus*, family Empididæ.
- decipiens** LOEW, Cent., III, 76.—Sitka.
- dorsalis** LOEW, Cent., III, 72.—Pa. White Mts., N. H.—Slosson.
- dorsata** LOEW, Cent., VIII, 77 (*dorsalis*, preoc.); App., p. 291, change of name.—Newport, R. I.
WEBSTER, Canad. Ent., 1900, 212, reared from wheat plants in Ohio. White Mts., N. H.—Slosson.
- flaviceps** LOEW, Cent., III, 71.—Cuba.
- fur** WILLISTON, Trans. Ent. Soc. Lond., 1896, 425.—St. Vincent, W. I.
- hirta** LOEW, Cent., III, 75.—Ill.
- incipiens** WILLISTON, Trans. Ent. Soc. Lond., 1896, 425.—St. Vincent, W. I.
- longipes** LOEW, Cent., III, 77.—D. C.
COQUILLET, Bull. 10, n. ser., Div. of Ent., 74; larvæ in pods and seeds of *Catalpa*.—Pa.

- malvæ** BURGESS, see *Agromyza jucunda*.
- mitis** WILLISTON, Trans. Ent. Soc. Lond., 1896, 424.—St. Vincent, W. I.
- nana** WILLISTON, Trans. Ent. Soc. Lond., 1896, 423.—St. Vincent, W. I.
COQUILLETT, Proc. U. S. N. M., XXII, 267, oc. in Porto Rico.
- nudiuscula** LOEW, Cent., III, 70.—Ga.
- obscura** COQUILLETT, Proc. U. S. N. M., XXII, 266.—Porto Rico.
- pallipes** LOEW, Cent., III, 69.—Cuba.
LUGGER, 2d Minn. Rept., 170, fig.; adults affecting cattle, etc.
COQUILLETT, Bull., 10, n. ser., Div. Ent., 74; bred from artichoke.—Fla.
See *Hippelates flavipes*, which I think is the same; I found it attending the horn fly on cattle in Kans., and this is evidently what Lugger mentions, or a similar habit.
White Mts., N. H.—Slosson.
- pectoralis** COQUILLETT, Jour. N. Y. Ent. Soc., VI, 49.—White Mts., N. H.
- quadrilineata** WILLISTON, Trans. Ent. Soc. Lond., 1896, 422.—St. Vincent, W. I. Porto Rico—Coquillett.
- soror** MACQUART, Dipt. Exot., Suppl. IV, 306, pl. XXVIII, f. II (*Chlorops*).—N. A.
LUGGER, 2d Minn. Rept., 1896, 6-10, fig.—Minn.; infests stems of wheat near ground.
COQUILLETT, Bull., 10, n. ser., Div. of Ent., 73; larvæ in *Panicum*, *Poa*, oats, strawberries, cucumber roots, and seed pods of *Vernonia*.—Mich., Md., Ind., Ohio, D. C. N. J.—Smith Cat.
WEBSTER, Bull., 42, Div. of Ent., 1903, 57-62, figs., life history, etc. The American Frit-Fly.
- subvittata** LOEW, Cent., III, 78.—D. C.
- tibialis** FITCH, 2d N. Y. Rept., 532, pl. I, f. 5.—N. Y.
- triangularis** WILLISTON, Trans. Ent. Soc. Lond., 1896, 421, pl. XIV, f. 153a.—St. Vincent, W. I.
- trifolii** BURGESS, see *Agromyza*.
- trigramma** LOEW, Cent., III, 80.—D. C.
WEBSTER, Canad. Ent., 1900, 212, reared from wheat plants in Ohio.
COQUILLETT, Bull., 10, n. ser., Div. of Ent., 73, habits: larvæ in burrows of *Elasmopalpus lignosellus* ZELL. in cornstalks; also reared from fall wheat.—Ga., Ind., Ida., Cal.
HOWARD, Proc. Wash. Acad. Sci., II, 591, reared from human excrement.—D. C., Md.
N. J.—Smith Cat.
- umbrosa** LOEW, Cent., III, 73.—Pa.
WEBSTER, Canad. Ent., 1900, 212, reared from wheat plants.
COQUILLETT, Bull., 10, n. ser., Div. of Ent., 74, larvæ in *Poa* and wheat; Proc. U. S. N. M., XXII, 267, oc.—D. C. and Ind.; Porto Rico.
- variabilis** LOEW, Cent., III, 79.—D. C.
Note.—The supposed *variabilis* that affects wheat has been referred to *carbonaria*.
- virgata** COQUILLETT, Jour. N. Y. Ent. Soc., VI, 49.—Col. Porto Rico—Coquillett.

DROSOPHILIDÆ.

Note.—Mr. Kahl informs me that *Leucophenga* MIK, Wien. Ent. Zeit., 1886, 317, occurs in N. A.

ASTEIA.

- MEIGEN, Syst. Besch., vi, 88, 1830.
 LOEW, Berl. Ent. Zeitsch., ii, 114.
 SCHINER, Fauna Austr., ii, 280, 1864.
tenuis WALKER, Trans. Ent. Soc., n. ser., v, 331.—U. S.: genus with a query.
 OSTEN SACKEN, Cat., gives the genus without the query.

SIGALOËSSA.

- LOEW, Cent., vi, 100, 1865; family Asteidæ.
 SCHINER, Novara, 238, 1868; family Drosophilidæ.
 WILLISTON, Manual, 107, 1896; same.
 COQUILLET, Jour. N. Y. Ent. Soc., vi, 45, refers to Oscimidæ.
bicolor LOEW, Cent., vi, 100.—Cuba.
 COQUILLET, Proc. U. S. N. M., xxii, 267, oc. in Porto Rico.
flaveola COQUILLET, Jour. N. Y. Ent. Soc., vi, 49.—D. C.; Fla.; White Mts., N. H.

PHORTICA.

- SCHINER, Wien. Ent. Monatsch., vi, December, 1862.
 LOEW, Cent., ii, 93, May, 1862 (*Amiota*, without desc.); l. c., appendix, p. 288, recognizes *Phortica*.
 OSTEN SACKEN, Cat., 262, note.
albuguttata WAHLBERG, K. Vetensk. Akad. Handl., 1838, 22 (*Drosophila*).—Europe.
 ZETTERSTEDT, Dipt. Scand., vi, 2547 (id.).
 SCHINER, Fauna Austr., ii, 279 (*Drosophila sens. str.*).
 OSTEN SACKEN, Cat., 205, oc. in N. A., on authority of "Loew in litt."
humeralis LOEW, Cent., ii, 3 (*Amiota*).—D. C. N. J.—Smith Cat.
leucostoma LOEW, Cent., ii, 94 (*Amiota*).—Pa. N. J.—Smith Cat.; Axton, N. Y.—M. and H.
scutellaris WILLISTON, Trans. Ent. Soc. Lond., 1896, 416.—St. Vincent, W. I.
vittata COQUILLET, Proc. U. S. N. M., xxiii, 618.—Avalon and Del. Water Gap, N. J.; N. Y.

STEGANA.

- MEIGEN, Syst. Besch., vi, 207, 1830.
 SCHINER, Fauna Austr., ii, 270, 1864.
 WILLISTON, Kans. Univ. Quart., vi, 12, 1897, note.
coleoptрата SCOPOLI, Ent. Carniol., 338 (*Musca*), 1763.—Europe.
 MEIGEN, Syst. Besch., vi, 80 (*hypoleuca*).
 SCHINER, Fauna Austr., ii, 271.
 LOEW, in Silliman's Jour., oc. in N. A. (*hypoleuca*).
 N. J.—Smith Cat.; White Mts., N. H.—Slosson.
curvipennis FALLÉN, Geomyzides, 4 (*Drosophila*).—Europe.
 MEIGEN, Syst. Besch., vi, 79, pl. LVIII, f. 24, 25 (*nigra*).
 WALKER, Ins. brit., iii, xiv (*furta*).
 SCHINER, Fauna Austr., ii, 271.
 LOEW, in Silliman's Jour., oc. in N. A. (*nigra*).
horæ WILLISTON, Trans. Ent. Soc. Lond., 1896, 405, pl. XIII, f. 150.—St. Vincent, W. I.
tarsalis WILLISTON, Trans. Ent. Soc. Lond., 1896, 404, pl. XIII, f. 149.—St. Vincent, W. I.

CYRTONOTUM.

- MACQUART, Dipt. Exot., II, 3, 193, 1844 (*Curtonotum*).
 SCHINER, Fauna Austr., II, 22, 1864 (id.).
 LOEW, Centuries, App., p. 288, changed to *Diplocentra*, on account of alleged preoccupation of *Curtonotum*.
 OSTEN SACKEN, Berl. Ent. Zeitsch., 1882, 243 (*Diplocentra*).
 MIK, Wien. Ent. Zeit., XVII, 168, 1898, discussion of supposed preoccupation; adopts *Cyrtotonotum*.
- gibbum** FABRICIUS, Syst. Anth., 297 (*Musca*).—S. A.
 WIEDEMANN, Auss. Zw., II, 586 (*Helomyza*).—S. A.
 MACQUART, Dipt. Exot., II, 3, 193, pl. XXV, f. 9, 10.—S. A.
 RONDANI, Ins. Ditt. Brasil., 1848, 18, 30.—S. A.
 SCHINER, Novara, 237.—S. A.
 WALKER, List, IV, 1090, oc. at Para, S. A.
 GIGLIO-TOS, Ditt. del Mess., IV, 36, oc. in Tuxpango, Mex. (*Diplocentra*).
- helvum** LOEW, Cent., II, 91 (*Diplocentra*).—North Red River.
 N. J.—Smith Cat.
- simplex** SCHINER, Novara, 237.—Brazil.
 GIGLIO-TOS, Ditt. del Mess., IV, 36 (*Diplocentra*), oc. in Tuxpango, Mex.

DROSOPHILA.

- FALLÉN, Geomyzides, 4, 1823.
 MEIGEN, Syst. Besch., VI, 81, 1830.
 SCHINER, Fauna Austr., II, 275, 1864.
 WILLISTON, Trans. Ent. Soc. Lond., 1896, 406, table of 23 St. Vincent species.
Note.—The genus *Scaptomyza* (HARDY, Proc. Berwickshire Nat. Club, 349, 1849) is accepted by Mr. Coquillett; it would include a considerable number of the species of *Drosophila*. See Schiner, Fauna Austr., II, 276, and Coquillett, Proc. Wash. Acad. Sci., II, 462.
Note 2.—The apple burrowing habit attributed to *Drosophila* sp. in Amer. Nat., II, 641, does not seem to be sufficiently corroborated. More likely the actual burrower was *Trypeta pomonella*, and *Drosophila* lived in the cavities.
- adusta** LOEW, Cent., II, 98.—D. C. N. J.—Smith Cat.
 CHITTENDEN, Bull. 33, n. ser., 76, mining leaves of cabbage, etc. (*Scaptomyza*).—Maine to Fla. and Ill.
- albipes** WALKER, Dipt. Saund., 410.—U. S.
- amœna** LOEW, Cent., II, 96.—D. C.
 COMSTOCK, Dept. Agric. Rept., 1881-2, 201, pl. XVI; larvæ living in decaying apples: "The Pretty Pomace Fly."
 N. J.—Smith Cat.; White Mts., N. H.—Slosson; Kans., Mich.—J. M. A.
- ampelophila** LOEW, Cent., II, 99.—Cuba; S. Europe and N. Africa.
 COMSTOCK, Dept. Agric. Rept., 1881-2, 198-201, full life history; larvæ reared from decaying apples, etc.: "The Vine-loving Pomace Fly."
 WILLISTON, Canad. Ent., 1882, 138; larvæ in apple pomace, etc.
 HOWARD and MARLATT, Bull. 4, n. ser., Div. of Ent., 110, figs., habits and remedies.
 COCKERELL, Bull. 32, Ariz. Expt. Sta., 290-294, account of larvæ injuring oranges—not, however, until they had been attacked by rot.
 HOWARD, Proc. Wash. Acad. Sci., II, 58, pl. XXXI, f. 2, review of habits; reared from human excrement; Farmers' Bull. 155, Dept. Ag., figs. all stages.

- LINTNER, 1st N. Y. Rept., 216-221, transl. of orig. desc.; habits; larvæ in pickles and jam.—N. Y.
- MOTTER, Jour. N. Y. Ent. Soc., VI, 223, oc. in human graves.
- MELICHAR, Wien. Ent. Zeit., XX, 7, oc. in Austria, common.
- HENDEL, Verh. Zool.-Bot. Ges., 1900, 327, footnote, asserts on authority of Mik that the European *uvarum* is the same (this I take to be a later name, not finding it in Schiner).
- Forbes has reported this species as living in the larval stage in grapes; I have not the reference at hand.
- annulata* WILLISTON, Trans. Ent. Soc. Lond., 1896, 409.—St. Vincent, W. I.
- apicata* THOMSON, Eugen. Resa, 597.—Cal.
White Mts., N. H.—Slosson (*Scaptomyza*).
- bellula* WILLISTON, Trans. Ent. Soc. Lond., 1896, 410.—St. Vincent, W. I.
- bilineata* WILLISTON, Trans. Ent. Soc. Lond., 1896, 409.—St. Vincent, W. I.
- bimaculata* LOEW, Cent., VI, 91.—Cuba.
- brevis* WALKER, Dipt. Saund., 411.—U. S.
- busckii* COQUILLET, Ent. News, XII, 18.—D. C., W. Va., Ill.
HOWARD, Proc. Wash. Acad. Sci., II, 590, reared from rotten potatoes; also found in the burrows of *Chion cinctus*.—W. Va., Ill.
Lawrence, Kans.—Kahl, in litt.
- [*cellaris* LINNÉ, of Walker, is a mistake—O. S. Cat., 206.]
- coffeata* WILLISTON, Trans. Ent. Soc. Lond., 1896, 409.—St. Vincent, W. I.
- colorata* WALKER, List, IV, 1110.—N. Y. N. J.—Smith Cat.
- confusa* STÆGER, Krøyer's Tidskr., I, 18.—Europe.
MEIGEN, Syst. Besch., VI, 83 (*fenestrarum*).
ZETTERSTEDT, Dipt. Scand., VI, 2565.
SCHINER, Fauna Austr., II, 279, syn., etc.
Smith Cat., oc. in N. A.—N. J.
- decemguttata* WALKER, Dipt. Saund., 411.—U. S.
- dimidiata* LOEW, Cent., II, 95.—Ill.
- excita* GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158; Ditt. del Mess., IV, 66.—Mex.
- fasciola* WILLISTON, Trans. Ent. Soc. Lond., 410.—St. Vincent, W. I.
- flaveola* MEIGEN, Syst. Besch., VI, 66.—Europe.
WALKER, Ins. brit., II, 238 (*apicalis*).
HARDY, Proc. Berwickshire Nat. Club, 362 (*Scaptomyza apicalis*).
ZETTERSTEDT, Dipt. Scand., VI, 2571 (*pallida*).
SCHINER, Fauna Austr., II, 279, syn., etc.
COQUILLET, Ins. Life, VII, 381, figs. and life hist.; larvæ mine leaves of radishes; Proc. Wash. Acad. Sci., II, 462 (*Scaptomyza*).—D. C.; Alaska, Conn., and White Mts., N. H.
CHITTENDEN, Bull. 33, n. ser., Div. Ent., 75, fig. mining leaves of cabbage, etc. (*Scaptomyza*).—D. C.; Ky.
- flexa* LOEW, Cent., VI, 89.—Cuba.
- frontalis* WILLISTON, Trans. Ent. Soc. Lond., 1896, 413.—St. Vincent, W. I.
- fronto* WALKER, Dipt. Saund., 410.—U. S.
- funebri* FABRICIUS, Mant. Ins., II, 345; Ent. Syst., IV, 323; Syst. Antl., 299 (all *Musca*).—Europe.
SCOPOLI, Ent. Carniol., 337 (*Musca anopota*).
PANZER, Fauna German., XVII, 24 (*Musca crythrophthalma*).
MACQUART, Dipt. Exot., Suppl. IV, 305, oc. in N. A.
ZETTERSTEDT, Dipt. Scand., VI, 2563.
SCHINER, Fauna Austr., II, 278, syn. and desc.

- COQUILLET, Proc. U. S. N. M., xxii, 264, oc. in Porto Rico and "over the greater portion of the United States."
- HOWARD, Proc. Wash. Acad. Sci., ii, 590, bred from rotten cherries in Mass., and recorded as breeding in the waste of pressed olives in Mauritius; oc. in Md.
- WEBSTER, Canad. Ent., 1900, 213, oc. in Ohio.
- Notc.*—Schiner states that the larvæ live in fermenting fruits, etc., and in fungi.
- fusca** COQUILLET, Proc. U. S. N. M., xxii, 264.—Porto Rico.
- graminum** FALLÉN, Geomyzides, 8.—Europe.
- ZETTERSTEDT, Ins. Lapp., 777 (*sordida* and *flavicornis*); Dipt. Scand., vi, 2560.
- SCHINER, Fauna Austr., ii, 279.
- LOEW, in Silliman's Jour., oc. in N. A. N. J.—Smith Cat.
- CHITTENDEN, Bull. 33, n. ser., Div. of Ent., 76, mining leaves of cabbage, etc. (*Scaptomyza*).—N. H. to La.
- guttifera** WALKER, List, iv, 1110.—Fla.
- illota** WILLISTON, Trans. Ent. Soc. Lond., 1896, 415.—St. Vincent, W. I.
- quinaria** LOEW, Cent., vi, 90.—N. Y.
- RILEY and HOWARD, Ins. Life, i, 259, reared from a mass of cochineal insects—"however, of course, not a parasite."—Texas.
- White Mts., N. H.—Slosson.
- sigmoides** LOEW, Cent., x, 86.—Texas.
- inversa** WALKER, Trans. Ent. Soc., n. ser., v, 331.—U. S.
- White Mts., N. H.—Slosson.
- limbata** WILLISTON, Trans. Ent. Soc. Lond., 1896, 414.—St. Vincent, W. I.
- linearis** WALKER, Dipt. Saund., 411.—U. S.
- maculosa** COQUILLET, Proc. Acad. Nat. Sci. Phil., 1895, 317.—Charlotte Harbor, Fla.
- mexicana** MACQUART, Dipt. Exot., ii, 3, pl. xxxv, f. 1.—Mex.
- GIGLIO-TOS, Ditt. del Mess., iv, 66, oc. in Mexico.
- minuta** WALKER, Dipt. Saund., 412.—U. S.
- multipuncta** LOEW, Cent., vii, 93.—D. C.
- nana** WILLISTON, Trans. Ent. Soc. Lond., 1896, 416.—St. Vincent, W. I.
- obesa** LOEW, Cent., x, 85.—Texas.
- obscuripennis** LOEW, Cent., vi, 92.—Cuba.
- opaca** WILLISTON, Trans. Ent. Soc. Lond., 1896, 411.—St. Vincent, W. I. Also in Brazil; Will., Kans., Univ. Quart., vi.
- ornatipennis** WILLISTON, Trans. Ent. Soc. Lond., 1896, 407, pl. xiii, f. 151.—St. Vincent, W. I.
- pallida** WILLISTON, Trans. Ent. Soc. Lond., 1896, 415.—St. Vincent, W. I.
- pleuralis** WILLISTON, Trans. Ent. Soc. Lond., 1896, 411.—St. Vincent, W. I.
- pollinosa** WILLISTON, see *Paratissa*.
- procnemis** WILLISTON, Trans. Ent. Soc. Lond., 1896, 412.—St. Vincent, W. I.
- Mr. Kahl informs me that this occurs at Lawrence, Kans.
- punctulata** LOEW, Cent., ii, 100.—Cuba.
- St. Vincent, W. I.—Will.; St. Augustine, Fla.—Johnson.
- quadrifasciata** WALKER, Dipt. Saund., 410.—U. S.
- N. J.—Smith Cat.; Charlotte Harbor, Fla.—Johnson.
- similis** WILLISTON, Trans. Ent. Soc. Lond., 415.—St. Vincent, W. I.
- sororia** WILLISTON, Trans. Ent. Soc. Lond., 1896, 408.—St. Vincent, W. I.
- splendida** WILLISTON, Trans. Ent. Soc. Lond., 1896, 412.—St. Vincent, W. I.
- terminalis** LOEW, Cent., iii, 60.—Sitka.

thoracis WILLISTON, Trans. Ent. Soc. Lond., 411.—St. Vincent, W. I.

transversa FALLÉN, Geomyzides, 6.—Europe.

MEIGEN, Syst. Besch., vi, 84.

SCHINER, Fauna Austr., II, 276.

LOEW, in Silliman's Jour., oc. in N. A.

White Mts., N. H.—Slosson.

tripunctata LOEW, Cent., II, 97.—D. C.

valida WALKER, Trans. Ent. Soc., n. ser., IV, 232.—U. S.

varia WALKER, List, IV, 1109.—Ga.

verticis WILLISTON, Trans. Ent. Soc. Lond., 1896, 413.—St. Vincent, W. I.

vittata COQUILLET, Proc. Acad. Nat. Sci. Phil., 1895, 318.—Charlotte Harbor, Fla.

COQUILLET, Proc. U. S. N. M., XXII, 264, oc. in Porto Rico.

vittatifrons WILLISTON, Trans. Ent. Soc. Lond., 1896, 408, pl. XIII, f. 152.—St. Vincent, W. I.

STENOMICRA.

COQUILLET, Proc. U. S. N. M., XXII, 262, 1900.

angustata COQUILLET, loc. cit.—Porto Rico.

CLADOCHÆTA.

COQUILLET, Proc. U. S. N. M., XXII, 263, 1900.

nebulosa COQUILLET, loc. cit.—Porto Rico.

GEOMYZIDÆ.

BALIOPTERA.

LOEW, Berl. Ent. Zeitsch., VIII, 347-356, 1864.

lurida LOEW, Cent., v, 98 (*Opomyza*); Berl. Ent. Zeitsch., VIII, 356, gen. ref.—Sitka.

DIASTATA.

MEIGEN, Syst. Besch., VI, 211, 1830.

SCHINER, Fauna Austr., II, 288, 1864.

COMSTOCK, Dept. Agric. Rept., 1880, 245, mentions a species that mines leaves of Indian corn.—D. C.

eluta LOEW, Cent., III, 59.—Sitka.

nebulosa FALLÉN, Geomyzides, 3 (*Geomyza*).—Europe.

MEIGEN, Syst. Besch., VI, 98 (*ornata*). [Syn. by Schiner, who would also add *nebulosa*, p. 99, with a doubt.]

ZETTERSTEDT, Dipt. Scand., VI, 2536.

SCHINER, Fauna Austr., II, 289.

WEBSTER, Canad. Ent., 1900, 213, oc. in Ohio; det. Coquillett.

N. J.—Smith Cat.

pulchra LOEW, Cent., I, 100.—Pa. N. J.—Smith Cat.

tenuipes WALKER, List, IV, 1112.—Martin Falls, Canada.

[*vagans* LOEW MS., mentioned in O. S. Cat., 204, note.]

ISCHNOMYIA.

LOEW, Cent., IV, 97, 1863; Berl. Ent. Zeitsch., IX, 16, 1865.

CZERNY, Wien. Ent. Zeit., XXI, 249, 1902; XXII, 63, 1903.

vittula LOEW, Cent., IV, 97.—Pa. N. J.—Smith Cat.

WALKER, List, IV, 1112 (*Diastata* ? *albicosta*).—No locality. [Czerny, from Walker's type.]

TAUROMYIA.

GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158, 1853; Ditt. del Mess., IV, 37, 1895.

VAN DER WULP, Biologia, Dipt., II, 351, note on position.

pachyneura GIGLIO-TOS, Boll. R. Univ. Torino, VIII, No. 158; Ditt. del Mess., IV, 37, f. 7, 8.—Mex.

ANTHOMYZA.

FALLÉN, Specimin. Entomol., 1810; Agromyzides, 7, 1823.

MACQUART, Hist. Nat. Dipt., II, 580, 1835 (*Leptomyza*).

ZETTERSTEDT, Ins. Lapp., 785, 1840 (*Anthophilina*; the *Anthomyza* of Zetterstedt is entirely different).

SCHINER, Fauna Austr., II, 281, 1864 (*Leptomyza*).

LOEW, Berl. Ent. Zeitsch., IX, 10, 1865.

OSTEN SACKEN, Cat., 261, 1878, note (adopts *Anthophilina*).

CZERNY, Wien. Ent. Zeit., XXI, 249, 1902; XXII, 63, 1903.

cinerea WILLISTON, see *Rhinoëssa*.

? **nigrimanus** COQUILLETT, Proc. U. S. N. M., XXII, 264.—Porto Rico.

Does not belong to this genus: Hensel, quoted by Czerny, W. E. Z., XXI, 256.

tenuis LOEW, Cent., IV, 95 (*Anthophilina*).—Sitka. White Mts., N. H.—Slosson.

terminalis LOEW, Cent., IV, 94 (*Anthophilina*).—Carolina; O. S. corrects in Cat. to White Mts., N. H.

variegata LOEW, Cent., IV, 96 (*Anthophilina*).—D. C. N. J.—Smith Cat.

xanthopoda WILLISTON, see *Rhinoëssa*.

OPOMYZA.

FALLÉN, Opomyzides, 10, 1820.

MEIGEN, Syst. Besch., VI, 100, 1830.

SCHINER, Fauna Austr., II, 283, 1864.

nigricosta WALKER, Trans. Ent. Soc., n. ser., V, 330.—U. S.

SCYPHELLA.

DESVOIDY, Myodaires, 650, 1830.

SCHINER, Fauna Austr., II, 282, 1864.

flava LINNÉ, Fauna Suecica, 2d edit., 459, No. 1869 (*Musca*).—Europe.

FALLÉN, Ortalides, 34 (*Sapromyza*).

SCHINER, Fauna Austr., II, 283.

LOEW, in Silliman's Jour., oc. in N. A.—N. Y., on windows.

N. J.—Smith Cat.: White Mts., N. H.—Slosson.

AGROMYZIDÆ.

WILLISTON, Ent. News, VII, 185, reports the genus *Lciomyza*; no species have been described.

Subfamily PHYTOMYZINÆ.

PHYTOMYZA.

FALLÉN, Phytomyzides, 2, 1823.

SCHINER, Fauna Austr., II, 312, 1864 (including *Napomyza*).

WILLISTON, Manual, 103, 1896, the first *Phytomyza* in the table; the second is *Napomyza*, q. v.

- affinis** FALLÉN, *Phytomyzides*, 3.—Europe.
 MACQUART, *Hist. Nat. Dipt.*, II, 618 (*nigricornis*).
 MEIGEN, *Syst. Besch.*, VII, 404 (id.).
 ZETTERSTEDT, *Dipt. Scand.*, VII, 2827.
 SCHINER, *Fauna Austr.*, II, 316.
 LUNDBECK, *Dipt. Grœnl.*, II, 306, oc. in Greenland.
 HEEGER, *Sitzungsber. Kais. Akad. Wiss.*, XX, 297, figs., larva; it mines in parsnip leaves.
Note.—Schiner mentions the rearing of this from various European species of *Aconitum*, in which it mines the tips of the leaves.
- equilegiæ** HARDY, *Annals Nat. Hist.*, IV, 385.—England; larva mines the leaves of *Aquilegia vulgaris*.
 COQUILLET, *Bull.* 10, n. ser., Div. of Ent., 78.—D. C., Conn.; larva mines in nasturtium and columbine.
- bicolor** COQUILLET, *Jour. N. Y. Ent. Soc.*, X, 191.—Niagara Falls, N. Y.
- clematidis** LOEW, *Cent.*, III, 100.—D. C.; larva mines the leaves of *Clematis*.
- diminuta** WALKER, *Trans. Ent. Soc.*, n. ser., IV, 232.—U. S.; see *Agromyza trifolii*.
- flavicornis** FALLÉN, *Phytomyzides*, 4.—Europe.
 MEIGEN, *Syst. Besch.*, VI, 192, pl. LXII, f. 6.
 ZETTERSTEDT, *Dipt. Scand.*, VII, 2825.
 SCHINER, *Fauna Austr.*, II, 315.
 COQUILLET, *Proc. Wash. Acad. Sci.*, II, 464, oc. at Yakutat, Alaska.
- genualis** LOEW, *Cent.*, VIII, 100.—D. C.
- ilicicola** LOEW, *Cent.*, App. p. 290, change of name; *Cent.*, III, 99 (*ilicis*, preoc.).
 —D. C.; larva mines the leaves of *Ilex opaca*.
 COQUILLET, *Proc. Wash. Acad. Sci.*, II, 464, oc. in Alaska, Mass., Cal., and Ore.
- nervosa** LOEW, *Cent.*, VIII, 99.—D. C.
- obscura** FALLÉN, *Phytomyzides*, 4.—Europe.
 MEIGEN, *Syst. Besch.*, VI, 2815.
 ZETTERSTEDT, *Dipt. Scand.*, VII, 2815.
 SCHINER, *Fauna Austr.*, II, 315.—Europe; larvæ reared from the leaves of *Lonicera xylosteum* and *Sambucus*.
 STÆGER, *Grœnl. Antl.*, 369, oc. in Greenland.
 COQUILLET, *Bull.* 10, n. ser., Div. of Ent., 79, records larvæ mining in leaves of *Lupinus* in Cal.
 LUNDBECK, *Dipt. Grœnl.*, II, 305, oc. in Greenland.
- solita** WALKER, *Trans. Ent. Soc.*, n. ser., IV, 232.—U. S.
- palliata** COQUILLET, *Jour. N. Y. Ent. Soc.*, X, 191.—Mesilla Park, N. M.
- zetterstedtii** SCHINER, *Fauna Austr.*, II, 305.—Europe.
 ZETTERSTEDT, *Dipt. Scand.*, VII, 2821 (*maculipes*, preoc.).
 LUNDBECK, *Dipt. Grœnl.*, II, 307, oc. in Greenland.

NAPOMYZA.

- HALLIDAY, *Westwood's Introd. to Mod. Classif. Ins.*, II, Appendix, 152, 1840.
 SCHINER, *Fauna Austr.*, II, 313, 1864, as a subg. of *Phytomyza*.
 WILLISTON, *Manual*, 1896, 104, the second division of *Phytomyza*.
- anomala** STROBL, *Wien. Ent. Zeit.*, 1893, 307 (*Phytomyza*).—Europe.
 HOUGH, in litt., reports from Wash., collected by Kincaid (id.).
- chrysanthemii** KOWARZ, in *Lintner's 7th N. Y. Rept.*, 243-246 (*Phytomyza*).—N. Y.; larva is a leaf-miner in *Chrysanthemum*.

LINTNER, 4th N. Y. Rept., 73-79 (*Phytomyza lateralis*); 7th Rept., 242-246, more on habits (*Phytomyza*).

COQUILLET, Ins. Life, VII, 399, figs. and life hist.; Bull. 10, n. ser., Div. of Ent., 79 (id.).—N. Y., Pa., Conn.; larvæ mine in chrysanthemum, marguerite, daisy and fever-few.

lateralis FALLÉN, Phytomyzides, 3, 1823 (*Phytomyza*).—Europe.

MEIGEN, Syst. Besch., VI, 190 (id.).

SCHINER, Fauna Austr., II, 313 (id.).

GLOVER, MS. Notes Jour., Dipt., 1874, 40, mention (id.).

BRAUER, Denkschr. Kaiserl. Akad. Wiss., XLVII, 90 (id.).

COQUILLET, Proc. Wash. Acad. Sci., II, 464, oc. in N. A.—Popof Id.

Note.—According to Schiner, the larvæ live in the pith of the stem of *Verbena*, *Centaurea*, etc., and the flower-head of *Pyrethrum*.

nigritella ZETTERSTEDT, Dipt. Scand., VII, 2816 (*Phytomyza*).—Europe.

LUNDBECK, Dipt. Grœnl., II, 306, oc. in Greenland (id.).

PARAMYIA.

WILLISTON, Kans. Univ. Quart., VI, 1, 1897.

nigra WILLISTON, loc. cit., 2.—Grenada, W. I.

Subfamily AGROMYZINÆ.

CERATOMYZA.

SCHINER, Wien. Ent. Monatsch., VI, 1862; Fauna Austr., II, 390, 1864.

MACQUART, Hist. Nat. Dipt., II, 614 (*Odontocera*, preoc.).

dorsalis LOEW, Cent., III, 96 (*Odontocera*).—D. C.

? WILLISTON, Trans. Ent. Soc. Lond., 1896, 427, pl. XIV, f. 155, doubtful oc. in St. Vincent, W. I.

COQUILLET, Bull. 10, n. ser., Div. of Ent., 77, larvæ in timothy and wheat in Ind.; Proc. U. S. N. M., XXII, 269, oc. in Porto Rico.

HOPKINS, Bull. 17, n. ser., Div. of Ent., larvæ mining in timothy.

WEBSTER, Canad. Ent., 1900, 212, reared from wheat plants.

HOWARD, Proc. Wash. Acad. Sci., II, 593, reared from human excrement—probably an unusual habit for the species.—D. C.

N. J.—Smith Cat.: White Mts., N. H.—Slosson.

Note.—An undescribed *Ceratomyza* has been reared from young wheat plants at Pullman, Wash., by Professor C. V. Piper; it causes considerable damage.

AGROMYZA.

FALLÉN, Agromyzides, 3, 1823.

SCHINER, Fauna Austr., II, 299, 1864.

æneiventris FALLÉN, Agromyzides, 4.—Europe.

MEIGEN, Syst. Besch., VI, 169 (*ænea*).

ZETTERSTEDT, Dipt. Scand., VII, 2777.

SCHINER, Fauna Austr., II, 304.

OSTEN SACKEN, Cat., 210, oc. in N. A.—"Loew in litt."

COQUILLET, Bull. 10, n. ser., Div. of Ent., 78; larvæ in burrows in roots of clover and stems of Ambrosia.—U. S.

N. J.—Smith Cat.: Porto Rico—Coquillett; Beulah, N. M.—Skinner.

Note.—Schiner says the larvæ have been reared from the pith of *Arc-tium*, and from the stems of *Angelica*, *Centaurea*, and *Carduus*.

angulata LOEW, Cent., VIII, 87.—Pa. N. J.—Smith Cat.

- anthrax** WILLISTON, Trans. Ent. Soc. Lond., 1896, 430.—St. Vincent, W. I.
- arctica** LUNDBECK, Dipt. Grœnl., II, 304, fig.—Greenland.
- coronata** LOEW, Cent., VIII, 89.—Pa. N. J.—Smith Cat.
Beulah, N. M.—Skimmer.
- flaviventris** JOHNSON, see *melampyga*.
- flavonigra** COQUILLET, Jour. N. Y. Ent. Soc., x, 189.—Beulah, N. M.
- innominata** WILLISTON, Trans. Ent. Soc. Lond., 1896, 443, pl. XIV, f. 158.—St. Vincent, W. I.
- invaria** WALKER, Trans. Ent. Soc., new ser., IV, 232.—U. S.
- jucunda** VAN DER WULP, Tijdschr. v. Ent., x, 161, pl. v, f. 19, 20.—Wis.
BURGESS, Dept. Agric. Rept., 1879, 202 (*Oscinis malvæ*).—D. C. [Coq.]
COMSTOCK, Dept. Agric. Rept., 1879, 201, mines in leaves of *Malva rotundifolia* (id.).
COQUILLET, Proc. U. S. N. M., XXII, 268, oc.; Bull. 10, n. ser., Div. Ent., 77, larvæ mine in *Verbena*, *Malva*, *Xanthium*, *Aplopappus*, *Helianthus*, *Solidago*, and *Aster*.—St. Vincent and U. S. generally; Mo., D. C., Cal. N. J.—Smith Cat.; White Mts., N. H.—Slosson; Georgetown, Fla.
See *lateralis* WILL.
- lacteipennis** FALLÉN, Agromyzides, 4.—Europe.
ZETTERSTEDT, Dipt. Scand., VII, 2768.
SCHÜNER, Fauna Austr., II, 300.
COQUILLET, Proc. Wash. Acad. Sci., II, 464, oc. in N. A.—Saldovia, Alaska.
- lateralis** WILLISTON, Trans. Ent. Soc. Lond., 1896, 428, pl. XIV, f. 156.—St. Vincent, W. I.
COQUILLET, Proc. U. S. N. M., XXII, 268, makes this a syn. of *jucunda*; but the description seems to exclude this interpretation. The name is preoccupied.
- longipennis** LOEW, Cent., VIII, 90.—D. C. Lawrence, Kans.—J. M. A.
- magnicornis** LOEW, Cent., VIII, 86.—Pa. N. J.—Smith Cat.
- marginata** LOEW, Cent., VIII, 91.—D. C.
- melampyga** LOEW, Cent., VIII, 88.—D. C.
COQUILLET, Bull. 10, n. ser., Div. of Ent., 77; larvæ mine in *Philadelphus* and *Plantago*.—D. C.
JOHNSON, Canad. Ent., 1902, 242 (*flaviventris*).—Niagara Falls, N. Y.
[JOHNSON, in litt.] N. J.—Smith Cat.; White Mts., N. H.—Slosson.
- ? **metallica** BIGOT, in Sagra's Cuba, 825 (*Ulidia*).—Cuba.
Gen. ref. doubtfully from Osten's note, Cat., 211.
- neptis** LOEW, Cent., VIII, 93.—Nebr.
COQUILLET, Bull. 10, n. ser., Div. of Ent., 78, larvæ in Indian corn and *Solidago*; Proc. U. S. N. M., XXII, oc.; Proc. Wash. Acad. Sci., II, 463, oc.—D. C., Va.; Porto Rico and "from Mass. to Fla. and Texas"; Juneau, Alaska.
- parvicella** COQUILLET, Jour. N. Y. Ent. Soc., x, 189.—St. Paul Id., Alaska.
- parvicornis** LOEW, Cent., VIII, 92.—D. C. N. J.—Smith Cat.
- picta** COQUILLET, Jour. N. Y. Ent. Soc., x, 188.—Frontera in Tabasco, Mex.
- pictella** THOMSON, Eugen. Resa, 609.—Cal.
- platyptera** THOMSON, Eugen. Resa, 608.—Cal.
- pruinosa** COQUILLET, Jour. N. Y. Ent. Soc., x, 189.—Col.
- setosa** LOEW, Cent., VIII, 83.—D. C.
HINE, Ohio Naturalist, II, 169, notes; reared from wild rice, *Zizania aquatica*.—Ohio.
COQUILLET, Bull. 10, n. ser., Div. of Ent., 78, larvæ in *Zizania*, *Chrysanthemum* and *Fragaria*.—D. C., N. Y., Cal.

- Palatka, Fla.—Johnson; Porto Rico—Coquillett; Beulah, N. M.—Skinner.
- simplex** LOEW, Cent., VIII, 84.—Pa. N. J.—Smith Cat.
SIRRIE, Bull. 189, N. Y. Expt. Sta., 1900; larvæ mine in asparagus; biology, etc.—N. Y.
- sorosis** WILLISTON, Trans. Ent. Soc. Lond., 1896, 429.—St. Vincent, W. I.
- terminalis** COQUILLET, Proc. Acad. Nat. Sci. Phil., 1895, 318.—Pa.; Welaka, Fla.
White Mts., N. H.—Slosson.
- trifolii** BURGESS, Dept. Agric. Rept., 1879, 201 (*Oscinis*).—D. C.
COMSTOCK, Dept. Agric. Rept., 1879, 200 (id.), larvæ mine in white clover leaves.
RILEY, Dept. Agric. Rept., 1884, 322, pl. VIII, f. 5 (*Oscinis brassicae*); larvæ mine cabbage leaves.
COQUILLET, Bull. 10, n. ser., Div. of Ent., 78, makes both the preceding synonyms of *Agromyza* (*Phytomyza*) *diminuta* WALKER, which last seems quite unrecognizable to me.
CHITTENDEN, Bull. 33, n. ser., 77, mining leaves of cabbage, etc. (*diminuta*).
- tritici** FITCH, 2d N. Y. Rept., 534, pl. II, f. 1.—N. Y.; larvæ in wheat straws.
- varifrons** COQUILLET, Jour. N. Y. Ent. Soc., x, 189.—D. C.
- virens** LOEW, Cent., VIII, 85.—Pa.
- viridula** COQUILLET, Jour. N. Y. Ent. Soc., x, 190.—D. C., Mass., Ga., and Porto Rico.
- xanthophora** SCHINER, Novara, 291.—S. A.
WILLISTON, Trans. Ent. Soc. Lond., 1896, pl. XIV, f. 157.—St. Vincent, W. I.

HEMEROMYIA.

- COQUILLET, Jour. N. Y. Ent. Soc., x, 190, 1902.
- obscura** COQUILLET, loc. cit.—Las Vegas Hot Spr., N. M.

PLATOPHYRMIA.

- WILLISTON, Trans. Ent. Soc. Lond., 1896, 426.
- nigra** WILLISTON, loc. cit.—St. Vincent, W. I.

DESMOMETOPA.

- LOEW, Cent., VI, 96, 1865.
- WILLISTON, Manual, 104, note, 1896.
- MIK, Wien. Ent. Zeit., XVII, 146, 1898, generic characters, etc.; a species in New Guinea has been observed clinging in pairs on the back of an Asilid while the latter was flying.
- halteralis** COQUILLET, Proc. U. S. N. M., XXII, 267.—Porto Rico, Fla., N. M., Col., Mass. N. J.—Smith Cat.
- latipes** MEIGEN, Syst. Besch., VI, 177 (*Agromyza*).—Europe.
SCHINER, Fauna Austr., II, 308 (id.).
OSTEN SACKEN, Cat., 210, oc. in N. A., by "Loew in litt."
HOWARD, Proc. Wash. Acad. Sci., II, 592, reared from human excrement.—D. C., Pa.
- luteola** COQUILLET, Jour. N. Y. Ent. Soc., x, 188.—Frontera in Tabasco, Mex.
- m-nigrum** ZETTERSTEDT, Dipt. Scand., VII, 2743 (*Agromyza*).—Europe.
OSTEN SACKEN, Cat., 210, oc. in N. A., by "Loew in litt." N. J.—Smith Cat.
- tarsalis** LOEW, Cent., VI, 96.—Cuba.

RHICNOËSSA.

- LOEW, Wien. Ent. Monatsch., vi, 1862; Berl. Ent. Zeitsch., 1865, 34.
 HENDEL, Wien. Ent. Zeit., XXI, 261, 1902.
albula LOEW, Cent., VIII, 80.—Newport, R. I.
cinerea WILLISTON, Trans. Ent. Soc. Lond., 1896, 444, pl. XIV, f. 170 (*Anthomyza*).—St. Vincent, W. I.
 CZERNY, Wien. Ent. Zeit., XXI, 256, gen. ref.
coronata LOEW, Cent., VI, 98.—Ga.
parvula LOEW, Cent., VIII, 81.—Newport, R. I.
 Kukak Bay and Saldovia, Alaska—Coquillett.
xanthopoda WILLISTON, Trans. Ent. Soc. Lond., 1896, 445 (*Anthomyza*).—St. Vincent, W. I.
 CZERNY, Wien. Ent. Zeit., XXI, 256, gen. ref.

EUSIPHONA.

- COQUILLET, Revis. Tachin., 49, 1897; Canad. Ent., XXX, 53, family ref.
mira COQUILLET, Revis. Tachin., 49; Canad. Ent., XXX, 53, note.—Ind., Col.

ARCTOBIELLA.

- COQUILLET, Jour. N. Y. Ent. Soc., x, 188, 1902.
obscura COQUILLET, loc. cit.—Laggan, British Columbia.

PHYLLOMYZA.

- FALLÉN, Ochtthiphilides, 8, 1823.
 SCHINER, Fauna Austr., II, 311, 1864.
magnipalpis WILLISTON, Trans. Ent. Soc. Lond., 1896, 443, pl. XIV, f. 169.—St. Vincent, W. I.
nitens LOEW, Cent., VIII, 82.—Pa.

CRYPTOCHÆTUM.

- RONDANI, Bull. Soc. Ent. Ital., 1875, 172.
 WILLISTON, Ins. Life, I, 21, 1888 (*Lestophonus*); p. 329, places in the Ochtthiphilinae and suggests synonymy.
 MIK, Wien. Ent. Zeit., Aug., 1899, confirms synonymy; mentioned by Riley and Howard, Ins. Life, II, 91.
iceryæ WILLISTON, Ins. Life, I, 21, fig. (*Lestophonus*).—S. Australia; the larvæ feed on the coccids *Icerya purchasi* and *Monophlebicus crawfordi*—the last not occurring in N. A.
 RILEY and HOWARD, Ins. Life, I, 166, 199, 232, etc., introduction into California (id.).
 RILEY, Dept. Agric. Rept., 1889, 340, pl. III, f. 3, 4, 5, gen. ref., and notes on food habits, etc.
Note.—Mr. Skuse of Australia and Dr. Riley thought there were two distinct species, the second named *monophlebi* SKUSE, that were introduced into the U. S.; see Ins. Life, II, 261.

AULACIGASTER.

- MACQUART, Hist. Nat. Dipt., II, 579, 1835.
 DUFOUR, Ann. Soc. Ent. France, 1845, 455 (*Apotemella*).
 WAHLBERG, K. Svenska Vet. Akad. Förh., 1847, 261 (*Amphycophora*).
 SCHINER, Fauna Austr., II, 269, 1864, desc. and syn.

- rufitarsis** MACQUART, Hist. Nat. Dipt., II, 580.—Europe.
 ZETTERSTEDT, Dipt. Scand., VII, 2707.
 SCHINER, Fauna Austr., II, 270.
 OSTEN SACKEN, Cat., 210, oc. in N. A.—D. C., Texas ("Loew in litt.)."

Subfamily MILICHINÆ.

MILICHIA.

- MEIGEN, Syst. Besch., VI, 131, 1830.
 WAHLBERG, Vetensk. Akad. Förh., 1847, 259 (*Lobioptera*).
 SCHINER, Fauna Austr., II, 296, 1864 (id.).
 COQUILLET, Jour. N. Y. Ent. Soc., X, 185, footnote, 1902.
arcuata LOEW, Zeitsch. f. Ges. Naturwiss., 1876, 339 (*Lobioptera*).—Long Id., N. Y.
 Ormond, Fla. (id.)—Johnson.
indecora LOEW, Cent., VIII, 94 (*Lobioptera*).—Nebr.
 COQUILLET, Proc. U. S. N. M., XXII, 263, oc. in Porto Rico and in U. S., "ranging from N. H. to Ga." (id.).
lacteipennis LOEW, see *Ophthalmomyia*.
leucogaster LOEW, Wien. Ent. Monatsch., V, 43, 20; Centuries, VIII, 95 (the latter as *Lobioptera*).—Cuba.
 St. Vincent, W. I.—Williston.
robertsoni COQUILLET, Jour. N. Y. Ent. Soc., X, 187.—Inverness, Fla.

OPHTHALMOMYIA.

- WILLISTON, Trans. Ent. Soc. Lond., 1896, 426.
cinerea COQUILLET, Proc. U. S. N. M., XXII, 268.—Porto Rico.
lacteipennis LOEW, Cent., VI, 97 (*Lobioptera*).—Cuba.
 WILLISTON, Trans. Ent. Soc. Lond., 1896, pl. XIV, f. 154.—St. Vincent, W. I.
 COQUILLET, Proc. U. S. N. M., XXII, oc. in Porto Rico and U. S. from "D. C. to Fla. and west to N. M." Charlotte Harbor, Fla.—Johnson.

PHOLEOMYIA.

- BILIMEK, Verh. Zool.-Bot. Ges., 1867, 903.
leucozona BILIMEK, loc. cit.—Mex.

ODINIA.

- DESVOIDY, Myodaires, 648, 1830.
 LOEW, Stett. Ent. Zeit., 1843, 310, 322 (*Milichia* MEIG.).
 SCHINER, Fauna Austr., II, 297, 1864 (id.).
 COQUILLET, Jour. N. Y. Ent. Soc., X, 185, 1902, footnote.
immaculata COQUILLET, Jour. N. Y. Ent. Soc., X, 185.—Mt. Washington, N. H.
picta LOEW, Centuries, I, 99 (*Milichia*).—Ga.

PARODINIA.

- COQUILLET, Jour. N. Y. Ent. Soc., X, 186, 1902.
cinerea COQUILLET, loc. cit.—Los Angeles Co., Cal.
costalis COQUILLET, Proc. Wash. Acad. Sci., III, 378 (*Rhinoëssa*); Jour. N. Y. Ent. Soc., X, 187, oc. and gen. ref.—Galapagos Ids.; Ariz.

PSEUDODINIA.

COQUILLET, Jour. N. Y. Ent. Soc., x, 187, 1902.

varipes COQUILLET, loc. cit.—Las Vegas Hot Spr., N. M.

TRAGINOPS.

COQUILLET, Ent. News, 1900, 429.

irrorata COQUILLET, loc. cit., figs.—Ga., N. J.

CACOXENUS.

LOEW, Wied. Ent. Monatsch., 1858, 217, 213.

SCHINER, Fauna Austr., II, 298, 1864.

semiluteus LOEW, Cent., VIII, 97.—Cuba.

Subfamily OCHTHIPHILINÆ.

LEUCOPIS.

MEIGEN, Syst. Besch., VI, 217, 1830.

SCHINER, Fauna Austr., II, 294, 1864.

COQUILLET, Bull. 10, n. ser., Div. of Ent., 76, 77, notes of various species of aphids and coccids affected by *L. nigricornis*, *simplex*, *bella* and *bellula*.

BRODIE, Canad. Ent., XXIV, 14, reports the rearing of an undet. sp. from galls on *Nabalis altissimus*.

bella LOEW, Cent., 99.—Cuba.

TOWNSEND, Trans. Amer. Ent. Soc., XXII, 80, bred from plant-lice in Col.

COQUILLET, Proc. U. S. N. M., XXII, 269, oc. in Porto Rico and "extending from Nova Scotia to Cal. and Mex." Bred in Porto Rico from larvæ feeding on *Dactylopius citri*.

WEBSTER, Canad. Ent., XXX, 19, reared from Melon louse.

Fla.—Johnson; Nova Scotia and Ottawa, Can.—Coquillett.

bellula WILLISTON, Ins. Life, I, 258.—Texas; the larvæ feed on cochineal insect—*Coccus cacti*.

COQUILLET, Bull. 10, n. ser., Div. of Ent., 77.—Texas, N. M., Mex.; occurrence, etc.

nigricornis EGGER, Verh. Zool.-Bot. Ges., XII, 782.—Europe.

SCHINER, Fauna Austr., II, 295.

N. J.—Smith Cat.; Texas, Cal., N. H., and Ind.—Coquillett, Bull. 10; Beulah, N. M.—Skinner.

simplex LOEW, Cent., VIII, 96.—N. Y.

N. J.—Smith Cat.; White Mts., N. H.—Stosson; Va., Mich., Nebr., D. C.—Coquillett, Bull. 10.

OCHTHIPHILA.

FALLÉN, Ochtthidiæ, 1823.

LOEW, Wied. Ent. Monatsch., 1858, 219, in an article about *Cacoxenus*.

SCHINER, Fauna Austr., II, 291, 1864.

elegans PANZER, Fauna Germanica, CV, 12 (*Chamomyia*).—Europe.

SCHINER, Fauna Austr., II, 292.

N. J.—Smith Cat.

lispina THOMSON, Eugen. Resa, 599.—Cal.

polystigma MEIGEN, Syst. Besch., VI, 92.—Europe.

SCHINER, Fauna Austr., II, 293.

N. J.—Smith Cat.; Montreal—Chagnon.

ACROMETOPA.

SCHINER, Wien. Ent. Monatsch., vi, 1862; Fauna Austr., ii, 290, 1864.

COQUILLET, Jour. N. Y. Ent. Soc., x, 185, 1902, note.

punctata COQUILLET, loc. cit.—Ga.

maculata COQUILLET, loc. cit.—Baracoa, Cuba.

HIPPOBOSCIDEÆ.

BIGOT, Annales, 1885, 230-234, table of all genera of Pupipara.

SPEISER, Wien. Ent. Zeit., xviii, 201, 1899, table of genera of Hippoboscidae; Zeitsch. f. Hym. u. Dipterol., 1902, 145-180, an important generic revision, including Nycteribidae.

HIPPOBOSCA.

LINNÉ, Fauna Suecica, 471, 1761.

SCHINER, Fauna Austr., ii, 644, 1864.

equina LINNÉ, Fauna Suec., 471.—Europe; a winged horse-tick.

SCHINER, Fauna Austr., ii, 644.

LOEW, in Silliman's Jour., oc. in N. A.; but it must be extremely rare, as I have never seen it in any collection, nor known of its capture by any entomologist. Lugger mentions it, 2d Minn. Rept., 1896, 143, but without positively asserting that it occurs in Minn. It is possible that Loew was mistaken in the locality of his specimen.

LIPOPTENA.

NITSCII, Germ. Mag. f. Ent., iii, 310, 1818.

SCHINER, Fauna Austr., ii, 648, 1864.

COOPER CURTICE, Animal Parasites of Sheep, Washington, 1890.

depressa SAY, Jour. Acad. Sci. Phil., iii, 104; Compl. Works, ii, 88 (*Melophagus*).—Pa.; on *Cercus virginianus*, the common deer.

Gen. ref. by "Loew in litt."—O. S. Cat.

TOWNSEND, Annals and Mag. Nat. Hist., xx, 289, describes var. *mexicana*, on the Mexican variety of the common deer.—Vera Cruz.

mazamæ RONDANI, Annali Mus. Civ., etc., Genova, 1878, 153.—Central America, on *Cercus mexicanus*.

ORNITHEZA.

SPEISER, Termész. Füzetek, xxv, 327, 1902.

pilosula VAN DER WULP, Biologia, Dipt., ii, 432, pl. xiii, f. 6 (*Ornithomyia*).—Costa Rica.

AUSTEN, Ann. and Mag. Nat. Hist., ser. 7, xii, 262, gen. ref. and notes.

? **varipes** WALKER, List, iv, 1146 (*Ornithomyia*).—Colombia.

VAN DER WULP, Biologia, Dipt., ii, 431 (*Ornithomyia aricularia* LINN.).—Costa Rica.

AUSTEN, Ann. and Mag. Nat. Hist., ser. 7, xii, 262, syn. from Walker's and Van der Wulp's specimens; oc. in Peru, Orizaba and Hawaiian Islands; gen. ref. with a doubt.

ORNITHOMYIA.

LATREILLE, Hist. Nat. Crust. et Ins., iii, 460, 1802; xiv, 402, 1804.

SCHINER, Fauna Austr., ii, 646, 1864.

SPEISER, Termész. Füzetek, 1902, 327, subdivides.

- avicularia** LINNÉ, Fauna Suec., 472, No. 1922 (*Hippobosca*).—Europe; "habitat in passeribus."
 LEACH, Eprob. Insects, 15, pl. xxv, f. 4-5 (id.); p. 14 (*viridis*).
 DEGEER, Mém. Hist. Nat. Ins., VI, 114, pl. xvi, f. 21-27 (id.).
 MEIGEN, Syst. Besch., VI, 232.
 SCHINER, Fauna Austr., II, 647.
 ? FITCH, Trans. N. Y. Agl. Soc., IX, 799, 1849, popular acct.
 VAN DER WULP, Tijdschr. v. Ent., XII, 80, oc. in N. A.; this, however, may be *Ornithoza varipes*.
- bellardiana** RONDANI, see *Ornithoetona*.
- butalis** COQUILLET, Dipt. of the Commander Ids., 346.—Bering Id., on *Butalis sibirica*.
- erythrocephala** LEACH, see *Ornithoetona*.
- fulvifrons** WALKER, List, IV, 1145.—Jamaica; on *Ortyx virginiana*.
- fusciventris** WIEDEMANN, AUSS. ZW., II, 611.—Ky.
 ? MACQUART, Dipt. Exot., Suppl. I, 346 (*testacea*).—Colombia.
 RONDANI, Annali Mus. Civ. etc., Genova, 1878, XII, 9, desc. and syn. with a ?.—Mexico.
- hائيensis** BIGOT, see *Ornithoetona*.
- nebulosa** SAY, Jour. Acad. Sci. Phil., III, 102; Compl. Works, II, 87.—West of Mo. River, on *Strix nebulosa*.
 WIEDEMANN, AUSS. ZW., II, 610.
- nitens** BIGOT, see *Ornithopertha*.
- pallida** SAY, Jour. Acad. Sci. Phil., III, 103; Compl. Works, II, 87.—West of Mo. River, on *Sylvia sialis*.
 WIEDEMANN, AUSS. ZW., II, 610.—N. A.
 N. J., on reed-bird and red-winged black-bird—Smith Cat.
- unicolor** WALKER, see *Pseudolfersia spinifer*.
- vicina** WALKER, see *Ornithoetona*.
- villadæ** DUGÉS, is referred by Wulp to *Olfersia*, q. v.

ORNITHOETONA.

- SPEISER, Térmez. Füzetek, xxv, 327, 1902.
- bellardiana** RONDANI, Annali Mus. Civ. Genova, 1878, 157 (*Ornithomyia*).—Mex. Gen. ref. by Speiser.
- erythrocephala** LEACH, Eprob. Ins., 13, pl. xxvii, f. 4-6 (*Ornithomyia*).—Brazil.
 WIEDEMANN, AUSS. Zweifl., II, 610 (id.).—Cuba.
 WALKER, List, IV, 1143 (id.), oc. in Jamaica.
 ? WILLISTON, Trans. Ent. Soc. Lond., 1896, 439, doubtfully recognized from St. Vincent, W. I. (id.).
 VAN DER WULP, Biologia, Dipt., II, 431, pl. XII, f. 5 (*Ornithomyia robusta*).—Mexico, Guatemala, Costa Rica, Panama.
 AUSTEN, Ann. and Mag. Nat. Hist., ser. 7, XII, 262, syn. and notes on type of Van der Wulp.
 Porto Rico, on sparrow hawk—Coquillett; Quebec and Guadeloupe—O. S.
- haitiensis** BIGOT, Annales, 1885, 242 (*Ornithomyia*).—Hayti.
 SPEISER, Zeitsch. f. Hym. u. Dipt., II, 168, notes on type and gen. ref.
- vicina** WALKER, List, IV, 1144 (*Ornithomyia*).—Jamaica, on *Ephialtes grammicus*.

STILBOMETOPA.

- COQUILLET, Canad. Ent., xxxi, 336, 1899.
- fulvifrons** WALKER, List, 1145 (*Ornithomyia*).—Jamaica.

Gen. ref. by Coquillett, *Canad. Ent.*, xxxi, 336.

impressa BIGOT, *Annales*, 1885, 237 (*Olfersia*).—Cal.

SPEISER, *Zeitsch. f. Hym. u. Dipt.*, 1902, 163, type redesc.

ORNITHOICA.

RONDANI, *Annali del Mus. Civ. etc. Genova*, xii, 1878, 159.

confluens SAY, *Jour. Acad. Sci. Phil.*, iii, 103; *Compl. Works*, ii, 87 (*Ornithomyia*).—Pa.

WIEDEMANN, *Auss. Zw.*, ii, 611.

OSTEN SACKEN, *Cat.*, 263, note.

COQUILLET, *Canad. Ent.*, xxxi, 335, refers to this genus (by mistake it is printed *Anthoica*, an entirely different genus).

SPEISER, *Termész. Füzetek*, xxv, 334, redesc. from Brazil.

LYNCHIA.

WEYENBERG, *Cordoba*, 1881, "Dos nuev. esp. del Grupo d. l. Dipt. Puparos." (I take the ref. from Bigot.)

SPEISER, *Zeitsch. f. Hym. u. Dipt.*, 1902, 157.

pusilla SPEISER, *Zeitsch. f. Hym. u. Dipt.*, 1902, 157.—Cuba.

OLFERSIA.

WIEDEMANN, *Auss. Zw.*, ii, 605, 1830.

SCHINER, *Fauna Austr.*, ii, 1864.

VAN DER WULP, *Biologia, Dipt.*, ii, 429, 1903, table of Mex. species.

SPEISER, *Zeitsch. f. Hym. u. Dipt.*, ii, 152, 1903.

americana LEACH, *Eprob. Insects*, ii, pl. xxvii, f. 1-3 (*Feronia*).—Ga.

WIEDEMANN, *Auss. Zw.*, ii, 606.

MACQUART, *Hist. Nat. Dipt.*, ii, 641.

PACKARD'S Guide, 1st edit., 417 (*Hippobosca bubonis*).

OSTEN SACKEN, *Cat.*, 213, oc. in Ill., Mass., and Dallas, Texas; on *Bubo virginianus* and *Butco borealis*.

N. J., on screech owl—Smith Cat.; St. Augustine, Fla., on same—Johnson.

albipennis SAY, *Jour. Acad. Sci. Phil.*, iii, 101; *Compl. Works*, ii, 87.—West of Mo. River, on *Ardea herodias*.

angustifrons VAN DER WULP, *Biologia, Dipt.*, ii, 430, pl. xiii, f. 3.—Teapa, Mex.; Costa Rico.

ardeæ MACQUART, *Hist. Nat. Dipt.*, ii, 640.—Europe; on *Ardea*.

LOEW, in *Silliman's Jour.*, oc. in N. A.

N. J., on American bittern, night heron, and little blue heron.—Smith Cat.

brunnea OLIVIER, *Encycl. Méth.*, viii, 544 (*Ornithomyia*).—Carolina.

Gen. ref. in O. S. Cat.

coriacea VAN DER WULP, see *Pseudolfersia*.

impressa BIGOT, see *Stilbomctopa*.

intertropica WALKER, *List*, iv, 1144 (*Ornithomyia*).—Galapagos Ids.

AUSTEN, *Ann. and Mag. Nat. Hist.*, ser. 7, xii, 264, gen. ref. from type; oc. in Honolulu, Bahia and Orizaba, one specimen "from the ear of an owl."

mexicana MACQUART, see *Pseudolfersia*.

obliquinervis RONDANI, *Annali Mus. Civ.*, etc., Genova, xii, 1878, 162.—Mex.

pallidilabris RONDANI, *Annali Mus. Civ.*, etc., Genova, xii, 1878, 161.—Mex.

- propinqua* WALKER, List, IV, 1141.—Jamaica.
sordida BIGOT, see *Pseudolfersia*.
sulcifrons THOMSON, see *Pseudolfersia*.
villadæ DUGÈS, La Natureza, I, 20, pl. III, f. 3 (*Ornithomyia*).—Mex.
vulturis VAN DER WULP, see *Pseudolfersia*.

PSEUDOLFERSIA.

- COQUILLET, Canad. Ent., XXXI, 336, 1899.
 SPEISER, Zeitsch. f. Hym. u. Dipt., IV, 145, 1902.
coriacea VAN DER WULP, Biologia, Dipt., II, 430, pl. XIII, f. 2 (*Olfersia*).—Guatemala.
 AUSTEN, Ann. and Mag. Nat. Hist., ser. 7, XII, 265, note on type and gen. ref.; oc. in Mexico and Brazil.
maculata COQUILLET, Canad. Ent., XXXI, 336.—Wis.; on loon and osprey (*Pandion halictus carolinensis*).
 N. J. from a fish hawk—Smith Cat.
sulcifrons THOMSON, Eugen. Resa, 611 (*Olfersia*).—Panama.
 SPEISER, Zeitsch. f. Hym. u. Dipt., II, 149, gen. ref. from desc.; op. cit., IV, 82, notes on type and gen. ref. confirmed.
mexicana MACQUART, Dipt. Exot., II, 3, 78 (*Olfersia*).—Mexico.
 SPEISER, Zeitsch. f. Hym. u. Dipt., II, 179, gen. ref. and notes on type.
sordida BIGOT, Annales, 1885, 239 (*Olfersia*).—Guatemala.
 SPEISER, Zeitsch. f. Hym. u. Dipt., II, 164, notes on type and gen. ref.
spinifera LEACH, Eprob. Ins., 557, pl. XXVI, f. 1-3 (*Feronia*).
 WALKER, List, IV, 1144 (*Ornithomyia unicolor*)—Jamaica, "on *Ephialtes grammicus* and *Fregata aquilus*."
 SPEISER, Zeitsch. f. Hym. u. Dipt., II, 147, 148, long discussion and syn.
 AUSTEN, Ann. and Mag. Nat. Hist., ser. 7, XII, 265, confirms syn. from types; oc. in Brazil, Ascension, Arabia, Australia, etc., on *Fregata aquila* and *Sula sula*, the frigate-bird and booby respectively. Speiser doubts correct identification of the latter bird.
vulturis VAN DER WULP, Biologia, Dipt., II, 429, pl. XIII, f. 1 (*Olfersia*).—Costa Rica; "parasite of vulture."
 AUSTEN, Ann. and Mag. Nat. Hist., ser. 7, XII, 264, gen. ref. and notes on types.

BRACHYPTEROMYIA.

- WILLISTON, Ent. News, VII, 184, 1896.
femorata WILLISTON, Ent. News, VII, 185.—Wyo., on *Macropis melanoleucus*.
 SPEISER, Wien. Ent. Zeit., XVIII, 202, note on similarity to *Anapera* (sic) *fimbriata* WATERHOUSE.

MELOPHAGUS.

- LATREILLE, Hist. Nat. Crust. et Ins., XIV, 402, 1804.
 SCHINER, Fauna Austr., II, 649, 1864.
ovinus LINNÉ, Fauna Suec., 472, No. 1923 (*Hippobosca*).—Europe; "habitat inter Ovium lanam."
 LEACH, Eprob. Ins., 18, pl. XXVI, f. 14.
 MEIGEN, Syst. Besch., VI, 236, pl. LXIV, f. 16.
 CURTIS, Brit. Entomol., 142.
 SCHINER, Fauna Austr., II, 649.
 FITCH, Trans. N. Y. Ag. Soc., IX, 799, popular account.—N. Y.; the sheep tick.

COOPER CURTICE, Animal Parasites of the Sheep, Washington, 1890, full study of the sheep tick.

LUGGER, 2d Rept. Ent. Minn., 1896, 139-143, figs., life hist., etc.

STREBLA.

WIEDEMANN, Analecta Ent., 1824.

RONDANI, Annali Mus. Civ., etc., Genova, XII, 1878, 18.

mexicana RONDANI, Annali Mus. Civ., etc., Genova, XII, 1878, 168.—Mex.

vespertilionis FABRICIUS, Syst. Antl., 339 (*Hippobosca*).—S. A.; "habitat in vespertilione."

WIEDEMANN, Analecta Ent., 10, f. 7; Auss. Zw., II, 612, pl. x, f. 7.—S. A.

MACQUART, Hist. Nat. Dipt., II, 637, pl. XXIV, f. 7; Dipt. Exot., Suppl. v, 127 (*acium*).—S. A.; San Domingo, on pigeons and parrots. [Lw.]

KOLENATI, Horæ Soc. Ent. Ross., II, 90, pl. XV, f. 36 (*wiedemanni*). [Lw.]

WALKER, List, IV, 1140, oc. in Jamaica.

TRICHOBIUS.

GERVAIS, Atlas de Zool., 1844.

TOWNSEND, Ent. News, II, 106, 1891; III, 177, note on orig. desc.

dugesii TOWNSEND, Ent. News, II, 106.—Guanaxuato, Mex., on bat.

COQUILLETT, Proc. U. S. N. M., XXII, oc. in Porto Rico, Ariz., and Jamaica.

major COQUILLETT, Canad. Ent., XXXI, 334.—Fla. and Ariz., on bats.

ASPIDOPTERA.

COQUILLETT, Canad. Ent., XXXI, 334, 1899.

busckii COQUILLETT, Canad. Ent., XXXI, 335.—Bayamon, Porto Rico, on bats (*Artibeus* sp.).

ORNITHOPTERHA.

SPEISER, Zeitsch. f. Hym. u. Dipt., 1902, 167.

nitens BIGOT, Annales, 1885, 241 (*Ornithomyia*).—Panama.

SPEISER, Zeitsch. f. Hym. u. Dipt., 1902, 166, type redesc. and gen. ref.

NYCTERIBIIDÆ.

NYCTERIBIA.

LAURELLE, Hist. Nat. Crust. et Ins., III, 407, 1892; XIV, 403, 1894.

WESTWOOD, Trans. Zool. Soc., I, 275, 1834.

SCHINER, Fauna Austr., II, 650, 1864.

OSTEN SACKEN, Cat., 214, mentions an undet. sp. from Cal.

antrozoi TOWNSEND, Jour. N. Y. Ent. Soc., I, 79, 1893.—Las Cruces, N. M.; on the bat *Antrozous fallidus*.

mexicana BIGOT, see *Penicillidia*.

MEGISTOPODA.

MACQUART, Annales Soc. Ent. France, 1852, 331.

pilatei MACQUART, loc. cit., pl. IV, No. 4.—Mex.

KOLENATI, Horæ Soc. Ent. Ross., II, 89, pl. XIV, f. 32 (*Megistopodia*). Cuba—O. S.

PTERELLIPSIS.

COQUILLET, *Canad. Ent.*, xxxi, 333, 1899.

araneæ COQUILLET, *Canad. Ent.*, xxxi, 334.—Jamaica, Montserrat, and Porto Rico, on bats.

PENICILLIDIA.

KOLENATI, *Horæ Soc. Ent. Ross.*, ii, 69, 1862.

mexicana BIGOT, *Annales*, 1885, 245 (*Nycteribia*).—Mex.

SPEISER, *Zeitsch. f. Hym. u. Dipt.*, 1902, 171, type redesc. (the real type may be the female of Townsend's *antrozoï*, given above).

APPENDIX.

Literature of North American Diptera for the year 1904, with enumeration of new species, genera, etc.

Adams, C. F.

Notes and Descriptions of New North American Diptera. Kans. Univ. Sci. Bull., II, 433-455; June, 1904.

New: *Simulium notatum*, *Mydas abdominalis*, *Xylophagus nitidus*, *Chrysopila lucifera*, *bella* and *flavibarbis*, *Symphoromyia flavipalpis*, *Leptis pleuralis* and *pulpalis*, *Psiloccephala occipitalis* and *lateralis*, *Thereva anomala*, *Scenopinus mirabilis* and *electa*, *Nausigaster scutellaris*, *Sphiximorpha snowi*, *Conops gracilis*, *Tetanocera inopa*, *Icterica fasciata*, *Urellia flexa*, *conjuncta* and *occidentalis*, *Elachiptera bilineata*, *Hippelates splendens*, *Limosina exigua*, *occidentalis* and *sordipes*.

Tables of Species: *Xylophagus*, *Chrysopila*, *Leptis*, *Icterica*, *Urellia* and *Limosina*.

On the North American Species of *Siphonella*. Psyche, XI, 103, 104; Oct., 1904.

New: *S. parva* and *nigra*.

European species from this realm: *S. trilineata* MEIG.

Descriptions of New Oscinidæ. Ent. News, XV, 303, 304; Nov., 1904.

New: *Chlorops pulla*, *lasciva*, *rubrivittata*, *annulata* and *certima*.

Aldrich, J. M.

New Species of Phoridae in Brues's Monograph. Trans. Amer. Ent. Soc., XXXIX, 331-400. Pub. Jan., 1904. Four species, included in the body of the Catalogue.

The Genus *Psilopus* of Authors. Canad. Ent., XXXVI, 246, 247; Aug., 1904.

Bibliography and synonymy of *Psilopodinus* and *Agonosoma*: no new species.

A Contribution to the Study of North American Dolichopodidæ. Trans. Amer. Ent. Soc., XXX, 269-286; 1904.

New: *Pelastoneurus scutatus*, *parvus*, *falcatus* and *proximus*, *Parachus vicinus*, *Psilopodinus pilicornis*, *crinitus*, *viridicoxa* and *flavipes*, *Agonosoma rotundiceps* and *costale*; also two Brazilian species. Table of genera and tables of species in several genera.

Back, E. A.

New Species of North American Asilidæ. Canad. Ent., XXXVI, 289-293; Oct., 1904.

New: *Dasyllis cinerea* and *fernaldi*, *Saropogon rufus* and *albifrons*, *Ospriocerus albifasciatus*, *Anisopogon johnsoni*.

Baker, C. F.

Invertebrata Pacifica, I, 17-40; Feb. 10, 1904. Printed by the Author, Claremont, Cal.

A long faunal list of Diptera from California and Nevada. The new species are described by Coquillett, q. v. The following European are new to North America: *Lonchoptera lacustris* MEIG., *Psilopa comta* MEIG., *Mosillus ancus* FALL.

Note.—The *Limnophora borealis* STEIN is a clerical error; there is no such species—Coquillett in litt.

Banks, Nathan.

The "Yellow Fly" of the Dismal Swamp. Ent. News, xv, 290, 291; Nov., 1904.

Identified as *Diachlorus ferrugatus* FABR.

Bezzi, Mario.

Verzeichniss der bis jetzt bekannten Arten der Dipteren-Gattung *Drapetis* Meig. Wien. Ent. Zeit., xxxiii, 143-146, 1904.

Includes the North American species; none new.

Brimley, C. S. and Sherman, Franklin.

List of the Tabanidae of North Carolina. Ent. News, xv, 270-275.

No new species.

Brues, C. T.

Monograph of N. A. Phoridae. This is included in the body of the Catalogue; see the family, p. 334.

Notes on Trichobius and the Systematic Position of the Streblidae. Bull. Amer. Mus. Nat. Hist., xx, Art. viii.

No new species.

Card, F. W. and Stene, A. E.

Article on the Apple Maggot (*Rhagoletis pomonella*) in 17th Rept. of R. I. Expt. Station, 1904, 191-201. Purely economic.

Chagnon, G.

Additions to the Syrphidae of the Province of Quebec. 34th Ann. Rept. Ent. Soc. of Ontario, 1904, 48, 49.

Eight species mentioned; none new.

Chittenden, F. H.

The Cherry Fruit Fly. Bulletin No. 44, Div. of Ent., 70-75, 1904.

Review of the habits, etc., of *Rhagoletis cingulata* Lw.

Cockerell, T. D. A.

Three New Cecidomyiid Flies. Canad. Ent., xxxvi, 155, 156; June, 1904.

New: *Diplosis coloradella*, *Rhabdophaga porterae*, *Cecidomyia peroculta*.

Cook, Melville T.

Galls and the Insects Producing Them. Ohio Naturalist, 1904.

A series of articles from a botanical standpoint chiefly; several Dipterous galls described; no new species.

Coquillett, D. W.

Several New Diptera from North America. Canad. Ent., xxxvi, 10-12; Jan., 1904.

New: *Culex dupreii*, *Janthinosoma (Conchyliastax) varipes*, *Metricnemus knabi*, *Cuterebra grisea*, *Bischofia varia* (the last a genus of Sciomyzidae heretofore known from Europe).

Notes on *Culex nigrifutulus*. Ent. News, xv, 73, 74; Feb., 1904.

The American species formerly called *nigrifutulus* is distinct, and the name *salinarius* is proposed for it. *Nigrifutulus* is not North American.

Invertebrata Pacifica. Reports on the Californian and Nevadan Diptera. 1

(See notice under C. F. Baker.) Mr. Coquillett described the new species as follows: *Mycetophila trifasciata* and *fenestrata*, *Neocmpheria pullata*, *Sciophila calcarata*, *Dilophus occipitalis*, *Leptis flavonigra*, *Phencus opacus*, *Tabanus opacus*, *Thereva flavicauda*, *Acrocera bakeri*, *Rhamphomyia curzipes*, *Chilosia plumosa*, *Zagonia* (n. gen. Geomyzidae) *flava*, *Hippelates microcentrus*, *Chyliza robusta*, *Melicieria occidentalis*, *Spilo-*

grapha inaequalis, *Tephritis palpalis*, *Euaresca adspersa*, *Sapromyza caesia* and *unicittata*, *Eccoptomera* (Europ. gen. Helomyzidae) *simplex*, *Canosia argentata* and *majuscula*, *Lispa polita*, *Phaonia fimbriata*, *Admontia setigera*, *Biomyia mutabilis*, *Scleropogon jubatus*, *Leptomydas hirtus* and *concinuus*.

Diptera from Southern Texas, with Descriptions of New Species. Jour. N. Y. Ent. Soc., XII, 31-35; March, 1904.

Eight described species listed; the following new: *Cyphomyia schaefferi*, *Phthiria unimaculata*, *Holopogon latus*, *Stenopogon tenebrosus*, *pumilus* and *nitens*, *Erax tuberculata*, *Anastrepha pallens*, *Sepsis pleuralis*.

New Diptera from Central America. Proc. Ent. Soc. Wash., VI, 90-98; May, 1904.

New: *Ceratopogon terminalis*, *Sciara trifasciata*, *Dilophus fumosus* and *rhyngops*, *Psilocephala pruinosa*, *Cenops pallifrons*, *Paradidyma orbitalis*, *Ilypostena gracilis*, *Chactoclusia* (n. gen. Heteroneuridae) *bakeri*, *Sapromyza varia*, *albipes* and *triseriata*, *Euxesta juncta* and *fenestrata*, *Icterica apicalis*, *Notiphila frontalis*, *Scutops* (n. gen. Geomyzidae) *fascipennis*, *Chlorops capillata*.

New North American Diptera. Proc. Ent. Soc. Wash., VI, 166-192; July, 1904.

New: *Ceratopogon medius*, *Taniorhynchus nigricans* and *signipennis*, *Culex nitarsis* and *pullatus*, *Eugnoriste brevirostris*, *Acnemis varipennis*, *Phronia tenebrosa*, *Calosia* (Europ. gen. Mycetophilidae) *pygophora*, *Platyura pullata*, *Bibiodex* (n. gen. Bibionidae) *halteralis*, *Symphoromyia securifera*, *Phthiria melanoscuta*, *fulvida*, *marginata*, *vittiventris*, *nubeculosa*, *inornata*, *badia*, *picturata*, *flavcola*, *amplicella* and *bicolor*, *Aercotrichus atratus*, *Psilocephala auranthica*, *Leptogaster virgatus* and *hirtipes*, *Ablautus flavipes* and *rubens*, *Stenopogon nigritulus*, *Laphystia flavipes*, *limatula* and *opaca*, *Diectrodes* (n. gen. Asilidae) *flavipes*, *Metapogon* (n. gen. Asilidae) *gilvipes* and *punctipennis*, *Cyrtopogon nigricolor*, *tibialis*, *maculosus* and *varipennis*, *Saropogon luteus*, *hyalinus* and *semustus*, *Psilopodinus* (*Sciapus*) *pruinus*, *Distichona auriceps*, *Sarcophaga amblycoryphæ*, *Pegomyia bucculenta*, *Nerius longicornis*, *Lanxania signalifrons*, *Sapromyza picticornis*, *Drosophila ordinaria*, *Sinophthalmus* (n. gen. Geomyzidae) *pictus*, *Agromyza taniola*.

The Genera of the Dipterous Family Empididae (addenda). Proc. Ent. Soc. Wash., VI, 51.

No new species.

Notes on the Syrphid Fly *Pipiza radicum* Walsh and Riley. Proc. Ent. Soc. Wash., VI, 200.

Czerny, P. Leander.

Revision der Helomyziden. I. Wien. Ent. Zeit., XXIII, 199-244, 1904. II. Op. cit., 263-286, 1 pl.; Dec. 31, 1904.

Quotes descriptions of North American species; records *Helomyza nemorum* MEIG., a European species, from Colorado. The work is still incomplete.

Dyar, H. G.

The Life History of *Culex cantans* Meig. Jour. N. Y. Ent. Soc., XII, 36-38, 1904.

The Life History of *Culex varipalpus* Coq. Jour. N. Y. Ent. Soc., XII, 90-99, 1904.

- Larva of *Culex punctor* Kirby, with Notes on an Allied Form. Jour. N. Y. Ent. Soc., xii, 160-171, 1904.
 New: *Culex trichurus*.
- Brief Notes on Mosquito Larvæ. Jour. N. Y. Ent. Soc., xii, 172-174, 1904.
 No new species.
- Notes on the Mosquitoes of British Columbia. Proc. Ent. Soc. Wash., vi, 37-41, 1904.
 Notes on biology of 17 species; none new.
- Dyar, H. G. and Knab, Frederick.**
 Diverse Mosquito Larvæ that produce Similar Adults. Proc. Ent. Soc. Wash., vi, 143, 144, 1904.
 No new species.
- Emerton, J. H.**
 A Dipterous Parasite of the Box Turtle. Psyche, xi, 34; Apr., 1904.
 Brief note on *Sarcophaga* sp.
- Felt, E. P. and Young, D. B.**
 Importance of Isolated Rearings of Culicid Larvæ. Science, xx, 312, 313; 1904.
 New, briefly diagnosed: *Culex fitchii*, *lazarcnsis*, *cincroborcalis*, *abserratus*.
- Felt, E. P.**
 Mosquitoes or Culicidæ of New York State. Bull. 79, N. Y. State Museum, Albany, 1904; pp. 241-405, 57 plates and many text figures.
 New genera: *Culicada*, *Culiclsa*, *Ecculex*, *Culicella*, *Culiseta*, *Protoculex*.
 New species: *Culicada onondagensis*, *Culiseta absobrinus* and *magnipennis*, *Corethra karnerensis* and *lutuceri*, *Sayomyia rotundifolia* and *hudsoni*, *Culex abfitchii*.
- Fletcher, Jas.**
 Notes of Captures. Diptera. 34th Ann. Rept. Ent. Soc. Ontario, 1904, pp. 98, 99.
 Fifty-five species listed from Canada, none new.
- French, G. H.**
Gastrophilus epilepsalis Larvæ and Epilepsy. Canad. Ent., xxxvi, 83, 84; March, 1904.
 Reasserts his theory.
- Girault, A. Arsène.**
Tanypus dyari: Pupa and Adult Exclusion. Psyche, xi, 81, 82; Aug., 1904.
- Grossbeck, John A.**
 Description of a new *Culex*. Canad. Ent., xxxvi, 332; Nov., 1904.
Culex siphonalis.
 Descriptions of Two New Species of *Culex*. Ent. News, xv, 332, 333; Dec., 1904.
Culex pretans and *inconspicuus*.
- Herrick, Glenn W.**
 Notes on the Life History of *Grabhamia jamaicensis*. Ent. News, xv, 81-84, 1 pl.; Mar., 1904.
- Hine, Jas. S.**
 New Species of Tabanidæ. Canad. Ent., xxxvi, 55, 56; Feb., 1904.
 New: *Chrysops fulvistigma* and *brimleyi*.
 On Diptera of the Family Ephydridæ. Ohio Naturalist, Feb., 1904.

