NOVITATES ZOOLOGICAE.

A Journal of Zoology.

EDITED BY

THE HON. WALTER ROTHSCHILD, PH.D.,
DR. ERNST HARTERT, AND DR. K. JORDAN.

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VOL. XVI.

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WALTER ROTHSCHILD, ERNST HARTERT, and KARL JORDAN.

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IN CONNECTION WITH THE TRING MUSEUM.

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THE HON. WALTER ROTHSCHILD, PH.D.,

DR. ERNST HARTERT, AND DR. K. JORDAN.

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ERRATA.

Plate VIII. has erroneously been marked "Volume IX., 1902," instead of Volume XVI., 1909.

Page 9, No. 24: the place where *P. apollo pyrenaicus* was collected by W. Rothschild and E. Hartert is Cauterets, instead of "Cautarets."

" 19, No. XXXII: the name of the author of *Parnassius loxias* is Püngeler, not "Püngler."

" 52, No. 119: the reference should read Pl. IV. fig. 22, instead of "fig. 23."

" 310, No. 6: the generic name should read "Ptycholaemus," instead of "Phycholaemus."

NOVITATES ZOOLOGICAE.

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CATALOGUE OF THE COLLECTION OF *PARNASSIINAE* IN THE TRING MUSEUM, WITH SYSTEMATIC NOTES.

BY THE HON. WALTER ROTHSCHILD, Ph.D.

IN arranging this subfamily of butterflies I have made use of Herr H. Stichel's "Fascicule" on the group in Wytsman's *Genera Insectorum*, published in 1907, as being the latest treatment of the family. Herr Stichel has revised the *Parnassiinae* no less than three times: first in the *Berliner Entomologische Zeitschrift*, vol. 51, secondly in *Seitz, Gross-Schmetterlinge der Erde*, vol. 1, and lastly in Wytsman's *Genera Insectorum*, Fascicule 58.

I do not for a moment pretend that I have studied this group as thoroughly as Herr Stichel has done, but I have examined a very large number of specimens in addition to those here enumerated (for instance, I have examined at Tring, of *Parnassius apollonius apollonius*, 699 specimens from the Alexander Mountains alone), and I have found several facts worth noting which do not agree with the statements of Herr Stichel.* These notes will be found under the various forms in their proper order.

I. PARNASSIUS MNEMOSYNE (LINNÉ).

1. P. mnemosyne mnemosyne (Linné).

et ab. melaina.

No specimen in Tring Museum.

This form is confined to Scandinavia and European Russia.

2. P. mnemosyne halteres Musch.

2 larvae, Martigny, Switzerland.

I find that *halteres* is quite as distinct from *mnemosyne mnemosyne* as any of the other local races of *mnemosyne*.

3. P. mnemosyne parvus Stichel.

No specimens at Tring.

4. P. mnemosyne hartmanni Standfuss.

1 ♂, 2 ♀♀, Tyrol; 4 ♀♀, Bavaria; 4 ♀♀, S. Germany (all 8 melanistic); 3 ♂♂, 3 ♀♀, Reichenhall, 500 metres.

* One of my chief difficulties in following Herr Stichel's classification is the extreme individual variation in all and every species and subspecies.

5. **P. mnemosyne turatii** nom. nov.

3 ♂♂, 1 ♀, Gèdre, Hautes Pyrénées (Rondou); 28 ♂♂, 15 ♀♀, Hospice de France, Luchon, 1365 metres, July 1905-6 (W. Rothschild and Ernst Hartert). As there is already a *pyrenaicus* in *Parnassius* I have changed the name.

6. **P. mnemosyne parvimacula** subsp. nov.

Differs from *mnemosyne turatii* Rothsch. by its much smaller size and much narrower glassy marginal space of the forewings, in which there is a more or less distinct transverse band of white scales.

Spots in cell of forewing and at apex of cell in hindwing smaller, and the dark abdominal margin much restricted.

4 ♂♂. St. Michel de Cousson, Digne, July 1, 1908 (Dr. K. Jordan); 28 ♂♂, 10 ♀♀, Forêt de Dourbes, Digne, June 1908 (Dr. K. Jordan).

7. **P. mnemosyne nebrodensis** Turati.

12 ♂♂, 6 ♀♀, above Castelbuone, Madonie Mountains, 1450—1600 metres, June 1907 (Oscar Neumann); 5 ♂♂, Sila Mountains, Calabria, 1500—1700 metres, July 1907 (Oscar Neumann); 3 ♂♂, Majella Mountains, Italy, July 1906 (Oscar Neumann).

8. **P. mnemosyne hungaricus** subsp. nov.

Differs from other European forms by its very reduced dark markings combined with very large size.

2 ♂♂, Kronstadt, Transylvania; 1 ♂, Herculesbad, S.E. Hungary, July 1907 (E. Hartert); 1 ♂, Przemysl, Hungary; 2 ♂♂, Hungary, ex Felder coll.; 1 ♂, Hungaria (*fide* Standinger).

9. **P. mnemosyne athene** Stichel.

1 ♀, Velnchi, Chelmos (Krueper).

10. **P. mnemosyne nubilosus** Christoph.

7 ♂♂, 1 ♀, Akbès, Asia Minor; 1 ♂, Taurus; 2 ♂♂, 1 ♀, Amanus Mountains, Syria; 2 ♂♂, 1 ♀, Budschnurd, Upper Atrek River, N. Persia, Aug. 1903; 1 ♂, Marash, Syria (Escalera); 1 ♂, Persia, ex coll. Felder.

11. **P. mnemosyne giganteus** Standinger.

1 ♂, Sary-poul, Province of Kuliab, Afghanistan; 9 ♂♂, 6 ♀♀, Persian Kopet-Dagh, Siaret, 1160 metres; 1 ♂, Kappak, Alexander Mountains, May 5-15, 1905; 24 ♂♂, 5 ♀♀, Kutmen-Tjube, Sussamyr Mountains, June and July; 3 ♂♂, 2 ♀♀, Transcaspia; 1 ♀, Transcaspia, Austaut's type of his *var. ochracea*; 1 ♂, Transcaspia, ex coll. Felder; 4 ♂♂, Ischimgan, June; 2 ♂♂, 2 ♀♀, Naryn district, north side of the Tianshan Mountains; 3 ♂♂, 5 ♀♀, below Sary-mat, Serafschan, 8000 ft., early May to middle of August 1900 (Funke); 1 ♀, Samarkand, ex coll. Felder; 1 ♂, 1 ♀, Kuldja.

II. PARNASSIUS STUBBENDORFII Ménétriés.

1. **P. stubbendorfii stubbendorfii** Ménétriés.

3 ♂♂, Kurai Pass, Altai, 7500 ft., July 5 (H. J. Elwes); 1 ♂, Altai, Kudigmak, ex coll. Felder; 1 ♂, 1 ♀, Sajan; 1 ♂, ex coll. Felder; 1 ♀, ex coll. Felder; 1 ♂,

Sinnin-shan (Grum-Grshimaïlo, ex coll. Felder) ; 2 ♂♂, 1 ♀, Amur ; 1 ♂, Amur (Graeser) ; 3 ♂♂, no locality ; 2 ♀♀, ex coll. Felder ; 1 ♀, *ab. melanophia*, Amur.

2. P. stubbendorfii tartarus Austaut.

2 ♂♂, 3 ♀♀, Kuku-Nor (Rückbeil).

3. P. stubbendorfii citrinarius Motschoulsky.

3 ♂♂, Japan, ex coll. Felder ; 5 ♀♀, Japan ; 4 ♂♂, Sappero, Yesso, June 1896 ; 1 ♂, Hakodate, Aug. 1886 (Leech) ; 1 ♂, 1 ♀, Mukoyama, 10. v. 1896 ; 2 ♂♂, Yokohama, June 1894 ; 9 ♂♂, Nikko, May 1898 ; 11 ♂♂, Nikko, May 1888 ; 2 ♂♂, Nikko, July 1896 ; 1 ♂, Nikko, June 1897 ; 1 ♀, Assamayama, 22. vi. 98 ; 1 ♂, Ichang (*teste* Jankowsky).

III. PARNASSIUS FELDERI Bremer.

1 ♂, 1 ♀, types, Amur, ex coll. Felder ; 2 ♂♂, 2 ♀♀, Amur ; 5 ♂♂, 1 ♀, no locality ; 3 ♂♂, 3 ♀♀, Raddefka (from Tancré) ; 1 ♂, Amur, 10,000 ft., Bremer ex coll. Felder ; 1 ♀, Raddefka ; 1 ♀, Amur, *ab. atrata*.

IV. PARNASSIUS EVERSMANNI Ménétriés.

1. P. eversmanni eversmanni Ménétriés.

2 ♂♂, 2 ♀♀, Siberia ; 3 ♂♂, 2 ♀♀, South Central Siberia ; 1 ♂, Irkut ; 1 ♀, Nikolajefsk, Amur Province (ex coll. M. Bartel) ; 1 ♀, East Sajan ; 2 ♂♂, 1 ♀, Amur ; 1 ♂, Amur, ex coll. Felder, 1 ♂, Tchuja Mountains, 6000 to 8000 ft., S.E. Altai, 14. vii. 1908 (H. J. Elwes) ; 1 ♂, Witim.

Herr Stichel's subspecies founded on Verity's figure of a ♂ from Nikolajefsk which he calls *eversmanni litoreus* is not maintainable, as my S.E. Altai specimen is similar, and males from Nikolajefsk in several collections agree with the type, as do those I have from the Amur.

2. P. eversmanni thor H. Edwards.

This form from Alaska is not in the Tring Museum.

V. PARNASSIUS CLODIUS Ménétriés.

1. P. clodius clodius Ménétriés.

6 ♂♂, 1 ♀, Upper Roque River, Oregon (Mrs. Austin) ; 1 ♂, 1 ♀, Washington Territory (Morrison) ; 1 ♀, Gold Hill, Oregon (Biedermann) ; 1 ♂, Vancouver Island ; 16 ♂♂, 4 ♀♀, McCloud River, Shasta Co., and 40 ♂♂, 18 ♀♀, Mount Shasta, Siskiyou Co., California (O. T. Baron).