New: *Psilopa fulvipennis*, *Cania virida*.

European species identified from U. S.: *Cania fumosa* STEN.

Tables of species of *Dichaeta* and *Cania*.

The Diptera of British Columbia. *Canad. Ent.*, xxxvi, 85-92; Apr., 1904.

Extensive list of described species.

New: *Euparyphus obliquus*, *Anthrax harveyi*.

European reported: *Pyrellia cana* ZETT.

Insects Injurious to Stock in the Vicinity of the Gulf Biologic Station.

In Bull. No. 44, Div. of Ent., 57-60, 1904.

A few Tabanide mentioned; no new species.

Tabanidæ of the Western United States and Canada. *Ohio Naturalist*, v, 217-249; Dec., 1904.

Keys to genera and species. New species: *Chrysops coquilletti*, *Stoerzicellus* (n. gen.) *atratus*, *Tabanus flavidus*, *laticeps*, *laticornis*, *osburni*, *productus*; some new synonymy.

Johnson, C. W.

Some Notes and Descriptions of Four New Diptera. *Psyche*, xi, 15-20; Feb., 1904.

New: *Tabanus whitneyi*, *Oncodes albiventris*, *Argyra aldrichi*, *Allophora magnapennis*.

Tabanus politus changed to *hinei*, on account of preoccupation.

Several important notes.

When to Collect Tabanidæ. *Psyche*, xi, 35; Apr., 1904.

List of species collected at Riverton, N. J.; some other notes; no new species.

Some of the Diptera to be collected during April and May. *Psyche*, xi, 37, 38; Apr., 1904.

General notes; no new species.

A Supplementary List of the Diptera of New Jersey. *Ent. News*, xv, 157-163; May, 1904.

Supplementary to the Smith Catalogue; no new species.

Knab, Frederick.

The Epistomal Appendages of Mosquito Larvæ. *Jour. N. Y. Ent. Soc.*, xii, 175-177, 1904.

Ludlow, C. S.

Mosquito Notes. *Canad. Ent.*, xxxvi, 233-236; Aug., 1904.

New: *Grabhamia de-Niedmannii*.

McCracken, Isabel.

Anopheles of California, with Description of a New Species. *Ent. News*, xv, 9-14, 1 pl.; Jan., 1904.

New: *Anopheles franciscanus*.

Melander, A. L.

Notes on Stratiomyidæ. *Canad. Ent.*, xxxvi, 14-24 and 53, 54; Jan. and Feb., 1904.

New: *Sargus texanus*. Several tables of species, and other matter.

Additional Notes on Nematelus. *Psyche*, xi, 33, 34; Apr., 1904.

No new species.

Osburn, R. C.

The Diptera of British Columbia: The Syrphidæ. *Canad. Ent.*, xxxvi, 213-220 and 257-262; Aug. and Sept., 1904.

List of 78 species; none new.

Slingerland, M. V. and Johnson, Fred.

A New Grape Enemy; the Grape Blossom-Bud Gnat. Bull. 224, Cornell Expt. Station, p. 71; Nov., 1904.

An undetermined Cecidomyid; habits described.

Smith, John B.

Report on the Mosquito Investigation. Annual Report N. J. Expt. Station for 1903, published 1904, pp. 645-650.

No new species.

Notes on the Life History of *Culex dupreei* Coq. Ent. News, xv, 49-51, 1 pl.; Feb., 1904.

No new species.

Notes on Some Mosquito Larvæ found in New Jersey. Ent. News, xv, 145-152, 1 pl.; May, 1904.

No new species.

The Common Mosquitoes of New Jersey. Bull. No. 171, N. J. Expt. Station, 1904; 40 pp., 12 plates and some text figures.

Valuable for biology; no new species.

Snodgrass, Robt. E.

The Terminal Abdominal Segments of Female Tipulidæ. Jour. N. Y. Ent. Soc., xi, 177-188, 2 pl.; Dec., 1903.

The Hypopygium of the Tipulidæ. Trans. Amer. Ent. Soc., xxx, 179-236, 11 pl.; Aug., 1904.

The Hypopygium of the Dolichopodidæ. Proc. Cal. Acad. Sci., 3d ser., III, No. 10, pp. 273-288, 4 pl.; Sept., 1904.

The three preceding papers are purely anatomical, but not less valuable for classification, as a large number of genera are compared in each group.

Snow, F. H.

Lists of Coleoptera, Lepidoptera, Diptera and Hemiptera collected in Arizona by the Entomological Expeditions of the University of Kansas in 1902 and 1903. Kans. Univ. Sci. Bull., May, 1904, Vol. II. Diptera on pp. 341-346; 201 species, none new.

Speiser, P.

Typenuntersuchungen an Hippobosciden. Zeitsch. f. syst. Hym. und Dipterologie, iv, 82-89; March, 1904.

Type of *Olfersia sulcifrons* THOMSON is referred to *Pseudolfersia*.

Zur Nomenclatur Blutsaugender Dipteren Amerikas. Insekten-Börse, 1904, 148, brief notice.

On account of preoccupation, *Simulium cinereum* BELLARDI is changed to *tephrodes*, and *Culcer affinis* ADAMS to *pæus*.

Stein, P.

Die Amerikanischen Anthomyiden des Königlichen Museums für Naturkunde zu Berlin und des Ungarischen National Museums zu Budapest. Annales Musei Nationalis Hungarici, II, 414-495, 1904.

Mostly South American. New from N. A.: *Aricia pulchellata*, *Trichopticus spiniger*, *Hylemyia spinilamellata* and *carnosiformis*, *Carnosia compressa*.

European from N. A.: *Aricia serva* MEIG., *Spilogaster obscuripes* ZETT., *Spilogaster anceps* ZETT., *Homalomyia ornata* MEIG.

South American from N. A.: *Spilogaster gemina* WIED., *Limnophora sacca* WIED.

Washburn, F. L.

Eighth Report of the State Entomologist of Minnesota, for the year 1903 (pub. Jan., 1904). 184 pp., with plates, etc.

Article on Hessian fly, pp. 1-11.

Ninth Report of the State Entomologist of Minnesota, for the year 1904 (pub. Dec., 1904). 197 pp., with col. plate, etc.

P. 185, notes on mostly undetermined Cecidomyid gall-makers on bass-wood, soft maple and box elder; p. 188, fumigation for *Diplosis violicola* Coq.

Webster, F. M.

Studies of the Habits and Development of Neocarata rhodophaga Coq. Bull. Ill. State Lab. Nat. Hist., VIII, 15-25, 1 col. pl.; Feb., 1904.

Wood, Clarence M.

Experiments in destroying Black Flies. Bull. 112, N. H. Expt. Station; May, 1904.

The species is *Simulium venustum* SAY.

Weeks, Henry Clay.

First Anti-Mosquito Convention. Brooklyn, 1904, 84 pp.

Several general papers.

Bulletin No. 1, National Mosquito Extermination Society. Nov., 1904, 25 pp. and supplements.

Whitney, C. P.

Descriptions of Some New Species of Tabanidæ. Canad. Ent., XXXVI, 205-207; July, 1904.

New: *Chrysops lupus* and *pikci*, *Tabanus benedictus* and *typhus*.

ADDITIONS AND CORRECTIONS.

The following papers are to be added to the bibliography:

Coquillett, D. W.

Papers from the Hopkins-Stanford Galapagos Expedition, 1898-1899. Diptera. Wash. Acad. Sci., III, 371-379; Nov. 7, 1901.

Contains a small list of Diptera; one of the new species, *Canace snodgrassi*, was afterward reported from N. A., and will be found in the catalogue.

Marten, John.

New Tabanidae. Canadian Entomologist, XIV, 210-212; Nov., 1882.

Contains the following four species (synonymy by Hine): *Tabanus californicus* (syn. of *epistates*), *T. hæmophorus* (syn. of *sonomensis*), *T. captonis* (of which *comastes* is a syn.), and *T. centron* (from Col.; the second form of *rhombicus*, in Osten Sacken's Western Diptera, 218).

Piper, C. V., and Doane, R. E.

Insects injurious to Currants and Gooseberries. Bull. 36, Wash. Ex. Sta.; May, 1898.

Biology of *Rhagoletis ribicola* and *Epochra canadensis*; the entries are included in the catalogue.

Ricardo, Miss.

Several articles on Bigot's and Walker's types of Tabanidae, in Annals and Mag. of Nat. History, ser. 7, VIII.

Not seen; no new species.

Corrections:

Page 6, omit Lonchæidæ from the list of families, as it was finally united with Sapromyzidæ.

Page 8, third line from bottom, for *opposita* read *opposita*.

Page 115, third line from top, for *Chiconomus* read *Chironomus*.

Pages 134 and 136, for *Ædes* and *Ædcomyia* read *Aedes* and *Aedcomyia*.

Page 264, *Deromyia cuantlensis* should be *cuautlensis*, and the locality Cuantla, Mex., wherever occurring, should be changed to Cuautla; see Townsend, Annals and Mag. Nat. Hist., ser. 6, XX, 279.

Page 287, *Agonosoma tener* should be *tenerum*.

Page 319, add the following species under *Leptopiza*:

disparilis MELANDER, Monogr. Empid., 258, f. 69.—Cal., Ida.

Page 321, for *Empis ærobaticus* read *Empis ærobaticus*.

Page 664, line 6, *Limnophora sacra* had already been reported by Van der Wulp under the genus *Leucomelina*.

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SMITHSONIAN MISCELLANEOUS COLLECTIONS

PART OF VOL. XLVI

RESEARCHES IN
HELMINTHOLOGY AND PARASITOLOGY

BY

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SCIENCE, PHILADELPHIA

WITH A BIBLIOGRAPHY OF HIS CONTRIBUTIONS TO SCIENCE

ARRANGED AND EDITED

BY

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PREFACE

Professor Leidy for some time previous to his death had in contemplation the publication of a work upon Helminthology and Parasitology. As is well known, for many years he was the only American naturalist who devoted any considerable time to the study of parasitology.

To students engaged in similar lines of investigation no apology is needed for the present volume. The subject-matter which forms the basis of the edition consists of verbal communications, short papers, and elaborate memoirs which have appeared from time to time (1845-1891) in the Proceedings and Journal of the Academy of Natural Sciences, Philadelphia; the Transactions of the American Philosophical Society, the Smithsonian publications, and scientific journals.

The material has been arranged serially as it appears from the author's pen; no attempt at classification could be made without destroying the character of the work. It was a long time before the editor could be induced to undertake the preparation of such a publication; frequently he was tempted to place his pen aside, knowing full well that Professor Leidy had very little sympathy for compilations. The frequent and constant requests from investigators along similar lines of scientific research, however, for detailed information of the work under consideration has induced him to forego any personal feeling in the matter and allow the work to go forward.

For the use of students the editor has appended a working bibliography of Professor Leidy's contributions to science. Although care has been taken in its preparation, for any omission that may be found the editor asks the indulgence of the reader.

JOSEPH LEIDY, jun^r.

RESEARCHES IN HELMINTHOLOGY AND PARASITOLOGY

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ARRANGED AND EDITED BY JOSEPH LEIDY, JR., M. D.

[September, 1846. No. 9. See Bibliography.]

DESCRIPTION OF A NEW GENUS AND SPECIES OF ENTOZOA.*

In the course of an investigation of the anatomical structure of the terrestrial gasteropoda of the United States, I discovered a microscopic entozoon inhabiting the fluid contained in the vessie copulatrice or spermatheca of *Helix albolabris*, since which I have found it to exist in two other species, *Helix tridentata* and *Helix alternata*, and I have no doubt of its existence in others, not yet having had an opportunity of examining further. As there appears to be no known genus in which this animal can be placed, I have been necessitated to form the following :

Cryptobia. †—Animal minute ; form exceedingly proteoid ; internal organization cellular or granular.

C. helicus.—Colourless ; form ordinarily elongate, ellipsoid, fusi-form, or ovate ; caudated, caudæ opposite, one longer than the other. Internal granular structure consisting of two large cells and numerous minute granules. Total length from the 125th to the 100th of a line. Habitat, the vessie copulatrice or spermatheca of *Helix albolabris*, *Helix tridentata*, and *Helix alternata*.

The name of this genus is derived from κρυπτος, hidden, and βιώω, to live. This singular entozoon in its general appearance and or-

* When not otherwise specified the extract is taken from the Proceedings of the Academy of Natural Sciences, Philadelphia.

† See Proc. Acad. Nat. Sci., Vol. III, August, 1847.

ganization appears to be intermediate between *Cercaria seminis* and *Filaria*. Its varied form and movements are curious to observe; at one moment globular, then oval, ovate, fusiform, sigmoid, crescentic, &c., it appears as if it would outvie the kaleidoscope in its changes. The motions are vibratile, rotary, with a lateral progression, or whirling in circles like the insect *Gyrinus*.

Cryptobia helicis might be confounded with the spermatozoa of the animal in which they are parasitic, on account of the organ in which they are found being connected with the generative apparatus, and its supposed use as a spermatheca, but they may be readily distinguished; the spermatozoa of *Helices* generally having either a uniform sigmoid or a beaded body, with an enormous proportionate length of tail, and a slow, vibratile motion. It may be well to mention that *C. helicis* does not exist in the collapsed state of the generative organs.

[Some of the principal forms of the animal are represented in a sketch.]

[October. 1846. No. 11. See Bibliography.]

Dr. Leidy stated that he had lately detected the existence of an Entozoon in the superficial part of the extensor muscles of the thigh of a hog. The Entozoon is a minute, coiled worm, contained in a cyst. The cysts are numerous, white, oval in shape, of a gritty nature, and between the 30th and 40th of an inch in length.

The Entozoon he supposes to be the *Trichina spiralis*, heretofore considered as peculiar to the human species. He could perceive no distinction between it and the specimens of *T. spiralis* which he had met with in several human subjects in the dissecting-rooms, where it has also been observed by others, since the attention of the scientific public has been directed to it by Mr. Hilton and Professor Owen.

Dr. Leidy also exhibited a singular knotted mass of living Gordii or hair worms, with numerous long strings of ova attached, which had been taken a few days since from one of the hydrants of this city.

[June. 1847. No. 17. See Bibliography.]

Dr. Leidy exhibited a drawing of an Entozoon (a species of *Distoma*) found in the pericardium of *Helix alternata*. This Entozoon is half a line in length by a quarter of a line in breadth, a large comparative size, when its situation is considered, being equal to that

of the ventricle of the heart. The pericardium was perfectly transparent, and presented no appearance of cicatrix, or marks of external communication. Dr. Leidy then read the following description of

Distoma helioides.—Oval, flattened, white in colour; oral disk large, round, marked by radiating lines; posterior disk central, about the size of that of the mouth, radiate, with a dark spot in the center. Intestinal canal commencing by a fusiform œsophagus, the apex of which joins a round stomachal cavity, from which passes off on each side a convoluted intestine, which proceeds to the posterior extremity of the body. About half way between the central disk and the posterior extremity of the animal, I indistinctly observed what I presumed to be the generative orifice.

[August, 1847. No. 20. See Bibliography.]

Dr. Leidy requested permission, which was given, to change the name of a new genus of Entozoa, described by him in Vol. 3, No. 5, of the Proceedings, from that of *Cryptobia* to *Cryptoicus*, the former name having been preoccupied.

DESCRIPTION AND ANATOMY OF A NEW AND CURIOUS SUBGENUS OF PLANARIA.

In October, 1840, Prof. S. S. Haldeman published a description of an animal under the name of *Planaria gracilis*.* Upon examination I detected such a remarkable peculiarity in the digestive apparatus as led me to investigate its anatomy in detail, and to form for it a separate subgenus, characterized as follows:

Phagocata, oblonga, plano-convexa, nuda, contractilis, muscosa, antica auricularia. Aperturæ duæ, ventrales, ad os et generationem pertinens. Proboscides multæ.

P. gracilis, nigricans, lateribus parallelis, postero acuto abrupte, plerumque antico recto; oculis duobus. Long., 9 lin.; lat., 1 lin. Habitat in fontis Pennsylvaniae.

Description.—Oblong, limaceform, naked, convex superiorly, flat inferiorly very contractile; sides ordinarily parallel, convex when the animal is in a contracted state, convergent anteriorly when elongated; anterior extremity with a lateral triangular auricular appendage,

* Supplement to number one of "A Monograph of the Limniades, or Fresh-water Univalve Shells of North America," containing descriptions of apparently new animals in different classes. &c. By S. S. Haldeman. Philadelphia, 1840.

straight in front, by contraction becoming convex or concave; posterior extremity abruptly pointed; ocelli two, anterior, composed of an oblong, semi-transparent (nervous?) mass with an intensely black dot of pigmentum at the internal posterior part; ventral apertures two; oral aperture a little less than one-third the length of the body from the posterior extremity, and very dilatable; generative aperture half-way between the oral aperture and posterior extremity. Colour black or iron gray, and in some younger specimens latericeous. This animal I have only found in abundance in the neighborhood of Professor Haldeman's residence, near Columbia, Pa. In a spring in front of his house, thousands of them may be seen gliding along the bottom; some of them occasionally creep up the sides to the surface of the water, turn upon their back, and by making the ventral surface concave, float about in the manner of the *Limniadæ*. It appears to be carnivorous in habit, or at least it attaches itself to animal matter, dead or living, in preference to vegetable matter. When irritated it throws out a considerable quantity of very tenacious mucus.

In structure it appears to be intermediate between the entozoic *Distomata* and the annulose *Hirudinæ*. I could not detect any trace of annulation, but I think that this alone would hardly be sufficient to place it lower than the latter animals, because, in a closely allied animal, the *Gordius aquaticus*, although there is no annulation in the perfect animal, yet in the embryo state I find it to exist.

The whole animal is composed of a delicate granular structure; the only approach to muscular fibre is in the longitudinal striation of the integument rendered more distinct by the pigmentum nigrum, a radiated appearance around the oral orifice, and a faint transverse and longitudinal arrangement of the granules entering the composition of the proboscides, seen more or less distinctly in the continued movement of these organs when slightly compressed beneath the microscope.

The digestive cavity presents the same dendritic arrangement as in *Planaria* generally,* but instead of possessing a single sucker or proboscis, the full-grown animal has not less than twenty-three; varying, however, in this respect from three upwards, according to the age of the animal. One of these proboscides joins the digestive cavity at the posterior part of the anterior division, as usual; the others join the remaining two divisions at their internal side in their course backward. They are considerably longer but narrower than

* Dugès An. Sc. Nat.

in *P. lactea*,* and when not in use are closely packed together within the animal, so that when the latter is placed beneath the microscope and slightly compressed, they will be seen pressing upon one another in such a manner that if one changes its position it will be instantly occupied by another. Those which are formed last are smallest, but they soon gain their full size.

When the animal feeds, the whole of them are protruded from the oral orifice, the longest extending out full one-third the length of the body. As they are all convergent to the same orifice, when fully protruded the animal becomes puckered up and increased in breadth at the expense of the length. In this state the anterior extremity is erected and the posterior brought nearly to a right angle with it, so that it looks as if sitting upon its prey apparently unconcerned, with its proboscides, which writhe and twist about as if they were totally distinct organisms.

If one of these animals be punctured or cut, one or more of the proboscides will be immediately protruded as if they existed under pressure, and will move about in all directions, appearing as if entirely without the control of the animal; or if one of the animals be crushed between two slips of glass, so that the proboscides will be torn from their attachment, they move about involuntarily, always in a line forwards or towards the mouth, which they do by contracting the stomachal extremity towards the oral, the latter remaining fixed. In this progressive course they constantly contract and dilate; the mouth opens and any matter in its vicinity rushes in, when it is closed and the matter passes onwards, and by the alternate contraction and dilation of different parts of the same tube, it is thrown backwards and forwards several times and finally violently expelled at the torn extremity. When they have escaped from the ruptures of the tegument produced by crushing, or when snipped off with a pair of scissors whilst an animal is feeding, they will present the same curious phenomena. In fact these curious independent movements caused me at first to mistake the organ for viviparous young, and it was not until I had frequently observed the animal feeding, and examined its structure beneath the microscope, after having fed them upon coloured food, that I was convinced of their true nature.

Excrementitious matter is expelled from the digestive cavity through the same course by which the food enters.

Circulation.—There appears to be nothing peculiar about the arrangement of the blood vessels, if such they be: the term being

* Ibid.

applied to two semi-transparent lines passing along each side of the ventral surface, and a third along the middle of the dorsal surface, the three freely communicating with each other by transverse lines and numerous smaller branches, the whole forming an extensive reticulation upon the surface of the body. At the anterior part of each ventral line I distinctly observed a dilatation to exist.

Generative apparatus.—As in all Planariæ, the animal is androgynous. The penis is a bulbiform organ placed between the oral and generative orifice, with its point directed toward the latter. The point is straight, or contorted; the bulbous portion is also changeable, sometimes elongated, at others flattened or increased in breadth at the expense of the length. The bulb shows through the thin integument, and without close examination may be taken for a third orifice. The penis is perforate, and has a dilated cavity within the bulb. Immediately above the penis I indistinctly observed a somewhat lobated organ, which appeared to join the penis at its base by a narrow portion. This is probably the testicle, for it was the only thing I could discover in connection with the genitalia to correspond to it.

In two individuals only could I see part of the female organs. This consisted in two sigmoid tubes or oviducts, which could be traced from the generative orifice a short distance forward, one on each side of the penis.

I could detect no traces of a nervous system.

The eyes, so called, have been previously described. It is still a question with many, whether these, as well as the corresponding deep black points existing in very many of the lower animals of the invertebrate series, subserve the purpose of eyes; and some anatomists have even gone so far as to deny the sense of sight to the comparatively perfect eye of many gasteropodous mollusca. The experiments which are made to test the existence of this sense in these organs for the most part are exceedingly fallacious, generally being performed by concentrating the light upon them through a lens. Insects, and even serpents and frogs, I find will frequently bear the impression of a sudden glare of light produced in this way without any inconvenience, at other times they will seek to avoid it, but *Helix albolabris* will occasionally retract its tentacle when so disturbed, and *Phagocata* will frequently raise its interior extremity and move from the too great light. From their position, which is always such as to be well exposed to the influence of the light, from their structure, imperfect as it is in many cases, and their connection with the nervous system when this exists, I am led to conclude that in all cases they are organs of vision.

The general sensibility of *Phagocata* is very considerable, that is, it contracts with great readiness from the slightest disturbance. The contraction has much the appearance of being involuntary and is very like that of the medusæ. When an individual is irritated at any point, contraction commences there, and thence rapidly extends throughout the animal, and the only appearance of volition is in the effort to escape, but if the touch be too rude, apparently involuntary contraction takes place suddenly and appears to destroy all power of volition for the moment; the animal, however, soon revives from this state and glides off with its accustomed speed.

Some experiments which I performed upon *Phagocata* confirm the statement that the Planariæ are capable of repairing injuries. When an individual is cut into two, both parts after a time become distinct and perfect animals. Division carried to a greater extent in some instances results in as many perfect animals as there are parts, but generally I have found that when cut into more than three or four pieces, the intermediate pieces are apt to die, and sometimes the extremities do not survive.

I exhibit a drawing of *Phagocata gracilis*, from Prof. S. S. Haldeman.

A drawing of two individuals feeding upon a piece of *Lumbricus*.

Do., representing the ventral surface with the proboscides protruded.

Do., representing the digestive and generative apparatus.

Do., representing five of the proboscides highly magnified.

[August, 1847. No. 21. See Bibliography.]

DESCRIPTIONS OF TWO NEW SPECIES OF PLANARIA.

Planaria maculata.—Superiorly convex, faintly blackish or brownish with irregular colourless maculæ; inferiorly flat, colourless; anteriorly trapezoidal; posteriorly spatulate or oval; eyes two, anterior, proximate, composed of a large semi-transparent mass with a reniform mass of pigmentum nigrum at the postero-internal part; oral aperture ventral, one-third the length of the body from the posterior extremity; proboscis large and cylindrical. Length $2\frac{1}{4}$ lines; breadth $\frac{1}{2}$ line. Found in moderate abundance, in the ditches below the city, creeping upon the submerged stems of aquatic plants.

Subgenus. *Prostoma*, Dugès. Mouth anterior and terminal.

Prostoma marginatum.—Blackish, narrow lanceolate, anteriorly truncate; marginate, margin delicately striate; mouth large; pro-

boscis large and oblong ; eyes two, anterior, distant, each consisting of two round masses of pigmentum nigrum in contact with each other, and of which one is longer than the other ; generative orifice one-fourth the length of the body from the posterior extremity. Length 1 line. A single specimen found with the preceding ; but probably not rare, for, from its small size, it escaped my notice while collecting some of the former, and it was not until I got home that I detected its existence in the vessel of water containing the others.

The anatomy of *P. maculata* does not differ from that of *Planaria lactea* as given by Dugès in the Annales des Sciences Naturelles. In *Prostoma marginatum* the digestive cavity has not the dendritic arrangement of *Planaria*, but merely consists of a large capacious sac extending as far back as the posterior third of the body, and having a cœcum upon each side of the proboscis. The penis has a yellow colour and consists of a round granular mass, with a moderately long and bent spiculum projecting from its posterior part. The arrangement of the female apparatus I failed to trace.

[October, 1849. No. 40-44. See Bibliography.]

From the opinion so frequently expressed that contagious diseases and some others might have their origin and reproductive character through the agency of cryptogamic spores, which, from their minuteness and lightness, are so easily conveyed from place to place through the atmosphere, by means of the gentlest zephyr, or even the evaporation continually taking place from the earth's surface ; and from the numerous facts already presented of the presence of cryptogamic vegetation in many cutaneous diseases and upon other diseased surfaces, I was led to reflect upon the possibility of plants of this description existing in healthy animals, as a natural condition ; or at least apparently so, as in the case of entozoa. Upon considering that the conditions essential to vegetable growth were the same as those indispensable to animal life, I felt convinced that entophyta would be found in healthy living animals, as well, and probably as frequently, as entozoa. The constant presence of myco-dermatoid filaments growing upon the human teeth, the teeth of the ox, sheep, pig, etc., favored this idea, and accordingly I instituted a course of investigation, which led to the discovery of several well characterized forms of vegetable growth, of which, at present, I will give but a short description, for the purpose of establishing priority, and propose giving a more detailed account of them, with figures, in the second volume of the Journal.

Enterobrus,* a new genus of Confervaceæ.—Simple, attached, isolated filaments consisting of a large cylindrical cell, (containing protoplasma, granules, and large translucent globules enveloped in a primordial utricle,) with a distinct coriaceous peduncle or stipe of attachment, and at length producing at the free extremity one or two, rarely three, shorter cylindrical cells, (filled with the same matter as the parent cell.)

Enterobrus elegans.—Filaments, olive brown, brownish, yellowish, or colorless, at first forming a single spiral turn, and then passing in a straight or gently curved line to the free extremity. Peduncle, or stipe of attachment, adhering very firmly, coriaceous, uniformly, brownish, narrower than the frond cell, papillary, columnar, elongated conical or pyramidal, expanded at base and at point of attachment to frond cell, marked with longitudinal lines, and frequently with transverse annular constrictions, with no definite interior structure. Length from 1-3750th to 1-400th of an inch; breadth 1-3200th to 1-1666th. Frond cell much elongated, frequently reaching the length of 2 or 3 lines, uniformly cylindrical, excepting at free extremity, where it is usually clavate; breadth in full grown individuals pretty uniformly 1-935th of an inch. Contents consisting of a colorless protoplasma, with more or less numerous fine, translucent, yellowish or colorless granules, measuring about 1-15,000th of an inch, and numerous large, colorless, transparent globules or vesicles filled with fluid, averaging the 1-2870th of an inch in diameter. End cells only existing in full grown individuals, one, usually two, rarely three in number; the first one cylindrical, 1-86th of an inch in length by 1-1000th in breadth, filled with more granules and less globules than the parent cell; end cell clavate, 1-135th of an inch long by 1-750th broad, at the clavate end 1-638, filled with granular matter and a few globules.

Length of full grown individual 2 to 3, sometimes 4, lines.

Habitat.—Grows from the basement membrane of the mucous membrane of the small intestine of *Julus marginatus*, Say, occasionally from the same membrane at the commencement of the large intestine and also from any part of the exterior surface of *Ascaris infecta* and *Aorurus*: entozoa infesting these portions of the intestinal canal of this animal.

The youngest individuals of *Enterobrus* which I ever detected measured 1-380th of an inch in length by 1-1060th in breadth, but the most usual sizes vary from the 1-150th of an inch to the full

* *Enterobrus*:—*Εντερβρουσ* et *ἔρβρουσ*.

grown individual. At all ages they contain the same character of contents, but in the younger ones the large globules are usually predominant, sometimes to such an extent as to exclude the other matters. When quite young they are usually more or less clavate and straight, a little more advanced they form a gentle curve, about one-eighth of a circle. A little older, the distal half or third becomes uniformly dilated, and forms an obtuse angle with the other portion; after this as it continues growing, it usually forms a single spiral turn, becomes uniformly dilated, and thus advances to the full-grown individual. The cell contents consist principally of large transparent globules with granules and protoplasm in the interstices. Frequently the cells are found distended with the globules to such an extent that the other matters almost, and occasionally even entirely, disappear. Iodine turns the protoplasm and granules deep yellow or very deep brown, and causes the rupture of the granules, when a clear fluid is observed to exude, very slightly colored purplish, or undergoing no change of color from the iodine. Solution of iodine, acetic acid, salt water, or the prolonged action of water alone, causes a contraction of the cell contents from the sides of the permanent cell wall, but they are still held together by an apparent delicate membrane of the character of a primordial utricle. Frequently in dead individuals the interior contents shrink to two-thirds, occasionally to one-third the diameter of the cell calibre, and almost 8 to 20 times the diameter of the cell from each extremity, when they have the appearance of a shriveled granular membrane. In these latter cases the characteristic globules and granules have disappeared, and their place is more or less occupied with water, and yellowish globular, highly refractive bodies, which resemble oil. These latter globules vary in size from a mere point to one-fourth the diameter of the cell. The smaller ones are contained within the shriveled primordial utricle with a few of the larger ones, and a number of the latter occupy a position between the primordial utricle and the cell wall apparently formed by a conjunction of the smaller globules and an exudation through the primordial utricle during the act of contraction consequent upon decomposition. They are insoluble in alcohol, but are soluble in ether or a solution of potassa; in fact in all their properties they resemble oil. Can these be oil globules the result of decomposition?

The protoplasm or fluid of the cells is colorless or faintly yellowish, contracts or coagulates upon the application of alcohol, and is colored brown by iodine, having all the characters usually possessed

by that albuminoid fluid found in all young vegetable cells and denominated protoplasma by H. von Mohl.

The clear granules are minute, yellowish and resemble fine oil globules. They are turned deep brown by the action of iodine.

The clear globules appear to consist of a delicate vesicular membrane probably derived from the primordial utricle, filled with colorless fluid.

No circulatory or other movement as in *Achyla prolifera*, exists in the cell contents. The end cells of the full-grown individuals are usually two in number, and much shorter than the parent cell. Occasionally I have found three end cells, more frequently but one. These cells are formed by the parent cells, by a contraction first taking place in the contents with the primordial utricle, a partition from the permanent cell wall forming afterwards.

The end cells are probably spore cases; their contents are usually a dense mass of fine granules, similar to those of the parent cell, with a few intermingled globules. I never saw any movement, either molecular or other, in the contained matter, except during decomposition.

A question may arise as to the true situation of this plant among the cryptogamia. I have placed it in the order Confervaceæ, from the diagnosis given by Endlicher, in his *Genera Plantarum*: "Fila capillaria, membranacea v. filamentosa, intus v. extus articulata, simplicia v. ramosa, libera (*i. e.* haud in frondem coalita), interdum tamen reticulatum contexta, viridia v. rarius fusca aut purpurea, in formis infimis hyalina, etc."

Cladophytum,* a new genus of entophyta allied to the Mycodermata. Filaments minute, attached by means of a roundish nucleous, simple, or compound near the base of attachment, with minute lateral ramuli, inarticulate, and with no evidence of interior structure.

Cladophytum comatum.—Filaments delicate, regular, colorless, simple, more frequently branched near the base at very acute angles, growing in more or less dense bunches from a yellowish rounded or oval, attached, nuclear body varying in size from 1-7500th to 1-600th of an inch. Lateral ramuli very minute, measuring in length from 1-15000th to 1-3000th of an inch, and passing off at acute angles. No indication of articulation or interior structure.

Length from 1-666th to 1-120th of an inch.

Habitat.—growing more or less profusely from the mucous membrane of the small intestine of *Julus marginatus*, occasionally from

* *Cladophytum* :—*κλάδος* et *φυτόν*.

the same surface at the commencement of the large intestine, from any part of the exterior surface of entozoa infesting those cavities, and also from any part of the surface of *Enterobrus elegans*.

Arthromitus,* a second new genus of entophyta, allied to the Mycodermata.—Filaments always simple, cylindric, articulated, without ramuli, attached by means of a nuclear body, and with no evidence of interior structure.

Arthromitus cristatus.—Filaments delicate, straight or inflected, growing in tufts usually of moderate density, from minute, attached, yellowish rounded or oval nuclear bodies. Articuli short, cylindric, uniform, measuring 1-9090th inch in length by 1-15,000th in breadth, with no traces of interior structure.

Length 1-375th to 1-46th of an inch, breadth 1-15,000th inch.

Habitat.—Same as *Cladophytum comatum*, but rarely growing in such dense tufts.

The three genera of entophyta of which I have now spoken are all so constantly found in *Julus marginatus* that I look upon it as a natural condition, and should I hereafter meet with an individual without them, I will consider it a rare exception, because in one hundred and sixteen individuals which I have examined during the past thirteen months, in all seasons, and at all ages and sizes of from one up to three inches of the animal, I have invariably found them. It cannot be supposed that these are developed and grow after death, because I found them always immediately upon killing the animal. Whilst the legs of fragments of the animals were yet moving upon my table, or one-half of the body even walking, I have frequently been examining the plants growing upon part of the intestinal canal of the same individual. And upon the entozoa these entophyta will be frequently found growing, whilst the former are actively moving about. I found among others an ascaris three lines long, which had no less than twenty-three individuals of *Enterobrus*, averaging a line in length, besides a quantity of the other two genera, growing upon it, and yet it moved about in so lively a manner that it did not appear the least incommoded by its load of vegetation. This specimen I have preserved in a glass cell in Goadby's solution, and exhibit it to the Academy.

The animals were uniformly enjoying good health, *i. e.*, all the organic and animal functions were natural; they ate, grew, reached their definite size, reproduced, and in fact presented all those actions characteristic of the normal state of existence of the animal.

The genus *Julus* is an extensive one, and its species are found in all the great parts of the globe, and as their habits are the same, the conditions for the production of the entophyta will be the same, and I think I do not go too far when I say they will be constantly found throughout the genus in any part of the world, so that naturalists and others may, upon examination, readily verify or contradict the statements which I have this evening presented.

From these facts we may perceive that we may have entophyta in luxurious growth within living animals without affecting their health, which is further supported by my having detected mycodermatoid filaments in the cœcum of six young and healthy rats, examined immediately after death, although they existed in no other part of the body. These filaments were minute, simple and inarticulate, measuring from 1-5000th to 1-1428th inch in length by 1-16000th of an inch in breadth. With them were also found two species of *Vibrio*.

Even those moving filamentary bodies belonging to the genus *Vibrio*, I am inclined to think, are of the character of algous vegetation. Their movement is no objection to this opinion, for much higher confervæ, as the Oscillatorias, are endowed with inherent power of movement, not very unlike that of the *Vibrio*, and indeed the movement of the latter appears to belong only to one stage of its existence. Thus, in the toad, (*Bufo americanus*,) in the stomach and small intestine, there exist simple, delicate, filamentary bodies, which are of three different kinds. One is exceedingly minute, forms a single spiral, is endowed with a power of rapid movement, and appears to be the *Spirillum undula* of Ehrenberg; the second is an exceedingly minute, straight, and short filament, with a movement actively molecular in character, and is probably the *Vibrio lincola* of the same author; the third consists of straight, motionless filaments, measuring 1-1125th inch long by 1-15000th broad; some were, however, twice or even thrice this length; but then I could always detect one or two articulations, and these, in all their characters, excepting want of movement, resemble the *Vibrio*. In the rectum of the same animal, the same filamentary bodies are found, with myriads of *Bodo intestinalis*; but the third species, or longest of the filamentary bodies, have increased immensely in numbers, and now possess the movement peculiar to the *Vibrio lincola*, which, however, does not appear to be voluntary, but reactionary; they bend and pursue a straight course, until they meet with some obstacle, when they instantly move in the opposite direction, either extremity forward.

But it must not be understood that these facts militate against the hypothesis of the production of contagious diseases through the agency of cryptogamia. It is well established that there are microscopic cryptogamia capable of producing and transmitting disease, as in the case of the Muscardine, &c., as that there are innocuous and poisonous fungi. But to suppose that they are the sole cause of contagious disease is to doubt the possibility of other causes, such as change in the chemical constitution of the atmosphere, the elements of our food, &c., and is as ridiculous as the psoric origin of most diseases of that miserable charlatanry denominated homœopathy. In many instances it is difficult to distinguish their character whether as cause or effect, as upon diseased surfaces, in *Tinea capitis*, aphthous ulcers, &c. In a post-mortem examination, in which I assisted Dr. Horner, a few weeks since, 28 hours after death, in moderately cool weather, we found the stomach in a much softened condition. In the mucus of the stomach, I detected myriads of mycodermatoid filaments, resembling those growing upon the teeth; simple, floating, inarticulate, and measuring from 1-7000th to 1-520th of an inch in length by 1-25,000th of an inch in breadth. It is possible that they may have been the cause of the softened condition; but I would prefer thinking that swallowed mycodermatoid filaments from the teeth, finding an excellent nidus in the softening stomach, rapidly grew and reproduced themselves. In the healthy human stomach these do not exist.

In the stomach of a diabetic patient, I found so very few that they probably did not grow there, but were swallowed in the saliva.

Dr. Leidy, after exhibiting numerous drawings of the entophyta described by him, and also specimens, beneath the microscope, growing from the mucous membrane of the small intestine *Julus*, and from the exterior surface of entozoa infesting that cavity, proceeded to exhibit and describe some new genera and species of entozoa, as follows:

1. *Ascaris cylindrica*.—Body nearly cylindrical throughout, anteriorly moderately attenuated; tail curved, 1.214 of an inch in length from the anus, œsophagus elongated, gibbous in the middle, with the œsophageal bulb and pharynx 1-100th of an inch in length; œsophageal bulb pyriform, 1-75th of an inch in diameter; ventricle or intestine somewhat tortuous, cylindrical, dilated at both extremities; rectum pyriform; female generative aperture about half way between the mouth and tail. Whole length 4-5th of a line, breadth 1-12th of a line.

Habitat.—Small intestine of *Helix alternata*.

Remarks.—I found the female only of this species in fifteen out of forty specimens of *Helix alternata*, in numbers of from one to three. The ovaries in all were distended with ova, the latter measuring 1-430th of an inch in length by 1-576 in breadth.

a. Ascaris infecta.—Female, subcylindrical gradually diminishing toward the extremities, white, with brown streak down the lower two-thirds of the middle line; anteriorly obtusely rounded; tail slightly curved, 1-80th of an inch long from the anus. The three papillæ of the mouth projecting; œsophagus strongly muscular, thick, oblong, pyriform, 1-80th of an inch long, greatest breadth 1-175th of an inch; œsophageal bulb, cordiform, 1-166th of an inch long, by 1-166th of an inch broad, ventricle slightly dilated at commencement, contracted posteriorly; generative orifice projecting just below the middle of the body. Vagina furnished with a large ovate seminal receptacle.

Male, dilated at both extremities; tail thick, 1-174th of an inch long, furnished upon its inner aspect with two minute tubercles. Above the anus are two rows, each of four tubercles, connected by delicate folds of integument. Œsophagus 1-111th of an inch long, 1-260th of an inch broad; œsophageal bulb depressed cordiform 1-214th of an inch long, by 1-250th of an inch broad. Penis formed of two curved spiculæ, measuring in length in a straight line 1-78th of an inch.

Length of adult female 3 to 4½ lines; breadth at origin of ventriculus 1-123d of an inch; middle of body 1-83d to 1-60th of an inch; just above anus 1-144th of an inch. Ova 1-319th of an inch long by 1-428th inch broad.

Length of male 2 lines; breadth at origin of ventriculus 1-176th of an inch; middle of body 1-211th of an inch; just above anus 1-202d of an inch. Spermatophori oval, 1-1391st inch long, by 1-1666th inch broad, with spermatozoa 1-3750th inch long, by 1-10000th inch broad.

Habitat.—This species is found in numbers from three to fifty or more, of various ages and sizes, pretty constantly in the small intestine of *Julus marginatus* Say. The males are found in the proportion of about one in eight.

Aorurus,* a new genus of *Nematoidea*. Body cylindrical, strongly annulated, with a tail nearly as long as the body, straight or nearly so, inflexible, spiculate, ensiform, shining, and pointed. Mouth unarmed. Female generative aperture near the middle of the body.

* *Aorurus*:—*Aop* et *oopa*.

Remarks.—This genus is divisible, by several well-marked characters, into two distinct sub-genera.

1st sub-genus. *Streptostoma*.*—Body cylindrical, very strongly marked with broad annuli. Mouth moderately large, round, bordered by a collar (formed by the second annulus projecting beyond the general outline of the body). Œsophagus divided into two distinct pyriform muscular bulbs, with a small intermediate rounded bulb. Tail four-fifths the length of the body.

Streptostoma agile.—Female. Body larvaform, cylindrical, narrowed anteriorly and posteriorly, opalescent white, divided into from sixty-one to eighty-eight broad annulations, of which there are twenty-one from the mouth to the commencement of the ventriculus. Tail very straight, occasionally slightly sigmoid, or bent at the point, narrow and sharply pointed, inflexible and brittle. Mouth moderately large, round, projecting; pharynx almost null; œsophagus consisting of three bulbs: the first elongated pyriform, strongly muscular, measuring 1-197th inch long by 1-319th inch broad; second bulb small, rounded, muscular, 1-882d inch long by 1-882d inch broad; third or true œsophageal bulb, pyriform 1-294th inch long by 1-312th inch broad. Ventriculus dilated at commencement to nearly the diameter of the body, afterwards straight and cylindrical to near its termination, where it is slightly dilated. Rectum elongated, pyriform. Generative aperture situated about twenty-four rings above the anal aperture, which latter is placed between the last two annuli of the body. Ovary double; ova 1-333d inch long by 1-400th inch broad.

Length of body from 1-13 to 1-11th inch; breadth at commencement of ventriculus 1 118th inch; at middle of body 1-97 inch. Tail from 1-16 to 1-15th inch long by 1-888th inch broad at its middle.

2d sub-genus.—*Thelastoma*.†

Body cylindrical, attenuated anteriorly, strongly marked with moderately broad annuli. Mouth small, opening at the extremity of a small papilla. Œsophagus divided into two distinct portions, the first long and cylindrical, the second constituting the true œsophageal bulb. Tail more than half the length of the body.

Thelastoma attenuatum.—Female. Body attenuated anteriorly to commencement of the ventriculus, opalescent white, divided into from 140 to 160 annulations, of which there are from fifty-two to fifty-seven from the mouth to the commencement of the ventriculus.

* *Streptostoma* :—Στρεπτοστος et στομα.

† *Thelastoma* :—Θελαστος et στομα.

Tail very straight or very slightly curved or bent, slender, inflexible and brittle, and sharply pointed. Mouth always projected, small, surmounting a small papillary elevation formed by the first annulus of the body. Pharynx very short and narrow; œsophagus strongly muscular, cylindrical, 1-47th inch long, by 1-533d inch broad; œsophageal bulb pyriform, 1-178th inch long, 1-222d inch broad. Ventriculus dilated alæform, at commencement cylindrical throughout. Rectum short, pyriform. Generative aperture 42 annulations above the anal. Ovary double, ova 1-333d inch long by 1-400th inch broad.

Length of body from 1-10th to 1-8th inch; breadth at middle 1-95th inch. Tail 1-14th inch long by 1-111th inch broad at middle.

Habitat and Remarks.—*Streptostoma agile* and *Thelastoma attenuatum* are found together principally in the commencement of the large intestine of *Julus marginatus*, in numbers of from one to fifteen, and less frequently in the small intestine with *Ascaris infecta*, in numbers of from one to six. It is remarkable, that although I have found from one to fifteen of these two genera, in nine-tenths of the animals examined, I have never yet been able to detect a single male.

Thelastoma always has the mouth projected, whilst *Streptostoma* has it retracted, producing, in some measure, but by no means wholly, the difference in size of the oral aperture.

At first I was inclined to think that these two animals were different stages of the same species, but the adults uniformly correspond to the descriptions given, and in all cases contained more or less perfected ova.

Their movements are active, wriggling the body in a sigmoid manner and vibrating the delicate spiculated tail, which in sunlight resembles a shining acicular crystal.

Thelastoma, from its form of œsophagus and narrower annulations and shorter tail than *Streptostoma*, occupies a position between the latter and *Oxyuris*.

Gregarina, Dufour.

Body consisting of two distinct cells. Inferior cell the larger, marked with delicate parallel, longitudinal lines, (muscular?) and filled with a fine granular matter, obscuring one or two nucleolo-nucleated organic cells. Superior cell placed in a depression of the inferior, surmounted by a slight papilla in which may be detected two lines, apparently outlines, of an oral canal to the interior of the cell which is filled with granular matter; cell wall amorphous and transparent.

Gregarina larvata.—Body opaque white, cylindrical or fusiform, frequently considerably dilated at the middle of the upper third. Superior cell a flattened or depressed sphere, received about one-half into a depression of the inferior cell, surmounted by a papillary elevation with traces of a communication with the exterior; interior filled with a finely granular mass resembling oil globules, and measuring from 1-15000th to 1-7500th inch. Length of cell, in smallest individuals 1-123d inch; in largest 1-80th to 1-61st inch broad. Inferior cell elongated, cylindrical or fusiform, not communicating with the exterior nor with the interior of the superior cell; filled with a mass of granules resembling that of the superior cell, rendering the larger individuals opaque, but translucent in the smaller ones, and usually obscuring one or two comparatively large nucleolo-nucleated organic cells, measuring from 1-888th to 1-308th inch in diameter. Cell-wall marked with exceedingly regular, delicate, longitudinal, parallel lines about 1-9375th inch apart, apparently muscular in character.

Length from 1-160th to 1-30th inch by 1-830th to 1-111th inch in breadth.

Habitat.—Found in numbers from half a dozen to over a hundred, in the ventriculus of *Julus marginatus*.

Gregarina is probably the larva condition of some more perfect animal, but in the 116 individuals of *Julus* which I have examined, I have not been able to detect any form which could be derivable from it. Creplin doubts its *animality*.* When I first discovered this body, thinking it to be a larva, I did not examine it carefully, and it was not until sometime afterwards when, being desirous of ascertaining its true nature, upon examining some fresh specimens beneath the microscope, I detected movements of an animal character, and this led me to seek for muscular structure, which resulted in the discovery of the longitudinal lines of the inferior † cell. These escaped the observation of Siebold, for he says, "Nach meine Beobachtungen bestehen die Gregarinen aus einer harten glatten den Eihüllen der Insekten-Eier ähnlichen Haut." ‡ The movements of the animal are exceedingly sluggish, and consist of a very slow bending in any direction of any part of the inferior cell, most usually above the middle, rarely at the inferior extremity, but most frequently near

* Nachträge zu Gurlt's Verzeichniss der Thiere bei welchen Entozoen gefunden worden sind. Wiegmann's Archiv, 1846, 1 Band, S 157.

† Wiegmann's Archiv, 1838, 2 Band, S 308.

‡ See May, 1851. Dr. Leidy observed similar muscular structure (Proc. Acad. Nat. Sci., No. 76, in Bibliography) in the superior division.

the superior cell, which is entirely passive. The superior cell is also frequently drawn or contracted within the inferior, and again protruded by the contraction of the latter, and the propulsion of the granular contents against it. The inferior cell is also frequently, more especially in younger individuals, intussuscepted within itself through a partial contraction; and again relieved by a general contraction of the cell-wall.

In the state in which *Gregarina* is found, it would probably hold a rank between the *Trematoda* and *Trichina*, the lowest of the Nematodea.

Nyctotherus,* a new genus of Polygastrica, allied to *Plesconia*.—Body ovate, dilated posteriorly, compressed anteriorly, granulated, longitudinally lined, with an apparent operculum covering its anterior half, and having a semicircle of cilia just within its margin inferiorly and posteriorly. Center of the operculated portion furnished with a large trapezoidal finely granular areola. Posterior part of the body with a short fissure passing inwards and downwards.

Nyctotherus velox.—Body white, ovate, conoidal, anterior margin rounded, obtuse; posteriorly acute. Posterior margin of the apparent operculum passing in a curved line upwards upon the middle of the body to within a short distance of the back, and furnished inferiorly with a point projecting backwards, with a line passing down from the back about the middle of the operculum to the trapezoidal areola, giving the part of the body anterior to this the appearance of a head. Trapezoidal areola, with curved sides, finely granular. Posterior fissure communicating with the exterior, just above the acute termination of the body, and passing inwards and downwards, resembling an anal aperture. Areolæ of the interior sarcous mass generally minute, one large and round pretty constantly to be observed at the inner termination of the posterior fissure.

Length from 1-254th to 1-180th inch; breadth from 1-320th to 1-254th inch.

Habitat.—Commencement of the large intestine of *Julus marginatus*, often found in considerable numbers.

Remarks.—This genus is closely allied to *Plesconia*, but possesses no appendages excepting the semicircle of cilia, just within the edge of the apparent operculum.

The animal swims in water with great ease and grace. After being in this fluid some time, the external investment bursts, and

* *Nyctotherus* :—*Νυκθθηρως*.

allows the protrusion of globular masses of sarcoous matter, as in *Leucophrys*, but not to such a great extent.

NOTE:—Since the above went to press, Dr. Leidy announced to the Academy that he had discovered two new species of the entophyte *Enterobrus*: one of them, *E. spiralis*, 1-69th inch long, growing in the small intestine *Julus pusillus*; the other *E. attenuatus*, 1-24th inch long, growing more or less profusely with a second species of *Cladophytum*, *C. clavatum*, in the ventriculus of the coleopterous insect, *Passalus cornutus*. Thus has been established the law "that plants may grow in the interior of the healthy animal as a normal condition," and a new field has been presented for the investigation of the Cryptogamo-naturalist. [See forthcoming number of the Proceedings.]

[December, 1849. No. 45. See Bibliography.]

DESCRIPTIONS (ACCOMPANIED BY DRAWINGS) OF A NEW GENERA AND SPECIES OF ENTOPHYTA.

Enterobrus spiralis.—Yellowish, brownish, brown or hyaline, forming a single, double or triple spiral. Peduncle brownish or yellowish, columnar, 1-2500th inch long by 1-6000th inch thick: First or principal cell uniformly cylindrical, filled with granules and globules, 1-4285th inch in diameter. Penultimate cell cylindrical, filled with granules and a few globules, 1-428th inch long. End cell clavate, filled with granules, 1-535th inch long by 1-3333d inch at broadest part.

Length from 1-70th to 1-50th inch by 1-4200th inch broad.

Habitat.—Grows from mucous membrane of the small intestine of *Julus pusillus*.

Remarks.—This species is found in varying quantity from a half dozen individuals up to fifty or more of various ages. The specimens of *Julus pusillus* from which the plant was obtained measured half an inch in length.

Enterobrus attenuatus.—Faintly brownish, yellowish or hyaline, forming a double flexure or sigmoid curve, and then growing in a very straight course to its termination. Peduncle yellowish, columnar, sometimes double, 1-666th inch long by 1-2300th inch broad. Principal cell attenuated at both extremities, rounded or truncated at the distal end, and filled with varying quantity of globules and granules. End cells?

Length 1-24th inch; diameter at middle 1-1500th inch; at sigmoid curve 1-2300th inch; at distal extremity 1-2500th inch.

Habitat.—Grows in profusion from mucous membrane of the ventriculus of *Passalus cornutus*.

Remarks.—This is a very graceful form, and is more disposed to grow in bunches or close together than the other species. I have not met with it with the terminal two cells in twelve specimens of *Passalus*, which contained over a hundred of the plants, although from some of the individuals appearing truncated at the distal extremity, I think it probable that they may occur; otherwise it would form a distinct genus.

Cladophytum ramosissimum.—Filaments very long, very delicate and very much branched, growing in fasciculi of moderate density from granular masses.

Length 1-75th inch; thickness of principal filaments or trunks 1-15000th inch.

Habitat.—Growing in moderate profuseness from the mucous membrane of *Passalus cornutus*.

NEW GENUS. CORYNOCLADUS.*

Filaments hyaline, inarticulate, very compound, branches thicker than the trunk, clavate, without ramuli, growing from rounded or oval granular masses.

Corynocladus radiatus.—Comatose, growing in very dense bunches, occasionally straggling, branches spreading, terminal ones very long, simple, clavate, 1-150th inch long.

Length 1-100th inch, diameter of trunk 1-10000th inch, branches 1-600th in.

Habitat.—Growing profusely in the ventriculus of *Passalus cornutus*, from the mucous membrane.

NEW GENUS. CRYPTOESMA.†

Filaments ribbon-like, growing from attached granular masses. Consisting of a single cell, with a very delicate cell wall, and minute granular contents.

C. tenuis.—Filaments hyaline, compressed, attenuated at both extremities, growing in dense bunches from rounded granular masses. Cell wall very thin and delicate, granular contents of cell very fine and indistinct, measuring from 1-10000th inch to 1-6000th inch, with a few coarser granules, and occasionally a few globules, measuring 1-1875th in.

* Corynocladus :—Κορυνώα clava; κλάδος.

† Cryptoesma :—Κρυπτοῦς, occultus; ἄσκη, fascis.

Dimensions.—Length of filaments 1-500th to 1-75th inch; greatest breadth 1-1700th inch.

Habitat.—Grows in profusion from the mucous membrane of the ventriculus of *Passalus cornutus*.

Besides the foregoing I have found numerous free or floating entophyta in the contents, usually of the posterior part of the alimentary canal, in mammalia, aves, reptilia, pisces, mollusca, insecta, &c. These, at present, I do not feel at liberty to describe as new or peculiar, from my want of acquaintance with cryptogamic botany. A number of them, I have no doubt, if not peculiar, at least continue to grow luxuriantly in the intestinal canal; such are various *Mycoderma*, &c.; others very probably are swallowed with the food, and pass from the intestinal canal unchanged. Numerous drawings of these I exhibit to the Academy, and purpose leaving them to future investigation, or to the consideration of cryptogamic botanists, being a field well worthy of their researches. I also have a number of others, the character of which is peculiarly entophytic; but these I have not yet studied out nor figured, but hope to present descriptions of them to the Academy in a very short time.

[February, 1850. No. 50. See Bibliography.]

Dr. Leidy stated it was now eighteen months since he had sought for Entophyta within living animals, having been previously impressed with the belief of their existence upon reflecting upon the essential conditions of life. Four months since he exhibited to the Academy numerous drawings and specimens of Entophyta obtained from living animals; he now exhibited others.

The essential conditions of life are five in number, viz., a germ, nutritive matter, air, water, and heat. The four latter undoubtedly exist in the interior of living animals, animal or entozoa germs also are well known to exist, and it was rendered extremely probable that vegetable germs would also exist, and with them all the conditions necessary to vegetable growth. Plants have been very frequently observed growing upon the exterior of animals, and less frequently upon the interior, most usually upon diseased surfaces, but the growth of such parasites had not been pointed out as a normal and common condition as in the case of entozoa.

Dr. L. next reviewed the theory of generation. He inclines to the opinion that sexual elements are absolutely necessary for the perpetuation of germs. He considered the alteration of generation in certain animals no objection to the law, for after successive developments an admixture of sexual elements is observed to be neces-

sary. The reproduction among Cryptogamia may probably often exhibit phenomena analogous to the alternation of generation of animals, but universally he thinks it will be discovered that a true sexual mixture takes place in every species of these plants at some period of their life. According to the observations of Schimper, it is necessary among the mosses. From an observation made by Klencke upon a fungus which grew upon a diseased surface, Dr. L. thinks that sexual admixture would be discovered to take place in the *mycelium*. In numerous instances it had been observed among the Algæ. He stated he thought he had noticed the process in *Achyla prolifera*, and gave a description of the phenomena. He finally considers that science is on the eve of demonstrating the existence of a law "that an admixture of sexual elements is necessary for the perpetuation of specific life germs."

He then exhibited numerous elaborate drawings of new entophyta observed growing in the ventriculus of *Passalus cornutus*, a remarkable one growing in a honey-like liquid in the proventriculus of the larva of *Arcitia Isabella*, another from *Acheta abbreviata*, etc. He remarked that when such plants were found in animals they were usually very abundant.

Dr. L. then stated that very slight modifications in the five essential conditions of life were sufficient to produce the vast variety of living beings upon the globe. As an instance, he mentioned he had lying upon his table a saucer with a cork bottom, in which lay a partially dissected *Passalus cornutus* half immersed in water. Two days afterwards he noticed upon the part of the insect above the water a quantity of *Mucor mucedo* (?) growing, and from the part within the water numerous fine, stiff filaments, which upon examination proved to be *Achyla prolifera*; upon the cork around the insect grew a third genus, consisting of fine cottony filaments, which were articulated, of which he exhibited a drawing; and upon the insect at the surface of the water, but not within the latter, grew a fourth genus, of which he also exhibited a drawing.

He also stated that he had had the good fortune of observing in a single morning all the stages of development of *Achyla prolifera* growing from some individuals of *Ascarides* which had been lying in a dish of water for a few days.

In reply to some remarks made by members, Dr. Leidy said he could not admit the doctrine of spontaneous generation, but rather thought modifications in the essential conditions of life favorable to the development of different and always pre-existing germs derived from a parent.

[No. 51. See Bibliography.]

Dr. Leidy presented to the examination of the Society a colored and several other drawings of what he terms an entophytic forest, taken from a portion of the mucous membrane of the ventriculus of *Passalus cornutus*. He remarked that at least six species of Entophyta were found growing upon the mucous membrane of the ventriculus of *P. cornutus*, which were often presented in great quantity, frequently some thousands, and which from their number, polymorphous appearance of several species, and attachment to various appendages of the mucous membrane, resembled very strikingly a miniature Brazilian forest, which was heightened in some degree by the existence of a nematoid worm, which recalled to mind the idea of one of the serpents of such a forest.

A somewhat similar drawing he exhibited, taken from the small intestine of *Julus marginatus*.

Other drawings were also presented. Dr. L. stated that among his collection of living Julides, he had a number of times observed individuals to become dull in color and become almost motionless, which phenomena were followed by the death of the animal. It occurred to him that, in such a state, there might be exhibited some change in the character of its Entophyta, as usually found in the active condition of the animal. Upon removing the intestine of an individual which had just died, he noticed that the entozoa which usually occupied the small intestine, had passed into the rectum, and upon the surface of the mucous membrane of the former was developed a new plant. This is an oblate spheroidal body, white in color, translucent, embossed upon the surface, and presenting, when viewed by transmitted light, some resemblance to a minute bleached shell of an Echinus; by reflected light, it resembled a minute, white Lycoperdon. This plant was strewed all over the mucous membrane, but grew in greatest quantity along the course of filaments of *Enterobrus*, which appeared attached to the mucous membrane throughout their length by it. When compressed it opened, and spread into several leaf-like segments, and exuded a clear fluid with faint granules. He thought that probably this plant might be another stage in the existence of *Enterobrus*, for in the large number of individuals of *Julus* which he had examined—upwards of 130—although he had observed the development of *Enterobrus* from spore-like bodies, even to the formation of what he supposed to be the sporangia, yet he had never been able to detect the formation of spores, and when he saw this new plant enveloping the *Enterobrus* filaments he sus-

pected that there might be phenomena here presented analogous to the alternation of generation in certain animals, but had not yet satisfied himself that such was the case.

He also stated that he had discovered a fourth species of *Enterobrus* in *Polydesmus virginienis* and another entophyte analogous to *Enterobrus* growing in *Polydesmus granulatus*. The latter differs from *Enterobrus* in having numerous globular cells at the free extremity of the principal cell. He adverted to the several theories of cell formation, and said that in the last-mentioned plant in the development of the globular terminal cells the division of the permanent cell wall followed the division of the cell contents. In conclusion, he observed that these matters would be more fully treated of hereafter in a memoir which he was preparing on the subject.*

[April, 1850. No. 54. See Bibliography.]

DESCRIPTION OF NEW ENTOPHYTA GROWING WITHIN ANIMALS.

Eccrina † (Gen. Nov.).—Characters same as *Enterobrus*, ‡ except that it divides into numerous cells at the free extremity.

Eccrina longa.—Filaments long and delicate, hyaline, or faintly brownish, at first forming a simple curve or a single spiral turn and then passing in a straight line to the free extremity. Peduncle very short. Frond cell usually filled with globules, and a few granules, except at free end, where it is usually filled with granules, to the exclusion of the globules. End cells as high as thirty in number, at first consisting of elongated divisions of the frond cell contents, but becoming distinct elliptical cells from two to three times longer than the breadth; contents usually granular, occasionally with a few globules. End cells finally separating from the parent. Length from three to seven lines; breadth 1-2000th to 1-517th inch, not usually corresponding to the length. End cells 1-517th to 1-357th inch in length.

Habitat.—Grows in very great profusion from the mucous membrane of the posterior part of the intestine of *Polydesmus virginienis*.

(Dr. L. exhibited to the Academy a preserved fragment of mucous membrane, with filaments of this species six lines in length growing from it.)

* No. 131. See Bibliography.

† *Eccrina*: *Ezzovo* segrego.

‡ Proc. Acad., Oct. 9, 1849.

Eccrina moniliforma.—Filaments hyaline or yellowish, forming a double or treble spiral. Peduncle short. Frond cell filled with globules and granules, except toward its free extremity, where it is filled with granular matter divided into distinct and separate masses, usually a little shorter than broad, and containing each a globular nucleolated nucleus. Divisions progressively passing towards the end into globular cells with granular contents. Divisions and globular cells from 20 to 50 in number.

Length from 1 to $1\frac{1}{2}$ lines, breadth average 1-1500th inch. Divisions of frond cell contents and globular cells from 1-1875th to 1-1500th inch. Nucleus of cells 1-3750th inch.

Habitat.—Grows in moderate quantity from the mucous membrane of the intestine of 50 per cent of *Polydesmus granulatus*.

Arthromitus nitidus.—Filaments very long, hyaline, grows usually in twos or fours, pointed at the origin, rounded at the termination. Articuli very distinct, length equal to the breadth of the filament. Sporuli formed within the articuli, solitary, usually oblique, oval, amorphous.

Length 1 line by 1-5000th inch broad. Spores 1-7.111th inch long by 1-12.500th inch broad.

Habitat.—Grows in considerable quantity with a profusion of young *Enterobryus elegans* from the mucous membrane of the posterior portion of the rectum of *Julus marginatus*.

Remarks.—Since I established the genus *Arthromitus** I have observed the formation of its sporuli. These originate in the amorphous matter of the articuli, apparently by a very gradual aggregation and condensation of the contents. They are always single and usually lie oblique, and frequently alternate with each other in this position in the different articuli. When they first appear they are larger than when fully formed, are frequently bent, or clavate in form, and very indistinct, but as they ripen they become more regular, oval, distinct, and quite refractile of light. Usually they are observed at the extremity of the filaments only, but frequently they are found existing in the whole length of the latter.

A species of *Arthromitus*, and also of *Cladophytum* is found in the intestine of *Polydesmus virginicensis*.

The *Higrocrocis intestinalis*, found by Valentin in the *Blatta orientalis*, I could not find in our domestic cockroach, although I found numerous simple, phytoid, inarticulate filaments, growing from an oxyuris infesting this animal.

* Proc. Acad., Oct. 9, 1849.

[October, 1850. No. 56. See Bibliography.]

CONTRIBUTIONS TO HELMINTHOLOGY.

1. *Ligula Tritonis*.—Body ribbon like, thin, translucent, nearly smooth, faintly yellowish white, posteriorly obtusely rounded. Head thickened, rounded, transversely corrugated, yellowish. Extremity triangularly rounded, laterally compressed, front and back, with a short, longitudinal, contracted depression.

Whole length 1 inch 9 lines; breadth of body 1-3d line; thickness 1-12th line; length of head 1 line; breadth 1-4th line; thickness 1-9th line.

Habitation and Remarks.—This species was sent to me by my friend, Prof. S. F. Baird, of Carlisle, with the note "Found embedded in the muscles of the back of *Triton (Cynops) dorsalis*." It is the smallest species which has as yet been discovered, and the first among batrachian reptilia. The specimen sent to me consisted of two fragments of the same individual preserved in alcohol. Examined beneath the microscope it presented no trace of articulation or interior definite organs.

2. *Pentastomum Didelphidis Virginianæ*.—Body subcylindrical, curved one-third or one-half a circle, dorsum convex, ventrum concave, posteriorly narrowed and constricted a short distance from the extremity, which is rounded. Color white, opaque. Composed of forty or fewer annulations. Head posteriorly convex, anteriorly plain or slightly concave; mouth nearly round; hooks simple, situated in a curved line of which the mouth forms the center.

Whole length 3 to 5 lines; breadth 3-5ths of a line; annuli generally 1-80th inch wide; mouth 1-200th inch in diameter; hooks 1-200th inch long.

Habitation and Remarks.—I found 9 individuals of this entozoon in C-shaped cysts, the circle being 2 lines in diameter, imbedded in the liver just beneath the peritoneal surface in *Didelphis virginiana*. It may probably be the *Pentastomum subcylindricum* of Diesing,* which was found in cysts upon the liver of two South American species of *Didelphis* and several other animals; but the largest of those found in our *D. virginiana* is equal to the smallest of *P. subcylindricum*, and has not more than one-half the number of annulations.

3. *Pentastomum eurizonum*, Diesing.

* Annal. d. Wien. Mus. 1, p. 21. Dujardin: Hist. Nat. des Helminthes, p. 305. Diesing: Systema Helminthum, vol. I, p. 611.

Linguatula Diesingii, Van Beneden. ; Bull. de l'Acad. Roy. des Sc. de Brux., 1848 ; Mem. de l'Acad. de Brux. XV. An. Sc. Nat. 3 ser. XI.

Pentastomum curyzonium, Dies. Syst. Helminth.

Body cylindriod fusiform, curved, posteriorly subacute. Color yellowish white, opaque. Annulations under 20, with wide intervals. Head plano-convex ; mouth round.

Whole length 6 lines ; breadth anteriorly 1 line of antepenultimate annulus $\frac{3}{5}$ ths of a line. Mouth $\frac{1}{40}$ th of an inch.

Habitation.—I found five individuals of this species, enclosed in C-shaped cysts, upon the surface of the liver beneath the peritoneum, in a half-grown *Cynocephalus porcarius*.

4. *Pentastomum Proboscideum*, Rud.

Echinorhynchus Crotali, Humboldt. Ansicht d. Natur. 1 Auf.

Distoma Crotali, ib. ; Rud. Entoz. hist. II.

Porocephalus Crotali, Humb. Recueil d'Obs. de Zool.

Polystoma proboscideum, Rud. Mag. d. Berl. Gesell. Nat. Fr. VI.

Linguatula proboscidea, Van Beneden, Mem. de l'Acad. de Brux. XV.

Linguatula clavata, Wyman. Jour., Bost., Nat. Hist. Soc. Vol. V.

Pentastomum proboscideum, Rud. Synop. ; Humb. Ans. d. Nat. Bremser. Icones ; Diesing, An. d. Wien. Mus. ; Syst. Helminth. I.

Body sub-clavate, broadest anteriorly, recurved, posteriorly dilated ovate, subacute. Color yellowish white ; integument translucent. Annulations 36, becoming indistinct toward the extremities. Head round, mouth round. Male furnished with two short projecting papillæ just above the mouth ; penis papillaform, projecting $\frac{1}{4}$ th of a line.

Length of female $2\frac{1}{2}$ to $3\frac{1}{2}$ inches ; breadth of head $2\frac{1}{2}$ lines ; narrowest part of body 1 line, just anterior to posterior dilatation, which latter is 3 lines long by $1\frac{1}{2}$ broad. Length of male 1 inch 3 lines to 1 inch 5 lines ; breadth of head $1\frac{1}{2}$ lines ; narrowest part of body $\frac{1}{2}$ line ; breadth of posterior dilatation $\frac{3}{5}$ th of a line.

Habitation and Remarks.—I found six females, four males, and a young individual of this species $4\frac{1}{2}$ lines long in the pulmonary cavity of a boaconstrictor. The form of the body in the male and female is the same.

5. *Echinorhynchus Ozatus*.—Body compressed ovate, posteriorly subacute, curved, yellowish white, opaque, presenting 12 to 14 transverse corrugations ; neck distinct, short, cylindrical. Proboscis globular, armed with six rows of recurved hooklets.

Length 2 lines; greatest breadth 1-10th inch; greatest thickness 3-5th line. Proboscis $\frac{1}{4}$ line.

Habitation.—Two individuals were found in the iliac portion of the small intestine of *Felis leopardis*.

6. *Echinorhynchus Tortuosus*.—Body brownish white, opaque, very much contorted and transversely corrugated, subcompressed, dilated just below the middle, attenuated towards the extremities, most so anteriorly, posteriorly recurved and obtuse. Neck short. Head subglobular, armed with four rows of simple recurved hooklets.

Length 2 inches 8 lines; greatest breadth 1-7th inch; greatest thickness 1 line; diameter 1 line from the neck 1-5th of a line; from the posterior extremity 4-5ths of a line. Proboscis and neck 1-5th line long.

Habitation.—Found with the anterior 3 lines of its length buried in an oval tumor 4 lines in diameter in the mesentery of a *Didelphis virginiana*.

7. *Echinorhynchus Pici collaris*.—Body white, opaque, sub-cylindrical, sub-compressed, and curved posteriorly; transversely corrugated and slightly so longitudinally, moderately dilated anteriorly. Neck very short. Proboscis short, cylindrical, contracted in the middle, with the free extremity rounded and furnished with four rows of simple recurved hooklets.

Length 1 inch 8 lines; breadth anteriorly 1-10th inch; thickness 1-12th inch; posteriorly 4-5ths line broad by 3-5ths line thick. Proboscis 4-5th line long; thickness $\frac{1}{2}$ line.

Habitation.—Intestine of *Picus collaris*.

Remarks.—Differs from the *E. Pici*, Goeze,* which has a long linear proboscis, with 8 or 10 ranges of hooklets, and is narrower in front than behind, just the reverse of the species just described.

[October, 1850. No. 57. See Bibliography.]

NOTES ON THE DEVELOPMENT OF THE GORDIUS AQUATICUS.

Just four years ago I exhibited to the Academy a mass of living hair-worms or *Gordius aquaticus*, consisting of fourteen individuals strangely knotted together, and recalling the appropriateness of the Linnean name.

It is a vulgar opinion that the *Gordius* is a horse hair which has become vivified from maceration for several weeks in a spring or pool of fresh water, an error which has probably arisen from their

* Naturgeschichte S. 151, Taf., 11.

frequently being found in water filling a wagon rut or the drinking trough of a horse. I have even been informed by some persons, though by those not given to observe such matters, that they had perceived the direct transmutation of horse hairs into writhing worms, and I was at one time so silly as to be led to try the experiment, with what success it is unnecessary for me to state.

The Gordii alluded to in the mass were blackish brown in color, from 6 to 10 inches in length, and most of them had attached to the posterior extremity of the body a long, white, opaque cord, in several instances nearly as long and as thick as the worms themselves. These cords, some of the members may recollect, I pointed out at the time as being strings of the ova of the Gordii, but I then was not so well acquainted with the history of the *Gordius* as at present—that is to say, I did not know that we have no knowledge whatever of its origin or development—and although through curiosity I traced for a few days the development of the embryo in ova, yet I did not do it with that care which its importance demanded. But however imperfect have been the observations made with this acknowledgment, I have thought it would be well to record them with the hope that they may not only throw some light upon the obscure nature of the *Gordius*, but also lead others to the discovery of a similar opportunity of investigating this animal under more favorable circumstances of locality and information. The observations I have withheld for a length of time in the hope that I might be able to verify or correct them, but failing to do so to the present time I now reluctantly put them forth from my notes taken at the time.

The white cords before mentioned consisted of numerous oval ova closely aggregated together. These when examined beneath the microscope on the first day after I obtained them exhibited a white granular yolk divided into four globular masses connected together and surrounded by a transparent albumen. Each mass contained in its center a clear cell or vesicle. On the second day the separation among the yolk masses was less distinct, and upon the third day the whole had united into one oval, finely granular body, and the interior vesicles had disappeared. The fourth and fifth days no perceptible change was observable. From the sixth to the eighth day the yolk had become conical in form, and upon the ninth day the base of the cone exhibited a cleft or fissure which by the tenth day had extended two-thirds the length of the mass. During the whole of this period the yolk retained its granular character and was motionless. Upon the eleventh day it resembled a cylinder doubled upon itself, or the outline of the embryo had been formed, and one ex-

tremity of it, corresponding to the head, had become translucent from a solution of the granular matter within. The other or tail end was subacute. The twelfth day the translucency had extended itself to the interior part of the embryo, the extremity of which had advanced beyond the others and presented an emargination communicating with an orifice opening into a canal visible in the interior, and from the edge of the extremity was developed a circle of short filaments which projected downwards and outwards. From the thirteenth to the fifteenth days the granular matter had entirely undergone a solution within the anterior half of the embryo, and the latter had become somewhat dilated. The interior canal was also more distinct, and the bordering filaments of the extremity were larger. In the course of the sixteenth to the eighteenth day the translucent half of the animal was separated from the other by a constriction, and the canal in the interior presented at its anterior portion a clavate tubular body, the free end of which projected from the oral aperture. The extremity of the head was surrounded by a reflected collar, from the free border of which projected the filamentary appendages. The posterior half of the embryo was still granular in appearance, but had become rounded and somewhat dilated at the extremity. From the nineteenth to the twentieth day the embryo alternately retracted and protruded the tentacular or filamentary appendages, and the integument of the anterior half of the body appeared to be getting annulated, which was distinctly so by the twenty-first day. The granular matter in the posterior part of the body was also undergoing solution from the periphery towards the center, and at its posterior part there appeared several large oil globules. On the twenty-second day the annulations of the anterior half of the body were very distinct, the posterior half was also becoming annulated, and near its extremity I for the first time observed an anal orifice and one to four small epidermal spines. On the twenty-fourth day the tubular clavate organ before mentioned, occupying the anterior part of the alimentary canal, was alternately protruded and retracted as a proboscis. The proboscis, when fully protruded, brought into view at its base a second circle of tentacular filaments within the first. On the twenty-sixth day the embryo, when pressed from the egg, progressed forward by moving the posterior half of its body from side to side, and it alternately protruded and retracted the proboscis and the two circles of tentacular filaments. When all the latter organs were retracted the head presented a truncate or depressed surface, and in their protrusion the extremities of the outer circle of tentaculæ and the end of the pro-

boscis first became visible; as these advanced the second circle of tentaculæ appeared, and when the proboscis was entirely protruded the outer tentaculæ were deeply reflected upon the outside of the body, and the inner circle projected obliquely outward and upward. The proboscis was clavate in form or cylindrical and moderately dilated at its free end, and more so at its base. The following six days no perceptible change was observable in the development of the animal, and after this the egg showed evident appearances of decay, and I gave them no further attention.

[No. 58. See Bibliography.]

TWO NEW SPECIES OF INFUSORIAL ENTOZOA.

1. *Nyctotherus Oxalis*.—Body translucent oval, posteriorly obtuse. Anterior granular areola three sided. Posterior fissure passing downward.

Length 1-100th inch; breadth 1-33d inch (error).*

Habitation.—The intestinum tenue of the *Blatta orientalis*, occasionally in considerable numbers.

2. *Bodo Julidis*.—Body translucent, faintly greenish, faintly granular, with one or two large round vacuolæ and numerous minute ones; form changing, usually globular, oval, or pyriform. Caudæ twice the length of the body; very active, frequently twisted into a ring at the extremity. Diameter of body 1-3000th inch.

Habitation.—The large intestine of *Julus marginatus*, in company with *Nyctotherus velox*, often in millions.

[No. 59. See Bibliography.]

DESCRIPTION OF SOME NEMATOID ENTOZOA INFESTING INSECTS.

Genus *Aorurus*. Sub-genus *Streptostoma*. Proc. Acad. Nat. Sci., 1849, p. 230.

1. *Streptostoma gracile*.

Oxyuris Diesingii. Hammerschmidt. Isis von Oken J. 1838, S. 354, Taf. iv, Fig. 6.

Body attenuated from the middle anteriorly and posteriorly, white, translucent, shining. Anterior annuli very broad and movable upon one another. Oral annulus short, truncate; second

* Length 1-187th inch; breadth 1-250th inch. See "Some Observations on *Nematoides imperfecta*," Trans. Amer. Philosoph. Soc., 1853, p. 244 (with drawing).

annulus long, constricted in the middle. Tail nearly one-third the length of the body, shining, straight or curved. Pharynx short. Œsophagus consisting of two elongated, pyriform, muscular bulbs. Neck of first œsophageal bulb dilated at commencement and middle; neck of second long, narrow, and cylindrical. Ventriculus largely dilated and oval at commencement, afterwards cylindrical.

Length of body 1 line; breadth opposite ventricular dilatation 1-136th inch; just above anus 1-300th inch; greatest do. 1-107th inch; length of tail 1-40th inch; breadth at middle 1-1360th inch; length of first pyriform bulb of œsophagus 1-150th inch; breadth of neck do. 1-1100th inch; do. of body of do. 1-400th inch; length of second bulb 1-214th inch; breadth of neck 1-1300th inch; do. of body 1-340th inch; do. of dilated commencement of ventriculus 1-214th inch; do. of cylindrical portion 1-330th inch.

Ova oval, 1-300th inch long by 1-625th inch broad.

Habitation.—Found in numbers of one to half a dozen in the small intestine of our domestic cockroach (*Blatta orientalis*). This species was discovered by Hammerschmidt, who named it *Oxyuris diesingii*, but as it is considered a doubtful compliment to name intestinal worms after persons, in placing it in the genus *Streptostoma*, I have also changed the specific name. The individuals from which my description is taken were the largest I found.

Sub-genus *Thelastoma*. Proc. Acad. Nat. Sci., 1849, p. 231.

2. *Thelastoma appendiculatum*.—Body cylindrical, narrowed anteriorly and posteriorly, white, translucent, shining, strongly annulated. First division of the œsophagus moderately long, cylindrical; second portion short, broad, and pyriform, ventriculus dilated cordiform at commencement, becoming rapidly narrowed and cylindrical, and sending off posteriorly a large and long pyriform diverticulum or coecum, afterward cylindrical to termination, and forming a single short convolution just posterior to the generative aperture. Tail straight, spiculate, one-fourth the length of the body. Eighty-five annulations to the body, of which there are twenty-eight from the mouth to the commencement of the ventriculus. Generative aperture twenty-six annulations from the anal aperture. Last annulation furnished with two short spines projecting backward.

Length of body 1 line to 1-10th of an inch; breadth at ventricular commencement 1-100th inch, at middle 1-80th inch, at anus 1-160th inch; tail 1-50th inch long, breadth at middle 1-888th inch; first portion of œsophagus 1-80th inch long, 1-533d inch broad; second portion 1-240th inch long; neck of do. 1-666th inch broad, body of do. 1-250th inch; commencement of ventriculus 1-200th inch broad;

cylindrical portion 1-400th inch ; diverticulum of ventriculus 1-66th inch long by 1-266th inch broad.

Ovum semi-oval, 1-258th inch long by 1-666th broad.

Habitation.—Found in the intestinum tenue of the domestic cockroach (*Blatta orientalis*), with the former.

3. *Thelastoma Labiatum*.—Body white, translucent, anteriorly strongly annulated. Papilla of the mouth dilated, six lobed. First portion of œsophagus cylindrical, second portion broad, pyriform ; ventriculus sub-cordiform at commencement. One hundred and fifty annulations, of which there are forty from the mouth to the commencement of the ventriculus.

Length of body 1-22d inch ; greatest breadth 1-200th inch ; length of tail 1-40th inch ; length of first portion of œsophagus 1-120th inch ; breadth 1-1000th inch ; second portion 1-320th inch long by 1-400th broad ; breadth of ventricular dilatation 1-266th inch.

Ovum oval, 1-333d inch long by 1-500th inch broad.

Habitation.—Found in numbers of from one to a dozen in the intestine of *Polydesmus virginicus*.

4. *Thelastoma Robustum*.—Body white, cylindrical, narrowed anteriorly and posteriorly. First portion of œsophagus long, cylindrical, second portion broad, pyriform. Commencement of ventriculus dilated, oval, afterwards cylindrical. Articulations of body 212, of which there are forty from the mouth to the commencement of the ventriculus, 102 from the latter to the generative aperture, and from this to tail 70.

Length of body 2 lines ; breadth at ventricular dilatation 1-75th inch ; at sixth annulation from mouth only 1-320th inch ; at middle 1-66th inch ; just above anus 1-75th inch ; tail 1-22d inch long by 1-1000th inch broad ; at middle, first portion of œsophagus, 1-50th inch long by 1-500th inch broad ; second portion 1-178th inch long by 1-200th inch broad ; ventricular dilatation 1-105th inch broad.

Ovum oval, 1-308th inch long by 1-500th inch broad.

Habitation.—Found in the intestine, in numbers of from one to three, in the larva of a lamellicorn insect.

Remark.—The descriptions of the above are entirely taken from females, considerable numbers of which I have found and possess, but I have never yet been able to discover a single male.

5. *Oxyuris Socialis*.—Body white, narrow, cylindrical, elastic, posteriorly attenuated ; mouth projecting, with a short pharynx ; œsophagus consisting of two portions ; first portion long, cylindrical, dilated at the posterior part ; second portion narrow, pyriform,

ventriculus moderately dilated at commencement, capacious, cylindrical; tail long, narrow, acute.

Female.—From 1 line to 2 and 1-5th lines in length; breadth 1-266th inch; first portion of œsophagus 1-66th inch long, 1-800th inch broad; second portion 1-200th inch long by 1-666th inch broad; generative aperture projecting, just anterior to the middle; tail simple pointed, 1-57th inch long from anus, 1-400th inch broad at base.

Ovum oval, white, 1-363d inch long, 1-666th inch broad.

Male.—Length 4-5ths to 3-5ths of a line; breadth 1-400th inch; posteriorly recurved; tail pointed, furnished with five minute epidermoid prominences on the inner side, 1-133d inch long from anus; spiculum of penis single, simple, curved, 1-400th inch long.

Habitation.—Found in numbers of from five to twenty, of which one-fifth are males, in the large intestine of the large black cricket (*Acheta abbreviata*).

Genus Hystrignathus.—Body cylindrical, anteriorly furnished with transverse rows of simple spines projecting backward; mouth surmounting a large naked papilla; œsophagus of two portions; the first long, cylindrical, the second short and pyriform; annulations indistinct posteriorly; tail long.

6. *Hystrignathus Rigidus*.—Body straight, rigid, cylindrical, narrowed anteriorly and posteriorly, anteriorly furnished with 106 transverse rows of simple spines projecting obliquely backward, each row corresponding to an annulation and containing about sixteen spines; anterior spines longest, equal to the width of the annulations, becoming shorter posteriorly and decreasing to mere points; first annulation of the mouth truncated, conical, smooth; second annulation smooth; pharynx extending through the first two annulations; first portion of œsophagus long, cylindrical; second portion with a narrow cylindrical neck and globular body; ventriculus cylindrical, slightly dilated anteriorly, narrowed anteriorly; rectum elongated, conical; tail long, curved; generative aperture very near the middle of the body.

Length 2 lines; greatest breadth 1-140th inch; tail 1-40th inch long from anus, 1-1000th inch broad at middle; anterior or spinous portion of body 1-26th inch long or one-fourth of the whole length. First portion of œsophagus 1-50th inch long, 1-520th inch broad; second portion 1-190th inch long, 1-320th inch broad at body. Anterior spines 1-2000th inch long. Fifty-eight spinous annulations corresponding to the first portion of the œsophagus, twelve to the second portion. Annuli posteriorly indistinct.

Ova oval, 1-214th inch long by 1-545th inch broad.

Habitation.—The female only I have found in numbers of one to five within and adhering by the mouth to the parietes of the ventriculus of *Passalus cornutus*.

[November, 1850. No. 60. See Bibliography.]

DESCRIPTION OF THREE FILARIÆ.

1. *Filaria Hominis oris.*—Body white, opaque, linear, thread-like. Mouth round, simple. Posterior extremity obtuse, furnished with a short, curved, epidermal hooklet 1-500th inch in length by 1-2000th inch in diameter at base.

Length 5 inches 7 lines; greatest breadth 1-66th inch; breadth at mouth 1-250th inch, at posterior extremity 1-80th inch.

Remarks.—The description is taken from a single specimen preserved in alcohol in the collection of the Academy, labelled, “Obtained from the mouth of a child.”

Is it a young individual, or perhaps a male of the *Filaria medinensis* or Guinea worm? The latter, as it is well known, infests the human body, often growing to an enormous length, several yards or more, in the inter-tropics of Asia and Africa. It is frequently brought in the body of negro slaves from Africa to America, where no entozoon of the kind has ever been noticed to be parasitic in man as an indigenous production. From some late observations on the course of life of entozoa, helminthologists have been led to suspect that most, and probably all, entozoa pass different stages of their existence in different animals. If such be the fact, may the *Filaria medinensis* not owe its introduction into the human body from the custom which prevails in those countries where the worm is found of using insect food? Insects are well known to be infested with Filarie, probably more than any other class of animals. In Egypt, Arabia, &c., the locust is eaten, in Guinea, &c., the larger coleoptera, in the raw state, and in this condition Filarie may often be swallowed, and reach a higher development of their existence in the human body.

2. *Filaria Canis cordis.*—Body white, opaque, linear, nearly uniform throughout, posteriorly subulate, pointed; mouth simple, round.

Length 10 to 10½ inches, greatest breadth 2-5ths of a line, anteriorly 1-5th of a line; half an inch from posterior end, 1-10th of a line.

Remarks.—The description is taken from two individuals preserved in alcohol, in the collection of the Academy, presented by Dr. R. Coates, who obtained them, according to the label upon the bottle, from the parietes of the heart of a dog.

3. *Filaria Boa constrictoris.*

Body white, cylindrical; integument translucent, longitudinally striated, mouth simple, round; œsophagus cylindrical, opaque, white; intestine opalescent, cylindrical, tortuous, corrugated, wider than the œsophagus; anus terminal, round; generative aperture close to the mouth; ovaries two, very long and very tortuous.

Remarks.—The description is taken from two specimens; one 10 inches long by 4-5ths of a line wide, the other 6½ inches long by 3-5ths of an inch wide. In the former the œsophagus is 9 inches long and 1-3d of a line wide, the intestine 13 inches long and 3-5ths of a line wide.

Habitation.—Found in the areolar tissue, in an irregular or tortuous position, between the muscles of the ribs and the integument of a *Boa constrictor*.

NOTE.—In the same *Boa constrictor*, which was dissected by my friend Dr. Hallowell and myself, we found in the right lung 6 females, 4 males, and a very young individual of *Pentastomum proboscideum*, and in the ureters of the kidneys 26 individuals of *Distomum horridum*.

[December, 1850. No. 64. See Bibliography.]

DESCRIPTION OF NEW GENERA OF VERMES.

Peloscolex. n. g.—Setæ in two rows, 6 to 10 in each fasciculus; podal hooks in two rows, in twos or threes, bifurcated at the free extremity, each annulation furnished with a circle of prominent tubercles, with numerous smaller ones. Upper lip hardly projecting. Girdle not prominent. Blood red.

1. *Peloscolex variegatus*.—Body cylindrical, posteriorly obtuse, anteriorly sub-acute. Setæ simple, usually 10 in each fasciculus anterior to the girdle, absent in the posterior 22 annulations. Podal hooks anteriorly in threes, divergent, strong, sigmoid, bifurcated at the extremity; posteriorly in twos, one rudimentary. Each annulation furnished with a circlet of elevated, rounded tubercles, 1-8ooth inch in height, and numerous smaller ones, also arranged in transverse circles. Anterior 3 or 4 annulations reddish; after these 25 are deep black, except the 10th or girdle, which is broad

and brownish; posterior annulations red or brown. Upper lip so little projecting that mouth appears almost terminal, furnished with short, stiff hairs. Whole number of annulations 50.

Length 4 lines; length of setæ 1-133d inch to 1-80th inch; length of podal hooks 1-400th inch to 1-178th inch.

Habitation.—Found in the spring of the year in the ferruginous mud at the bottom of springs impregnated with iron, near Philadelphia.

2. *Chaetogaster*, Bähr:

Bähr, *Nova acta nat. Curios.*, 1827, p. 614; Ehrenberg, *Symb. Phys.*, 1831, *Nais diaphina* and *Nais diastrophia*. Gruihuisen. *Nov. act. nat. cur.*, 1828, p. 407.

Body cylindrical, elongate; mouth inferior, large, triangular; anus terminal. Podal spines in transverse fasciculi, inferior, simple; the first pair of fasciculi close to the mouth; the second distant. Intestine straight, capacious. Eyes none. Blood white. Increasing by division. Leidy.

2. *Chaetogaster Gulosus*.—Body whitish, translucent; posteriorly obtuse, ciliated with long hairs; mouth infero-terminal, large, triangular, simple, upper lip digitiform, ciliated. Œsophagus short, narrow; first stomach long, cylindrical, transparent; second stomach large, oblong; intestine straight, capacious. Podal spines in pairs of fasciculi of 5 or 6 each, simple, divergent, curved backward near the free end, retractile; first pair just posterior to each side of the mouth inferiorly; second pair removed far back. Usually found in the state of division; commonly 2 to 4 subdivisions.

First subdivision 1-24th inch, furnished with 6 pairs of fasciculi of podal spines; the second pair one-half the length of the subdivision from the first or oral pair. Second subdivision 1-100th inch; third 1-66th inch; fourth 1-100th inch. Each of these latter furnished with 4 fasciculi of podal spines.

Whole length 1 line, will contract to half a line; breadth 1-140th inch; mouth, when open, 1-250th inch; length of podal spines 1-133d inch.

Habitation and Remarks.—Found abundantly with *Hydra fusca*, etc., in the water of marshes in the vicinity of Philadelphia. This worm is very active in its movements and very rapacious. Creeping upon bodies in the water, it rapidly elongates the anterior part of its body in various directions, and swallows great numbers of the smaller infusoria. In turn it is much preyed upon by the *Hydra fusca*. When the anterior part of the body is elongated in search of food the mouth is much distended and terminal.

3. *Rhynchoscolex*, n. g.—Body cylindrical, soft, naked, transversely and finely striated, vibrillated, anteriorly elongated into a probosciform appendage. Mouth inferior; anus terminal. Intestine simple, straight. Eyes none.

3. *Rhynchoscolex Simplex*.—Yellowish white, opaque, anteriorly abruptly attenuated into a long, cylindrical, clavate probosciform appendage; anteriorly abruptly narrowed, obtusely truncate or rounded. Proboscis presenting longitudinal and numerous transverse marks. Mouth inferior, at the base of the latter appendage. Intestine straight and capacious.

Length 2 to 3 lines; breadth 1-6th of a line; proboscis 1-133d inch long, but may lengthen to 1-80th inch.

Habitation and Remarks.—A small wriggling worm found among yellowish fragments of vegetable matters and confervæ at the bottom of clear brooks in the vicinity of Philadelphia. Under a very little pressure it undergoes rapid disintegration into globular masses (cells of the structure distended by endosmosis?).

1. *Emea*.*—Body elongated, plano-convex, soft, proteiform, naked, covered with minute vibrillæ. Alimentary canal simple, tortuous, furnished with a gizzard containing a dental apparatus. Mouth and anus terminal. Eyes two or three, on each side of head.

1. *Emea Rubra*.—Elongated, compressed, contracting irregularly, broadest posteriorly, anteriorly obtuse, yellowish flesh colored. Head semi-oval, neck projecting laterally. Eyes, two or three black spots placed in a line behind one another on each side of the head and neck. Mouth simple, opening into a narrow pharynx. Intestine cylindrical, narrowed posteriorly, furnished with a small, round, muscular stomach containing a corneous dental apparatus at its entrance. Generative apparatus consisting of two very tortuous and capacious tubes, passing the whole length of the body on each side of the alimentary canal.

Length from 3 to 10 lines; breadth 1-5th to 1-3d of a line.

Habitation and remarks.—Found in marshes in the vicinity of Philadelphia, creeping upon dead vegetable substances or upon the ground. When touched or irritated it secretes a large quantity of very tenacious mucus. Under slight pressure it will voluntarily evert more than one-half of the intestinal canal through the mouth, and, upon removal of the pressure, after some minutes will again

* *Emea*: $\xi\mu\acute{\epsilon}\omega$, from the disposition the animal has to protrude or vomit forth the anterior part of the intestine.

withdraw it, and apparently without any injury having been sustained, as the animal lives for days afterwards in its usual circumstances. The interior of the body, in the intervals of the viscera, is filled with discoidal corpuscles, as in *Nais*, etc. The interior of the intestine is everywhere furnished with nutritive villoid appendages.

2. *Anortha*. *—Body sub-compressed, soft, naked, vibrillated, inarticulate. Alimentary canal simple, straight, alternately contracted and dilated. Mouth and anus terminal, simple, indistinct. Eyes, none.

2. *Anortha Gracilis*.—White, opalescent, very contractile, moniliform from an alternation of contraction and dilation, corresponding usually to ten segments, into which the animal may be subdivided, but more or less disappearing elongation of the body, becoming more apparent by wrinkling in shortening of the body; anteriorly semi-ovate, subacute; posteriorly elongated, cylindroid, obtusely rounded. Apparent segments panduriform, furnished each posteriorly with a clear globular nucleolated nucleus. Intestine variable in capacity, usually dilated in the anterior dilatation of each apparent segment, and much contracted in the intervals.

Length from 1 to 2 lines, shortening 1 or 1-4th of a line; breadth when elongated from 1-400th to 1-300th inch; when shortened from 1-300th inch to $\frac{1}{2}$ of a line.

Habitation and Remarks.—Found in the same situation as the preceding, creeping planaria-like upon different substances, or most frequently holding a vertical position in the water, apparently without movement, but retaining their position by means of the actively moving vibrillæ, which are comparatively larger than in the preceding worms. They appear to feed upon vegetable particles brought to the mouth by means of the currents produced by the vibrillæ. The intestine is usually empty, except at the dilated portions, where it is yellowish or greenish, from granular matters contained within. The whole structure of the animal is exceedingly simple, composed of nucleolated, granular corpuscles, those forming the exterior of the body being furnished with vibrillæ. Under slight pressure these corpuscles undergo separation from one another and become globular by endosmosis. In this state they measure from 1-7000th inch to 1-2800th inch. The nucleoli are globular, shining, and measure 1-900th inch in diameter. The exterior vibrillated corpuscles, after separating from the body, often move about for some seconds. The

* *Anortha*: $\alpha\lambda\theta\omega\zeta\theta\acute{\alpha}\omega$, from the erect position of the animal.

vibrillæ measure about $\frac{1}{35000}$ inch long. Each segment of the animal's body at its posterior part contains a globular transparent nucleus measuring $\frac{1}{23333}$ inch in diameter, with a globular, refractile nucleolus $\frac{1}{70000}$ inch in diameter. This latter body, with the form of the apparent segments, makes the animal resemble a row of gregarinæ attached together.

[February, 1851. No. 70. See Bibliography.]

DESCRIPTION OF A NEW SPECIES OF ENTOZOA.

1. *Cuculanus Roseus*.—Body rose-red with whitish tips, translucent, cylindrical, robust, narrowed at the extremities; anteriorly obtuse; posteriorly acute. Mouth elongated, surrounded by a papillated lip, and enclosing a complex, corneous, yellow-colored apparatus. Œsophagus consisting of two portions—the first long, cylindrical; the second short, narrow, pyriform. Ventriculus broad, cylindrical. Anus very near the posterior end. Tail $\frac{1}{5}$ th of a line long.

Female.—Length 1 inch to $1\frac{1}{2}$ inches; breadth $\frac{3}{5}$ ths of a line. Generative aperture 4 lines from end of the tail. Ovaries two, white, very tortuous.

Male.—Length 6 to 10 lines; breadth $\frac{1}{2}$ line. Penis composed of two, white curved, spiculæ, $\frac{4}{5}$ ths a line long, protruding close to the anal aperture.

Habitation.—I found 580 adult specimens and many thousand young of this species in the intestine of a Tortoise (*Testudo* — ?) from Java. About one-fourth of the number were males.

2. *Ascaris Felis discoloris*.—Body yellowish white, subcylindrical, with prominent longitudinal lines; posteriorly acute; anteriorly moderately narrowed with the extremity furnished with a narrow lateral aliform expansion undulated at the free edge. Mouth distinctly trilobed. Tail short; anus just anterior to the point of the latter.

Length 1 inch to $1\frac{1}{2}$ inches; greatest breadth at the posterior third $\frac{1}{2}$ a line; posterior to aliform expansion $\frac{1}{4}$ of a line; length of latter 1 line; greatest breadth at base $\frac{1}{10}$ th of a line. Annulations $\frac{1}{570}$ th inch wide.

Habitation.—Six females obtained from small intestine of *Felis discolor*.

3. *Spiroptera Didelphidis virginianæ*.—Body whitish, cylindrical; anteriorly narrowed, sub-acute; posteriorly curved, acute, furnished

with a broad, inflated, lateral, aliform expansion of the integument, pierced on each side of the body with five minute respiratory tubes opening at the free edge of the expansion. Integument on the ventral surface, between the lateral expansions, presenting a number of elevated, longitudinal, moderately tortuous, papillated, linear ridges. Mouth small, round. Œsophagus long, cylindrical. Intestine simple, tortuous. Anus small, oval, situated about half the length of the alary expansion, from the posterior end.

Length 11 lines; breadth $3\text{-}5\text{ths}$ of a line. Transverse striæ of integument $1\text{-}65\text{th}$ inch wide. Œsophagus $2\frac{1}{2}$ lines long, $1\text{-}5\text{th}$ of a line broad.

Habitation.—The description is taken from two males found within the stomach of *Didelphis virginiana*.

4. *Spiroptera Scalopsis canadensis*.—Body whitish, cylindrical; anteriorly attenuated; posteriorly re-curved; furnished at the extremity with a lateral dilated alary expansion, containing four minute respiratory tubes, diverging from the position of the anus. Mouth small. Œsophagus cylindrical; intestine moderately tortuous. Anus about half the length of the alary expansion from the posterior end.

Length 6 lines; breadth $\frac{1}{4}$ of a line. Œsophagus $\frac{1}{4}$ of a line long.

Habitation.—Description from a single male found in the stomach of *Scalops canadensis*.

5. *Echinorynchus socialis*.—Body white, cylindrical, with a dilation of the anterior fifth; narrowed posteriorly, with a white spiral band passing around the whole length, and giving the appearance of transverse annulations. Proboscis moderately long, cylindrical, with twenty-six transverse rows of simple re-curved hooklets, sixteen in each row.

Male furnished with a posterior vesicular appendage.

Length from $\frac{1}{2}$ an inch to 2 inches 4 lines; breadth of larger individuals anteriorly $2\text{-}3\text{ds}$ of a line; posteriorly $2\text{-}5\text{ths}$ of a line.

Habitation.—Found frequently in considerable numbers in the intestine *Platessa plana*.

[May, 1851. No. 75. See Bibliography.]

Dr. Leidy remarked that in a recent visit to Dr. Wilson, near Newark, Delaware, while rambling in a neighboring wood, upon turning over a log he discovered a mole cricket (*Grillo-talpa americana*) standing very quietly at the mouth of a hole. Upon taking it up the animal exhibited no signs of movement, though perfectly fresh and lifelike in appearance. He took it home and next morn-

ing examined it and found it still presented no signs of life. Every part of the insect was perfect, not even the antennæ being broken. Upon feeling it, it was very hard and resistant, and on making an incision through the thorax it exhaled a fungoid odor. The insect had been invaded with a parasitic fungus, which everywhere filled the animal, occupying the position of all the soft tissues, even into the tarsal joints. It formed a yellowish or cream-colored compact mass, and in the abdomen inclosed in its center the stomachal teeth of the insect.

Examined microscopically, the fungus matter was found to consist of a mycelium of filaments for the most part simple, but occasionally branched, and elliptical or globular sporular bodies, averaging 1-2333d inch in diameter.

[May, 1851. No. 76. See Bibliography.]

CONTRIBUTIONS TO HELMINTHOLOGY.

Ascaris, Linn.

1. *Ascaris Alienata*.—Rud. Entoz. Syn., p. 661; Dujardin Hist. Nat. des Helminth, p. 158.

Body nearly uniformly cylindrical, white; mouth prominent, with the three lips prominent and very distinct; no membranous or other appendages.

Female.—Body cylindrical to within four lines of the mouth, when it gradually becomes narrowed; posteriorly straight, abruptly narrowed into a very small obtuse tail, 1-5th of a line long from the anus; whole length 4 inches 3 lines; breadth 1 and 1-5th lines.

Male.—Cylindrical, attenuated toward the extremities; posterior extremity incurved without appendages; tail short, curved; length 2 inches; breadth 3-4ths of a line.

Habitation—A male and female found in the intestine of *Mephitis americana*. Received from Prof. S. F. Baird, Carlisle, Pennsylvania.

Remark.—It corresponds in every particular except in size, being twice as large, with the *Ascaris alienata* obtained from *Nasua rufa*, described by Rudolphi.

2. *Ascaris Entomelas*, n. s.—Body cylindroid, attenuated at each extremity, curved, whitish, with the black intestine visible through the translucent integument, without membranous appendages; generative aperture posterior to the middle; tail conical, pointed, 1-18th line long.

Length of female 1 to 1½ lines; breadth ⅓ of a line.

Ovum 1.333d inch long; 1-500th inch broad.

Habitation.—Lungs of *Rana halcina*.

Remarks.—Very distinct from *Ascaris nigro-venosa*, Zeder, which is three times as large and possesses membranous appendages. The largest female, with the oviducts distended with eggs of *Ascaris entomelas*, do not measure over $1\frac{1}{2}$ lines. It is also not to be confounded with *Angiostoma entomelas*, Duj., which as a generic character possesses a corneous capsule within the head.

DISTOMUM, RETZIUS.

3. *Distomum Longum*, n. s.—Body whitish, with the blackish ovaries showing through the anterior two-thirds, subcylindrical, compressed; posteriorly subligulate, or spatulate, obtusely rounded; neck cylindrical. Oral acetabulum obliquely terminal, urceolate, broader than the neck, $\frac{3}{5}$ ths of a line in diameter. Ventral acetabulum a little smaller and from $1\frac{1}{2}$ to 2 lines behind the former; orbicular, projecting $\frac{1}{2}$ a line in diameter. Generative aperture just anterior to the middle of the neck, or nearer the oral acetabulum.

Length 15 lines to 3 inches; breadth $\frac{2}{5}$ ths to $\frac{3}{4}$ ths of a line.

Habitation.—Six individuals found in the mouth of *Esox estor*, Cleveland, Ohio. Received from Prof. S. F. Baird.

Remarks.—This is a remarkable species of *Distomum* from the very great relative length to the breadth.

4. *Distomum Terreticolle*, Rud. Entoz. Syn., p. 102; Dujardin, Hist. Nat. des Helm.; Diesing, Syst. Helm., p. 358.

Body sub-cylindric, light flesh color, posteriorly rounded. Ventral acetabulum $\frac{3}{4}$ ths of a line behind the oral, $\frac{1}{3}$ d line in diameter. Oral acetabulum, $\frac{1}{4}$ th of a line.

Length 8 lines; breadth posteriorly $\frac{1}{2}$ line, anteriorly $\frac{1}{3}$ d line.

Habitation.—Stomach of *Esox reticulatus*, Lesueur.

Remark.—The generative aperture is placed immediately in advance of the ventral acetabulum. When the animal contracts, the two acetabula are nearly brought into contact.

5. *Distomum Retusum*.—Duj. Hist. Nat. des Helm., p. 405; Diesing, Syst. Helm., p. —.

Body whitish, with yellowish brown from the ova; oblong, sub-linear, slightly narrowed anteriorly; posteriorly truncate, slightly sinuous. Oral acetabulum larger than the ventral. Posterior respiratory sinus very large.

Length $\frac{3}{4}$ to $1\frac{1}{2}$ lines; breadth $\frac{1}{4}$ line.

Hab.—Small intestine of *Rana halcina*.

6. *Distomum Cygnoides*.—Zeder, Nachtrag., p. 175; Dujardin, Hist. Nat. des Helm., p. 396; Diesing, Syst. Helm., p. 342.

Body yellowish white, posterior to ventral acetabulum sublinear, or compressed fusiform, subacute; neck cylindrical, translucent. Ventral acetabulum two to three times larger than the oral, cup-shaped.

Length $1\frac{1}{2}$ to 4 lines; breadth 1-5th to $\frac{1}{2}$ line.

Hab.—Urinary bladder of *Rana pipiens*, *Salamandra maculata*, and *Salamandra (Ambystoma) rubra*.

7. *Distomum Variegatum*.—Rudolphi, Syn. Ent., p. 90; Dujardin, Hist. Nat. des Helm., p. 416; Diesing, Syst. Helm., p. 354; *Monostomum ellipticum*, Rud. Entoz. Syn., p. 84; Bremser, Icon. Helm., pl. 8, fig. 12-14; Diesing, Syst. Helm., p. 322.

Body soft, oblong oval, slightly antero-posteriorly compressed; integument translucent, with the black oviduct, white ovary, and brownish or yellowish intestine visible; convex upon the under surface; posteriorly dilated, obtuse. Mouth small, round, with a thick crenated lip, subterminal. Male generative aperture immediately behind the mouth. Ventral acetabulum very small, round, $1\frac{1}{2}$ lines to the mouth.

Length 1 to 4 lines; breadth of largest anteriorly 1 line, posteriorly $1\frac{1}{2}$ lines; thickness 3-4ths of a line.

Hab.—Found frequently in numbers from 1 to 6 in the lungs of *Rana pipiens*.

Remarks.—I was on the point of considering this entozoon as a *Monostomum*, when I was led to examine it more carefully by the observation of Dujardin* that it had been described by authors under the name of *M. ellipticum*, because the ventral acetabulum is very small and difficult to perceive. The latter I found without difficulty in the position stated in the description.

ECHINORHYNCHUS, MÜLLER.

8. *Echinorhynchus Emydis*, n. s.—Body white, cylindrical, slightly narrowed posteriorly, recurved, broadly annulated, smooth, posterior extremity dilated into a small globular portion terminating abruptly or in a short conical, obtuse point. Proboscis subglobular or oval, with a slight transverse row of six strong hooklets and a row in a rudimentary condition; neck very short.

Length 2 to 8 lines; breadth 1-4th to 1-3d of a line.

Hab.—Seventeen individuals were obtained from the commencement of the small intestine of *Emys geographicus*. Received from Prof. S. F. Baird.

* Hist. Nat. des Helm., p. 416.

Remark.—This is, so far as I can ascertain, the first *Echinorhynchus* which has been detected in the Emydæ.

9. *Echinorhynchus Lateralis*, n. s.—Body cylindroid or subfusiform; posteriorly narrowed, with an obtusely rounded extremity. Proboscis cylindrical, $\frac{1}{3}$ of a line long, lateral or subterminal or transversely projected, furnished with 12 transverse rows of strong hooklets, 6 in each row; alternating; neck short. Male without copulatory appendage.

Body from 2 lines to 1 inch in length; breadth anteriorly from $\frac{1}{4}$ th to $\frac{3}{5}$ ths of a line; breadth posteriorly from $\frac{1}{5}$ th to $\frac{2}{5}$ ths of a line.

Hab.—Seventy-six individuals were found within the intestine, and according to Prof. Baird, from whom they were received, also attached to the integument upon the interior of the body of *Salmo fontinalis*.

Remark.—Closely allied to *E. angustatus*, Rud.

10. *Echinorhynchus proteus*.—Westrumb, De Helm. Acanth., p. 37; Duj. Hist. Nat. des Helminthes, p. 529.

Body orange color, fusiform; anteriorly slightly spherically dilated; posteriorly obtusely rounded. Proboscis cylindrical, with twelve to twenty transverse rows of hooklets, transversely projected, yellow. Neck long, posterior three-fourths filiform, anterior fourth dilated into a spherical vesicle.

Length of body 3 to 6 lines; neck 2 to 3 lines long, $\frac{1}{6}$ th line broad posteriorly.

Hab.—Found very frequently in the large intestine, often in great numbers, of *Labrax lineatus*.

THELASTOMA, LEIDY.

11. *Thelastoma Brevicaudatum*, n. s.—Body white, cylindrical, anterior to commencement of ventriculus rapidly narrowed, conoidal; posteriorly abruptly rounded, with a very short spiculate tail. Generative aperture just posterior to middle. Anus just anterior to posterior rounded termination. Ventriculus broadly dilated at commencement, and moderately so at termination.

Length of body $1\frac{1}{4}$ to 2 lines; anterior to ventriculus $\frac{1}{50}$ th inch; from anus to end of tail $\frac{1}{200}$ th inch; tail $\frac{1}{285}$ th inch long; breadth of body just above anus $\frac{1}{133}$ d inch; at middle $\frac{1}{80}$ th inch; at commencement of ventriculus $\frac{1}{75}$ th inch; cylindrical portion of œsophagus $\frac{1}{66}$ th inch long by $\frac{1}{666}$ th inch broad; pyriform portion $\frac{1}{250}$ th inch long by $\frac{1}{285}$ th inch broad. Ovum semi-oval, $\frac{1}{285}$ th inch long by $\frac{1}{1000}$ th inch broad.

Hab.—Found in numbers from one to four in the intestine of larvæ of a large lamellicorn insect, found by my friend Mr. S. Powell in earth mould near Philadelphia.

GREGARINA, DUFOUR.

12. *Gregarina*.—Body white, cylindro-fusiform. Superior division presenting four sides of a hexahedron, subacute. Nuclear body of inferior division transparent, globular or elliptical, containing several coarse granules.

Length from 1-66th to $1\frac{1}{4}$ lines; head 1-400th inch to 1-133d inch long by 1-285th inch to 1-111th inch broad. Anterior portion of inferior division 1-200th inch to 1-86th inch broad; posterior portion 1-666th inch to 1-250th inch broad. Longitudinal lines of inferior division more distinct than those of the upper division, 1-800th inch apart.

Hab.—Found in the same insect as the preceding.

Remark.—Since the discovery* of the beautiful parallel, longitudinal line of the inferior division of the body of *Gregarina* after a careful examination I have come to the conclusion that they also exist upon the superior division.

13. *Astacobdella Philadelphica*, n. s.—Body whitish, translucent, sides nearly parallel, a little broader posteriorly, 16 alternately broad and narrow segments exclusive of head and posterior end. Head campanulate, terminated by a circular or elliptical crenated lip fringed with very minute stiff hairs, 1-2000th inch long. Acetabulum circular, 1-6th to $\frac{1}{4}$ th line in diameter. Mouth elliptical. Dental plates brown, nearly equal, forming an isosceles triangle, with the base longest and attached. Apex of superior plate ending in a sharp conical point, with several very minute denticulations on each side. Apex of inferior plate bifurcated into two points, with two minute denticulations on each side. Stomach capacious, nearly filling the anterior, 8 alternately broad and narrow segments posterior to the head. Anus dorsal, 1-5th of a line from the acetabulum. Generative aperture ventral, anterior to the anal aperture.

Length 1 to 4 lines; breadth 1-6th to $\frac{1}{2}$ line. Head 1-6th to $\frac{1}{2}$ line long. Ovum attached by a pedicle, with an operculum pointed at summit. From base of attachment to point of opercle, 1-5th line. Length of body of ovum 1-6th line; breadth 1-8th line.

Hab.—Found frequently in numbers from one to several dozen

* Proc. Acad. Nat. Sci., vol. 4, p. 232, 1849.

upon any part of the exterior of the body of *Astacus Bartonii*, Fab., but more especially upon the inferior surface and branchiæ.

MALACOBDELLA, BLAINVILLE.

14. *Malacobdella Grossa*, Blainville.—*Hirudo grossa* Müller, Zoöl. Dan. *Malacobdella grossa*, Blainville, Dic. Sc. Nat., xlviij, 270; Moquin-Tandon, Monag. Hirud.; Diesing Syst. Helm.; *Phylline grossa*, Johnston, Lond. Mag. Nat. Hist., lii, 6–10.

Body yellowish white, compressed pyriform, oblong or elliptical. Integument translucent. Acetabulum yellowish, circular, $\frac{3}{4}$ ths to $2\frac{1}{2}$ or 3 lines in diameter. Protractile proboscis cylindrical, from $\frac{1}{2}$ to 3 lines long. Intestine tortuous. Ovaries upon each side iron gray.

Length from 2 lines to 1 inch, occasionally $1\frac{1}{2}$ inches; breadth from $\frac{1}{2}$ a line to 5 or even 7 lines.

Hab.—Found frequently, usually singly, adhering to the mantle of *Venus mercenaria*, Lin. and *Venus præparca*, Say.

[June, 1851. No. 77. See Bibliography.]

Dr. Leidy remarked that it had occurred to him whilst examining the mole cricket, referred to at the meeting of May 20, that if the fragments of the insect were placed under favorable conditions, the fungoid matter in the interior of the insect might develop itself into an external form of fungus. He accordingly placed them in a small glass case, with some moist sphagnum, and allowed them to remain until the present time. Dr. L. exhibited the glass case with the fragments, each having sprouted out of it one, two, or three elongated, conical stipes of a cream color, from three lines to 1 inch long, and from $\frac{1}{2}$ to $1\frac{1}{2}$ lines in diameter. Dr. Leidy, continued, in examining insects for entophyta and entozoa, he had found the hemiptera remarkably free from them, which he considers an important fact. Those insects which eat large quantities of vegetable solid food, especially such as eat decaying substances, are very much infected with parasites. The spontaneous generation of entophyta and entozoa finds but few advocates at the present day. Late researches leads us to suspect that many, if not all, entozoa pass part of their life out of the animals in which they are known as parasites, under forms different from those when within the animals.

The entrance of the parasites into other animals is effected probably in two ways: with the food of the latter, or by boring from the exterior. The former method is probably the most frequent in

aerial animals; and both methods are frequent in aquatic animals, because in the latter case the water affords a good vehicle for the approach of the parasites to any part of the body of the animals to be infected.

As hemipterous insects suck the juices only of plants or animals, through a delicate proboscis, they are placed under circumstances the most favorable of all animals to avoid taking in with their food, ova, spores, or developed animals and plants of a parasitic character, whilst insects like *Passalus*, crickets, etc., or *Julus* among myriapoda, from their eating decaying substances, swallowing large morsels of such food, are very apt to take in parasites.

Frequently I have detected adhering to insects and annelida, while living, cryptogamic sporules, which, under favorable circumstances, before or after the death of the animal, undergo development into the perfect plant. House-flies, and especially earth-worms, are very liable to the growth of *Achlya* upon them, and sometimes I have even detected the growth of the latter upon the surface of earth-worms still living.

[June, 1851. No. 79. See Bibliography.]

HELMINTHOLOGICAL CONTRIBUTIONS NO. 2.

ASPIDOGASTER, BAER.

Aspidogaster conchicola, Baer. Act. Acad. Nat. Cur., T. 13, p. 527; Dujardin, Hist. Nat. des Helm., p. 324; Diesing, Syst. Helm., vol. 1, p. 414.

Body oval, posteriorly obtusely rounded; color yellowish white. Neck translucent, cylindric; mouth terminal, large, surrounded by a thick, contractile lip. Lateral margin of ventral disk crenate.

Measurements at rest.—Length $\frac{1}{2}$ to $\frac{4}{5}$ ths of a line by $\frac{1}{4}$ th to $\frac{1}{3}$ d of a line broad. Neck $\frac{1}{4}$ th length of body by $\frac{1}{9}$ th line in breadth. Œsophageal bulb longitudinally oval, $\frac{1}{166}$ th inch long by $\frac{1}{285}$ th inch broad. Ovum oval, $\frac{1}{333}$ d to $\frac{1}{285}$ th inch long by $\frac{1}{666}$ th to $\frac{1}{500}$ th inch broad.

Measurements in action.—Length 1 to $1\frac{1}{2}$ lines by $\frac{1}{5}$ th to $\frac{1}{4}$ th line broad. Neck may elongate to one-half length of body by $\frac{1}{200}$ th in breadth. Lip may expand into a circular disk or be elongated into a triangular rostrum.

Hab.—Found in the pericardial cavity of *Unio purpureus*, *U. natus*, *U. radiatus*, *U. cariosus*, and *Anadonta marginata*.

PLANARIA, MÜLLER.

2. *Planaria Maculata*. Leidy, Proc. Acad. Nat. Sci., vol. 3, p. 251; Diesing, Syst. Helm., vol. 1, p. 205.

Length from $2\frac{1}{2}$ to 6 lines; breadth $\frac{1}{2}$ to 1 line.

Hab.—Everywhere in ditches near Philadelphia. (Found in great abundance between the outer decaying petioles and inner living ones of the leaves of the *Arum virginicum*, growing in profusion in ditches below the city.)

3. *Planaria Truncata*, n. s.—Body sublinear, posteriorly obtusely rounded, anteriorly truncated, with the angles slightly prominent laterally; blackish white, translucent at margin, with a blackish streak down the back. Eyes two, reniform, $\frac{1}{400}$ th inch long by $\frac{1}{500}$ th inch broad, $\frac{1}{200}$ th inch apart. Œsophagus simple, cylindrical, $\frac{1}{2}$ line long.

Length 3 to 5 lines, breadth $\frac{1}{2}$ to $\frac{3}{4}$ th of a line.

Hab.—Found in a running rivulet in the vicinity of Newark, Delaware.

4. *Planaria (Typhlolepta? Ocrsted), Fuliginosus*, n. s.—Body oval, dilated; inferiorly flat, superiorly moderately convex, fuliginous. Eyes none; in their ordinary position a slightly greater accumulation of black pigment upon the upper surface. Mouth inferior, a little posterior to the center. Œsophagus simple, cylindrical, white, 1 line long by $\frac{1}{2}$ line broad.

Length 5 lines, breadth 4 lines.

Hab.—Rancocas Creek, near Pemberton, N. J.

ANGUILLULA, OKEN.

5. *Anguillula Longa*, n. s.—Body cylindrical, translucent, colorless. Mouth round, buccal capsule inverted campanulate Œsophagus and intestine cylindrical, equal in diameter, the former $\frac{1}{25}$ th inch long.

Female, 2 to 3 lines long; anteriorly $\frac{1}{333}$ d inch broad; middle $\frac{1}{285}$ th inch. Tail narrow, acute, $\frac{1}{111}$ th to $\frac{1}{75}$ th inch long from anus.

Male $1\frac{1}{2}$ to 2 lines long; posteriorly dilated, obtusely rounded, curved, with three slight tubercular thickenings of the integument ventrally; $\frac{1}{285}$ th inch broad; at middle $\frac{1}{370}$ th inch broad. Penis a curved spiculum, $\frac{1}{280}$ th inch long.

Hab.—Found in very great abundance, wriggling above the surface of soft mud, in stagnant ditches in the neighborhood of Philadelphia.

6. *Anguillula Longicauda*, n. s.—Body cylindrical, colorless, hyaline; anteriorly obtusely rounded; posteriorly attenuated, with a long, delicate, flexible, subulate tail. Mouth without cirri; cesophagus cylindrical, often with the appearance of a globular bulb at its lower end; intestine cylindrical; anus indistinct. Generative apparatus?

Length 1-40th inch; breadth 1-1000th inch; length of tail 1-200th inch. Smallest: Length 1-160th inch; breadth 1-2000th inch; length of tail 1-800th inch. In an individual 1-100th inch long, the cesophagus measured 1-570th inch long.

Hab.—Found with *Lyngbya muralis* and other confervæ about gutters and water spouts in the city of Philadelphia. This species is very active in its movements and appears to have the power of fixing itself by the end of the tail to surrounding objects.

7. *Anguillula Fossularis*.—Body cylindrical, anteriorly narrowed, truncated. Mouth round, surrounded by a prominent circular lip; buccal apparatus none; pharynx short; cesophagus long, clavate, or fusiform, slightly tortuous; intestine cylindrical, brown in color; rectum distinct, cylindrical, colorless. Tail acute. Ovary double. Generative aperture anterior to the middle.

Length 2 to 2½ lines; breadth 1-250th inch. Tail 1-80th inch long from anus. Cesophagus 1-28th inch long; 1-333d inch broad at commencement; 1-400th inch at termination. Intestine 1-475th inch broad. Rectum 1-75th inch long.

Hab.—Stagnant ponds and rain puddles in the suburbs of Philadelphia.

ACESTUS, LEIDY.

Body vermiform. Podal spines in 4 rows; anteriorly 3 to 5 in each fasciculus, posteriorly in pairs; long sigmoid, bifurcated at extremity. Upper lip conoidal, inarticulate. Annuli under 100. Blood red. Eyes, girdle and muscular stomach none.

8. *Acestus Spiralis*, n. s.—Body cylindrical, posteriorly attenuated, obtusely terminated; color reddish; integument thick. Annuli 80; anterior five with 5 podal spines in each fasciculus, afterwards 3 in each, and posteriorly in pairs; furnished with a shoulder, and a bifurcate unguiform extremity. Cesophagus passing the sixth annulus. Intestine simple, cylindrical, capacious. Blood vessels large, tortuous, without distinct coeca, filled with red blood.

Length 1 inch; breadth anteriorly 1-12th line; at middle 1-10th line; posteriorly 1-16th line. Lip 1-280th inch long from mouth. Podal spines 1-400th inch long.

Hab.—In the soft mud at the bottom of stagnant ditches and ponds in the neighborhood of Philadelphia.

Remark.—When drawn out of its concealment in the mud, it rolls the posterior 3-4ths of the body into a spiral.

9. *Aectus Hyalinus*, n. s.—Body cylindrical, posteriorly obtuse, hyaline. Annuli 24 to 34. Podal spines anteriorly 3 to 4 in each fasciculus, posteriorly in pairs, swollen slightly one-third their length from the extremity, which is unguiform and bifurcated. Blood faintly red.

Length $1\frac{1}{2}$ to 3 lines; breadth anteriorly $1\text{-}333\text{d}$ inch; middle $1\text{-}280\text{th}$ inch; posteriorly $1\text{-}400\text{th}$ inch. Lip $1\text{-}500\text{th}$ inch long. Podal spines $1\text{-}550\text{th}$ inch long.

Hab.—Found with the preceding, its anterior half buried in the mud, and the tail rapidly vibrating like *Scenuris* or *Strephuris*.

DERO, OKEN.

Body vermiform. Podal spines in two rows. Lateral setæ. Caudal appendages. Blood reddish. Proboscis and eyes none.

10. *Dero Limosa*, n. s.—Body cylindroid, faintly reddish, translucent; 9, 16, 26, to 34 setigerous annulations when the body is in from 1 to 4 divisions. Five anterior annuli without setæ. Two rows of podal spines; 5 to 6 in each fasciculus anteriorly; 3 to 4 posteriorly; long sigmoid, bifurcate at extremity. Setæ single, in one row upon each side. Caudal annulation, expanded, truncated, furnished upon each side of the anal aperture with four unequal, compressed, oval curved, contractile appendages. Upper lip triangular. Œsophagus passing to sixth annulation.

Length 2 to 6 lines; breadth anteriorly $1\text{-}10\text{th}$ line; middle $1\text{-}8\text{th}$ line; caudal annulation expanded $1\text{-}5\text{th}$ line. Lip $1\text{-}250\text{th}$ inch long. Setæ $1\text{-}666\text{th}$ inch to $1\text{-}133\text{d}$ inch long.

Hab.—Living in tubes of mud or decayed vegetable particles, upon the bottom of stagnant ponds and ditches, in the neighborhood of Philadelphia.

It is usually observed with the posterior half or two-thirds of its body projecting nearly vertically from its tube, with the caudal, contractile appendages expanded. Upon any disturbance it rapidly retreats within its tube. A sessile species of vorticella is frequently found attached to the posterior part of the body.

At first sight there appears to be only three appendages each side of the anus, but closer examination proves the existence of a fourth, small and not so distinct.

[June, 1851.]

Dr. Leidy stated that the *Cicada septendecim* was subject to a fungous disease. The posterior part of the abdomen he observed in several instances to be filled with a mass of oval spore-like bodies, embossed upon their surface, but becoming smooth from endosmosis when placed in water.

He also stated that he had just received the dead larva of a lamellicorn insect, which was filled with the same fungus which sometimes attacks the mole cricket.

[August, 1851. No. 82. See Bibliography.]

HELMINTHOLOGICAL CONTRIBUTIONS NO. 3.

GEN. NOV. SYNPLECTA.*

Body nematoid, cylindroid, distinctly and coarsely annulated. Head composed of two trilobed portions, between which is the mouth. Œsophagus long, simple. Intestine narrow, simple. Male, attenuated at the extremities; posteriorly rolled into a spiral, and furnished ventrally with numerous tegumentary tubercles. Penis short, corneous, composed of two lateral portions. Female anteriorly attenuated; posteriorly terminating in a strong, thick muscular acetabulum, with a posterior conoidal depression containing a single strong, recurved hook. Anus and generative apertures close together, just anterior to the muscular acetabulum. Ovum elliptical, elongated at the poles.

The female of this curious genus of nematoid entozoa attaches herself by means of the posterior hook to the mucous membrane of the intestinal canal of the animal it infests, while the male clings to the female by winding the posterior part of its body spirally around the posterior part of the latter, retaining itself in that position through the aid of the numerous tubercles upon its ventral surface, which closely apply themselves to the part of contact in the female.

1. *Synplecta Pendula*, n. s.

Body faintly reddish-white, cylindroid. Annulations with from 12 to 18 transverse muscular striæ. Lobes of the head nearly equal. Œsophagus very long, cylindroid, slightly dilated inferiorly. Intestine narrow, cylindrical.

Male.—Length 4 to 5 lines; breadth 1-6th of a line. Posterior fourth of body forming three turns of a spiral, furnished ventrally

*Synplecta:—σϖ, together; πλζω, I twine.

with about 20 longitudinal rows of tegumentary tubercles, or small quadrilateral plates 1-1600th inch long by 1-2666th inch broad, extending as far back as the anus. Tail curved, conoidal, 1-60th inch long from the anus, furnished ventrally with 7 or 8 pairs of minute conical tubercles. Œsophagus 1-5th line long, 1-333d inch broad; intestine 1-400th inch broad. Penis 1-200th inch long, conoidal, obtuse, bent at free extremity, composed of two lateral halves.

Female.—Six to 11 lines long, 1-5th to 1-4th line broad. Posterior extremity bent, dilated, terminating in a thick, oval, strongly muscular receptacle or acetabulum, truncated posteriorly and excavated into a deep conical cavity, containing a strong hook, with the point directed forward, 1-200th inch long, with a base 1-400th inch broad. Œsophagus, in an individual $8\frac{1}{2}$ lines long, 1 line long by 1-666th inch broad at commencement, 1-333d inch at termination. Intestine 1-450th inch broad. Ovum 1-570th inch long, 1-3333d inch broad.

Habitation.—Stomach and commencement of small intestine of *Emys guttata*.

Remarks.—The female hangs suspended by its posterior hook from the mucous membrane of the stomach of the *Emys*, in which it is parasitic, while the male clings closely to the female by means of its spiral folds, retaining its position readily from the roughness of surface produced by its numerous ventral tubercles, and also those upon the tail. I found this entozoon three times, in 15 individuals of *Emys guttata*. In one instance it was a large female; in the second two, average size females, and one male; in the third instance the stomach was distended with the worms, of which about one in five or six was male, and usually clung to the largest of the females.

CUCULANUS, MÜLLER.

2. *Cuculanus Trispinosus*, n. s.

Body reddish, narrow, cylindrical, finely striated, attenuated at the extremities. Mouth large, sustained by a red or brown corneous capsule, presenting 8 radiating ribs or lines upon each side of a middle line. Œsophagus of two portions; the first elongated pyriform; the second cylindroid, a little dilated at its lower end. Intestine simple, cylindrical, a little narrower than the œsophagus.

Male.—Three lines long, 1-200th to 1-160th inch broad at middle. Posterior extremity curved, acute, furnished on each side ventrally, with an expansion of the integument, of nearly uniform breadth, 1-800th inch, to its termination, commencing 1-50th inch above the end of the tail, and perforated by six nearly equidistant respiratory

canals. Tail 1-300th inch long from anus. Anal and generative apertures indicated by a prominent lip, and separated by a small conical papilla. Penis consisting of two corneous, curved, spiculæ: 1-56th inch long, the other 1-200th inch long.

Female.—Viviparous, 6 lines long, 1-100th to 1-90th inch broad. Tail straight, long conoidal, 1-111th inch long from anus, obtuse, terminated by three minute points 1-4000th inch long. Generative aperture surrounded by a very prominent lip, a little posterior to the middle. First portion of œsophagus 1-66th inch long: 1-200th inch at broadest part: second portion 1-56th inch long.

Habitation.—Small intestine of *Emys guttata*.

TENIA, LINN.

3. *Tænia Pulchella*, n. s.

White, without any admixture of any other color, variable, usually broadest anteriorly. Head quadrilateral, sub-clavate, obtusely rounded, broader than the neck. Acetabula circular, cup-shaped, lateral and opposite sessile, protractile. Neck very long, cylindroid. Articuli containing several colorless globules; anteriorly subglobular or transversely oval; posterior moniliform, longitudinally oval, or cylindroid and centrally incrassate.

Measurements.—Longest 9 inches. Articuli commencing to be distinctly separate 4 inches from the head. Breadth anteriorly 1-4th line; posteriorly 1-6th line; anterior articuli 1-6th line long; posterior 1-4th line. Acetabula 1-166th inch in diameter.

Smallest 2 inches. Head 1-75th inch broad. Articuli commencing distinctly separate 3-4ths inch from the head. Broadest part of neck 1-90th inch; short distance posterior to the head, 1-125th inch. Anterior articuli 1-100th inch diameter; posterior 1-44th inch long; 1-200th inch broad at extremities, 1-133d inch broad at middle. Acetabula, 1-200th inch diameter.

Habitation.—Small intestine of *Bufo americanus*.

Remarks.—Closely resembles the *Tænia dispar*, Goeze, found in the *Bufo viridis*, etc., but it is relatively longer and narrower, and is never colored.

PLANARIA, MÜLLER.

4. *Planaria Sylvatica*, n. s.

Body elongato-fusiform, thick, becoming narrowed forward, smooth, shining; superiorly convex, grayish with a fuliginous stripe down each side of the dorsal line, and a transverse spot of the same color at or just posterior to the center; inferiorly

compressed, whitish, anteriorly attenuated, probosciform; tip recurved, fuliginous, obtuse; posteriorly broadest, terminating acutely. Eyes two, black, globular, lateral, slightly prominent.

Length 2 to 5 lines; breadth at the anterior fourth 1-8th of a line; at posterior fourth, 1-4th of a line.

Habitation.—Beneath stones, flower-pots, and boxes in gardens in Philadelphia, and under fragments of wood, bark, old logs, etc., in forests in the neighborhood of Philadelphia.

Remarks.—This is the first terrestrial *Planaria* which has been detected in North America. I accidentally discovered it first beneath several flower boxes and pots in the small garden attached to my residence in this city, since which I sought for and found it in the hilly woods bordering the Wissahickon creek and Schuylkill river. In its movements it resembles a slug (*Limax*), and like this leaves behind it a mucous trail. When in motion the anterior portion of the body is much elongated and very narrow, and the portion anterior to the eyes is recurved. Frequently it raises the anterior third of the body from the ground, moving it from side to side as if in search of something. The recurved portion inferiorly is flat, with the edges often inflected.

When at rest the body is contracted into an oblong form, and the head lies doubled upon the back. The longest will contract to $2\frac{1}{2}$ lines in length by $\frac{1}{2}$ a line in breadth, and 1-3d line thick posteriorly, and 1-4th line wide anteriorly.

The coloring matter upon the back is arranged in faint transverse annuli, accumulating upon each side of the middle into a longitudinal line, and a transverse spot about the center.

The eyes are globular, apparently composed of a vitreous humor, two-thirds enveloped with a black pigment. They are situated laterally, 1-100th to 1-48th of an inch posterior to the extremity of the head, and measure about 1-500th inch in diameter.

The mouth is inferior and a little posterior to the center. Œsophagus keg-shaped, about 1-50th inch long. From the acute tail end is secreted a delicate mucous thread.

The *Planaria* appears not to like the water, for although it will live for some hours beneath the surface when prevented from rising, yet it always seeks to leave it and remains out when it has escaped.

In the same forest localities with the *Planaria* is found an insect larva, possessing similar habits, which upon careless inspection might be mistaken for it. The movements of the larva are more rapid and vermicular.

PLANARIA, MÜLLER.

SUB-GENUS NOV. BDELLOURA.*

Characters same as *Planaria*, without tentaculæ, and the posterior extremity of the body separated by a constriction serving as a disk of attachment.

5. *Bdelloura Parasitica*, n. s.

Body milk white, with a faintly yellowish intestine showing through the translucent integument, smooth, thin, lanceolate, or spatulate; anteriorly narrowed, obtuse; lateral margins, thin, undulating; constricted portion posteriorly truncated, nearly as broad as the middle of the body. Eyes two, reniform. Œsophagus, simple, cylindrical, campanulate when protruded.

Length from 3 to 10 lines; breadth $2\frac{3}{4}$ to $2\frac{3}{4}$ lines. The longest may contract to 6 lines by $3\frac{1}{2}$ lines.

Habitation.—Parasitic upon the King Crab, *Polyphemus occidentalis*, Lam. Found often in great numbers, adhering with considerable tenacity by means of the posterior constricted extremity of the body to the under surface of the branchial covers, the branchial laminae, and to the extremities, especially in the vicinity of the joints.

Remarks.—When the King crab is removed from the water its planaroid parasite retires to the deepest recesses between the limbs and other external organs to avoid evaporation. The parasite moves with a gliding motion, like the species of *Planaria*, and also by fixing the posterior extremity and extending the anterior part of the body to its greatest length, and then abruptly detaching and drawing forward the former, like the leeches. At other times it fixes itself posteriorly, and waves the anterior portion of the body to and fro through the water.

Attached to the branchial laminae of the King crab are frequently observed ochreous or brownish, oval, compressed cysts, from $\frac{1}{4}$ to 2 lines long and $\frac{1}{6}$ th to 1 line broad, attached by a short pedicle at one extremity, and unusually closely applied to the surfaces between the branchial laminae, which are receptacles or ova? of the *Bdelloura parasitica*. Occasionally the margin of the cysts is improved with a fringe of short irregular, blackish filaments. Sometimes these cysts exist in such numbers as to have the appearance of flaxseed sprinkled between the branchial laminae.

6. *Bdelloura Rustica*, n. s.

Body brownish or blackish, translucent, lanceolate; anteriorly narrowed, obtuse, lateral margins thin, undulating; constricted por-

* *Bδζζία*, a leech; tail; because the animal adheres by the tail like a leech.

tion truncated posteriorly, with parallel margins. Eyes two, reniform. Oesophagus simple, cylindrical.

Length 2 to 3 lines; breadth 2-5ths to 4-5ths of a line.

Habitation.—Egg Harbor bay, New Jersey, upon *Ulva latissima*, Linn.

Remarks.—Movements same as in the preceding species. When free in water it moves with great rapidity, and rises to the surface in the manner of the leech or the larva of the guat.

GEN. NOV. MYZOBDELLA.*

Body elongated, compressed fusiform, smooth. Head continuous with the body, subindibuliform, obliquely ventrally terminal. Mouth central, unarmed. Acetabulum ventrally obliquely terminal, concave, not corneous.

7. *Myzobdella Lugubris*, n. s.

Body cylindro-fusiform, in transverse section, elliptical, black olivaceous green, anteriorly narrowed, cylindroid; posteriorly incrassate. From 15 to 18 annulations. Integument translucent, permitting the sacculated intestine of a black green hue to be visible. Acetabulum circular, concave, a little larger than the oral disk.

When elongated 10 lines, by $\frac{1}{2}$ line in breadth posteriorly, 1-5th of a line anteriorly. Will contract to 4 lines by 4-5ths line in breadth.

Habitation.—Parasitic upon the common edible crab, *Lupa dicantha*, M. Edw.; usually found attached about the base of the limbs.

MECKELIA, LEUCKART.

8. *Meckelia Lactea*, n. s.

Body very soft, milk white, in transverse section lenticular, convex above and below; when extended, very much compressed, more especially posteriorly, incrassate rounded just posterior to the head; lateral margins thin, undulating; posterior extremity thin, subacute. Head compressed, conical or hastate, anteriorly obtuse, breadth at base 1 line; lateral cleft $1\frac{1}{2}$ lines long. Generative aperture longitudinally oval.

Greatest length 6 inches: ordinarily 5 inches, by 3 lines in breadth, and 1 line in thickness: may contract to 1 inch in length, by 2 lines in breadth, and $1\frac{1}{2}$ lines in thickness.

Habitation.—In mud and sand under stones, dead shells, etc., in positions uncovered at low tide, upon the coast of Great Egg Harbor, New Jersey.

* *Myzobdella*:—μυζω, I suck; βδέλλα, a leech.

Remarks.—The more it is extended the broader and thinner it becomes, especially posteriorly. When free in water, it swims like the eels, and in such cases, the broad surfaces of the body are more or less vertical.

9. *Meckelia Rosca*, n. s.

Body bright flesh-colored with fainter lateral margins, and a central darker line inferiorly; in transverse section oblong, convex superiorly, flattened inferiorly; when elongated, becomes cylindroid; posteriorly, obtuse. Head compressed, conical, or hastate, whitish. Generative aperture distinct, round.

Length 2 to 6 inches; ordinarily about 5 inches.

Habitation.—With the preceding species.

Remarks.—As it elongates it approaches more the cylindrical form, becoming thicker and narrower.

[September, 1851. No. 84. See Bibliography.]

OBSERVATIONS ON THE NATURAL HISTORY OF THE FAMILY OF GORDIACEÆ, SIEBOLD.

Our most common species has been confounded with the *Gordius aquaticus*, L., of Europe, but a striking character at once proves it to be distinct. The caudal extremity of the female is trifurcated, while that of the European species is blunt.* The length is from 4 to 12 inches. Of this species there are several varieties from different localities, which may upon further comparison prove to be distinct species.

To this species the name *Gordius varius* was proposed.

A second species of *Gordius* was obtained by Professor Baird from a spring in Essex county, New York. It is very much more delicate than the former, and from 5 to 7 inches long. The female caudal extremity is blunt. The male caudal extremity is bifurcate and fringed with peculiar epidermoid appendages.

For this second species the name *Gordius lineatus* was proposed. Dr. L. also found several remarkable species of *Mermis*, Dujardin.

Eleven specimens of one species were procured by Dr. Budd from a ditch in New Jersey. These are yellowish white in color, and from 6 to 18 inches in length. To the species the name *Mermis elongata* was given.

A second species was found in a ditch near Philadelphia. It is pure white in color, 8 inches long, and has a peculiar tubercular

* Siebold: Archiv. für Naturg., 1838, p. 303.

thickening of the integument upon the caudal extremity. For this species the name *Mermis crassicaudata* was proposed.

Dr. L. further remarked that he had lately had an opportunity of repeating his former investigations* upon the embryology of *Gordius varius*.

The embryology of *Gordius aquaticus*, L., had been studied and published by Gruby † before he had published his notes, but he did not know it at the time, which he considered important, as the observations conducted in two parts of the world, though differing in several points, were generally confirmatory of one another.

The perfect embryo of *Gordius varius* differs so much from the parent that it is impossible to recognize the latter in the former. This has two circles of protractile tentaculæ, each of six, and a protractile proboscis, not uncinatè, however, as in the embryo of *Gordius aquaticus*, ‡ no trace of which exists in the parent. The body of the embryo consists of two portions, and is distinctly annulated, while the parent is simply hairlike in form, and has no trace of an annulated integument. Gruby remarks he never saw the *Gordius*, excepting the embryo, shorter than $3\frac{3}{4}$ inches, § so that between the annulose, tentaculated embryo, in the *Gordius varius* the 1-466th of an inch in length, and the parent of at least $3\frac{3}{4}$ inches, nothing whatever is known of the history of the animal. Gordii have been stated upon numerous and the most reliable authorities to have been seen in the body of insects, so that from the embryo to the parent there may probably be a series of forms in alternating generation, entozoic and ectozoic, as numerous and unlike as has been observed in the development of certain species of *Distoma*.

The *Gordius varius* is prolific in a very remarkable degree. A female 9 inches in length, placed in a tumbler of water September 25, up to the present time has extruded a string of ova 49 inches in length, and still actively continues the process.

[September, 1851. No. 86. See Bibliography.]

Dr. Leidy further stated as follows :

The female *Gordius* which he had mentioned at the last evening as having extruded from September 25 up to that time a cord of ova 49 inches in length had continued the process until Sunday evening, October 7, up to which time it had expelled, in fragments

* No. 57. See Bibliography.

† Archiv. für Naturg., 1849, p. 358.

* Archiv. für Naturg., pl. 7, fig. 10.

† Ib., p. 374.

from a few lines to one foot in length, in all a cord 91 inches long, in which he estimated there were over 6,000,000 ova. Dr. L. exhibited the cord of ova preserved in alcohol, which was long and white and resembled a piece of cotton thread.

[October, 1851. No. 87. See Bibliography.]

Dr. Leidy remarked the members probably recollected that a few evenings since he had mentioned that it had been asserted by numerous and good authorities that *Gordii* had been observed within the body of insects. He now exhibited a specimen of a *Gordius* and a grasshopper preserved in a bottle of alcohol, which had been sent to him by his friend, Dr. Budd, of Pemberton, N. J. The *Gordius* Dr. Budd stated was seen to come out of the body of a grasshopper, and in half an hour afterwards died. It is a different species from those described a short time since. It is a female, about six inches long by half a line in length, rigid, strongly marked by transverse wrinkles and annuli, with the caudal extremity somewhat compressed and obtuse. To the species he gave the name *Gordius robustus*.

He also exhibited a species of *Mermis* from Brazil, belonging to the collection of the Academy. It is fourteen and a half inches long and of yellowish brown color. To it he gave the name *Mermis ferruginca*.

[October, 1851. No. 91. See Bibliography.]

Corrections and additions to former papers on helminthology published in the Proceedings of the Academy by Joseph Leidy, M. D.

BODO, EHRENBURG.

1. *Bodo Helicis*, Diesing. Syst. Helm., I, 45.

Cryptobia Helicis, Leidy. Proc. A. N. S., III, 101; An. and Mag. of Nat. Hist., XIX, 209.

Cryptoicus Helicis, Leidy. Journ. A. N. S., new series i, 67.

VERTEX, HEMPRICH ET EHRENBURG.

1. *Vertex Marginatus*, Diesing. Syst. Helm., I, 229.

Prostoma marginatum, Leidy. Proc. A. N. S., III, 251. Rarely more than 3-5ths line long. Abundant in ditches below the city of Philadelphia.

Aorurus, Leidy. Proc. A. N. S., IV, 230.

Characteribus reformatis. Body cylindroid, broadly and strongly annulated. Tail long, spiculate, and inflexible. Mouth simple, round unarmed. Female generative aperture posterior to the middle. Male with a single spiculate penis.

1. Subgenus. *Streptostoma*, Leidy. Proc. A. N. S., IV, 230.

Characteribus reformatis. Annuli very broad, distinct, and few in number. Mouth large, circular; buccal organ (oesophagus) and gizzard pyriform. Tail very long and ensiform.

1. *Streptostoma Agile*, Leidy. Proc. A. N. S., IV, 230.

2. *Streptostoma Gracile*, Leidy. Proc. A. N. S., V, 100.

Oxyuris Dicsingii, Hammerschmidt. Isis von Oken, 1838, 354, Taf. IV, fig. VI.

Oxyuris Blattæ orientalis, Hammerschmidt. Naturwis. Adhandl. von Haidinger I, 284, Tab. X, Figs. 4, 7, 13-15.

2. Subgenus. *Thelastoma*, Leidy. Proc. A. N. S., IV, 231.

Characteribus reformatis. Annuli few in number, broad. Oral annulus papillaform. Mouth small, circular; buccal organ long, cylindrical; gizzard pyriform. Tail spiculate, moderately long.

1. *Thelastoma Attenuatum*, Leidy. Proc. A. N. S., IV, 231.

2. *Thelastoma Apbendiculatum*, Leidy. Proc. A. N. S., V, 101.

Oxyuris Blattæ orientalis, Hammerschmidt. Naturw. Abhandl. von Haidinger, I, 284, Tab. X, Figs. 10-12 (8, 9, 20?).

3. *Thelastoma Labiatum*, Leidy. Proc. A. N. S., V, 101.

4. *Thelastoma Robustum*, Leidy. Ib., V, 101.

5. *Thelastoma Brevicaudatum*, Leidy. Ib., V, 208.

The larva of a lamellicorn insect, from which this species was obtained, Dr. J. L. Le Conte informs me, belongs to *Scarabeus relictus*.

6. *Thelastoma Gracile*, Leidy.

Oxyuris gracillis, Hammerschmidt. Naturw. Abh. v. Haidinger, I, 287, Tab. X, Figs. 21-25.

7. *Thelastoma Dilatatum*, Leidy.

Oxyuris dilatata, Hammerschmidt. Ib., I, 287, Tab. X, 26, 27.

Thelastoma Laticolle, Leidy.

Oxyuris laticollis, Hammerschmidt. Ib., I, 288, Tab. X, 28-34.

LUMBRICULUS, GRUBV.

Acestus, Leidy. Proc. A. N. S., V, 226.

Characteribus reformatis. Body filiform, cylindroid, hyaline. Podal spines in 4 rows, in fasciculi of 2 to 5, furcate. Upper lip simple, conoidal. Girdle none. Eyes none. Blood bright red.

1. *Lumbriculus Spiralis*, Leidy.

Acestus spiralis, Leidy: Pr. A. N. S., v, 226. Description from the young; found in the spring of the year.

Adult.—Body very long and delicate, filiform, cylindrical; posteriorly obtusely rounded. Upper lip compressed, conoidal. Annuli over 200. Podal spines in 4 rows, 3 to 5 anteriorly, 2 to 3 posteriorly in each fasciculus, long sigmoid, furcate. Intervals of the viscera distended with globular corpuscles, which, shining through the translucent integument, give the annuli a deep greenish or bluish white opalescent appearance.

Length from 1 to 3 inches; breadth from 1-8th to 1-5th line. One of three inches in length had 276 annuli.

Habitation.—In the mud about the roots of *Pontederia cordata*, *Sagittaria sagitifolia*, and *Arum virginicum*, in ditches below Philadelphia. It is also often found coiled up in a remarkably close knot among the outer decaying petioles of the leaves of the plants just mentioned. Months of August and September.

2. *Lumbriculus Hyalinus*, Leidy.

Acestus hyalinus, Leidy: Proc. A. N. S., v, 226. Description from the young in the Spring.

Adult.—Body filiform, red in color, the posterior fifth yellowish, translucent. Upper lip sub-acute. Caudal annulus obtuse. Annuli from 120 to 180. Podal spines in fasciculi of from 3 to 8, furcate.

Whole length 2 inches, with usually 150 annuli; breadth anteriorly 1-5th line, posteriorly 1-6th line. One of 1 inch is about 1-6th line anteriorly, 1-8th of a line posteriorly.

Habitation.—Found in ditches with the preceding, the anterior two-thirds of the body buried in the mud, with the tail rapidly vibrating like *Saenirus* or *Strephuris*. Months of August and September.

CHETODEMUS, GENUS NOVUM.

Body cylindroid. Upper lip very large and broad. Podal spines in 4 rows, fasciculate, aristate. Mouth large, inferior; pharynx capacious, œsophagus cylindrical; intestine capacious. Eyes none. Blood colorless. Increasing by segmentation.

1. *Chatodemus Panduratus*, Leidy.

Body transparent, colorless. Upper lip panduriform, broader than the body. Podal spines in fasciculi of 4, long sigmoid, aristate, divergent, 1-666th inch long, commencing with the oral segment. Pharynx oval; œsophagus narrow, cylindrical; intestine large, narrowing posteriorly.

Whole length of an individual of three segments 1 line; breadth 1-570th inch. Breadth of upper lip 1-500th inch. First segment of the body with 7 annuli; second with 5; the third with 9.

Habitation.—Found in stagnant ponds and ditches.

Remark.—Allied closely to *Acolosoma*.

STYLARIA, LAMARCK.

1. *Stylaria Paludosa*, Lamarck.

Nais proboscidea, Linn. Syst. Nat., 13th ed., vol. i, pt. 6, 3121.

Body cylindroid, colorless, transparent. Without segmentation from 15 to 20 annuli; one of two segments 40 annulations. Podal spines, 7 to 10 in each fasciculus, long sigmoid, hooked and bifid at the free end. Setæ commencing after the fifth annulus from the mouth, usually single, occasionally two, from 1-400th inch to 1-66th inch in length. Caudal annulus truncated, sinuous, fringed with short stiff hairs. Upper lip broad, emarginate, with a cylindroid, flexible, probosciform appendage from 1-33d to 1-25th inch long projecting from its notch, fringed with short stiff hairs. Eyes two, transverse reniform, situated one on each side of the mouth. Mouth triangular; pharynx capacious, œsophagus cylindrical, terminating in the intestine at the third setous annulus.

Whole length from 2 to 4 lines; breadth 1-6th line.

Habitation.—In ditches and ponds in the neighborhood of Philadelphia.

2. *Stylaria Fossularis*, Leidy.

Body of two segments, composed of 24 annuli in the first, 22 to the last. Podal spines 5 to 7 in each fasciculus. Setæ commencing after the fifth annulus, usually double, to 1-66th inch long. Upper lip broad, demi-oval, compressed, not emarginate, with a cylindroid, flexible, probosciform appendage 1-33d inch long projecting from its summit. Eyes two, transverse, one on each side of the mouth. Pharynx capacious, extending to the 4th annulus; œsophagus cylindroid, tortuous, extending to the 7th annulus.

Whole length $4\frac{1}{2}$ lines; breadth 1-6th line.

Habitation.—Found with the preceding.

ANELCODISCUS, GENUS NOVUM.

Body cylindroid, smooth, posteriorly terminated by a cordiform, retractile acetabular disk. Mouth and anus terminal. Intestine simple, straight.

1. *Anelcodiscus Pellucidus*, Leidy.

Body cylindroid, colorless, transparent; anteriorly rounded, obtuse; posteriorly spreading into a cordiform disk for attachment. Disk retractile; when retracted, the body becoming dilated oval in the middle and the posterior part doubly intussuscepted.

Length 1-100th inch; breadth 1-1000th inch.

Habitation.—Parasitic within the intestine of *Stylaria fossularis*.

Remarks.—From the translucency of the last-mentioned worm, its parasite may be seen within the intestine attached to the mucous membrane by means of its posterior cordiform disk. While attached it alternately retracts its body with a jerk, and then lengthens itself; in the former movement the posterior third of the body becoming doubly intussuscepted, so as to have the appearance of a double articulation. When detached the same movement takes place, but in that of retraction the cordiform disk is entirely drawn within the animal's body. More details of this curious parasite I did not obtain, for although I saw three, and removed them from the intestine of the *Stylaria*, yet their movements were so active I could not study them to advantage, and to quiet them I tried a minute portion of the vapour of chloroform, which instantly killed them, but at the same moment they underwent total destruction. Since then I have not been able to examine others.

GREGARINA, DUFOUR.

1. *Gregarina Scarabei relictii*, Leidy.

Gregarina, Leidy. Pr. A. N. S., v, 208. Found in the larva of *Scarabeus relictus*.

Emea, Leidy. Pr. A. N. S., v, 125.

Characteribus reformatis. Body linear, compressed. Head continuous with the body, with two lenticular depressions upon each side. Mouth infero-terminal. Œsophagus styliiferous. Eyes 4 to 6 anterior. Fresh water *Nemertinea*.

1. *Emea Rubra*, Leidy. Pr. A. N. S., v, 125.

Body contracting irregularly, reddish or yellowish flesh colored. Anteriorly and posteriorly obtusely rounded. Eyes two or three black spots, placed in a line behind one another, upon each side of the head; often irregular. First pair of lateral depressions opposite the interspace of the anterior two pairs of eyes: second pair just postero-lateral to the posterior pair of eyes. Œsophagus very long and tortuous, villous, furnished at its bottom with a single spine or nail-like tooth, and four others upon each side in a rudimentary condition, enclosed in a sac. Intestine becoming obliterated posteriorly.

Ordinary length from 1 to 6 lines; breadth from 1-8th to 1-5th line. Occasionally 10 lines long by 1-3d broad.

Habitation.—In marshes, ditches, and stagnant ponds in the vicinity of Philadelphia.

Variety a.—White, 2 lines long; 1-6th line broad.

Habitation.—On the under side of stones in the Schuylkill river.

Remark.—I have sometimes met with the largest sized females without the appearance of a developed ovum, and at others, those of from 1 to 3 lines in length, with from 3 to 18 large yellow eggs.

2. *Emca Dugesii*, Leidy.

Polia Dugesii, Quatrefages. Rech. Anatom. et Zoölog., ii, 211.

DENDROCOELUM, OERSTED.

Characters same as *Planaria*, with the head furnished with a hemispherical cotyloid cavity, capable of eversion into the form of a pediculated discoidal acetabulum.

1. *Dendrocoelum Superbum*, Girard. Proc. Bost. Soc. Nat. Hist., iii, 265. Keller and Tiedemann, Nordamerik. Monatsb., ii, 2.

Body thin, plano-convex, translucent white, with the sides nearly parallel; anteriorly truncated, with the lateral angles slightly projecting; posteriorly obtusely angular. Cotyloid cavity of the head prominent, opening at the anterior truncated margin, when everted presenting the form of a circular disk supported upon a broad columnar contraction of the head. Eyes two, nearly globular, composed of a transparent vitreous humor enclosed at the postero-internal half by a black choroid. Œsophagus long, keg-shaped; intestine delicately and minutely ramified, brown or blackish-brown in color.

Length 3 to 8 lines; breadth 2-5ths to 4-5ths of a line. The longest may contract to 3 lines to 4-5ths in breadth.

Habitation and Remarks.—In ditches communicating with the Delaware and Schuylkill rivers, below Philadelphia, creeping upon the submerged stems of *Arum virginicum*, *Pontederia cordata*, *Nelumbium luteum*, and *Zizania aquatica*.

When seized or irritated it everts its acetabulum, by which it attaches itself to surrounding bodies with the tenacity of a leech.

RHYNCHODEMUS, GENUS NOVUM.

Body cylindroid, ob-fusiform. Head continuous with the body, probosciform, recurvate, without tentacular appendages. Eyes two lateral. Interior structure planaroid. Terrestrial.

1. *Rhynchodemus Sylvaticus*, Leidy. Pr. A. N. S., v, 241.

2. *Rhynchodemus? Terrestris*, Leidy.

Fasciola terrestris, Müller.

Planaria terrestris, Gmelin, Syst. Nat., 3092 : Duges, An. Sc. Nat., 21, 82, pl. 2, fig. 18 ; Oersted, Entw. d. Plattw. ; Diesing, Syst. Helm., i, 206.

BDELLOURA, LEIDY. PROC. A. N. S., V, 242.

Body dilated, plano-convex ; posteriorly dilated, constricted, truncated. Head continuous with the body ; tentacular appendages none. Mouth inferior, sub-central : œsophagus protractile, cylindrical. Eyes two. Marine.

1. *Bdelloura Parasitica*, Leidy. Ib.

2. *Bdelloura Rustica*, Leidy. Ib., 243.

3. *Bdelloura? Longiceps*, Leidy.

Planaria longiceps, Duges, An. Sc. Nat., 21, 83, pl. 2, fig. 21 ; Diesing, Syst. Helm., i, 207.

PLANARIA, MÜLLER.

1. *Planaria Maculata*, Leidy : Pr. A. N. S., iij, 251 : v, 225.

Dugesia maculata, Girard : Keller and Tiedemann, Nordam. Monatsb., ii, 23.

Body thin, spatulate, with sharp, nearly parallel, lateral margins ; anteriorly thin trapezoidal, the latter angles formed by an acute, angular, erectile tentacular appendage ; posteriorly sub-acute ; superiorly a little convex, irregularly maculated with black, in the young sometimes with brown ; inferiorly translucent whitish. Eyes two, reniform, proximate, situated at the inner side of an oval translucent space.

Length from 2 to 8 lines.

Habitation.—In ditches and ponds in the neighborhood of Philadelphia ; upon the under side of stones in the Delaware and Schuylkill rivers, abundant.

Variety a.—Brownish, indistinctly maculated.

Length 8 lines.

Variety b.—Maculations grayish, indistinct, with the intestine blackish, brownish, or greenish, frequently with a lighter stripe down the back.

Length 6 lines.

Habitation.—Schuylkill river, under stones.

CATESTHIA,* GENUS NOVUM.

Body very soft, cylindroid. Head continuous with the body. Mouth infero-terminal; œsophagus amphoraform. Eyes two, deeply seated in the interior of an oval translucent space of the integument.

1. *Catesthia Stellato-Maculata*, Leidy.

Body long, cylindroidal; anteriorly and posteriorly obtusely rounded; superiorly maculated closely and regularly with very much branching, stellate, black pigment cells, which cease abruptly latterly, and anteriorly form 3 lobes, in the translucent whitish interspaces of which, deeply seated, are the eyes, which are black and globular; inferiorly translucent whitish. Mouth round, very large and dilatable; œsophagus amphoraform, very large.

Length 3 to 8 lines, breadth 1-4th to 1 line; thickness 1-5th to 4-5ths line.

Habitation.—Upon the under side of stones in the Delaware and Schuylkill rivers, below tide-water mark.

Remarks.—Closely allied to *Vertex*, Hemp. and Ehrenb., but has not four eyes, and has a differently arranged generative apparatus.

It is exceedingly voracious. I have seen an individual of 8 lines in length swallow whole a *Planaria maculata* 6 lines in length.

[December, 1851. No 98. See Bibliography.]

CONTRIBUTIONS TO HELMINTHOLOGY.

MICROSTOMUM? OERSTED. (EUSTOMUM.)

Body elongated, compressed, cylindroid, vibrillated, increasing by transverse segmentation in pairs. Head continuous with the body, furnished upon each side with a respiratory fovea. Mouth antero-inferior; intestinal canal produced anterior to the mouth in the form of a cœcum; œsophagus amphoraform, muscular, not protractile; anus at first (after segmentation) open, afterwards becoming closed. Ocelli none. Minute rhabdocœla inhabiting fresh water.

This genus is the *Microstomum* of Oersted, if what I have observed to be lateral respiratory foveæ of the head are, according to him and other authors, ocelli destitute of pigment.

In numerous individuals of what I have considered below to be of three distinct species of the genus they were always observed to be in a state of division by pairs, and the primary pair of segments

* *Catesthia*: *κατασθω*, devour.

about their middle had already developed respiratory foveæ and were slightly indented preparatory to division before the first pair were separated.

1. *Microstomum (Eustomum) Philadelphicum*, Leidy.

Body linear, slightly attenuated posteriorly; head conoidal, with the apex surmounted by a small oval papilla; tail obtusely rounded. Respiratory fovea sub-hemispherical, placed at the base of the cone of the head. Mouth oval, protractile; œsophagus keg-shaped, intestine narrowed, cylindroid, dilated at the commencement; colorless, translucent, vibrillated, increasing by transverse segmentation, always observed in the process of forming two segments.

Length 2-5ths line by 1-500th inch broad.

Habitation.—Found in the water of marshes and ditches in the neighborhood of Philadelphia.

2. *Microstomum (Eustomum) Variabile*, Leidy.

Body broad, linear; anteriorly and posteriorly obtusely rounded. Respiratory fovea, longitudinally oval, lateral. Intestine very broad; colorless, increasing by twos.

Length from 1-80th to 1-24th of an inch by 1-800th to 1-400th inch broad.

Habitation.—With the preceding.

3. *Microstomum (Eustomum) Caudatum*, Leidy.

Body long, narrow, linear; anteriorly obtusely rounded, posteriorly ending in a narrow, blunt, elevated tail 1-400th inch long from the position of the anus; increasing by twos, the tail of the anterior segments projecting above and its whole length posterior to the head of the succeeding segment.