I cannot find any reason for separating Herr Stichel's *clodius gallatinus*, as I have seen typical *clodius clodius* from quite close to Gallatin Province.

2. P. clodius claudianus Stichel.

1 ♂, 2 ♀♀, Vancouver ; 1 ♂, 1 ♀, New Westminster, British Columbia (A. D. Jones) ; 1 ♂, 1 ♀, British Columbia ; 4 ♂♂, 4 ♀♀, Vancouver, British Columbia (A. H. Bush).

3. P. clodius baldur W. H. Edwards.

10 ♂♂, 5 ♀♀, N. California (Mrs. Austin); 5 ♂♂, 1 ♀, Truckee Pass, 6000 to 8000 ft., California; 1 ♂, Plumas Co., California, August 1901; 1 ♂, Sierra Nevada, California, ex coll. Felder; 1 ♂, Lake City Pass, Madoc Co., California, 18. vi. 1897 (Mrs. Austin); 1 ♂, 3 ♀♀, Crater Lake, California, 11. viii. 1897 (Mrs. Austin); 1 ♂, 1 ♀, Quincy, 7. viii. 1897, 8400 ft. (Watson); 1 ♀, Lake View, August 3, 1897 (Austin); 3 ♂♂, 2 ♀♀, California; 2 ♂♂, 1 ♀, Verdi, Nevada, 7000 ft., 7. 3. 1897; 1 ♂, Nevada (Morrison); 1 ♂, *ab. menetriesi*, Colorado; 1 ♀, Utah (Murdoch); 9 ♂♂, 1 ♀, S.W. Colorado, August 1900 (Oslar); 1 ♂, California (Dr. Behr) and 2 ♂♂, 2 ♀♀, Salt Lake District (Lorquin), all ex coll. Felder; 3 ♀♀, California (O. T. Baron); 13 ♂♂, 6 ♀♀, summit of Sierra Nevada, California (O. T. Baron).

VI. PARNASSIUS CLARIUS Eversmann.

1 ♂, Armenia, ex coll. Felder; 2 ♂♂, Altai, ex coll. Felder; 5 ♂♂, Altai; 2 ♂♂, 2 ♀♀, ex coll. Felder; 5 ♂♂, 3 ♀♀, no locality; 1 ♂, Sary-poul, Province of Kuliab, Afghanistan; 1 ♂, type of *ab. dentata* Austaut.

VII. PARNASSIUS NORDMANNI Ménétriés.

1. P. nordmanni nordmanni Ménétriés.

1 ♂, 1 ♀, ex coll. Felder; 1 ♂, 2 ♀♀, Caucasus; 2 ♂♂, N.W. Caucasus; 1 ♂, Province of Majkon, N.W. Caucasus, 5000 ft. (C. Schaposchnikoff); 1 ♂, Caucasus, ex coll. Felder.

2. P. nordmanni minimus Honrath.

2 ♂♂, Caucasus; 3 ♂♂, no locality; 1 ♂, Swanetia, Caucasus.

VIII. PARNASSIUS BREMERI Felder.

2 ♂♂, 2 ♀♀, Pokrofka, Amur (1 ♀ Graeser, others from Tancré); 2 ♀♀, Raddefka (from Tancré); 4 ♂♂, Amur (1 Graeser); 2 ♂♂, 2 ♀♀, Amur, ex coll. Felder; 1 ♀, Chabarowsk (from Tancré); 1 ♀, Sutschan (from Tancré); 3 ♂♂, 1 ♀, no locality; 1 ♀, ditto, ex Felder coll.

The form *graeseri* with the ♀♀ much whiter, and the males with smaller ocelli, occurs alongside the type, and therefore can only be considered as an aberration.

IX. PARNASSIUS PHOEBUS (Fabricius).

1. P. phoebus phoebus (Fabricius).

6 ♂♂, 4 ♀♀, Altai Mountains; 1 ♂, S. Altai, May 1896 (from Tancré); 1 ♀, Altai (Kindermann ex coll. Felder); 1 ♂, 1 ♀, Tchuja Mountains, Altai, 4000 to 6000 ft., July and August 1898 (H. J. Elwes); 1 ♂, Darkot, Altai, 7500 ft. (H. J. Elwes); 1 ♂, Amur ex Mus. Petersburg, ex coll. Felder; 2 ♂♂, 3 ♀♀, Irkut; 1 ♂, 1 ♀, East Sajan; 1 ♀, Ongodai, Altai Mountains (Berezowsky, 1888); 1 ♀, Kaholi (Kindermann, ex coll. Felder); 7 ♂♂, Altai, and 2 ♂♂, S. Altai, July 1889, from Tancré, are *ab. sedakovii*.

2. **P. phoebus intermedius** Ménétriés.

1 ♂, South Central Siberia; 2 ♂♂, 1 ♀, Siberia; 1 ♂, 1 ♀, Tarbagatai; 2 ♀♀, S. Alai, May 1896 (from Tancré).

3. **P. phoebus interpositus** Herz.

1 ♂, Janafal (O. Herz).

The ♂ of this race is distinguished by its large size, and the very narrow glassy outer margin to the forewings.

4. **P. phoebus uralensis** Ménétriés.

No specimen in the Tring collection.

5. **P. phoebus styriacus** Fruhstorfer.

No specimen in my collection.

Styria.

6. **P. phoebus delius** Esper.

1 ♂, 1 ♀, Sterzing, Brenner Pass, July 1896 (946 metres!!); 1 ♂, Upper Val d'Uina (E. Hartert); 14 ♂♂, 7 ♀♀, Tasna Valley, Tarasp (E. Hartert); 10 ♀♀ (aberrations), Bergün, 1887; 3 ♀♀, no locality, ex Felder coll.; 4 ♂♂, 1 ♀, Heuthal, Upper Engadine, July 1904 (W. Rothschild & K. Jordan); 1 ♂, Schafberg, Pontresina, July 1904 (M. Bartel); 9 ♂♂, 4 ♀♀, Suvretta da St. Moritz, July 1904 (W. Rothschild & K. Jordan); 1 ♂, St. Moritz, July 1904 (M. Bartel); 20 ♂♂, 2 ♀♀, Camfer, July 1904 (W. Rothschild & K. Jordan); 1 ♂, 1 ♀, Camfer, July 1881 (W. Rothschild); 7 ♂♂, 1 ♀, Julierthal, Engadine, July 1904 (M. Bartel); 1 ♂, Julier Pass, 7400 ft., 3. viii. 1991 (Theodor Althaus); 6 ♂♂, 2 ♀♀, Cavloccio, Italian Engadine, July 1904 (W. Rothschild & K. Jordan); 1 ♂, Motta Naluns, above Tarasp, July 1903 (A. Goodson); 1 ♀, Tarasp, July 1901 (W. Rothschild); 1 ♀, Sur Sass, 2300 metres (E. Hartert, 1903); 2 ♂♂, Engstleralp, Joch Haslithal, July 1903; 1 ♂, Gross Glockner, ex coll. Felder; 2 larvae and 1 pupa from Martigny; 12 ♂♂, 3 ♀♀, Le Lautaret, Hautes Alpes, July 1908 (W. Rothschild & K. Jordan); 11 ♂♂, 6 ♀♀, Pralognan, Savoie, August 1908 (W. Rothschild & K. Jordan); 1 ♀, La Grave, Hautes Alpes, July 17, 1908 (W. Rothschild).

As we at Tring accept the specific names as valid which were originally used in the same combination, should they afterwards prove to belong to different genera, I employ here Esper's name of *delius*, because Drury's *delius* is not a *Parnassius*.

7. **P. phoebus corybas** Fisher de Waldheim.

2 ♂♂, Kamtschatka.

8. **P. phoebus apricatus** Stichel.

The Tring Museum possess no specimen of this race.

9. **P. phoebus smintheus** Doubleday.

6 ♂♂, 3 ♀♀, Colorado; 2 ♂♂, 1 ♀, Colorado (Mason); 2 ♂♂, 1 ♀, Colorado, 14,000 ft.; 1 ♂, Rocky Mountains, ex coll. Felder; 16 ♂♂, 8 ♀♀, Bullion Peak, South Park, Colorado, 14,300 ft., August, 1901 (Oslar); 4 ♂♂, 6 ♀♀, Golden.

Colorado, June 1900 (Oslar) : 5 ♂♂, 1 ♀, Chimney Gulch, Golden, Colorado, June 1900 (Oslar); 5 ♂♂, Silverton, Colorado, July 1900 (Oslar); 1 ♂, Denver, Colorado (Strecker); 1 ♂, 4 ♀♀, Larima Co., Colorado, 5000 to 10,000 feet.—1 ♂, Larima Co., 1 ♂, Colorado Nash, and 1 ♂, Bullion Peak, South Park, 14,300 feet, Colorado, July 1901 (Oslar), are *ab. mendica* Stichel.—5 ♀♀, Colorado, 14,000 to 16,000 feet, 5 ♀♀, Silverton (see *antea*), 2 ♀♀, Bullion Peak (see *antea*), 3 ♀♀, no locality, and 1 ♀, Amer. bor. ex coll. Felder, are *ab. hermodur* H. Edwards.

The female form *hermodur* occurs everywhere among the type, and can at most be considered an aberration, and **not**, as Stichel says, a local race confined to South Colorado. *P. sayi* is not even an aberration worth naming.

10. P. phoebus behrii W. H. Edwards.

3 ♂♂, Yosemite Cañon, California; 1 ♂, 2 ♀♀, no locality.

11. P. phoebus magnus Wright.

14 ♂♂, 1 ♀, British Columbia; 3 ♂♂, 4 ♀♀, Ozoyoos, British Columbia, 1895 (Reynolds); 2 ♂♂, 1 ♀, "U.S.A." (? Vancouver Island); 1 ♂, Stickeen River, British Columbia; 1 ♂, Kaslo, British Columbia—*nanus* Neumoegen was founded on dwarf aberrations of this form and the typical form.