Length 3-4ths to 1 $\frac{1}{4}$ lines; breadth 1-300th to 1-250th inch.

Habitation.—With the preceding.

Rhynchodemus Sylvaticus, Leidy. Pr. A. N. S., v, 289. Error of reference.

Planaria sylvatica, Leidy. Ib., 241.

Stylaria Fossularis, Leidy. Ib., 287. A number of individuals in a state of segmentation, from which the species was first described, preserved alone in a glass vessel with some confervæ; upon the occurrence of cold weather passed into the perfect condition as follows:

Body long, cylindroid, hyaline, permitting the ash-colored or yellowish intestine to be seen through the integument, divided into from 50 to 65 annulations, furnished with a distinct girdle posterior to the third annulus from the mouth, which extends the breadth of three annuli. Podal hooks in fasciculi of 10 to 12. Setæ commenc-

ing after the girdle, usually one, often two, upon each side of the annuli. Head obtusely rounded and prolonged into a cylindroid, very movable, digitiform, transversely wrinkled proboscis. Caudal annulus terminating in two short lobes.

Length 3-4ths to 1 inch; breadth 1-5th to 1-4th of a line. Length of proboscis 1-20th inch.

Remarks upon the Habits.—When at rest the worm lies with the anterior four-fifths of the body upon the surface of the mud at the bottom of the water, with the tail fifth buried. It is very active in its movements. It also constructs tubes of mud. It is hermaphrodite, and copulates in the same manner as the earth worms.

In a number of individuals I observed bunches of spermatozoa, and in several of the same from three to five nearly completely formed ova placed just posterior to the girdle. The eggs when extruded were attached to the inside of the vessel in which the worms were kept. They consisted of an oblong quadrilateral translucent, whitish, papyraceous web, enclosing a light amber-colored, bottle-like case, with an open neck, and the body containing white globular mass, the true egg.

The perfect worm after living about two months died. Some of the ova several weeks after their extrusion were observed to have the young almost perfected, and these a few days after their escape presented the following characters :

Body cylindroid, divided into 35 annulations, each with a pair of fasciculi of four or five hooks; posterior to the first three also provided on each side with one or two setæ. Tail bilobed. Head as in the parent. No girdle; no indication of division, and no apparent developing annuli at the tail end. Length 2 lines.

[November. 1853. No. 128. See Bibliography.]

Dr. Leidy stated that the nodular bodies imbedded in the tails and fins of the fishes presented by Dr. Webber, of Charlestown, N. H., were most probably indurated entozoon sacs. Many ponds and lakes contain a minute worm, resembling in general form a tadpole, belonging to the genus *Cercaria*. The species, after living for some time in the water, attach themselves to fishes and other living animals, and, after losing the tail, form for themselves cysts in the integuments, and subsequently become transformed into a parasitic worm of the genus *Distoma*.

[December, 1855. No. 151. See Bibliography.]

NOTICES OF SOME TAPE WORMS.

BY JOSEPH LEIDY, M. D.

1. *Tænia Solium*, Lin.

Hab.—Occasional in the Anglo-American and in the Negro. I have one specimen with segments 6 lines long by 2 lines wide, obtained by Prof. Agassiz, from an Indian of Lake Superior.

Note.—Among all the tape worms from man which I have seen in this country—and I have taken the trouble to examine specimens in many localities—I have never yet met with the *Dibothrium latum* (*Bothrioccephalus latus*).

2. *Tænia Laticephala*, Leidy. Head large; acetabula opposite, very prominent, hemispherical; mouth slightly prominent, unarmed. Neck short. Anterior segments of the body short, oblong square, posteriorly square. Generative apertures marginal, alternate. Protruding penis; elongated conical. Length of one specimen 9 inches, greatest breadth $\frac{3}{4}$ of a line. Breadth of head $\frac{1}{2}$ a line; of neck $\frac{1}{4}$ a line.

Hab.—The small intestine of *Hystrix dorsata*.

3. *Tænia Serrata*, Goeze. Head not broader than the neck, convex anteriorly; mouth prominent, furnished with a circle of strong hooks. Neck long. Anterior segments transversely oblong or cuneate; posteriorly square. Length of three specimens 9 to 12 inches; greatest breadth $1\frac{1}{2}$ lines. Breadth of head $\frac{1}{3}$ a line.

Hab.—From the small intestine of an Esquimaux dog, which was brought from the Arctic regions of North America by the eminent naval navigator, Dr. E. K. Kane, U. S. N.

4. *Tænia Cucumerina* Bloch.

Hab.—Common in the small intestines of all varieties of our dogs.

5. *Tænia Elliptica*, Batsch.

Hab.—Common to the domestic cat.

6. *Tænia Crassicolis*, Rudolphi.

Hab.—Numerous specimens were obtained from the small intestine of a single cat.

7. *Tænia Pusilla*, Goeze.

Hab.—Not uncommon in the introduced Norway rat.

8. *Tænia Pectinata*, Goeze.

Hab.—Eight fragments from 1 to 4 inches long, with the greatest breadth $1\frac{1}{2}$ lines, and having cuneate segments, short and broad, were obtained from the small intestine of *Lepus sylvaticus*.

9. *Tænia Expansa*, Rudolphi.

Hab.—The anterior two feet of a specimen were obtained from the small intestine of an ox.

10. *Tænia Bacillaris*, Goeze?

Hab.—Several fragments, each almost an inch in length and half a line in breadth, with short and broad cuneate segments, were obtained from the intestines of *Scalops aquaticus*.

11. *Tænia Pestifera*, Leidy.

Head small, continuous with the neck; acetabula terminal and oblique, hardly prominent beyond the outline of the neck, hemispherical. Mouth not prominent, unarmed. Neck long. Segments cuneate: those anterior short and broad, those posterior longer.

Hab.—Three specimens from $1\frac{1}{2}$ to 2 inches long, with the greatest breadth $2\frac{5}{8}$ ths of a line, were obtained from the small intestine of *Molothrus pecoris* by Prof. Baird, and one specimen $4\frac{1}{2}$ long, with the greatest breadth $\frac{2}{3}$ ds of a line, was procured from the small intestine of *Dolichonyx oryzivora*.

12. *Tænia Strigis Acadica*, Leidy.

Two specimens, each about $1\frac{1}{2}$ inches long and apparently consisting of the whole body, except the head and neck, were obtained by Prof. Baird from the small intestine of *Nyctale acadica*. The body is compressed cylindroid, with the anterior segments narrow, conical and those posteriorly moniliform. Breadth anteriorly $\frac{1}{8}$ th of a line: posteriorly $\frac{1}{3}$ d of a line.

13. *Tænia Variabilis*, Rudolphi?

A fragment 3 inches long and 1 line wide was procured by Prof. Baird from the intestine of *Scelopax minor*. Segments short, broad, and subcampanulate, the infero-lateral borders being everted.

14. *Tænia Dispar*, Goeze.

Several specimens obtained by Prof. Agassiz from the intestine of *Menobranchnus maculatus*, without the head, are 3 inches long and $\frac{1}{2}$ a line wide, and have longitudinally oblong segments, with lateral and alternate marginal generative apertures and filiform penes. I further have obtained four specimens from *Rana pipiens* and two about 6 inches in length from *Bufo americanus*.

15. *Tænia Lactea*, Leidy. Head small, continuous with the neck, without rostellum; acetabula anterior, hemispherical, situated at the four angles. Neck moderately long. Segments anteriorly transversely oblong, posteriorly longer than the breadth, square with rounded angles. Generative apertures marginal (indistinct in the specimen).

Hab.—One specimen $\frac{1}{6}$ inches long and $\frac{2}{3}$ ds of a line wide was found in the intestine of *Tropidonotus sipedon*. In alcohol the specimen contracted to one-half the original length and widened to 1 line.

16. *Tænia Gibbosa*, Leidy. Head minute, discoid; acetabula horizontal, contiguous, circular. Mouth not prominent, unarmed. Neck long, broad, and thick. Segmented portion of the body comparatively short; segments transversely oblong; the last one discoidal. Generative aperture not seen.

Hab.—Two specimens, $1\frac{1}{2}$ inches long, with the greatest breadth $1\frac{1}{3}$ lines, were obtained by Dr. Le Conte from the intestine of a species of *Lamna* inhabiting the Pacific coast of North America.

17. *Dibothrium Punctatum*, Rudolphi. Head 1 to $1\frac{1}{2}$ lines long; oblong; bothria marginal, linear. Neck none. Anterior segments cuneate or triangular; posterior ones quadrate; each with an appearance of three subdivisions, with the subsegments having a pair of generative apertures in the course of a longitudinally depressed, dark-colored line passing the length of the body.

Length 1 foot, greatest breadth $1\frac{3}{4}$ lines.

Hab.—Intestine of *Platessa plana*.

18. *Ligula Monogramma*, Creplin.

A specimen imperfectly developed, 6 inches long, with the greatest breadth 6 lines, was obtained from the abdominal cavity of the *Morrhua americana*, and two specimens of almost the same length, with the greatest breadth 5 lines, were obtained from the abdominal cavity of *Leuciscus pulchellus*.

[No. 152. See Bibliography.]

EXTRACT FROM "CONTRIBUTIONS TOWARDS A KNOWLEDGE OF THE MARINE INVERTEBRATE FAUNA ON THE COASTS OF RHODE ISLAND AND NEW JERSEY."*

DENDROCÆLA.

Monocelis Agilis, Leidy. Body elongated elliptical, anteriorly and posteriorly subacute, black or fuliginous. Eye brown. Length one line, breadth one-eighth of a line. Found actively creeping on *Mytilus edulis*. Point Judith.

Planaria Frequens, Leidy. Body spatulate, posteriorly convex, anteriorly narrowed; head auriculate. Eyes two, reniform, distant. Color above black, beneath gray. Length one to two lines, by one-sixth to two-fifths of a line in breadth. A small, quite active, and

* Journal Acad. Nat. Sci., Phila., 1855.

remarkably abundant species, found beneath stones, near high-tide mark. Point Judith.

Nemertes Socialis, Leidy. Body long, linear, flattened, anteriorly subacute, anteriorly obtuse or subacute; usually black above, and brownish ash-colored beneath, occasionally brownish ash-colored with the anterior extremity tipped with black. Head not constricted from the body. Eyes two to four pairs, arranged longitudinally on each side, length up to six inches, by one-third of a line in breadth. Very abundant, often in masses, about the roots of corallines between tides. Point Judith.

Meckelia Ingens, Leidy. Body long, tape-like, narrowed posteriorly, cream-colored. Head obtusely angular, depressed; lateral fissures deep. Generative aperture a longitudinal fissure. Described from a specimen preserved in alcohol, and measuring in its present condition fifteen inches in length, eight lines in breadth, and three and a half lines in thickness. It was obtained by Mr. Chas. C. Ashmead from an oyster bed at Beesley's point, New Jersey, and when alive measured more than a yard in length.

NEMATOIDEA.

Pontonema, Leidy. Body capillary, narrowing toward the extremities. Head continuous with the body, obtuse, pointed, with short cirri. Eyes none, caudal extremity obtuse. Generative aperture near the middle of the body. Œsophagus long, cylindrical; intestine cylindrical. Ovaries two. Allied to *Amblyura*. Marine.

Pontonema Vacillatum, Leidy. Body cylindroid, with minute cirri anteriorly in addition to those around the head. Tail short, obtuse, incurved. Color brownish white. Length to three-fourths of an inch, by one-fifth of a line in thickness. Found abundantly beneath stones, between tides, at Point Judith.

Pontonema Marinum, Leidy. Body cylindroid. Tail long, narrow, blunt. Color white. Length to three lines. Obtained from an oyster bed, in about six feet of water, in one of the sounds near Atlantic City, New Jersey.

ENTOZOA.

Gregarina ——. Body elliptical; head oblate spheroidal. Length .225 mm., breadth .072 mm. From the intestine of *Nereis denticulata*.

Leucophrys Clavata, Leidy. (Journ. Acad. Nat. Sc., ii, 50.) In the visceral cavity of *Lumbriculus tenuis*.

Leucophrys Cochleariformis, Leidy. (Pl. XI, figs. 62, 63.) Body curved cochleariform. Length .135 to .18 mm. From the intestinal canal of *Lumbriculus tenuis*.

I found four individuals of this remarkable species in a dozen of the *Lumbriculus*. While within the intestine it appears quiescent, but when set free it moved about actively, by means of its long vibrating cilia, with the bowl-end forward.

ANNULATA.

Naraganseta, Leidy. Body cylindrical, narrowed posteriorly; no lateral pinnæ; segments numerous; those anteriorly furnished with a few simple cylindrical, lateral tentaculæ; anterior segments with four rows of simple setæ in fascicles; succeeding few segments with two rows of simple setæ, and two rows of cochleariform podal spines; posterior segments with four rows of cochleariform spines. Upper lip distinct, conical, eyes none.

Naraganseta Coralli, Leidy. (Pl. XI, figs. 46-48.) Body black, brownish or yellowish black, ninety segments in an individual, one inch and a quarter in length. Eight comparatively short tentaculæ on each side of the anterior six segments; three to the first segment; first two the shortest, the third the most robust; orange in color, and except the most robust one, tipped with black. Anterior ten segments with four rows of simple setæ in fasciculi of five; the succeeding four segments with two rows of simple setæ, and two rows of cochleariform podal spines; and the following segments with four rows of cochleariform podal spines in fasciculi of four to six. Point Judith.

This curious worm lives in tubes within the dead portions of *Astranga astræformis*. It protrudes the anterior part of its body with the orange colored antennæ. The latter are contractile, from one to four lines long, and, with the exception of the third or more robust one on each side, are tipped with black, as if to be subservient to the impressions of light. Its setæ are quite simple, as represented in figure 47, and are about the fifth of a line in length. The podal spines consist of a long style ending in a bowl, like that of a spoon, as represented in figure 48.

For the new genus, of which the worm just described is the type, I have adopted the Indian name Narragansett, being that of the bay on the shores of which the animal was first discovered.

Sabella Oculifera, Leidy. (Pl. XI, figs. 55-61.) Body demicylindrical, posteriorly narrowed, one hundred and thirty-eight setiger-

ous segments to an individual one and a half inches in length. Tentaculæ twenty-four in number, arranged in the four-fifths of a circle, decreasing in length towards the extremities of the latter, reflected, supplied with about forty-eight secondary tentaculæ, arranged in pairs; two or three black eye spots on the back of the long tentaculæ. Two rows of setæ in fascicles of about six, and two rows of podal hooks in transverse series of ten. Setæ in the third to the ninth segment inclusive, in major part spade-shaped with a short subulate point; of the following segments all like the latter. Podal hooks in the first to the tenth segments inclusive, bird-like in form, associated with opposing spade-like podal spines. Podal hooks of the following segments smaller than those anteriorly. Worm living in tough tubes composed of mud, and found in a horizontal position partially concealed beneath masses of *Astrangia astraciformis*. Point Judith.

The plumose tentaculæ with the dark eye specks on their back render this worm a beautiful object. The surface of the tentaculæ is everywhere covered with vibrating cilia. By transmitted light the blood appears of a bright green color.

Clymene Urceolatus, Leidy. Body cylindrical, composed of segments of various lengths, twenty-six in number, including the head and caudal appendage. The anterior eight segments the shortest; the seven preceding the last ten the longest; those in advance of the third, and intervening to this and the sixth and the ninth, without setæ. Head obliquely truncated, concave, with a thin acute margin. Mouth inferior triangular. Caudal appendage large, urceolate, with the margin entire. Color reddish brown. Length five inches; breadth one and a half lines. Raked from the mud in a sound about six feet deep near Atlantic City, N. J.

Clymene Torquatus, Leidy. Body cylindrical, with a membranous collar at the fifth segment. Head abruptly truncated, concave, with a thin membranous border emarginate below and on each side. Mouth inferior, at the summit of a double-ringed papilla. Length? (the posterior portion of the only specimen found is either wanting or the body terminates very abruptly). The anterior fourteen segments measure one inch and a half in length by one line in breadth. Found with the preceding species.

Pectinaria Auricoma, Grube. (*P. Belgica*, Grube, Gould; *P. Groenlandica*, Grube, Stimpson)? Body composed of nineteen segments, including the head and tail. Paleæ eight to sixteen in a fasciculus, according to age. Twenty-eight denticulations to the

frontal border. Length up to an inch and a half. Point Judith and Great Egg Harbor.

Terebella Ornata, Leidy. (Pl. XI, figs. 44, 45). Body with about one hundred segments, of which forty-five are setigerous. The anterior ten ventral plates transversely oblong square, those succeeding abruptly diminished in size. Tentaculæ numerous; branchiæ in three pairs. Color brownish red. Length to four inches. Lives in tubes of mud. Found at Point Judith, Atlantic City, and Beesley's point.

I found the young of this species at Point Judith. It had the appearance of that of *Terebella nebulosa*, Mont., represented in fig. 24, pl. 3, of M. Edward's Rech. Anat. et Phys., etc. The single specimen obtained was three lines long. There were twelve tentaculæ twenty-five eyes around the head, and twenty-eight segments to the body, of which sixteen were setigerous.

Spirorbis Spirillum, Lamarck. On *Chondrus crispus*, Point Judith.

Torquea, Leidy. Body cylindrical, narrowed at the extremities. Tentaculæ numerous, attached laterally to the head, capable of very great extension and contraction by the passage to and fro of blood corpuscles from the cavity of the body. Eyes none. Setæ in two rows, three to twelve in a fasciculus, extremities lanceolate. Podal hooks in two rows, short, from twelve to forty in each transverse series, supported at the edge of a laminar process stiffened with fine, simple setæ.

Torquea Eximia, Leidy. (Pl. XI, figs. 51, 52). Body soft, blood red. Tentaculæ very numerous, capable of very great extension by the propulsion into them of the bright red corpuscles, with which the cavity of the body is filled. Setæ anteriorly in fasciculi of twelve, posteriorly from three to six. Podal hooks commencing at the eighth segment, from twelve to forty in each series. Worm half an inch to an inch in length, with from forty to sixty segments. Obtained from mud and sand below low-tide mark. Point Judith.

This worm is remarkable for its softness, its blood red color, its numerous extensible tentacles, and its numerous podal hooks. It is capable of slowly progressing by means of its tentaculæ. In the process, these are extended by having forced into them the bright red corpuscles which fill the visceral cavity of the body; they then attach themselves by their extremities to the surface upon which the animal is lying, and by subsequent contraction the body is dragged after them.

Cirrhatulus Fragilis, Leidy. (Pl. XI, figs. 39-43.) Body cylindrical, narrowed towards the extremities, reddish orange color, pos-

teriorly greenish. Mouth inferior, circular; upper lip conical. Eyes two. Cirri numerous, orange colored; the first pair commencing at the second setigerous segment and the most robust. Setæ in two rows, simple, in fasciculi of three to five. Podal hooks in two rows, five to eight in each fasciculus, sigmoid, bifid at the free extremity. Intestine cylindrical, constricted. Ovaries on each side of the intestine, extending four-fifths the length of the body. Worm three lines long by one-fourth of a line broad, and composed of forty annulations. Found under stones on the shores of Point Judith.

Lumbriconereis Splendida, Blainville. Body cylindrical, copper red and strongly iridescent. Upper lip conical; mouth round, with a short proboscis armed with an inferior pair of dental plates, as well as a complex dental apparatus above and within. Eyes four. Caudal segment furnished with a pair of minute cirri. Lateral tubercles with from six to ten setæ in two fasciculi. Setæ simple, distally curved and grooved and ending in a subulate point. Length up to eighteen inches, with as many as 420 segments. Raked from oyster beds in Great Egg Harbor, N. J., where it is abundant. The animal corresponds closely with De Blainville's description of a specimen, the country of which he remarks he did not know.

Eunice Sanguinea, Montagu. Body compressed, cylindroid, brownish red, iridescent. Head with two oval dorsal lobes. The five antennæ nearly equal. An eye situated between the outer two antennæ. Branchiæ blood red, commencing at the sixteenth segment and continuing until within about forty segments of the posterior extremity. Setigerous tubercles of the anterior sixteen segments containing two spines, the remainder containing four. Setæ in two fasciculi to each tubercle, simple and compound, the latter consisting of a scalpel-like blade received into a forked handle. Length to five inches, with two hundred and twenty segments. Found with the preceding.

Glycera Americana, Leidy (Pl. XI, figs. 49, 50). Body cylindrical, brownish red. Upper lip short with hardly perceptible antennæ. No branchial appendages except three minute dorsal papillæ upon the pinnæ, the latter fine lobed, armed with two spines and four fasciculi of simple and compound setæ, thirty to forty in number in each pinnæ. Simple setæ linear, armed; compound setæ composed of a furcate handle and a long linear lanceolate blade. Length up to five inches, with a breadth of one and a half lines, and about 240 setigerous segments, between each of which is a secondary ring. Found at Point Judith, Atlantic City, and Great Egg Harbor. It

is most like the *Glycera capitata* Oersted, but nevertheless is a different species.

Nereis Denticulata, Stimpson. Abundant at Point Judith, R. I., and on the shores of Great Egg Harbor, N. J.

Siphonostomum Affine, Leidy. Body cylindro-fusiform minutely papillated, with four rows of fasciculi of setæ, those of the anterior three segments directed forward, those of the first segment one-third of an inch long, those of the third segment one line long. Length to three inches, by two lines broad, with 80 segments. Obtained by Mr. Ashmead, from Beesleys Point, N. J.

Lepidonote Armadillo, Leidy. (*Aphrodita armadillo* Bosc. *Lepidonote punctata* Oersted, Stimpson. *Polynæ squamata*, M. Ed. Gould)? (Pl. XI, fig. 54.) Body of twenty-four segments, with twelve pairs of elytræ completely covering the back. Elytræ fringed externally spotted with variously colored papillæ. Head round with two pairs of eyes, three anterior tentaculæ and three lateral tentaculæ; the middle of the anterior and the first of the lateral tentaculæ the longest, the former with two eye-like black spots, the latter with none. All the others with a single black eye-like dilatation or spot. Dorsal and anal cirri with black eye-like dilated spots. Length an inch and a quarter, by three lines wide. Point Judith and Great Egg Harbor.

The *Lepidonote squamata* is described as having five tentaculæ; in *L. armadillo* I in no case could find less than nine, as represented by figure 54.

Sigalion Mathildæ Audet, Edw. (Pl. XI, fig. 53.) Body composed of over 200 segments with over 150 pairs of elytræ completely covering the back. Head with five antennæ, of which the outer ones are the longest and most robust. The middle one is next in length, and the second is the shortest. Eyes four, those anterior nearly concealed by the bases of the second antennæ. Setæ of the dorsal pinnæ simple, those of the ventral pinnæ compound. Length over five inches, by two and a half lines in breadth. Described from a specimen, with the posterior extremity lost. Obtained by Mr. Ashmead at Beesleys Point, N. J.

Ophelia Simplex, Leidy. Body fusiform, above convex, below flattened, anteriorly and posteriorly acute, reddish brown. Mouth inferior, round; cirri commencing at the third and ceasing about the twentieth segment. Setæ in two lateral approximated fasciculi, simple linear. Length two-thirds of an inch, with about 30 setigerous segments. Taken from below low tide at Point Judith.

Lumbriculus Tenais, Leidy. (Pl. XI, fig. 64.) Body cylindrical, linear, bright red, composed of six or more segments; ninth to the eleventh segment, inclusive, slightly thickened; two generative apertures on each of the ninth segment; four rows of podal hooks, anteriorly five or six in each fasciculus, posteriorly three or four in each fasciculus. Length up to an inch and a half, by the fourth of a line in breadth. Abundant about the roots of grasses on the shores of a sound on Point Judith.

This article is an extract from Marine Invertebrate Fauna on the Coasts of Rhode Island and New Jersey, by Joseph Leidy. Journal Acad. Nat. Sci., 1855.

[January, 1856. No. 154. See Bibliography.]

Dr. Leidy exhibited the heart of a dog, in which the right auricle, right ventricle, and the pulmonary artery and its branches were literally stuffed with worms. Minute worms have long been known circulating with the blood, and termed *Hæmatozoa*. About five years since Dr. L. described, in volume 5 of the Proceedings, the worm exhibited this evening as *Filaria Canis cordis*. The males measure five inches in length, the females ten inches.

Two hearts were brought to Dr. L. by Mr. Jos. Jones, of Georgia; one, that of a pointer, had in it five worms; the other, that of a cur, was the one exhibited. It is probable that both venæ were also filled, as the portions of those vessels that remained were blocked up. The animals did not die from the presence of the entozoa, but were killed in the course of some experiments. The cur was emaciated and voracious, restless when awake, and disturbed in its sleep.

[February, 1856. No. 156. See Bibliography.]

A SYNOPSIS OF ENTOZOA AND SOME OF THEIR ECTO-CONGENERS
OBSERVED BY THE AUTHOR.

PROTHELMINTHA.

1. *Bodo Ranarum*, Ehrenberg. Abundant in the intestines of different species of frogs and toads.
2. *Bodo Helicis*, Diesing.
Cryptobia Helicis, Leidy. Proc. Acad. Nat. Sci., iii, 101.
Cryptoicus Helicis, Leidy. Journ. Acad. Nat. Sci., 2d ser., i, 67.
Bodo Helicis, Diesing, Leidy. Pr. A. N. S., v, 284.
3. *Bodo Colubrorum*, Hammerschmidt. In the cloaca of *Tropidonotus sirtalis*.

4. *Bodo Julidis*, Leidy. Pr. A. N. S., v, 100; Trans. Am. Phil. Soc., 2d ser., x, 244.
5. *Bodo Muscarum*, Leidy. Frequent in the intestine of the house fly, *Musca domestica*, in immense quantity.
6. *Bodo Melolonthæ*, Leidy. Body spherical; diameter .00449 to .0112 mm. Tail simple, about the length of the diameter of the body. Found in the intestine of *Melolontha quercina* and *M. brunnea*.
7. *Bursaria Intestinalis*, Ehrenb. In the intestine of *Rana pipiens*.
8. *Leucophrys Stryatis*, Dujardin; *Leucophrys*, Leidy. Journ. A. N. S., 2d ser., ii, 49. In the liquids of the body of *Enchytracus*.
9. *Leucophrys Clavata*, Leidy. Journ. A. N. S., 2d ser., ii, 50; iii, 144. Found in the *Lumbriculus limosus* and *L. tenuis*.
10. *Leucophrys Cochleariformis*, Leidy. Journ. A. N. S., 2d ser., iii, 144. Found in the intestine of *Lumbriculus tenuis*.
11. *Leucophrys Socialis*, Leidy. Cordate, ovate, oval, pyriform, or globular, contractile, active, with one or many internal vacuole; striated, ciliated. Length .036 to .045 mm., breadth .03 mm. Found very frequently and abundantly within the stomach of the remarkable bryozoon, *Urnatella gracilis*. (Pr. A. N. S., vii, 191.)
12. *Nyctotherus Velox*, Leidy. Pr. A. N. S., v, 233; Trans. Am. Phil. Soc., 2d ser., x, 244. From the large intestine of *Julus marginatus*.
13. *Nyctotherus Ovalis*, Leidy. Pr. A. N. S., v, 100; Trans. Am. Phil. Soc., 2d ser., x, 244. From the intestine of the common cockroach, *Blatta orientalis*.
14. *Albertia? Pellucidus*, Leidy; *Aneleodiscus pellucidus*, Leidy. Pr. A. N. S., v, 287.

MYZELMINTHA.

15. ? *Monostomum Incommodum*, Leidy. Body compressed, above convex, below concave, sides parallel, anteriorly convex, posteriorly angularly convex. Head continuous with the body, obliquely truncated. Mouth round, surrounded with a wide circular lip, which is emarginate below. Male generative aperture? communicating with a hemispherical cavity (acetabulum?) one-fourth the length of the body from the head. Length 9 lines, breadth $1\frac{1}{2}$ lines.

Five specimens were obtained from the fauces of the *Alligator mississippiensis*, in Florida, by Prof. J. W. Bailey, of West Point. Is it probably a species of *Distomum*, with the ventral acetabulum emersed within the body?

16. *Monostomum Ornatum*, Leidy. Body slightly compressed ovoidal, anteriorly broad; yellow variegated with brownish red.

Mouth infero-terminal, acetabuliform, transversely oval. Penis conical, protruding a short distance below the mouth. Female aperture a short distance below the penis. Length 1 to $1\frac{1}{2}$ lines, breadth $\frac{1}{2}$ to $\frac{3}{4}$ ths of a line, thickness $\frac{1}{4}$ th to $\frac{1}{2}$ a line.

A dozen specimens were obtained from the abdominal cavity of *Rana pipicus*.

17. *Monostomum Renicapite*, Leidy. Body depressed, lateral margins parallel, anteriorly and posteriorly rounded, above convex, below concave. Head formed by a transverse, reniform callosity. Mouth transversely crescentic, surrounded with a double lip. Penis a small conical tubercle. Length from $\frac{1}{2}$ an inch to 1 inch, breadth $1\frac{3}{4}$ lines.

Numerous specimens were obtained by Prof. Agassiz from the intestine of *Sphargus coriacea*.

18. ? *Monostomum Mollé*, Leidy. Body depressed, elongated elliptical, posteriorly convex. Head? Mouth? Length 9 lines, breadth 2 lines.

I have found two specimens of what I suspect to be a species of *Monostomum* in the lungs of two individuals of *Sternotherus odoratus*. The species is so soft that in the removal of the specimens I mutilated both, and since then I have been unable to find others.

19. *Distomum Lanccolatum*, Mehlis. Reported to exist in the sheep, *Capra aries*; the ox, *Bos taurus*; the hog, *Sus scrofa*. Stated to be frequent in the sheep in several of the Western States.

20. *Distomum Hepaticum*. In the hepatic ducts of the *Cervus virginianus*. Though I have never seen specimens from the source given, yet I think there is little doubt of its existence, from the circumstance that sportsmen and hunters have frequently informed me they had seen leeches in the liver of the deer, which they supposed the animal had swallowed in drinking. Also reported to exist in the ox, *Bos taurus*, and in the horse, *Equus caballus*.

21. *Distomum Variabile*, Leidy. Var. *a*. Body white, variegated with black in the course of the oviduct, clavate, posteriorly obtuse, minutely echinated. Neck long, narrow, cylindrical, echinated. Oral and ventral acetabula nearly equal; the latter one prominent, situated at the base of the neck. Length to 6 lines; breadth of body $\frac{1}{2}$ line.

Var. *b*. Body flattened ovate, continuous with the head anteriorly narrowed, posteriorly obtuse, color and echination as in the preceding variety. Length $2\frac{1}{2}$ lines, breadth 2 lines.

Variety *a* is found attached to the sides of the cavity of the lungs of *Tropidonotus sipcedon*, singly or in groups up to six, with the head

and neck buried in tumors, as in the case of the attachment of Echinorhynchi. Variety *b* is found detached in the mucus of the lungs and trachea. Common; obtained in December, when the water snakes were hibernating.

22. *Distomum Horridum*, Leidy; *Distoma horridum*, Leidy. Journ. A. N. S., 2d ser., i, 303. From the excretory duct of the kidneys of the boaconstrictor.

23. *Distomum Variiegatum*, Rud; Leidy. Pr. A. N. S., v, 207. From the lungs of the *Rana pipiens*.

24. *Distomum Retusum* Dug. Leidy, Pr. A. N. S., v, 207. From the intestine of *Rana halcina*.

25. *Distomum Cygnoides* Zeder. Leidy, Pr. A. N. S., v, 207. From the urinary bladder of *Rana pipiens*, *R. Palustris*, *R. halcina*; *Salamandra maculata*, *S. rubra*, *S. salmonca*.

26. *Distomum Longum* Leidy. Pr. A. N. S., v, 206. From the mouth of *Esox estor*.

27. *Distomum Terrcticolle* Rud. Leidy, Pr. A. N. S., v, 206. From the stomach of *Esox reticulatus*.

28. *Distomum Inevile*, Leidy. Body flat, elongated elliptical; echinated between the oral and ventral acetabula, which are equal, and the latter one is hemispherical and sessile. Length $2\frac{1}{2}$ to 3 lines, breadth, 3-5ths to 4-5ths of a line. Obtained from the intestine of *Leicostomus obliquus*.

29. *Distomum Clavatum?* Rud. Body pyriform, transversely annulated, plicated. Neck curved conical, 3 lines long. Ventral acetabulum oblique, prominent, at the base of the neck, 3 lines in diameter, with a circular aperture much larger than the mouth. Length 1 inch, breadth 4 lines. One specimen in the collection of the Academy. Locality unknown.

30. *Distomum Vagans* Leidy.

Distoma helcis Leidy. Pr. A. N. S., iii, 220.

Distomum pericardium, Creplin. Arch. f. Naturg. xv, 78.

Distoma vagans, Leidy. Journ. A. N. S., 2d ser., i, 304.

Cercariacum helcis alternata, Diesing. Rev. d. Cerc., 24.

Cercariacum vagans, Diesing. Rev. d. Cerc., 24.

Found in *Helix alternata* and in *H. albolabris*.

CLINOSTOMUM, LEIDY.

Head shorter than and separated from the body by a lateral constriction opposite the ventral acetabulum, compressed semi-oval. Body compressed oval. Mouth anterior. Ventral acetabulum large, hemispherical, immersed within the commencement of the body and

having a truncated conical aperture with the apex posterior. A terminal pore to the body.

31. *Clinostomum Gracile*, Leidy. Head semi-ovoid, anteriorly obliquely truncated. Mouth transversely oval, with a prominent margin and a second border, which is slightly emarginated below. Body compressed oblong, oval, convex above, concave below, obtuse posteriorly, acetabulum larger, immersed between the head and body. Length to 3 lines, breadth to 1 line.

Found in the intestine of *Esox* and within cysts in the gills, fins, and muscles of *Pomotis vulgaris*.

32. *Clinostomum Dubium*, Leidy. Head compressed oval, convex anteriorly. Mouth minute, not bordered. Body compressed oblong oval. Ventral acetabulum immersed between the body and head. Length $2\frac{1}{2}$ lines, breadth $2\text{-}3\text{ds}$ of a line.

From the intestine of *Rusticola minor*.

33. *Holostomum Cornu*, Nitzsch. Found in the small intestine of *Ardea herodias*.

34. *Holostomum Nitidum*, Leidy. Body divided by a constriction at the anterior third, everywhere echinated. Head ovoidal. Mouth terminal, round, opening into a cup-shaped pharynx. Body compressed oblong oval, variegated white with yellow. Length to $1\frac{1}{2}$ lines, breadth $2\text{-}5\text{ths}$ of a line.

Two specimens were obtained from the small intestine of *Rana pipiens*.

35. *Diplodiscus Subclavatus*, Diesing. Found in the intestine of *Rana pipiens*.

36. *Diplostomum Cuticola*, Diesing. Head elongated elliptical, excavated inferiorly, obtusely angular, much longer than the body. Mouth small, round, pharynx oval, gizzard oval. Generative apertures hemispherical, situated just posterior to the middle. Body ovoid, with a terminal excretory pore. Length from $1\text{-}5\text{th}$ to $1\text{-}3\text{rd}$ of a line. Contained in oval sacs about $\frac{1}{2}$ a line in length.

Found in great number in the liver of *Pomotis vulgaris*.

37. *Aspidogaster Conchicola*, Baer. Leidy, Pr. A. N. S., v, 224.

38. *Malacobdella Grossa*, Blain. Leidy, Pr. A. N. S., v, 209.

CEPHALOCOTYLEA.

39. *Cysticercus Pasciolaris*, Rud. Common in the liver of the rat, *Mus decumanus*.

40. *Cysticercus Cellulosa*, Rud. Occasionally in the muscles of the hog, *Sus scrofa*.

41. *Cysticercus Tenuicollis*, Rud. Occasionally in the liver of the hog, *Sus scrofa*, and in the mesentery of the sheep, *Capra aries*.

42. *Cysticercus Elongatus*, Leuck. In cysts, in the peritoneum of the European domestic rabbit, *Lepus cuniculus*.

43. *Echinococcus Granulosus*, Rud. *Echinococcus polymorphus*, Diesing. From a cyst of about three inches in diameter, between the muscles in the right side of the abdomen, in an English sailor boy; and also in two large cysts in the liver of a Frenchman. I have never met with this parasite in the Anglo-American. In three large cysts in the liver of a large species of monkey (species unknown); the specimen being preserved in the collection of the University.

44. *Cœnurus Cerebralis*, Rud. In the sheep, *Capra aries*.

45. *Tænia Solium*, Lin. Leidy, Pr. A. N. S., ix, 443.

46. *Tænia Laticephalæ*, Leidy. Ibidem.

47. *Tænia Serrata*, Goeze. Ibidem.

48. *Tænia Cucumerina*, Bloch. Ibidem.

49. *Tænia Elliptica*, Batsch. Ibidem.

50. *Tænia Crassicollis*, Rud. Ibidem.

51. *Tænia Pusilla*, Goeze. Ibidem.

52. *Tænia Pectinata*, Goeze. Ibidem.

53. *Bacillaris?* Goeze. Ibidem.

54. *Tænia Pestifera*, Leidy. Ibidem.

55. *Tænia Strigis Acadicæ*. Ibidem, 444.

56. *Tænia Variabilis?* Rud. Ibidem.

57. *Tænia Dispar*, Goeze.

Tænia pulchella, Leidy. Pr. A. N. S., v, 241.

Tænia dispar, Goeze. Leidy, Pr. A. N. S., ix, 444.

58. *Tænia Lactea*, Leidy. Pr. A. N. S., ix, 444.

59. *Tænia Gibbosa*, Leidy. Ibidem.

60. *Dibothrium Punctatum*, Rud. Leidy, Pr. A. N. S., ix, 444.

61. *Sparganum Reptans*, Diesing.

Ligula reptans, Diesing. Syst. Helm., i, 581.

Ligula tritonis, Leidy. Pr. A. N. S., v, 96.

Sparganum affine, Diesing. Verth. d. Cephalocot., 20.

62. *Dibothriorhynchus Abditus*, Leidy. Head continuous with the neck, apex convex and emarginate. Bothria 2, lateral continuous above, oval, with the lateral margins involute. Proboscides filiform, projecting $1\frac{1}{4}$ lines from the head. Neck teniaform, widening posteriorly. Body constricted from the neck, narrower and longer, teniaform, narrowing posteriorly and ending in an obtusely angular extremity. Length of head and neck 6 lines, breadth posteriorly 1 line; length of body 7 lines, breadth 3-5ths of a line.

Four specimens were found in a large cream-colored liver, which had been left upon a stall in our fish market. I could not ascertain the species of fish from which it was obtained, but I suspect it to be the halibut, *Hippoglossus vulgaris*. Each worm was closely coiled up at the bottom of a long clavate sac, which was composed of three distinct membranes. The first membrane adhered to the structure of the liver in which it was embedded, beneath the peritoneum. The second membrane was transparent, crisp, and shining. The third one was milk-white, soft, and contractile, and it presented a delicate, tortuous white opaque line extending the length on each side. After opening the third membrane, beneath water, the worm gradually crept out of its own accord.

63. *Pentastomum Subcylindricum*, Diesing; *Pentastomum Didelphidis virginianæ*, Leidy. Pr. A. N. S., v, 96. In cysts of the liver of the opossum, *Didelphis virginiana*.

64. *Pentastomum Euryzonum*, Diesing. In the liver of *Cynocephalus porcarius*.

65. *Pentastomum Proboscideum*, Rud. In the lungs of the Boa-constrictor.

66. *Pentastomum Gracile*, Diesing. Body sub-clavate, incurved, most narrowed anteriorly, annular, not plicated, with the margins of the annuli microscopically denticulated. Head obtuse, bothria subterminal, elevated, each with two hooks, of which the upper one is the smaller. Mouth elevated, conical, in the focus of the semicircle formed by the bothria. Length from 3 to 4 lines, breadth $\frac{1}{3}$ of a line.

Eleven specimens were obtained by Jos. Jones from the stomach of the *Alligator mississippiensis*.

RHYNGODEA.

67. *Gregarina Juli Marginati*.

Gregarina larvata, Leidy. Pr. A. N. S., iv, 232.

Gregarina juli marginati, Leidy. Trans. Am. Phil. Soc., 2d ser., x, 237.

68. *Gregarina Juli Pusili*, Leidy. Trans. Am. Phil. Soc., 2d ser., x, 238.

69. *Gregarina Polydesmi Virginicæ*. Ibidem.

70. *Gregarina Passali Cornuti*. Ibidem.

71. *Gregarina Achete Abbreviate*. Ibidem.

72. *Gregarina Locustæ Carolinae*. Ibidem, 239.

73. *Gregarina Blattarum*, Siebold; *Gregarina blattæ orientalis*, Leidy. Trans. Am. Phil. Soc., 2d ser., x, 239.

74. *Gregarina Scarabei*, Relicti.

Gregarina. Leidy, Pr. A. N. S., v, 208.

Gregarina scarabei relictii. Leidy, Pr. A. N. S., v, 287.

75. *Gregarina Melalonthæ*, Brunneæ. Body oblong oval; head oblate spheroidal, slightly elevated at the summit. Single and in pairs. Length of body .405 mm., breadth .252 mm.; length of head .108 mm., breadth .144 mm.

Found in the intestine of *Melalontha brunnea*.

76. *Gregarina Nereidis Denticulata*. Leidy, Journ. A. N. S., 2d ser., iii, 144.

77. *Echinorhynchus Ovatus*, Leidy. Pr. A. N. S., v, 97 (1850).

Echinorhynchus campanulatus, Diesing. Syst. Helm., ii, 21 (1851).

From the small intestine of *Felis Leopardus*.

78. *Echinorhynchus Gigas*, Goeze.

Small intestine of the hog, *Sus scrofa*.

77. *Echinorhynchus Microcephalus*, Rud.

Echinorhynchus tortuosus, Leidy. Pr. A. N. S., v, 97.

Found in the mesentery of *Didelphis virginiana*.

80. *Echinorhynchus Striatus*, Goeze. Body cylindro-clavate, anteriorly minutely echnated. Proboscis obovate, with 12 to 15 circles of hooks. Neck short, conical, unarmed. Length to 10 lines; breadth anteriorly $1\frac{1}{2}$ lines. Color, orange.

Several specimens were obtained by Joseph Jones from the intestine of *Tantalus loculator*.

81. *Echinorhynchus Manifestus*, Leidy.

Echinorhynchus pici colaris. Leidy, Pr. A. N. S., v, 98. Body slightly compressed cylindroid, most dilated anteriorly, obtuse posteriorly, transversely corrugated. Proboscis subpyriform, with the rounded apex armed with 3 or 4 rows of hooks. Neck a simple linear constriction. Length 8 lines to an inch.

Several specimens were found in the intestine of *Picus colaris*.

82. *Echinorhynchus Hamulatus*, Leidy.

Echinorhynchus cmydis. Leidy, Pr. A. N. S., v, 207. Body long, white, sub-clavate, curved. Proboscis sub-globular, with a single row of strong hooks and a few rudimental hooklets. Length 2 to 14 lines, breadth to $\frac{1}{3}$ of a line.

Frequent in the intestine of *Emys geographica*, *E. insculpta*, *E. guttata*, and *E. serrata*. From several individuals of the latter species Mr. Joseph Jones obtained more than a hundred specimens.

83. *Echinorhynchus Acus*, Rud.

Intestine of *Morrhua americana*.

84. *Echinorhynchus Proteus*, Westrumb. Pr. A. N. S., v, 208.

Intestine of *Labrax lineatus*.

85. *Echinorhynchus Globulosus?* Rud.

Echinorhynchus lateralis, Leidy. Pr. A. N. S., v, 207. Body subfusiform, most narrowed posteriorly. Proboscis cylindrical, projecting laterally, furnished with 12 to 14 rows of hooks. Neck very short. Length to one inch, breadth to two-fifths of a line.

Intestine of *Salmo fontinalis*: obtained by Prof. Baird and Prof. Agassiz.

86. *Echinorhynchus Angustatus?* Rud.

Echinorhynchus socialis, Leidy. Pr. A. N. S., v, 156. Body cylindrical, narrowing posteriorly, frequently dilated anteriorly. Proboscis cylindrical, with 26 rows of hooks. Neck very short, conical, unarmed. Length from 6 lines to $2\frac{1}{4}$ inches, breadth to $2\text{-}3\text{ds}$ of a line.

Frequent in the intestine of *Platessa plana*.

NEMATOIDEA.

87. *Trichina Spiralis*, Owen.

Occasional in the Anglo-American.

88. *Trichina Affinis*, Diesing.

Trichina spiralis, Owen. Leidy, Pr. A. N. S., iii, 108.

Observed in the muscles of the hog, *Sus scrofa*.

89. *Anguillula Aceti*, Ehrenberg.

Common in ordinary cider vinegar.

90. *Anguillula Glutinis*, Ehrenberg.

Common in paste of wheat, rye, tragacanth, etc.

91. *Anguillula Socialis*, Leidy.

Oxyuris socialis, Leidy. Pr. A. N. S., v, 102.

Found in the intestine of the black cricket, *Acheta abbreviata*.

92. *Anguillula Longa*, Leidy. Pr. A. N. S., v, 225.

Found in ditches near Philadelphia.

93. *Anguillula Fossularis*, Leidy. Pr. A. N. S., v, 226.

Found in stagnant ponds near Philadelphia.

94. *Amblyura Serpentina?* Hemp. et Ehrenb.

Anguillula longicauda, Leidy. Pr. A. N. S., v, 225. Mouth with cirri (error in the previous observation and description). Tail long, subulate: suctorial disk exceedingly minute, clavate. Length to one-fortieth of an inch.

Common about gutters and water-spouts in Philadelphia.

95. *Hystriognathus Rigidus*, Leidy. Pr. A. N. S., v, 102; Flora and Fauna within Liv. An., 44.

PONTONEMA, LEIDY.

Body capillary, narrowing toward the extremities. Head continuous with the body, truncated and surmounted with angular papillæ cirrated. Eyes none. Tail obtuse. Generative aperture ventral, near the middle of the body. Œsophagus long, cylindro-clavate; gizzard none, intestine straight, capacious; anus ventral and posterior.

96. *Pontonema Vacillatum*, Leidy. Jour. A. N. S., 2d ser., iii, 144. Body cylindroid, anteriorly with longitudinal rows of short cirra in addition to those of the head; posteriorly incurved; tail short, thick, conical, obtuse. Length to 9 lines, breadth to one-fifth of a line.

Found on the seashore of Rhode Island, beneath stones, between tides.

97. *Pontonema Marinum*, Leidy. Jour. A. N. S., 2d ser., iii, 144. Body cylindroid; head convex; mouth surrounded with angular papillæ. Cirra 4, at the side of the head. Tail long, narrow, conical, obtuse. Length to 3 lines.

Found at the bottom of a sound on the coast of New Jersey.

POTAMONEMA, LEIDY.

Body filiform, narrowing towards the extremities. Head continuous with the body, slightly dilated, obtuse. Mouth large, infundibuliform, unarmed; œsophagus narrow, flexuous, membranous, gradually expanding into a capacious, straight, cylindrical intestine; anus none? or exceedingly indistinct. Caudal extremity obtuse. Generative aperture of the female near the middle of the body.

98. *Potamonema Nitidum*, Leidy. Body cylindroid, most narrowed anteriorly. Head without appendages. Caudal extremity broad, obtusely conical. Length 5 lines, breadth one-fifth of a line.

An active wriggling, glistening white worm, found among beds of *Valisneria americana* growing in the river Schuylkill, near Philadelphia.

NEMA, LEIDY.

Body ascaridiform. Head without appendages. Mouth unarmed, large, infundibuliform, œsophagus tubular, membranous, expanding into a simple straight intestine; anus ventral. Tail conical, acute, recurved. Generative aperture near the middle of the body.

99. *Nema Vacillans*, Leidy. Body white, glistening. Length 1½ millimeters, breadth .050 mm. Tail .115 mm. long.

An active wriggling worm, found about some dead specimens of a black *Phryganca*, which was infested with a fungus parasite, and attached to stones at the water's edge of a small brook near Philadelphia.

100. *Streptostomum Agile*. Pr. A. N. S., IV, 230; V, 285; Flora and Fauna within Liv. An., 45.

Aorurus, Leidy. Pr. A. N. S., IV, 230; V, 284.

101. *Streptostomum Gracile*, Leidy. Pr. A. N. S., IV, 100; V, 285; Flora and Fauna, 46.

In parte *Oxyuris diesingii*, Hammerschmidt. Isis, 354 (1848).

In parte *Oxyuris blattæ orientalis*, Hammerschmidt. Naturw. Ab. v. Haid., 1, 284.

In parte *Anguillula macrura*, Diesing. Syst. Helm., II, 134.

102. *Thelastomum Attenuatum*, Leidy. Pr. A. N. S., V, 101; ib., 285; Flora and Fauna within Liv. An., 46.

Aorurus, Leidy. Pr. A. N. S., IV, 230; V, 284.

103. *Thelastomum Appendixulatum*, Leidy. Pr. A. N. S., V, 101; ib., 285; Flora and Fauna, 47.

In parte *Oxyuris blattæ orientalis*, Hammerschmidt. Naturw. Ab. v. Haid., 1, 284.

In parte *Anguillula macrura*, Diesing. Syst. Helm., II, 134.

104. *Thelastomum Labiatum*, Leidy. Pr. A. N. S., V, 101; ib., 285; Flora and Fauna, 47.

105. *Thelastomum Robustum*, Leidy. Pr. A. N. S., V, 101; ib., 285; Flora and Fauna, 48.

Thelastomum brevicaudatum? Leidy. Pr. A. N. S., V, 208; ibidem.

106. *Thelastomum Ventustum*, Leidy. Body of female fusiform, straight, with the tail long, narrow, conical, straight, acute. Body of male incurved, with the tail short, depressed, ending in a recurved subulate point, and having a pair of oblong lobes or alæ, extending the length ventrally. Generative and anal apertures terminating together abruptly. Penis a curved, conical, acute spiculum. Length of female to $2\frac{1}{2}$ lines, breadth to one-fifth of a line; length of male to 1 line, breadth $\frac{1}{6}$ th of a line.

Found in great number within the large intestine of *Testudo polyphemus*. Obtained by Mr. Joseph Jones in Georgia. It is a singular fact that this species is infested with vegetable parasites, as in the case of those found in myriapods and insects.

107. *Ascaris Vermicularis*, Lin.

This species is the most common of all the parasitic worms in the Anglo-American.

108. *Ascaris Lumbricoides*, Linn.

This species is the second of the most common of parasitic worms in the Anglo-American.

In the University Museum there is a preparation of the liver of a boy in which a number of individuals of this worm have forced themselves into the divisions of the hepatic duct.

Frequent also in the small intestines of the hog, *Sus scrofa*.

109. *Ascaris Leptoptera*, Rud.

Ascaris felis discoloris, Leidy. Pr. A. N. S., v, 155.

Found in the small intestine of the panther. *Felis concolor*.

110. *Ascaris Mystax*, Rud.

Common in the domestic cat, *Felix catus*.

111. *Ascaris Marginata*, Rud.

Frequent in the dog, *Canis familiaris*.

112. *Ascaris Columnaris*, Leidy.

Ascaris alienata, Rud. Leidy, Pr. A. N. S., v, 205. Body very uniformly cylindrical until within a short distance of the extremities. Head naked; lips prominent. Tail short, conical, obtuse, in the male incurved. Length of female 4 inches, breadth $1\frac{1}{4}$ lines; length of male 2 inches, breadth $\frac{1}{2}$ a line.

Two specimens, male and female, were found in the intestine of *Mephitis chinga*.

113. *Ascaris Levis*, Leidy. Body cylindrical, narrowing at the extremities. Head naked; lips prominent. Tail conical, mucronate. Length of female $3\frac{1}{2}$ inches, breadth $1\frac{1}{2}$ lines. Male not seen.

A single specimen was obtained by Mr. Packard from the intestine of *Arctomys monax*.

114. *Ascaris Tentaculata*, Rud. Found in the intestine of *Didelphis virginiana*.

115. *Ascaris Vesicularis*, Frolich. Common in the cœcum of the turkey, *Meleagris gallopavo*, and of the fowl, *Phasianus gallus*.

116. *Ascaris Intlexa*, Rud. Common in the small intestine of the fowl *Phasianus gallus*.

117. *Ascaris Serpentulus*, Rud. One female, $1\frac{1}{2}$ inches long, was obtained by Mr. Schaffhirt from the intestine of *Ardea violacea*.

118. *Ascaris Longa*, Leidy. Body most narrowed anteriorly, and only slightly so at the posterior fourth. Head naked, subacute; lips slightly prominent. Tail obtusely rounded, with the anus forming a transverse, subcrescentic fissure nearly at its extremity. Length of the female 9 inches, breadth $1\frac{1}{2}$ lines. Male not seen.

A single specimen was obtained by Mr. Joseph Jones from the intestine of *Tantalus loculator*, in Georgia.

119. *Ascaris Tenuicollis*, Rnd. Frequent in the stomach and intestine of the *Alligator mississippiensis*.

120. *Ascaris Anoura*, Dujardin. Eight specimens were obtained from the intestine of *Cobuber constrictor*. The females measure up to 6 inches in length by 1 line in breadth; the males $3\frac{1}{2}$ inches in length by $\frac{3}{4}$ of a line in breadth. Six specimens, apparently of this species, were sent to me by Prof. Agassiz. They were obtained, with nearly a pint of others, from the intestine of the boaconstrictor. I do not feel positive that they are really of the same species, as the specimens are too badly preserved to ascertain the fact correctly; but the size and details of form agree pretty closely.

121. *Ascaris Nuda*, Leidy. Body most narrowed anteriorly. Head naked, with the epidermis closely adherent; lips large, oblong. Tail short, incurved, conical, minutely mucronate. Length of female 2 to $2\frac{1}{2}$ inches, breadth 1-3d to $\frac{1}{2}$ a line. Male not seen.

Two females were obtained from the intestine of *Crotalus adamanteus* by Mr. Schaffhirt. Is this probably the same as the last species?

122. *Ascaris Humilis*, Leidy. Body cylindroid, recurved, white. Head obtuse, naked; mouth trilobed, pharyngeal apparatus none; oesophagus pestleform. Tail substraight, conical, acute. Length 2 lines, breadth 1-10th of a line.

Eight specimens were obtained from the lungs of *Tropidonotus sirtalis* in December.

123. *Ascaris Entomelas*, Leidy. Proc. A. N. S., v, 206.

From the lungs of *Rana halcina*.

124. *Ascaris Acuta*, Muller. A single male, 14 lines long and $\frac{1}{3}$ d of a line broad, was obtained from the intestine of *Platessa plana*.

125. *Ascaris Neglecta*, Leidy. Body cylindro-fusiform, most narrowed anteriorly. Head naked; lips large, obtuse. Tail short, conical, acute. Length of female 2 inches, breadth three-fifths of a line; male about half the size.

Twelve specimens were obtained by Prof. Baird from the intestine of *Diodon maculo-striatus*.

126. *Ascaris Clavata*, Rud. Head with a linear ridge on each side. Tail short, conical, incurved, mucronate; in the female with a linear ridge extending forward on each side. Length of female to $3\frac{1}{4}$ inches, breadth $\frac{3}{4}$ of a line; length of male to 2 inches, breadth to $\frac{1}{2}$ a line.

Numerous specimens were obtained by Prof. Agassiz from the in-

testine of *Morrhua pruinosa*, and I have obtained others from the intestine of *Morrhua americana*.

127. *Ascaris Cylindrica*, Leidy.

Angiostomum? cylindricum, Diesing. Syst. Helm., ii, 559.

Ascaris cylindrica, Leidy. Pr. A. N. S., iv, 229. Body cylindroid, equally attenuated towards the extremities, curved. Mouth distinctly trilabiate. Tail narrow, conical, curved, acute. Female generative aperture just posterior to the middle. Length four-fifths of a line, breadth one-twelfth of a line.

Found in the intestine of *Helix alternata*. No cartilaginous pharynx as in *Angiostomum*.

128. *Ascaris Infecta*, Leidy. Pr. A. N. S., iv, 229; Faun. and Flora within Liv. An., 42. Found in the ventriculus of *Julus marginatus*.

129. *Synplecta Pendula*, Leidy. Pr. A. N. S., v, 240. From the stomach of *Emys guttata*.

130. *Oxyuris Compar*, Leidy. Body fusiform; head continuous with the body, subacute, with a dilatation of the epidermis; mouth small. Tail of female long, subulate, spirally contorted; the generative aperture one-fifth the length of the body from the head. Length of female 4 to 7 lines, breadth 1-3d of a line; length of tail from the anus 1½ lines.

Seventeen specimens were found in company with others of *Tenia crassicollis* in the small intestine of the cat, *Felix catus*. Œsophagus long, pestle-form; gizzard globulo-pyriform; intestine dilated at the commencement, afterwards cylindrical. Males were not seen.

131. *Oxyuris Curcula*, Rud. Intestine of the horse, *Equus caballus*.

132. ? *Oxyuris Dubia*, Leidy. Body fusiform, curved. Head continuous with the body, naked. Mouth unarmed. Female generative aperture about the middle of the body. Tail abruptly narrowed, acutely conical. Length of female 1½ lines, breadth 1-4th of a line. Male not seen.

Found in the cæcum of *Bufo americanus* and of *Salamandra rubra*.

SPIRONOURA, LEIDY.

Body cylindroid, attenuated at the extremities. Head continuous with the body. Mouth round, surrounded by a circular papillated lip. Caudal extremity of male spiral acute, tuberculate, with the two spicula of the penis curved, ensiform, costate; of the female

conical, acute, with the generative aperture at the posterior third of the body.

133. *Spiromoura Gracile*, Leidy. Body of female incurved; that of male spiral posteriorly. Head naked; mouth with a circular lip of 6 papillæ. Tail of female long, calcarate, acute; of male, with two rows each of three tubercles. Spicula of penis curved ensiform, costate, emarginate at the extremity. Length of female 8 lines, breadth $1\frac{3}{4}$ of a line; length of male to 4 lines, breadth to $1\frac{8}{10}$ of a line.

Found in the stomach of *Emys serrata*. Œsophagus long, pestle-form, gizzard globular, commencement of the intestine cordiform, rectum short, wide, pyriform. Ovaries double.

134. *Spiromoura Affine*, Leidy. Body of female curved; that of male posteriorly spiral. Head naked, mouth with a circular lip of 6? papillæ. Tail of female nearly straight, moderately long, conical, acute; of the male, conical, incurved, ensiform, costate, acute. Length of female $4\frac{1}{2}$ lines, breadth one-fifth of a line; length of male 3 lines, breadth $1\frac{6}{10}$ of a line.

Found in the cæcum of *Cistudo carolina*.

135. *Physaloptera Turgida*, Rud.

Spiroptera didelphidis virginiana, Leidy. Pr. A. N. S., v, 155. Common in the stomach of *Didelphis virginiana*. Found by Dr. Goddard, Mr. Schafhirt, and myself, and also by Mr. Joseph Jones, in Georgia.

136. *Physaloptera Limbata*, Leidy.

Spiroptera scalopsis canadensis, Leidy. Pr. A. N. S., v, 156. The mouth bilabiate and surrounded by an elevated linear margin. Alæ of male, each with 4 diverging costæ. The length 6 lines, breadth $1\frac{4}{10}$ of a line.

137. *Physaloptera Mucronata*, Diesing.

Numerous specimens were obtained by Mr. Joseph Jones from the stomach of the *Alligator mississippiensis*, in Georgia.

138. *Physaloptera Constricta*, Leidy. Body wide, with the brown intestine shining through, cylindrical to within a short distance of the extremities; incurved; anterior extremity with one or two constrictions, and abruptly inflexed. Lips large, lateral, constricted from the body, each trilobate. Tail of female incurved, abruptly conical and acute; of the male alated, with the alæ narrow, long, and turgid. Length of female $1\frac{3}{4}$ inches, breadth two-fifths of a line; male half the size.

Found frequently in the stomach of *Tropidonotus sipedon*, with the anterior extremity of the body hooked through the mucous mem-

brane, and very tightly adhering by means of the one or two constrictions.

139. *Physaloptera Contorta*, Leidy. Body capillary, most narrowed anteriorly, with the posterior four-fifths spirally contorted; white, with the intestine brown. Lips prominent, constricted from the body, trilobate. Tail short, conical, acute; in the male with narrow aë, each furnished with five funnel-shaped pores. Length of female from 6 lines to one inch; breadth to $\frac{1}{4}$ th of a line; male from one-half to three-fourths the size.

Frequent in the stomach of *Emys serrata*, *Emys reticulata*, *Cistudo carolina*, and *Kinosternum pennsylvanicum*, adhering to the mucous membrane in the same manner as *Physaloptera constricta*.

140. *Physaloptera Abjecta*, Leidy. Body most narrowed anteriorly, incurved. Mouth distinctly bilabiate; lips lateral, prominent. Caudal extremity incurved, obtusely conical. Length 10 lines, breadth $\frac{1}{2}$ a line.

One specimen was obtained by Mr. Joseph Jones, from the stomach of *Psammophis flagelliformis*.

141. *Cheiracanthus Horridus*, Leidy. Body subcylindrical, incurved, posteriorly sub-clavate, obtuse; anteriorly covered with palmate plates, furnished with as many as eight spines, and degenerating posteriorly to single spines. Head oblate-spheroidal, spirally echinate. Mouth bilabiate, with the lips lateral and papillated. Length of female $2\frac{3}{4}$ inches, breadth $1\frac{1}{2}$ lines. Male not seen.

Four specimens were obtained by Mr. Joseph Jones in the stomach of the *Alligator mississippiensis* in Georgia.

142. *Tricocephalus Dispar*, Rud.

Not infrequent in the children of the Anglo-American and also in the negro.

143. *Tricocephalus Minutus*, Rud.

Numerous specimens were obtained by Joseph Jones from the cœcum of *Didelphis virginiana* in Georgia.

144. *Cucullanus Microcephalus*, Dujardin.

Cucullanus trispinosus, Leidy. Pr. A. N. S., v, 240.

Frequent in the stomach and intestine of *Emys guttata*, *Emys reticulata*, *Emys serrata*, and *Chelonura serpentina*.

145. *Cucullanus Roseus*, Leidy. Pr. A. N. S., v, 155. Body fusiform, sub-straight, red, anteriorly obtuse. Tail straight, short, conical, acute. Mouth with a complex corneous apparatus. Upper lip of anus turgid. Penis consisting of two calcarate spiculæ. Generative aperture of the female two-fifths the length of the body from

the tail. Length of female to $1\frac{1}{2}$ inches, breadth to three-fifths a line; length of male to 10 lines, breadth $\frac{1}{2}$ a line.

From the intestine of *Testudo* —? from Java.

146. *Sclerostomum Dentatum*, Rud.

Several specimens, male and female, were obtained from the liver of the hog, *Sus scrofa*.

147. *Sclerostomum Syngamus*, Diesing.

Common in the trachea of the common fowl, *Phasianus gallus*.

148. *Sclerostomum Armatum*, Rud.

Specimens preserved in the collection of the Academy and presented by Dr. Harlan, who obtained them from an aneurism of the aorta of the horse, *Equus caballus*. *Strongylus armatus*, Rud. Harlan Med. and Phys. Res., 553.

149. *Strongylus Attenuatus*, Leidy. Body cylindroid, narrowing toward the extremities; female nearly straight, male curved. Head obtuse, bialated; alæ long and moderately broad. Mouth with minute angular papillæ. Tail of female straight, conical, acute. Bursa of the male bilobed, multiradiate. Length of female 6 lines, breadth $\frac{1}{5}$ th of a line; length of male $4\frac{1}{2}$ lines, breadth one-fifth of a line.

Sixteen specimens were obtained by Mr. Schafhirt from the intestine of *Cynocephalus porcarinus*.

150. *Strongylus Simplex*, Leidy. Body cylindroid, anteriorly rather abruptly narrowed; female straight; male curved, with the caudal extremity incurved. Head obtusely conical, not alated nor papillated. Tail of female compressed, conical, acute; generative aperture one-third the length of the body from its extremity. Bursa of male trilobed? one lobe posterior and two lateral, multiradiate. Length of female 4 to 5 lines, breadth $\frac{1}{4}$ th of a line; length of male $2\frac{1}{2}$ to $3\frac{1}{2}$ lines, breadth $\frac{1}{6}$ th of a line.

Numerous specimens were obtained from the small intestine of *Hystrix dorsata*.

151. *Strongylus Auricularis*, Zeder. Intestine of *Bufo americanus* and of *Cistudo carolina*.

152. *Eustrongylus Gigas*, Diesing. Frequent in the kidneys of the mink, *Putorius vison*, and occasionally occurring in the dog, *Canis familiaris*. One specimen, eight inches long, was obtained by Mr. Joseph Jones from the heart of the latter animal, in association with Filariae, mentioned in another part of this paper.

153. *Trichosomum Lineare*, Leidy. Body filiform, nearly equally narrowed towards the extremities. Caudal extremity of the female spirally involute. Tail incurved, obtuse, with two conical points

on the ventral aspect of the extremity. Caudal extremity of the nail spiral; tail long, conical acute; generative aperture a considerable distance from the end of the tail. Length of female 3 inches, breadth 1-6th of a line; length of male $1\frac{1}{2}$ inches, breadth one-tenth of a line.

Seven specimens were obtained from the small intestine of the cat, *Felis catus*.

154. ?*Trichosomum Picorum*. Body cylindroid, equally narrowed and acute at the two extremities. Mouth and anus terminal. Length of female 7 lines, breadth one-fifth of a line.

A single specimen was obtained by Mr. Schafhirt from the intestine of *Picus colaris*.

155. *Agamonema Capsularia*? Diesing. Body slender, most narrowed anteriorly. Mouth small, circular, surrounded by an undivided lip. Tail short, obtusely conical, minutely mucronate. Length 5 to 10 lines, breadth from 1-8th to 1-4th of a line.

Found free in the intestine of *Centropristes nigricans*, *Clupea elongata*, and *Alosa sapidissima*; also free in the intestine and pancreatic cœca of *Morrhua americana*, and larger specimens, 1 inch in length and 1-3d of a line in breadth, coiled up within sacs of the peritoneum in the same fish.

156. *Agamonema Papilligerum*? Diesing. Body cylindrical, most narrowed anteriorly, posteriorly obtusely conical. Mouth surrounded by four papillæ; anus terminal. Length to $4\frac{1}{2}$ inches, breadth two-fifths of a line.

One specimen was obtained from the abdominal cavity of *Esox*.

157. *Filaria Medinensis*, Gmelin.

Filaria hominis oris? Leidy. Pr. A. N. S., v, 117.

A specimen is preserved in the collection of the Academy, and was recently brought from western Africa by Dr. J. L. Burt, U. S. N., who obtained it from the leg of a white soldier.

158. *Filaria Papillosa*, Rud.

Intestine of the ox, *Bos taurus*.

159. *Filaria Immitis*, Leidy.

Filaria canis cordis, Leidy. Pr. A. N. S., v, 118. Body cylindrical, obtusely rounded at the extremities. Mouth small, round, unarmed. Caudal extremity of male spiral, with a row of five tubercles, and a narrow ala upon each side. Penis protruding a short distance above the anus. Length of female to 10 inches, breadth to $\frac{1}{2}$ a line; length of male to 5 inches, breadth 1-4th of a line.

Mr. Joseph Jones recently presented to me two specimens of the heart of the dog, in the right ventricle of one of which there were

five of the *Filaria* just described. In the other specimen the right auricle and ventricle and the pulmonary artery in its ramifications through the lungs are literally stuffed with *Filariæ*. A portion of the blood of this dog, given to me by Mr. Jones, contains a great number of the young of the *Filaria*.

In relation to the symptoms which accompanied the presence of these worms in the heart of the dogs while living, Mr. Jones has furnished the following notes: The heart containing the five worms was taken from a male pointer dog whose appetite was voracious and insatiable, and notwithstanding he was abundantly supplied with food, he remained in a very lean condition. The heart and lungs containing great numbers of worms was from a cur dog, who was always so thin as to resemble a skeleton, and it was impossible to benefit his condition with the most liberal supply of food. Both dogs were of an exceedingly restless disposition. They did not die in consequence of the presence of the *Filariæ*, but were killed in the course of some physiological experiments.

160. ? *Filaria Dubia*, Leidy. Body cylindroid, narrowed toward the extremities, rolled in a transverse spiral. Head continuous with the body, naked. Mouth minutely papillated. Tail acute. Length 9 lines, breadth 1-3d of a line.

Nine specimens were contained within two globular sacs of the gastric mucous membrane of the albatross, *Diomedea exulans*, the preparation having been obtained in the South Atlantic by Dr. W. S. W. Ruschenberger, U. S. N. The sacs also contained each a brown globular body about $3\frac{1}{2}$ lines in diameter, divided by lines into quarters, intersected by transverse corrugations. At one pole of these enigmatic bodies was an elliptical aperture, and at the opposite pole a small conical tail-like appendage. One of the bodies being cut open, exhibited no regularity of structure. The *Filariæ* were situated between the globular bodies and the walls of the sacs containing them.

161. *Filaria Attenuata*? Rud. Body cylindrical, conical at the extremities. Head convex; mouth round, unarmed. Caudal extremity of male incurved. Tail short, obtusely conical. Length of female 4 inches, breadth 1-3d of a line; length of male 2 inches, breadth one-fifth of a line.

Five specimens were obtained by Prof. Baird from the abdominal cavity of *Sturnella ludoviciana*.

Two female *Filariæ* having the same form as above, 5 inches in length and $\frac{1}{2}$ a line in breadth, were obtained by Prof. Baird from the abdominal cavity of *Colaptes auratus*.

162. *Filaria Bispinosa*, Diesing. *Filaria boe constrictoris*, Leidy. Pr. A. N. S., v, 118. Found beneath the skin of the boaconstrictor.

163. *Filaria Cistudinis*. Body capillary, spirally involute attenuated at the extremities. Head and tail obtusely rounded. Mouth unarmed. Anus terminal. Length $1\frac{1}{2}$ inches, breadth 1-6th of a line.

One specimen was obtained by Mr. Schafhirt from the heart of *Cistudo carolina*.

164. *Filaria Amphiumæ*. Body cylindroid, attenuated towards the extremities, spirally coiled, anteriorly truncate, posteriorly acute. Length 6 lines, breadth 1-5th of a line.

Numerous specimens were found coiled up in the parietes of the stomach of *Amphiuma* means, the individual of which had been so long preserved in alcohol that the characters of the worms could be partially determined only.

165. *Filaria Nitida*, Leidy. Body filiform. Mouth large, round, unarmed; œsophagus one-fourth of the length of the body; intestine straight, capacious, with a short narrow rectum; anus terminal, with a short tubular prolongation. Tail sub-distinct, conical. Color red. Length to 5 lines, breadth 1-12th of a line.

Found coiled up in oval cysts in the peritoneum and abdominal muscles of the *Rana pipiens*.

166. *Filaria Solutaria*, Leidy. Mouth transverse, sub-elliptical, papillated. Caudal extremity obtusely rounded. Anus terminal. Length to 2 inches, breadth 1-3d of a line.

Coiled up in cysts between the tunics of the stomach and intestines of *Emys serrata* and *Chelonura serpentina*.

167. *Filaria Rubra*, Leidy. Capillary, anteriorly truncated, posteriorly obtusely conical, dark brownish red in color. Mouth transverse, slightly bilabiate; lips papillated. Anus terminal, transverse, crescentic. Length to $4\frac{1}{2}$ inches, breadth 1-4th of a line.

Frequently found in considerable number in the peritoneal cavity of *Labrax lineatus* during the winter.

168. *Filaria Quadrituberculata*, Leidy. Body capillary, red in color, anteriorly conical, unarmed. Mouth circular, with an elevated, non-papillated, circular lip. Caudal extremity incurved, conical, ending in a minute conical papilla, and having on each side a pair of minute tubercles. Length 4 inches, breadth 1-3d of a line.

A single specimen was found by Mr. Schafhirt in the muscles of the back of *Anguilla vulgaris*.

169. *Gordius Varius*, Leidy. Pr. A. N. S., v, 262 (1851).

Gordius aquaticus of American authors.

Gordius tricuspidatus? Seibold. Zeits. F. Wiss. Zoöl., vii, 143 (1855). Body long, linear, cylindrical, attenuated towards the extremities; narrowest anteriorly; passing through a variety of shades from a dusky yellowish white or cream color to a dusky ochreous yellow, yellowish brown, reddish brown, light chocolate to dark chocolate brown, or to ebony black; lustrous, often iridescent in sunlight. Head surrounded by a dark-brown or black ring, obliquely truncated and terminated by a convex, translucent, whitish vesicular membrane, at the lower part of which is a minute round mouth. Integument areolated; areolæ irregularly pentahedral.

Female.—Lighter in color than the male, and usually much longer and thicker. Caudal extremity trifurcate; caudal lobes elongated, elliptical; one narrower than the other two. Generative aperture round, enclosed by the caudal lobes.

Male.—Usually dark brown, often inclining to black. Caudal extremity curved. Tail bifurcate; caudal lobes curved conoidal, obtuse, divergent. Generative aperture ventral, just above the caudal lobes. Twenty females and twelve males were found in Rancocas creek, a branch of the Delaware, New Jersey, in the month of August. Length of the former 5 to 12 inches; breadth 1-4th to 2-5ths of a line. Length of the latter from 4 to 6½ inches; breadth 1-5th to 1-4th of a line. Three females from 7 to 12 inches in length, and from 1-4th to 2-5ths of a line in breadth; and one male 6½ inches in length and 1-4th of a line in breadth, were obtained from the Schuylkill river. Mr. Pearsall has given me eight specimens from Philadelphia county. Professor Agassiz has given me a female 12 inches in length from Niagara; a male 6 inches in length and a female 8 inches in length from the vicinity of Cambridge; two females 6 inches in length from Edgartown, and a male 3 inches in length, and two females 4 inches and 9 inches in length from Trenton. Dr. King, of Greensburg, Pa., has given me a male 5 inches in length, from his vicinity. Mr. Hazard, of Point Judith, R. I., has given me a female 10 inches in length by 2-5ths of a line in breadth, from his vicinity. Professor Kirtland has given me a male 5 inches in length, said to have been passed per anum by a girl, near Cleveland, Ohio. Professor Baird has given me three males from the Susquehanna river, near Carlisle, Pa., and a male and female from Lake Champlain, N. Y.

The *Gordius varius* is the most common species of the genus in the United States, and is familiar to most persons under the name of hair-worm, and is erroneously supposed to originate from the maceration of horse hairs in water. The species is remarkably pro-

lific. A single female, 9 inches in length, by 2-5ths of a line in breadth, which I had preserved in a large vessel of water, extruded from between its caudal lobes a cord of ova, broken into segments, the aggregate length of which was 91 inches, and breadth 1-20th of a line. I counted in each transverse disk of the cord about 70 eggs, and in the length of 1-40th of an inch 26 eggs, so that by simple calculation : $70 \times 26 \times 40 \times 91 =$ the whole number of eggs deposited is 6,624,800.

170. *Gordius Aquaticus?* Gmelin.

Gordius seta, Müller. Diesing, Syst. Helm., ii, 83.

Gordius lineatus, Leidy. Pr. A. N. S., v, 263 (1851).

Gordius robustus? Leidy. Ibidem, 275. Body long, filiform, not narrowed anteriorly, dusky yellowish white, cream colored, white, light brown, or dark brown in color, sometimes darker at the extremities, lustrous. Areolæ of the integument hexagonal.

Female.—More robust than the male, opaque, and lighter colored. Head obtusely rounded. Caudal extremity truncated, round.

Male.—Narrower than the female. Head obtusely rounded. Caudal extremity incurved, bifurcated; caudal lobes curved conoidal, obtuse, fimbriated upon the ventral border with simple branching dermal appendages.

Six males from 5 to $7\frac{1}{2}$ inches in length and 1-8th of a line in breadth, and one female 5 inches in length by 1-6th of a line in breadth, of a dusky yellowish white color, were obtained by Professor Baird from a spring in Essex county, New York (*Gordius lineatus*, Pr. A. N. S., v, 263). One female of a light brown color, with the head ringed with black, $3\frac{1}{2}$ inches long by 1-5th of a line broad, procured by Dr. W. S. Gibson from a spring in Philadelphia county. A female of a cream color, with the head ringed with dark brown, $4\frac{1}{2}$ inches long by 1-5th of a line broad, I found in Frederick Brook, at the head of the Bay of Fundy, New Brunswick. A female (*G. robustus*, Pr. A. N. S., v, 275), hardly narrowed at the extremities, brown, rigid, with the head edged with dark brown and the tail slightly expanded, conical, and obtuse, $6\frac{1}{2}$ inches long and $\frac{1}{2}$ a line wide, was obtained by Dr. Charles H. Budd from a boy, who informed him it had crept out of the abdomen of a grasshopper which accompanied the worm. A male and female were obtained by Mr. Schaffhirt from a single specimen of *Pterostichus fastidites*, Dejean. The length of each is about 3 inches, the breadth of the male 1-8th of a line, of the female 1-6th of a line.

171. *Mermis Albicans*, Seibold.

Mermis elongata, Leidy. Pr. A. N. S., v, 263.

Mermis crassicaudata, Leidy. Ibidem.

Mermis ferruginca, Leidy. Ib. Body long, capillary, narrowed towards the extremities, most narrowed anteriorly. Head slightly dilated or not at all, truncated, convex. Caudal extremity slightly curved, conoidal, obtuse. Color milk white when the worm is parasitic or is buried in the earth; cream or yellowish white, or light ochreous yellow, or light reddish brown when it lives in water. In alcohol becomes translucent yellow, bright yellow, approaching to orange or brown.

Eleven individuals (*Mermis elongata*, Pr. A. N. S., v, 263), of a dusky yellowish white, and from 6 to 18 inches long by 1-6th to 1-3d of a line broad, were obtained by Dr. Charles H. Budd in the early spring season in a ditch emptying into the Rancocas creek, New Jersey. Six specimens, opaque white in color, from 8 to 15 inches in length, were obtained by Samuel Powell, Esq., in digging in the earth mould of his garden at Newport, R. I. One specimen, of a cream color, 22 inches long and 1-3d of a line broad, was obtained by Dr. William Gibson from a rivulet in Philadelphia county. I found four specimens of a brownish white, from 9 to 16 inches long and from 1-6th to 1-4th of a line broad, in pools of fresh water among the rocks of the seashore of Point Judith, R. I. One specimen (*Mermis crassicaudata*, Pr. A. N. S., v, 263), opaque white and 8 inches long, I found in a ditch below Philadelphia. A specimen (*Mermis ferruginca*, Pr. A. N. S., v, 275), from Brazil, contained in the collection of the Academy, is brown in color and measures 14½ inches long. A cream-colored individual, 4 inches long and 1-5th of a line broad, was obtained from an apple by Major Le Conte, who, with great probability, supposed it had issued from the larva of a lepidopterous insect in the core of the fruit. Professor Agassiz sent me a specimen, translucent yellowish white in color and 9½ inches long and 1-5th of a line wide, obtained from the abdomen of *Orchelimum gracile*, Harris. Lastly, I have obtained specimens very frequently from *Locusta carolina* of the meadows below Philadelphia, and occasionally from the earth and ditches in the same locality. From one to six of the worms occupy the body of a single insect, closely coiled among the viscera, from the head to the end of the abdomen. The worms are opaque white and measure from 3 to 15 inches in length and from 1-6th to 1-4th of a line in breadth. When the grasshoppers infested with these parasites are bruised the worms creep out and penetrate into the earth, as I have satisfied myself by careful observation. In alcohol the *Mermis* of the grasshopper assumes in time a bright yellow hue.

172. *Mermis Robusta*, Leidy.

Filaria lycosa, Haldeman. Iconog. Encyc., ii, Zoöl., 48. Body cylindrical, robust, rigid, smooth, and shining, attenuated towards the extremities; most narrowed anteriorly. Head conical, caudal extremity obtuse, imperforate.

I found one specimen, of a pale pinkish white, $\frac{3}{4}$ inches in length and $\frac{1}{4}$ th of a line in breadth, which crept from the abdomen of a species of *Lycosa*, with four stripes on the cephalothorax and three on the abdomen, from New Jersey. The specimen described by Mr. Haldeman was pale reddish and over five inches in length by $\frac{2}{5}$ ths of a line in breadth, and was obtained from *Lycosa scutulata*? Hentz, in Pennsylvania.

[September, 1856. No. 164. See Bibliography.]

Dr. Leidy also directed the attention of the members to several shells of the oyster and clam (*Ostrea virginiana* and *Venus mercenaria*) much perforated, which are common on the ocean shore, where they are noticed by all visitors. Dr. L. had for a long time suspected that the perforations were due to some molluscos animal or a worm, and he had frequently sought for them. The last summer, in dredging, in company with Mr. Ashmead and Prof. Baird, on an old oyster bed at Great Egg Harbor, New Jersey, a large number of these perforated shells were obtained, and all of them were observed to be occupied by a sulphur yellow sponge of the genus *Cliona*. This boring sponge forms an extensive system of galleries between the outer and inner layers of the shells, and protrudes through the perforations of the latter tubular processes, from one to two lines long and one-half to three-fourths of a line wide. The tubes are of two kinds, the most numerous being cylindrical and expanded at the orifice in a corolla form, with their margin thin, translucent, entire, veined with more opaque lines, and with the throat bristling with silicious spiculæ. The second kind of tubes are comparatively few, about as one to thirty of the other, and are shorter, wider, not expanded at the orifice, and the throat unobstructed with spiculæ. Some of the second variety of tubes are constituted of a confluent pair, the throat of which bifurcates at the bottom. Both kinds of the tubes are slightly contractile, and under irritation may gradually assume the appearance of superficial wart-like eminences within the perforations of the shell occupied by the sponge. Water obtains access to the interior of the latter through the more numerous tubes, and is expelled in quite active currents from the wider tubes.

In structure the sponge is composed of an intertexture of granular matter and pin-like silicious spiculae. Several species of *Cliona* are indicated by European naturalists, but are not characterized with sufficient detail to determine whether the one above indicated is distinct or not from them.

Dr. L. further adds, it might appear only of scientific interest to observe a structure so low as the sponge is classified in the organic kingdom, endowed with the power of penetrating such dense and hard bodies as the shell of the clam and oyster, but he suspected that the agency of the boring sponge was a highly important one in the sequence of natural phenomena, as it is a means by which dead shells are rapidly decomposed to be dissolved in the ocean water, where they may again serve as the elements of construction of the habitations of the rising generations of molluscous animals. In confirmation of this view Dr. L. stated that an extensive bed of oysters, which had been planted by Mr. Thomas Beasley, at Great Egg Harbor, and which was in excellent condition three years since, had been subsequently destroyed by an accumulation of mud. The shells of the dead oysters, which were of large size and in great number, in the course of two years have been so completely riddled by the boring *Cliona* that they may be crushed with the utmost ease, whereas without the agency of this sponge the dead shells might have remained in their soft muddy bed, devoid of sand and pebbles, undecomposed perhaps even for a century.

[February, 1857. No. 178. See Bibliography.]

Dr. Leidy made the following observations on entozoa found in the *Naiades*.

He had observed a curious parasite allied to *Aspidogaster conchicola*, infesting *Anodonta fluviatilis* and *Anodonta lacustris*, within the cleft of the upper branchial cavity, adhering to the outer surface of the renal organ and the contiguous margin of the foot. The new parasite, for which the name of *Cotylaspis insignis* was proposed, is from $\frac{1}{2}$ a line to 1 line long, curved funnel-shaped, with the base forming an oval ventral disk provided with an outer circle and an inner row of acetabula 29 in number. The animal is provided with distinct eyes, while *Aspidogaster*, in accordance with its being imprisoned in the pericardium of the *Naiades*, is blind.

[December, 1857. No. 183. See Bibliography.]

Dr. Leidy called the attention of the members to a bottle containing numerous specimens of a large species of *Gordius* discovered by

Dr. Wm. A. Hammond, 525 miles west of Fort Riley, Kansas Territory. Dr. Hammond states they were found in a pond in great numbers, in company with *Siredon*. They swam actively forward an inch or two beneath the surface of the water, and occasionally lifted the anterior end even above the latter.

The collection contains 24 females and the same number of males. The females are cylindrical, light brown of various shades, shining, iridescent; anterior extremely narrowed; head surrounded with a dark-brown ring; tail obtuse, slightly compressed, with a terminal genital pore. The males are darker colored than the females; tail extremity more or less spirally enrolled, with the extremity bifurcated; forks divergent, incurved, smooth, connected at base anteriorly by a crescentic fold, in advance of which is the genital pore; head as in the female.

The females measure from 10 inches in length by 1-3d of a line thick, to two feet 6 inches in length and 3-5ths of a line thick; the males 8 inches in length by 1-4th of a line thick, to 2 feet 2 inches in length by 2-5ths of a line thick.

Dr. Leidy next directed the attention of the members to a bottle containing seven specimens of the larva of a species of *Oestrus* or bot-fly. They were obtained by Dr. Hammond from a pouched rat, *Thomomys borealis*, at Bridger's Pass, on the summit of the Rocky mountains, July, 1857. Dr. Hammond found the rat panting on the road side, without power of escaping. The bots were found situated beneath the skin of the back, belly, and thigh.

The body of these larvæ is oblong oval, compressed, incurved; head minute, composed of a transverse pair of papillary eminences, each supporting two minute ocelli, and having projecting from beneath, forward and downward, a pair of strong black hooks. Spiracular laminae trilobed and marked with vermicular lines. Segments of the body closely covered with discoidal corneous tubercles, of which the anterior ones have their posterior border projecting and dentated.

The smallest is light yellowish brown, and as they become larger they assume a darker tint. The largest are black, hard, shining, and remarkably shagreened in appearance.

Length of the smallest larva 5 lines, breadth 3 lines, thickness 2½ lines; length of largest 9 lines, breadth 5½ lines, thickness 3 lines.

[April, 1858. No. 197. See Bibliography.]

Dr. Leidy called the attention of the members to a drawing of a curious worm, which he said was obtained from the Schuykill

river, and was interesting from its being more nearly allied to marine forms than any other known fresh-water species. It lives in tubes of mud, and is about a line in length. The body is divided into twelve annuli, including the head, which is cup-shaped; has two eyes, and supports on each side a process provided with seventeen cylindrical ciliated arms. The rings, except the head, are provided with four rows of bristles and two rows of podal hooks. The bristles are from four to six in a bunch, those anteriorly having a falcate extremity and those posteriorly being whip-like. The anterior hooks are in a series of five, and have a long handle with a lance-like extremity. The posterior hooks are from fifteen to twenty in a series, and have a long handle with the extremity expanded and serrated on one side. It appears to be most nearly allied to the marine genus *Fabricia*. He proposed for it the name *Manayunkia speciosa*, from the Indian name of the river in which it was first discovered.

[April, 1858. No. 198. See Bibliography.]

CONTRIBUTIONS TO HELMINTHOLOGY.

Cotylaspis, Leidy. Body curved infundibuliform, anteriorly cylindrical-conical, posteriorly expanding into a subcircular or oval ventral disk, with numerous acetabula arranged in a triple series. Mouth infero-terminal, with a prominent upper lip, and protractile into a cup- or disk-like acetabulum. Intestinal apparatus as in *Aspidogaster*. Eyes two, distinct, black, situated on each side of the head. Generative apertures inferior, between the head and the ventral disk.

Cotylaspis Insignis, Leidy. Proc. Nat. Sc., 1857, 18.

Translucent white or pink white. Upper lip snout-like, conical. Ventral disk crenate at the margin; acetabula 29, oblong quadrate, the outer rows continuous in front and behind so as to form a circle. Length from $\frac{1}{2}$ to 1 line; ventral disk from $\frac{1}{4}$ th to $\frac{1}{2}$ a line in diameter.

Habitation.—Found adhering to the outer surface of the renal organ and the upper margin of the foot, within the cleft of the upper branchial cavity of *Anodonta fluviatilis* and *A. lacustris*.

Remarks.—This curious parasite, though allied to *Aspidogaster conchicola*, is certainly distinct; and it never occupies the locality of the latter, which also is found in the pericardium of *Anodonta fluviatilis* and *A. lacustris*. It is an interesting fact that in accord-

ance with its exterior position *Cotylaspis* possesses well-developed eyes, while the imprisoned *Aspidogaster* is blind. It has occurred to me that perhaps these two genera may represent two different stages of existence of the same animal.

Rhopalocerca Tardigrada, Diesing. Attached to the mantle of *Anodonta fluviatilis*; specimens also obtained by Mr. Lea from *A. lacustris*.

Heterostomum Echinatum, Filippi. From the oviduct of *Paludina decisa*. Quite common.

Cercaria Agilis, Leidy. Body, when elongated, narrowed pyriform; when shortened, obcordate; posteriorly emarginate; anteriorly triangular. Mouth acetabuliform, large, globular. Acetabulum little larger than the mouth, nearly central in the shortened condition of the body, at the posterior third of the latter when elongated. Sporocerca as long as the body, long clavate, transversely plicated. Color white.

Exceedingly active; found in the Delaware river, quite commonly in company with *Planorbis*, *Paludina*, and *Lymnea*.

Diplostomum Grande, Diesing. Head oblong oval, a little oblique; margin entire, inflated. Mouth small, round. Male aperture small round, female aperture large prominent, longitudinally oval. Body conical. Ovaries dusky yellowish. Length 1 line; breadth 1-4th line; head 3-4ths line long; body 1-4th line long.

Twenty specimens were obtained from the intestines of *Strimneca*.

Monostomum Affine, Leidy. Body spatulate, narrowest anteriorly, flat; posterior end obtuse with an excretory orifice communicating with a well marked canal traceable as far forward as the commencement of the oviduct. Mouth round, oral acetabulum small, followed by a smaller pharyngeal bulb. Intestine simple, traceable on each side to the posterior end of the body. Testes four, posterior to the position of the distended oviducts. Ovaries finely lobulated, situated on each side external to the position of the intestine; oviduct transversely tortuous and distended with brown ova. Penis ensheathed, long, tortuous, echinate. Generative aperture small, acetabuliform. Ova oval and prolonged at one pole, or subpyriform. Length of body 6½ lines; breadth 1 line.

Four specimens were obtained by Dr. J. M. Corse from the bile ducts and gall-bladder of the muskrat (*Fiber zibethicus*). Closely allied to *M. hippocrepis*, Diesing, but has no trace of the horseshoe-like collar to the head.

Monostomum Spatulatum, Leidy. Body flat, oblong, ovate, narrowing anteriorly, obtuse posteriorly; color white, with brown tortuous lines indicating the course of the oviduct. Mouth acetabuliform, circular. Testes three, alternating on each side, posteriorly with the oviduct. Ovaries on each side finely lobulated. Generative aperture small, a short distance behind the mouth. Penis undistinguishable. Length 3 to 4 lines; breadth $\frac{1}{2}$ line.

Twenty-three specimens were obtained by Prof. Jeffries Wyman from the gall-bladder of a fish, the species of which has been forgotten.

Distomum Biliosum, Leidy. Body ovoid, anteriorly compressed, conical, and incurved, posteriorly robust and obtuse. Mouth subterminal, transversely semicircular or crescentic, acetabulum much larger than the mouth, sessile subcircular, with a large transversely elliptical and bi-polar aperture. Generative aperture a little in advance and to the left of the acetabulum and provided with a prominent circular lip. Length from 1 to $2\frac{1}{2}$ lines; breadth $1\text{-}3\text{d}$ to 1 line; thickness $1\text{-}4\text{th}$ to $3\text{-}4\text{ths}$ of a line.

Several hundred specimens were obtained from the gall-bladder of a fish by Prof. Wyman, but the species has likewise been forgotten.

Tetrabothrium Barbatum, Leidy. Body delicate, filiform, quadrilateral, anteriorly narrowing, and then slightly widening again towards the head, posteriorly three or four times the breadth of the thickness; anterior segments quadrate, with the posterior angles projecting into barb-like lobe; posterior segments transversely oblong quadrate, with the posterior margin on each side projecting into a festoon-like lobe. Neck none, or a mere constriction. Head larger than the commencement of the body, conical. Bothria four, oblique, marginal, subcircular, large, fornicate, and folded at the border. Mouth at the summit of a globular papilla, unarmed. Length from 1 to 5 inches; breadth anteriorly $1\text{-}5\text{th}$ line, posteriorly $2\text{-}3\text{ds}$ of line.

Numerous individuals were obtained from the intestine of a large *Odontaspis punctata*? caught on the coast of New Jersey.

Dibothrium Speciosum, Leidy. Head gradually narrowing to its extremity, which is funnel-shaped and truncated. Bothria two, long, marginal, as wide as the head. Neck none. Anterior articuli short, subcuneate, those succeeding transversely sub-reniform, those posterior more equally quadrate, with convex margins, except the back one, which is emarginate. Length $1\frac{1}{2}$ inches; breadth ante-

riorly 1-10th line, posteriorly 2-5ths line. Head $\frac{1}{2}$ line long, 1-10th line wide. Generative aperture lateral.

Obtained by Mr. Noah Kollar from the intestine of *Bolcosoma olmstedii*.

Acanthorhynchus Reptans, Diesing. Obtained from the drum-fish, *Pogonias chromis*. Smallest individuals, from 1-4th to 1 inch long by $\frac{1}{2}$ line broad, were contained in cysts, adhering to the intestines, in the peritoneal cavity. One 3 inches long, with the head 2 lines long, was found in the liver. The largest ones were coiled up in oval masses, imbedded among the muscles of the tail. Two masses measured each about three inches long by 10 lines in diameter. The worm was several feet in length by $1\frac{1}{2}$ to 2 lines thick, white and soft. Head oval $\frac{1}{2}$ inch long by 1-4th wide. Tail end obtuse.

Filaria Solitaria, Leidy. Syn. of Entozoa, Pr. A. N. S., viii, 56.

Agamonema Papilligerum? Diesing, Leidy. Ibid., 55.

Filaria Quadrituberculata, Leidy. Ibid., 56. In error, described posteriorly foremost.

Filaria nitida, Leidy. Ibid., 56. Probably the young. Body cylindrical, slightly narrowed towards the extremities, rose-red in color. Head sub-acute; mouth with two series of four or six minute, conical pointed papillæ. Caudal extremity obtuse; anus terminal, transverse, elliptical, bordered by a prominent lip. Length up to 6 inches; breadth to $\frac{1}{2}$ a line.

A not unfrequent position for this worm, of full size, is beneath the skin of the back of *Rana pipiens*. Found also in the peritoneum and abdominal muscles of *Chelonura serpentina*, not unfrequently in the muscles of the eel, *Murana macrocephala*, of the Delaware river. In the peritoneum of *Emys serrata* and *Esox reticulatus*.

Esophagus Tortuosus; white, one-sixth the length of the body; intestine straight or slightly tortuous, translucent.

This parasite is most frequently found during the winter and spring. It is generally bright rose-red in color, with the extremities tinged more deeply red.

Filaria Spirocauda, Leidy. Body long, filiform, most narrowed posteriorly, head obtuse, unarmed; mouth a minute circular pore, neither armed nor labiated. Tail short, conical, rather obtuse, sub-acute; anus just above the tail. Caudal extremity of female recurved; of male, wound into a spiral of three or four turns. Length of female 6 to 8 inches; breadth 1-3d of a line. Length of male 4 inches; breadth 1-5th of a line. Seven females and four males

were obtained by Professor Wyman from the heart of a seal, *Phoca vitulina*.

Filaria Insignis, Leidy. Body cylindrical, narrowed posteriorly. Head obtuse; mouth quadrate ovoidal with a brownish papilla above and below it, and two almost obsolete ones on each side. Caudal extremity abruptly attenuated into an unciform tail. Length 1 foot; breadth 3-4ths of a line.

A single specimen was obtained by Professor Wyman from a cyst beneath the integument of the foot of a Raccoon, *Procyon lotor*.

Prosthosactes Inflexus, Diesing.

Prosthosactes Minor, Diesing.

A large number were obtained from the bronchia and lungs of *Delphinus phocaena* by Professor Wyman.

Gordius Varius, Leidy. Trans. Amer. Philos. Soc., vol. x, Pl. 11, fig. 48. An embryo of this species from *Lumbriculus limosus*.

Ascar Spiculigera, Rud. Body narrowed anteriorly, inflexed; head naked; tail short, conical, acute. Mouth with large prominent lips. Caudal extremity of the male furnished with a row of minute tubercles on each side. Length of female 8 to 16 lines; breadth to 3-4ths line; length of male 5 to 8 lines; breadth 1-3d line.

From the stomach of *Pelicanus americanus*; Mr. S. Ashmead, Florida. The crested cormorant (*Carbo diliphus*); obtained by Mr. Robert Kennicott, Illinois.

Ascaris Depressa, Rud. From the intestine of *Strix nivea*.

Spironoura Gracile, Leidy. From the Axoloti (*Siredon mexicanus*).

[June, 1858. No. 199. See Bibliography.]

Dr. Leidy, by permission of the Academy, communicated the fact that about one-half of the chrysalides of the canker-worm (*Endalimia*), which had recently proved so destructive to the foliage of our shade trees, were infected by two species of Ichneumon. One of the latter is comparatively large; and a single individual occupies the body of a canker-worm chrysalis. The other species is minute, and numerous individuals occupy the interior of a chrysalis.

[May, 1858. No. 212. See Bibliography.]

Dr. Leidy exhibited a drawing of the *Echinococcus hominis*, commonly known under the name of hydatid. The specimen from which it was taken was found in a tumor seated in the muscles of the right iliac region, which had been supposed to consist of impacted feces in the colon. The patient had been dead several days when the body

was injected with chloride of zinc ; yet two days afterwards the parasites were still alive. None of the injection, however, had come into contact with it, as it had no direct communication with the body. The *Echinococcus* is the larval form of a tape-worm. Dr. Leidy described its mode of propagation and of locating itself in the body.

[May, 1858. No. 213. See Bibliography.]

Dr. Leidy exhibited a minnow, caught in the Schuylkill, having disease of the scales of the upper part of the head and about the orbit. The scales were dilated, and filled with delicate organic cells, much resembling carcinomatous cells. They were certainly not confervoid or fungous, but were purely pathological, and thus of interest as a specimen of diseased formation in a fish. Disease in the inferior animals, and even in plants, is deserving of study by medical men, since it may throw light upon the nature of disease in man.

[December, 1858. No. 216. See Bibliography.]

Dr. Leidy called the attention of the members to the stomach of a mink (*Mustela vison*), containing a large number of worms. The latter had caused much thickening of the walls of the stomach, in which the anterior extremity of their body deeply penetrated. The worm is a species, heretofore unnoticed, of the genus *Cheiracanthus*. Its name and characters were given as follows :

Cheiracanthus Socialis, Leidy. Body cylindrical, posteriorly obtuse, anus subterminal. Integument transparent, with distinct circular muscles. Head discrete, discoidal, furnished with transverse rows of recurved hooks. Mouth bilabiate ; œsophagus clavate, red ; intestine dusky brown. Ovaries and oviducts, or testes and vasa deferentia, very tortuous and white. Anterior portion of the body thickly covered with alternating transverse rows of minute plates, of which those most anterior are tridentate, the succeeding ones bidentate, and the last ones are simple and gradually become obsolete. Posterior extremity of the male attenuated, spirally contorted, and ending in a horseshoe-like border with four red papillæ on each side.

Length of female 15 lines ; breadth $\frac{3}{4}$ ths of a line ; length of male 12 lines, breadth $\frac{1}{2}$ a line.

[December, 1858. No. 217. See Bibliography.]

Dr. Leidy exhibited specimens of true bone found in the kidney of a mink. It was situated in the fibrous tissue of the organ, the glandular substance of which was wasted away, its place being occupied by an enormous parasite, the *Strongylus gigas*.

[January, 1859. No. 219. See Bibliography.]

Dr. Leidy exhibited a drawing of the worm described by him at a former meeting as *Manayunkia speciosa*.

Dr. Leidy remarked that perhaps some of the members present would recollect he had some time since (Proc. 1858, p. 90) described a curious fresh-water worm, *Manayunkia speciosa*, from the River Schuylkill. It was observed that it appeared to be most nearly allied to the marine genus *Fabricia*. During the last summer Dr. L. in company with Mr. Powell sought for the latter at Newport, R. I. They found it in very great abundance at the foot of the cliffs bathed by the ocean. In its curved tubes of tenacious mud, adhering to stones and with its projecting tentacles, it very much resembles a ciliated polyp, especially *Phumatella*.

The worm is about $1\frac{1}{2}$ lines long, demi-cylindroid, with 12 annuli, of which all except the first are setigerous. The cephalic annulus has a short proboscis, is provided with one or two pairs of eyes, and supports 6 arms with about 80 ciliated tentacles. The succeeding 7 or 8 annuli are provided on each side with fascicles of from 5 to 7 setæ and as many podal spines. The posterior 3 annuli are provided on each side with fascicles of 2 setæ and from 12 to 15 short podal spines. Anterior setæ terminating in a linear lanceolate blade; posterior setæ aristate. Anterior spines terminating in a hook, which is dentate on its convex border; posterior spines expanded at the extremity, which is dentate on the convex border. Caudal annulus with a pair of eyes.

Eyes exist in the cephalic and caudal annuli, also in the young worm. From the want of a good description and figures of the European species of *Fabricia*, it was not to be determined whether the American species was different from it.

[February, 1859. No. 232. See Bibliography.]

Dr. Leidy exhibited specimens of a *Trichina* found in the muscles of a human subject. He stated that he often meets with this parasite, and most frequently in the biceps muscle of the fore-arm: also specimens of a dipterous larvæ from man.

[March 1860. No. 238. See Bibliography.]

Dr. Leidy called the attention of the members to a specimen of the singular body called *Hyalonema mirabilis*, recently presented by Dr. Ruschenberger. It is the second specimen obtained within a short time for the Academy. Both are from Japan. The specimen of *Hyalonema* exhibited consists of a twisted cord of siliceous spiculae over a foot in length and about half an inch in diameter. Twisted around it is a coriaceous membrane with wart-like eminences, belonging to a zoöphyte, which Dr. L. regards with M. Valenciennes as parasitic. The cord of siliceous spiculae Dr. J. E. Gray supposes to be the axis of the zoöphyte, but Dr. L. with M. Valenciennes views it as belonging to a sponge. This latter view is apparently confirmed by a specimen of a sponge, in the cabinet of the Academy, from Santa Cruz, presented by the late Dr. Griffith. This sponge is an oblong oval mass, about four inches long, surmounted at one extremity with a corona of twisted cords of siliceous spiculae about two inches in length. These spiculae are very similar in structure to those of the *Hyalonema*, mainly differing in size.

[April 1860. No. 239. See Bibliography.]

Dr. Leidy stated that he had just received a short notice from Prof. Leuckart, of Giessen, in which he mentions the results of some experiments with *Trichina spiralis*. Having fed dogs with human flesh containing Trichinae, he found that in a week or less the worms completed their development, but without assuming the form of a *Tricocphalus* or *Strongylus*. Within the intestine of the dog the generative apparatus, together with the eggs and embryos, were fully developed in the Trichinae. The embryos rapidly passed away with the excrement of the dog. A pig, having been feed with a dog's intestine containing fully developed Trichinae, was killed and dissected on the 3d of March, and exhibited in the muscles millions of Trichinae. From these facts it is rendered probable that embryos of Trichinae voided by dogs find their way into the human stomach through the food or drink, and subsequently burrow into the tissues of the body.

[March 1866. No. 271. See Bibliography.]

Dr. Leidy next directed the attention of the members to a specimen of the liver of a turkey suspended in alcohol, containing half a dozen cream-colored tumors, from the size of a pea to that of a nutmeg. The tumors examined microscopically appear to have the

structure of *soft cancer*, as usually described, being composed of large nucleated cells in great variety of form. Dr. L. stated that, after having dined on part of the turkey, on making inquiry for the missing liver, the cook had given information that in consequence of the "white lumps in it, it had not been cooked." On procuring it from the slops, it was found to be in the condition described. Dr. L. took the opportunity of expressing the opinion that an unnecessary degree of alarm had been created in the community in relation to what were considered to be diseased meats, especially such as are infested with parasites. While he most decidedly recommended the avoidance of the flesh of diseased or unwholesome animals, he thought that all parasites would be destroyed by thorough cooking.

In answer to a question from one of the members, whether he had noticed *Trichina* in pork, Dr. L. observed that he had been the first to discover this parasite in the hog, the discovery having been made twenty years ago, as may be seen by referring to the Proceedings of this Academy for October, 1846, pages 107, 108. This notice had attracted the attention of the German helminthologists, as proved by reference to Diesing's *Systema Helminthum*, vol. ii, page 114, and Leuckart, *Untersuchungen v. Trichina spiralis*, pages 6, 18.

[March, 1866.]

The circumstances under which the *Trichina* had been first detected in pork were on an occasion when Dr. L. had dined on part of the infested meat. While eating a slice of pork he noticed some minute specks, which recalled to mind the *Trichina* spots seen in the muscles of a human subject only a few days previously. Preserving the remainder of the slice, on examination of it microscopically he found it full of *Trichina spiralis*, but the parasites were all dead from the heat of cooking. In conclusion, Dr. L. observed that all meats were liable to be infested with parasites, but that there was no danger from infection if the meats were thoroughly cooked, for he had satisfied himself by experiment that entozoa are destroyed when submitted to the temperature of boiling water.

[October, 1868. No. 297. See Bibliography.]

NOTICE OF SOME AMERICAN LEECHES.

Having been invited by Mr. R. H. Lamborn, secretary and treasurer of the Mississippi and Lake Superior Railroad Company, to join an excursion to Minnesota and Lake Superior the last summer,

during the trip I had the opportunity of making many interesting observations in natural history. The many lakes of Minnesota are rich in mollusca, annelides, &c. Among the annelides, besides an abundance of the ordinary American medicinal leech *Hirudo decora*, I noticed one which struck me from its general resemblance to a variety of the European medicinal leech, *H. medicinalis*. One of the gentlemen in company with us, Mr. Clark, allowed me to try upon him its disposition to bite, but I did not succeed in getting the animal to do so. Upon examination of the leech, I find it belongs to a different genus from *Hirudo*, apparently to the genus *Aulastomum*. Its characters are as follows:

Aulastomum Lacustris, n. s. Body cylindroid, compressed, narrowing anteriorly, obtuse at the sides (in movement more cylindroid or less flattened, and quite obtuse laterally compared with *Hirudo decora* in the same condition). Color throughout olive green (with more of a yellowish hue than in the dorsal green of *H. decora*), closely maculated everywhere with confluent spots of a darker hue of the same color. Ninety-two annuli, exclusive of the lips, of uniform width, smooth. Upper lip half ovate, obtuse; lower lip narrow. Eyes ten, eight in the upper lip, the last pair separated by an annulus from the others. Mouth obliquely terminal, large. Acetabulum subbasilar, ventral, sessile, circular. Anus dorsal, above the acetabulum. Male aperture in the 24th annulus (but apparently between the 23d and 24th). Female aperture in the 29th annulus (apparently between the 28th and 29th). Oesophagus capacious, extending to about the 22d annulus, with 12 folds. Jaws three, small, when at rest included in pouches formed by an eversion of the mucous membrane. Teeth 12 in number to each jaw, bilobed at base. Length 4 to 5 inches, breadth 5 lines posteriorly; acetabulum 2 lines in diameter.

Var. An individual of lighter olive green than the former had black maculæ replacing the darker green ones, which were also more distinct and fewer.

Specimens described from Twin Lake, Minnesota.—In the summer of 1865 I saw several leeches at Sault Ste. Marie, in Lake Superior, which, so far as I can remember, were of the same species. At the edge of the shore I also saw some cocoons which I supposed to belong to the same animal. They were ochreous yellow, oval, about 4 or 5 lines in diameter; the surface impressed with concave pentagonal and hexagonal pits. From the angles of the margins of the latter projected branching processes curling at the ends.

Notwithstanding our familiarity with the American medicinal

leech, its long and frequent employment in the medical profession, and the vast numbers which have been brought to notice, it has been so imperfectly described that, in the excellent *Systema Helminthum* of my late esteemed friend, Dr. Diesing, of Vienna, it has been placed with the "Bdellidea species genere penitus dubiæ." I therefore take the present opportunity of indicating its characters more fully. It agrees most nearly with the diagnosis of the genus *Hirudo*, of which the *H. medicinalis* is the type, but nevertheless possesses peculiarities perhaps rather more than specific. Its characters, generic and specific, are as follows:

Hirudo Decora. Say: Long's *Expedit.*, vol. ii, 1842, *Append.*, 268. Moquin Tandon: *Monog. Hirud.*, 1846, 344. Diesing: *Syst. Helm.*, i, 1850, 474. Wood and Bache: *United States Dispensatory*.

Body elongated, compressed cylindroid, narrowing anteriorly, laterally sub-acute; in motion convex above, flat below, with the margins compressed, thin, acute, and somewhat wavy; composed of from 90 to 94 annuli, which are uniform and smooth. Head continuous with the body. Mouth obliquely terminal, bilabiate; the upper lip prominent, semiovate, obtuse, or from contraction of the lip emarginate; lower lip forming the inferior portion of the first annulus; the lips together acting as an acetabulum ovoid or obcordate in form. Eyes 10, arranged in horseshoe form, the anterior 8 above the upper lip, the posterior pair separated from the others by the first annulus. Acetabulum subbasilar, ventral, sessile, circular. Anus dorsal, above the acetabulum. Male aperture perforating the 25th annulus, with the lips more or less prominent. Female aperture between the 29th and 30th annuli. A group of four papillæ situated back of the latter on the 34th to the 36th annuli inclusive. Jaws three, semicircular, laterally compressed, furnished with 55 teeth, which have an acute curved summit and an expanded bilobed base. Oesophagus short and narrow compared with that of *Aulastomum*, furnished with 6 longitudinal folds, of which three coarse ones descend from the jaws and three narrow ones are intermediate.

Color.—Dorsal surface olive green, with a median irregular band and a lateral line of darker hue of the same kind; a median row of reddish brown dots, and a lateral row of black dots. Ventral surface reddish brown, extending slightly above the lateral margin, devoid of spots, or more or less maculated with black. Acetabulum colored like the back above and the belly below.

In the genus *Hirudo*, as characterized by Diesing (*Syst. Helm.*, i, 465), and to which he assigns 9 recognized species, the jaws are furnished with from 60 to 70 teeth, and the male aperture is situated

between the 24th and 25th segments. Moquin Tandon (Monog. Hirud., 1846, 326) likewise assigns the latter as the position of the male aperture in the genus *Hirudo*.

The position of the generative apertures in *H. decora* often appear more or less discolored or of a dull purplish hue, and the same is the case with the group of papillæ back of them. The latter do not exist in the medicinal leech of Europe. They are quite conspicuous in ours. I have suspected that they were provided for the adherence of individuals in sexual intercourse, and this view is confirmed by Mr. S. J. Moore, the well known professional leecher and bleeder of this city. Mr. Moore informs me that in copulo two individuals adhere in the position of the papillæ and make two turns of a spiral upon each other.

The red and black spots of the back contain from 20 to 22 in each row.

Length up to 7 inches by 8 lines in breadth posteriorly, and the acetabulum 3 lines in diameter.

[October, 1868.]

Prof. Leidy directed attention to a specimen of a sponge which had been for many years in the Museum of the Academy and had been presented by the late Dr. R. E. Griffith, who obtained it in the Island of Santa Cruz, W. I. It is especially interesting from its relationship with that most beautiful of all known sponges, the *Euplectella aspergillum*, and apparently also to that enigmatic body, the *Hyalonema Sieboldii* of Japan. Specimens of both these were also exhibited: a beautiful one of the former, from the Philippines, presented to the Academy by Joseph Henry Craven. Several specimens of the *Hyalonema*, presented by Drs. Ruschenberger and Sinclair, consist of a twisted fasciculus or rope of long, coarse, translucent siliceous threads, partially twisted with a brown verrucose membrane or bark. When the first specimen was presented to the Academy, in 1860 (Pr. A. N. S., 1860, 85), Prof. Leidy, as curator, reported it as a part of a sponge with a parasitic polyp upon it. One of the specimens may have some significance as to the relation of the rope of spicules and its polyp covering. It has attached two shark eggs and part of the tendril-like cords of another. The tendrils clasp the rope, and are also partly invested with the polyp crust. In the complete condition the *Hyalonema fasciculus* appears always to be associated at one end with a sponge mass. Originally described by Dr. R. E. Gray, the fasciculus was viewed as the axis of a coral, of which the verrucose bark formed part, the warts

constituting the polyps; and he supposed the fasciculus to grow as a parasite from the sponge, frequently seen in specimens attached to one of its extremities. This still appears to be the view of Dr. Gray as announced in recent volumes of the Proceedings of the Zoölogical Society, etc.

Dr. Bowerbank views the siliceous rope, with its warty investment and the sponge mass at one end, altogether as the elements of a sponge. The warts or polyps of Dr. Gray he regards as the oscules of the sponge.

Schultze, in an elaborate memoir (*Die Hyalonemen*), accompanied by beautiful plates representing the complete *Hyalonema*, as the result of his investigations determines the sponge mass and projecting siliceous rope to be altogether the elements of the sponge, and the warty investment of the rope to belong to a polyp, to which he gives the name of *Polythoa fatua*. In the crusts or individual polyps he detected the arms filled with nettling cells.

Brandt views the siliceous rope and its investment as a polyp, and the sponge mass at one extremity as a parasite invading, ultimately to destroy the polyp.

Lastly, among the discordant views, Ehrenberg looks upon the siliceous rope as an "artificial product of Japanese industry."

Prof. L. continued, I shall not discuss this extraordinary difference of opinion among experts, but must confess that I view most favorably the theory that the sponge mass and the siliceous rope together constitute the sponge *Hyalonema*, while the warty crust of the rope constitutes a parasitic compound polyp, the *Polythoa fatua* of Schultze.

The sponge from Santa Cruz, in its body and projecting fasciculi of siliceous threads, reminds one of the *Hyalonema* sponge, with its siliceous rope, but the structure of the threads of the former more nearly resembles those of the anchor threads of *Euplectella*. It is evidently a different sponge from either of those just named, and may be called *Pheronema*.

The body of the sponge is oblong ovoidal, with the narrower end upward, and with one side more prominent than the other. The lower extremity is rather cylindroid and rounded truncate. The upper extremity is conical, with a truncate apex presenting a large circular orifice. This is about 4 lines in diameter, and is the exit of a canal which descends in the axis of the sponge for almost half its depth, and then appears to divide into several branches. The sides of the sponge form thick dense walls to the cylindrical canal, which is of uniform diameter before its division.

In its present condition the sponge is of a light-brown hue. Its surface exhibits an intricate interlacement of stellate, siliceous spiculæ, including a tissue of finer spiculæ of the same character, the whole associated by the dried remains of the softer sponge tissues. More or less fine sand, especially at the lower end of the sponge, appears to be introduced as an element of structure.

From the lower end of the sponge there projects a number of distinct or separate tufts of siliceous spiculæ, looking like tufts of blonde human hair. In the specimens there are 15 tufts projecting around two-thirds of the extremity of the sponge, but the remaining third of the extremity of the latter exhibits about 10 orifices, from which as many additional tufts appear to have been extracted.

Length of the body of the sponge $4\frac{1}{4}$ inches; diameter at middle 22 lines, at lower end 15 and 17 lines, at upper end 8 lines. Length of tufts of spiculæ 2 inches. The coarser stellate spicules of the surface of the sponge in general have 5 rays, of which 4 are irregularly cruciform, while the fifth projects at a right angle to the others towards the interior of the sponge. The rays of the continuous crosses form together a lattice work on the surface of the sponge, and the intervals are covered by the rays of the finer spiculæ, which also in general have a five-rayed stellate character. The finer tissue in the interior of the sponge, seen through the lattice work of the surface, contains a multitude of spicules which differ from the others only in their minute forms. Some of the largest stellate spicules on the surface of the sponge have a stretch of three-fourths of an inch.

The spicules of the tufts projecting from the sponge are two or three inches in length and vary in diameter. They become attenuated towards both extremities, but especially that inserted into the sponge mass. Starting from the latter, they are at first smooth, then finely tuberculate, the tubercles gradually become converted into well marked recurved prickles or hooks, and finally the spicules end in a pair of longer hooks, recalling to mind the arms of an anchor. The spicules bear a near resemblance to those at the lower extremity of *Euplectella*, but have only two instead of four hooks at the end. In the specimen but few of the spicules present the complete character as described, most of them apparently having been broken.

The object of the tufts of spicules, with their recurved prickles and anchor-like free extremities, in *Pheronema* would appear to be to maintain the position or preserve the anchorage of the sponge in its ocean home, and perhaps in the living animal they are incessantly

produced as occasion may require, just as a *Mytilus* or a *Pinna* renews and attaches its threads of byssus to secure its position.

The siliceous spicules of *Phoronema* are composed, as in sponges generally, of concentric layers, and exhibit a delicate tubular axis. A spicula from one of the tufts measured as follows :

Spread of the anchor 1-10th of a line ; shank of the anchor 1-30th of a line ; prickled portion of shaft 1-40th of a line ; shaft where thickest and without prickles 1-18th of a line, thinning out to the inserted end where it was not more than 1-300th of a line.

The species I propose to dedicate to my wife under the name of *Phoronema anne*.

[September, 1870. Nos. 317 and 335. See Bibliography.]

Prof. Leidy stated that during the last summer he had made some further observations on *Urnatella*, a genus of ciliated polyps of the family Pedicellinidæ, discovered by him some years ago (Pr. Ac. Nat. Sc., 1851, 321 : 1854, 191) in the Schuylkill river. It is found abundantly below the dam at Fairmount, adhering to stones and rocks, on the sides and under part, not in contact with the ground. Occasionally it is observed attached to the shell of the living *Unio complanatus* and *Melania virginica* and less frequently to the stem of *Schollera graminea* and the leaves of *Vallisneria spiralis*. In the locality named, on the rocks, there may be observed, in association with *Urnatella*, the following animals : *Spongilla fragilis* ; *Limnias ceratophylli*, usually abundant and in compound bunches ; *Cothurnia pusilla*, parasitic on *Urnatella* and *Limnias* ; *Hydra carnea*, Ag., *Paludicella elongata*, *Plumatella vesicularis*, and the worm *Manayunkia speciosa*, etc.

[June, 1870. No. 326. See Bibliography.]

Prof. Leidy next made some remarks on the family of the Vinegar-eels, the substance of which was as follows : The number of species and genera of nematoid worms represented by the Vinegar-eels and constituting the family Anguillulidæ is astonishingly great. They are found in multitudes frequently in and about moist decaying and fermenting organic substances. Mr. Bastian, of London, a few years since contributed to the 25th volume of the Transactions of the Linnean Society a paper, in which he has given descriptions, with characteristic figures, of most of the known species, including about one hundred new ones, which he observes he discovered from a few limited regions in England in the course of fifteen months.

In seeking for the source of the small thread-worm, or *Oxyuris vermicularis*, which infests man, I have also been led to discover some new species, of which I propose in due time to publish descriptions with drawings. As is commonly the case in organic nature, we find the specific form changing with the change in condition, but the species are often found to differ where differences in the conditions are hardly appreciable.

Mr. Bastian, in a note to his description of the Vinegar-eel, *Anguillula aceti*, says he was indebted to Dr. Davaine for the opportunity of examining the animals, and adds that "they are much less frequent than is generally imagined—at all events in England; and this may be due in great measure to the adulteration of our vinegar with sulphuric acid." It would thus appear that the *Anguillula aceti* he examined was contained in a specimen of what may be suspected to have been the wine vinegar of France. The cider vinegar so commonly used in this country usually teems with vinegar eels. Our vinegar cruets, when held up to the light, even to the sharp sight of a naked eye, frequently exhibit the worms swarming, especially at the border of the surface, as if in search of both air and light. By comparison of our cider Vinegar-eel with Mr. Bastian's description and drawings of the true *Anguillula aceti*, which I infer to be the wine Vinegar-eel, it appears to belong to a different species. From the descriptions of previous authors of the European Vinegar-eel, I had considered ours as the same. I shall not now give a description of the animal, proposing to do so in the future, together with other species. I may say, however, while it has nearly the size and form of the *Anguillula aceti*, it has the œsophagus of the form in the genus *Cephalobus* of Bastian.

[August, 1870. No. 331. See Bibliography.]

Prof. Leidy exhibited in a vessel of water numerous living specimens of a leech, which he said was abundant in the vicinity of Philadelphia, but appears to be an undescribed species. He had first observed it in a pond on the Delaware, near Beverly, Burlington county, N. J., from which he obtained the largest specimens. It was found especially beneath half-submerged dead limbs of trees, sometimes between the bark and the wood, and in crevices and holes of the latter made by insects. It was also found in the Delaware and Schuylkill rivers near shore, beneath stones. In ditches below the city, and communicating with the rivers mentioned, smaller leeches, apparently the young of the same, were frequently between the leave sheaths of submerged stems of aquatic plants,

such as *Zizania aquatica*, *Scirpus fluciatilis*, *Sagittaria*, *Sparganium*, &c. When disturbed the animal receded from its position of rest and swam rapidly like the ordinary medicinal leech, *Hirudo decora*. It appears to belong to a different genus from the latter, and approaches most in character *Nephelis*, though it even exhibits points of difference from this as ordinarily described. The more mature animal from the Beverly pond may thus be characterized :

Body elongated, flattened cylindroid, narrowing anteriorly, smooth, indistinctly annulated, margin acute, above blackish olivaceous, below translucent grayish, with a more or less reddish tinge due to the blood. No striæ or markings visible beneath, and the annuli in this position scarcely perceptible. Annuli about 98, above minutely punctated with yellowish olivaceous or dusky whitish, and narrowly defined by the same hue. Head continuous with the body, obtuse. Mouth large, obliquely terminal, sub-bilabiate : lower lip crenulate. Jaws three rudimental folds without teeth. Oesophagus capacious, with three longitudinal folds. Intestine simple. Anus dorsal, conspicuous, in the penultimate annulus. Eyes six ; anterior pair largest and approximated ; second pair in second annulus corresponding with the lower lip ; third pair smallest, more deeply situated than the others, and placed slightly external and posterior to the second pair. Acetabulum terminal, inferior, circular, nearly as wide as the body. The larger male aperture conspicuous, and situated about one-fifth of the length of the body from the head ; the smaller female aperture scarcely visible and situated two or three annuli back of the former. Length to $2\frac{1}{2}$ inches by two lines wide ; by contraction becoming shorter and wider.

Smaller specimens, from half an inch to an inch in length, from the ditches communicating with the Delaware and Schuylkill rivers, and from the latter agree in form and constitution with the preceding, having the same number of annuli to the body and the same number and disposition of the eyes. The color is translucent pale Indian red, passing into darker shades and without the colored punctæ. Some young pale individuals exhibit a few scattered minute black punctæ down the back, due to single pigment cells, but mostly these are absent. Intermediate sized individuals from the Delaware and Schuylkill exhibit a gradation of character between the two forms indicated. Further numerous young from the ditches, kept in an aquarium for the last month, have gradually assumed the appearance of the more mature animal as first described.

Nepheleis vulgaris of Europe has eight eyes, and the generative apertures are included between the 34th and 38th annuli. In the species above described I could detect but six eyes, and the annuli at the fore part of the body are too indistinctly defined to determine the exact relative position of the generative apertures.

The new species of *Nepheleis* I would propose to name *N. punctata*.

[March, 1871. No. 347. 'See Bibliography.].

Prof. Leidy made the following remarks on *Tænia mediocanellata*: Recently one of our ablest and most respected practitioners of medicine submitted to my examination a tapeworm which had been discharged from a young man after the use of the aspidium filix-mass. The physician, in giving an account of the case, stated that he had previously treated the patient for another affection, in which raw-beef sandwiches had been prescribed for food. After looking at the worm, I remarked that it appeared to be the *Tænia mediocanellata*, a species which I had not before seen, and added that the patient had probably become infected from a larva swallowed with the raw-beef sandwiches. The specimen consisted of the greater part of the worm, broken into several pieces. Including some lost portions, it was estimated to have been upward of thirty feet in length. Unfortunately, the head proved to be absent: but, so far as character could be obtained from the specimen, in the form of the segments, position of the genital orifices, and the condition of the ovaries, it agreed with the description given of *T. mediocanellata* rather than with *T. solium*. From a want of acquaintance with the former, I did not feel entirely satisfied that the specimen actually belonged to that species.

Subsequently my friend brought to me the anterior part of the body, probably of the same individual tapeworm. He observed that, his patient continuing to complain, he had administered another dose of the male-fern, which was followed by the expulsion of the portion of the worm now presented. The head of the parasite was included, and it confirmed the view that it pertained to the *Tænia mediocanellata*.

The case serves as another caution against the use of raw flesh as food.

The description of the worm, as derived from the specimen, is as follows:

The head is white, without pigment-granules, obtusely rounded, unarmed with hooks, and unprovided with a rostellum, but furnished with a minute acetabuliform fovea at the summit. The four ace-

tabula are spherical, and opaque white. The diameter of the head is three-fourths of a line. The neck, or unsegmented portion of the body immediately succeeding the head, is about 4 lines long by half a line in breadth. The most anterior indistinctly defined segments of the body, and those immediately succeeding them, but more distinctly separated, are about one-fifth of a line long by two-fifths of a line broad. In a more posterior fragment of the body the flat and nearly square segments measure half a line long and a line broad to one-third line long and $2\frac{1}{2}$ lines broad. A succeeding fragment exhibits segments $3\frac{1}{2}$ lines long by 4 lines broad, and 2 lines long by 5 lines broad. Many of the segments in this piece are irregularly separated, laterally, by deep, wide notches. In a succeeding long portion of the worm the segments are wider behind than in front, and measure 2, 5, and 3 lines long by 5 lines broad. In a long piece of the posterior part of the worm the segments are first 4 lines long and broad, and in the last four feet of the same piece the segments are clavate in outline, from 6 to 10 lines long, and 2 and 3 lines broad.

The genital apertures are conspicuous, and are situated behind the middle of the segments. They alternate irregularly. Thus, in the last two feet of the posterior fragment of the worm, the first two segments exhibit the aperture on the left margin: the succeeding segment presents the anomaly of an aperture on both margins, then follow three apertures on the right, next two on the left, then four on the right, then eight alternating in pairs, then one on the left, and so on. The ovaries are opaque white, and exhibit numerous closely crowded lateral branches.

In the absence of pigment-granules to the head, and in the less robust character of the worm, the specimen differs from *T. medio-canellata* as described by Kuchenmeister. The minute acetabular pit or fovea at the summit of the head is not mentioned by Kuchenmeister and subsequent observers as a character of that species. It is a point, however, that might be readily overlooked, especially if parts of the head are obscured by the presence of pigment-granules. (Drawing.)

[November, 1871. No. 361. See Bibliography.]

FLIES AS A MEANS OF COMMUNICATING CONTAGIOUS DISEASES.

Prof. Leidy remarked that at this time, during the prevalence of smallpox, he was reminded of an opinion he had entertained that flies were probably a means of communicating contagious diseases to a greater degree than was generally suspected. From what he had

observed in one of the large military hospitals, in which hospital gangrene had existed, during the late rebellion, he thought flies should be carefully excluded from wounds. Recently he noticed some flies greedily sipping the diffuent matter of some fungi of the *Phallus impudicus*. He caught several, and found that on holding them by the wings they would exude two or three drops of liquid from the proboscis, which, examined by the microscope, were found to swarm with the spores of the fungus. The stomach was likewise filled with the same liquid, swarming with spores.

[December, 1871. No. 362. See Bibliography.]

Notice of Some Worms.—Prof. Leidy remarked that Prof. Hayden reports the brook trout, *Salmo fontinalis*, of the headwaters of the Yellowstone River, to be much infested with a species of tapeworm. A number of specimens of the worm, collected by C. Carrington, have been submitted to his examination, but, unfortunately, most of them are so far decomposed as nearly to be reduced to the condition of pulp. The worms are stated to have been taken from the abdominal cavity, but not from the intestinal canal, and often were found beneath the skin, extended among the muscles or inclosed in oval sacs. Several cysts preserved entire contained worms in a better condition for examination than the others, and from these the characters of the parasite have been ascertained. It belongs to the old genus *Bothrioccephalus*, and to that section now named *Dibothrium*. Two species of this genus have long been known as infecting the salmon and other members of the same genus of fishes in Europe, but the parasite of the Yellowstone trout appears to be a different one.

Two of the best preserved specimens measured five inches long by a line wide at the broadest part. The head, about a fourth of a line in diameter, is obcordate. The two suckers or bothria are thick and discoidal, placed back to back, obcordate in outline, directed with their broad and slightly depressed surface towards the margins of the body. The body is flat, thick, with rounded margins, and is narrowly annulated or segmented. The annulations, due to muscular bands, measure about ten to a line. Segments, independent of the annulations, if existing, could not be distinguished, perhaps on account of the badly preserved condition of the specimens. No genital apertures are visible at the sides nor at the margins. No internal organs are visible, but the soft, solid interior tissue is filled with round corpuscles resembling starch granules. These are, however,

composed of carbonate of lime, as they are dissolved by acetic acid with an abundant evolution of carbonic acid.

From the form of the head the worm was named *Dibothrium cordiceps*.

Numerous leeches collected by Prof. Hayden's assistants, Messrs. Carrington and Dawes, in a lake in Wyoming Territory, appear to belong to the species *Aulastomum lacustris*, first discovered several years ago in Twin Lake, Minnesota (Proc. Acad. Nat. Sci., 1868, p. 229). Mr. Carrington informs us that the head of a horse, which was thrown into the lake, in a few hours appeared black from the quantity of these leeches which adhered to it. It is barely probable that this leech is the one described by Thomas Say, in Long's Expeditions, under the name of *Hirudo marmorata*, though the characters do not accord with his description of the latter. It is not improbable that the two are quite distinct. *H. marmorata*, together with another species, *H. lateralis*, was obtained from small lakes on the high land between Lake Superior and Rainy Lake. Neither of these appears to have been obtained since their first discovery.

Several large hair worms from Fish Creek, Montana, pertain to the species *Gordius lacustris*, previously described from specimens obtained in Kansas. It is the largest known *Gordius*. The females of the Kansas specimens range from 10 inches to 2½ feet in length, the males from 8 inches to upwards of 2 feet. The females of the Montana specimens measure from 1¼ to 2¼ feet in length, a male 8½ inches in length. The females are pale brown, the males dark brown and with a strongly forked tail.

[January, 1872. No. 365. See Bibliography.]

On a Mite in the Ear of the Ox.—Prof. Leidy remarked that he had received a letter from Dr. Charles S. Turnbull, in which he stated that while studying the anatomy of the ear he had discovered in several heads of steers, at the bottom of the external auditory meatus, a number of small living parasites. They were found attached to the surface of the membrana tympani. Specimens of the parasite preserved in glycerine, and a petrosal bone, to which several of the parasites were clinging, were also sent for examination. These proved to be a mite or acarus, apparently of the genus *Gamasus*. The body is ovoid, translucent white, about 3-5ths of a line long and 2-5ths of a line wide. The limbs, jaws, and their appendages are brown and bristled. The body is smooth or devoid of bristles. The limbs are from 2-5ths to ½ a line long. The feet are terminated

by a five-lobed disk and a pair of claws, as represented in figure 3. The palpi are six-jointed, as represented in figure 1. The mandibles end in pincers or chelæ, resembling lobster claws, as represented in figure 2. The movable joint of the chelæ has two teeth at the end. The opposed extremity of the fixed joint of the chelæ is narrow, and ends in a hook. (Drawing.)

Whether this mite is a true parasite of the ear of the living ox, or whether it obtained access to the position in which it was after the death of the ox in the slaughter-house, has not yet been determined. Dr. Turnbull observed it only in the position indicated.

[June, 1872. No 365. See Bibliography.]

Note on Gamasus of the Ox.—Prof. Leidy read an extract from a letter from Dr. C. S. Turnbull, in which it was stated that the writer had been misunderstood in relation to the acarus of the ox, described in the Proceedings for January 2d. He had seen the cattle killed, and was positive that the mites occupied the position in the ear of the steers while these were alive. Such being the case, the acarus may be viewed as a parasite of the ox, and may be specifically named *Gamasus auris*.

[April, 1873. No. 389. See Bibliography.]

Fungus Parasite on a Mouse.—Prof. Leidy exhibited a mouse with several whitish masses adherent to the ears, side of the face, and nose. The mouse had been caught in the children's department of Blockley Hospital, and was submitted to his examination by one of the attending physicians, Dr. James B. Walker, who had informed him that he had observed a number of mice in the same condition. Dr. Walker had previously informed him of the curious affection of the mice, and it was at his suggestion that the present specimen was caught for examination. The white matter, examined beneath the microscope, proved to be composed of sporular bodies, single, double, or in short chains of a dozen or more. They measure about the 1-650th of a line in diameter. The fungus is a *Torula* or *Oidium*, and resembles that found in *Aptha*. Perhaps the disease in the mice is the result of feeding upon articles imbued with adherent portions of apthous matter from the mouths of children, and perhaps also the latter may become affected from diseased mice contaminating food or drink used by the children.

[October, 1873. No. 390. See Bibliography.]

On Distoma Hepaticum.—Prof. Leidy stated that he had received a letter from Prof. Gross, inclosing one from Dr. J. G. Kerr, of Canton, China, asking information in regard to a worm accompanying the letter. Dr. Kerr observes that the worm was vomited by a Chinese boy, aged fifteen years, and was brought to him in an hour after its expulsion, when it was still alive. It had the appearance of a leech, was red in color, about an inch and a half long and three-fourths of an inch where widest. Dr. Kerr also states that a girl, of four years, of English parents, living in Canton, passed from the bowels at one time nine of these worms. With these exceptions, Dr. Kerr had not met with any one who had ever seen or heard of anything of the kind.

Prof. Leidy exhibited the specimen and expressed the opinion that the worm was a Liver-fluke, *Distoma hepaticum*, a rare parasite in the human subject, though common enough in cattle, especially sheep, in which it caused the disease called "rot." The worm exhibits some differences from *D. hepaticum* as usually described, but perhaps not sufficient to characterize it as a distinct species. The specimen is preserved in strong alcohol, which no doubt has much contracted and reduced it in size, but it is yet rather larger than the size assigned to *D. hepaticum*. It is perfectly smooth throughout, and exhibits no trace of roughness to the integument. It is ovate-lanceolate in form, and gradually widens from the anterior to the posterior rounded extremity. The ventral acetabulum is twice the size of the mouth, and is situated about its own diameter behind it. The genital orifice with the exerted spiral penis is placed just in advance of the ventral acetabulum. The measurements of the worm in its present condition are as follows: Length 17 lines, width at the posterior third 7 lines, thickness near center 1 line, diameter of mouth $2\frac{1}{5}$ ths of a line, diameter of acetabulum $4\frac{1}{5}$ ths of a line.

Prof. Leidy further remarked that Dr. Keyser, of this city, the evening previously had brought to him for examination a worm, which was stated to have been removed from the cavity of the nose of a patient. He recognized the worm as a rat-tail lava (Larva?) apparently of the genus *Eristalis*, and inquired of those members interested in entomology, if they had ever known this insect to be found as a parasite in the human body. Both Drs. Le Conte and Horn said that they had never heard of this genus being parasitic.

[August, 1874. No. 405. See Bibliography.]

On a Parasitic Worm of the House-fly.—Prof. Leidy remarked that since it had become well known that many parasitic worms passed different stages of development within several different animals, he had from time to time sought for the sources from whence the more common thread worms obtained entrance into the human body, but thus far without success. The *Trichina spiralis*, discovered in man in 1833 by Mr. Hilton, and described and named by Prof. Owen in 1835, was first found in the hog by Prof. Leidy in 1846 (see Proc. A. N. S., iii, 108), but it was not until some years subsequently that it was determined that man and the hog acted reciprocally as hosts for the *Trichina* in its different stages of development.

In examining various common animals of our household, Prof. Leidy had found a thread-worm infesting the common house-fly. The worm is from a line to the tenth of an inch long, and lives in the proboscis of the fly. It was found in numbers from one to three in about one fly in five. The parasite was first discovered in the house-fly in India by the English naturalist, Mr. H. J. Carter, who described it under the name of *Filaria Musca*, and suggested the opinion that it might be the source of the Guinea worm, *Filaria medinensis*, in man. Mr. Carter states that he found from two to twenty of the worms in one fly of three. Dr. Diesing referred the parasite to a new genus with the name of *Habronema musca*. The singular position in which the worm lives suggests the many unsuspected places we have to search to find the parents or offspring of our own parasites.

[January, 1875. No. 416. See Bibliography.]

On a Fungus in a Flamingo—Prof. Leidy remarked that a pair of Flamingoes had recently died in the Garden of the Zoölogical Society at Fairmount Park. Dr. Chapman, who had dissected the birds, called his attention to the diseased condition of the lungs of one of them, the other not being affected in this respect. The posterior part of the lungs on both sides, contiguous to the abdominal air sacs, was occupied by an indurated brown substance, in striking contrast with the usual bright roseate hue of the neighboring pulmonary tissue. An incision made into the indurated substance exhibited a brown compact surface with greenish-black dots which corresponded with the bronchial tubes. On microscopical examination the substance was found to be pervaded with a fungous vegetation, and the greenish-black dots were due to the fruit heads profusely covered with colored spores.

Prof. Owen, upwards of forty years ago, mentioned the existence of a green mould he had observed in the lungs of a Flamingo, which died in the menagerie of the Zoölogical Society of London, but he gave no description of the plant by which we can recognize it. Since then many accounts have been given of the existence of fungous vegetation in the diseased lungs of various birds, but I think it has not been determined whether the diseased condition was due to the fungus or whether this was a subsequent production.

The plant observed in our diseased Flamingo belongs to the Moulds or Mucedines, and is evidently an *Aspergillus*. A number of species of this genus have been described, growing on various decaying substances. The common Blue Mould found in cheese and bread kept in a damp place is the *Aspergillus glaucus*. From this the mould of the Flamingo is quite distinct in the structure of the fruiting receptacles, in which respect it more nearly resembles the *Aspergillus dubius*, growing on rabbit's dung. The *Aspergillus* of the Flamingo I suspect to be the same as one described by M. Robin under the name of *Aspergillus nigrescens*, discovered by him in the lungs of a pheasant (*Pheasianus colchicus*) affected with phthisis.

In the Flamingo mould the mycelium consisted of a dense flock of delicate ramifying filaments pervading the indurated pulmonary tissue, which consisted largely of nucleated cell elements and granules. The threads of the mycelium were branching, and occupied on the interior with clear globules appearing like rows of beads. The threads measured usually the 1-500th of a millimeter or less in diameter.

The fruiting stems (see accompanying figure) were straight, from one-fourth to two-fifths of a millimeter long, not articulated, usually simple, and rarely divided, approximating a right angle near the head. They were about the 1-250th mm. wide at the mycelial origin and double the width approaching the head. The head continuous with the stem was pyriform, or the stem expanded into a globular receptacle, which was closely crowded with linear processes or sporophores, supporting the spherical, translucent colored spores. The latter profusely invested the heads, but were too ripe and readily detached to determine their exact arrangement in relation with the sporophores. These, on the contrary, remained firmly attached to the receptacle.

The receptacles measured from 1-60th mm. to 1-50th mm. The stratum of sporophores was from 1-166th mm. to 1-125th mm. thick. The spores were 1-333d mm. in diameter.

By transmitted light the spores appeared so faintly colored that the tint was undetermined; by reflected light in mass they appeared of a greenish hue. The receptacles, including the sporophores, appeared fuscous by transmitted light, but white by reflected light.

In M. Robin's plate of *A. nigrescens* he represents most of the fruiting stems as articulated, but in our plant none of this character were detected.

[February, 1875. No. 417. See Bibliography.]

Notes on Some Parasitic Worms (with drawing).—Prof. Leidy remarked that Mr. Henry Horn, assistant superintendent at the Zoölogical Garden, had given to him several specimens of worms, recently passed by a Bengal tiger. There are three males and eight females, and they appear to be the *Ascaris mystax*, which has been found in many other feline species, including the domestic cat and the lion. The characters of the worms from the tiger are as follows: Body almost equally tapering towards the extremities. Female—Cephalic end inflexed, with long narrow semi-lanceolate alæ. Caudal end straight; tail short, conical, subacute. Male—Cephalic end straight, alated. Caudal end inflexed, and furnished with a row of about two dozen minute round papillæ on each side ventrally; tail short, conical, acuminate. Length of females from 2 to $3\frac{1}{4}$ inches; thickness from 1-4th to $\frac{1}{2}$ line. Length of males from 13 to 16 lines; thickness from 1-6th to 1-5th line.

Prof. Leidy further remarked that Mr. Thomas Mehan had submitted to his examination some worms which had been found in an apple. They consisted of one entire individual and the anterior half of a second, and apparently pertain to the *Mermis acuminata*, a long thread-worm which has been discovered infesting the larvæ of many insects. Among others, it is parasitic in the larva of the codling-moth, or fruit-moth of the apple, which readily accounts for its presence in the fruit. Twenty-five years ago (Proc., 1850, 117) he described a worm, belonging to the collection of the Academy, and labeled as having been obtained from a child's mouth, which was evidently the same species. It having been in the child's mouth is probably to be explained by supposing that the child had eaten an infected apple.

The characters of the present specimens of the worm, both females, are as follows: Body filiform, pale fuscous, narrower anteriorly. Head conical, truncate, with the mouth simple and unarmed. Caudal extremity thicker than the head, obtusely rounded, and furnished with a minute spur-like process. Length 5 inches 8 lines;

cephalic end at mouth 1-12th mm.; a short distance below 1-5th mm.; middle of body 3-8ths mm.; near caudal end 1-4th mm.; micro 1-12th mm. long, 1-80th mm. thick.

From an Australian wombat, which recently died at the Zoölogical Garden, Prof. Leidy had obtained from the stomach two specimens of a tapeworm of the genus *Tænia*. They are three inches long, and about four lines broad at the last joint. The characters are as follows: Entire worm elongated and compressed pyramidal. Head quadrate, narrowing below, convex above, furnished laterally with four prominent hemispherical bothria. Neck short, constricted. Segments of the body very short and wide, campanulate with the projecting points, giving the body laterally a serrated appearance. From the intermediate joints a narrow conical papilla protruded from each side of the same joint, but none could be made to protrude from the back joints, from which globular white ova were expressed measuring 0.052 mm. diameter. Head 3-4ths of a line in breadth. One inch from the head six segments occupied the space of a line; at the posterior part of the body four segments occupied the same extent. The species appears not to have been previously described, and may therefore be named *Tænia bipapillosa*.

[February, 1875. No. 418. See Bibliography.]

Notes on Some Parasitic Worms.—Dr. Leidy exhibited some nematoid worms, on which he made the following remarks:

One of the species is common in feline animals and is the *Ascaris mystax*. The specimens, consisting of fifteen females and five males, had been sent to Dr. Chapman by Mr. Thompson, superintendent of the Zoölogical Garden, who reports that they had been passed by the American wild-cat. The females measure from 2½ to 4 inches in length by 2-5ths to 2-3ds of a line in thickness. The males measure from 2¼ to 2½ inches in length by 1-3d to ½ a line in thickness. The specimens are larger and the ake of the head proportionally better developed and therefore more conspicuous than in those noticed at the previous meeting as having been passed by the Bengal tiger. The worms of the tiger are such as have been described under the name of *Ascaris leptotera*, which appears to be only a variety of *A. mystax*.

The other worm is a *Filaria*, apparently an undescribed species. Half a dozen individuals of the two sexes were obtained from the peritoneal cavity of an Australian Whallabee, which recently died in the garden of the Zoölogical Society. The characters of the parasite are as follows:

Filaria Spelæa.—Body filiform, translucent whitish, tapering at the extremities. Cephalic end straight, obtusely rounded, furnished with four equidistant papillæ around the mouth. Caudal end narrowest, rather abruptly attenuated and spirally rolled once or twice and terminating obtusely. A distinct anal aperture observable in the female. A row of eight papillæ on each side ventrally of the caudal end of the male; three in advance and the others back of the genital aperture. Penis a long, tubular style, thick at the upper part, narrow and curved below. Accessory piece a short, thick, curved tube, widening at the upper end in a spade-like, furcate portion. Œsophagus long, cylindrical, as wide as the succeeding intestine.

Measurements.—Female, length 10 inches, thickness 1-4th line. Length of tail from anal aperture 7-8ths mm. Male, length 4 to 4½ inches; thickness 1-66th inch. Tail, from genital aperture, forms 2-3ds of a circle ½ a mm. in diameter. Penis 7-8ths mm. long; accessory piece 1-5th mm. long.

[April, 1875. No. 423. See Bibliography.]

On Psorosperms in a Mallard Duck.—Prof. Leidy remarked that Dr. Elliott Cones had recently submitted to his examination some portions of the flesh of a mallard duck preserved in glycerine. The interstices of the muscles of the duck were stated in the letter which accompanied the specimens to be everywhere occupied by abundance of parasites. Specimens of these in the portions of flesh examined proved to be oval white bodies from one to two inches long and about one-third of a line thick. Beneath the microscope they were found to contain myriads of fusiform corpuscles, resembling minute naviculæ and measuring about the 1-1500th of an inch in length. Similar bodies were first discovered in many fish by the late Prof. J. Müller and described by him as parasites under the name of Psorosperms. They have been repeatedly observed since by Retzius, Robin, and others in the muscles and other parts of fishes, and they are usually regarded as vegetable parasites. I have not previously heard of similar organisms having been detected in birds. Though the mallard is not a fish-eater, the bird may have become infected by having swallowed an infected fish.

[September, 1875. No. 424. See Bibliography.]

On Mermis Acuminata.—Prof. Leidy exhibited a living specimen of *Mermis acuminata*, which had been sent to him for examination

the 8th of last August by Mr. P. H. Foster, of Babylon, Long Island, N. Y. It was one of two specimens which Mr. Foster had taken from apple worms found concealed in a woolen rag tied around the trunk of an apple tree in his garden. The mermis is $7\frac{1}{2}$ inches long, and had been retained alive in a box with moist spagnum. It exhibits a condition which Prof. L. had observed on several previous occasions in other species of *Mermis*. An intermediate portion of the body, apparently from injury, had died and was decomposed, while the extremities held together by the integument were still alive and active. This condition has been observed to be maintained for some time—that is to say, for some weeks.

[April, 1877. No. 438. See Bibliography.]

On Intestinal Parasites of Termes Flavipes.—Prof. Leidy remarked that in seeking small animals beneath stones and fragments of wood in our forests, observing the very common White Ant, *Termes flavipes*, he noticed that the intestine of the insect, seen in the translucent abdomen, was distended with brown matter. Feeling curious to learn the exact nature of this matter, he was surprised to find that it consisted largely of infusorial and other parasites, mingled with minute particles of decayed wood. In many instances the parasites are so numerous as to make up the greater portion of the bulk of the intestinal pulp. Every individual he had examined, of workers, soldiers, and winged forms, was infested with the parasites, which may be estimated by millions. As the discovery to him of this new world of parasitic life was recent, he had not yet had time to sufficiently examine scientific literature to ascertain whether the parasites had been discovered and described by others. M. C. Lespes, in a memoir on the organization of the *Termes lucifugus* of France, published in the *Annales des Sciences Naturelles* for 1856, remarks that the intestine is usually occupied by a kind of brown pulp, a living agglomeration of infusoria, and in another paper in the same volume, after describing a nematoid worm, *Isacis migrans*, infesting the *Termes*, he remarks that he had found in the intestine of the insect a great quantity of parasites, upon which he proposed to say something in the future.

The parasites observed in our White Ant consist of five different kinds, of which three are animal and two vegetable in character. One of the latter consists of filaments of the algoid form he had once described under the name of *Arthromitus*: the other, not so frequent, is a *Spirillum*, probably *S. undula*.

The animal parasites, of which drawings were exhibited, are as follows :

1. *Trichonympha Agilis*. This is a remarkable creature of obscure affinity, but probably related with the *Turbellaria* on the one hand and by evolution with the *Ciliate infusoria* on the other. The animal is about 1-300th of an inch long and about half the breadth of the length. It is fusiform, and is clothed with ciliate hairs of extraordinary length. The head is mammilliform; the posterior end of the body from subacute to obtuse according as it is narrowed or shortened by contraction. The cilia investing the body appear to consist of three sets—the shortest ones waving outwardly and downward from the head; a second set extending from the head the length of the body, incessantly waving downward and swelling outwardly, and the third set, the longest of all, extending from the head beneath the others in a longitudinal spiral manner far beyond the posterior end of the body, where they form a loosely twisted fascicle with divergent ends. The arrangement of the long cilia clothing the body reminded him of the nymphs in a recent spectacular drama, in which they appeared with their nakedness barely concealed by long cords suspended from the shoulders, and this arrangement has suggested the name applied to the parasite.

He was not positive whether he had been able correctly to interpret the interior structure of the animal, but it appeared to him to resemble more that of the *Rhabdocoela* than that of any of the protozoa. No appearance of vascular or nervous system could be detected. The animal appeared to be capable of ingesting particles of solid food, frequently observed in considerable quantity in the stomach occupying the posterior two-thirds of the body. The mouth apparently was a rounded pore at the summit of the head. From this a narrow tube expanded in a pharyngeal pouch communicating behind with the capacious stomach. An anal outlet may exist at the back end of the body, but was not detected. Opposite the junction of the pharyngeal pouch and the stomach a granular nuclear body is constantly observed.

Trichonympha, though incessantly and actively in motion, usually remains stationary in position, but occasionally advances with feeble jerking propulsion. The chief movements consist in frequent retraction or shortening and bending of the cephalic end with rapid waving and swelling outwardly of the long ciliary hairs. The motion of the latter resembles the flowing of a thin sheet of water over the brim of a fountain vase or basin swayed to one side or the other by a current of wind. The longest cilia, extending beyond the back

of the body in a loosely twisted fascicle, are the least active, but at times stretch outwardly and become more divergent at the ends, or they become more closely applied to the sides of the body. When the head is bent to one or the other side, with the summit directed forward, it gives rise to an appearance resembling the spiral peristome of a *Stentor*. Viewed on end, the parasite appears circular with long divergent cilia, and reminds one of the upper view of a *Vorticella*.

2. *Pyrsonympha Urtens*. The two remaining animal parasites are Infusoria. The larger of the two is often more abundant than the *Trichonympha*, and is about the 1-200th of an inch in length. It is more delicate, less distinctly defined, and undergoes rapid dissolution after removal from the intestine of the Termite. It is elongated fusiform, or, when shortened, clavate or pyriform in outline. Like *Trichonympha*, it usually remains stationary in position, while actively moving, writhing, apparently twisting, and often bending in a waving manner from one extremity to the other. In motion, longitudinally spiral and parallel lines become more or less evident and frequently cause serrated projections at the extremities or at the prominence of the bends when produced at the lateral borders. These exhibit a rapid waving motion, strikingly resembling the movement of flames and probably denoting the presence of minute cilia, though these were not positively seen. A narrow band extends the length of the body, sometimes projecting at one end, and moves in long angular waves, flexing the body in accordance with its movement. The body appears to be composed of finely granular protoplasm, with but faint distinction of endo and ectosare. A large oval or round granular nucleus occupies a position in advance of the middle of the body. The position of the mouth was not detected, though one is most probably present, as the animalcule is often replete with large particles of food, consisting of bits of wood. *Pyrsonympha* may be the larval condition of *Trichonympha*, though there is no evidence that such is the case.

3. *Dinonympha Gracilis*. A Ciliate Infusorian, the smallest and most abundant of the three animal parasites, about 1-350th of an inch in length, is flattened, fusiform, and in motion often twisted. It is longitudinally and, in the twisted condition, spirally striated, and is invested everywhere with fine cilia. The animal usually, remaining like its companions nearly stationary in position, writhes from side to side, shortens and widens, or lengthens and contracts, and rotates in the long axis. The longitudinal lines of the body by contraction produce a serrated appearance at one end, or at the

prominences of the lateral borders when the body is twisted. The interior of the body is finely granular, often with one or more large globules, probably consisting of a nucleus, and at times of contractile vesicles or vacuoles. No mouth could be detected, although one probably exists, as the animal often contains particles of solid food, sometimes comparatively of enormous size.

The great accumulation of parasites, apparently constantly existing in the White Ant, one of our most common insects, will afford a new and wonderful source of delight to our microscopists. They should be examined in a denser liquid than water, as this produces their rapid destruction. The white of an egg thinned with water Prof. L. finds to be a good medium in which to examine these and other minute parasites from the interior of animals.

The nematoid worm *Isacis migrans*, discovered by M. Lespes, so abundantly existing within the *Termes lucifugus*, and also externally in the nest of this insect, in France, Prof. L. has occasionally found in the *Termes flavipes*.

[May, 1877. No. 439. See Bibliography.]

Remarks on Gregarines.—Prof. Leidy remarked that his recent study of the Rhizopods had led him once more to make an examination of some of the Gregarines, regarded as pertaining to a nearly related class.

The Gregarines are especially parasites of the Articulata, most of the known forms having been found in insects, crustaceans, myriapods, and annelides. Most of those observed by himself were found in vegetable and dirt feeders. They frequently occupy the alimentary canal, but in some animals occupy other organs or the perivisceral cavity. With few exceptions, the Gregarines at maturity consist of a comparatively large nucleated cell, which for convenience may be named the body cell, continuous at one pole with a small non-nucleated cell, which in like manner may be viewed as the head cell. Both cells are filled with fine globular granules, which in mass give the Gregarines a milk-white appearance. No mouth or trace of intestinal organs exists. The outer wall of the cells is a thick, structureless, contractile endosare, and within this, in the body cell, there is often perceptible, as in *Gregarina larvata* of our common *Julus*, a well-marked longitudinally striated and apparently muscular layer.

The motions of the Gregarines consist of a kind of peristaltic action of the wall of the body cell proceeding from one to the other end.

In the Gregarines, so common in several species of our earthworms, the head cell is absent, and therefore is very properly viewed as of a different genus from the more ordinary *Gregarina* under the name of *Monocystis*. The *Monocystis agilis* is sausage-like in form, and is usually from 1-3d to 3-4ths of a millimeter in length. In movement its contractions may commence at one end and proceed towards the opposite end, or it may commence at both ends, proceeding towards the middle, or may commence in the latter position and proceed towards the ends.

From the researches of Lieberkühn and others it appears that the Gregarines of earthworms assume a globular form and become encysted, and the granular contents are in a greater measure resolved into navicula-shaped germs, which have been named pseudo-navicellæ or navicellæ or psorosperms. Lieberkühn was led to consider the amoeboid perivisceral corpuscles of the earthworm as amoeba-like embryos derived from the navicellæ, but it is very doubtful whether there is any relationship whatever between the two. Both Gregarines and navicella cysts are met with in the intestine of our common earthworm, but the cysts are to be found most frequently and abundantly in the sperm vesicles. In the six vesicles of an earthworm Prof. Leidy had counted 1,540 mature navicella cysts, together with a number of groups of immature cysts. The mature cysts, readily visible to the naked eye as minute pearly-white globules, by transmitted light have a peculiar pale-blue hue. They measure about 1-4th of a millimeter in diameter. A cyst burst open spread its navicellæ over a millimeter square, and was estimated to contain about 2,500. These were quite uniform in size and measured 0.0133 mm. long and 0.00665 broad.

E. Van Beneden has clearly traced the development of the *Gregarina* of the lobster from Amoeba-like embryos, so that it is not improbable that similar embryos may be derived from the navicellæ.

The Gregarines are usually viewed as constituting the lowest class of the Protozoa, and hence the lowest of animals. From their structure and mode of development, Prof. L. considered them as holding a higher rank than Rhizopods, and occupying a position intermediate to these and the Infusoria.

Prof. L. further stated that in a large earthworm, *Lumbricus terrestris*, from the yard of his residence, the posterior pair of sperm vesicles alone contained upwards of a thousand navicella-cysts, besides several thousand Gregarines, *Monocystis agilis*, exhibiting the varieties of condition, such as have been represented by Schmidt, Lieberkühn, and others. Many of the Gregarines were invested with

motionless cilia, while other actively contracting individuals possessed no trace of these appendages. Some of the Gregarines further exhibited transition stages towards transformation into navicellacysts. The latter differed from those previously mentioned in having but a single thin membranous layer for their wall instead of many layers.

Prof. L. added that our earthworms, which appear to be the same as the common European species, likewise appear to be infested with the same variety and kind of parasites. Among the latter he had repeatedly observed the infusorian *Anoplophrya lumbrici*, and also several different nematoids. One of these, which he had found in the sperm vesicles, appeared to be undescribed. It was certainly different from the *Dicelis filaria* found in the same organs by Dujardin. It appears nearly related with *Anguillula*, and may be regarded as such with the name of *A. melancholica*. Its characters are as follows: Body cylindrical, tapering at the ends, distinctly annulated. Head truncated, with the vertex convex, and perforated centrally by the mouth, and defined from the sides by an elevated annulus. Tail conical, and ending in a short, thick conical process. Mouth a minute round pore, unarmed; pharynx a short narrow tube; œsophagus long, cylindroid, widening posteriorly, and rather abruptly narrowed at the anterior extremity; gizzard wider than the œsophagus, cylindrical and rounded at the extremities; intestine straight, intensely black or blackish brown. Length from 3 to 4 millimeters; thickness at middle 0.15 m. Length of œsophagus 0.5 m., of gizzard 0.125 m., thickness 0.075 m., thickness of intestine 0.05 m., length of tail from anal aperture 0.175 m. Color black, with the anterior end white. All females. Sometimes upwards of a dozen found in the sperm vesicles of a single earthworm.

[May, 1877. No. 440. See Bibliography.]

On Flukes Infesting Mollusks.—Prof. Leidy remarked that our common fresh-water mollusks, especially the gastropods, were much infested with *flukes*. These appear to be prevalent during the latter part of the year, and absent during the earlier part. Drawings were exhibited of the sporocysts and cercariæ of two species of flukes infesting *Planorbis parvus*.

The species were named and described as follows:

Monostoma (Glenocercaria) Lucania. Sporocyst bright orange-colored, cylindroid in form, with obtusely rounded extremities. Pharynx globular, from which is suspended a long cylindrical

pouch-like stomach, black in hue, extending two-thirds the length of the body. Body cavity distended with cercariæ in various stages of development. Cercaria white; with a compressed, ovoid body emarginate behind; tail cylindro-conical, pointed, as long or longer than the body, often constricted so as to appear more or less moniliform. Eyes two, black, with an intermediate black pigment spot looking like a third eye, and a number of smaller pigment spots scattered in the vicinity of the eyes. Acetabulum. Pharynx globular; intestine bipartite. A distinct pore situated ventrally near the root of the tail.

Length of sporocysts from 3-4ths to 1 mm. Length of cercariæ $\frac{1}{2}$ mm.

The sporocyst is quite active, elongating and shortening; retracting and projecting the pharynx. It also exhibits strong peristaltic movements, in which the body becomes constricted tightly just back of the pharynx or in any position beyond. The contraction gradually extending backward and dividing the body cavity into two compartments, the cercariæ are suddenly slipped through the constriction, one after the other from the posterior to the anterior compartment. The movements of the cercariæ, liberated from the sporocyst, consist mainly in elongation and narrowing and shortening with widening of the body. Elongation of the body causes it to exceed the length of the tail. At times the lateral extremities of the posterior emargination of the body are prolonged into short conical appendages.

This fluke occurs abundantly beneath the muscular tegument, among the lobes of the liver, and folds of the intestines of *Planorbis parvus*. Upwards of fifty of the sporocysts distended with cercariæ have been removed from a single *Planorbis*.

Distoma (Gymnocephala) Ascoidea. Sporocyst white. Head distinct from the body, campanulate, varying in the proportion of length to breadth, according to the degree of contraction. Body cylindroid, with a pair of lateral conical appendages, beyond which it extends as a cylindro-conical tail-like prolongation. Pharynx globular, encircled with six equidistant organs (undetermined in character, probably teeth? or perhaps ganglia). Stomach a flask-like pouch extending but a short distance from the head into the body cavity, and not reaching the middle of the latter, even in its most shortened condition; bright brown in color. Body cavity distended with numerous cercariæ; the immature ones occupying the tail-like prolongation. An orifice at the extremity of a blunt conical snout communicates with the body cavity just back of the head.

Cercaria, white, with an obcordate or when elongated a clavate body, and a long, narrow, cylindro-conical pointed tail. Cephalic end triangular, and slightly constricted from the rest of the body; posterior part broadly emarginate. A ventral acetabulum near or posterior to the center of the body, and between it and the root of the tail an oval pore. Eyes none. Pharynx globular; gizzard small; divisions of the intestine extending about two-thirds the length of the body.

Length of sporocysts of different ages, from 1-8th to 1 mm. Length of cercariæ 1-4th to 2-5ths mm.

In motion the sporocysts contract the head so that it may be of nearly equal length and breadth, and it may be extended so as to be double the length of the breadth. The body also elongates and shortens in the same manner. Cercariæ were observed in several instances escaping from the snout-like projection of the body cavity back of the head. The cercariæ in movement elongate excessively, and the body may be extended so as to be almost as narrow as the root of the tail. The ventral disk is often protruded into a conical appendage or expanded into a broad cup. The tail becomes longer, narrower, and more pointed, or shorter, wider, and beaded.

This fluke occupies a similar position in the *Planorbis* as in the former, and has been found in equal numbers, but the two species have not been found associated in the same individual. The distoma form of the ascoid fluke, encysted, was also observed in *Planorbis parvus*, without any traces of the generative organs being obvious.

A free swimming cercariæ, identical in character with that of the ascoid fluke, has been observed in water, which contained many individuals of *Planorbis parvus* and *Limnæa clodes*. The free cercaria agrees with the description of *Cercaria minuta*, Nitzsch, found with various fresh-water mollusks of Europe.