X. PARNASSIUS APOLLO (Linné).

This species, the type of the genus, has been the subject of an enormous amount of literature. It has been split up into no less than 31 subspecies, and below I am describing two more. It is, however, a most regrettable fact that 17 names have been given to mere individual aberrations. *P. apollo* is one of the most variable of butterflies, and it would be possible to name almost every second specimen as a distinct aberration. If entomologists continue this practice of naming whole hosts of individual aberrations, it will make the scientific study of insects of almost insurmountable difficulty, and also once again bring entomology into the disrepute from which we were hoping it was gradually emerging.

1. P. apollo apollo (Linné).

1 ♂, "Suecia," ex Felder coll.; 1 ♂, 1 ♀, Wermland, 1890; 3 ♂♂, 2 ♀♀, Upsala district (Wiman); 1 ♂, Sweden (Thurm); 1 ♂, Hall Särö (Westring).

2. P. apollo finmarchicus Rothsch.

2 ♂♂, Lavisa, Helsingfors; 2 ♂♂, 1 ♀, Helsingfors; 2 ♂♂, 1 ♀ Finland.

3. P. apollo limicola Stichel.

1 ♂, 2 ♀♀, Ural Mountains; 1 ♀, Ural, ex coll. Felder.

4. P. apollo democratus Krulikowsky.

4 ♂♂, Caucasus, ex Felder collection; 1 ♂, Russia; 1 ♂, 1 ♀, no locality; 1 ♂, North-West Caucasus, July; 5 ♂♂, 6 ♀♀, St. Wladimir, near Klasna, Russia.

5. P. apollo sibiricus Nordmann.

5 ♂♂, 6 ♀♀, Altai; 2 ♂♂, 1 ♀, Siberia!!; 2 ♂♂, Ongodai, Altai Mountains (Berezowsky); 1 ♂, Ustkamenogorsk; 2 ♂♂, 4 ♀♀, ex coll. Felder, no locality;

1 ♂, 1 ♀, no locality ; 1 ♀, Bashkaus, S.E. Altai, 3000 to 6000 ft., 29. vii. 1898 (H. J. Elwes); 1 ♂, Samrams, Altai, July (from Tancré) ; 1 ♀, July (from Tancré); 6 ♂♂, 1 ♀, Kok-Tjubé, Issyk-kul, July 1902 (Kutsenko); 7 ♂♂, 2 ♀♀, Great Aksu, Issyk-kul, July 1902 (Kutsenko) ; 4 ♂♂, Naryn-Kol, Tian Shan Mountains ; 1 ♂, Tian Shan ; 1 ♂, 3 ♀♀, Alexander Mountains (from Tancré) ; 1 ♂, 1 ♀, Ili District (from Tancré) ; 1 ♀, Issyk-kul (from Tancré); 3 ♂♂, 2 ♀♀, Kappak, Alexander Mountains, July 18-20, 1905 ; 4 ♂♂, 2 ♀♀, Turgan Aksu Pass, Tian Shan Mountains, August 12, 1905 (Kutsenko).

Herr Fruhstorfer's *apollo merzbacheri* is a synonym of *sibericus*, for not only are the bulk of the Tian Shan specimens indistinguishable from those from other localities, but there are Altai and other specimens agreeing with Verity's figure which is Fruhstorfer's type ! ! !

6. P. apollo chryseis Verity.

2 ♂♂, 2 ♀♀, Juldus, south of Issyk-kul.

7. P. apollo mongolicus Staudinger.

1 ♂, Saisan, W. Mongolia, cotype.

8. P. apollo hesebolus Nordmann.

35 ♂♂, 22 ♀♀, Apple Mountains, Transbaicalia, June 1902 ; 1 ♂, Kiachta, ex coll. Felder ; 3 ♂♂, 3 ♀♀, Kentei Mountains ; 1 ♀, Kentei Mountains (from Tancré) ; 1 ♂, Kentei Mountains, ex Röder coll.

9. P. apollo levantinus Rothschild.

1 ♂, 1 ♀, Aintab, Syria (from Staudinger).

10. P. apollo subspec. (?)

1 ♂, Armenia ; 1 ♀, Armenia, ex Röder coll.

This form, of which I have only seen the above specimens, resembles most *apollo carpathicus*, but the material is too scanty to decide upon.

11. P. apollo carpathicus Rebel and Rogenhofer.

6 ♂♂, 4 ♀♀, Schemnitz ; 10 ♂♂, Tatra, 2000 metres, July ; 3 ♂♂, 3 ♀♀, Barlangliget, Carpathians ; 9 ♂♂, 1 ♀, Braniskoer Mountains, Carpathians ; 7 ♂♂, 1 ♀, Carpathians ; 2 ♂♂, Kronstadt ; and 1 ♂, Rodna, Transylvania.

12. P. apollo albus Rebel and Rogenhofer.

1 ♂, German Silesia ; 1 ♂, Rebau District, Silesia ; 2 ♀♀, German Silesia, ex coll. Röder (these are from the district in which this form is now exterminated) ; 1 ♂, Bohemia ; 8 ♂♂, 6 ♀♀, Dürnstein, near Krems ; 2 ♂♂, 1 ♀, Austrian Alps, ex coll. Felder ; 6 ♂♂, 2 ♀♀, Schneeberg, Lower Austria ; 1 ♀, Lower Austria ; 1 ♀, Kirchberg on the Wechsel ; 1 ♀, same locality, aberration wanting black spot on the inner-marginal area of forewings and ocelli of hindwings almost black, ex coll. Felder (shows signs of artificial colouring) ; 1 ♀, type of *ab. novarae* ex coll. Felder. said to have been taken 1860, " Bos. Halbhuben " in Silesia ; 3 ♂♂, 3 ♀♀, Stromberg, Moravian Silesia ; 2 ♂♂, 2 ♀♀, Hohenstein, Lower Austria.

13. **P. apollo bosniensis** Stichel.

1 ♂, 1 ♀, Koricna, Bosnia; 3 ♂♂, 2 ♀♀, Sarajevo, Bosnia.

14. **P. apollo grajus** Stichel.

1 ♂, 1 ♀, Balkans; 1 ♀, Albania, ex coll. Felder; 1 ♀, Greece, ex coll. Röder, aberration with all black markings brownish grey.

15. **P. apollo liburnicus** Rebel and Rogenhofer.

3 ♂♂, 2 ♀♀, Velebit Mountains, Croatia, ex coll. Felder; 1 ♂, 2 ♀♀, ex coll. Felder, Velebit; 1 ♂, Croatia; 1 ♀, Croatia, ex coll. Röder.

16. **P. apollo rubidus** Fruhstorfer.

1 ♂, 1 ♀, Tyrol; 1 ♀, Meran; 1 ♀, bred in Zoological Gardens, London.

17. **P. apollo montanus** Stichel.

1 ♂, 1 ♀, Pirchabrück, 13. vii. 1896, 869 metres; 5 ♂♂, 1 ♀, Sterzing, 7. vii. 1896, 946 metres; 3 ♂♂, Andraz, 22. vii. 1896, 1428 metres; 2 ♂♂, 1 ♀, Tyrol; 1 ♂, Kimer-See; 1 ♂, Caprile, 19. vii. 1896, 1029 metres.

18. **P. apollo apenninus** Stichel.

2 ♂♂, Italy! These two ♂♂ are unlike any other form I know, as the hindwings are produced into a distinct point on a line with the lower ocellus, and their outline is thus distinctly angulated, and not round as in all other forms of *P. apollo*. Monsieur Oberthür figures two specimens showing a similar trait from the Pyrenees, but these are monstrosities, having it only on one side. Some females of the next race show slight traces.

1 ♂ ex coll. Felder is marked "Apennines," but although it is placed in the collection under this name, I believe it is only a very large ♂ of *P. apollo albus* wrongly labelled. This form of apollo is stated by Stichel to be small, but I do not think, from what I have seen, it is constantly much smaller than the more northern races.

19. **P. apollo siciliae** Oberthür.

5 ♂♂, 6 ♀♀, Madonie Mountains, Sicily, July (Geo. C. Krüger); 1 ♂, Sicily, ex coll. Felder.

20. **P. apollo pumilus** Stichel.

9 ♂♂, 1 ♀, Aspromonte, near Reggio, 1600—1800 metres, July 1–3, 1907 (Oscar Neumann).

This form was first described by Stichel as a distinct subspecies (*Berl. Ent. Zeit.*, vol. 51, p. 88, t. 2, f. 14), from two specimens marked "Sicily" in the Berlin Museum. He then treated it as an aberration of *siciliae* in his "Fascicule" 58, of Wytsman's *Genera Insectorum*. It is, however, a quite distinct subspecies, much more resembling *Parnassius phoebus phoebus* than any form of *P. apollo*. If the two specimens in Berlin really came from Sicily, which I doubt, they probably came from Mount Etna, opposite Reggio, in which case *apollo siciliae* would be confined to the Madonie Mountains. The reason I doubt the alleged locality of the types is that these Aspromonte specimens agree so minutely with both Herr Stichel's figures in Seitz and that quoted above.

21. **P. apollo melliculus** Stichel.

1 ♂, 1 ♀, Eichstätt, Nieder Franken, Bavaria ; 2 ♂♂, 2 ♀♀, South Germany ; 1 ♂, 1 ♀, Bavaria ; 1 ♂, no locality ; 1 ♂, no locality, transition to *ab. wiskotti* ; 1 ♀, Bavaria, and 1 ♀, Regensburg, *ab. wiskotti* ; 2 ♂♂, 2 ♀♀, Riedenberg, Bavaria ; 2 ♂♂, 1 ♀, Todtnau, Baden, Schwarzwald ; 2 ♂♂, 1 ♀, Bleistadt, Bohemia.

22. **P. apollo vinningensis** Stichel.