Prof. L. further exhibited drawings of a *Distoma*, the *Rhopalocerca tardigrada*, Diesing, from the mantle of *Anodon fluviatilis*: a second, the *Heterostomum echinatum*, Diesing, from the oviduct of *Paludina decisa*, and a third from *Helix aborea*, thus described:

Distoma Appendiculata.—Translucent white, band-like, widest in front and rounded at the head, tapering behind and truncate at the end. Pharynx and ventral disk large and nearly equal and about 1-8th mm. diameter. The gizzard comparatively large and oval. Intestine bifurcate with the branches parallel, and with an intermediate pouch-like appendage extending nearly half way to the position of the ventral disk. A posterior opening communicating

with a pouch and a water vascular system. No traces of a generative apparatus observable. Length 1 mm.

[June, 1877. No. 442. See Bibliography.]

REMARKS ON THE SEVENTEEN-YEAR LOCUST, THE HESSIAN FLY,
AND A CHELIFER.

Prof. Leidy remarked that he had returned last evening from a short visit to Easton. He stated that the Seventeen-year Locust, *Cicada septemdecim*, had made its appearance in the vicinity of that town. He further stated that the wheat in the same locality was seriously affected by the Hessian Fly, *Cecidomyia destructor*, which has now passed into the puparium stage. In one field examined half the crop was destroyed by the insect. He further remarked that his little daughter brought to him an Elater, *Alaus oculatus*, and, on her account, professing to attach some interest to a common insect, in examining it with more than usual attention, he was surprised to find concealed beneath the elytra six Chelifers. He was not aware whether the Elater was commonly infested in this manner. In another specimen subsequently found there were no Chelifers. The Book-scorpion, *C. muscorum*, appears not to be common with us, as he rarely met with it. He had occasionally met with another species, perhaps *C. cancrroides*, attached to the House-fly. The *Chelifèr* of the Elater is different from either of those just named, and is perhaps an undescribed species. Its characters are as follows :

Chelifèr Alaus.—Body in general chestnut brown; the pedipalps and the dorsal shield of the cephalothorax being darkest; the abdomen lightest, and in the largest individuals, probably females, whitish with transverse dorsal and ventral bands of brown. Body with the sides nearly parallel, but widening slightly posteriorly, being widest near the termination of the abdomen, except in the largest female, in which it is widest near the middle of the abdomen. Maxillary palps shorter or not longer than the body; intermediate joints of the same about twice the length of their thickness. Length of body from $1\frac{1}{2}$ to $2\frac{1}{2}$ mm.; length of pedipalps from $1\frac{1}{2}$ to $1\frac{3}{10}$ mm. All parts are hairy, but the abdomen of the largest ones is less so than in the others.

The species bears much resemblance in form and color to the *C. russiai*, Koch. It also resembles the *C. americanus*, De Geer, but it does not possess the knob on the penultimate joint of the pedipalp.

[June, 1877. No. 441. See Bibliography.]

Remarks on some Parasitic Infusoria.—Prof. Leidy remarked that most of the known parasitic infusoria possessed a mouth, as in those which lived free in the waters. Such is the case with the species of *Balantidium* found in the intestinal canal of man, the hog, and various batrachians; of *Nyctotherus*, found in the intestine of frogs, several insects, and myriapods, and the *Conchophthirus anodontæ*, often found abundantly in the branchiæ and palpi of our *Anodon fluviatilis*.

Other parasitic infusoria are not only devoid of an intestinal canal as characteristic of their class, but have no mouth, and, like the tape-worms and Echinorhynchi, absorb nourishment through the exterior surface of the body. Such is the case with the genus *Anoplophrya* of Stein, typified by the *Anoplophrya lumbrica*, found in the intestine of our common earthworms, as well as in those of Europe. Prof. Leidy had also detected the same species in the little wood-worm, *Euchytraeus socialis*, and had found two other species, formerly described by him under the names of *Leucophrys clavata* and *Leucophrys cochleariformis*, in the intestine of *Lumbriculus limosus* and *L. tenuis*.

Recently in dissecting the fresh-water snail, *Paludina decisa*, while examining the branchiæ he observed several individuals of an *Anoplophrya* moving actively, as if in antagonism with the ciliary motion of the branchial plates. Seeking the source of the little creatures, he found that they came from the rectum of the *Paludina*. In examining other individuals of this snail he observed that some were free, others were infested with few and some with multitudes of the infusorian. In several instances the *Anoplophryæ* were so abundant as to resemble in their crowded condition a mass of writhing worms, actually distending the portion of the intestine they occupied. The species appears to be an undescribed one, and is interesting from its comparatively large size. It was named and described as follows:

Anoplophrya Vermicularis.—Body cylindrical, slightly tapering posteriorly, rounded at the extremities, or subacute behind; flattened at the anterior extremity; translucent white, finely striated longitudinally, uniformly clothed with short cilia; internally finely granular, with a longitudinal cylindrical nucleus occupying nearly the length of the axis, and with from twenty to thirty contractile vesicles, mostly arranged in one, but often in two, longitudinal series. Length from two-fifths to one-half a millimeter; breadth in front, .044 to .048 mm., behind .032 to .04 mm.

Besides the movements of progression induced by the cilia, the animal wriggles in a sigmoid manner and even doubles on itself. The contractile vesicles may contract more or less successively to mere points, but apparently at no time entirely disappear, and they may enlarge to double their usual size. The axial nucleus is at first barely perceptible, but becomes very obvious as the animal approaches dissolution.

Incidentally Prof. Leidy also stated that *Aspidogaster conchicola*, so common in the pericardium of *Anodonta* and *Unio*, he had also found in one instance in the oviduct of *Paludina decisa*.

[September, 1877. No. 444. See Bibliography.]

On the Bed-bug and its Allies.—Prof. Leidy remarked that it was commonly supposed that the swallow, pigeon, and bat were infested with the bed-bug, and that those animals introduced the insect into houses. Packard (Guide to Study of Insects, 551) observes that the bed-bug “lives as a parasite on the domestic birds,” and adds that a gentleman informed him “that he has found a nest of swallows on a court-house in Iowa swarming with bed-bugs.” Westwood (Introd., ii, 475, note) says it is certain that bed-bugs “swarm in the American timber employed in the construction of new houses.” “In the western part of our country,” continued Prof. Leidy, “I frequently heard that bed-bugs were to be found at any time beneath the bark of the cotton-wood and the pine. In these positions I never found one, nor have I ever found the insect except in the too familiar proximity of man. Recently, when in the West, while watching some cliff swallows passing in and out of their retort-shaped mud nests built under the eaves of a house, I was told that these nests swarmed with bed-bugs, and that usually people would not allow the birds to build in such places, because they introduced bed-bugs into the houses. Having collected a number of the bugs, as well as others from the interior of the house, specimens of both of which are submitted to the examination of the members, I found that while the latter are true bed-bugs, *Cimex lectularius*, the former are of a different species, the *C. hirundinis*. The bugs infesting the bat and pigeon have likewise been recognized as a peculiar species, with the name of *C. pipistrelli* and *C. columbarius*.” Prof. Leidy further noticed that the habit of the *C. hirundinis* was similar to that of *C. lectularius* in the circumstance that the bugs during the daytime would secrete themselves in crevices of the boards away from the nests. After sunset he had observed the bugs leave their hiding places and make their way to the nests. From these obser-

vations it would appear as if the peculiar bugs of the animals mentioned did not reciprocally infest their hosts.

[March, 1878. No 456. See Bibliography.]

A Louse of the Pelican.—Prof. Leidy exhibited a portion of the pouch of a pelican, with several groups of large lice adhering to the lining membrane. The specimen, suspended in alcohol, had been presented to him some years since by his late friend, Prof. Jeffries Wyman, who obtained it while in Florida from the white pelican, *Pelecanus trachyrhynchus*.

Later Dr. Elliott Coues, U. S. A., had submitted to his inspection specimens of the same louse, which he had obtained from the interior of the pouch of a white pelican from the Red River of the North.

The Louse pertains to the *Mallophaga*, or Fleece-eaters, and appears to be an undescribed species. The name of *Menopon perale* was given to it. It is $2\frac{1}{4}$ lines in length and of a chestnut-brown color. The head is broader than long, semilunar, with a black spot on each side in advance of the pair of eyes. Prothorax narrower than the head, with a lateral conical point. Abdomen nearly twice the length of the head and thorax together; terminal segment rounded and with a tuft of hairs on each side. Mandibles strong and black.

[May, 1878. No. 457. See Bibliography.]

On Parasitic Worms in the Shad.—Prof. Leidy stated that during the last month he had received letters and specimens from New York, Trenton, Norfolk, and elsewhere, with information that the shad, this season, was much infested with worms. Two of the writers, physicians, had expressed apprehension in regard to the parasites, and supposed that they had traced several cases of illness to the use of shad which they suspected had been infested with the worms.

The worm has long been known in Europe as a parasite of the herring, mackerel, cod, salmon, and other food fishes. It is the *Filaria capsularia* of Rudolphi, or the *Agamonema capsularia* of Diesing. Prof. L. had described it in the Proceedings of this Academy in 1856, from the shad and herring, and had repeatedly observed it in the same fishes every year since. It usually infests the internal organs, and is often observed excapsulated in a close coil upon the roes, the intestines, and the liver. It is from half an inch to an inch or more long. Most individuals have a few of the parasites, and sometimes they are exceedingly numerous. They appear not to affect the health of the fishes unless they are very numerous, when

they impoverish their hosts. Prof. L. believed that they did not affect the wholesomeness of the fish as food, and perhaps when cooked with the fish were equally good and nutritious. Like others, he felt an antipathy to the worms, and he was in the habit of scraping them off from the roes of smoked herring before eating these. He took the opportunity of adding, what was already well known to naturalists, that most animals are infested with parasites, which were transmitted by feeding on one another. The remedy against transmission was heat. He who uses only well-cooked meats need have no apprehension of worms from such food.

[November, 1878. No. 465. See Bibliography.]

Notices of Gordius in the Cockroach and Lecch.—Prof. Leidy exhibited a *Gordius*, which had been submitted to him by Dr. Robert Meade Smith, of this city, with the note that “a servant killed a large cockroach (*Blatta orientalis*?) in the kitchen, and threw it into a tumbler of water, and had then noticed, as she described it, one of its legs growing and swimming off.” The *Gordius* is nine inches long, chocolate brown, with darker spots of the same, attenuated anteriorly with the head rounded, and the tail spiral and at the end slightly compressed and roundly truncated. Thickness of the worm anteriorly 1-5th of a line; posteriorly 2-5ths of a line. The species is probably *Gordius aquaticus*.

Prof. Leidy further remarked that twenty years ago he had collected from Lily Pond, R. I., a number of little leeches, of two species of *Clepsine*, which were much infested with delicate hair-worms coiled up in the interior of the body. The *Clepsines* were the fourth to the third of an inch in length. The most frequent of the species had two eyes; the other had three pairs of eyes. The leeches contained from one to five of the hair-worms, ranging from 10 lines to two inches in length. The worms appear to pertain to a species of *Gordius*, which, from its slender character, may be named *Gordius tenuis*. The worm is white or cream-colored, but has become brown as preserved in alcohol. It is attenuated anteriorly, with the head end tapering and conical. The posterior end is curved, thickened, and obtusely rounded. A short œsophagus is succeeded by a simple, straight, capacious intestine imperforate at the posterior extremity. A worm of two inches in length measured 0.06 mm. near the head end, 0.14 mm. at the middle, and 0.12 mm. at the tail end. A specimen 10 lines long measured at the middle 0.1 mm. thick.

[October. 1878. No. 463. See Bibliography.]

Notice of a Tetrarhynchus.—Prof. Leidy stated that in the *Remora*, or Sucker, from our coast, presented this evening by Mr. Holbrook, he had found a curious parasite. This was inclosed in a compressed oval cyst, pearly white, thick-walled, and about half an inch long, tightly adherent to the intestine of the fish. The cyst contained a flask-shaped, translucent whitish sac, which was feebly contractile and furnished at the narrow end with two minute papillæ, which were slowly protruded and retracted. Within this sac-worm, coiled up about the center, was an opaque white worm or scolex, which proved to be a *Tetrarhynchus*. Removed and extended, it measured 7 lines long and was divisible about equally into a broad anterior body portion and a posterior narrow tail-like portion. The head was formed of a pair of obcordate bothria inclined from each other. Four long tortuous proboscides extended through the body and projected from the head. The projecting portions were successively elongated and shortened by eversion and inversion and were armed with recurved hooks. The hooks extended within half the length of the proboscides and, as they were everted and inverted, appeared like the streaming of liquid through narrow tubes. The tortuous proboscides at the bottom were continuous with as many elliptical pedestals placed at the back part of the body. The tail, about half the width of the body, was not segmented, but exhibited a disposition to assume this condition. The end was slightly tapering and occupied by a bell-shaped sinus opening externally and alternately contracting and expanding. The interior of the sinus was lined and its mouth thickly furnished with non-vibratile cilia. The species appeared to be undescribed and was named *Tetrarhynchus tenuicaudatus*.

[December. 1878. No. 466. See Bibliography.]

On Tænia Mediocanellata.—Prof. Leidy exhibited two specimens of tape-worms, *Tænia mediocanellata*, both retaining the head. These had been recently submitted to him for examination by Dr. James J. Levick and Dr. Walter P. Atlee. Tape-worm appears not to be a common affection with us. Several physicians, in extensive practice in this city, had informed him that they never had a case. During the last ten or fifteen years from one to two specimens annually had been submitted to him, but the present year he had seen five specimens. He had been surprised to find that all pertained to the species indicated. Formerly he supposed that our common

species was the *Tænia solium*, but later experience would indicate that the *Tænia mediocanellata* is the more common. The distinction between the two had been observed only comparatively recently, so that no doubt many specimens formerly attributed to the former actually belonged to the latter.

When the head is present the two species are readily distinguished. The *Tænia solium*, whose larval form is found in the "measle" of pork, has the head provided with a crown of hooks. *Tænia mediocanellata*, derived from beef and mutton, has a larger head, which is unarmed. The ripe segments are also usually readily distinguished in the two species. In the *T. mediocanellata* the ovaries are divided into many more pouches than in *T. solium*.

In Dr. Levick's case the man had been in the habit of eating raw buffalo meat. In one of the specimens exhibited the suckers of the head appeared as black spots, from the black pigment on their interior surface. The genital apertures were also black from the same cause. In the other specimen the head appeared less black from pigment about and around the position of the suckers, and the genital apertures do not appear black.

[November, 1878. No. 464. See Bibliography.]

On Donax Fosser.—Prof. Leidy remarked that last July, while on a visit to Cape May, N. J., he had observed on the beach, near low tide, east of the town, in many positions, vast numbers of the little lamellibranch mollusks, *Donax fosser*, of Say. It is well named the "Digger" from the ease and rapidity with which it digs its way into the sand by means of its powerful foot. It lives in the surface sand and is uncovered by the surf breaking on the shore, but instantly buries itself again as the waves retire. In some places the little Digger was so abundant that large patches reminded him "of barley grains lying on a matting floor," and they lay so thick as actually to interfere with one another in the attempt to bury themselves. As indicated by Mr. Say, they present two varieties, one in which the shell is white, the other in which it is straw-colored. The shells generally exhibit an interior livid tint in three rays, successively widening from before backward. The rays are sometimes feeble or nearly obsolete; the anterior one is the most persistent and the posterior one least so. The siphons are long and actively protruded and retracted, looking in their movements like wriggling worms. The Digger affords a bountiful supply of food to shore birds and fishes.

As is so frequently the case with crowded communities, the Digger

is much infested with parasites. From half a dozen to several dozen Flukes are found in the liver, and a ciliated infusorian in the branchial cavity.

The Fluke is a minute larval *Distomum*, with the following characters: Oval, obovate, clavate, or nine-pin like; head rounded, with a conspicuous nipple-like papilla on each side (which, when seen in the lateral view of the animal, gives the appearance of a beak to the head); tail obtuse, with a minute terminal pore. Integument finely granulate, the granules arranged in alternating transverse series. Oral acetabulum twice the size of the ventral, which is central or nearly so. Mouth large, unarmed. Pharynx minute, with a short, narrow gullet, ending in two pouch-like stomachs, which extend to the ventral acetabulum. A distinct body cavity, with no other contained organs than those just mentioned. A small orifice occupies the median line nearly midway between the acetabula; but no appearance of generative apparatus. Length of animal in the contracted state .24 mm.; width .15 mm.; length in the elongated state to .36 and .42 mm.; width .09 mm. Oral acetabulum .072 mm.; ventral acetabulum .042 mm. The species may be named *Distomum cornifrons*.

It is probable that this little Fluke undergoes its further development in some of the shore birds or fishes which use the *Donax fœsser* as food.

The infusorian infesting the Digger is a *Trichodina*, resembling that which is found on the *Hydra* or fresh-water polyp, and which is also stated by Stein to live on the gills of the pike and the fins of the stickleback. The *Trichodina* is bell-shaped, with a wreath of cils near the top and a circle of cils at the margin beneath. It is .048 mm. broad and from .035 to .036 mm. high. Though living on a marine mollusk, it too nearly resembles the *Trichodina pediculus* of fresh-water animals for him to think of giving it another name.

[January, 1879. Nos. 467, 468. See Bibliography.]

On Gordius and on some Parasites of the Rat.—Prof. Leidy exhibited a curious knotted mass of living hair-worms, *Gordius robustus*? which had been sent to him by Dr. S. T. Roman, of Conowingo, Cecil county, Md. The mass had been picked up in a gutter at the edge of a forest near Conowingo, on a rainy morning of December 15, 1878. It contained 52 male individuals and 7 females. The former ranged from 8 to 25 centimeters in length by $\frac{1}{2}$ to 2-3ds of a millimeter in thickness; the latter range from 14 to 19 $\frac{1}{2}$ centimeters in length by 1 millimeter in thickness. The females are

generally of much lighter color and more robust character than the males. In both sexes the body is most attenuated anteriorly, but in the female the body is nearly as thick at the posterior extremity as it is at the middle. Some of the smaller males are pale brownish-white, but most of them, from the smallest to the largest, are of various shades of brown to chocolate-brown. The females are pale brownish to darker brownish. In both sexes the head forms a convex, whitish eminence, encircled by a narrow black ring, from which a band of brown extends dorsally and ventrally along the body. The posterior end of the body is likewise of darker color than the part just in advance.

The tail of the male makes a spiral turn inwardly, and is furcate. The forks are short, curved, slightly divergent, blunt conical processes. Just in advance of their conjunction internally there exists an inverted crescentic fold of browner color than the contiguous parts, and immediately in advance is the genital pore. The interval of the caudal forks is smooth or free from papillæ.

The tail of the female appears truncated; is bluntly rounded, feebly clavate, or slightly thicker than just in advance, and nearly as thick as the middle of the body. It presents a terminal pore, marked by a brown spot and encircled with a brown ring.

Under a moderate magnifying power the brown integument is minutely mottled with whitish spots, and it exhibits fine longitudinal and diagonal striation. In sunlight it is beautifully iridescent, as in the earth-worm.

The worms are still quite lively. When disentangled and left alone they soon become again knotted together in a compact rounded mass, as at present, with the heads divergent and writhing so as to remind one of the head of the fabled Medusa.

Prof. Leidy then directed attention to several other specimens which had been sent to him for information. One of these is a bunch of tapeworms, 15 individuals of *Tenia diminuta*, from the intestine of a rat. The other is the liver of a rat with a multitude of cysts the size of large peas, containing *Cysticercus fasciolaris*. In a letter accompanying the specimens Dr. John R. Hewett states that last spring he had examined about 500 rats (*Mus decumanus*) in Carroll county, Md., and only in half a dozen instances did he find the liver free from the parasite.

[February, 1879. No. 469. See Bibliography.]

On Bothriocephalus Latus.—Prof. Leidy exhibited specimens of a tapeworm which had been submitted to him for determination by

Dr. John T. Walker. The specimens consisted of about a dozen portions of what appeared to have been four or five individuals, all of them, unfortunately, without the head. They were discharged by a man aged 28 years, formerly a farmer, a native of Sweden, who came to this country about three months since. At irregular intervals during the last five years the patient passed fragments of a few inches of the worm. According to Dr. Walker, the collective measurements of the specimens presented he had estimated to be upwards of 100 feet. In their contracted condition, as preserved in alcohol, none of the mature segments measured over 4 mm. in length by 10 mm. in breadth. These are quite characteristic of *Bothriocephalus latus*. The egg pouches of the uterus, centrally situated, are rendered distinct from the ripe eggs, which gives to them a chocolate-brown appearance. The genital apertures are in the median line, nearer the anterior border of the segments. In *Tenia* the genital apertures are at the lateral margin of the segments.

The specimens were regarded as of special interest from the circumstance that they were the first of the *Bothriocephalus latus* that Prof. L. had had the opportunity of seeing from a person living in our country.

[September, 1879. No. 474 See Bibliography.]

Notices of some Small Animals on the Coast of New Jersey.—Prof. Leidy exhibited a valve of the beach-clam, *Mactra solidissima*, which he picked up among the numerous dead and bleaching shells of Brigantine Beach, N. J. It attracted his attention from its apparently having a fungus growing upon it. The fungus-like excrescence presented a remarkable resemblance to a *Polyporus* growing from the stem of a tree. It is an outgrowth from the lip of the shell, evidently dependent on an abnormal condition of the mantle of the living animal.

Prof. Leidy also stated that he had picked up on the beach at Atlantic City, N. J., another valve of the beach-clam, which had been recently cast on shore. The inner surface of the shell was covered with a multitude of the beautiful ciliated infusorian, *Frea ampulla*. The little creatures were still alive, and their curved, flask-like cases were of a deep green color.

Prof. Leidy further remarked that while at Atlantic City Mr. Phillips had directed his attention to two interesting animals recently collected. One of these he recognized as the *Bicidium parasiticum*, a parasitic anemone or Actina, found on the large jelly-fish *Cyanea arctica*, so frequently thrown on shore. The other was a

parasite of the shrimp, *Palaemonetes vulgaris*, which he recognized as the curious Isopod, *Bopyrus*. Many of the shrimps were infested with the parasite, the presence of which produced a conspicuous hemispherical tumor on one side of the carapace.

[October, 1879. No. 477. See Bibliography.]

On Amoeba Blattæ.—Prof. Leidy remarked that while perusing the communication of Prof. Bütschli on “Flagellata and other related organisms” (Beiträge zur Kenntniss der Flagellaten und einiger verwandten Organismen), in the Zeitschrift für wissenschaftliche Zoologie, 1878, 205, his attention was especially attracted by the description of a parasitic amoeboid living in the intestine of the cockroach, *Blatta orientalis*. It recalled to mind that he had observed the same creature a number of years ago in association with the ciliated infusorian he had described as *Nyctotherus ovalis*. At that time he had viewed it as a young form of a Gregarina, and had intended giving it and other parasites of the cockroach more critical examination, but failed to do so. The parasitic *Amoeba blattæ* is particularly interesting on account of its habit and its peculiar character. Prof. L. had recently examined some cockroaches, and found abundance of the amoeboid in association with *Nyctotherus ovalis*, *Lophomonas blattarum*, *Oxyurus gracilis*, and *O. appendiculatus* and an algoid plant.

The amoeboid, he thought, was worthy of a generic distinction from the true *Amoeba*, holding a position between this and *Protoamoeba*. From the former it differed in the absence of a contractile vesicle and, commonly, also of vacuoles, and in the want of differentiation of endosarc and ectosarc, and from the latter in the possession of a well-defined nucleus. He proposed for it the following name, with distinctive characters:

Endamoeba.—General character and habit of *Amoeba*: composed of colorless, homogeneous, granular protoplasm in the ordinary normal, active condition, without distinction of ectosarc and endosarc; with a distinct nucleated nucleus, but ordinarily with neither contractile vesicle nor vacuoles.

Endamoeba Blattæ.—Eine art Proteus. Seibold: Beitr. z. Naturges, d. wirb. Thiere, 1839, fide Stein.

Amöbenform. Stein: Organismus d. Infusionstheire, 1867, II., 345.

Amoeba Blattæ. Bütschli: Zeits. f. wis. Zoologie, 1878, xxx, 273, Taf., xv, Fig. 26.

Initial form globular, passing into spheroidal, oval, or variously

lobate forms, mostly clavate and moving with the broader pole in advance. Protoplasm finely granular, and when in motion more or less distinctly striate. Nucleus spherical, granular, with a large nucleolus. Distinct food particles commonly few or none. Size of globular forms 0.054 mm. to 0.075 mm. in diameter; elongated forms 0.075 mm. by 0.06 mm. to 0.15 mm. by 0.09. Parasitic in the large intestine of *Blatta orientalis*.

The *Endamoeba blattæ* affords a good example of a primitive active nucleated organic corpuscle, or a so-called organic cell without a cell wall. In the encysted condition it would be a complete nucleated organic cell. *Endamoeba* may be recommended as a convenient illustration of a primitive form of the organic cell on account of its comparatively ready access.

[January, 1880. No. 480. See Bibliography.]

Notice of the Cruel Thread Worm, Filaria immitis, of the Dog.—Prof. Leidy directed attention to a specimen, presented by Mrs. Laura M. Towne, of Beaufort, S. C., consisting of the heart and part of one lung of a dog, containing thread worms. The right ventricle of the heart and the pulmonary artery contained a bunch of the parasites, and several also were contained in the lung. A similar specimen, with the ventricle literally stuffed full of worms, is preserved in the Museum of the University of Pennsylvania. The parasite was described thirty years ago, in the proceedings of this Academy, under the names of *Filaria Canis cordis* and *Filaria immitis* (see Proc. 1850, 118; 1856, 2, 55), and since has been repeatedly noticed by observers as infesting the dog in Europe, India, China, Japan, and this country.

[March, 1880. No. 481. See Bibliography.]

On a Filaria Reported to have come from a Man.—Prof. Leidy exhibited a large thread-worm, which had been submitted to his examination by Dr. J. J. Woodward, U. S. A. It was recently presented to the Army Medical Museum, at Washington, by Dr. C. L. Garnett, of Buffalo, Putnam Co., W. Va. Accompanying this specimen is the copy of a letter from Dr. Garnett to Dr. Woodward, from which the following is an abstract: "During the winter of 1876 a man, a common laborer, aged about fifty, presented himself to me for treatment having a gleety discharge from the urethra, with a burning sensation during and after micturition. Previously he had been treated for gonorrhœa, and I prescribed accordingly. The patient, not improving, applied to other practitioners. In April,

1878, he came to me with a round, vivid-red worm, twenty-six inches in length (the specimen you now possess), and very active in its movements, instantly coiling up like a watch-spring on being touched. Having no work on helminthology for reference, the only description I found which appeared to answer to the worm was that of *Strongylus gigas*, in Niemeyer, vol. ii, p. 47. The patient is an illiterate man, with no motive for deception. He informed me that he discovered the worm protruding from his penis and drew it out without pain or difficulty. He was in much agitation and alarm about the occurrence, fearing, as he said, that "there might be more behind that one." For a few days previous to its passage his urine was of a milky hue and some time subsequently of a yellow cast and slightly tinged with blood and mingled with mucus. The man is truthful, and no doubt exists in my mind or in the minds of his neighbors as to the correctness of his statements. I regret exceedingly that I did not appreciate the scientific interest of the subject, and send you the specimen in a fresh state, but the busy routine of a country practitioner's life leaves no time for the study of other than subjects of practical value in one's every-day experience."

The worm preserved in alcohol is much coiled, of a clay color, and opaque or only feebly translucent, but more so at the head end. If it is really a human parasite it appears to differ from all those heretofore described, and also seems different from other known parasites. It certainly is neither *Eustrongylus gigas* nor is it the Guinea-worm, *Filaria medinensis*, though nearly related to this. Its characters are as follows: Body long, restiform, nearly uniformly cylindrical, smooth, shining, elastic, tough, without evident annulation other than transverse wrinkling, with the anterior extremity evenly tapering in the continuous head, the end of which is rounded and smooth or without appendages of any kind; the posterior extremity not tapering, with the caudal end incurved, bluntly rounded, without appendages and imperforate or without evident anal or genital aperture. Mouth a terminal pore without lips, papillæ, or armature of any kind. Pharynx cylindrical and opening into a straight cylindrical intestine, apparently ending in a blind pouch. Generative organs unobserved. Length of worm 26 inches; greatest thickness 1.5 mm. Width of head just behind the rounded extremity 0.375 mm.; opposite the commencement of the intestine 0.625 mm.; at the middle 1.5 mm.; at the incurved caudal extremity 1.5 mm. Length of œsophagus 1.125.

The worm, of exceedingly simple character, is clearly neither a *Gordius* nor a *Mermis*, and though apparently more nearly allied to

Filaria, a more intimate knowledge of its structure may prove it to be different. For the present it was proposed to distinguish it with the name of *Filaria restiformis*. (Drawing.)

[1880. No. 486. See Bibliography.]

PARASITES OF THE TERMITES.*

GREGARINA.

Gregarina Termitis. Plate 52, Fig. 27.

A small *Gregarina* was once noticed in our Termite, and is represented in Fig. 27. The body is ovoid with the narrower end posterior. The head spheroid compressed from above downward. Length 0.06 mm.; head 0.018 mm. long, 0.03 broad; body 0.036 mm. broad.

Of the vegetal parasites found in association with the animal forms, within the small intestine of our Termite, there are two kinds; one a species of vibrio, the other an attached alloid, to which I formerly gave the name of *Arthromitus*.

VIBRIO.

Vibrio Termitis. Plate 52, Figs. 36-39.

Vibrios occur in great numbers as an associate of *Trichonympha* and *Dinenympha*. They resemble most nearly the *Vibrio serpens* of Müller, as described by Dujardin, Cohn, and others. Under the highest powers of the microscope at my command, one-tenth objective of Wailes, of Smith and Beck, and No. 11 immersion objective of Hartnack, they appear as immeasurably fine lines, usually ranging from 0.03 mm. to 0.045 mm. in length; but, in extreme, ranging from 0.015 to 0.06 mm. in length. They usually appear rectilinear and regularly undulant, with from three to five or six waves. They commonly remain stationary in position and undulate more or less rapidly, but they often advance or recede with variable rapidity, and sometimes become quiescent. Occasionally they bend at an obtuse angle while continuing to undulate, and sometimes they become zig-zag. Mostly they wave with regularity, sometimes irregularly, and occasionally the ordinary number of their waves is doubled. The smallest individuals, 0.015 mm. in length, are straight, but in movement become bent in the segment of a circle or become sigmoid.

The vibrios move in all directions among their associates. Not unfrequently numbers adhere together by one end and form radiating groups, as represented in Fig. 38.

* Journal Acad. Nat. Sci., Vol. 8, pp. 425-448. (Illustrated.)

[February, 1882. No. 489. See Bibliography.]

Filaria of the Black Bass.—Prof. Leidy stated that he had been told that the black bass, *Micropterus nigricans*, in some localities is much infested with a red thread worm. One procured in market a few days since for his table was found to be greatly infested. The worms were coiled in oval masses from the size of a pea to that of a large bean, and were situated beneath the skin, in the muscles, and under the membrane lining of the abdomen. The worm is cylindrical, slightly narrowed, and obtusely rounded at both ends, minutely annulate and otherwise smooth, pale red, bright red, or brownish red, translucent, with the darker red or brownish intestine and the white œsophagus shining through. Mouth a small pore, unarmed; anus a transverse elliptical pore, terminal. Œsophagus long, capacious, cylindrical, straight or somewhat tortuous, slightly expanded below where it is constricted from the intestine, which is likewise expanded at the commencement, and ends in a short, more translucent rectum. Ovarium and ova indistinctly seen. Length from 3 to 6 inches by half a line in diameter.

The worm appears to be a *Filaria*, but the determination of the species was left for more extended observation.

[March, 1882. No. 491. See Bibliography.]

On Balanoglossus, etc.—Prof. Leidy stated that in a recent trip to Atlantic City he had observed the singular worm *Balanoglossus aurantiacus*. It occurs in moderate numbers along the shore of a pond between the beach and the lighthouse. In the same position he had collected *Solenensis*, specimens of which were presented this evening. As this occurred in considerable number, he had procured a sufficient quantity to try it as an article of food, and had found it to make excellent soup. In the vicinity he had picked up a number of specimens of *Actinia rapiformis*, which had been recently thrown upon the beach. On a former occasion, at Atlantic City, he had observed another Actinia, the *Bicidium parasiticum*, which is parasitic on the large jelly-fish, *Cyanea arctica*, so frequently thrown on shore during the summer.

[April, 1882. No. 492. See Bibliography.]

On Sagitta, etc.—Prof. Leidy stated that in a recent trip to Atlantic City, N. J., he had for the first time met with the singular worm *Sagitta*. It occurred in large numbers in the same pond in which he had previously noticed *Balanoglossus*. Whether it was

there at the time of his former visit he was unable to say, as the animal is as transparent as the water in which it lives, and may easily escape observation. His attention was accidentally directed to its discovery. Along the edge of the pond there were numerous linear white bodies, flaccid and motionless, which he at first took for fragments of a bleached alga. From the uniformity of their size he stooped to examine them more closely, when he noticed others in the water, more transparent, lying on the sand and occasionally moving suddenly and so actively as to send a little spray above the surface. On transferring some of these bodies to a vial he detected their nature. Subsequently the water was seen to swarm with the little creatures. They were exceedingly sensitive, and quickly die after removal. In life they were perfectly transparent and colorless, and move actively at intervals with a sort of spasmodic jerk, bending the tail downward and darting forward. After death they become flaccid, dull, and white, and hence the appearance of the multitude of dead ones on the shore.

The *Sagitta* is interesting as being one of those peculiar animals which have puzzled naturalists as to its exact relative position. It is now usually regarded as the representative of an order of worms with the name of *Chaetognatha*.

A species, *Sagitta elegans*, has been described by Prof. Verrill as occurring at Wood's Holl, Vineyard Sound, and Gay Head, on the New England coast, and he refers to a second undetermined species occurring in Vineyard Sound.

The *Sagitta* of Atlantic City appears to differ from the former, and also from all other described species found elsewhere, and may be readily distinguished from them by its greater number of mandibular hooks. It may be characterized as follows:

Sagitta Falcidens.—Animal transparent, colorless; body compressed, elongated fusiform, with two pairs of lateral hemi-elliptical fins, separated by intervals from each other and the broad obcordate caudal fin, which is truncated posteriorly. Head obcordate, about as broad as it is long. Pre-oral series of spines, 6 or 7 in each, minute; postoral series, 18 in each, successively decreasing. Mandibular hooks, from 11 to 14 in each series, usually 12, besides an immature one, scythe-shaped, yellowish brown in color. Length about 3-4ths of an inch, width $1\frac{1}{2}$ to 2 mm. Head 1 mm.; caudal fin 1.5 to 1.75 mm. wide. Mandibular hooks 0.75 mm. long.

At the same time as previously numerous mounds of the *Balanoglossus aurantiacus* were observed. There were also noticed in the same pond many projecting tubes of sand, which were found to

contain *Clymena torquata*. Further, several specimens of *Glyceria americana* were collected. On the shore of the pond in one place *Donax fosser* appeared to have its residence, and among *Solenensis* a single living *Sollecirtus gibbus* was found.

[May, 1882. No. 493. See Bibliography.]

On some Entozoa of Birds.—Prof. Leidy directed attention to some specimens presented by Joseph Willcox, recently collected by him in Florida. One of the specimens is the head of a Snake-bird, *Plotus anhinga*, with a worm in sight, lying upon the brain, while several other detached worms of the same kind lay at the bottom of the vial. The worm in its singular habitation was discovered by Prof. Wyman in Florida in 1861 and 1867, an account of which is given in the Proceedings of the Boston Society of Natural History, volume 12, 1868. Prof. Wyman had kindly presented Prof. Leidy with a specimen of the head of the Snake-bird, with the worms lying on the brain. This he had valued as a memento of his friend, but it had unfortunately been lost in the fire at Swarthmore College last autumn. Prof. Wyman states that the parasites were found coiled on the back of the cerebellum between the arachnoid and pia mater. The number varied from two to six or eight, or even more. In nineteen birds they were detected in seventeen. Mr. Wilcox found the parasites in four out of six birds examined. In the present specimen of a head a single worm is enclosed between the two laminæ of the dura mater over the position of the interval of the cerebrum and cerebellum. As the parasite appears not to have been named, it was suggested that the name of its discoverer should be associated with it under the name *Filaria wymani*.

The accompanying four vials contain numbers of worms obtained from the stomachs of the Snake-bird, the Cormorant, *Graculus dilophus*; the White Pelican, *Pelecanus trachyrhynchus*, and the Brown Pelican, *P. fuscus*. All prove to be of the same species, the *Ascaris spiculigera*. Specimens of these were also formerly obtained by Samuel Ashmead in Florida from the White Pelican (Proc. Ac. Nat. Sci., 1858, 112). The same likewise have been submitted for examination by Dr. Elliott Coues, who procured them from the White Pelican on the Red River of the North. See Birds of the Northwest, 1874, 587.

[May, 1882. No. 495. See Bibliography.]

On Bacillus Anthracis.—Prof. Leidy stated that Dr. Robert Gladfelter, veterinary surgeon, had submitted to his examination a bottle

of blood from a cow. The animal, apparently well on Wednesday, May 10, and milked the same evening, died the next morning. The cause was not clear, but was suspected to be the result of anthrax, charbon, or splenic fever. During the past year a number of cows in the same herd had died in a similar manner in Salem Co., N. J. A post-mortem examination was made the following day, and the abdominal viscera were found much congested, especially the spleen, which was gorged with blood. The specimen of blood obtained from the spleen was examined the next day, Friday. It teemed with bacteria, the peculiar form, *Bacillus anthracis*, which is now viewed by most competent authorities as the cause of the frightful affection known as anthrax or splenic fever. The bacilli were actually more numerous than the blood corpuscles, which appeared unchanged. The bacilli were completely motionless, straight, bent, or zigzag filaments; in the latter condition in pairs or more segments. They measured from 0.006 to 0.042 mm. in length; usually from 0.012 to 0.03 mm. Kept for some days in the blood, the filaments underwent division into little chains in two, three, or more dumb-bells, which measure about 0.005 mm, or into isolated micrococci-like particles about 0.0015 mm. Many, however, of the filaments did not resolve themselves into these minute particles, but appeared only to grow in length and divide into segments of about 0.012 mm. in length.

[May, 1882. No 496. See Bibliography.]

On Enchytræus, Distichopus, and their Parasites.—Prof. Leidy remarked that occasionally in lifting a flower-pot, or in stirring the earth within, attention is sometimes attracted by the sudden wriggling of a little white worm disturbed from its rest. In the *Archiv für Anatomie*, 1837, Henle has given an elaborate description of the worm, and named it *Enchytræus* in reference to its familiar habitation. The little pot worm is common in our vicinity, especially in damp forests under decaying leaves and timber. It was first noticed in 1773 from Denmark by O. E. Muller, and in 1880 from Greenland by Fabricius. It has also been observed in France and Germany, and therefore the little worm appears to extend over the northern parts of Europe and America.

The same worm I have found in the meadows of Atlantic City, New Jersey, in the usual haunts of *Melampus bidentatus* and *Orchestia agilis*. In mature specimens, about three-fourths of an inch in length, the girdle is well produced, and the body has ten setigerous segments in advance of it and about forty-five behind it. The short-

pointed setapeds in four longitudinal rows are in fascicles of three or four to each in advance of the girdle and two or three to each behind it.

In the *Enchytraeus* of our forests I have repeatedly observed an infusorial parasite occupying the body cavity, sometimes in considerable numbers, mingled with the normal discoid corpuscles. I propose to name it *Anoplophrya modesta*. In the *Enchytraeus* of the meadows of Atlantic City I observed a different infusorian occupying the same cavity, remarkable for its great proportionate length. This I propose to name *Anoplophrya funiculus*.

Wishing to ascertain whether the latter did not likewise infest the *Enchytraeus* of our neighboring forests I recently collected a number of little worms at Media, Delaware county, Pa. These I obtained from beneath a stone lying in my path to Swarthmore College. They appeared to be robust specimens of *Enchytraeus vermicularis*, for which I took them to be. Investigation at home proved them to be different and generically distinct from previous known forms. The worms possess but two rows of setapeds, instead of four, as in most others of the family. Hoffmeister and Gruby described the genus *Phreocorytes* as having only two rows of setapeds, but Leydig has shown this to be an error. In view of the error, I carefully repeated my examination of the little worms from Media, and am convinced that they possess two rows of setapeds, while in *Enchytraeus* I always found four. So much do the former otherwise resemble the latter that it would appear as if they formed a genus directly evolved from *Enchytraeus* merely by the suppression of a pair of the four rows of setapeds.

The new genus presents the following characters, and may be indicated by the accompanying name :

Distichopus.—Form and color as in *Enchytraeus*, with a well-produced girdle. Setapeds in a single row on each side ventrally, in divergent fascicles of four in advance of the girdle and of three behind it.

Distichopus Silvestris.—Body cylindrical, white, translucent, with a well-produced girdle of whiter color. Upper lip short, conical blunt; anal segment thicker than the penultimate, brownish and punctate; anus quinquiradiate. Ten setigerous segments in advance of the girdle, with fascicles of usually three or four setapeds; fifty-five setigerous segments behind the girdle, with usually two or three setapeds. Oral and anal segments without setapeds. Setapeds shorter and stouter than in *Enchytraeus vermicularis*, curved at the root, swollen at the middle, and straight towards the point. Length from nine to fifteen lines.

I observed no infusorian in *Distichopus*, but in most of those examined there were found minute Gregarines allied to the *Monocystis* of the earth worms, *Lumbricus*. This parasite was perfectly quiescent, and was especially remarkable for its frequently containing a variable number of curved elliptical bodies, which I suspect to be spores. Viewing it as a species of *Monocystis*, it may thus be briefly characterized :

Monocystis Mitis. Gregarina Enchytraci? Kolliker. Body fusiform, tapering posteriorly and usually acute, anteriorly obtuse or produced into a short mammilla; contents of the usual granular protoplasm as in gregarines, with a central spherical nucleus and nucleolus. Size ranging from .03 mm. to .12 mm. in length. In the smallest individuals the nucleus was indistinct and in some appeared to be absent. The larger ones mostly contained what I supposed to be spores. These are curved elliptical bodies .015 mm. long by .0045 wide, and were collected in a group of usually two or three to seven or eight, sometimes in advance of the nucleus and sometimes behind it. (Drawing.) The two *Anoplophrya* above indicated have the following characters :

Anoplophrya Modesta. Leucophrya. Jour. Ac. Nat. Sc., 1850, 49, pl. 2, fig. 17. Elongated elliptical, anteriorly rounded, posteriorly somewhat truncated, usually from three to five times the length of the breadth; nucleus axial, cylindrical, straight, extending about two-thirds the length of the body; contractile vesicles variable in number and usually in two longitudinal rows. Length from .048 to .12 mm.; breadth .018 to .024 mm. In state of transverse division the pairs range from .054 to .15 mm. in length. Common and numerous in the body cavity of *Enchytraeus vermicularis*. (Drawing.)

Anoplophrya Funiculus.—Long, narrow, and ulna-like in shape, from twenty to thirty times the length of the breadth; anterior extremity slightly wider and very obliquely truncated and slightly depressed; posterior extremity bluntly rounded. Nucleus axial bristle-like, appearing as a double continued line reaching from the posterior end of the body and tapering to a single line in the posterior part of the same. Contractile vesicles minute, in two rows, variable in size and usually occupying the posterior part of the body. Length 0.42 to 0.6 mm. by 0.018 to 0.024 mm. wide. Young individuals 0.15 mm. long by 0.024 wide were tapering in front and obtuse, while they were wider and rounded behind. Inhabiting the body cavity of *Enchytraeus vermicularis* from the meadows of the Atlantic coast of New Jersey. (Drawing.)

In an earth worm, *Lumbricus*, species undetermined and occurring

under logs in the forests in the vicinity of Philadelphia, I detected another species of the above, which may be distinguished as follows:

Anoplophrya Melo.—Oval or ovoid, scarcely twice the length of the breadth, with the narrower pole mucronate; nucleus axial, cylindrical, sigmoid, about two-thirds the length of the body; contractile vesicles, usually one or two or none, large. Length 0.048 mm. to 0.08 mm.; breadth 0.032 to 0.04 mm. Pairs in state of transverse division 0.08 by 0.036 mm. to 0.084 by 0.04 mm. Inhabiting the body cavity of *Lumbricus*?. (Drawing.)

[September, 1882. No. 499. See Bibliography.]

On the Tobacco-worm, &c.—Prof. Leidy exhibited a collection of tobacco-worms, the larvæ of *Sphinx carolina*, which he had obtained two days ago from a tobacco field near Columbus, N. J., where they were very abundant and had proved a great pest in the cultivation of tobacco. The worms collected presented a number of well-marked varieties, which were supposed to be all of the same species. The principal ones were indicated as follows:

1. Pea-green or yellowish-green, more or less finely hairy, with lateral oblique white bands bordered above with black dots, which extend to the dorsal median line; head bright pea-green, dorso-caudal spine red. This is the most common variety.

2. Pea-green, smooth, with lateral oblique white bands joined in front below by horizontal white bands, so as to form a series of V-like marks, the apex of each joining the lower limb of the one in advance; head green, dorso-caudal spine black.

3. Grass-green, smooth, with lateral white V-like marks as in No. 2, the oblique bands bordered above by blackish or brownish; upper part, especially in front, more or less dotted with white; head green, with a pair of black bands on each side; dorso-caudal spine black.

4. Yellowish-green annulated with narrow black lines, with lateral white V-like marks, the oblique bands bordered above with black; head bright pea-green, dorso-caudal spine red.

5. Dull green, with more or less brown dorsally, and dotted with white, the dots more or less tuberculate, but otherwise smooth, with lateral white V-like marks, the oblique band bordered above with brown ascending to the dorsal median line; head green, with a lateral pair of black bands; dorso-caudal spine black.

6. Chocolate-brown to nearly black, smooth, with white dots dorsally and anteriorly, with lateral white V-like marks; head shining black on each side, dorso-caudal spine shining black.

7. The same as No. 6, with lateral red V-like marks.

Among these more marked varieties others were noticed which were more or less of an intermediate character. The most common variety was that which was least distinguishable in color from the animal's location, the tobacco leaf, so that it was especially favored in its preservation.

Prof. Leidy further remarked that the past season had appeared to be favorable to many of the Lepidoptera. Our shade-trees had been greatly ravaged by the *Orgyia*, many of the poplars had suffered from the *Clostera inclusa*, and he had observed an unusual quantity of the Ailanthus silk-worm, *Attacus cynthia*, upon the Ailanthus trees. The latter was introduced here in 1861 by Dr. Thomas Stewardson.

[October, 1882. No 500. See Bibliography.]

ROTIFERA WITHOUT ROTARY ORGANS.

The Rotifera or Wheel-animalcules form a small class, abundant in kind and found almost everywhere in association with Algæ, and with Infusorians, to which they were formerly considered to belong. Later they have been recognized as not having the simple cell structure of the latter, and for a time were regarded as pertaining to the Crustacea. They are now commonly looked upon as belonging to the group of worms, but their relative position cannot yet be considered as positively determined. They generally possess a chitinous integument, with a more or less annulate disposition or tendency to articulate division, but they are destitute of limbs. Some are provided with a carapace, and recall crustacean forms, but in other points they exhibit but little likeness to them. Their usually striking characteristic, the rotary disks, from which they are named, is not possessed by any well-marked Crustacean. Among the Rotifera, however, there appear to be some which do not possess the rotary organs, at least in the mature condition, and yet in all other respects the animals conform in structure with ordinary forms.

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[The above is extracted from the original paper for reference. The whole paper is not included.]

[October, 1882. No. 501. See Bibliography.]

A New Infusorian Belonging to the Genus Pyxicola.—Prof. Leidy exhibited drawings of an infusorian, a species of *Pyxicola*, which

appeared to be different from those previously described. It is of frequent occurrence, attached to the tubes of *Plumatella*, *Urnatella*, and *Cordylophora*, on stones in the Schuylkill River below Fairmount dam. In shape it resembles *Pyxicola pussilla* and *P. affinis*, fresh-water forms of England, but is annulate, as in *P. socialis*, a salt-water form. It is represented in Figs. 8 and 9, pl. II, and presents the following characters: (Drawing.)

Pyxicola Annulata.—Lorico urceolate, slightly curved, inflated toward the middle, tapering below, cylindrical and feebly contracted at the neck, and with the aperture oblique and circular; variably annulate, mostly at the neck, often at the middle; color, chestnut brown, but colorless when young. Pedicle short, always colorless. The contained animalcule is of the usual shape, with an attached operculum, which is of the same color as the lorica and is protruded beyond this when the animal is fully extended. Length of lorica 0.52 to 0.792 mm.; breadth 0.02 to 0.0264 mm.; length of pedicle .004 to .008 mm.

[October, 1882. Nos. 502 and 504. See Bibliography.]

Actinosphærium Eichhornii.—Prof. Leidy remarked that he had noticed in an aquarium what appeared to be eggs adherent to the edges of the leaves of *Vallisneria* from the Schuylkill River. On examining the egg-like bodies with a lens they were observed to be covered with delicate rays. On transferring some of the bodies to the field of the microscope, they proved to be giant specimens of the larger sun-animalcule, *Actinosphærium eichhornii*. They measured from three-fourths to one millimeter in diameter independent of the rays, which extended from one-fourth to half a millimeter more. One of the smaller individuals contained four water-fleas, *Daphnias*, a third of a millimeter long, and one of the larger contained six of these. The *Actinosphærium* appears to be tenacious of life, several specimens having been retained alive and in good condition for three days in a drop of water in an animalcule cage. They had discharged the *Daphnias*, but retained their original size. One of oval form measured 1 mm. long by 0.75 mm. broad. The smaller ones measured 0.75 mm. in diameter. After another day they appeared in good condition, but the rays were contracted so as to be about half the original length, and many had a minute granular ball at the end, apparently effete matter thrown off from them. At this time the animalcules were returned to the aquarium.

[February, 1883 No. 509. See Bibliography.]

On the Reproduction and Parasites of Anodonta fluviatilis.—Prof. Leidy directed attention to a basketful of living fresh-water mussels, *Anodonta fluviatilis*, which were obtained for him through the kindness of Rev. Jesse Y. Burke, and are now placed at the disposal of members who wish to have them. They are fine, robust specimens, the larger ones measuring 6 inches in length by 3 inches in height and almost $2\frac{1}{2}$ inches thick. They were obtained from a little pond occupying an old marl pit near Clarksboro, Gloucester Co., N. J.

These mussels appear to be exceedingly prolific. The pregnant females have the branchial uteri, as they have been appropriately named by Dr. Isaac Lea, enormously distended with perfected embryos. These appear with a cinnamon-brown shell, having a conspicuous spinous tooth or hook to each valve, and are furnished with long byssal threads. Wishing to ascertain the proportionate amount of embryos, the following plan was adopted: In an individual 6 inches long the soft parts were weighed and found to be 135.44 grammes. The branchial uteri weighed 64 grammes and the inner gills 7.34 grammes. Supposing the latter to be the same weight as the outer gills, free from embryos, this weight subtracted would leave 56.66 grammes as that of the embryos and 78.78 grammes as the weight of the rest of the animal. In another specimen, in which the weight of the soft parts was 113.75 grammes, the branchial uteri weighed 45.5 grammes and the inner gills 5.2 grammes. Subtracting the weight of these would leave 40.3 grammes as the weight of the embryos and 73.45 grammes for the rest of the animal. In another specimen by weight and counting the embryos in a milligramme were estimated to be 1,280,000.

The mussels are infested with many water mites creeping about among the gills. The young of the same in various stages were observed imbedded in the mantle. The mite appears to be identical with the species *Atax ypsilophorus*, which is a parasite of the common mussel, *Anodonta cygnea*, of Europe. It was discovered and described just 100 years ago, under the name *Icarus ypsilophorus*, by Dr. Christopheri Gottlieb Bonz (Nova Acta Phys. Med. Acad. C. L. C. Nat. Cur., Nuremberg, 1783, 52, Tab. 1, figs. 1-4). It is described and figured by Pfeiffer, with the name *Limnochares anodontæ* (Naturg. deutscher land und süss-wasser Molusken, 1821, Taf. 1, fig. 12); by Dr. Karl Ernst v. Baer, under the name of *Hydrodrachne concharum* (Nova Acta. Bonn, 1826, 590, Taf. XXXIX, fig. 19); by P. J. Van Beneden (Mem. de l'Acad. R. des sciences de

Belgique, XXIV, 1850), and by Ed. Claparede (Zeits. f. wiss. Zoologie, 1868, 445).

Dr. Bonz's description, referring chiefly to the form, color, and marking of the mite, applies to ours, and, further, he thought the description of the details of Claparede applies sufficiently well to the same.

The characters of our mite are, briefly, as follows :

Body ovoid, black, with a sulphur-yellow median line, often more or less interrupted, forked in front and ending in an angular spot behind. The yellow marking divides the black into a pair of lateral reniform spots and an anterior irregular lozenge spot. Sides brown, from the eggs shining through. Head gray, with dumb-bell eye spots. Limbs gray, translucent, with the chitinous investment bluish-black, hirsute, ending in pairs of double falcate ungues. Terminal joint of the palps ending in three minute uncinatè denticles. Anal plates of the females usually with about 18 to 20 acetabula to each. Length of body 1.375 to 1.75 mm. ; breadth 1.125 to 1.5 mm. Inhabits the branchiæ and mantle of *Anodonta fluciatilis*.

The colors depend mainly on the contents shining through the transparent chitinous investment, which, under reflected light, exhibits a bluish-black tint. Commonly the black color is intense, and in alcoholic specimens the whole body is black. In several individuals the black passed into a chocolate hue. Dr. Bonz describes the European mite as black, with the median dorsal mark pale yellow ; Pfeiffer as red-brown, with a citron-yellow mark, and Beneden says it shows a Y in white, from which it was named.

The number of acetabula to the anal plates is variable. In one mite he found 23 to each plate, in a second 22 to each, in a third 22 to one and 17 to the other, and in a fourth 18 to one and 17 to the other. Claparede gives from 15 to 20 as the number to each plate in the European mite.

The variations of our mite from the characters given of the European mite are such as occur among individuals of either. He therefore saw nothing distinguishing ours as a different species. Claparede describes another mite which infests the European Unios, which he distinguishes under the name of *Atax bonzi*. The speaker had also observed a different mite, infesting the common mussel, *Unio complanatus*, of the Delaware river. Of this mite he exhibited a drawing made in November, 1854. He suspected it to be the *Atax bonzi*, but the question can only be more positively answered

after the examination of certain details, which he hoped soon to have the opportunity of making.

If our two parasitic mites are identical with those of European mussels, it not only makes it appear probable that they are of common origin, but renders it the more probable that this is likewise the case with their hosts, even if these are not regarded as of the same species.

Professor Leidy also exhibited a collection of body-lice, *Pediculus vestimenti*, from Jews of Odessa, Russia, presented by Dr. A. G. Stratton. They range in size from 1.25 to 3.875 mm. in length, and appear in no respect to differ from those found on natives of our own country.

[November, 1883. No. 513. See Bibliography.]

MANAYUNKIA SPECIOSA.

At the time of the discovery of the pretty polyzoan, *Urnatella gracillis*, of which a description is now in course of publication in the Journal of the Academy, I found an equally interesting little annelide, of which I gave a brief notice in 1858, published in the Proceedings for that year, page 90, under the name of *Manayunkia speciosa*. The two were found in company together attached to some stones, in the Schuylkill River, at Fairmount, Philadelphia. They seem fitting associates, for while *Urnatella* is nearly related with the marine *Pedicellina*, *Manayunkia* is closely related with the marine annelide *Fabricia*. *Manayunkia* has proved to be less frequent than *Urnatella*, nor have I found it elsewhere than in the locality named. Recently several specimens were submitted to my examination by our fellow-member, Mr. Edward Potts, who found them attached to a fragment of pine bark in Egg Harbor River, New Jersey. Independent of the interest of finding the worm in a new locality, the specimens have enabled me to complete an investigation of the animal so far as to prepare the following description, though I have to regret that the material has been insufficient to allow me to clear up several important points. I have had the opportunity of comparing *Manayunkia* with a species of *Fabricia* living on our coast, and have found the two to be so nearly alike that I am prepared to hear it questioned whether the former should be regarded as generically distinct from the latter.

Manayunkia forms a tube of mud, which it occupies. The tube is composed of the finest particles, agglutinated by a mucoid secretion of the worm. It is cylindrical, straight or bent, mostly even or

slightly uneven on the outside, and sometimes feebly annulated. It is attached partly along its length to fixed objects, with the greater part free, directed downward and pendent. Most specimens observed were single, but several were found in which two or three tubes were conjoined, and in one instance five tubes, with remains of others, were given off in a candelabra-like manner from a common stem, as represented in Fig. 2, plate IX. From the open mouth of the tube the worm protrudes its head and spreads its crown of ciliated tentacles in the same manner as in more tubicolous annelides. The simple tubes range from two to four lines in length by the one-fifth to the one-fourth of a line in width.

Manayunkia is very sensitive, and on disturbance withdraws deeply into its tube, so that half the length of the latter may be removed before reaching the worm. The little creature clings tightly to the inside of its habitation, apparently mainly by means of the minute podal hooks of the posterior segments of the body.

The mature worm (Fig. 1) is from three to four millimeters in length by about one-fourth of a millimeter in breadth, and is divided into twelve segments, including the head. The color is translucent, olive green, with the cephalic tentacles of a slightly brownish hue. As the worm shortens, the segments become more bulging laterally and the constrictions deeper; in elongation the segments become more cylindrical and the constrictions less marked. When the worm is elongated it is of nearly uniform width for about three-fourths of the length, and then slightly tapers to the end, or is a little widened again in the two segments before the last. The head is about as broad as it is long, and is surmounted by a pair of lateral lophophores supporting the tentacles. Its border above projects dorsally into a short rounded process. The succeeding four segments of the body are about as broad as they are long, and nearly of uniform size: the next one is somewhat longer than those in advance. The seventh segment, in all the mature worms observed, greatly exceeded any of the others. It was usually twice the length, and differed from them in having an abrupt expansion at the fore part, which suggested the production of a head prior to the division of the worm; a process, however, if it occurs in *Manayunkia*, I had not the opportunity of observing. The succeeding segments, smaller than the anterior ones, differ little in size, except the last two. The terminal segment abruptly tapers from above its middle to an obtusely rounded extremity. When the worm protrudes from its tube, the lophophores are reflected from the head, and they exhibit a double row of tentacles extending forward. The number of ten-

tacles varies with the age of the worm, but at maturity there are usually eighteen for each lophophore. They are of moderate length, and of uniform extent, and measure about half a millimeter. Two of them internally, one for each lophophore, are rather longer and larger than the others, and are rendered conspicuous by a large vessel filled with bright green blood. The tentacles are invested with ciliated epithelium, with actively moving cilia, and in all respects bear a close resemblance to those of the polyzoa. In the allies of *Manayunkia* they are regarded as branchial appendages, and usually named cirri; and although this is unquestionably correct, as in the case of the corresponding organs of the polyzoa, they perform a varied function, and may, with equal correctness, be called tentacles.

When *Manayunkia* is about to withdraw into its tube, the lophophores approach, and, together with the tentacles, form a close longitudinal fascicle. Along the lophophores, at the base of the tentacles, there is a row of half a dozen or more brownish pigment spots, resembling eyes, but not having the usual constitution of such organs. The segments of the body of *Manayunkia*, succeeding the head, are furnished on each side with a fascicle of locomotive setæ, which is divided into two portions, one usually consisting of shorter setæ than the other. The fascicles, when most protruded, project from a papilla, which disappears with the partial retraction of the former. They are projected directly outward or in a slanting manner either forward or backward, and are moved in the same manner and by the same arrangement of muscles as in other chaetopods. The number of podal setæ is from four to ten in each fascicle. In several mature individuals the numbers in the different segments were as follows: 8 to 10 setæ in the first to the sixth segment; 6 to 7 in the three succeeding ones, 4 or 5 in the tenth, and 3 or 4 in the last segment.

The setæ, Figs. 3, 4, of the anterior segments are longest and range from about 0.15 to 0.25 mm. in length. They consist of a long, straight rod, with a linear-lanceolate blade, tapering into a long filament. The rod varies little in length in the different setæ, but the blade varies considerably in this respect. The blade is more or less bent from the rod and is longest in the long setæ.

Except the head and the first setigerous segments, the others are provided on each side with a fascicle of podal hooks, which are situated ventrally behind the bottom of the podal setæ. The hooks are 4 or 5 in each fascicle in the setigerous segments from the second to the eighth inclusive, and are very different from those of the

succeeding segments. The podal hooks, Fig. 5, of the anterior segments are about 0.05 to 0.06 mm. long, and consist of a long, curved handle, ending in a small recurved hook.

The podal hooks of the posterior three setigerous segments form close transverse rows, Fig. 6, of variable number, from 9 to 24 in each row. The hooks are minute, and measure from 0.025 to 0.03 mm. long. They consist of a broad handle, ending in a lateral comb-like extremity, as represented in figure 7.

The number of podal setæ and podal hooks is more or less variable in the corresponding segments of different individuals, and frequently, also, on the two sides of the segments of the same individual. The difference is due sometimes to the accidental loss of some of the appendages; sometimes, probably, to circumstances interfering with their development. In several specimens the following differences were observed:

SPECIMEN 1.

First segment, 6 and 8 setæ.

Second to fourth segment, inclusive, 8 to 10 setæ and 4 to 5 hooks.

Fifth to eighth segment, inclusive, 6 to 8 setæ and 4 to 5 hooks.

Ninth segment, 6 setæ and 9 to 22 hooks.

Tenth segment, 4 setæ and 12 and 18 hooks.

Eleventh segment, 3 and 4 setæ and 12 hooks on each side.

SPECIMEN 2.

First segment, 8 setæ on each side.

Second to sixth segments, inclusive, 8 setæ and 4 hooks on each side.

Seventh and eighth segments, 6 or 7 setæ and 4 hooks, except on one side of the eighth segment, in which another fascicle of 6 setæ substituted the usual fascicle of hooks.

Ninth segment, 6 setæ on each side and 9 and 20 hooks.

Tenth segment, 4 and 5 setæ and 13 and 16 hooks.

Eleventh segment, 3 and 4 setæ and 12 hooks on each side.

SPECIMEN 3.

First segment, 8 setæ each side.

Seven succeeding segments, 6 to 10 setæ and 3 to 4 hooks each side.

Ninth segment, 7 setæ and 24 hooks each side.

Tenth segment, 3 setæ and 18 hooks, but on one side the latter were all imperfect, mostly with the comb undeveloped.

Eleventh segment, 2 setæ and 14 hooks each side.

In the last specimen the rows of 24 hooks in the ninth segment measured 0.08 mm. wide; the rows of 18 hooks of the tenth segment 0.072 mm. wide, and the rows of 14 hooks of the last segment 0.06 mm. wide. The height of the rows corresponding with the length of the hooks was 0.025 mm.

The intestinal canal of *Manayunkia* is of extreme simplicity, consisting of a median tube alternately dilated within the segments and contracted in the intervals of the latter, without any other conspicuous division into more distinct portions. The widest expansions are within the fourth to the seventh segment, inclusive, but are also variable in these. Afterwards the intestine becomes narrower to the anus, which opens ventrally in the last segment. The mouth is funnel-like, capacious, and without armature of any kind. Along the intermediate two-thirds of the canal the walls are of a yellowish brown hue. Within the intestine in the seventh segment, and within the terminal portion, active ciliary motion was observed. The intestine, as usual in other annelides, is connected by thin diaphragms to the wall of the body cavity in the intervals of the segments. The intervals are occupied with liquid with multitudes of floating corpuscles.

The ovaries, with ova in different stages, occupy the fourth to the sixth segment, inclusive. Within the lower part of the head, extending thence into the third segment on each side, there is a large elliptical organ, which I have suspected to be the testicle, though I did not examine its structure.

I was greatly puzzled in the attempt to ascertain the arrangement of the vascular system of *Manayunkia*, and am in doubt as to the following explanation I give of it: The blood is of a bright green color, and in many positions serves clearly to define the course of the larger vessels. As represented in figure 1, the chief blood vessels appear to be a large one on each side of the intestinal canal, closely following the course of this, so as to seem to form a green coat to it. In each segment of the body the vessel gives off a pair of lateral branches, apparently uniting in a loop. In the head the two main vessels leave the sides of the intestine, and, after forming a close flexure or a sinus at the base of each lophophore, proceed onward through the interior of the larger pair of tentacles. In viewing the worm in any direction, the two main vessels so constantly appeared at the sides of the intestine that I at first took them for the walls of

the latter itself. The condition I did not comprehend until I found an explanation in the following paragraph in Claparede's *Recherches sur la structure des Annelides Sedentaires*, Geneva, 1873, page 76: "M. de Quatrefages has discovered that in certain Serpuliens," to which family *Fabricia* and *Manayunkia* belong, "the intestinal canal is enclosed in a lacuna or rather a veritable sheath taking the place of a dorsal vessel." Claparede adds from his own observations the statement "that a number of the sedentary annelides present the same peculiarity of having the intestine included in a vascular sheath playing the part of a dorsal vessel." In this view the two chief vessels, in figure 1, at the sides of the intestine, are to be regarded as sections of the vascular sheath enclosing the latter.

The principal movement observed in the vessels of *Manayunkia* consisted in an incessant pumping of blood into those of the two larger tentacles, alternating with contraction and partial expulsion of blood from the same.

The nervous system of *Manayunkia* I did not attempt to investigate. A well-developed eye occupied the head at the side of the gullet. It exhibited a clear vitreous humor in a choroid cup. No trace of eyes is to be detected in the terminal segment of the body, such as exist in *Fabricia*.

In several instances in which I have extracted *Manayunkia* from its tube a number of young ones, about half a dozen, have been liberated, from which it appears that the eggs are laid within the tube, there hatched, and the young then retained under the care of the parent until sufficiently developed to be able to care for themselves.

Figures 8-13, plate IX, represent an ovum and a series of young in different stages of development, which were obtained, together with others in the same condition, from three tubes.

The ovum, Fig. 8, about 0.2 mm. long, obtained with several similar ones from a tube, exhibits a central mass of large yolk cells enclosed by a layer of smaller ones. Fig. 9 represents an embryo which accompanied the former. It was motionless and devoid of cilia. The yolk cells appear to have been resolved into a stomachial cavity. The embryo was about the same size as the ovum. Fig. 10 represents a more advanced embryo from the same tube. It measures 0.265 mm. in length. The intestine indicates a division into eight segments. Fig. 11 is a more advanced stage of development of the worm from another tube. It measured one-third of a millimeter in length. The body wall and intestine are quite distinct, the latter exhibiting eight segments. The tentacular lobes have

commenced development. Fig. 12 represents an individual further developed, from the same tube as the former. It measured half a millimeter long. The body is distinctly divided into nine segments, of which eight bear a pair of setæ on each side. The tentacular lobes exhibit each the rudiments of four tentacles. Eyes also have made their appearance. Fig. 13 represents a young worm from another tube, the only one accompanying its parent. It measured 0.72 mm. long. The body is divided into the same number of segments as in the former. The tentacular lobes have developed each four tentacles, with the rudiment of a fifth. Podal hooks could be detected in none of the segments except the last, in which there were three comb-hooks on each side. Another young individual, observed from another tube, about the same size as the preceding, had five tentacles on each side, but was otherwise exactly similar. Another individual, three-fourths of a millimeter long, with five tentacles on each side, had one more setigerous segment than in the others.

The species of *Fabricia* to which I referred in the beginning of the present communication, and which I examined with particular interest on account of the near relationship of *Manayunkia* to it, is the same as that described by Prof. Verrill as being common from New Haven to Vineyard Sound and at Casco Bay. (See Report on the Sea Fisheries of New England, Washington, 1873, p. 619.) I first noticed the worm at Newport, Rhode Island, in 1858, and found it abundantly at Bass Rocks, Gloucester, Mass., in 1882. It occurred on rocks between tides, under a luxuriant growth of *Fucus vesiculosus*, with its tubes projecting from among the mud and sand, firmly fixed together with multitudes of little mussels about the roots of the seaweed.

The worm is three or four millimeters long and of a yellowish or yellowish brown hue, with more or less reddish. The body is compressed cylindrical and slightly tapering behind, and is divided into twelve segments, including the head. This is prolonged dorsally in a half elliptical process or upper lip. The vertex supports on each side a trifurcate lophophore, each fork of which is provided with a double row of narrow cylindrical tentacles invested with cilia.

The segments succeeding the head are furnished with lateral fascicles of podal setæ, and, except the first one, are provided with fascicles of podal hooks, all of which have the same general arrangement and form as those described in *Manayunkia*. The fascicles of podal setæ, from the first to the eighth segments, usually contain six or seven setæ; those of the ninth and tenth segments, three or

four setæ, and those of the eleventh segment two or three setæ. The longer setæ, Figs. 14 and 15, resemble those of *Manayunkia*, consisting of a straight rod, with a feather-like vane ending in a long point and bent at an obtuse angle from the rod. The stouter setæ, Fig. 16, have the same form, but differ in the variably much shorter proportion of the vane. The setæ range from 0.12 to 0.25 mm. long.

The first setigerous segment possesses no podal hooks, as in the case of *Manayunkia*. The fascicles in the succeeding segments to the fourth contain each eight or nine hooks, and those following to the eighth, inclusive, six or seven hooks. The hooks of the remaining three segments, as in *Manayunkia*, are very different from those of the anterior segments, and are arranged in close transverse semicircular rows of from 20 to 28 in each row.

The anterior podal hooks consist of a curved handle ending in a short robust hook, like those of *Manayunkia*, but differing in the hooks, being furcate, or even divided three or four times on the dorsum, as represented in Figs. 17 and 18. These podal hooks usually measure about 0.08 mm. long.

The posterior podal hooks resemble the corresponding ones of *Manayunkia*, as represented in Fig. 19. They measure from 0.035 to 0.04 mm. long.

The intestinal canal of *Fabricia* has the same simple character as that described in *Manayunkia*. The mouth has a pair of palp-like appendages, situated between the lophophores. The vascular system appears to exhibit the same arrangement as in *Manayunkia*, but the blood is of a red color.

Fabricia is remarkable for being furnished with a pair of eyes to the terminal segment of the body as well as to the head. The eyes are of simple character, but equally well developed at both extremities of the body. They consist of a black pigment cup, including a spheroidal vitreous body. In several instances I observed a curious variation of the eyes in different individuals and on the different sides of the same individuals. Fig. 20 represents the usual form of the cephalic eye. Figs. 21 and 22 represent the two eyes of the same individual, the right eye apparently double. Fig. 23 represents another double eye, but with the lens directed backward. Fig. 24 represents a caudal eye.

The tube of *Fabricia* is composed of exceedingly fine particles of quartzose sand and indefinite particles of mud.

I observed no specimens of this genus exhibiting the reproductive organs in the condition usual in mature ones of *Manayunkia*.

In several instances I observed a few free eggs and young worms of 0.12 mm. in length within tubes in company with the parent, but did not have the opportunity of investigating them.

Manayunkia mainly differs from *Fabricia* in having a pair of simple or undivided tentacular lophophores instead of having them trilobate; in the possession of an inner pair of larger tentacles, which receive a continuation of the main trunks of the vascular system, and in having no eyes to the terminal segment of the body.

EXPLANATION OF THE FIGURES OF PLATE IX.

Fig. 1. *Manayunkia speciosa*. Magnified about 50 diameters. The worm in the ordinary condition of extension, with its tentacles spread.

Fig. 2. A stock of five tubes. Magnified about 4 diameters.

Fig. 3. One of the longer podal setæ from the second setigerous segment of the body. 666 diameters.

Fig. 4. One of the shorter podal setæ from the same. 666 diameters.

Fig. 5. A podal hook from the same. 666 diameters.

Fig. 6. A row of podal hooks, from the last segment of the body. 250 diameters.

Fig. 7. A podal hook from the same row. 666 diameters.

Figs. 8-13. Egg and different degrees of development of the young of *Manayunkia*. 100 diameters.

Figs. 14-16. Podal setæ of *Fabricia Leidyii*, Verrill. 500 diameters.

Figs. 17, 18. Podal hooks of anterior segments. 500 diameters.

Fig. 19. Podal hook of posterior segments. 666 diameters.

Figs. 20-24. Eyes of *Fabricia*. 250 diameters.

Fig. 20. A cephalic eye of the usual form.

Figs. 21-22. Right and left cephalic eyes of the same individual.

Fig. 23. A double cephalic eye.

Fig. 24. A caudal eye.

[December, 1883. Nos. 514 and 518. See Bibliography.]

A Fungus infesting Flies.—Prof. Leidy directed attention to a vial filled with flies adherent to fragments of leaves. He stated that on the first of August, the last summer, he had noticed that from the swarm of flies attracted by the ripe fruit of a black mulberry, *Morus nigra*, many settled on the under sides of the leaves, and there became fixed and died from the invasion of a fungus, in the same manner as the house-fly often becomes attached to walls

and window panes in the autumn through the agency of the fungus known as the *Sporendonema*. The infested flies on the mulberry tree were so numerous that perhaps a fourth of the foliage of the lower boughs had from one to half a dozen of the flies adherent to each leaf. The fly, though a familiar one, is unknown by name to him. It resembles the house-fly, but is larger and has a black abdomen with lateral whitish spots. The fungus of a fuscous hue is especially evident in the extended intervals of the segments of the abdomen along the sides of the thorax and at the neck. Though extending to and attaching the flies to the leaves, the specimens do not exhibit the zone of spores on the leaf as commonly seen in those of infested house-flies. Microscopic examination exhibited a similar structure of the fungus to that of the *Sporendonema* or *Empusa muscæ*. It mainly consists of translucent, cylindrical, straight, or somewhat tortuous rods or tubes of variable length with rounded ends and containing homogeneous liquid with rows of oil-like globules. Mingled with the tubes are numerous oval, ovoid, and pyriform spore-like bodies, usually each with two oil-like globules. The spore-like bodies measure 0.028 to 0.036 mm. long by 0.016 mm. thick. The longer tubes measure usually up to 0.16 mm. long by 0.012 mm. thick.

[January, 1884. Nos. 519, 522. See Bibliography.]

Ant infested with a Fungus.—Prof. Leidy exhibited an ant, *Camponotus pennsylvanicus*, which was rigid, with limbs and antennæ extended, as in life, in which condition it was found under the bark of a decaying tree. It was infected with a fungus which spread through every part of the body.

Distoma and Filaria.—Prof. Leidy directed attention to some parasitic worms presented this evening. Some of these were supposed to be leeches from the mouth of the alligator. Herodotus states that the crocodile of the Nile has the inside of its mouth always beset with leeches. The existence of the leech has been confirmed, and is known as the *Bdella nilotica*. The present specimens, however, do not belong to a leech, but pertain to a species of *Distoma*, apparently not previously described. It may be named and be distinguished by the characters as follows :

Distoma oricola.—Body elongated elliptical, moderately wider and thicker posteriorly, and ending in a blunt, angular extremity, convex dorsally and flat ventrally, unarmed, smooth or minutely wrinkled transversely. Mouth subterminal, and enclosed with a reniform lip succeeded by a linear annulus. Acetabulum large, globular, in-

cluded at the anterior fourth of the body, and opening ventrally by a conspicuous central aperture. Generative orifice ventral at the posterior fourth of the body. Length 15 to 20 mm.; breadth 3 mm. Eight specimens obtained from the mouth of the alligator, *A. mississippiensis*, in Florida, by Mr. Stuart Wood.

Accompanying the specimens is a fragment of the tongue marked with circular scars, apparently due to the worms. The alcoholic specimens in their present condition are incurved, with the lateral margins inverted, and the included acetabulum produces a conspicuous dorsal eminence.

Of several Filarie exhibited, two, a female and a male, pertain to the species *Filaria horrida*, Diesing. The former is 28 inches long, the latter 11 inches. They were obtained by Dr. Henry C. Chapman from the thorax of the American ostrich, *Rhca americana*. The other specimens were obtained by Mr. P. L. Jouy from the abdomen of *Strix brachyotus*. They consist of four females from 12 to 14 inches long and a half a line thick, and two males 2½ inches long and one-fourth of a line thick. They are thicker anteriorly with the head end obtusely rounded, and with the mouth minute and bounded by a minute pair of conical lips. The tail end of the female is straight and blunt; that of the male is more tapering, and is included in an elliptical alary appendage, supported on each side by a row of five curving ribs. A pair of similar, but shorter and straight papillæ, is situated near the anal aperture, and a pair of pointed processes diverge from the end of the tail into the alary expanse.

Two species of *Filaria* have been previously observed in *Strix brachyotus*, *F. attenuata* Rud., and *F. foveata* Schn., to neither of which the specimens under examination appear to belong. These, however, so closely accord with the descriptions of *F. labiata* Creplin, from the black stork, *Ciconia nigra*, that, notwithstanding the remote relationship in the host, the speaker believed them to belong to that species. In the construction of the caudal extremity of the male they closely approximate the condition of *F. labiata* and *F. horrida*, as represented in the figures of Schneider (Monographie der Nematoden), while they are widely different from that of *F. attenuata* and *F. foveata*, as represented in similar figures of the same work.

[May, 1884. No. 526 See Bibliography.]

A Rare Human Tapeworm.—Dr. Leidy directed attention to some little tapeworms which had recently been submitted to his exam-

ination by Prof. William Pepper. They were expelled, by the use of santouin, from a child of three years. The specimens, consisting of a dozen fragments, appear to be portions of three worms, which reached a length of from twelve to fifteen inches or more. Unfortunately the head is lost. The joints or proglottides are more than several times the breadth of the length. In a specimen of thirteen inches, comprising nearly a complete worm, the joints of the anterior attenuated extremity are about one-fifth of a millimeter long by nearly two-thirds of a millimeter wide, while the posterior joints are half a millimeter long and two and a quarter millimeters wide. Ripe joints at the posterior part of the body are pale brown, the color being due to the eggs. These occupy a simple uterus defined by the walls of the joints, and not divided into pouches diverging laterally from the main stem as is usual in most tænicæ. A singular feature of the worm is the interruption of the series of ripe joints, here and there, by one or more completely sterile ones. The generative apertures open in the usual way on the lateral margin of one side. The mature eggs are spherical, measure 0.072 mm. diameter, and contain, fully developed, six hooked embryos.

While differing greatly from the ordinary tapeworms infesting man, they approximate nearly the description of *Tenia flavopunctata*, and probably pertain to this species. This has been but once previously observed, and was described in 1858 by Dr. Weinland (An Essay on Tapeworms of Man) from specimens in the Museum of the Medical Improvement Society of Boston. These were also discharged by a child. The worm was estimated to be from eight to twelve inches. The joints were marked by a yellow spot, from which the species was named. The eggs measured from 0.054 to 0.06 mm.

Our specimens indicate a worm almost the same size as the *T. flavopunctata*, but the joints are shorter and wider, and exhibit no yellow spot, and the eggs are larger. In other characters the worms sufficiently accord to render it probable that they may pertain to the same species. It is probable that the worm is more common than would be supposed from the instances of its observation, and has perhaps escaped notice from its small size and from the general ignorance of the distinction, not only of this, but of the ordinary species of tapeworms.

A more complete account of the subject of this communication will shortly appear in the American Journal of Medical Sciences.

[May, 1884. No. 527. See Bibliography.]

Pentastomum proboscideum.—Prof. Leidy exhibited specimens of this parasite, presented to him by Mr. Norman Spang, of Etua, Pa., who recently obtained them in Florida from the lung of a large rattlesnake, *Crotalus adamanteus*. They are cylindrical incurved, annulated, largest and rounded at the head, tapering behind, and becoming again larger and rounded at the end, and terminating ventrally in a short conical point. There are six of them, with the following measurements: 9 lines long by $1\frac{1}{2}$ lines at the head; 13 lines by $1\frac{1}{2}$ lines; 24 by $2\frac{1}{2}$; 28 by $2\frac{1}{2}$; 30 by 3, and 31 by 3. The species was first found by Humboldt in *Crotalus horridus*. It is common in the Boa constrictor, in which Prof. Leidy had also observed it several times. It has likewise been found in a number of other serpents. Other species occur in different mammals, including man, reptiles, and fishes. These singular parasites are regarded as the most degraded form of arachnida, in the mature stage being reduced to a worm-like, limbless body.

[October, 1884. No. 528. See Bibliography.]

Organisms in Ice.—Prof. Leidy stated that a member had placed in his hands for examination a vial of water obtained from melting ice which is used for cooling drinking water. From time to time, among some sediment taken from a water-cooler, the gentleman had observed what he supposed to be living worms, which he suspected were introduced with the water into the cooler and not with the ice. Upon melting some of the ice alone the worms were still observed, and the water submitted for examination was some that was thus obtained. Prof. Leidy was surprised to find a number of worms among some flocculent sediment, mainly consisting of vegetal hairs and other débris. Besides the worms, there were also immature Anguillulas and a number of *Rotifer vulgaris*, all living. It would appear that these animals had all been contained in the ice and had been liberated on melting. It was an unexpected source of contamination of our drinking water that Prof. Leidy had previously supposed to be very improbable. The little worms he was not familiar with.