1 ♀, Staffelstein ; 3 ♂♂, 3 ♀♀, Winningen a/d. Mosel.

23. **P. apollo provincialis** Kheil.

29 ♂♂, 7 ♀♀, Digne, Basses Alpes, June 1908 (W. Rothschild & K. Jordan) ; 5 ♂♂, Forêt de Dourbes, Digne, June 25, 1908 (K. Jordan) ; 1 ♀, Basses Alpes.

24. **P. apollo pyrenaicus** Harcourt.

18 ♂♂, 3 ♀♀, Val d'Aras, Pyrenees, Spain, June 1907 (Mousqués) ; 27 ♂♂, 16 ♀♀, Luchon, July 1905—1906 (W. Rothschild & E. Hartert) ; 5 ♂♂, Road from Luchon to the Val de Lys, July 10-13, 1905 (W. Rothschild & E. Hartert) ; 1 ♂, same locality, July 13, aberration with wide black submarginal and marginal band to hindwings ; 2 ♂♂, above Lac d'Oo, 5700 ft., July 20, 1905 (W. Rothschild & E. Hartert) ; 3 ♀♀, below Luchon, August 3, 4, 1906 (W. Rothschild & E. Hartert) ; 9 ♂♂, 5 ♂♀, Cantarets, July 1905—1906 (W. Rothschild & E. Hartert) ; 1 ♂, Cantarets to Cambasque, 14. vii., 1906 (W. Rothschild & E. Hartert) ; 2 ♂♂, Cantarets (Mousqués, 1907) ; 1 ♀, Cantarets (Mousqués, 1907), aberration ; 1 ♀, Cambasque, July 1905 (Mousqués) ; 5 ♂♂, 4 ♀, Gavarnie, July 27, 1905 (W. Rothschild & E. Hartert) ; 1 ♂, 2 ♀♀, Pierrefitte to Gavarnie, July 27, 1905 (W. Rothschild & E. Hartert).

25. **P. apollo escalerae** subsp. nov.

This new form, of which an enormous series was sent me by M. de la Escalera, is distinct from *P. apollo nevadensis* and *P. apollo pyrenaicus*. It resembles in the ♂ *apollo liburnicus*, but differs in having the black blotches of the forewings and the ocelli of the hindwings very reduced in size. The ♀♀ are as a rule larger than *pyrenaicus*, and there are less blackish ones among them. The ocelli in the hindwing are also larger and darker red in the greater number of the specimens.

39 ♂♂, 35 ♀♀, San Ildefonso, Segovia, Spain, June and July 1906 (Manuel de la Escalera) ; 1 ♂, same locality, with yellow ocelli ; 1 ♂, 1 ♀, Castile ; 1 ♂, 1 ♀, Spain.

26. **P. apollo** subsp.

1 ♂, Moncayo Mountains, Spain, 11. viii. 1898. This specimen is quite distinct, being very small and resembling *P. apollo siciliae*, but the two black patches in cell of forewings are very large. One specimen, however, is not sufficient to warrant my naming it.

27. **P. apollo nevadensis** Oberthür.

I have no specimens of this form. Oberthür's diagnosis is, however, wrong in so far that specimens with yellow ocelli are not the rule in the Sierra Nevada.

28. **P. apollo valesiacus** Fruhstorfer.

1 ♀, Gorner Grat; 1 ♂, Wallis; 2 ♂♂, between Brig and Fiesch, Wallis, August 1907 (Oscar Neumann); 4 ♂♂, 1 ♀, Tasch, near Zermatt, 1500—1900 metres, August 3—8, 1907 (Oscar Neumann); 3 ♂♂, Poschiavo (Dr. Pozzi); several pairs, Zermatt, August 25, 1908 (Oscar Neumann).

29. **P. apollo geminus** Stichel.

1 ♂, Alps! transition to *ab. wiskotti*; 1 ♂, 2 ♀♀, Helvetia; 1 ♀, no locality, ex Felder coll.; 1 ♀, Helvetia ex Felder coll.; 4 ♂♂, 2 ♀♀, Château d'Oex, July 28 to August 5, 1907 (Oscar Neumann); two larvae; 1 ♂, Allgäu.

30. **P. apollo nivatus** Fruhstorfer.

1 ♂, Weissenstein, near Soleure, Swiss Jura (W. Rothschild); 1 ♂, Jura, 25. vii. 1902; 3 ♀♀, 1 ♀, Bözingen, Swiss Jura, June 1895.

31. **P. apollo carinthicus** Stichel.

1 ♂, 1 ♀, Carniola; 3 ♂♂, Stejner Alps, Carniola, 10. vii. 1899; 1 ♂, Turscheuwlissern, Carniola.

32. **P. apollo rhaeticus** Fruhstorfer.

40 ♂♂, 30 ♀♀, Tarasp, Lower Engadine, July 1901—1903 (W. Rothschild & E. Hartert); 1 ♂, St. Moritz, and 1 ♂, Schafberg, July 1904 (M. Bartel); 1 ♂, 2 ♀♀, Campfer, 1881 (W. Rothschild); 1 ♂, 2 ♀♀, Bergün, 1887; 42 ♂♂, 23 ♀♀, Campfer, July 1904 (W. Rothschild & K. Jordan); 3 ♂♂, 1 ♀, Thusis, Grisons (W. Rothschild, 1901); 1 ♀, Hoher Rhaetien, Thusis, Grisons (W. Rothschild, 1901).

33. **P. apollo bartholomaeus** Stichel.

5 ♂♂, 2 ♀♀, Fenner, Berchtesgaden, August 1901; 1 ♂, 1 ♀, Berchtesgaden, August 1901.

34. **P. apollo brittingeri** Rebel and Rogenhofer.

1 ♂, Schoberstein, Upper Austria.

2 ♀♀, Enns, Upper Austria, 1000 metres, July; 9 ♂♂, 5 ♀♀, Hochschwab, Styria.

35. **P. apollo substitutus** subsp. nov.

91 ♂♂, 19 ♀♀, La Grave, Hautes Alpes, 1500 to 1800 metres, July 1908 (W. Rothschild and K. Jordan); 9 ♂♂, 3 ♀♀, Le Lautaret, Hautes Alpes, 2000 to 2100 metres, July 1908 (W. Rothschild and K. Jordan); 44 ♂♂, 32 ♀♀, Pralognan, Haute Savoie, August 1908 (W. Rothschild and K. Jordan).

This new form is intermediate between *P. a. brittingeri* and *P. a. rhaeticus*, but has usually smaller ocelli; is also usually very small.

1 ♂, Bourg, Dauphiné (Prof. Pouson), aberration with coalescent black spots in cell.

36. **P. apollo** subsp.

2 ♂♂, 2 ♀♀, Saletalpe, July 1902.

P. apollo dwarfs.

3 ♂♂, dwarfs ex. coll. Felder, no locality.

P. apollo rhaeticus × P. phoebus delius.

1 ♂, Campfer, July 3rd, 1 ♂, Campfer, July 16th, 1904 (W. Rothschild and K. Jordan); 1 ♂, Campfer, July 1881 (W. Rothschild).

P. apollo sibericus × P. discobolus.

1 ♂, 1 ♀, Sirt Saryjass, Tian Shan, August 1—8, 1905; 1 ♀, Kappak, Alexander Mountains, July 18—22.

XI. PARNASSIUS DAVIDIS Oberthür.

1. P. davidis davidis Oberthür.

I have no specimens of this form.

2. P. davidis honrathi Staudinger.

2 ♂♂, 2 ♀♀, Samarkand (Haberhauer); 1 ♂, 1 ♀, Samarkand (O. Herz 1902); 3 ♂♂, 1 ♀, Samarkand, ex. coll. Felder; 1 ♂, Turkestan!; 2 ♀♀, Samarkand; 1 ♂, Darwaz, Central Asia (from Tancré); 2 ♂♂, Saran Shan, aberrations, 1 with ocelli all black, the other with them almost all black.

3. P. davidis alburnus Stichel.

2 ♂♂, 1 ♀, Pamirs, cotypes.

4. P. davidis dux Staudinger.

I have never seen this subspecies.

XII. PARNASSIUS APOLLONIUS Eversmann.

10 ♂♂, 2 ♀♀, between Osch and Usgent, July and August; 2 ♂♂, Aulie Ala; 1 ♂, Taschkend, ex coll. Felder; 1 ♀, Marghilan; 1 ♀, Kuldja; 1 ♂ 2 ♀♀, Alexander Mountains; 2 ♂♂, 2 ♀♀, Turkestan; 168 ♂♂, 84 ♀♀, Kappak, Alexander Mountains, July 18—22, 1905; 26 ♂♂, 16 ♀♀, Ketmen Tjube, Sussamyr Mountains, June and July 1906; 5 ♂♂, 6 ♀♀, Karagaitau.

P. apollonius gloriosus of Fruhstorfer is not a valid subspecies. I have examined from the Alexander Mountains some 600 specimens, and very few differed from typical *apollonius*.

1. P. apollonius alpinus Staudinger.

1 ♂, 1 ♀, Alexander Mountains (from Tancré); 1 ♂, 1 ♀, Alai, 7000 feet, ex coll. Felder; 2 ♂♂, 2 ♀♀, no locality; 1 ♀, no locality, ex coll. Felder.

2. P. apollonius daubi Fruhstorfer.

3 ♂♂, 3 ♀♀, below Sary-mat, Serafschan, 8000 ft., August 1900 (Funke); 1 ♂, 3 ♀♀, South Fergana.

XIII. PARNASSIUS NOMION Fischer de Waldheim.

1. P. nomion nomion Fischer de Waldheim.

50 ♂♂, 26 ♀♀, Apple Mountains, Transbaicalia, July 1902; 2 ♂♂, 2 ♀♀, Transbaicalia; 3 ♂♂, 1 ♀, Amur, from St. Petersburg Museum, ex coll. Felder; 1 ♀, E. Siberia, ex coll. Felder; 3 ♀♀, Wladimir Bay, E. Siberia, 9. viii. 1897; 5 ♂♂, 1 ♀, Ongodai, Altai Mountains (Berezowsky 1898); 1 ♂, 1 ♀, Central Altai; 3 ♂♂, 1 ♀, S. Altai (from Tancré); 1 ♂, 1 ♀, Altai Mountains; 1 ♂, 1 ♀, Pokrofka (from Tancré); 1 ♀, Sidemi Mountains (from Tancré); 1 ♂, Chabarowka (from Tancré); 6 ♂♂, 4 ♀♀, Central Altai; 1 ♂, 1 ♀, Kentei; 8 ♂♂, 3 ♀♀, Changai; 9 ♂♂, 3 ♀♀, Urga; 1 ♂, Onan, from St. Petersburg Museum, ex coll. Felder.

2. P. nomion mandschuriae Oberthür.

6 ♂♂, 3 ♀♀, Sutschan; 1 ♂, Ussuri, ex coll. Felder; 8 ♂♂, 5 ♀♀, Bikin, Amur; 1 ♂, 1 ♀, Manchuria.

3. P. nomion nominulus Staudinger.

7 ♂♂, 3 ♀♀, Sajan; 4 ♂♂, 1 ♀, Turka Mountains, Baikal; 1 ♂, 1 ♀, Irkut; 1 ♂, E. Sajan; 1 ♂, Siberia!

P. nomion nomion × P. apollo hesebolus.

1 ♂, Apple Mountains, Transbaicalia, June 1902.

XIV. PARNASSIUS NOMIUS Grum-Grshmaïlo.

3 ♂♂, Kuku-Nor, Thibet, June (from Tancré); 2 ♂♂, 1 ♀, Sinning Mountains, Thibet (from Tancré); 1 ♂, Nian Shan Mountains (Grum-Grshimailo, 1890, ex coll. Felder).

XV. PARNASSIUS OLYMPIUS Staudinger.

2 ♂♂, 1 ♀, Kuruk-Tag, cotypes.
This is evidently a distinct species, as typical *discobolus* occur with it.

XVI. PARNASSIUS DISCOBOLUS Staudinger.

1. P. discobolus discobolus Staudinger.

3 ♂♂, 2 ♀♀, Issyk-kul (from Tancré); 1 ♂, 1 ♀, Alexander Mountains (Tancré); 1 ♂, 1 ♀, Boro-Chozo Mountains (Grum-Grshimaïlo); 1 ♂, Kudara-Argha, 11,000 feet, ex coll. Felder; 1 ♂, Samarkand; 1 ♂, Merv; 1 ♀, Afghanistan (from Tancré); 2 ♂♂, 1 ♀, Tarbagatai; 1 ♂, *ab. privignata*, Juldus; 2 ♀♀, *ab. gilea*, Karagaitau; 2 ♂♂, 3 ♀♀, Kuldja (from Tancré); 4 ♂♂, Korla; 2 ♀♀, Kuruk-Tag = *olympius* auct. non Staudinger; 1 ♂, Alatau; 1 ditto, ex coll. Felder; 115 ♂♂, 51 ♀♀, Sirt Saryjas, Tian Shan Mountains, August 1—8, 1905 (Kutsenko); 5 ♂♂, 6 ♀♀, Kappak, Alexander Mountains, July 18—22, 1905; 19 ♂♂ ♀♀, Turgan Aksu Pass, Tian Shan, August 12, 1905 (Kutsenko); 6 ♂♂, 5 ♀♀ Lttle Kizil-su Pass, Tian Shan, July 21, 1905 (Kutsenko).

2. P. discobolus minor Standinger.

1 ♂, between Osch and Usgent; 2 ♂♂, 2 ♀♀, Turkestan; 1 ♂, Samarkand (O. Herz, 1892); 3 ♂♂, below Sary-mat, Serafschan, 8000 ft. (Funke), end of May to middle of August 1900; 1 ♀, Tian Shan; 1 ♂, 1 ♀, Transcaspia; 1 ♀, Utsch-Kurgan, July.

3. P. discobolus romanovi Grum-Grshimaïlo.

1 ♂, ex Felder coll.; 10 ♂♂, 9 ♀♀, Pamirs; 1 ♂, 2 ♀♀, Transalai, 10,000 to 11,000 ft. (Grum-Grshimaïlo, ex coll. Felder); 2 ♂♂, Issyk-kul (from Tancré); 1 ♂, Kyssel Tarb (from Tancré); 1 ♂, 1 ♀, Alexander Mountains (from Tancré); 1 ♀, Ili district (from Tancré); 16 ♂♂, 10 ♀♀, Utsch-Kurgan, July; 1 ♀, Bokhara, ex coll. Felder.

4. P. discobolus insignis Standinger.

2 ♂♂, ex Felder coll.; 9 ♂♂, 4 ♀♀, Turkestan; 1 ♀, no locality; 1 ♂, Kudara, Afghanistan, 11,000 feet, ex coll. Felder; 2 ♂♂, Alai; 1 ♂, Transalai, ex coll. Felder; 1 ♂, Turkestan, type of *var. superbus*, Grum-Grshmaïlo ex coll. Austant; 1 ♀, Syrt-Naryn, E. Turkestan.

All the forms of *discobolus* are so variable individually that it is very hard to separate the subspecies.

XVII. PARNASSIUS ACTIUS Eversmann.

1. P. actius actius Eversmann.

1 ♂, 1 ♀, Bogda Ola, ex coll. Felder; 3 ♂♂, no locality; 2 ♂♂, no locality, ex coll. Felder; 1 ♂, 1 ♀, Juldus.

2. P. actius caesar Standinger.

6 ♂♂, 7 ♀♀, Kurnk Tag; 5 ♂♂, Alexander Mountains, June (from Tancré); 1 ♂, 1 ♀, Ili district, July (from Tancré); 1 ♂, 1 ♀, Kuldja, July (from Tancré); 5 ♂♂, between Osch and Usgent, July and August; 2 ♂♂, Tchingistai, S.W. Altai (Rückbeil, ex coll. Tancré); 6 ♂♂, 5 ♀♀, Naryn district, north side of the Tian Shan Mountains; 3 ♂♂, Issyk-Kul, July (from Tancré); 1 ♂, Korla, ex coll. Austant; 4 ♂♂, 2 ♀♀, Little Kizil-su Pass, Tian Shan, July 21, 1905 (Kutsenko); 1 ♂, 1 ♀, Turgan Aksu Pass, Tian Shan, August 12, 1905, and 2 ♂♂, N E. shore of Issyk-Kul, July 19, 1905 (Kutsenko); 3 ♂♂, 3 ♀♀, Karagaitau.

3. P. actius urumtsiensis Verity.

I have no specimens of this form, unless my ♂ from Korla above is one, in which case it must be relegated to the synonyms of *actius caesar*.

4. P. actius superbus Rühl.

2 ♂♂, Aksu, end of July (from Tancré); 1 ♂, Aksu 1 ♀, Aksu only ex coll. Austant; 1 ♂, no locality; 1 ♂, 2 ♀♀, Karagaitau.

I keep this form separate, as the female appears to be larger and whiter than that sex in *actius caesar*.

XVIII. PARNASSIUS JACQUEMONTI Boisduval.

The confusion which has arisen in connection with this species had its origin in the fact that Boisduval, in his description, mixed up two species, his males being one and his females representing a second totally distinct species. After M. Oberthür had pointed out the error, no further trouble would have been encountered if the subsequent authors had held themselves bound by the strict laws of priority. Mr. Elwes, however, in 1886, chose to ignore the fact that Boisduval described the ♂ first on page 400 of his *Species Général*, vol. i., to which therefore the name *jacquemontii* alone belongs, and taking Boisduval's ♀ as *jacquemontii*, he redescribed the true *jacquemontii* as *P. actius* var. *himalayensis*. Subsequent authors have either followed this erroneous determination or have fallen into various other errors, which need not be here set out. Herr Stichel, although he has put the matter right as regards *jacquemontii* being applicable only to Boisduval's ♂♂, while the latter's ♀♀ = *P. epaphus* Oberthür, yet has failed to see that Mr. Elwes renamed the true *jacquemontii* as var. *himalayensis*, and that the latter is not a separate subspecies, but an absolute synonym of *jacquemontii*.

1. P. jacquemontii jacquemontii Boisduval.

2 ♂♂, 1 ♀, Fullaldnros, Nila Valley, W. Himalayas, July 1888; 1 ♀, Gangotris, July 1888; 3 ♀♀, no locality, ex coll. Felder; 2 ♂♂, Lahoul; 1 ♀, Kula, N.W. Himalayas, cotypes of *P. actius himalayensis*, ex coll. Elwes, ex coll. Felder; 2 ♂♂, 1 ♀, Ladak, 12,000 to 15,000 ft., Stoliczka, ex coll. Felder; 2 ♂♂, 1 ♀, Himalaya, ex coll. Felder; 1 ♀, Tongia, Sikkim, 10,000 ft., July 1886 (H. J. Elwes), ex coll. Felder; 1 ♂, Lahore; 1 ♀, Afghanistan; 3 ♂♂, 1 ♀, Cashmere; 1 ♂, Sikkim, type of Austaut's var. *impuncta*; 2 ♂♂, Darjeeling, ex coll. Felder; 1 ♀, no locality, ex coll. Felder, 13 ♂♂, 2 ♀♀, no locality; 1 ♂, 1 ♀, Kukli.

2. P. jacquemonti nirius Moore.

1 ♂, type, ex coll. Felder. This specimen has a whole collection of all sorts of labels on its pin, of which two are locality labels. One is as follows—"Niri Lumdo, in Karnag," the other "Stoliczka, Ladak, Thibet, 12,000 to 15,000 ft." It is, therefore, in view of the very doubtful locality, more than probable that it is only an extreme aberration: I, however, keep it separate for the present.

3. P. jacquemontii chitralensis Moore.

I have no specimens of this race.