They belong to the family of Lumbricidæ and probably may be an undescribed species of *Lumbriculus*. They are white, or colorless, from 4 to 6 millimeters long by a third of a millimeter in thickness. The body is divided into thirty segments, bearing podal spines, which form four rows, with three in each fasciculus, and

divergent. The spines are curved at the root, pointed at the free end, and measure 0.05 to 0.06 mm. long. The upper lip is blunt conical; the terminal segment truncate. There appears to be no distinct girdle, but the third, fourth, and fifth segments contain capsuligenous glands and other organs pertaining to the sexual apparatus.

Several dead worms swarmed in the interior, with large ovate, beaked, ciliated infusorians measuring from 0.05 to 0.06 mm. long by 0.04 to 0.048 mm. broad.

[January, 1885. No. 530. See Bibliography.]

On some Parasitic Worms of Birds.—Prof. Leidy stated that Dr. B. H. Warren, of Westchester, much interested in ornithological pursuits, had submitted to his examination a number of parasitic worms obtained in the preparation of specimens. Recently he had sent to him the carcass of a Snow Bird, *Junco hyemalis*, in which he reported a multitude of worms filling the thoraco-abdominal cavity and extending into the neck and beneath the skin of the breast and abdomen. From the carcass seventy-two worms were obtained, of which two-thirds were females, ranging from 90 to 120 mm. in length; the rest males, ranging from 40 to 55 mm. From the abdomen of another bird Dr. Warren obtained five worms, three females from 55 to 90 mm. and two males 40 and 55 mm. In twenty-two birds examined by Dr. Warren the parasites were found only in the two indicated. The worms appear to be the *Filaria obtusa*, Rudolphi, which infests the *Hirundo rustica* and other species of European Swallows. The worms of the Snow Bird reach double the length of those of the Swallows, but in other characters agree with the descriptions of *F. obtusa*, as given by Diesing and Dujardin, and also with the figures given by the latter (*Hist. Helminthes*, pl. iii), except that it is uncertain as to the existence in our specimens of the buccal armature represented by Dujardin. The worms are translucent white, with a chocolate-brown intestine and white uteri and testes. The caudal extremity is obtuse without appendages, and in the male possesses two spicules, of which the longer curved one is 1.125 mm. long and the shorter twisted one 0.5 mm. long. The ova, containing developed embryos, are 0.045 mm. long and 0.032 mm. broad.

Six other specimens, apparently also pertaining to *Filaria obtusa*, Dr. Warren obtained from the abdominal cavity, partly imbedded in the wall, of a Meadow Lark, *Sturnella magna*. Two are females

130 and 140 mm. long by 0.625 mm. thick and four are males from 50 to 60 mm. long by 0.5 mm. thick.

Six specimens of another *Filaria* were obtained from the abdomen of a female Kingfisher, *Ceryle alcyon*. The species appears to be the *Filaria physalura* of Bremser, described from specimens obtained from several species of Brazilian Kingfishers. Five of the worms are females ranging from one foot to one foot and a half in length and from one to one and a half millimeters in thickness. The head is obtuse and the body gradually tapers to the tail. The mouth is bounded by a pair of small conical papillæ. The five females measure, respectively, 12, 13, 14, 17, and 18 inches. A single male is 35 mm. long by 0.625 mm. thick. The tail is incurved, ends in a minute blunt cone, and is bialate, with the alæ short and quinquecostate. The length of the alated portion is 0.35 mm. The spicule, partially exerted, is recurved. The specimens, when alive, were pink in color and exhibited a slender chocolate-brown intestine, with large tortuous white uteri.

From the thoracic cavity of a Gray Snipe, *Gallinago Wilsonii*, Dr. Warren obtained five Flukes 18 mm. long by 4 mm. broad. These appear to be *Monostomum mutabile*.

From a whippoorwill, *Antrostomus vociferus*, Dr. Warren obtained four worms, two females of 18 mm. and two males of 12 mm., which appear to be *Ascaris subulata*.

From the Pileated Woodpecker, *Hylotomus pileatus*, Dr. Warren obtained ten worms which appear to pertain to the *Spiroptera quadriloba* Rudolphi, the female of which was originally described from specimens found in the Green Woodpecker, *Picus viridis*. The specimens are reported as having been found in the abdominal cavity. Six are females from 9 to 12 mm. long by 0.5 mm. thick and four males 7 and 8 mm. long by 0.375 mm. thick. Body white, nearly equally attenuated toward both ends; transversely wrinkled and anteriorly minutely, regularly, and sharply annulated; mouth quadrilobate. Tail of female conical subacute; tail of male bialate, sixcostate, end acute; spicules two, the longest 1.5 mm. long, the shortest 0.5 mm. long.

[May, 1885. No 533. See Bibliography.]

Bothriocephalus in a Trout.—Prof. Leidy remarked that through Dr. B. H. Warren he had recently received from the Smithsonian Institution several vials with tapeworms, obtained by Mr. L. M. Turner from a trout, *Salvelinus* —?, at Ft. Chimo, Ungava. One of the vials contained eight worms, ranging from 3 to 8 inches long

together with fragments of others, and was labeled "Passed from a Trout caught in the river August 14, 1882." The worms belong to a species of *Bothriocephalus* or *Dibothrium*, apparently different from either the *D. infundibuliforme* or *D. proboscideum*, found in *Salmo salvelinus*, *S. salar*, *S. trutta*, and other fishes of the kind. The specimens are all mature, the segments from near the head throughout being distended with brownish eggs. The characters of the worm are as follows: Body linear, bandlike, widest just behind the head and gradually narrowing to the posterior extremity, thickened along the middle and to a less degree along the lateral borders, which are narrowly obtuse at the free edge, apparently continuous, but irregularly crenulate; the broad surfaces transversely wrinkled, with the lateral borders defined from the middle by longitudinal striæ; anterior extremity wider and transversely convex; posterior extremity obtusely rounded. Head small, oval, equitant across the anterior border of the body, with an oval bothria fore and aft, directed obliquely from the broad surfaces of the body. No distinct neck. Segments of the body commencing immediately after the head, wider than long, indistinctly defined at the lateral margins and most marked transversely along the middle of the body, becoming narrower and slightly longer at the posterior part of the latter, fertile throughout and furnished on one side of the body, in the median line, with a prominent penal papilla and just behind with a genital pore. Animal whitish, with a median chain of brownish spots, due to the ova-distended uteri.

In a specimen of eight inches in length the anterior extremity of the body is 3 mm. wide, at the middle 2 mm., and at the posterior extremity 1.5 mm. The head measures 0.16 mm. transversely and 0.18 mm. deep or long on the broad aspect of the worm. The segments generally measure about 0.625 mm. long. The ova are brownish, oval, and 0.04 mm. long by 0.024 broad.

The second vial contains a single worm and is labeled "Taken from the intestine of a Trout Aug. 29, 1882." This worm I suspect to represent an immature stage of the former. It is 30 mm. long and in shape resembles the fluke-worm or a leech. It is elongated elliptical, flat, widest in front, with the lateral margins apparently entire, the broad surfaces transversely striated and longitudinally divided into three bands, with the median band indistinctly divided into segments, on one surface in the median line provided each with a minute pore. Head oval, situated fore and aft across the anterior transversely convex border of the body, with a minute oval bothria fore and aft. Caudal extremity narrowest transversely

convex at the end and emarginate or with a pore. Breadth at fore part 3 mm., at back part 2 mm. The species may be named *Bothriocephalus (Dibothrium) cestus*.

[December, 1885. No. 534. See Bibliography.]

Worms in Ice.—Prof. Leidy referred to a former communication on the occurrence of organisms in ice (see Proc. 1884, 260), and stated that Dr. C. S. Thornton, of Moorestown, N. J., a couple of weeks since, had submitted to him for examination a bottle of water from melted ice, such as was habitually used in his family, and in which he said he had observed living worms. A number of these proved to be present in the specimen, but were all dead. Having expressed a desire to confirm the statement that the worms were observed alive in fresh ice-water, Dr. Thornton last week had obligingly sent him a basket of the ice. This was part of the provision made nearly a year ago from the vicinity of Moorestown. The ice was full of air bubbles and water drops. On being melted a number of the worms were liberated and proved to be in a living and quite active condition. It is probable that while imprisoned in the ice they may not have been frozen, but perhaps remained alive in a torpid condition in water drops. It is a remarkable fact that these animals should remain so long alive in ice, and yet die so readily in the melted water subsequently. The worms are of the same species noticed in the ice-water of the first communication, and which was derived from similar ice procured from a mill-pond in Delaware Co., Pa. These facts would indicate that it is desirable to avoid the spongy ice from stagnant waters as being liable to retain organisms which would be detrimental to us. In the clear ice, such as is served in Philadelphia, no living organisms are detected. The little worms of the ice appear to be an undescribed species, and may therefore be characterized as follows:

Lumbricus glacialis.—Worm from four to six lines long, translucent, white, cylindrical, anteriorly acute, tapering most behind and obtuse, of from 35 to 50 segments; oral segment with a blunt conical upper lip, unarmed and eyeless; succeeding segments with four rows of podal-spines, in fascicles of three; spines pointed at the free end and hooked at the attached end, nearly straight or slightly sigmoid; generative organs occupying the interval of the third and seventh spine bearing segments. Thickness of worm 0.15 to 0.25 mm.; podal spines 0.3 to 0.375 mm. long.

The length given in the former notice should be in lines instead of millimeters.

[March, 1886. No. 539. See Bibliography.]

On Amia and its probable Tænia.—Prof. Leidy stated that in our market on Saturday last three Mud-fishes, *Amia calva*, had been given to him. They came in a barrel of shad from North Carolina. One was a female about two feet long, the others male, of which the smallest was eight inches. Protruding from the vent of the latter was a little tapeworm, which, on disturbance, retreated into the rectum. Three other worms of the same kind were found in the mouth, but none in the intestine of this or the other fishes. The worms accorded with the description of the *Tænia filicolis*, infesting Sticklebacks, *Gasterosteus*, and is probably the same species. They range from 1½ to 3 inches long, gradually widening from the delicate thread-like neck to the posterior rounded extremity, where they measure from 1 to 1.5 mm. wide. The head is spheroidal, variably broader or longer, and about 0.625 mm., with the summit slightly prominent and unarmed and with four hemispherical, lateral bothria 0.25 mm. in diameter. Neck variable, when extended long and narrow and usually about half the width of the head. Anterior segments, transversely linear, about an eighth the length of the breadth, gradually becoming inverted saucer-shaped or scutellate, and about one-fourth the length of the breadth. Posterior segments more quadrate, slightly widening behind, about 0.75 mm. long and from 1 to 1.5 mm. broad; last segment longest and rounded. Genital apertures marginal.

[August, 1886. No. 541. See Bibliography.]

NOTICES OF NEMATOID WORMS.

Filaria scapicæps.—Body cylindrical, nearly equally tapering at the ends. Cephalic extremity abruptly narrowing, cylindrical, rounded at the summit and smooth. Mouth a terminal pore without labia, papillæ, or inner armature. Caudal extremity of female nearly straight, conical, obtusely rounded, smooth, without appendages; of the male curved, conical, obtusely rounded alate and papillate; alæ half oval; papillæ five pair, pyriform, successively decreasing to the last at the end of the tail. Genital aperture opening between the ante- and penultimate papillæ; penial spicules short, curved.

Female 25 to 30 mm. long; 0.75 wide at middle; head 0.175 wide. Male 12 mm. long; 0.375 wide at middle.

Eight females and five males were obtained from beneath the skin of the hind foot of a rabbit, *Lepus sylvaticus*. (Drawing.)

Filaria obtusa.—Body cylindrical, nearly uniform, head conical, obtusely rounded, or rounded truncate, smooth; mouth a minute central pore, devoid of lips, papillæ, or internal armature; caudal end of female straight, conical, obtusely rounded, devoid of papillæ; of male abruptly narrowed, a length about equal to the breadth of the body, nipple-shaped, obtusely rounded and devoid of papillæ. Female genital aperture near the head end. Male aperture terminal; penis of a longer curved spicule and a spiral one of half the length.

Female 4 inches or more long, 0.625 mm. wide. Male 2 inches long, 0.5 mm. wide. Abundant in the visceral cavity of the snow bird, *Junco hyemalis* = *F. obtusa*, Leidy, P. A. N. S., 1885, 10. In the meadow lark, *Sturnella magna* = *F. obtusa*, ibidem, Chester Co., Pa.

Many specimens from the visceral cavity of the meadow lark in the collection of the Army Medical Museum, Washington. Female from 4½ to 7½ inches long, mostly 6 inches; width 0.625 mm. Male 2½ to 3½ inches.

Four females and a male from the crow black bird, *Quiscalus purpureus*. They are proportionately more robust than the preceding. Female 4 inches long and 0.875 wide. Male 1¼ inches long and 0.5 mm. wide. Florida. Dr. B. H. Warren.

I at first viewed this species as the *Filaria obtusa*, Rudolphi (Diesing, Syst. Hel., ii, 267). The caudal extremity of the male, with its penal armature, accords with Dujardin's figure of that species (Helminthes, Pt. iii, fig. j, 2). In *F. obtusa* I can detect no buccal armature such as exists in *F. obtusa*, according to Dujardin; and later, Molin (Versuch einer Monographie der Filarien, Sitzungsab. Wien. Akad. Wis., 1858, 397).

Filaria cirrura.—Body cylindrical, nearly equal, cephalic end conical, rounded truncate, smooth; mouth a minute funnel-like orifice without papillæ or interior armature; caudal end of female slightly curved or nearly straight, conical, obtusely rounded, without appendages; of male closely rolled inward, conical, blunt, without alæ or papillæ; penal spiculæ strongly curved, with the points projecting from the prominent genital aperture situated above the tail end.

Length of female 16 mm., breadth 0.5 mm. Length of male 10 mm., breadth 0.375 mm.

Four females and two males from the orbit of the jackdaw, *Quiscalus major*. Florida. Dr. B. H. Warren.

Filaria nodulosa, Rudolphi. Diesing, Syst. Hel., ii, 274. Body cylindrical, nearly uniform, slightly more narrowed behind. Head conical, obtusely rounded, with a circle of minute tubercles. Caudal extremity of the female straight, conical, obtuse; of the male

slightly curved, obtuse. Genital aperture a little in advance of the tail end. Penal spicules short, curved.

Females 3 inches long, 1 mm. wide. Male $1\frac{1}{4}$ inches long, 0.5 mm. wide.

One of each sex from beneath the skin of the head and neck of a shrike, *Collurio ludovicianus*. Florida. Dr. B. H. Warren.

Filaria stigmatura.—Body filiform, nearly uniform cylindrical, but attenuated at the cephalic extremity. Head rounded truncate, smooth. Mouth large, bordered by two or three? minute, conical papillæ, unarmed within. Integument smooth throughout, not annulate. Female: Caudal extremity straight, smooth; tail straight or slightly bent back from the distinct anal aperture, conical, blunt. Male: Caudal extremity spirally enrolled two or three times, furnished with narrow band-like granular alæ sustained by twelve pairs of ribs or cylindroid papillæ, of which seven pair are preanal; tail curved conical, subacute; penal spicules, one four times the length of the other.

Length of female 40 to 55 mm.; breadth 0.5 mm.; tail 0.3 mm. long. Length of male 24 to 30 mm.; breadth 0.375 mm.; tail 0.25 mm. from genital aperture; long penal spicule 0.88 mm., short one 0.2 mm. Pharynx cylindrical, 0.25 mm. long; œsophagus cylindrical, slightly expanded at lower end, 3 mm. long; intestine nearly same diameter. Eggs thick-shelled, oval, 0.04 long, 0.024 broad.

A multitude of individuals obtained from the swimming bladder of the lake trout, *Salvelinus namaycush*. Lake Superior. Dr. James H. Bissell.

The species bears considerable resemblance to *Ancyracanthus cystidicola* (Rud, Schneider, Mon. d. Nematoden, 105), from a like position of *Salmo furio* of Europe, but it possesses distinct characters, even generic. It also resembles *Filaria denticulata* (Ib., 102), but is devoid of the tegumentary spines and other characteristic marks of that species.

Filaria helecina, Molin. Sitzungsber. Wien. Akad. Wiss., 1858, xxviii, 391.

Filaria anhingæ, Wyman. Proc. Boston Soc. Nat. Hist., 1868, 100.

Eustrongylus, Packard. Hayden's Rep. U. S. Geol. Surv., 1873, 735.

Falaria Wymani, Leidy. Proc. A. N. S., 1882, 109.

Numerous additional specimens from the brain of a dozen individuals of *Plotus anhingæ*. Florida. Dr. B. H. Warren.

Trichosomum tenuissimum. Diesing, Syst. Helm., ii, 256. Body cylindrical, obtuse at both ends, viviparous. Four females, 7 lines long by 0.25 mm. thick. Intestine of the dove, *Zenaidura carolinensis*. From two birds. Florida. Dr. B. H. Warren.

? *Monopetalonema eremita*.—Body cylindrical, slightly narrowest anteriorly. Head with an annular expansion of the integument, which is more dilated below. Mouth with a pair of half-conical lips, divided into four papillæ at the apex. Tail short, straight, conical, obtuse.

A single female 19 lines long and nearly 1 line thick at the middle. Obtained by Dr. J. Van A. Carter from the masseter muscle of a badger, *Meles labradorica*, at Ft. Bridger, Wyoming.

The head and mouth have the characters of *Physaloptera*. Two apertures are visible in advance of the end of the tail, one at the distance of 0.25 mm., the other 0.625 mm.

Ascaris simplex, Rudolphi. Diesing, Syst. Hel., ii, 155.

A large quantity from the stomach of a dolphin, *Lagenorhynchus?*. Pacific Ocean. Dr. Wm. H. Jones, U. S. N.

Ascaris compar, Schrank. Diesing, Syst. Hel., ii, 170.

One male $1\frac{3}{4}$ inches long. Intestine of the quail, *Ortyx virginianus*. Florida. Dr. B. H. Warren.

Ascaris vesicularis, Frolich. Diesing, Syst. Hel., ii, 148.

Two females and two males. Intestine of the quail, *Ortyx virginianus*. Florida. Dr. B. H. Warren.

Ascaris depressa, Rudolphi. Diesing, Syst. Hel., ii, 156. Intestine of *Strix nivea*, Leidy, Pr. A. N. S., 1858, 112.

Two females $2\frac{1}{2}$ inches by 3 mm. Intestine of *Strix brachyotus*. Florida. One female $1\frac{3}{4}$ inches. *Bubo virginianus*. Chester Co., Pa. Dr. B. H. Warren.

Ascaris ensicaudata, Rudolphi. Diesing, Syst. Hel., ii, 184. Labia large and prominent; apex of tail defined as a short ensiform appendage. Five females to 3 inches long by 1 mm. broad. Ejected from the mouth of a mocking bird, *Mimus polyglottus*. Jacob Geisner.

Ascaris microcephala, Rudolphi. Diesing, Syst. Hel., ii, 155.

Numerous specimens from the stomach of the night heron, *Nycticordea grisea*. Chester Co., Pa. G. W. Roberts, through Dr. B. H. Warren. Specimens from *Ardea herodias*, *Hydronassa tricolor*, and *Botaurus mugitans*. Florida. Dr. Warren.

Ascaris spiculigera, Rudolphi. Diesing, Syst. Hel., ii, 157.

From *Graculus dilophus*, *Plotus anhinga*, *Pelicanus trachyrhynchus*, and *P. fuscus*. Leidy, Proc. Acad. Nat. Sci., 1858, 110; 1882, 109.

Numerous additional specimens from the former two birds. Florida. Dr. B. H. Warren.

Ascaris tenuicollis. Rudolphi, Syst. Hel., ii, 160.

Numerous specimens, all females, up to $1\frac{1}{2}$ inches long and 2 mm. thick. From the *Alligator mississippiensis*.

Ascaris anoura, Dujardin. Diesing, Syst. Hel., ii, 161.

Numerous females 3 and 4 inches long to 2 mm. thick. These were all suspended in the stomach, through double apertures of the mucous membrane, and thus tightly retained in position. From a snake which, from the description, is supposed to be the milk-snake, *Ophibolus*. Obtained by Dr. James Bissell in the vicinity of Harrisburg, Pa.

Ascaris penita.—Body cylindrical, tapering at the extremities and most attenuated in front. Mouth trilabiate. Tail of female long, straight, conical, subulate; of male of same form strongly curved, with the point brought near the genital aperture; provided at the posterior third with four pair of papillæ. Penal spiculæ remarkably robust.

Length of female 5 to 7 lines by $\frac{1}{2}$ line in width; of male to 5 lines by 0.375 mm. in width. Numerous specimens from the intestine of *Trachemys scabra*. Generative aperture of the female at the posterior third of the body. Œsophagus long, cylindrical, followed by an oval or spherical gizzard. Commencement of intestine dilated. Œsophagus 1.75 mm. long by 0.125 wide. Gizzard about 0.25. Tail of female 1.25 mm. long. Breadth of penal spicules 0.08 mm.

Physaloptera torquata.—Body cylindrical, most attenuated anteriorly. Head with a conspicuous narrow annular fold or color. Mouth bilabiate. Labia half conical, with a pair of lateral papillæ, and the apex provided with a group of four, of which one is external to the others. Tail short, conical, obtuse, recurved from the anal aperture.

Numerous specimens, all females, from 3 to 6 lines wide and 1-4th of a line thick. Worms all more or less spirally coiled. From the stomach of the badger, *Meles labradorica*.

Physaloptera turqida, Rudolphi. Diesing, Syst. Hel., ii, 233; Leidy, Pr. A. N. S., 1856, 53.

From the stomach of the opossum, *Didelphis virginiana*. Collection of the Army Medical Museum, Washington; also received from Dr. Benjamin Sharp.

Physaloptera abbreviata, Rudolphi. Diesing, Syst. Hel., ii, 235.

Numerous females from 3 to 8 lines and three males about 2 lines.

From the visceral cavity of *Phrynosoma regale*. Collection of the Army Medical Museum, Washington. Nose, mouth, and throat of *Phrynosoma hernandesi*; Sonora, Mexico. Dr. T. H. Streets.

Hedruris androphora, Nitzsch. Diesing, Syst. Hel., ii, 205.

Synplecta pendula, Leidy. Pr. A. N. S., 1851, 240; 1856,

52. Diesing, Sitzungsab. Wien. Akad. Wis., xlii, 1861, 647.

Stomach of *Nanemys guttatus*.

Cuculannus rosceus, Leidy. Pr. A. N. S., 1851, 155; 1856, 54.

Intestine of *Manouria fusca*, Java.

Tropidocerca certa.

? *Filaria dubia*, Leidy. Pr. A. N. S., 1856, 55.

Female subglobular, broader than long, divided into zones; tail abruptly projecting and conical. Male of the ordinary nematoid shape, cylindrical, most attenuated in front. Mouth trilabiate. Caudal extremity strongly rolled inwardly, sigmoid at the end, which is conical, recurved from the genital aperture, mucronate and alate; alæ half oval, narrowing to the end of the mucro, which is truncate. Female 7 mm. long by 7 and 8 mm. broad. Male 12 to 18 mm. long and 0.375 to 0.5 wide. The specimens of this curious parasite were contained in two spherical cysts in the wall of the stomach of the albatross, *Diomedea exulans*. Each cyst contained a corpulent female with severally four and five males. Obtained by Dr. W. S. W. Ruschenberger.

[January, 1887. No. 543. See Bibliography.]

NOTICE OF SOME PARASITIC WORMS.

Filaria megacantha.—Body straight, nearly uniform cylindrical, slightly narrowed posteriorly, obtuse at the ends, milk-white in color; head rounded; mouth bounded by a pair of prominent papillate lips. Female caudal extremity straight, obtusely rounded, smooth, without anal aperture. Male: caudal extremity conical, obtuse, bialate; alæ narrow, united around the end of the tail, together forming a shallow pouch, with a row on each side of six rib-like papillæ, of which four are in advance and two behind the genital aperture. A long, curved and partially exerted penial spiculum and a nearly straight short one.

Eight females, 35 to 60 mm. long; cephalic extremity a short distance back, 0.75 wide; body at middle, 0.625; near the tail end the same width. Seven males, 20 to 25 mm. long; cephalic extremity, 0.375 wide; body at middle, 0.5; near tail end, 0.25 wide.

Large penal spiculum, 2.5 to 3 mm. long; shorter one 0.18 to 0.22 mm.; caudal bursa, 0.28 long; width of alæ, 0.036 mm. (Drawing.)

From the subcutaneous connective tissue of the neck and mandible of the Short-eared Owl, *Asio occipitrinus* (*Strix brachyotus*).

This appears to be a much smaller and different species from the *Filaria attenuata* Rud., found in the same bird and others of the order in Europe. Dujardin (*Helminthes*, 51) gives as the size of the latter 250 to 308 mm. for the female, and 136 to 148 mm. for the male, with 1 mm. for the longer penal speculum. Schneider gives (*Monog. Nemat.*, 89) for *F. attenuata*, from *Falco peregrinus*, 330 mm. for the female, and 115 mm. for the male, the caudal bursa of which he represents as circular. He remarks that the *Filaria* of *Strix* and of *Cecus glandarius*, referred by Rudolphi to *F. attenuata*, is a different species, but does not describe it, for want of perfect specimens. Obtained in Chester county, Pennsylvania, December, 1886, by Dr. B. H. Warren.

Three specimens, females, two inches in length, from the orbit of the Hen-hawk, *Buteo borealis*, in the collection of the Army Medical Museum, appear to belong to this species.

Ascaris tulura.—Body cylindrical, most narrowed and tapering anteriorly, of a pinkish color; mouth trilobed, the lobes together nearly as wide as the head. Female: caudal extremity nearly as thick as the middle of the body, straight; tail short, obtusely conical; as broad at base as the length. Male: caudal extremity tapering, slightly incurved, with a row on each side of minute papillæ (20 or more?); tail short, conical, ending in a spheroidal knob. (Drawing.)

One female; length 125 mm.; width of cephalic extremity a short distance from the end, 0.375; at middle of body, 1.25; near the tail, 1 mm. wide; tail, 0.25 long. One male; length 90 mm.; width at middle 0.75; tail 0.25 long; rounded end, 0.125 thick.

From the ventriculus of the Red-shouldered Hawk, *Buteo lineatus*.

This worm approximates the *Ascaris depressa* Rud., observed in many rapacious birds, but appears to be a different species. Diesing (*Syst. Helm.*, 156) describes the tail of the male of the former as shortly mucronate and papillose beneath, and Schneider (*Monog. Nemat.*, 41) figures it according to that description.

Specimens obtained in Chester Co., Pa., December, 1886, by Dr. B. H. Warren.

Ascaris sulcata, Rudolphi. Body anteriorly attenuated; posteriorly more or less closely spiral; head with prominent lips. Female: tail conical, recurved from the anus, ending in a minute mucro.

Male: tail conical, shortly mucronate, bialate, with a row on each side of four or five nipple-like papillæ.

Female up to 25 mm. long by 0.5 wide at middle; tail, 0.25 long.

Male, 15 mm. long by 0.3 wide at middle. (Drawing.)

Numerous specimens were found tightly clinging by the mouth to the lining membrane of the stomach of *Trachemys scabra*.

Echinorhynchus caudatus, Zeder. Body narrow, cylindrical, nearly equal throughout, strongly corrugated so as to appear annulated, posterior extremity conical. Proboscis cylindrical, expanded at base, with 9 to 11 rows of strong hooks, succeeded with about 15 rows of smaller hooks. Length, from 5 lines to an inch; breadth, 0.5 to 1.5 mm. From two individuals of the Swallow-tailed Kite, *Elanoides furcatus*, in one of which they were associated with *Tænia ziator*. Two specimens from *Strix nebulosa*. Florida. Dr. B. H. Warren.

Echinorhynchus hystrix, Bremser. Body cylindrical, much corrugated, widest anteriorly and minutely echinate. Proboscis clavate, with about a dozen rows of hooks. One-fourth to three-fourths of an inch long and one line wide at the fore part. Numerous specimens from the intestine of the Darter, *Plotus anhinga*. Florida. Dr. B. H. Warren.

Tænia simplicissima (drawing).—Head small, unarmed, truncate; bothria spherical, terminal, occupying the four angles; neck very long, nearly or as wide as the head, body gradually widening to the posterior third and then tapering; anterior segments transversely linear, subsequently reversed disklike, gradually longer and wider, then campanulate and gradually becoming longer and narrower. Generative apertures and ova unobserved. A number of specimens from the Cod, *Gadus callarias*, up to 20 lines by 1 mm. where widest. Two only of the specimens retained the head. (Drawing.)

Tænia Ambloplitis.—Head quadrate, spheroidal, consisting almost entirely of the four large spherical bothria, with the summit slightly prominent and conical or depressed and unarmed; neck very short or none; body compressed cylindrical, gradually widening from the head to near the posterior part, where it slightly narrows to the end; segments linear, becoming gradually longer and wider, and then more quadrate, all deeply and pretty regularly wrinkled into two or three annuli. Genital apertures obscure. Length 8 to 12 inches; in alcohol contracted to 3½ to 5 inches; greatest width 2 mm.

Head 0.5 to 0.625 mm. long and 0.75 to 0.875 broad. Bothria 0.375 mm. diameter. Commencement of body 0.625 wide. Anterior segments 0.125 long, 0.625 wide; subsequently 0.375 long and

1.5 to 1.875 wide; posterior segments 0.75 long by 1 mm. wide. (Drawing.)

A number of specimens from the stomach of the Rock Bass, *Ambloplites rupestris*. Lake George, New York.

This species resembles the *Tenia ocellata* Rudolphi of the European Perch, *Perca fluviatilis*, and perhaps is the same. (Drawing.)

Tenia Micropteri.—Head large, compressed spheroidal, with four subterminal spherical bothria and a papilliform unarmed summit; neck none; body obscurely segmented, and with no obvious internal organs, posteriorly variably narrowed and obtusely rounded at the end. Length from half an inch to an inch, and about 1 mm. wide. Apparently a larval form; found in the body cavity of the Black Bass, *Micropterus nigricans*. Six worms, soft, white, and active. The longer ones of an inch would elongate to double the length, becoming proportionately narrower. The head, about 1 mm. or more in diameter, varied in length and breadth, according to contraction, sometimes one and sometimes the other being the larger. Lake George, N. Y.

Last summer while at Mt. Desert, Me., I examined a squid, *Ommastrephes illecebrosa*, with the hope of finding the singular parasite *Dicyema*. The specimen was in bad condition, and while I found none of the latter, I obtained from it several small worms, which I suppose to be the larval form of a cestode. They were yet quite active though the host was already putrescent. I suspected them to belong to *Tetrabothriorhynchus migratorius*, observed in European cephalopods, but examination showed them to be different. They moved so actively and incessantly, contracting, expanding, and writhing, that it was difficult to obtain a clear idea of the shape of the worm. It appears most nearly related with *Tenia*, and provisionally may be regarded as a larval form of this genus. Its more evident characters may be summed up as follows:

Tenia loliginis.—Head unarmed, without rostellum, quadrilobate, continuous with the neck, which is variably long and narrow or short and irregularly contracted and expanded, and is constricted from the body. Lobes of the head elliptical, contractile and expansile and becoming variably folded or corrugated, furnished each at the upper pole with a hemispherical bothria. Body about as long as the head and neck, extensile and contractile, obconic or obovate, compressed, acute posteriorly, unsegmented. No interior organs visible except a vessel along the sides of the neck and encircling the lobes of the head. Color white. Length to about half an inch; width about

1 mm. Dr. H. C. Chapman informed me that he had previously observed this parasite in the squid.

Monostomum obscurum.—Elongated elliptical, flattened, obtusely angular in front, obtusely rounded behind. Oral and genital or other apertures scarcely distinguishable. Length, 4 to 8 lines; width 1 line.

Numerous specimens in the stomach of a Jew-fish, *Megalops thrissoides*. Collection of the Army Medical Museum, Washington.

Distomum Aquilæ.—Spatulate, cochleariform, widest behind, obtuse at both ends; mouth circular, unarmed; acetabulum sessile, about as large as the mouth. Length, 3 lines; width in front, $\frac{1}{2}$ a line; behind, $\frac{4}{5}$ of a line. Two specimens from the trachea of the Bald Eagle, *Haliæetus leucocephalus*. Collection of the Army Medical Museum.

Distomum hispidum, Abildgaard. Body much attenuated in advance, covered with minute recurved spines, which become obsolete at the back part. Head with a pair of alate appendages covered with stronger recurved spines, and a small group in the intervals before and behind. Mass of eggs giving the axis of the body behind a red appearance. Ova oval, 0.4 mm. long, 0.24 mm. broad.

Numerous specimens about 4 lines long by 0.5 mm. where widest behind. From the intestine of the Sturgeon, *Accipenser sturio*, of the Delaware river, at Philadelphia.

Nitzschia elegans, Baer.—Several specimens of this leech, four lines long, were taken from the gills of the same sturgeon.

[February, 1887. No. 544. See Bibliography]

Parasite of a Bat.—Dr. Leidy remarked that it was a common opinion among country people that swallows and bats were infested with bed-bugs, and often introduced them into houses. He had convinced himself that the *Cimex* infesting the cliff-swallow was a different species from the bed-bug (Proc. 1877, 284). He had repeatedly examined bats without finding *Cimex*. On one of two small bats from Panama Bay presented this evening by Dr. Wm. H. Jones he found two singular insects, which appear to be the *Polycatencs fumarius* described by Prof. Westwood from a bat of Jamaica. They are about half of the size given for the species, but otherwise appear to agree in all respects. It has four jointed antennæ, with the first pair of limbs short and the other pair long. The insect has distinct hemicytra.

[December, 1887. No. 548. See Bibliography.]

Bot-larva in the Terrapin.—Prof. Leidy remarked that the habits of a naturalist often led him to observe things in our daily life which usually escape the notice of others. In our food he had frequent occasion to detect parasites which he preferred to reject, but which are unconsciously swallowed by others. While he liked a herring, he never ate one without first removing the conspicuously coiled worms on the surface of the roe, and he had repeatedly extracted from a piece of black bass or a shad a thread worm which others would not distinguish from a vessel or a nerve. While he did not object to the little parasitic crab of the oyster, he made it a point to remove the equally frequent leech from the clam. It was in a piece of ham he was eating that he first noticed the trichina, which was no doubt one of the causes that led Moses to declare the pig to be unclean; and in the hundred tapeworms he had examined from our fellow-citizens during the past twenty-five years he had ascertained that they had all been derived from rare beef. He continued: In a visit to Charleston, S. C., before the late war, at an evening entertainment, among other viands were nicely browned slices of the drum-fish, *Pogonias chromis*. A friend informed him that some portions were more gelatinous and delicate than others, and helped him to what was supposed to be one of such. On cutting into it he observed imbedded in the flesh a soft mass which appeared of enigmatic character. The following day he procured from market a drum-fish, on the dissection of which he found imbedded in the tail several egg-shaped masses about three inches long and less than an inch thick, which proved to be a large coiled worm (*Acanthorhynchus reptans*) (Proc. A. N. S. 1858, 111). This it was that gave delicacy to the dainty, and in this instance the parasite seems to enhance the excellence of the food. At another evening entertainment nearer home he partook of some stewed terrapins. Taking into his mouth what appeared to be an egg, it produced such an impression as led to its rejection. Seeming so peculiar, he tied it in the corner of his handkerchief for more convenient examination. The specimen, now exhibited, was a membranous bag, which contained thirty yellowish white maggots from 8 to 12 mm. long by 1.5 to 3 mm. broad. They are the larvæ of a bot-fly, and resemble those of the *Gastrophilus* of the horse. Their characters are as follows:

Body of the larva fusiform, acute anteriorly, obtuse posteriorly, consisting of twelve segments including the head, which is armed with a pair of strong, black, hooked maxillæ; terminal segment

with a pair of trilateral oval chitinous disks, each with three spiracles; intermediate segments with numerous minute recurved hooklets, disposed in incompletely separated bands at the fore and back part of the segments.

The sac containing the larvæ is about three-fourths of an inch long and half an inch broad, with a short tubular prolongation open at the extremity. It was uncertain whether the sac formed part of the intestine.

The dish of stewed terrapins was suspected to have been a mixture of the diamond-back, *Emys palustris*, and the red-bellied terrapin, *E. rugosa*. This is not the only instance of the occurrence of bots in turtles, as Prof. A. S. Packard notes the case of larvæ being found in the skin of the neck of the box-turtle, *Cistudo carolina*.—(American Naturalist, 1882.)

[January, 1887. No. 550. See Bibliography.]

TAPEWORMS IN BIRDS.*

Birds are as much infested with intestinal worms as other classes of animals, and none appear to be exempt, no matter what may be the nature of their food, though aquatic birds appear to harbor a greater number of species, as exemplified by ducks and geese.

Among the parasites, tapeworms, mostly of the genus *Tania*, are common, though less frequent than the thread worms. The domestic fowl in Europe had been reported to harbor half a dozen different species of *Tania*, though I have as yet observed but one with us, and this but rarely. No species, I believe, has been noticed in our turkey, nor the guinea fowl and pea fowl.



FIG. 1.—Anterior extremity of *Tania microps*. 30 diameters.

Dr. J. Van A. Carter, of Fort Bridger, Wyoming, directed my attention to the sage fowl, *Centrocercus urophasianus*, as being much infested with tapeworms. They often occur together in large numbers, sometimes so as to distend the small intestine. The young birds especially are affected; and the old birds appear comparatively exempt. Perhaps this may be due to the individuals much infested

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being killed off, though the living birds infested, which were observed, appeared not to be suffering in nutritive condition. The species seems to be the *Tænia microps*, Diesing; the same which infests the Capercaillie, *Tetrao urogallus*, of Europe. Its characters are as follows: Head globose or oval, without rostellum or armature, and with a central fovea at the vertex. The four bothria spherical or oval. Neck long, variably narrower than or as wide as the head. Anterior segments, where distinct, about three times the breadth of the length: subsequently seven or eight times the breadth of the length; afterwards again about three times the breadth of the length; then nearly square; next longer than broad; and finally two or three times the length of the breadth. Segments mostly flat, or narrowly elliptical in section, but finally nearly as thick as wide, so as to be oval or nearly circular in section. Genital apertures marginal, alternating, most distinct in the middle segments. Ova, in the terminal segments, oval, colorless, with an embryo provided with three pair of spines.

Length 9 inches, greatest width $2\frac{1}{4}$ lines. Measurements of several individuals were as follows:

No. 1. Length, 28 centimeters. Head, 0.375 mm. long, 0.45 broad. Bothria, 0.225 by 0.25. Neck, 2 mm. long, 0.25 where narrowest. Anterior segments, 0.125 to 0.175, .75 to 1 mm. broad; middle segments, 1.5 long, 4.5 broad; terminal segments, 2 mm. long, 1 broad and thick.

No. 2. Length, 11 centimeters. Terminal segments, 1 mm. long, 4 broad.

No. 3. Length, 17 cm. Head as in No. 1. Neck, 2.5 mm. long. Anterior segments, 0.125 mm. long, 0.3 broad, and then 0.45 broad. One-third the length behind, 1 mm. long, 2.25 broad; terminal segments, 3 long by 1 to 1.25 broad.

No. 4. Length, 15 cm. Terminal segments, 1.5 mm. long, 4.5 broad.

No. 5. Length, 22 cm. Terminal segments, 1.5 mm. long, 4 broad.

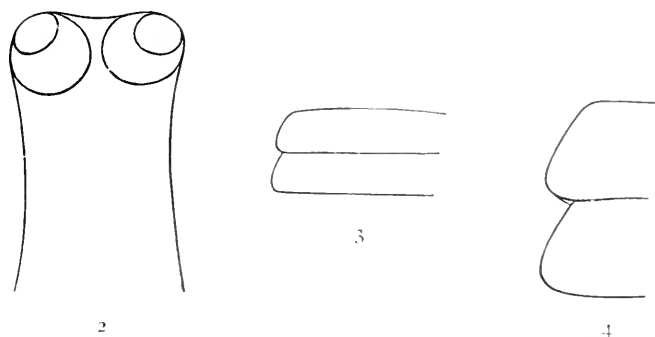
No. 6. Length, 16 cm. Middle segments, 1 long, 2.5 broad; terminal segments, 2 long, 1.5 broad, 1 thick.

No. 7. Length, 25 cm. Middle segments, 1 mm. long, 5 broad; at posterior fourth, 2 long, 3 broad; terminal segments, 3 long, 2 broad, 1.5 thick.

No. 8. Terminal segments 5 mm. long, 1.5 wide, 1 thick.

No. 9. Terminal segments 3.3 mm. long, 2 wide and thick. Ova 0.12 mm. long, 0.08 broad.

Our reed bird, or rice bird, *Dolichonyx oryzivorus*, at the time of its autumnal visit to the vicinity of Philadelphia, I have found to be very much infested with tapeworms. Every bunch of a dozen, as obtained in market, will be found to have three or four individuals with the parasite. The worms usually are found in the thin birds, while the fat ones are commonly free, thus apparently indicating by their presence an influence on the nutrition of their host.



FIGS. 2, 3, 4.—*Tania pestifera*: 2, head; 3, anterior segments; 4, posterior segments. $\frac{1}{40}$ diameters.

The species formerly described by me, and since more carefully examined, presents the following characters:

Tania pestifera.—Proc. Acad. Nat. Sci., 1855, 443. Head quadrate, scarcely defined from the neck, summit truncate, slightly prominent, flat, or depressed, unarmed; bothria large, spherical, occupying the four corners. Neck long, as wide or slightly narrowed from the head. Body gradually widening to the middle and then more or less tapering; anterior segments transversely linear, becoming gradually longer and broader; subsequently obcuneate longer and narrower.

In an apparently complete individual, $3\frac{1}{2}$ inches long, it was widest at the middle and tapering towards the extremities. Head 0.75 mm. broad; middle segments of body 1.5 broad; posterior segments 0.75 broad.

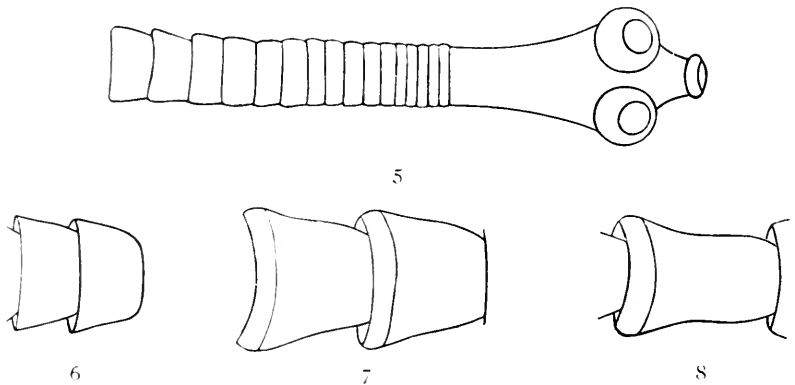
In a number of individuals the head ranged from 0.25 mm. long and 0.875 broad to 0.3 long by 1.625 broad. Posterior cuneate segments variably 0.3 to 0.375 mm. long by 0.5 to 0.75 wide.

I have seen several tape-worms, apparently of the same species, submitted to my examination by Dr. B. H. Warren, of West Chester, who obtained them from the yellow-breasted chat, *Icteria virens*.

Prof. S. F. Baird submitted to my examination a number of tape-worms obtained from the cow-bird, *Molothrus ater*, which I at first

supposed to be of the same species as the former, but comparison proved them to be different. Their characters are as follows: *Tenia urnigera* = *T. pestifera* in part, Proc. Acad. Nat. Sci., 1855, 443.

Head urniform or cruciform, summit projecting in a pedicellate rounded knob or disk, or rostellum, unarmed. Bothria spherical, prominent. Neck, short or longer, obconic. Body narrowest at commencement and gradually widening to near the posterior extremity. Anterior segments narrow, annular, soon becoming cuneate, gradually longer and wider, and then campanulate with prominent back border. Length from 1 to 2 inches, ordinarily about 15 lines:



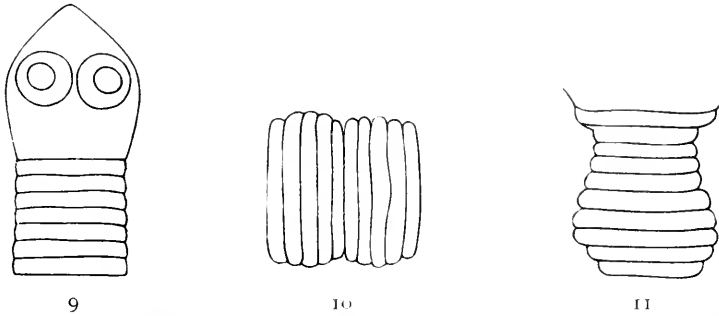
FIGS. 5, 6, 7, 8.—*Tenia urnigera*; 5, anterior part of body; 6, 7, 8, segments from anterior, middle and posterior parts. 40 diameters.

greatest width 0.75 mm. Head, 0.4 mm. broad, with neck 0.5 long; commencement of body 0.15 wide; anterior segments 0.1 long, 0.15 wide; later, 0.2 long, 0.375 wide; subsequently 0.25 to 0.75 long and 0.625 wide above and 0.875 at posterior border; a terminal segment 1.375 long and 0.5 wide.

Dr. B. H. Warren, of West Chester, a zealous ornithological observer, has submitted to my examination a collection of intestinal worms, recently obtained by him during an expedition to Florida. Among these are a number of tapeworms, of which most appear to be undescribed species. They are as follows:

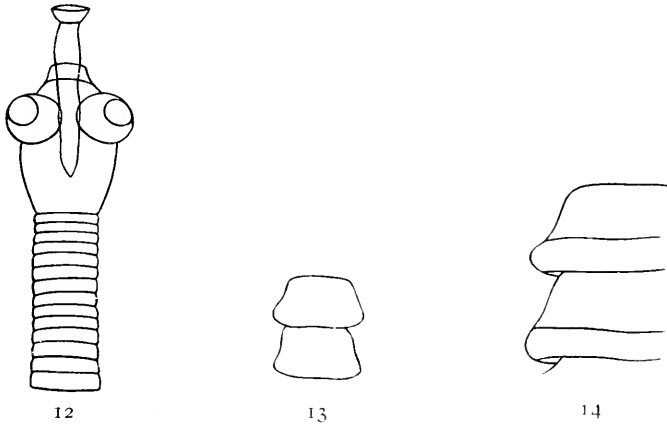
Tenia odiosa.—Head hemiovoid to conical, unarmed; bothria sub-terminal, spherical, near together; neck none; body immediately after as wide or nearly as wide as the head; anterior segments short, linear; succeeding segments all wrinkled annularly, the more anterior band-like, the posterior barrel-shaped. Generative apertures lateral, mostly not visible. Length 1½ to 2 inches. Head 0.3 to 0.45 mm. wide; body just behind about as wide as the head; anterior

segments 0.05 long; succeeding segments 0.15 long by 1 to 1.25 wide; at widest part of body, 0.5 long by 1.625 wide; posterior segments 1.25 long by 1.25 wide. From the intestine of the quail, *Ortyx virginianus*, four birds of the same brood.



FIGS. 9, 10, 11.—*Tænia odiosa*: 9, anterior part of body; 10, 11, annulated segments from middle and posterior parts of body. 20 diameters.

Tænia viator.—Elongate clavate, broadest behind and rounded at the extremity. Head longitudinally oval or cylindroid, with large prominent spherical bothria, and with a protrusile, cylindrical proboscis, ending in a disk, but unarmed. Neck short, obconic. Commencement of the body narrowest; early segments transverse, linear,



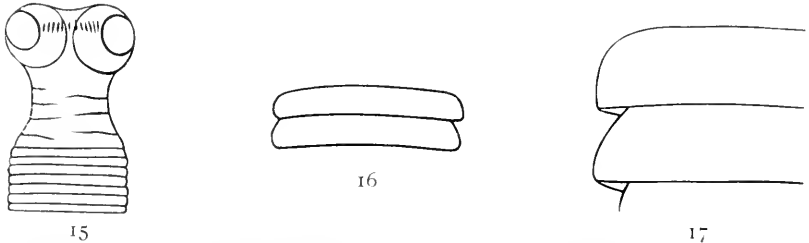
FIGS. 12, 13, 14.—*Tænia viator*: 12, anterior part of body; 13, 14, segments posteriorly. 40 diameters.

the succeeding ones becoming longer, wider, and obconate or subcampanulate, with thickened posterior margin. From 6 to 18 lines long by 1.5 mm. where widest. From the intestine of the Swallow-tailed Kite, *Elanoides forficatus*.

Many specimens from two birds. The worms have a yellow color; those from one bird of a bright lemon yellow, and on pressure exuding a bright deep yellow oil.

Head with proboscis, 0.7 mm. long; breadth 0.425; length of proboscis 0.2 to 0.3 long, 0.075 wide at middle, and 0.125 at terminal disk. Width at commencement of body, 2.2 to 0.225; anterior subcampanulate segments 0.175 long and 0.3 wide; others 0.15 long and 0.45 wide; posterior larger segments 0.375 to 0.625 long and 1.25 to 1.5 wide. In a specimen 15 lines long after some of the subcampanulate segments 0.15 long and 0.45 wide followed others much elongated 0.625 long by 0.15 wide in front and 0.25 wide behind. In the same specimen the posterior broadest segments were 0.625 long by 1.5 wide; and the last few segments were 0.75 long by 0.875 wide. In the largest segments the genital apertures could be distinguished in one margin, but neither ova nor penis could be detected.

Tania vexata.—Head armed, transversely quadrate oval, with spherical bothria, variably prominent or retracted, summit convex or depressed with a broad immersed corona of minute hooks. Neck short or sometimes longer and proportionately narrower; segments



FIGS. 15, 16, 17.—*Tania vexata*; 15, anterior part of body; 16, 17, segments from more posterior part of body. 40 diameters.

of body varying from linear to crateriform and campanulate; the last segment half oval; genital apertures marginal, mostly not readily detected. Length from 9 lines and 1 inch to 2½ inches. Head 0.375 mm. broad; neck 0.3 broad; widest part of body 1 to 1.25 mm. broad.

Intestine of pileated woodpecker, *Hylotomus pileatus*.—From six birds. In different specimens the measurements were as follows: Head, 0.325 to 0.5 mm. wide; neck, 0.125 to 0.3 wide; anterior segments linear, 0.0725 long by 0.25 wide; succeeding, reversed cup-like and variable in proportion of breadth and length according to degree of contraction, 0.175 long by 0.3 wide, or 0.2 long by

0.375 wide, or 0.25 long by 0.75 wide; widest segments reversed crateriform, 0.5 long by 1 wide, or 0.3 long by 1.25 wide, or 0.25 long by 1.5 wide; posterior segments campanulate, 0.375 long by 0.625 wide, or 0.5 long by 1 wide, or 0.75 long by 1 wide.

In a much contracted specimen $1\frac{1}{2}$ inches long, with the widest part 1.75 mm. broad and proportionately thickened, the head was 0.4 wide, the neck 0.25, the anterior cup-like segments 0.15 long by 0.2 wide; the posterior widest and thickest part with segments 0.25 long by 1.75 wide; the posterior campanulate segments 0.75 long by 1 wide. In another much contracted specimen 30 mm. long the head was 0.325 mm. wide; the short neck 0.225 wide; the widest part with segments 0.3 long and 1.625 wide; the terminal segments 0.375 long by 1.25 wide. In a much elongated specimen of $2\frac{1}{2}$ inches the head was 0.375 mm. wide; the neck 0.2 wide; the anterior cup-like segments 0.2 long and 0.375 wide; succeeding segments 0.25 long and 0.75 wide; next 0.75 long by 1 wide, and terminal ones 0.5 long by 0.8 wide.

In some fragments with broad segments the genital apertures were seen to be distinctly marginal and with a small penis having the summit protruding.

Tenia simpla.—Head short, transverse discoid or hemispherical, slightly prominent or depressed at summit, unarmed; bothria spherical, occupying the four corners; neck none; body at commencement variably narrower than the head; anterior segments



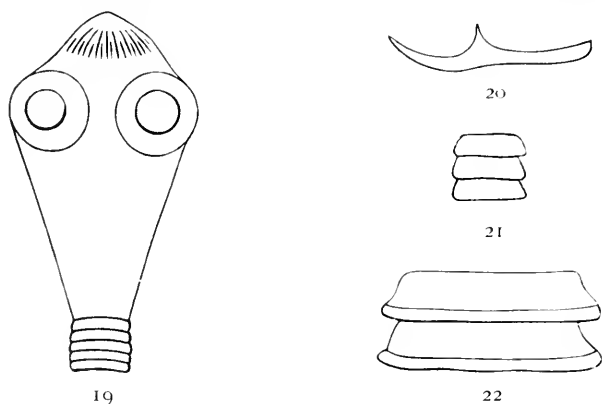
FIG. 18.—*Tenia simpla*; anterior part of body. 40 diameters.

linear, becoming gradually longer and broader and decidedly campanulate. Many fragments, from which the worm is estimated at about 18 lines.

Intestine of the Chuck-will's-widow, *Antrostomus carolinensis*.—Head, 0.2 mm. wide, 0.1 long. Body succeeding head, 0.175 mm. wide. Campanulate segments, 0.375 long by 0.5 wide; subsequently same length and double width. Some of widest segments 0.25 mm. long by 1.25 wide.

Tenia aurita, Rudolphi.—Head urn-like or doubly conical, summit armed with a double circle of alternating hooks, long and short; bothria lateral, spheroidal, neck obconic; body long, clavate, widening behind and abruptly rounded at the end; anterior segments linear, then linear campanulate, and then more strikingly campanulate

with the posterior border thickened. Length to about 2 inches. Head and neck 0.3 mm. long, 0.2 wide; narrowest portion of body 0.06 to 0.1 mm. wide; near posterior extremity to 1 mm. wide. In a small and apparently complete individual of 10 lines, the head was 0.225 mm. long; commencement of the body 0.1 mm. wide; three lines behind the head the segments were 0.075 mm. long by 0.25 wide; near the middle 0.15 long and 0.75 wide. Terminal segments 0.2 long by 0.825 wide to 0.25 long by 0.75 wide. A posterior frag-



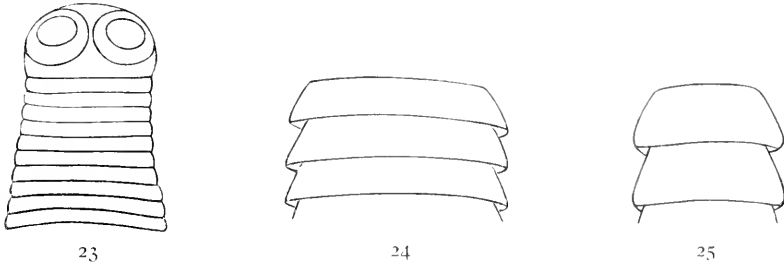
FIGS. 19, 20, 21, 22.—*Tania aurita*: 19, head, 125 diameters; 20, hook, 500 diameters; 21, 22, segments near middle of body, 40 diameters.

ment of 15 lines had the anterior campanulate segments 0.125 mm. long by 0.5 wide and the posterior segments 0.35 mm. long by 1 wide. Bothria 0.08 mm. diameter. Long hooks 0.048 long; short ones 0.028.

Tania unilateralis, Rudolphi.—From the intestine of the blue heron, *Florida cerulea*. Previously described from the same bird from Brazil. Head very small, consisting of four small bothria terminating the body, with a minute nail-like rostellum. Neck none. Body rapidly widening from the head. Anterior segments linear; posterior segments short cuneate, with a minute cylindrical penis projecting from each segment, all on the same side. From the intestine of the green heron, *Butorides virescens*. Many fragments. In the only one with a head, 2 inches in length, the head was 0.3 mm. wide; the rostellum 0.15 long; the widest part of the body 3 mm.

Tania Oporornis.—Head hemispherical; bothria spherical, occupying the sides of the former; neck none; body at commencement as wide as the head and thence gradually widening to the posterior third and then diminishing. Anterior segments linear and trans-

versely deeply striate; subsequently reversed dish-shaped and finally reversed bowl-shaped. Length about 18 lines. Head 0.375 mm. to 0.45 broad; widest segments 0.125 long by 0.75 wide; posterior segments 0.2 by 0.625 wide. Several specimens and fragments from the intestine of the Kentucky warbler, *Oporornis formosa*.



FIGS. 23, 24, 25.—*Tenia oporornis*; 23, anterior part of body; 24, 25, segments posteriorly. 40 diameters.

A tapeworm from the robin, *Turdus migratorius*, obtained at West Chester by Dr. Warren, seems to be the same as the *Tenia angulata*, Rudolphi, infesting European species of thrushes. Its characters are as follows:

Head broader than long, with spherical bothria at the lateral angles; a short conical rostellum enclosing a conical papilla closely covered with two rows of alternating recurved hooks. Neck none. Body at commencement nearly as wide or as wide as the neck, with



FIGS. 26, 27.—*Tenia angulata*; 26, anterior part of body; 27, posterior segments. 40 diameters.

linear segments; subsequently obtuse, becoming gradually wider; the widest subcuneate twelve times as broad as long. Estimated to be about 2 inches in length, with the greatest breadth about 3 mm.

In addition to the foregoing, I have observed *Tenia variabilis*, Rud., in our woodcock, *Philohela minor*, previously described from various European wading birds, and *Tenia scolopendra*, Diesing, in the horned grebe, *Podiceps cornutus*, previously described from a Brazilian grebe.

[February, 1888. No. 553. See Bibliography.]

Chactopterus from Florida.—Prof. Leidy directed attention to specimens which were collected in the trip of Prof. Heilprin and Mr. Willcox, at the mouth of the Manatee River. The species appears to be the *Chactopterus pergamentaceus* of Cuvier, originally described from specimens from the West Indies. It is a remarkable form. It belongs to the Tubicolæ, or tube-living worms, but, unlike most of these, is devoid of the numerous cephalic appendages, or tentacles and gills. The tube is membranous and laminated in structure, and it has the appearance of parchment. The two tubes collected are 16 inches long by three-fourths of an inch in diameter and tapering toward the ends. An incomplete worm, not well preserved on account of its delicacy, in its present condition is 9 inches long and appears very narrow in comparison with the capacity of its tube. The anterior division of the body, about an inch long, is flattened and about half as wide, but narrowing behind, and is composed of eight podal segments provided with dense bunches of lustrous golden setæ. The succeeding segment, long and narrow, is provided with a pair of wing-like appendages an inch long and each furnished with two bundles of diverging setæ. Then follow five long, narrow segments with large membranous appendages, without setæ. The terminal segments, of which 15 remain in the specimen, are furnished with pairs of long pointed appendages with bundles of setæ.

[February, 1888. Ibidem.]

Cirolana Feasting on the Edible Crab.—Prof. Leidy stated that on last Saturday, having occasion to go to Beach Haven, N. J., during a leisure half-hour stroll along the shore he noticed here and there a dead crab, *Callinectes hastatus*, lying on the sand near the last high-tide mark. The crabs observed happened to be all females, and they appeared to have died recently, as some were quite fresh and showed no signs of decomposition. Others, broken open by removing the carapace, were found to have the body cavity swarming with a living isopod, the *Cirolana concharum*, which had preyed upon the organs and were variously colored by the food with which they were gorged. From a single crab there were taken 108 of the *Cirolana*, ranging from 15 to 22 mm. in length by 5 to 7 mm. in breadth.

The isopod is grayish translucent above and whitish translucent beneath, and centrally variously colored, brown, black, red, or yellow, from the food contents. The dorsal plates are minutely

dotted, black or brown, in bands. The eyes are triangular, with rounded angles, and black. The antennæ are nearly double the length of the antennules. The mandibles are furnished with a strong brown tricuspid molar. The caudal plates or telson are triangular, with a blunt, slightly emarginate apex, and with a pair of spines each side of the latter. The isopod has been observed by Stimpson at Charleston, S. C., and by Harger at Vineyard Sound, Mass., but has not previously been reported from the coast of New Jersey. Three isolated specimens of the same were picked up on the shore of Beach Haven the last summer.

On Bopyrus palamoneticola.—Prof. Leidy also presented numerous specimens of the prawn, *Palamonetes vulgaris*, infested with the parasite *Bopyrus palamoneticola*, obtained at Beach Haven, N. J. From about two quarts of the prawn caught for fish-bait upwards of fifty contained the *Bopyrus*.

[February, 1888. No. 555. See Bibliography.]

Reputed Tapeworm in a Cucumber.—Prof. Leidy stated that several years ago his colleague in the university, Prof. Wm. Goodell, submitted to his examination a tapeworm which he received from a correspondent, with the label "From the middle of a cucumber preserved in brine. S. E. Robinson, West Union, Iowa, May 29, 1876." The specimen appears to be complete, and in its present condition, preserved in alcohol, is about eight inches long. The head is large, spheroid, provided with four small equidistant hemispherical bothria, and surmounted by a prominent crown, with a double circle of strong hooks. The neck is a slight constriction, whence the body rapidly widens and again tapers behind. The anterior segments are transversely linear, with a gradually increasing length and more acute and prominent lateral ends; the middle segments are about twice the breadth of the length and slightly campanulate, and the posterior segments are proportionately longer and narrower. In the latter the uterus is distended with eggs only at their anterior portion.

The hooks are partially lost on one side of the crown, and it is estimated that there were about 40 or more.

The head is .875 mm. broad; the crown of hooks .625 mm.; the neck .8 mm.; at the middle of the body six segments together are 1 cm. long and 3.5 mm. wide; the terminal segments are about 4 mm. long and 2.5 mm. wide. The eggs measure from .032 to .036 mm.

While it cannot be admitted that the worm belonged to the cucumber, nor is it clear how it reached this position, it is a question as to the species. It bears a near resemblance to the *Tenia crassicolis* of the Cat, but is not more than half the size of this as it ordinarily occurs.

In comparison with a complete specimen of the latter, six inches in length in the contracted condition as preserved in alcohol, we find the following measurements :

	T. of the cucumber.	T. crassicolis.
	mm.	mm.
Breadth of head.....	.875	1.875
Breadth of crown of hooks.....	.625	1.
Breadth of neck8	1.25
Breadth of middle segments.....	3.5	6 to 8
Length of middle segments.....	1.66	1.
Breadth of terminal segments.....	2.5	3.5
Length of terminal segments.	4.	5.

[March, 1888.]

Habit of Cirolana concharum.—Prof. Leidy said that he yesterday went to Atlantic City, in the expectation of finding interesting specimens cast ashore in the recent storm, but there proved to be nothing. He picked up a few recently dead Lady-crabs, *Platyonichus ocellatus*, and found in them a number of the *Cirolana concharum*, feasting upon the flesh and other parts, as he had previously noticed them feeding on the edible crab. (See page 80, Proceedings 1888.) From these observations it would appear to be the usual habit of the *Cirolana* to prey on dead crabs and probably other animals.

[March, 1888. No. 556. See Bibliography.]

Parasites of the Striped Bass.—Prof. Leidy exhibited numerous specimens of a minute crustacean parasite from the gills of the Striped Bass or Rockfish (*Labrax lineatus*), brought to our market. He said it is a common parasite and he had been familiar with it since 1871. It was described by the Danish naturalist, Dr. Henrik Kroyer, under the name of *Ergasilus labricis*, obtained from the same fish at Baltimore (Danske Naturh. Tids., 1863-'64, 303, Tab. ix, Fig. 2). Common as it seems to be, Mr. R. Rathbun, in his published list of the parasitic Copepoda from American waters, says he had not observed it (Proc. U. S. Nat. Mus., 1884, 483). The little crustacean lives suspended on the outer surfaces of the gills, where it is conspicuous from the white color of its thorax and egg-pouches on the red color of the gills. The length of the parasite together with its egg-pouches is 2.125 mm.; without the latter 1.25 mm.

Prof. Leidy further exhibited portions of two intestines of the same fish, with numerous attached worms pertaining to *Echino-rhynchus proteus*, which infested many fishes, both of fresh and salt water, of Europe. It is not only a frequent and abundant but a constant parasite of our Striped Bass. It ranges from 5 lines to an inch in length. The young ones are white; the older have the body yellow, bright orange, or brownish orange, with a white neck and proboscis, which together are one-fourth the entire length. Dising attributes to the proboscis 8 to 10 rows of hooks, but Dujardin gives double the number, and this accords with the condition observed in our specimens. The parasite lives in the large intestine with the proboscis and neck together embedded in the wall and the body suspended in the cavity. The proboscis and bulbous commencement of the neck together protrude externally and form on the outside of the intestine brown pyriform tumors, giving to the organ a peculiar tubercular appearance. The worms exhibit the following characters: Body widest at the commencement, where it is rounded and slightly constricted from the rest, which tapers to the posterior obtuse end. Proboscis cylindrical but expanded at the middle and base. Neck very long, bulbous at the commencement, becoming narrower and cylindrical and a little dilated at the base; smooth throughout. Length of a large one 24 mm.; proboscis and neck 6 mm.; proboscis 1.25 mm. long, 0.175 thick; 0.25 at middle expansion; bulb of the neck 1 mm., narrow part below 0.375 thick, at base 0.5 thick. Body at commencement 2 mm. thick, near posterior end 1 mm. thick.

[March, 1888. No. 558. See Bibliography.]

Trematodes of the Muskrat.—Prof. Leidy stated that in the collection of the Academy there is a vial labeled, “Worms from the duodenum of the Muskrat.” There are 25 worms, and in their present condition they are pale brown, bordered by dark brown, and measure from 12 to 18 mm. long by 1 to 1.5 mm. broad. If not identical, they are closely allied to *Distomum echinatum*, which in the mature state lives in ducks and other water birds and in the larval state in fresh-water snails. The Muskrat eats the latter, so that it may likewise become infested in the same manner as the ducks, and this would also seem to make it probable that the parasite is the same. Dujardin, Wedl, and others describe *D. echinatum* as having the fore part of the body echinate, which is not the case with the Distome of the Muskrat, though in both the head is armed in the same manner and with the same number of spines. Its characters are as follows:

Body long, flattened, band-like, with the neck tapering and the tail obtusely rounded. Head reniform, with a coronet of strong, straight spines—from 30 to 36. Ventral acetabulum much larger than the head, situated at the base of the neck a short distance behind the latter, spherical. Body of nearly uniform width. Oral acetabulum small; pharynx oval; intestines simple and narrow. Genital orifice immediately in advance of the ventral acetabulum; cirrus exsert to one side, curved and smooth; testes situated almost midway between the ventral acetabulum and tail; oviducts median behind the ventral acetabulum; ova oval, yellow; vitelline glands large and conspicuous, racemose, extending along the intestines from the ventral acetabulum to the end of the tail.

Head 0.5 to 0.6 mm. broad; spines about 0.1 long by 0.02 thick; oral acetabulum 0.25; pharynx 0.3 long, 0.225 wide; ventral acetabulum 0.875 to 1.25. Ova 0.1 long by 0.072 broad.

Since the above communication a collection of worms from the small intestine of a Muskrat has been received. Eighteen of the worms pertain to the supposed *Distomum echinatum* and range from 18 to 25 mm. long. In all, the fore part of the body to a short distance behind the ventral acetabulum is finely echinate, while the rest is smooth. Two other worms appear to belong to *Amphistomum subtriquetrum*, 12 and 15 mm. long, a parasite previously observed only in the Beaver of Europe.

[March, 1888. No. 559. See Bibliography.]

Entozoa of the Terrapin.—Prof. Leidy stated that he had on one occasion examined eight of our much esteemed food Terrapins to ascertain the character of their parasites. All were found to be infested with an *Echinorhynchus*, living in the small intestine and clinging by the thorny head to any part of the canal. The worms range from six to sixteen lines in length and in numbers from five to upwards of two hundred. The species is *Echinorhynchus hamulatus*, originally described from several of our fresh-water turtles. (See these Proceedings, 1856, 48.)

In three of the Terrapins occurred a red thread worm, also living in the small intestine and associated with the former and, like them, clinging by their armed mouth to the mucous membrane. The species is the *Cuculanus microcephalus*, the males up to nine lines, the females from twelve to sixteen lines. In one Terrapin there were eight, in a second over a hundred, and in the third upwards of several hundred. They extended all along the intestine, but were

most numerous at its upper part. The females are viviparous and contain living young.

In one Terrapin only, also in the intestine, there were two flukes, the *Amphistomum grande*, about half an inch long.

In the bladder of another Terrapin there was a single *Polystomum* 3.5 mm. long, probably *P. oblongum*, first described by Prof. Wright, of Toronto, from an individual obtained from the bladder of the Musk Turtle, *Aromochelys odoratus*.

In another Terrapin he had found four Polystomes, of which three were in the throat and the other in the nose. These pertain to a different species from the former, and may prove to be the *Polystomum ocellatum*, found in a similar position in the European Turtle, *Emys europæa*. At the genital outlet of *Polystomum*, situated ventrally at the fore part of the body, the cirrus is surrounded by a circle of hooks. In *P. integerrimum*, the species best known and found in Europe, living in the bladder of frogs, the genital circle is composed of eight hooks. Prof. Wright ascribes sixteen hooks to the circle of *P. oblongum*, and this accords with the number in the *Polystomum* from the bladder of the Terrapin. In the other Polystomes of the latter he found the circle to be composed of thirty-two hooks. Siebold says there are forty hooks to the circle in *P. ocellatum*. Dr. Zeller figures the latter from a sketch of Siebold, in which the caudal disk is represented as having two large hooks and eight small ones between the posterior pair of bothria. In the allied Polystomes of the Terrapin the number and arrangement of the hooks of the caudal disk is the same as represented in Prof. Wright's figure of *P. oblongum*. If, then, we have a correct record of the facts, the Polystomes of the fauces of our Terrapin may be regarded as another species, which may be distinguished as follows:

Polystomum coronatum.—Body when elongated lanceolate. Caudal disk wider than the body, cordiform, with three pairs of bothria and with the body attached between the anterior two pairs; changeable in form to oblong, circular or quadrate; with three pairs of minute hooks between the anterior pair of the bothria and with a larger pair and two small pairs between the last pair of bothria. Genital aperture with a circular or a transverse oval coronet of thirty-two hooks of equal length. No eyes visible. Length elongated from 4 to 6 mm.; contracting to about half the length and widening proportionately.

Besides the foregoing, there was found in the intestine of one of the Terrapins a little Distome, of 3 mm. length, which, though mature, he had not the leisure to examine. He also observed in the

throat of one a number of little anguillula-like worms, which he likewise did not examine.

In all the Terrapins the flesh, liver, and other parts than those above mentioned were entirely clear of parasites. Therefore, in preparing these animals for food, it is easy to free them from the latter by rejecting the head, intestines, and bladder; or if it is thought desirable to use the intestines, they should be slit open and cleansed of the contents.

Prof. Leidy added that he had recently found in the collection of the Academy a bottle labelled "alimentary worms in terrapin." These proved to be seven bot-larvæ like those described and exhibited at a former meeting. (See Proc., 1887, 393.)

[April. 1888. No. 560. See Bibliography.]

A Crustacean Parasite of the Red Snapper.—Prof. Leidy remarked that in the examination of the fish called the Red Snapper, *Lutjanus Blackfordi*, brought to our market from Florida, he had observed a curious crustacean parasite adhering to the throat about the pharyngeal bones. It appears to be an undescribed species of *Anchorella*, which, from its having a bundle consisting of half a dozen posterior appendages, including a pair of large egg pouches, may be named *A. fasciculata*. The animal is milk white, though in the fresh condition the egg pouches are slightly reddish, and it is about half an inch long, including the latter. The body is pyriform, with its long axis in the same line with the single suspensory arm, and with the head and neck curved outward and a little downward to one side. The head is bird-head-like in shape, with beak directed upward and furnished with two pair of minute maxillipeds. The suspensory arm, or brachium, about as long as the head and neck together, is straight and is surmounted by a button, which is sessile and internally striated. At the base of the brachium on each side there is a minute papilla. The posterior appendages consist of two long cylindrical egg pouches, and on each side two much shorter sausage-like pouches. The adjoining figure is an outline of the parasite magnified six diameters. Twenty-five were obtained from one fish. Measurements of a specimen are as follows: Length of body with brachium 2.5 mm.; length of brachium 1.25; of head and neck 1.75; head 1 by 0.625; breadth of body 1.375; length of egg pouches 4, thickness 0.625; length of short pouches 1.625 and 1.25. Clinging to the head of one of the females of the *Anchorella* was a minute male measuring 1.125 mm. in length. With the *Anchorellæ* was found a single specimen of *Caligus*, which closely resembles the *C. nanus*,

Kroyer, if it is not identical with it. It is 1.125 mm. long. The cephalothorax is about as wide as it is long, 1.875 mm.; the first abdominal segment is obcordate 1.5 long and 1.25 wide; and the second long and narrow 1.375 long and 0.375 wide. The cephalic bothria 0.25 diameter.

[April, 1888. No. 562. See Bibliography.]

PARASITIC CRUSTACEA.

Attached to the shark, *Odontaspis littoralis*, caught at Beesley's Point, New Jersey, above indicated, on each side of the mouth, hanging from the upper lip, were a number of lernean parasites, and these were thickly covered with a hydroid parasite. The lernean appears to be an undescribed species, and may therefore be distinguished by the following name and characters:

Lerneonema procvra.—Animal pale yellowish. Head horizontal, semi-oval, convex above, with three short, blunt occipital tubercles, fore part convex, excavated beneath and enclosing the mouth, antennæ, and maxillipeds; neck long, linear, cylindrical; body short, fusiform, and truncated behind; tail longer than the body, linear, cylindrical. Egg pouches long, linear, cylindrical. Length 70 mm.; including egg pouches, 90 mm. Head 3 mm. long; neck 30 to 45 mm. long, 0.375 thick; body 10 to 12 mm. long, 1.75 thick; tail 12 to 15 mm. long, 0.5 thick. Egg pouches 20 mm. long, 0.25 thick.

The hydromedusarium appears to belong to *Eucope parasitica*, found in the same manner by A. Agassiz, in a lernean of *Orthogoriscus mola*. Some of the stems rise from the creeping root from 5 to 8 millimeters, with short branches, two or three ringed. The polyp-cups are 0.375 mm. long by 0.25 wide. The stems are 0.1 mm. thick, and the alternate lateral branches about 0.2 long.

From the fins of a Shark, also caught at Beesley's Point, but the name not ascertained, there was obtained a single specimen of a lernean, which nearly resembles the *Perrisopus dentatus*, of Steenstrup and Lutken. It is 5 mm. long. The cephalothorax is a little smaller than the abdominal segment, and between them are three pairs of dorsal lobes which completely cover the space. The egg pouches are linear and 0.25 mm. thick.

[May, 1888. No. 563. See Bibliography.]

Parasites of the Rock Fish.—Dr. Leidy stated that he recently had examined the gills and entrails of a Rock Fish, *Labrax lineatus*, weighing 20 pounds, on which he made the following remarks:

The gills were swarming with the little crustacean parasite *Ergasilus labracis*. In many of these the thorax and egg-sacs were opaque milk-white, but in most of them the latter were more translucent and of a blue color. This difference is due to the development of the embryos, within which there appears blue pigment.

Attached to the gills there were three opaque milk-white fluke-worms, and a fourth of the same kind was embedded in the muscular coat of the pharynx. These appear to pertain to an undescribed species, and may therefore be distinguished by the following name and description :

Distomum galactosomum.—Opaque milk-white, depressed, spatulate, narrowest in advance, obtusely rounded at both extremities, dorsally convex, ventrally flat. Head rounded truncate or transversely oval discoid, with prominent margin, unarmed ; neck short, slightly widening to the ventral acetabulum, which is sessile, larger than the oral acetabulum and with its orifice appearing triangular ; posterior part of the body elliptical, in movement expanding and becoming thinner and translucent and concave beneath, with the opaque white intestine on each side shining through. At rest about 6 mm. long by 2 mm. wide, elongating to 12 mm. by 2.5 mm. wide posteriorly and 1 mm. at the base of the neck.

After being killed in dilute alcohol the specimens remained of spatulate shape, 6 to 8 mm. long, 2 mm. wide behind. The oral acetabulum 0.625 broad ; the ventral acetabulum, situated 1.375 mm. back of the summit of the head, was 0.875 broad.

When the animal was in motion and expanded the posterior portion of the body to such an extent as to render it translucent, the intestine on each side became especially conspicuous through its white opacity. The intestines extended directly from the minute pharynx to the caudal extremity, more or less tortuous, according to the degree of elongation or shortening of the animal. They are widest back of the ventral acetabulum and are sacculated. In the expanded condition of the body, by transmitted light, it exhibited a minutely reticular appearance, the lines of the rete being more opaque white and apparently according with a capillary net communicating laterally with the vessels proceeding from the caudal vesicle. The opaque white appearance of the body seems to be due to the presence of granules of calcium carbonate, for the application of acetic acid caused their disappearance with the evolution of bubbles of gas, and the body became more uniformly translucent without, however, affecting the white opacity of the intestines. The generative apparatus appears to be undeveloped, as no distinct

organs were observable. At the middle of the posterior portion of the body, in the usual position of the testes, there appeared a single clearer spot, and in advance of it a clearer streak. The character of these he had not determined.

Many worms, the *Echinorhynchus proteus*, clung to the interior of the intestine its whole length, but they were not so numerous as nor larger than they are commonly found to be in smaller individuals of the same fish.

Of two other large Rock-fish examined, weighing each about a dozen pounds, one was free of parasites of all kinds, and in the other there were only a few of the little crustacean, *Ergasilus*, adhering to the gills; and within the abdominal cavity, adherent to the stomach, closely coiled and encysted, a dozen nematoid worms, the *Agamonema capsularia*, a common parasite of the shad and herring. Neither of the fish contained a single *Echinorhynchus*, a remarkable circumstance, for he had never before examined a Rock-fish without finding this parasite present.

[May, 1888. No. 564. See Bibliography.]

Louse of the Pelican.—Prof. Leidy remarked that the admirable monograph of E. Piaget, “*Les Pediculines*,” a large work, with supplement, in three quarto volumes, illustrated, and published in Leyden from 1880 to 1885, presented tonight, had reminded him that he had formerly made a communication to the Academy on an insect of the kind, which was remarkable on account of its living in the pouch of the Pelican. A brief description of the louse, under the name of *Menopon perale*, is given in the Proceedings, 1878, p. 100. Mr. Piaget describes two species of *Menopon* from Pelicans, *M. titan*, living on *Pelicanus onocrotalus* and *M. consanguineum*, which he observes appears by preference to infest the interior of the great pouch of *P. erythrorhynchus*. He remarks of the latter that it probably has some relation with *Menopon perale*, and regrets the insufficient description of this species for comparison. Prof. Leidy continued that M. Piaget’s figures of *Menopon titan* and *M. consanguineum* appear so nearly alike and resemble so closely *M. perale* that from his own judgment he would have regarded them as all of one species. In 1878 he had prepared a more detailed description, with figures of *Menopon perale*, intended for publication in one of the Government reports, but, as it was not called for, it was forgotten until he was reminded of it by the appearance of the great work of M. Piaget. *Menopon perale* was named from specimens submitted to him by Prof. Wyman, who obtained it from the pouch of *Pelicanus trachyrhyn-*

chus, in Florida, and others obtained by Dr. E. Coues from the same bird, on the Red River, near Pembina, Dakota. Dr. Coues, in his "Birds of the Northwest," U. S. Geol. Surv., 1874, 587, says of the White Pelican: "I took a female in very poor flesh, with worn, harsh plumage, which was attributable to a disease of the pouch. On the inside of this organ was fastened, in patches, great numbers of a louse, which produced an induration, ulceration, and finally perforation of the membrane."

The characters of *Menopon perale* as drawn from his original manuscript are as follows: Head wider than long, transverse reniform, pale brown, with a darker patch and a crescentoid black spot between the clypeus and temple, fringed in front with short hairs, with a longer tuft at the posterior lateral lobe, and a row of eight along the posterior concave border. Antennæ concealed beneath the head, with the terminal joint largest and oval. Maxillary palpi cylindrical, reaching to the lateral border of the head, four jointed. Mandibles strong, deeply two-toothed, black. Eyes two, close together on each side of the lateral border of the head. Prothorax narrower than the head, rounded hexagonal in outline and produced laterally in a strong conical point, pale brown above, with a darker band crossing the middle and darker at the lateral borders, smooth. Metathorax as wide as the head, bell-shaped in outline, with lateral rounded angles; crossed by a row of hairs. Limbs well produced; anterior femora short and robust; the posterior two nearly twice as long as the former and darker brown in color. Tibiæ with a spur at the distal extremity. Tarsus with an ovate appendage at the proximal extremity, and a single hair at the distal extremity. Ungues strong, black. Abdomen long elliptical, nearly twice the length of the head and thorax, and widest at the fourth segment. Segments of nearly equal length, the last one mammiform, all with a wide chestnut brown band, and a row of short hairs emanating from clear circular bases. Last segment with an additional tuft of hairs on each side.

Entire length $2\frac{1}{4}$ lines; color translucent whitish and transversely striped with chestnut brown. Smaller individuals paler in color, with narrower stripes of brown.