4. P. jacquemontii rubicundus Stichel.

6 ♂♂, 5 ♀♀, no locality; 1 ♂, 1 ♀, no locality, ex coll. Felder; 1 ♂, Nashingla, 16,700 ft., ex coll. Felder; 2 ♂♂, Turkestan; 5 ♂♂, Pamirs; 2 ♂♂, Dschirgetal, Alai and Transalai, 10,000 to 11,000 ft., May, ex coll. Felder; 1 ♂, Transcaspia; 1 ♀, Bochara, ex coll. Felder; 1 Osch (Haberhauer, 1882); 1 ♂, 1 ♀, Utsch Kurgan, July; 16 ♂♂, 3 ♀♀, between Osch and Usgent, July—August; 1 ♂, Kuruk-Tag; 1 ♀, Fergana. Stichel's *variabilis* is only an extreme aberration, or rather series of aberrations.

5. **P jacquemontii cyrnus** Fruhstorfer.

4 ♂♂, 1 ♀, Issyk-Kul, July (from Tancré); 1 ♂, ex coll. Felder; 1 ♀, no locality; 1 ♀, Tura.

6. **P. jacquemontii mercurius** Grum-Grshimaïlo.

4 ♂♂, 5 ♀♀, Sinning Mountains, Kuku-Nor, Thibet (from Tancré); 5 ♂♂, 1 ♀, Amdo; 2 ♂♂, Sinin Shan (Grum-Grshimaïlo, cotypes ex coll. Felder); 1 ♀, Kuku Nor.

7. **P. jacquemontii thibetanus** Rühl.

4 ♂♂, 3 ♀♀, Hon-Kow, Thibet, 10,000 ft., native collectors, July and August 1890; 1 ♂, 4 ♀♀, no locality; 2 ♂♂, 1 ♀, no locality, ex coll. Felder; 2 ♂♂, Thibet; 1 ♀, Ta-chien-lu, July and August 1890 (Pratt); 1 ♂, 1 ♀, Ta-chien-lu, Chasseurs Thibetains (R. P. Dejean, 1894), ex coll. Oberthür.

8. **P. jacquemonti tatsienluica** Verity.

2 ♂♂, Ta-tsien-lu.

P. jacquemontii rubicundus × actius.

1 ♂ without locality, received from Thiele, Berlin.

XIX. PARNASSIUS EPAPHUS Oberthür.

1. **P. epaphus epaphus** Oberthür.

14 ♂♂, Skora La, Cashmere, 15,000 ft., July 1887 (J. H. Leech); 6 ♂♂, Deosai Plains, Cashmere, 13,000 ft., August 1887 (J. H. Leech); 2 ♂♂, 2 ♀♀, Cashmere, 14,000—16,000 ft., ex coll. Fruhstorfer; 1 ♀, Cashmere, ex coll. Felder.

2. **P. epaphus poëta** Oberthür.

5 ♂♂, 1 ♀, no locality; 1 ♂, Thibet; 12 ♂♂, 10 ♀♀, E. Thibet; 1 ♂, 6 to 8 days' journey N.W. of Ta-chien-lu, Thibet (Mons. Biet, 1891); 1 ♂, 1 ♀, Tchang-kou, Thibet, types of Austaut's *Parnassius oberthueri*; 3 ♂♂, 2 ♀♀, Pembu Pass, 12 miles N. of Lhassa, August 1904 (R. v. L. Rybet).

3. **P. epaphus huwei** Fruhstorfer.

4 ♂♂, Aksu; 1 ♂, Aksu, ex coll. Austaut.

4. **P. epaphus sikkimensis** Elwes.

2 ♂♂, 1 ♀, Sikkim, wet season, ex coll. Fruhstorfer; 11 ♂♂, 3 ♀♀, Chumbi Valley.

5. **P. epaphus nanchanicus** Austaut.

5 ♂♂, 1 ♀, Nian Shan Mountains; 1 ♂, Nian Shan Mountains, Austaut's type.

6. **P. epaphus tsaidamensis** Austaut.

I do not possess this form.

7. **P. epaphus altynensis** Austaut.

3 ♂♂, 2 ♀♀, Altyn Tag; 1 ♂, Altyn Tag, Austaut's type.

XX. PARNASSIUS BERESOWSKYI Staudinger.

2 ♂♂, Amdo; 1 ♂, Kuku Nor; 1 ♂, 1 ♀, Serschuan; 2 ♂♂, 1 ♀ (?), ex coll. Bartel; 1 ♂, Kaschka-Ssu, Tian Shan, July 10—17, 1902.

This may prove only a subspecies of *epaphus*, but I think it is so different that it may be well upheld as a species.

XXI. PARNASSIUS HARDWICKII Gray.

1 ♂, Cashmere; 1 ♂, Upper Cashmere; 1 ♂, 2 ♀♀, Ladak, ex coll. Felder; 1 ♂, Cashmere Valley, 11,000 ft., 14. vi. 1902 (Colonel Ward); 1 ♂, Himalaya; 1 ♂, N.W. India, ex coll. Fruhstorfer; 3 ♂♂, 3 ♀♀, no locality; 1 ♂, no locality, ex coll. Felder; 6 ♂♂, 5 ♀♀, N. Sikkim, June and July 1884 (O. Möller); 1 ♂, Bhutan, August 1887 (O. Möller); 1 ♀, Sikkim; 1 ♀, 1 ♂, Native Sikkim; 2 ♂♂, Gnatong, Sikkim, 1894, native hunters, ex coll. Oberthür; 30 ♂♂, 4 ♀♀, Khamba Jong, received from A. J. Phillips; 1 ♂, 1 ♀, Chumbi Valley, Thibet; 1 ♀, Cashmere Valley, September, 8000 ft. (Colonel Ward).

XXII. PARNASSIUS PRZEWALSKII Alphéraky.

I have no specimens of this species.

XXIII. PARNASSIUS SZECHENYI Frivaldsky.

1. P. szechenyi szechenyi Frivaldsky.

8 ♂♂, 6 ♀♀, Sinning Mountains, Kuku Nor (from Tancré); 3 ♂♂, Amdo, Kuku Nor (from Tancré); 1 ♂, 1 ♀, Kuku Nor; 1 ♂, 1 ♀, Sinin Mountains, ex coll. Felder; 3 ♂♂, Amdo, June (from Tancré); 1 ♂, 1 ♀, Thibet; 3 ♂♂, 1 ♀, no locality.

2. P. szechenyi germanae Austant.

2 ♂♂, 2 ♀♀, E. Thibet.

XXIV. PARNASSIUS ORLEANS Oberthür.

1. P. orleans orleans Oberthür.

1 ♂, Ta-chien-lu, R. P. Dejean's native collectors, 1894, ex coll. Oberthür; 5 ♂♂, 3 ♀♀, no locality; 12 ♂♂, 11 ♀♀, E. Thibet; 33 ♂♂, 29 ♀♀, Taipaishan, Shensi, July 1905.

2. P. orleans groumi Staudinger.

4 ♂♂, 3 ♀♀, Sinin Schan, Kuku Nor (from Tancré); 1 ♂, Thibet; 2 ♂♂, Amdo; 1 ♂, no locality; 1 ♀, no locality, ex coll. Felder; 1 ♂, Dschachas Mountains (Grum-Grshimaïlo, 1890, ex coll. Felder); 1 ♀, Kuku Nor; 1 ♀, Tigel District, Amdo.

XXV. PARNASSIUS CEPHALUS Grum-Grshimaïlo.

There are no specimens at Tring.

1. P. cephalus cephalus Grum-Grshimaïlo.

2. P. cephalus elwesi Leech.

XXVI. PARNASSIUS DELPHIUS Eversmann.

This species varies individually so enormously that most of the subspecies, such as *namanganus*, *infernalis* and others, must be treated as aberration only.

1. P. delphius delphius Eversmann.

6 ♀♀, Kaschka-Ssu, Tian Shan, July 10—17, 1902; 31 ♂♂, 18 ♀♀, no locality; 2 ♂♂, no locality, ex coll. Felder; 17 ♂♂, 14 ♀♀, Turkestan; 1 ♀, Turkestan, ex coll. Felder; 1 ♂, 1 ♀, Pamirs, Austaut's types of var. *suffumata*; 4 ♂♂, 5 ♀♀, Transcaspia; 1 ♂, Pamir; 1 ♂, 1 ♀, Pamir, types of Austaut's var. *transiens*; 1 ♂, Kyssyl, Tartary, 4 ♂♂, Alexander Mountains; 3 ♂♂, 1 ♀, Ili District; 2 ♂♂, 3 ♀♀, Issyk Kul; 2 ♂♂, 1 ♀, Kuldja (from Tancré); 4 ♂♂, 1 ♀, Aksu; 9 ♂♂, 5 ♀♀, between Osch and Usgent, July—August; 6 ♂♂, 3 ♀♀, Syr Daria; 1 ♂, Songaria; 1 ♂ (?), ex coll. Felder; 1 ♂, Alatau; 1 ♂, Alatau, ex coll. Felder; 1 ♂, ex coll. Felder, Great Altai, Grum-Grshimaïlo's var. *infernalis*, cotype of Elwes; 3 ♂♂, Kuku Nor, ab. *infernalis*; 2 ♂♂, Kuldja (from Tancré); 1 ♂, Kuldja; 1 ♂, Ili District (from Tancré), 1 ♂, Great Aksu, Issyk-Kul, July 1st, 1902 (Kutsenko), all *ab. styx*; 7 ♂♂, Turgan Aksu Pass, Tian Shan, August 12th, 1905 (Kutsenko); 1 ♂, 3 ♀♀, Little Kizil Pass, Tian Shan, July 21st, 1905 (Kutsenko).

2. P. delphius staudingeri Bang-Haas.

2 ♂♂, Transalai, ex coll. Felder; 2 ♂♂, 2 ♀♀, Samarkand (Haberhauer); 1 ♂, Karategin (Grum-Grshimaïlo); 1 ♂, 1 ♀, Fergana; 1 ♀, Mount Hissar, 11,000 ft. ex coll. Felder; 3 ♀♀, Alai Mountains, ex coll. Felder; 1 ♀ (?), ex coll. Felder; 6 ♂♂, no locality; 1 ♂, 1 ♀, Samarkand; 1 ♂, Samarkand; 1 ♂, no locality, and 1 ♂, Turkestan, all ex coll. Felder: all these are *ab. cardinal.*

3. P. delphius dolabella Fruhstorfer.

5 ♂♂, Kashgar (2 ex coll. Bartel).

4. P. delphius maximinus Staudinger.

2 ♂♂, Taschkend (from Tancré); 1, same locality; 1 ♂, 1 ♀, Kuku-Nor; 2 ♂♂, Amur.

Herr Stichel places this as an aberration of *delphius delphius*, but I believe it is a distinct species. However, for the present I treat it as a subspecies, till the exact extent of its habitat is known.

5. P. delphius albulus Honrath.

18 ♂♂, 26 ♀♀, Naryn District, north side of Tian Shan Mountains; of these 11 ♂♂ and 13 ♀♀ are from the Nura Mountains.

6. P. delphius stoliczkanus Felder.

1 ♂, 1 ♀, types, Ladak (Stoliczka, ex coll. Felder); 1 ♂, Kulu.

7. P. delphius acdestis Grum-Grshimaïlo.

1 ♀, ex coll. Felder, Sining Mountains; cotype.

8. **P. delphius cinerosus** Stichel.

I do not possess specimens.

9. **P. delphius lampidius** Fruhstorfer.

1 ♂, rainy season, Sikkim (ex coll. Fruhstorfer), type.

10. **P. delphius stenosemus** Honrath.

7 ♂♂, 2 ♀♀, N. Cashmere, ex Leech coll.; 1 ♂, 1 ♀, Cashmere, ex coll. Felder.

11. **P. delphius hunza** Grum-Grshimaïlo.

There are no specimens at Tring.

XXVII. PARNASSIUS ACCO Gray.

1. **P. acco acco** Gray.

1 ♀, Ladak (Stoliczka, ex coll. Felder).

2. **P. acco gemmifer** Fruhstorfer.

1 ♂, Sikkim, rainy season, ex coll. Fruhstorfer.

XXVIII. PARNASSIUS SIMO Gray.

1. **P. simo simo** Gray.

1 ♀, Chinese Tartary (Ladak ?).

2. **P. simo simulator** Staudinger.

2 ♂♂, 1 ♀, Issyk-Kul.

3. **P. simo simonius** Staudinger.

11 ♂♂, 6 ♀♀, no locality; 2 ♀♀, no locality, ex coll. Felder; 1 ♂, Thibetan Pamir, 1 ♂, Turkestan! ex coll. Felder; 1 ♀, Turkestan!; 3 ♂♂, 2 ♀♀, between Osch and Usgent, July—August; 1 ♂, Transcaspia.

4. **P. simo boedromius** Püngler.

6 ♂♂, 5 ♀♀, Aksu.

5. **P. simo gylippos** Fruhstorfer.

2 ♂♂, Kyssyl, Tartary (from Tancré). This is a good subspecies.

6. **P. simo acconus** Fruhstorfer.

3 ♂♂, 1 ♀, Sikkim, wet season, ex coll. Fruhstorfer; 1 ♂, Sikkim, type; 1 ♂, Chumbi Valley, Thibet; 1 ♂, 1 ♀, Sikkim, 16,000—19,000 ft., July 1902 (C. White, ex coll. Bingham).

XXIX. PARNASSIUS TENEDIUS Eversmann.

7 ♂♂, 3 ♀♀, no locality; 1 ♂, 2 ♀♀, no locality, ex coll. Felder; 2 ♂♂, 2 ♀♀, Altai, 11,583 ft.; 3 ♀♀, Vilui, N. Siberia; 2 ♀♀, Amur; 1 ♀, Albasin, (Puzilo); 1 ♂, 15 ♀♀, Sredne Kolymsk, N.E. Siberia, June 1906 (N. Bereskin).

XXX. PARNASSIUS IMPERATOR Oberthür.

1. P. imperator imperator Oberthür.

6 ♂♂, E. Thibet; 1 ♂, 8 ♀♀, Ta-chien-lu, 8000—10,000 ft., July 1899 (A. E. Pratt), ex coll. Leech; 1 ♂, How Kou (native coll.), July and August 1890 (A. E. Pratt); 6 ♀♀, Ta-chien-lu (Monsignor Biet, ex coll. Felder)—all ex coll. Oberthür; 2 ♀♀, no locality, but same pin and setting as the previous; 1 ♀, no locality.

2. P. imperator intermedius subsp. nov.

2 ♀♀, Pembu Pass, 12 miles N. of Lhasa, August 1904 (N. V. L. Rybot).

This new form has the forewings similar to *imperator imperator*, but the black transverse bands are narrower; the hindwings as obscure as in ♀ *i. augustus*, but dark bands greyer and more diffused.

3. P. imperator musagetus Grum-Grshimaïlo.

1 ♂, Chuancha Mountains, Yellow River, 1890 (Grum-Grshimaïlo), cotype, ex coll. Felder.

4. P. imperator imperatrix Alphéraky.

I have no specimens.

5. P. imperator supremus Fruhstorfer.

When we get a series of this form, of which only the type is known, it will prove only a giant *i. musagetus*.

6. P. imperator venustus Stichel.

The Tring Museum has no representative of this form.

7. P. imperator augustus Fruhstorfer.

1 ♂, 1 ♀, Thibet, cotypes, ex coll. Fruhstorfer; 5 ♂♂, 3 ♀♀, Chumbi Valley, Thibet.

XXXI. PARNASSIUS CHARLTONIUS Gray.

1. P. charltonius charltonius Gray.

1 ♂, 6 ♀♀, no locality; 1 ♂, Koksir, Lahore, 14,000 feet, 14. vii. 1884 (G. Young); 1 ♂, 1 ♀, Nilang Pass, Garhual, August; 1 ♂, 1 ♀, same locality, 16,000 ft., July 1895; 1 ♀, Lahaul, 12,000 ft., 17. viii. 1884 (G. Young); 2 ♀♀, Cashmere Valley, 11,000 ft., and September 1, 8000 feet (Colonel Ward); 1 ♀, Ladak (Stoliczka ex coll. Felder).

2. P. charltonius princeps Honrath.

3 ♂♂, 9 ♀♀, no locality; 1 ♂, no locality, ex Felder coll.; 2 ♂♂, 3 ♀♀, Turkestan; 2 ♂♂, 4 ♀♀, Boidyl, June; 1 ♂, 1 ♀, Transalai, 13,000 ft. (ex coll. Felder).

XXXII. PARNASSIUS LOXIAS Püngler.

No specimens at Tring.

HYPERMNESTRA HELIOS (Nickerl).

1. H. helios helios (Nickerl).

3 ♂♂, 3 ♀♀, Poin-Shakuh, Elburz Mountains, Persia, June, July, 1907, 5000 to 7000 ft. (Funke); 1 ♂, N. Persia; 1 ♂, Turkestan; 1 ♂, no locality; 1 ♂, 1 ♀, Krasnowodsk.

2. H. helios maxima Grum-Grshimaïlo.

4 ♂♂, 4 ♂♂, Sefir-Kuh, Afghanistan (from Major Hauser); 1 ♂, 1 ♀, Turkestan; 1 ♂, Namajan (from Staudinger, 1884); 6 ♂♂, 2 ♀♀, no locality; 2 ♂♂, 3 ♀♀, ditto, ex Felder coll.; 1 ♂, 4 ♀♀, oasis of Tedschen, Transcaspia, June 1903 (from Major Hauser); 4 ♂♂ W. of Dinau, Amu-Darya.

3. H. helios balucha (Moore).

Doubtfully distinct from *helios maxima*; only the types known.

ARCHON APOLLINUS (Herbst).

1. A. apollinus apollinus (Herbst).

1 ♀, Crete; 2 ♂♂, Burnabad, Smyrna, 13. iv. 1898; 1 ♂, Magnesia, 12. iii. 1905 (Dr. Martin): 1 ♀, ex coll. Felder, "Mabattia"; 1 ♀, Aintab; 1 ♂, Cordelio, Smyrna, 3. iv. 1905 (Dr. Martin); 2 ♀♀, 1 ♂, Smyrna; 3 ♂♂, 3 ♀♀, Asia Minor; 4 ♀♀, ex coll. Felder; 2 ♀♀, Broussa, Asia Minor, 24-25. iv. 1903; 3 larvæ.

2. A. apollinus apollinaris (Staudinger).

1 ♂, Armenian Mts.

3. A. apollinus amasinus (Staudinger).

2 ♂♂, 1 ♀, Amasia, ex coll. Felder.

4. A. apollinus bellargus (Staudinger).

2 ♂♂, 1 ♀, Lebanon, ex coll. Felder; 16 ♂♂, 9 ♀♀, Beirut, Syria; 1 ♂ *ab. krystallina*, Taurus Mountains; 1 ♀, Antiochia; 12 ♂♂, Jerusalem; 2 ♀♀, no locality; 1 ♀, no locality, ex coll. Felder; 14 larvae, ex Beirut, Syria.

Specimens of *Parnassius cephalus*, *P. przewalskii*, *P. loxias*, *P. apollo rinningensis*, *P. apollo uralensis*, *P. apollo nevadensis*, *P. apollo apollo* ex Suecia, *P. phoebus styriacus*, *P. phoebus apricatus*, *P. mnemosyne mnemosyne* ex Scandinavia, *P. davidis davidis* and *P. imperator imperatrix*, are special desiderata of the Tring Museum either in exchange or otherwise.

DESCRIPTIONS OF SOME NEW SOUTH AMERICAN *ARCTIADAE*, WITH NOTES.

By THE HON. WALTER ROTHSCHILD, Ph.D.