In an individual 4.75 mm. long, the head was 0.75 long and 1 mm. broad; the prothorax 0.55 long and 0.825 broad; the metathorax 0.625 long and 1 mm. broad; the abdomen 2.875 long and 1.25 mm. broad.

Attached singly or in groups up to fifteen or more between the folds of the lining membrane of the pouch of *Pelicanus trachyrhynchus*.

[July, 1888. No 569. See Bibliography.]

PARASITES OF THE SHAD AND HERRING.*

With the view of ascertaining the parasites of the shad, *Alosa sapidissima*, I examined the entrails of fifty fish brought to our market from the rivers of the south and from the Delaware. Most of them were found to be infested with two nematoid worms, the *Agamonema capsularia*, Diesing, and the *Ascaris adunca*, Rudolphi, and all of them with the larva or scolex of a cestoid worm, which I propose to distinguish as *Gymnoscolex picta*. I also examined half a dozen of the closely allied fish, the common herring, *Clupea harengus*, in which I also found the *Agamonema capsularia* and *Gymnoscolex picta*, but not the *Ascaris adunca*.

Agamonema capsularia, Diesing.—This worm, known only in the immature sexual condition, is a frequent and common parasite of many fishes. Called by Linnæus the *Gordius marinus*, it has been described under various other names by different authors. Observed in Europe as a parasite of the herring, it has also been there noticed in the salmon, mackerel, cod, turbot, halibut, and other fishes. In our herring it appears to be a constant parasite, sometimes few and often in considerable numbers. It occupies the abdominal cavity among the viscera usually encysted in the peritoneum about the stomach and intestine, and especially the pyloric appendages, and less frequently on the liver and roes. It often forms flat and close spiral coils, lying on the viscera or appended to them. Frequently it is observed free and incessantly wriggling; but in this condition I suspect the worm has escaped from its cyst after the death of the herring.

The *Agamonema* is also a common parasite of the Shad, and though usually occurring in small numbers, appears to be as constant as in the Herring. Mostly, too, it is larger than in the latter, and is found in the same positions and conditions. It is most frequently observed in conspicuous coils, appended to the viscera, and especially to the cœcal extremity of the stomach. It was found in every Shad examined, from three to a dozen or more.

The characters of the *Agamonema* of the Herring were as follows: Body slender, most tapering in advance, translucent white, and often with the intestines brownish, but in others white. Head rounded, truncate and bordered by conical papillæ, with the mouth unarmed, but furnished to one side with a minute conical spine attached by a broad base. Tail short, conical, incurved, blunt, but terminating in a minute mucro.

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Length, 10 to 18 mm.; thickness, 0.25 to 0.375 mm.; tail, 0.12 to 0.24 mm. long.

The œsophagus is long and cylindrical and is defined from the intestine by a marked constriction. The intestine has a long translucent diverticulum directed backward from its commencement, and another more opaque directed forward along the opposite side of the œsophagus.

The *Agamonema* of the Shad ranged from 15 to 25 mm. by 0.3 and 0.5 to 0.625 mm. in thickness, with the tail 0.125 to 0.25 mm. In the smaller, translucent individuals the alimentary canal appeared to be like that in the *Agamonema* of the Herring, but in the largest individuals I am uncertain whether the condition is the same.

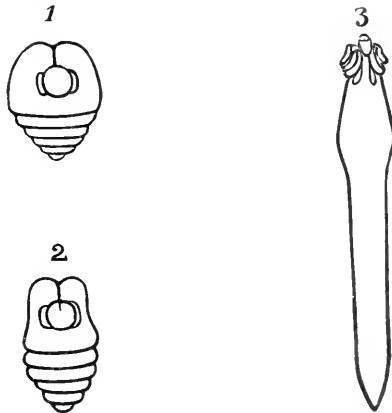
The number of papillæ to the head of *Agamonema* appears to be three, but of this I could not satisfy myself. Wedl describes the *Agamonema* of the Mackerel as having the mouth armed with a conical tooth, which is capable of being protruded and retracted within a sheath. (Sitzungsab. Akad. Wiss., 1855, 18, Taf. III, Fig. 24.) In the worms under examination, I could see no such tooth, but to one side of the mouth, as above described, a little conical spine fixed by a spreading base, and commonly projecting obliquely forward and outward.

Ascaris adunca, Rudolphi. This worm was originally described as a parasite of the European Shad, *Alosa vulgaris*. It is a frequent though not a constant parasite of our Shad, and commonly appears to occur few in numbers. From two to half a dozen were found in three-fourths of the Shad examined. It occurs in the intestine, pyloric appendages, and less frequently in the stomach. In general appearance it resembles the *Agamonema*, but is readily distinguished by its large lips. Its characters are as follows: Body cylindrical, thickest posteriorly and tapering in advance; caudal extremity incurved. Lips large and conspicuous, tail short, conical, acute. Male with the caudal extremity spirally inrolled; with a pair of curved spicules.

Female 12 to 40 mm. long; 0.3 to 1.125 mm. thick; tail 0.125 to 0.25 mm. long. Male, 20 to 30 mm. long, 0.45 to 0.55 mm. thick. In the smaller individuals the body is more uniformly cylindrical or less tapering in advance. This worm I formerly confounded with its associate *Agamonema* (Proc. Acad. Nat. Sci. Phila., 1856, 55).

Gymnoscolex picta.—In all the Shad and Herring subjected to examination there occurred a larva or scolex of a cestoid worm, which, though closely resembling the *Scolex polymorphus*, I suspect to be different, and have therefore given it another name. The lat-

ter species is attributed to numerous marine fishes of European seas, but among them neither the Shad nor Herring have been indicated. *Scolex picta* appears to occur almost constantly in our Shad and Herring. It was found along the course of the intestine, but especially in the pyloric portion and in its appendages. Commonly not very numerous, sometimes there were but few, but generally from about a dozen to fifty and upwards. In the abundant mucus of the viscera they appear as white granules, about the size of ordinary sand grains. Their characters are as follows: In the quiescent condition with the head withdrawn into the body; spheroid, ovoid, ovate, or cordate; in front rounded or truncate and more or less emarginate or projecting in a bipapillate manner; posterior third conical, obtuse or sub-acute, and annularly rugose. In the active condition with the head projected, clavate, elongating and becoming linear behind with the disappearance of the annular rugæ. Head provided with four hemispherical bothria and a central spheroidal, cup-like rostellum and with a bright red pigment streak on each side.



Measurements.—In the quiescent condition 0.5 to 0.625 mm. diameter, or 0.5 to 0.75 and 0.875 mm. long by 0.375 to 0.5 mm. broad, elongating without projection of the head to 1.125 mm. long, 0.375 mm. broad; with projected head to 1.5, 1.75, and 2.5 mm. long by 0.25 and 0.2 mm. broad. Bothria 0.15 diameter; central rostellum 0.1 mm. diameter.

The accompanying figures, 1, 2, 3, represent *Scolex picta* magnified forty diameters; figures 1, 2 in the quiescent condition, with the head retracted; figure 3 in the active condition, elongated and with the head protruded.

The *Scolex* when in motion, with the head retracted, elongates and shortens and narrows and widens proportionately. In contrac-

tion the posterior portion becomes more or less annularly constricted. In greatest activity the head is protruded and the body greatly elongated, and alternately shortens and elongates. With elongation the annular appearance of the posterior part entirely disappears. The rostellum and bothria are incessantly protruded and retracted and become more or less oval in form. In the quiescent state, by transmitted light, the head appears as a nearly central clearer spot embraced at the sides by the pigment streaks. When the bothria are protruded, the latter are situated posterior to them.

The body of the *Scolex* is filled with the usual oval, clear, sharply defined corpuscles. Under moderate pressure the water vascular system is brought into view. This appears as a tortuous vessel, proceeding forward on each side of the body from a little terminal caudal vesicle, returning from the head where it forms an expanded loop on each side of the rostellum.

With the *Scolex* as described there were found some smaller individuals having the same characters, but without the conspicuous pigment streak.

The *Scolex* of the Shad and Herring has a near resemblance to the *Scolex polymorphus*, Rudolphi, and it may, perhaps, prove to be the same. This species is described as having the bothria divided by a transverse partition, which is not the case in the *Scolex* under consideration. Van Beneden, however, represents forms of the *S. polymorphus* of the Turbot, without the division of the bothria (Mem. Acad. de Belgique, xxv, pl. 1, Figs. 1-3).

The mature tapeworm of the *Scolex* of the Shad and Herring is yet unknown and no doubt has for its host some animal that appreciates these fish for food quite as much as man does.

[May, 1888. No. 565. See Bibliography.]

Parasites of the Pickerel.—Dr. Leidy remarked that among the numerous parasites which are mentioned as infesting the Pike, *Esox lucius*, of Europe, no *Tenia* is indicated. In the Pickerel, *Esox reticulatus*, brought to our market, a species of the latter appears to be common. In two fishes he found half a dozen in the intestine and stomach; and in another a single individual two feet in length. It resembles closely the *Tenia ambloplitis*, noticed in the Rock Bass, *Ambloplitis rupestris* (Proc., 1887, 23), and may be the same. Distinguishing it with the name of *Tenia leptosoma*, its characters are as follows: Body long and thin, and at the forepart thread-like. Head unarmed, without rostellum, with four equidistant hemispherical bothria; neck very short or none; anterior segments

transversely linear, many times wider than long; posterior segments gradually becoming proportionately longer and quadrate and barrel shaped; genital apertures marginal, alternating irregularly. Ova spherical.

Length from 6 to 9 and 26 inches, shortening to one half or less; breadth to 2 and 2.5 mm. Head 0.25 to 0.5 mm. broad; bothria 0.125 to 0.175 mm. Anterior segments an inch from the head 0.175 mm. long by 1 mm. broad; posterior segments 0.5 to 0.75 mm. long by 2 to 2.5 mm. broad. Ova 0.028 to 0.032 mm. in diameter.

A single slender *Scolex* associated with the longest *Tenia* was 4 mm. long by 0.25 wide, but elongated to 8 mm. by 0.1 wide. The head was of the same form as that of the *Tenia*. After being in alcohol, the head of the *Scolex* was 0.225 mm. wide, with the bothria 0.1 in diameter. The posterior part of the body exhibited traces of segmentation, with the segments 0.075 mm. long by 0.25 wide.

[December, 1888. No. 568. See Bibliography.]

Food of Barnacles.—Prof. Leidy stated that last summer, in June, walking on the shore at Beach Haven, N. J., he picked up a bunch of Goose-barnacles, *Lepas fascicularis*, attached to a fragment of a grass-stem, *Spartina*. Finding at the time nothing else of interest, he examined the specimens, not having previously dissected a Barnacle since 1848, when he observed the eyes in *Balanus rugosus*. (See Proc., 1848, 9.)

All the specimens of *Lepas*, of which there were nine, had the body distended with a brownish-yellow Cyclops in large number, fresh in appearance and generally entire. Under the circumstances he at first suspected that they might be a larval form of the *Lepas*, though aware of the fact that the cirripeds proceed from a Nauplius embryo, which passes through a Cypris stage before assuming the Barnacle condition. On further investigation he was convinced that the Cyclops were food and filled the stomach. It appeared remarkable that they should have been so well preserved and not crushed by the strongly six-toothed mandibles of the Barnacle. Some additional specimens of this species and a few of *Lepas anatifera* subsequently examined did not contain such an accumulation of similar food, but usually the contents of the stomach consisted from two to half a dozen small gastropods with the shell, several species of entomostraca, some sand grains, and a few vegetable fibers. In all the brood-capsule, a thin elliptical lamina, situated between the body and the shell, contained Nauplius larvæ.

[November, 1888. No. 567. See Bibliography.]

Extract from Fauna of Beach Haven, N. J.—From an oyster bed we took up some young oysters, an inch to two inches long, with the shell perforated by the "drill," *Urosalpinx cinerea*. The perforation, made in the vicinity of the adductor muscle, about admits an ordinary bristle. An oyster-catcher, James R. Gale, informed us that the "drill" was introduced into the locality with spat brought from the coast of Virginia. With the *Urosalpinx* we took another snail, *Anachis similis*, which Mr. Gale assured us was more destructive, as a borer, to young oysters than the former. Another snail which we took, the *Euplcura caudata*, Mr. Gale says has the same habit.

Attached to oysters were also found a great profusion of the polyzoon *Vesicularia dichotoma*.

The shrimp is infested to a wonderful degree with a parasitic crustacean, *Bopyrus palæmoneticola*.

[January, 1889. No. 571. See Bibliography.]

On Several Gregarines and a Singular Mode of Conjugation of One of Them.—Prof. Leidy communicated the following on some species of *Gregarina*: Among coleopterous insects the family of Tenebrionidæ appears to be constantly infested with gregarine parasites. A remarkable species observed in one of our common beetles, *Nyctobates pennsylvanicus*, I propose to distinguish by the name of *Gregarina Philica*. The body is elongated clavate, variably thickened and rounded in front, somewhat tapering behind, and with the posterior end conical. Cephalic division campanulate, with the summit somewhat prolonged and surmounted by a horizontal circular disk with a rounded milled border. Conjugating individuals with the cephalic extremity conical and simple, or without the terminal disk. Length from 0.3 to 2 mm.; breadth 0.6 to 0.15 mm. (Drawing, etc.)

In conjugation the species is remarkable and, so far as I know, peculiar. In the pairing of most described species of *Gregarina*, two individuals, commonly of the same size, conjoin in the same line, the cephalic extremity of one attached to the caudal end of the other. In the species under consideration I have observed that the pairs conjoin, as represented in the accompanying figure, with the heads together and the bodies side by side. In numerous instances the position was invariable, and in all, the couples variably differed in size. Thus in one pair the longer individual was 1.75 mm. long and the smaller one 0.75 mm. long, and in another pair the larger individual was 2 mm. long and the other 1.75 mm. (Drawing.)

The species is pretty constantly found in the pro-ventriculus of *Nyctobates pennsylvanicus*.

Another interesting Gregarina is frequent in a common myriapod of our forests, the *Scolopocryptops scyrrpinosus*. It resembles the forms described by Kolliker as *G. Sieboldii* and by Siebold as *G. oligacantha*, referred by Stein to *Stylorhynchus*, and by Schneider to *Hoplorhynchus*. These are common in Europe in the larva of a dragon-fly, *Callopteryx virgo*. The species under consideration I propose to name *Gregarina actinotus*. The body is elongated conical, thickest and rounded in advance and acute behind. The cephalic division is depressed spheroid and broader than long, and is surmounted by a long vase-like rostrum expanding at the top in a horizontal wheel-like disk divided at the border into short digitiform rays. Length from 0.06 to 0.52 mm.; breadth to 0.08 mm.; rostrum 0.08 to 0.1 mm. long. (Drawing.)

The accompanying figure represents the parasite. It is commonly found in considerable numbers, adherent by the rostrum to the inner surface of the proventriculus, looking like minute Echinorhynchi.

After finding the curious Gregarine of *Scolopocryptops*, one morning subsequently I found a fine *Cermatia forceps* in my bed-room. In it was another species which may be named *Gregarina megacephala*. The body is elongated ovate and acute or short clavate and obtuse with an unusually large ovoid and often constricted head, surmounted by a small rounded or elongated appendage. Length 0.42 to 0.75 mm. to 0.24 broad; head about one-fourth the length of the body. It approximates *Dufouria agilis* of Schneider, found in the larva of a *Hydracantharis*.

In some little green beetles, *Hoplocephala bicornis*, one of the Tenebrionidæ, I found a number of gregarines remarkable for the small size of the head and hence the species may be named *Gregarina microcephala*. The body is clavate; the head like a watch crystal with a little ball at the summit. Length 0.35 mm. by 0.1 wide; head 0.012 long by 0.04 wide.

It bears a close resemblance to *Echinocephalus hispidus* of Schneider, found in *Lithobius forcipatus*, but in the one described I at no time found digitiform appendages to the head.

[No. 599. See Bibliography.]

[Gregarina. Dr. Leidy's unpublished manuscript upon the polycystid gregarines of the United States, which manuscript is in the possession of the Academy of Natural Sciences, Philadelphia, has been incorporated in an article by Crawley.*

*List of Polycystid Gregarines of the United States, H. Crawley, Proceed. Acad. Nat. Sci., Phila., 1903, p. 41.

In addition to ten new species described by Leidy, and already referred to, four more species are described and figured in the manuscript notes which appear in Mr. Crawley's original article, designated as follows :

Gregarina xylophini. Proc. Acad. Nat. Sci., 1903, p. 47.

Gregarina boletophagi. Proc. Acad. Nat. Sci., 1903, p. 47.

Euspora lucani. Proc. Acad. Nat. Sci., 1903, p. 50.

Asterophora cratoparis. Proc. Acad. Nat. Sci., 1903, p. 54.]

[April, 1889. No. 575. See Bibliography.]

A Parasitic Copepod.—Prof. Leidy remarked that last summer while at Beach Haven, N. J., there was brought to him from the surf a living specimen of the singular, transparent fish, *Leptocephalus*. In examining it he observed attached to the tail-fin a minute copepod crustacean, apparently of the genus *Chalimus*. The parasite was attached by a long filiform rostrum and resembled in this and other respects more the *Chalimus scomberi*, as represented by Baird, in Fig. 5, Tab. xxxiii, of the British Entomostraca, than it does the original of this species, as represented by Burmeister in the Nova Acta N. C. of Bonn, xvii, Tab. 23, Fig. 13. The species, which may be distinguished as *Chalimus tenuis*, is considerably less than half the size of *C. scomberi*. The cephalothorax, nearly twice the length of the breadth, is obcordate and proportionately much narrower than in the latter species. The frontal segment is narrow and not prominent laterally, and the biarticulate antennæ are concealed beneath. The abdomen, half the length of the cephalothorax, exhibits three conspicuous divisions, and the short caudal appendages end in three minute setæ. Abdominal feet ending in biramous leaf-like segments fringed with short setæ. Rostrum linear and almost as long as the cephalothorax. Whole length 1.125 mm.; length of cephalothorax 0.5 mm.; breadth 0.275; length of rostrum 0.5 mm.; (?) length of abdomen 0.25 mm.

The accompanying outline represents the animal magnified forty-four diameters. (Drawing.)

[March, 1890. No. 585. See Bibliography.]

Hypoderas in the Little Blue Heron.—Prof. Leidy stated that Dr. B. H. Warren had submitted to his examination some pieces of the flesh, with areolar tissue and fat, from two individuals of the Little Blue Heron, *Florida cærulea*, through which were scattered a number of little egg-like bodies. These on examination proved to be a Mite of the genus *Hypoderas* of Nitsch, of which a dozen species

found as subcutaneous parasites in different birds have been described by Giebel (*Zeitschrift gesam. Naturwis.*, 1861, 438). The bodies in the Little Blue Heron were enclosed in connective tissue on the surface of the portions of muscles and elsewhere. They are white, elliptical, from 1.25 to 1.5 mm. long by 0.375 mm. broad, and are provided with four pairs of short, brown, bristly limbs. In other specimens submitted by Dr. Warren, consisting of the carcass and portions of the flesh of four individuals of the Blue-bird, *Sialia sialis*, similar egg-like bodies were found. They appeared to be embedded in the flesh among the muscular fibers. In the carcass they were scattered, especially on the back of the trunk, the neck, and the outside of the upper part of the thighs. They are white, elongated elliptical bodies from 1 to 2 mm. long, but without any external appendages. No distinct internal structure was observed. Though resembling to the naked eye the Hypoderas Mites, they are probably of a different nature, and perhaps may be psorosperms.

[September, 1890. No. 590. See Bibliography.]

Remarks on Ticks.—Prof. Leidy remarked that in his visit to Beach Haven, N. J., to spend the summer, he found the mosquito less numerous than usual, but in the earlier part of the season the Tick more frequent. One day in June, after passing for a few yards among some *Myrica* bushes, he picked eight of them from his clothes. They were repeatedly taken from a pet dog, but usually escaped notice until more or less filled with blood. Three in succession were unnoticed until fully distended and voluntarily detached themselves. One of these was weighed and found to be twelve grains. It was also found that it required nine unfed ticks to weigh one grain, so that the fed ones increased to more than one hundred times their weight and bulk. Curious to learn something of the life of the Tick, the three specimens were placed in a box in the beginning of July, in some moist sand and moss. They sought a slight hollow in the sand, from which they afterward did not move. After a week they began laying eggs, and this went on for a couple of weeks, until each Tick had extruded a mass nearly as large as itself. The eggs were laid in advance of the position of the body, discharged from between the anterior two pair of legs, the Ticks remaining constantly in contact with them. The eggs were oval, brown, and shining and measured 0.5 mm. long. The parents became much contracted and shriveled and all died from the 16th to the 18th of August, about the time the eggs began to hatch. This continued for about a week, until all were hatched.

The larval Ticks were brown, ovate, and possessed three pairs of limbs. They measured 0.6 mm. long and 0.4 mm. broad. As many escaped between the side of the lid and the box in which they were contained, they were transferred into a glass bottle with a cork stopper about an inch broad. The ticks gradually collected into three compact swarms, the largest of which was formed beneath the cork its whole breadth and sometimes, in part at least, nearly a line thick. Another swarm compacted itself in the interval of two crossing twigs about as long and thick as the little finger, and the third formed a dome-like mass about one-third of an inch broad, on one of the twigs. From time to time they partially scattered, and then collected again in the same close swarms.

Exhibited to the Academy this evening, September 23, the young Ticks appear yet to be alive and in good condition, though they have eaten nothing. Fruit and other parts of plants have been placed at their service, but they do not even approach them. On two occasions some were placed on Prof. Leidy's arm, but they did not seem disposed to attach themselves.

The mature Ticks present two well marked varieties, probably the two sexes. In the one there is a conspicuous white spot on the back immediately behind the head, sharply defining a thoracic shield. In the other there is no distinct appearance of the shield, but fainter white streaks lie outside of its position and extend in four feebler streaks on the abdomen, apparently defining the intestinal cœca. In the former the genital aperture is central between the anterior two pair of limbs; in the latter it is between the second pair of limbs. The blood-filled specimens that laid the eggs accord with the former.

He was unable with certainty to refer our common Tick to its proper place among the multitude that have been named, but supposed it to be the *Amblyomma americanum* of Koch, indicated earlier by Linnæus as *Acarus americanus*. There is much uncertainty in the knowledge of our Ticks. Koch ascribes nine species to North America, referring them to the genera *Amblyomma*, *Ixodes*, and *Dermacentor*, the last belonging to Pennsylvania. Say describes six other species of *Ixodes*, Packard two, and Riley one. Say's *Ixodes scapularis*, which the author says is common in our forests and attaches itself to various animals, seems to approach closely the Beach Haven Tick, and Riley's *Ixodes bovis* also seems to accord pretty well, judging from the figures and characters given. If, however, the latter at maturity is half an inch long, as stated by Packard, it is most probably a different species from the *Amblyomma america-*

num. He had in his possession a Tick, distended with blood, half an inch in length, which came from Camp Sheridan, Nebraska, agreeing in all respects with those from Beach Haven.

Amblyomma differs from *Ixodes* in the possession of eyes, and he was by no means satisfied that the Beach Haven Ticks possess such organs, unless they form the prominent posterior angles of the head. The Ticks have been supposed to feed on vegetable matter until they reach maturity. As the mouth organs of the larva do not differ from those of the adult, he thought this doubtful.

In the American Entomologist, 1870, p. 160. Seed-Ticks found under the bark of apple trees are stated to be the young of one of our most common Wood-Ticks, *Ixodes unipunctata*, but he thought this has not been positively determined to be the case.

He had been repeatedly told of a minute tick, commonly called the Seed-Tick, not uncommon in our vicinity, which attacks man and buries itself beneath the skin. He had suspected it to be the young of *Ixodes*, but had no opportunity of determining the question.

NOTE.—The following day, September 24, the young Ticks appeared generally less active, and many were motionless and seemed dead. Thirty active ones were placed on the inside of his fore-arm, and there remained for ten minutes, but as they wandered about aimlessly and with no apparent disposition to attach themselves, they were removed.

Though the young Ticks had not fed, they actually seem to have grown, for at the present time they generally measure 0.725 mm. in length by 0.45 mm. in breadth.

The adult male and female appear about the same size, for the two range from 1-8th to 3-16ths of an inch in length. One of those distended with blood measured 9-16ths of an inch long by 6-16ths in breadth, and similar specimens after having laid their eggs had shrunk to 7-16ths by 5-16ths.

Finally the same day the Ticks were placed in alcohol for preservation.

[September, 1890. No. 591. See Bibliography.]

Parasites of Mola rotunda.—Prof. Leidy stated that one day during his stay at Beach Haven, N. J., while men of the life-saving station were directly off shore watching the bathers in case of accident, a Sun fish, *Mola rotunda*, approached the boat, apparently, as they supposed, sleeping. The fish, weighing nearly two hundred pounds, was readily taken without resistance. It proved to be of additional interest from the great number and variety of parasites with which

it was infested. Some of these had occasioned a considerable degree of ulceration along the base of the caudal fin. Chief among them was the large *Lernea*, *Penella filosa*, which hung in great clusters from the root of the dorsal and other fins. They were from five to seven inches long, and had the head and neck buried in the flesh of the fish from one to three inches. To many of them were appended the curious barnacle, *Conchoderma virgata*; on one *Penella* a bunch of seven, most of which were nearly two inches long. Were also more or less profusely covered with colonies of the Hydroid Polyp: *Eucope parasitica*.

The characters of the *Penella* are as follows: Head compressed spheroid, ventrally thickly papillate, dorsally with a median and lateral pair of obtuse horns. Neck long and cylindrical, with 4 pairs of minute black hooks just behind the head ventrally. Thorax thicker, cylindrical, annulated. Abdomen or tail shorter, narrower and annulated, with crowded lateral filamentary appendages branching from the base. Ovaries long and filiform. Head, neck, and ovaries straw-colored; thorax, abdomen, and appendages black.

In the Règne Animal of Cuvier, it says, there is in the Mediterranean a species, *Penella filosa*, seven or eight inches long, which penetrates into the flesh of the Sword-fish, the Tunny, and the Sun-fish, and torments them horribly. Similar cases of the wonderful bounty of nature are frequent, and remind us of the remarks of Mr. Spencer, considered more favorable to the evolutionary than to the special creation theory. While to both may be applied the question, why the amount of suffering entailed on sentient beings by parasites could not have been avoided, to the former there does not arise the question, why are they deliberately inflicted?

Of other crustacean parasites of the Sun-fish there were three. Of these one, *Cecrops Latreillii*, Leach, was attached to the gills. Six mature females were about an inch in length, and three of them had the male appended, about half the length, and had well-stocked ovaries. Three additional young females were 14 mm. long.

The other two species were attached to ulcerated surfaces at the root of the caudal fin. One of them, *Læmargus muricatus* Kroyer, of which there were four females, were from 15 to 18 mm. long.

The remaining species, nearly resembling *Læmargus*, seems to be the *Dinematura serrata* Kroyer, of which there were three females from 6 to 7 mm. long.

Gliding on the skin, at the sides of the body of the fish, was the circular Fluke-worm, *Tristomum Rudolphianum*, of which four ranged from 16 to 20 mm. in breadth.

In the intestine was another apparently undescribed Fluke-worm, which may be named *Distomum pedocotyle*. Of three individuals one was 20 mm. long by 0.5 mm. thick; the others were 40 to 45 mm. long and 1.5 mm. thick. The body is cylindrical, narrowest at the fore part and obtuse behind, with the ventral bothria larger than the mouth and projecting in advance to an extent equal to the body; with the skin smooth and transparent, the yellow intestine and the white and brown genitals shining through.

The soft, yellow liver was throughout pervaded with a cestoid worm, *Anthocephalus elongatus* Rudolphi. The organ looked like a bundle of tangled cotton cord packed in the hepatic substance. The larger worms were probably upward of several feet in length, but with much effort about a foot and a half of only one individual was disengaged from the liver. In the larger specimens the cystic envelope of the cephalic end appears as a vesicle from a fourth to half an inch in diameter. When disengaged, the cephalic extremity appears as a sausage-shaped expansion, from three-fourths to an inch long, within which was the inverted head and neck from half to three-fourths of an inch long. The head, provided with a pair of lateral oblique bothria, enclosed four thread-like proboscides armed with numerous recurved hooks.

[November, 1890. No. 593 See Bibliography.]

NOTICES OF ENTOZOA.

1. *Ascaris lumbricoides*, Linné.
2. *Trichocephalus dispar*, Rudolphi.
3. ? *Filaria primana*, n. s.

In the dissection of an Orang, *Simia satyrus*, which died in our Zoölogical Garden, Dr. H. C. Chapman found in the intestines several worms (Proc. 1880, 166), which were submitted to my examination. Three seem in no respect to differ from the ordinary *Ascaris lumbricoides*, one of the specimens being 18 centimeters long. One from the cæcum seems to be *Trichocephalus dispar*. The occurrence of these parasites of man in a near relative outside the genus is an interesting fact.

Three other worms are unknown to me and I am in doubt as to their generic character. They are females, and measure up to 26 centimeters long by 2.75 millimeters thick. They are more robust than species of *Filaria* commonly are, and in this respect are more like *Eustrongylus gigas*. Although neither of these usually live in the intestine, I provisionally refer the worms to the former genus. The body is nearly uniformly cylindrical, being 2.5 mm. thick, one

centimeter back of the cephalic end, gradually increasing to 2.75 mm., and behind slightly tapering to 2 mm., one centimeter from the tail end. The head is rounded conical, with the mouth as a central pore enclosing a minute papilla and unarmed. The tail is blunt conical. An anal aperture was not detected, but the genital aperture appears near the cephalic end. The species may be distinguished as *Filaria primana*.

4. *Ascaris Osculata*, Rudolphi.—Body cylindroid, tapering in advance; mouth with prominent lips; caudal end incurved; tail short, as wide as long, conical, obtuse.

Ten females from 25 mm. long and 1 mm. thick to 60 mm. long by 2 mm. thick.

From the Elephant Seal, *Macrorhinus angustirostris*, which died at the Zoölogical Garden. Submitted by Dr. Chapman.

5. *Ascaris transfuga*, Rudolphi.—Body cylindrical, moderately and nearly equally tapering at both ends; head with narrow lateral alæ and prominent lips.

A female 6 inches long and a male 4 inches.

From the Polar Bear, *Ursus maritimus*, of the Zoölogical Garden. Submitted by Dr. Chapman.

6. *Ascaris simplex*, Rudolphi.—Body cylindrical, tail short, conical, straight, with a minute micro.

One female 4 inches long by 1.5 mm. thick; a multitude of young with no males, generally from 20 to 50 mm. long by 0.3 to 0.5 mm. thick.

From the stomach of *Mesoplodon sowerbiensis*. Submitted by Dr. Cooper Curtice, Washington.

7. *Ascaris spiculigera*, Rudolphi.—Females to 45 mm. long by 2 mm. thick; tail short, acute. Males 30 mm. long by 1 mm. thick; tail short, incurved, acute. A pair of curved spicules exerted from the genital aperture.

Numerous specimens from the stomach of *Pelecanus fuscus*, Florida. Submitted by Mr. F. C. Baker.

8. *Ascaris diacis*, n. s.—Body cylindrical, spirally rolled, pinkish-white, translucent, with the brown intestine shining through, smooth, about equally tapering at the ends. Head without appendages; mouth trilobed, with lobes large and rounded. Tail straight, conical, acute, without papillæ.

A female 70 mm. long by 1.25 mm. thick. Obtained by Dr. B. H. Warren from the body cavity, in the vicinity of the cloaca of the Purple Grackle, *Quiscalus quiscula*, Chester county. Submitted by Dr. Warren.

9. *Atractis (Ascaris) opectura*, n. s.—Body fusiform, most tapering and subulate behind; head rounded and tripapillate. Female broader; tail long, straight, acute, without appendages; vulva slightly tumid, situated a short distance in advance of the anus. Tail of male shorter, incurved, with a mucronate point about one-third its length, with two pairs of tubercles ventrally near the middle and a pair opposite dorsally. Genital spicules curved; one twice the length of the other.

Œsophagus cylindrical, bounded by chitinous rods; pharynx about as long, slightly narrower and expanded below; intestine dilated at commencement, but quickly narrowing; rectum short.

Length of females to 5 mm. by 0.33 mm. thick at the middle; tail 7 mm. long. Length of males nearly as in the former by 0.2 mm. thick; tail 0.375 mm. long. About an ounce measure of the worms obtained from the intestine of an Iguana, *Cyclura bacolopha*, Cope, from the island of New Providence.

10. *Trichocephalus affinis*, Rudolphi.—About a pint measure of this worm was taken from the large intestine of a camel, *Camelus bactrianus*, which died at the Zoölogical Garden and was dissected at the Biological department of the University, in the museum of which the worms are preserved.

11. *Filaria horrida*, Diesing.—A dozen females and as many males were taken from the body cavity of an American Ostrich, *Rhea americana*, from the Zoölogical Garden, dissected at the Biological department of the University; preserved in the museum.

12. *Filaria obtusa*, Rudolphi.—Body pinkish-white, cylindrical; cephalis end rounded, smooth; caudal end obtuse. About a dozen specimens, female and male, from the abdominal cavity of the Barn Swallow, *Chelidon erythrogaster*. Obtained by Dr. B. H. Warren, Chester county.

The mouth organs consist of a pair of trilobate, elongated clavate appendages. Dujardin figures them as conjoined in loops. Length of the organs 0.12 mm. long. Spicules of penis 0.75 mm. long. Ova 0.04 mm. long, 0.032 mm. broad.

13. *Cheilospirura uncinipenis*, Diesing.—*Spiroptera uncinipenis*, Molin.—Body cylindrical, nearly equally tapering at the extremities; head naked. Caudal extremity of the female obtuse; of the male spiral, alate; alæ longitudinally corrugated. Penis long, curved, and acuminate; sheath hooked at the extremity narrowly bialate.

Several dozen from the gizzard of the *Rhea americana*. Collection of the Biological department of the University. Females 25 to 32 mm. long; males 20 mm. long.

14. *Physaloptera retusa*, Rudolphi.—Body cylindrical, most tapering in advance; mouth retractile, with six papillæ; caudal end acute; in the male bialate, with the alæ supported by four ribs. Four males from 10 to 12 mm. long and a female 24 mm. long from the intestine of *Varanus?* Submitted by Dr. H. C. Chapman.

15. *Trichosomum? tenuissimum*, n. s.—In a mature male Brown Rat, *Mus decumanus*, embedded in the liver, were a number of irregular milk-white bodies, some appearing as spots and others as interrupted lines. These proved to be exceedingly slender thread worms, more or less coiled up in the substance of the liver. They were so delicate that I failed to detach one of them entire. One specimen teased out, but broken into half a dozen pieces, was estimated to be two inches long and was only one-tenth of a millimeter thick. The anterior extremity is much attenuated, with the head acuminate; the posterior extremity thicker, straight, and without papillæ. Mouth minutely papillate, unarmed. Tail very short, blunt conical. Generative aperture at the fore part of the body and conspicuously swollen. The specimen, a female, contained numerous immature eggs. In some fragments of another worm a third of a millimeter thick the uterus was distended with mature eggs. These are white, oval, 0.04 mm. long and 0.032 mm. broad. They have a thick striated shell, with a cylindrical aperture at both poles.

16. *Echinorhynchus pellucidus*, Leuckart.—Body cylindrical, slightly wider at the extremities; anterior extremity barrel-shaped and armed with two zones of short, conical, recurved spines; posterior extremity obtusely rounded. Proboscis clavate, with extremity oval and armed with about a dozen rows of strong hooks; neck conical, smooth.

A dozen females, attached to the lining membrane of the intestine of *Mesoplodon sawerbiensis*, ranging from 10 to 18 mm. long by 0.6 to 1 mm. broad. Submitted by Dr. Cooper Curtice, Washington.

17. *Echinorhynchus paucihamatus*, n. s.—Body cylindroid, widest in front and tapering behind, annularly constricted, truncate at the caudal end. Proboscis cylindrical, about three times the length of the thickness, clavate at the extremity and furnished with a single row of six large abruptly bent hooks, succeeded by two rows of small ones about half the length of the former. Length 4 to 12 mm.; thickness at the fore part 0.5 mm.; behind 0.25 mm.; proboscis 0.5 mm. long; large hooks 0.625 mm.

Frequent and abundant in the small intestine of the Black Bass, *Micropterus nigricans*; usually found loose and with the proboscis retracted.

18. *Amphistomum fabaccum*, Diesing.—Body hemiovoid, convex dorsally, flat ventrally. Numerous specimens, from 7 to 9 mm. long by 3.4 to 5 mm. broad, from the large intestine of a Sea-cow, *Manatus latirostris*, which died in the Zoölogical Garden in 1875. Submitted by Dr. H. C. Chapman. Numerous specimens, many of larger size, up to 11 mm. long by 9 mm. broad, were obtained from the nasal passages of another Sea-cow, and were presented to the Academy by Jacob Geismar.

19. *Distomum trapezium*, n. s.—Body ovate lanceolate, flat, smooth, narrowest in front; mouth subterminal, transverse oval, unarmed; ventral acetabulum situated a short distance behind the former, about twice the size. Color brown, darker laterally and thicker, due to the vitelline glands, which extend from the ventral disk to the posterior extremity of the body. Testes just behind the ventral disk; uterus dendritic and occupying the interspaces of the vitelline glands. Genital aperture back of the oral disk. Length 21 mm., breadth 6 mm. A single specimen from the American osprey, *Pandion carolinensis*. Submitted by Dr. H. C. Chapman.

20. *Distomum aniarum*, n. s.—Body elliptical, flat, translucent white with a median brown streak, smooth. Oral acetabulum subterminal, circular; mouth transverse oval, unarmed. Ventral acetabulum larger, sessile, situated just in advance of the middle of the body. Genital aperture close to the oral acetabulum; uterus median, tortuous, filled with brown ova; testes two, situated one on each side immediately behind the ventral acetabulum. Length from 1.875 to 3 mm.; breadth 0.875 mm. to 1 mm.; diameter of oral acetabulum 0.375 mm.; of ventral acetabulum 0.5 mm. Ova oval yellowish-brown, 0.032 by 0.02 mm. Six specimens obtained from the mouth of the Water-snake, *Tropidonotus sipedon*. Submitted by Dr. H. C. Chapman.

21. *Distomum incommodum*.

? *Monostomum incommodum*, Leidy. Pr. A. N. S., 1858, 43.

Distoma oricola, Leidy, Ibid., 1884, 47.

22. *Distomum gastrocolum*, n. s.—Body elongated, elliptical, flattened, smooth, translucent reddish, with brown intestine and yellowish genitals; cephalic extremity narrower, posterior extremity obtusely rounded, or somewhat abruptly prolonged and truncate and with a large contractile vesicle opening externally; ventral acetabulum spherical, nearly as broad as the body; oral acetabulum about half the size of the former. Pharynx immediately succeeding; forks of the intestine capacious, distant from the end of the body. Uterus coiled along the middle of the body and filled with yellowish ova;

testicles paired, spherical, situated behind the ventral acetabulum; genital apertures behind the oral acetabulum. Length from 2 to 3 mm. by 0.5 to 0.75 mm.; in movement elongated to twice the length and most narrowed in advance of the ventral disk; the latter to 0.5 mm. Ova 0.02 by 0.016 mm.

Several hundred attached to the lining of the stomach from its commencement to the end of its cœcal extremity. From the Skip-jack, *Trichiurus lepturus*.

23. *Distomum ischnum*, n. s.—Body long, narrow, band-like with the ventral disk at the anterior fourth; smooth, translucent, brownish with lateral black lines due to the long, tortuous, and sacculated forks of the intestine; anterior extremity slightly narrower, with rounded head and unarmed; posterior extremity transversely corrugated, with parallel sides and rounded truncate, emarginate end; ventral disk about half the width of the body; oral disk smaller; uterus coiled along the middle of the body and distended with ova. Length 8 mm. by 0.875 mm. wide; ventral disk 0.625 mm. Ova 0.02 by 0.012 mm.

A dozen specimens from the mouth, throat, and gills of the Sand-pike, *Saurus ferox*. Beach Haven, N. J.

24. *Distomum lasium*, n. s.—Larval form. Body fusiform, widest at the ventral disk, which is situated near or a little in advance of the middle, finely annulated and minutely echinate; anterior extremity wider, rounded at the end; posterior extremity moderately tapering, truncate and emarginate at the end. Ventral disk large; oral disk nearly as large, with a style inserted in the upper lip. Interior organs, except the posterior contractile sac of the vascular system, indistinct. Sporocyst simple, elliptical with from few to numerous larval distomas.

Larva 0.2 to 0.33 mm. long by 0.08 to 0.1 mm. wide; elongating to 0.4 long by 0.04 mm. wide. Oral disk 0.048 mm.; ventral disk 0.06 mm.; style 0.016 mm. Sporocyst 0.375 by 0.15 mm. to 0.875 by 0.25 mm.

Very common and numerous in the liver of *Ilyanassa obsoleta*, Beach Haven, N. J. *Ilyanassa* occurs in great abundance at Beach Haven, the mud flats of the neighboring sounds, at low tide, being covered in dense patches. Covered with dirt, the ordinary observer takes them for pebbles. In dissecting a number I found that about one in five or six was infested with the larval distomas enclosed in sporocysts, often in large numbers, embedded in the liver and associated genital gland. The larvæ always appear in the distoma form and never as a cercaria. They exhibit no trace of genital organs,

and were all provided with a conspicuous style, in the forehead as it were, ready for penetration into their as yet unknown future host.

25. *Distomum centrappendiculatum*.—*Distoma appendiculata* Leidy. Proc. A. N. S., 1877, 202: not *Distomum appendiculatum* Rudolphi.

26. *Tetracotyle tipica*, Diesing.—Body flattened obpyriform, with an oral, a ventral central and anterior lateral pair of bothria. Length 1.125 to 1.25 mm. long by 0.95 to 1.125 mm. broad.

Encysted in the liver and genital gland of *Lymnca catascopium* and *Physa heterostropha*. Sixty-five specimens were obtained from a single *Physa*.

27. *Cercaria platyura*, n. s.—Body elongated hemielliptical, widest and truncate behind: head rounded; oral acetabulum large and spherical, with a strong style in the upper lip: ventral acetabulum central, smaller than the former. Tail nearly as long as the body, stout, tapering, corrugated, and with a broad, costate, lateral membrane. Length 0.8 mm.; body 0.4 by 0.12 mm.; tail 0.36 by 0.06 mm. at base, breadth with membranous alæ 0.14 mm.; oral acetabulum 0.08 mm.; ventral acetabulum 0.06 mm.

Found free in a pool, with *Lymnæus*, at Fort Bridger, Wyoming.

28. *Cysticercus tenuicollis*, Rudolphi. The larva of *Tænia marginata* Batsch.

1. A specimen enclosed in a spherical cyst an inch in diameter attached to the paunch of a young sheep, *Ovis aries*. *Cysticercus* 3 inches long with terminal cyst an inch in diameter; the retracted head and neck an additional inch in length. Submitted by Dr. J. Cheston Morris.

2. A specimen from the vagina of a Sheep measured $5\frac{1}{2}$ inches in length, with the terminal cyst over an inch in diameter.

3. A specimen enclosed in a sac an inch in diameter attached by a pedicle two inches in length to the liver of a Monkey, *Scmnopithecus cutellus*. The worm was 22 mm. long; the body 8 mm.; the terminal cyst 14 mm. in diameter; the retracted head 1 mm. broad; the bothria 0.375 mm.; the rostrum with its double circle of hooks 0.375 mm. Submitted by Dr. H. C. Chapman.

29. *Cysticercus pisiformis*, Zeder. = Larva of *Tænia serrata*, Goeze.—Numerous sacs simple and compound, ranging from 2 to 3 centimeters in diameter, with worms isolated and in groups in various stages of development. One large sac contained a dozen groups adherent to the inner surface; the groups with from 6 to 30 worms, opaque yellowish, obconic from 4 to 6 mm. long by 1.5 mm. thick, with head and neck retracted nearly the length of the rest of the body, which is transversely corrugated. Bothria 0.225 mm.; ros-

trum 0.3 mm. broad: upper hooks 0.14 mm. long, lower ones 0.1 mm. long.

From the peritoneal cavity of the Jack Rabbit, *Lepus palustris*, from northern Minnesota. Submitted by Mr. Horatio C. Wood.

30. *Tænia nematosoma*, n. s.—Head rounded quadrate, unarmed, with equidistant hemispherical bothria and a small central papilla; neck short or none; fore part of body linear; anterior segments much wider than long; posterior segments gradually becoming proportionately longer, quadrate or barrel-shaped: genital apertures marginal and alternating irregularly. Length to 9 inches, contracting to about one-half. Breadth of head 0.375 to 0.5 mm.; bothria 0.175 wide; neck 0.25 wide; anterior segment an inch from the head 0.175 mm. long by 2 mm. broad; posterior segments 0.75 mm. long by 2 mm. broad, and when contracted widening to 2.5 mm. Ova spherical, 0.028 to 0.032 mm.

A half dozen specimens in the stomach of two Pickerel, *Esox reticulatus*.

31. *Tetrabothrium triangulare*, Diesing?—Head large, oblate, spheroidal, and formed by four large bothria; neck short or none; anterior segments of the body transverse linear, then oblong square, the posterior segments short campanulate; genital apertures marginal.

Several inches in length; described from fragments of several individuals. Head 0.55 mm. long by 0.75 mm. broad; bothria 0.5; neck 0.3 wide; body 15 mm. behind the head indistinctly segmented and 0.125 mm. wide. In a fragment without the head, about an inch long, the anterior segments are oblong square with prominent marginal genital apertures and 0.3 mm. long by 0.25 mm. wide; the posterior segments 0.175 mm. long and 0.2 mm. wide. In a posterior segment of half an inch the segments readily separable are short campanulate, 0.175 mm. long and 0.375 mm. wide. From the intestine of *Mesoplodon sowerbiensis*. Submitted by Dr. Cooper Curtice, Washington.

32. *Tetrabothrium loliginis*.

Tænia loliginis, Leidy. Proc. A. N. S., 1887, 24.

The Scolex of *Tetrabothrium Rudolphi*, or *Phyllobothrium* Van Beneden. A dozen specimens in alcohol, obtained from the Squid, *Ommastrephes illecebrosa*, at Bar Harbor, Me. In their present condition they are an inch in length or less and from 2 to 3 mm. wide, linear lanceolate, posteriorly acute and unsegmented. The head is prominent, spheroidal, and consists of four much-folded rosette-like lobes with hemispherical bothria. Submitted by Dr. H. C. Chapman.

33. *Phyllobothrium inchoatum*, n. s.—Ten specimens, taken from the blubber in the vicinity of the vent of *Mesoplodon sowerbiensis*, preserved in alcohol, appear as depressed fusiform bodies from 14 to 18 mm. long and 3 or 4 mm. broad. The retracted head is globose quadrate, and is provided with four larger globose and plicated bothria. Submitted by Dr. Cooper Curtice, Washington.

34. *Pentastomum proboscideum*, Rudolphi.—Cylindrical, slightly narrowing behind and ending obtusely; head marked by a constriction, spherical, fore and aft flattened and wider than the body.

Two females 100 mm. long, with the head 5 mm. broad and the body 3 mm. A male 35 mm. long, the head 4 mm. broad and the body 2.5 mm., marked with about 48 rings. In the females the fore part of the body is distinctly annulated, but indistinctly behind. From the lung of a Black Snake, *Coluber constrictor*, Florida. Submitted by Mr. F. C. Baker.

A male *Pentastomum*, obtained by the same gentleman from a Skunk, *Mephitis mephitica*, is like the one above indicated. It is 30 mm. long and distinctly annulated, with about forty-eight rings. The head is cap-like, orbicular, convex dorsally and concave ventrally.

[November, 1890. No. 594. See Bibliography.]

Remarks on Uclella.—Prof. Leidy exhibited specimens of *Uclella mutica*, which, with many others, were cast on shore at Beach Haven, N. J., in the early part of last August. The living ones were of a deep blue color, and ranged from an inch and a half to three inches in the greater breadth. From them there were detached multitudes of Gonophores, minute jelly fishes, measuring 0.44 mm. long by 0.32 mm. broad.

[April, 1891. No. 597. See Bibliography.]

NOTICE OF SOME ENTOZOA.

Distoma crassum, Busk. Cobbold: Proc. Linn. Soc., 1860, vol. v, p. 5.

Mr. Busk, an English surgeon, in 1843 announced the occurrence in the intestine of a Lascar or Hindoo seaman, who died in London, of a large species of Fluke, for which he suggested the name of *Distoma crassum*. Fourteen specimens obtained ranged from 4 to 6 cm. long by 1.7 to 2 cm. broad. The same parasite has since been reported as occurring in Chinese and in Europeans living in China.

(Cobbold, Parasites, 1879, 21.) In our Proceedings for 1873, p. 304, I gave notice of a specimen from a Chinese boy, which I then supposed to be a larger individual than usual of the more common *D. hepaticum*.

On several occasions I have had the opportunity of examining some large Flukes from the liver of our Deer, *Cervus virginianus*, and the Domestic Ox, which appear to be identical with the *D. crassum*. The specimens preserved in alcohol and submitted to me are as follows :

Six individuals, obtained from the liver of a Doe, in the Adirondack Mountains of New York, by Dr. R. A. F. Penrose. These range from 5 to 6 cm. long by 1.5 to 2.5 cm. broad and 1.5 to 2.5 mm. thick.

Three individuals from the liver of a Calf at Hot Springs, Ark., obtained by Dr. G. W. Lawrence. The specimens much contracted and hardened by strong alcohol measure 3.5 cm. long by 2 to 2.4 cm. broad. An imperfect one is from 3 to 4 mm. thick at the broken border; white for half the thickness dorsally and black ventrally.

Two individuals recently received from Texas from Dr. M. Francis, veterinary surgeon, who writes that the monster Flukes occur there in cattle in limited number in the liver-tissue and not in the bile-ducts like the *Distoma hepaticum*. The specimens measure 3.5 and 4 cm. long by 2 and 2.5 cm. broad.

The Flukes from all three hosts accord in character except size, and in many points appear closely related with the *D. hepaticum*. They are elliptical in outline and of greater proportionate breadth than in the latter. The oral pole is conical, but not abruptly prolonged as in that species. The caudal pole is broadly rounded and entire or medially slightly emarginate. The dorsal surface is convex, smooth, and cream-colored; the ventral surface flat or slightly concave, minutely granulate or brownish margined with black, due to the vitelline organs shining through. The oral and ventral acetabula are from 4 to 5 mm. apart; the former oral about 1.5 mm. wide; the latter slightly larger. Genital aperture midway between the acetabula. Penis in some individuals exerted as a short tortuous papilla. The sides of the body extending from near the head to the tail, occupied by intensely black dendritic vitelline organs. The body is less tenacious than in *D. hepaticum*, is soft and easily broken.

Accompanying the monster Flukes from Texas were eighteen specimens of the ordinary Liver-Fluke, *Distoma hepaticum*, up to

3.5 cm. long by 9 mm. broad, which Dr. Francis observes are very destructive to Cattle and Sheep in some parts of Texas.

The facts related of the recent occurrence of the large Fluke in the Deer and Ox in different portions of the United States would impress one with the idea that the parasite is common with us, but in view of its conspicuous character and its not having been previously noticed such is probably not the case. May there be any relation between the occurrence of the parasite in this country and the influx of a Chinese population? The facts seem curiously coincidental with the first discovery of *Trichina* in man in England and its subsequent discovery in the Hog in this country. The Guinea-worm is believed to have been introduced into tropical America with the Negro from Africa.

Sclerostomum armatum Rudolphi, var. *major* Diesing : Syst. Helm., II, 304.

Dr. Edward Landis recently submitted to my examination three worms found coiled in as many thick-walled cysts, in the lung of a horse. These appear to me to be the larger variety of the *Sclerostomum armatum*, usually found occupying the intestines of the same animal. The specimens, all females, are from 25 to 30 mm. long by 1.5 mm. thick at the fore part. The body is robust, cylindrical, more tapering behind, brownish-red, annularly striated; head dome-like, defined by an annular stria; mouth large, surrounded by a prominent annular lip marked by eight radii; tail short, conical, obtuse.

Ascaris anoura Dujardin : Hist. Nat. des Helminthes, 1845, 221. Leidy : Proc. A. N. S., 1856, 51.

Ascaris attenuata Molin : Faunæ Helminth. Venetæ, 1860, 282.

Ascaris rubicunda Schnyder : Monog. T. Nematodon, 1866, 42.

From the stomach of a Python, *P. molurus*, which recently died in our Zoölogical Garden, Dr. John L. Hatch obtained a large mass of translucent red and green worms, which were submitted to my examination. These appear to be the *Ascaris anoura* of Dujardin, subsequently described under other names by Molin and Schnyder. The worms for the most part penetrated the recesses of three larger tumefactions of the mucous membrane of the stomach. The greater number of the worms were immature, translucent, of a blood-red color, with a darker intestine shining through, and ranging from 6 to 7 cm. long by about 0.6 mm. thick. The mature females ranged from 10 to 20 cm. long by 1.5 to 2.5 mm. thick. The males ranged from 7 to 16 cm. long by 0.875 to 2 mm. thick.

The body of the worms was most narrowed in advance, from pale red to nearly colorless in the largest and deeper to blood red in the smaller ones; with the intestine shining through of variable pea green to greenish-brown and dark brown in the latter, and with the tortuous ovaries and testes milk white. Cephalic extremity lighter colored, strongly tapering and with distinctly trilobate mouth. Tail very short, conical, the length about equal the breadth at base. The male of more slender proportions, with the caudal end incurved and the tail more pointed, with a row on each side of ten preanal papillæ, one on each side of the anus and two rows of two on each side of the tail. Spicules of the penis long, linear, curved and equal. Pharynx long, cylindrical clavate; rectum very short.

Worms closely agreeing with those of the Python I have observed from two of our common snakes, the Hog-nose Snake, *Heterodon platyrhinus*, and the other, from the accompanying description, supposed to be the Milk-snake, *Ophibolus triangulus*. A portion of the stomach of the latter, preserved with the worms, shows them to have the same habits as those of the Python; partially occupying the recesses of the tumefaction of the mucous membrane.

[No. 99. See Bibliography.]

ON THE ORGANIZATION OF THE GENUS GREGARINA OF DUFOUR—
CHARACTER OF THE GENUS.*

1. *Gregarina Juli Marginati*.

Gregarina larvata, Leidy. Proc. A. N. S., vol. IV, p. 232.

2. *Gregarina Juli Pusilli*.—White, translucent, oval. Cephalic sac hexahedral, with the sides rounded or forming a double cone base to base, with the upper apex subacute or truncated in younger individuals. Posterior sac robust, oval; granular contents fine, translucent; interior corpuscle globular, transparent; nucleus transparent, without nucleolus. Whole length from the 1-1500th inch to the 1-275th inch. Breadth of largest the 1-500th inch. Diameter of head of largest 1-1500th inch.

Habitation.—Intestine of *Julus pusillus*.

Movements.—Its movements are not frequent.

3. *Gregarina Polydesmi Virginiensis*.—White, translucent, clavate or oval. Cephalic sac campanulate, globular, or prolate, or oblate spheroid, surmounted by a papillary thickening of the integument; interior granular mass very fine and translucent. Pos-

* Transactions American Philosophical Society, 1851.

terior sac globular, oval, clavate, spatulate, fusiform, or urceolate; posteriorly obtuse; parietal integument wrinkled or distended; granular contents very fine, faint, translucent; corpuscles, one or two, globular, transparent, very faintly granular. Whole length from the 1-1000th inch to the 1-28th inch. Breadth from the 1-1000th to the 1-430th inch. Cephalic sac in largest 1-1400th inch long. Corpuscle 1-3000th inch to the 1-1000th inch in diameter.

Habitation.—Intestine of *Polydesmus virginicensis*.

Movements.—Moderate and slow.

4. *Gregarina Passali Cornuti*.—White, opaque, in pairs, wrinkled. Cephalic sac hemispherical, without papillary thickening of the integument; interior granular mass opaque. Posterior sac flaccid, when distended subglobular; granular contents opaque white, completely obscuring the interior corpuscle. Average length in pair, after distension, 1-66th inch; breadth the 1-133d inch. Cephalic sac 1-260th inch at base; projects from body cell 1-533d inch. Muscular lines of the posterior sac 1-2500th inch apart.

Habitation.—Proventriculus of *Passalus cornutus*.

Remarks.—This species is usually found in pairs, the cephalic sac of one applied to the posterior part of the posterior sac of another; a disposition from which Hammerschmidt refers it to a new genus under the name of *Clepsidrina*. A very trifling degree of pressure is sufficient to separate them from one another.

Movements.—I never observed any other movement in this *Gregarina* than a slight contractile one, commencing at the anterior part of the posterior sac and proceeding backward.

5. *Gregarina Acheta Abbreviata*.—White, opaque or translucent, with or without a probosciform appendage. Cephalic sac orbicular or oval, without any papillary thickening of the integument, or occasionally with an oval probosciform prolongation; interior granular mass opaque or translucent.

Posterior sac obconic; granular contents opaque; interior corpuscle transparent. Whole length from the 1-300th to the 1-70th inch; breadth from 1-600th to the 1-130th inch; cephalic sac from 1-1140th inch to the 1-250th inch.

Habitation.—Proventriculus of *Acheta abbreviata*. The same species I have observed in two instances on the exterior of the ventriculus, free within the abdominal cavity.

Movements.—Very slow.

6. *Gregarina Locustæ Carolinæ*.—Opaque, white, with or without a probosciform appendage. Cephalic sac hemispherical, without

papillary thickening of the integument, or occasionally with a pyramidal enlargement or extension anteriorly, terminating in a round or oval proboscidiform prolongation, fringed with delicate, membranous digitations at the free extremity, or with an apparent depression of the parietal integument and a slight conical protrusion of the interior granular mass, which latter is opaque. Partition between the contents of the cephalic and posterior sac very thin. Posterior sac oblong oval or spatulate; posteriorly obtuse; granular contents opaque; interior corpuscle transparent, with several nuclear bodies. Whole length from the 1-100th to the 1-60th inch; breadth from the 1-200th to the 1-120th inch. Cephalic sac from the 1-400th to 1-320th inch long; from the 1-280th inch to the 1-178th inch broad. Corpuscle, in largest, 1-2800th in diameter; nuclei 1-3500th inch; nucleoli 1-7000th inch.

Habitation.—Intestine of *Locusta Carolina*.

Movements.—None observed.

7. *Gregarina Blatte Orientalis*.—Robust, milk-white, opaque. Cephalic sac hemispherical, with a slight papillary thickening of the integument; contents opaque white. Partition between the cephalic and posterior sac thin. Posterior sac broad ovate, or panduriform, subacute posteriorly; contents opaque, obscuring the interior corpuscle. Whole length average 1-50th inch; breadth 1-125th inch. Cephalic sac 1-260th inch long; 1-178th inch broad at the base. Corpuscle 1-275th inch diameter. Muscular striæ 1-10000th apart.

Habitation:—Within the intestine, and without closely applied to its parietes, in *Blatta orientalis*.

Movements.—The movements of this species are moderately active.

NOTE.—For further information relative to the *Gregarina* of Leidy, refer to page 225 and bibliography 599, also to an article by Crawley, Proc. A. N. S., 1903.

On the organization of the genus *Gregarina* of Dufour, Trans. A. P. S., 1853; read 1851.

[No. 100. See Bibliography.]

SOME OBSERVATIONS ON NEMATOIDEA IMPERFECTA AND DESCRIPTIONS OF THREE PARASITIC INFUSORIÆ.

1. *Nematoidium cavitatis abdominis Passali cornuti* (pl. 11, figs. 42-45). This worm is found in the abdominal cavity of the *Passalus cornutus*, among the intestines and rete adiposa in about nine-tenths

of the insects. It is met with frequently in great numbers; I have in my collection a vial containing over 5,000, obtained from not more than 40 insects. Sometimes not over half a dozen are found, at others as many as 500 may be discovered in a single insect. The worm is usually curved ventrally, and exhibits but little motion until placed in water, when it becomes quite active, wriggling about for twenty-four hours or more.

It is about $1\frac{1}{2}$ lines long, but varies from 1 to 2 lines, and is about 1-150th of an inch wide. The color is white, opaque; occasionally one or two will be found which are more or less brown or even black, but otherwise they do not differ in construction or form.

The form is cylindrical, moderately narrowed toward the extremities; anteriorly truncated, posteriorly rounded, and terminated by a short, acute epidermal spine.

The structure is simple, exhibiting within the integument nothing but an alimentary canal and intervening granular matter.

The integument is thin, strong, elastic, transparent and colorless. It presents a very faint appearance of being finely annulated.

The mouth is round, large, and surrounded by a slight lobed margin or lip.

The pharynx is short, cylindrical, presents several longitudinal striæ, and opens into a long, wide, cylindrical œsophagus. The latter is but faintly outlined from the general granular structure of the body. It appears to have several longitudinal folds, and at its commencement has a yellowish colored structure (pl. 11, fig. 45), apparently corneous, composed of oval or oblong lobes placed side by side around the commencement of the œsophagus. The ventricular intestine is white, opaque, cylindrical, a little less than the breadth of the cavity of the body, and in length extending to the anal aperture. Its interior is covered with an epithelial layer, the cells of which are granular, apparently containing oil granules, and measure 1-4200th of an inch in diameter. The posterior extremity of the ventriculus is rounded, and usually contains a large oblong, translucent, highly refractive mass, of viscid oleo-albuminoid fluid, with several smaller globular masses of the same matter. When the worm is submitted to pressure, a portion of this matter exudes from the anus, with a number of transparent nucleolar and nuclear bodies, but the termination of the ventriculus, or its connection with the anal aperture, is indistinct.

The anus is a short oblique fissure, passing inwards and forwards, upon the ventral surface, a short distance in advance of the posterior extremity of the body. It is bounded by projecting lips, but its

communication with the intestinal canal I could not detect. Posterior to the ventriculus, the body is occupied with a fluid, finely granular, and a coarsely granular oil-like matter. The remainder of the interval of the body is filled with fluid and faintly granular matter.

Measurements.—Length, 1 to 2 lines; breadth at mouth, 1-600th inch; breadth at commencement of ventriculus, 1-280th inch; greatest breadth about middle, 1-150th inch; breadth just in advance of anus, 1-250th inch. Length of caudal spine, 1-2500th inch; from base of spine to anus, 1-300th inch; breadth of ventriculus at commencement, 1-320th inch; breadth of ventriculus at middle, 1-214th inch; breadth of ventriculus at termination, 1-280th inch.

This entozoon I have seen in hundreds of the *Passalus*, at all seasons of the year, but in none did I ever discover it in any other stage of development than the one just described.

From the frequency and great numbers in which it is found, I thought it would afford an excellent opportunity to try the experiment, if, upon introduction into another animal, it would undergo any progress in its development. I accordingly obtained from the forests in our neighborhood, and through my friend Baird from the forests near Carlisle, over 200 individuals of *Passalus Cornutus*. A dozen of them I opened, and found them all infested with great numbers of the entozoon just described, and I therefore naturally concluded from this fact, in addition to past experience, that most or probably all the other insects contained the same. Having obtained a dozen large frogs (*Rana pipiens*), after keeping them two weeks until they had voided all indigesta from the alimentary canal, I killed eight of them, and examined them closely for entozoa. In seven I found in the lungs *Distomum variegatum*; in all, *Distomum cygnoides* in the bladder; none in the intestines; and in five an imperfect stage of a species of *Filaria* beneath the mucous coat of the stomach, in the mesentery, and in the abdominal muscles.

The remaining four frogs I then fed daily upon 10 individuals of *Passalus cornutus* each for four days in succession, so that each frog in that time took 40 insects, in all 160. It is not to be presumed that the frogs voluntarily took this prescribed fare, for I was under the necessity of cutting off the legs, elytra, and mouth organs of the insects, and then forcing them into the throat of the frogs.

In twenty-four hours after taking the first involuntary dose of insect food the frogs commenced voiding the indigestible pergamentaceous segments of the skeleton of the insects per anum, which they

continued for a week after the unusual mode of administering their food was stopped.

At the end of two weeks from the commencement of feeding the frogs I killed one of them, and carefully examined the intestinal canal and other organs for the *Nematoideum*, Passali, but not a trace of it was to be found. The cloaca yet contained one or two fragments of the skeleton of the *Passalus*, with some epithelial scales, mucus, and a dark, mud-like, granular matter, but nothing else. The entozoon had been digested with the soft parts of the insect. Two days after I killed the remaining frogs, but in none did I discover the slightest trace of the entozoon in question. From the results thus obtained we may conclude that this parasite finds no condition favorable to its existence, leaving out of the question entirely any farther development, in frogs, or probably in any reptile. But still the entozoon may pass part of its existence in other animals. In a state of nature frogs would rarely have a chance of feasting upon *Passatus* (the habitation of *Passatus*, however, offers no reason why a frog should not occasionally feast upon them. At one time I thought the insect was confined to the haunts in which it is usually found, but it undoubtedly flies at night, as I have found it in places where some days before they did not exist, and my late friend, Dr. Benj. Kern, once brought me half a pint of this insect, which he obtained on the Atlantic ocean a few miles from shore, with numerous other insects, one morning after there had been a brisk wind in the night), because the latter is found in forests, beneath bark and in the wood of decaying dead trees, and here the woodpecker (*Picus*), or other insectivorous birds, would be most likely to meet with it, and with such birds a similar experiment to the one performed with frogs might be tried to see if the development of the entozoon would not advance within them.

2. *Nematoideum thoracis cavitatis Passali cornuti* (pl. II, Fig. 46).— This is an anguillula-like worm in an imperfect condition, found occasionally in the cavity of the thorax of *Passalus cornutus*. It resembles an embryonic *Ascaris*. Its movements are active and wriggling. It is whitish, translucent, cylindrical, and attenuated and acute posteriorly.

Structure.—Integument transparent and colorless. Œsophagus long, narrow, cylindrical, and faintly outlined. Intestine broad, cylindrical, granular in appearance, and faintly outlined. Anus an oblique fissure, not very distinct, just in advance of the tail, which latter is short and acute. Length 1-66th inch; breadth 1-1000th inch.

3. *Nematoideum intestinorum Armadillonis pillularis* (pl. 11, Fig. 47).—This is also an anguillalula-like entozoon, found coiled up and adhering by the mouth to the epithelial layer of the intestine of *Armadillo pillularis*. It is white, cylindrical, attenuated, and acute posteriorly. The intestinal canal presents the same appearance as in the last, but the œsophagus is broader. Length 1-53d inch: breadth 1-360th inch.

4. *Nematoideum integumenti Lumbriculi limosi* (pl. 11, Fig. 48).—This is a small entozoon which I found, six in number, doubled up and motionless, contained in transparent oval cysts, imbedded in the integument of the 9th, 11th, and 15th annuli of a *Lumbriculus limosus*. It resembled an embryo within an ovum. Its form is cylindrical, subacute posteriorly, truncated anteriorly, colorless, and transparent. No interior organs were observable, except a small, round, transparent corpuscle posteriorly, and anteriorly a probosciform body, partly projecting from the anterior extremity. Length 1-560th of an inch.

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OF

GALLIUM

1874-1903

PREPARED BY

PHILIP E. BROWNING, PH. D.



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The Committee of the American Association for the Advancement of Science having charge of Indexing Chemical Literature has voted to recommend to the Smithsonian Institution for publication the following:

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- 1875: (2). HUGO. (Objection to name.)
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- 1875: (3). MENDELEEFF. (Prediction previous to discovery.)
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- 1877: (2). LECOQ DE BOISBAUDRAN. (Review of work.)
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SMITHSONIAN MISCELLANEOUS COLLECTIONS

PART OF VOLUME XLVI

INDEX TO THE LITERATURE

OF

GERMANIUM

1886-1903

PREPARED BY

PHILIP E. BROWNING, PH. D.



(No. 1544)

CITY OF WASHINGTON
PUBLISHED BY THE SMITHSONIAN INSTITUTION

1904

WASHINGTON, D. C.
PRESS OF JUDD & DETWEILER
1904

LETTER OF TRANSMITTAL.

WASHINGTON AND LEE UNIVERSITY,
DEPARTMENT OF CHEMISTRY,
LEXINGTON, VA., *October 18, 1904.*

The Committee of the American Association for the Advancement of Science having charge of Indexing Chemical Literature has voted to recommend to the Smithsonian Institution for publication the following:

INDEX TO THE LITERATURE OF GALLIUM, 1875-1903;

INDEX TO THE LITERATURE OF GERMANIUM, 1886-1903;

both prepared by Philip E. Browning, Ph. D., of the Kent Chemical Laboratory of Yale University.

JAS. LEWIS HOWE,
Chairman.

MR. S. P. LANGLEY,
Secretary of the Smithsonian Institution.

This publication forms one of the following series:

Index to the Literature of Uranium, 1785-1885, by Henry Carrington Bolton, 1885.

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Indexes to the Literature of Cerium and Lanthanum, by W. H. Magee, 1895.

A Bibliography of the Metals of the Platinum Group, by Jas. Lewis Howe, 1897.

Review and Bibliography of the Metallic Carbides, by J. A. Mathews, 1898.

Index to the Literature of Thallium, 1861-1897, by Miss Martha Doan, 1898.

Index to the Literature of Zirconium, by A. C. Langmuir and Charles Baskerville, 1899.

A Bibliography of the Analytical Chemistry of Manganese, 1785-1900, by Henry P. Talbot and John W. Brown, 1902.

Index to the Literature of Thorium, 1817-1902, by Cavalier H. Jôuet, 1903.

INDEX TO THE LITERATURE OF GERMANIUM.

(1886-1903.)

PREPARED BY PHILIP E. BROWNING.

- 1886: (1). WINKLER. (Discovery.)
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- 1886: (2). LECOQ DE BOISBAUDRAN. (Atomic weight and spectrum.)
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- 1886: (3). WINKLER. (Extraction, properties of element, salts, etc.)
J. Prakt. Chem., (2), XXXIV, 177; Ber., XIX, 625r; Jsb. (1886), 374;
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- 1886: (4). WEISBACH. (Argyrodite—A new mineral.)
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LIII, 257; Ztschr. Anal. Chem., XXV, 226.
- 1886: (5). LECOQ DE BOISBAUDRAN. (Atomic weight.)
Compt. rend., CII, 452; Ber., XIX, 738r.
- 1886: (6). C. KOBB. (Emission spectrum.)
Ann. der Phys., (2), XXIX, 670; Jsb. (1886), 304; J. Chem. Soc.
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- 1886: (7). QUESNEVILLE. (Request for change of name to Ekasilicon.)
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- 1886: (8). NILSON and PETTERSON. (Specific and atomic heat.)
Ztschr. Phys. Chem., I, 27; Jsb. (1887), 218; Ber., XX, 134r; Chem.
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- 1887 : (1). WINKLER. (Compounds.)
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- 1887 : (2). V. MEYER. (Properties of the element.)
 Ber., xx, 498; Jsb. (1887), 378; J. Chem. Soc. (Lond.), LI, 445; Chem. Ztg. Rep. (1887), 81; Bull. Soc. Chim. (Paris), XLVII, 764; Chem. Centrbl. (1887), xviii, 474, 1340.
- 1887 : (3). WINKLER. (Relation to Si. group.)
 Naturf. Vers. zu Wiesb., Sekt. f. Chem. 20 Sept. Tagebl. 85 Chem. Centrbl. (1887), 1341.
- 1887 : (4). KRÜSS and NILSON. (Potassium-Germanium Fluoride.)
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- 1887 : (5). J. M. VAN BEMMELN. (Oxide.)
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- 1887 : (6). PALJKULL and BRÖGGER. (Crystallographic determination of K_2GeF_6 .)
 Zeitschr. Kryst., xv, 95; Oefvers. Sw. Vet. Akad. Forh. (1887), 302; Jsb. (1888), 546.
- 1887 : (7). K. HAUSHOFER. (Microscopic reactions.)
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- 1887 : (8). WILLGEROOT. (Reaction with halogens.)
 J. Prakt. Chem., (2), xxxv, 391; Jsb. (1887), 618.
- 1887 : (9). KRÜSS. (Germanium in Euxenite.)
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- 1888 : (1). HAMPE. (Non-conductivity.)
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- 1889 : (1). HAUSHOFER. (Microscopic reactions.)
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- 1891 : (1). CLARKE. (Atomic weight.)
 Chem. News, LXIII, 76; Jsb. (1891), 79.

- 1891: (2). NEUMANN. (Germanium in tin compounds.)
Monatsh. f. Chem., xii, 515.
- 1891: (3). WINKLER. (Reduction of the oxide by magnesium.)
Ber., xxiv, 891; Jsb. (1891), 494; J. Chem. Soc. (Lond.), lx, 802;
Bull. Soc. Chim. (Paris), (3), vi, 173.
- 1892: (1). CHRUSTSCHOW. (Germanium in Samarskite and in Nb. and Ta. minerals.)
J. Russ. Chem.-Phys. Soc. (1892), 130; Ztschr. anorg. Chem., i, 465;
xiv, 311; Ztschr. Kryst., xxiv, 516; Chem. Centrbl. (1895), ii, 977.
- 1893: (1). PENFIELD. (Canfieldite, a new Germanium mineral.)
Amer. J. Sci., (3), xlvi, 107; Ber., xxvi, 754r; Chem. Centrbl. (1893),
i, 833; Ztschr. anorg. Chem., v, 407; Bull. Soc. Chim. (Paris), (3),
xii, 7; Tidsskrift, (3), ii, 364; Chem. Ztg. Rep., xvii, (1893), 255.
- 1894: (1). FRIEDRICH. (Tetra chloride.)
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- 1895: (1). LECOQ DE BOISBAUDRAN. (Atomic weight.)
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- 1897: (1). WINKLER. (History of the discovery.)
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- 1898: (1). LANDOLT, OSTWALD and SEUBERT. (Atomic weight.)
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- 1898: (2). PRIOR and SPENCER. (Germanium in Bolivian minerals.)
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- 1898: (3). WINKLER. (Priority of discovery.)
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307; J. Chem. Soc. (Lond.), lxxvi, 297; Chem. Centrbl. (1899), i,
726; Bull. Soc. Chim. (Paris), (3), xxii, 441; Chem. Ztg. Rep.
(1899), xxiii, 58.
- 1899: (1). MEYER. (Magnetic properties.)
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- 1901: (1). WELLS. (Double Halide.)
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- 1902: (1). VOEGELEN. (Hydride.)
Ztschr. anorg. Chem., xxx, 325; Chem. Centrbl. (1902), i, 1195;
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- 1904: (1). LINCIO. (Absence in Euxenite, Samarskite, etc.)
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PART OF VOLUME XLVI

INDEX TO THE LITERATURE

OF

INDIUM

1863-1903

PREPARED BY

PHILIP E. BROWNING, PH. D.

of the Kent Chemical Laboratory of Yale University



(No. 1571)

CITY OF WASHINGTON
PUBLISHED BY THE SMITHSONIAN INSTITUTION

1905

WASHINGTON, D. C.
PRESS OF JUDD & DETWEILER (INC.)
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WASHINGTON AND LEE UNIVERSITY,
DEPARTMENT OF CHEMISTRY,
LEXINGTON, VA., *March 25, 1905.*

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Secretary of the Smithsonian Institution, Washington.

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- Index to the Literature of Gallium, 1875-1903, by Philip E. Browning, 1904.
- Index to the Literature of Germanium, 1886-1903, by Philip E. Browning, 1904.

INDEX TO THE LITERATURE OF INDIUM.

(1863-1903.)

PREPARED BY PHILIP E. BROWNING.

- 1863: (1). REICH and RICHTER. (Discovery.)
J. prakt. Chem., lxxxix, 441; Jsb. (1863), 236; Chem. Centrbl. (1863), 709; Chem. News, viii, 123; Amer. J. Sci., (2), xxxvi, 415; Dingl. Pol. J., clxx, 77; Bull. Soc. Chim. (Paris), v, 604; Phil. Mag., (4), xxvi, 448; Inst. (1864), 136; Ztsch. anal. Chem., ii, 371; Vierteljahrsschr. pr. Pharm., xiii, 268; Wag. Jsb., ix, 1; N. Arch. Phys. nat., xix, 144; Roy. Inst. Proc., iv, 285; vi, 393; Monit. Scient. (1863), 718; Poly. Centrbl. (1863), 1592; Poly. Notizbl. (1863), 302; Tidsskrift, (1), ii, 311.
- 1863: (2). REICH and RICHTER. (Researches.)
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- 1864: (1). ROSCOE. (Spectrum.)
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- 1864: (2). NEWLANDS. (Speculations.)
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- 1864: (3). REICH and RICHTER. (Researches.)
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- 1866: (4). BUNSEN. (Flame reactions.)
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- 1866: (5). KÜCHLER. (Preparation and occurrence.)
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- 1866: (6). THALEN. (Spectroscopic research.)
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- 1867: (1). HOPPE SEYLER. (Occurrence in wolframite.)
 J. prakt. Chem., c, 381; Jsb. (1866), 222; Ann. Chem. Pharm., cxi, 247; Ztsch. Chem. (1867), 27; Ztsch. anal. Chem., v, 401; Bull. Soc. Chim., (2), vii, 395; Ztsch. gesammt. Naturwissen., xxix, 53; Phil. Mag., xxxiv, 33; Wag. Jsb., xiii, 10.
- 1867: (2). FREMY. (Exhibit.)
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- 1867: (3). SCHRÖTTER. (Extraction.)
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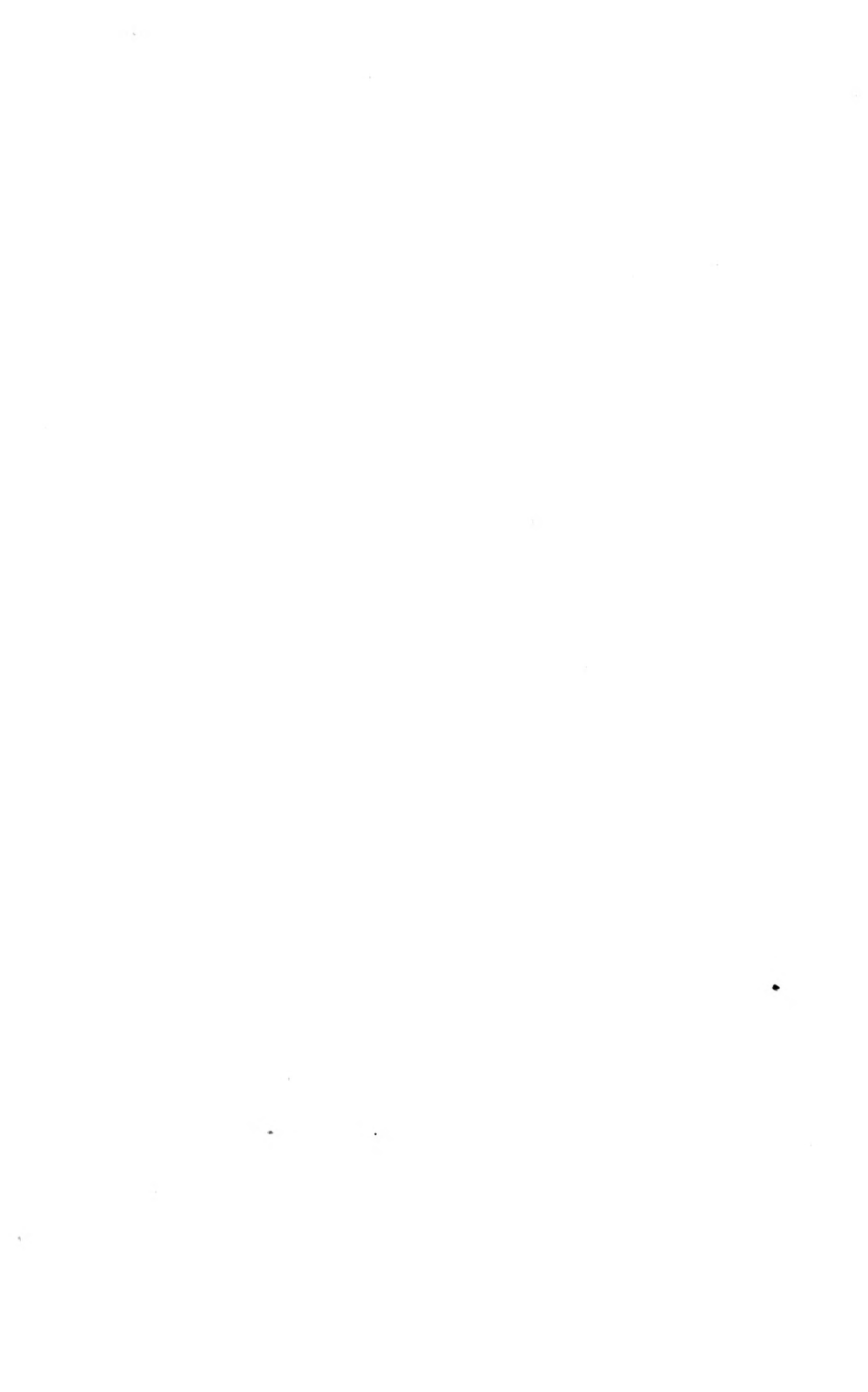
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