IN the "Catalogue of the Lepidoptera Phalaenae in the British Museum" the genera *Azatrephes*, *Gonotrephes*, and *Antaxia* are placed among the *Syntomidae* on account of the absence of the costal nervure of the hindwing. These forms are otherwise very different from the rest of the insects contained in Volume I. of the Catalogue; and as some of the forms included in the *Arctiadae* in Volume III. show analogous neuration, I prefer to treat these three genera as aberrant *Arctiadae*, and place them as follows: *Gonotrephes* following *Thyrarctia*, *Azatrephes* following *Zatrephes*, and *Antaxia* immediately after *Prumala*.

1. **Robinsonia marginata** spec. nov. (Pl. IV. fig. 1).

Nearest allied to *R. prophaea* Dognin, but much larger.

♀. Head and thorax white; palpi and antennae brown; patagia with brown patch where they meet costa of forewing; dorsal surface of first six segments of abdomen orange buff with white median line, last two segments, ventral surface, and sides of abdomen white; forelegs brown, mid- and hindlegs whitish.——Forewing white with dark brown costal fascia and outer margin.——Hindwing pure white. Underside of wings as above, but costal fascia and outer margin of forewing much paler brown.

Length of forewing: 19 mm.

Hab. British Guiana (Mr. Whitford, bought by him at Georgetown, but almost certainly from Omai).

2 ♀♀.

2. **Robinsonia suffusa** spec. nov. (Pl. IV. fig. 3).

This species is nearest to *R. morula* Druce.

♂. Head and tegulae buff; base of patagia grey, rest white; thorax buff; abdomen above greyish brown clothed with white downy scales which give it a powdered appearance.——Forewing white, veins brownish grey, costal fascia and a broad outer margin from apex to vein 3 dark grey, as also are two broad streaks running between veins 3 and 4 and 4 and 5 halfway across the wing; inner margin grey.——Hindwing white, veins slightly washed with grey, except veins 1 and 2. Underside as above.

Length of forewing: 16 mm.

Hab. Fonte Boa, Upper Amazons, May 1906 (S. M. Klages).

2 ♂♂.

3. **Robinsonia multimaculata** spec. nov. (Pl. IV. fig. 5).

Nearest to *R. polyplagia* Schaus.

♂. Palpi black with white lateral patches; head white with black bar above frons, back of head scarlet; antennae brown; thorax bright brown; tegulae

and patagia white with narrow brown edges ; whitish spot in centre of metathorax ; legs deep brown, washed with yellowish white on outside ; abdomen brilliant orange with dorsal row of white dots.——Forewing rufous brown, three white points at base, an elliptical silvery-white patch below cell and running up into it, a large triangular silvery patch beyond cell, and a similar smaller patch between these two running from costa into cell ; inner margin white at base with a millimeter-long white streak under the elliptical patch, a longer white streak at outer fourth, and a white spot in centre of vein 1 ; large white patch at outer angle between veins 1 and 2, two at apex, and five between the apex and terminal part of inner margin.——Hindwing silvery white.

Length of forewing : 24 mm.

Hab. Santo Domingo, Carabaya, S.E. Peru, 6000 ft., June 1902, dry season (G. Ockenden).

4 ♂♂.

4. **Robinsonia punctata** spec. nov. (Pl. IV. fig. 6).

Closely allied to the next species and to *R. dewitzi* Gundl.

♀. Frons white, head golden yellow, palpi brown, with first joint and tip white ; thorax brown with white central streak ; tegulae and patagia white with brown margins ; pectus white, orange in front ; legs white and brown ; abdomen orange with white central line of dots and a black dot on each side of the fourth segment.——Forewing brown, a large diamond-shaped silvery-white patch in submedian interspace extending to vein 11, a second large oval patch extending from just inside apex of cell to apex and occupying almost the whole rest of wing between veins 2 and 11, a small white patch at end of 4 between inner margin and vein 2.——Hindwing silvery white.

Hab. Huatuxco, Vera Cruz.

1 ♀.

5. **Robinsonia similis** spec. nov. (Pl. IV. fig. 7).

Nearest to the last species and *R. dewitzi* Gundl.

♀. Frons and rest of head bright orange ; pectus yellow, orange in front ; antennae pale brown ; thorax pale brown with white central line ; tegulae and patagia white with pale brown edges ; abdomen orange with dorsal row of white dots and conspicuous lateral black spots on the last five segments.——Forewing brown, the two large silvery patches almost as in *R. dewitzi*, but the outer one reaches to apex ; outer margin narrow and white, inner margin joined to inner silvery patch only having an irregular angulated brown streak on it.——Hindwing white.

Length of forewing : 23 mm.

Hab. Caparo, Trinidad, November 1905 (S. M. Klages).

1 ♀.

6. **Neidalia dognini** spec. nov.

♂. Differs from *N. villacresi* Dognin in having two instead of a single transverse line and no white margins to either. The antemedian line runs obliquely from the centre of the costa to the inner margin about one-fourth from the base. The postmedian line is curved, and crosses the wing about

one-third from the apex. Colour of wings and body rufous orange-brown; undersurface paler.

♀. Orange-yellow, irrorated with scattered red dots. Transverse lines reddish, not black as in ♂; a short reddish streak at apex of cell.

Length of forewing: ♂ 18 mm.; ♀ 15 mm.

Hab. Santo Domingo and Tingnri, in Carabaya, Peru, and La Oroya, R. Inambari (G. Ockenden).

2 ♂♂, 2 ♀♀.

7. **Idalus lutescens** spec. nov. (Pl. IV. fig. 8).

Palpi black, legs yellow and brown; head, tegulae, patagia, and thorax buffy yellow; abdomen slightly darker.——Forewing yellow; hindwing buff.

Length of forewing: 20 mm.

Hab. Oconeque, Carabaya, Peru, 7000 ft., July 1904 (G. Ockenden).

1 ♂.

8. **Idalus irregularis** spec. nov. (Pl. IV. fig. 9).

Palpi buffish grey with crimson line along the outside; frons and head buff, washed strongly with crimson; tegulae and patagia greyish buff, blotched and edged with crimson; thorax similar; abdomen yellowish crimson, last segment dark buff, underside clayish buff; pectus pale crimson.——Forewing greyish brown, slightly washed with mauve; between veins 2, 3, 4, 5, and 6 are scattered a number of yellow spots, and the veins themselves have a number of short red streaks on them; between veins 8 and 9 are three yellow dots, and at the end of veins 5, 6, 7, 8, 9 is a yellow dot.——Hindwing whitish buff washed with dirty red along inner margin; large scent organ with patch of androconia, as in *I. melanopasta* Druce.

Length of forewing: 18 mm.

Hab. Fonte Boa, Amazonas, October 1906 (S. M. Klages).

2 ♂♂.

9. **Idalus simplex** spec. nov. (Pl. IV. fig. 10).

♂. Palpi, onterside crimson, innerside buffy grey; head yellowish grey-brown with indistinct crimson border at hind part; tegulae, patagia, and thorax yellowish grey-brown, powdered with pale crimson scales; abdomen dirty red, last and two first segments buffish, powdered with red; antennae crimson from base for about 2 mm., then clay-brown, and finally whitish for the last 3 mm.; legs and pectus crimson.——Forewing clay-brown, slightly powdered with reddish scales; costa crimson, outer margin golden yellow with a crimson line internally; large narrow patch of androconia below cell.——Hindwing buffy clay-brown, strongly washed with crimson.

Underside of forewing brownish pale crimson; hindwing as above.

♀. Similar, but apex of forewing less drawn out, and hindwing more ovate, less triangular.

Length of forewing: ♂ 16 mm., ♀ 19 mm.

Hab. Aroewarwa Creek, Maroewym Valley, Surinam, March 1905 (S. M. Klages).

5 ♂♂, 1 ♀.

10. **Idalus salmonaceus** spec. nov. (Pl. IV. fig. 11).

♂. Palpi black; head and tegulae yellow; patagia salmon-pink edged with yellow; thorax similar; abdomen salmon-pink, irrorated with yellow, last segment yellow, a black dot on fourth, fifth, sixth, and seventh segments dorsally.—— Forewing salmon-pink, nervures, costal and outer margin bright yellow.—— Hindwing pinkish buff, from inner margin to just beyond vein 3 salmon-pink.

Underside as above, but paler.

♀. Differs in being much darker, the salmon-pink being washed with carmine and the hindwing all rose-pink.

Length of forewing: ♂ 19 mm.; ♀ 22 mm.

Hab. Santo Domingo, Tinguri, and Rio Huacamayo, Peru, 1904–5 (G. Ockenden).

6 ♂♂, 1 ♀.

11. **Aphyle affinis** spec. nov. (Pl. IV. fig. 12).

♂. Palpi orange, head brownish orange; tegulae, patagia, and thorax dirty white, on the centre of thorax two black patches one behind the other; abdomen yellow; legs and pectus orange-buff.——Forewing: basal three-fourths dirty white, almost covered by two large patches of bright salmon-pink: apex and outer fourth pale buff: wing crossed obliquely by two rather broad black lines, the postmedian one interrupted at vein 4; costa brownish orange: from the apex to the outer margin at vein 6, reaching back into the wing 3 mm., is a broad black line, forming three parts of an ovoid.——Hindwing yellowish salmon-pink, costal area buffy white.

Underside of wings orange-buff.

♀. Larger and paler.

Length of forewing: ♂ 15 mm.; ♀ 19 mm.

Hab. Fonte Boa, Upper Amazons, July 1906 (S. M. Klages); La Union, Rio Huacamayo, Carabaya, Peru, 2000 ft., November 1904 (G. Ockenden).

15 ♂♂, 3 ♀♀.

12. **Prumala indistincta** spec. nov. (Pl. IV. fig. 14).

♂. Similar to *P. suana* Druce, but the band of ovate spots from the apex to the angle of inner margin is reduced to a line of indistinct dots, while the subapical patch is reduced to a grey dot with a reddish wash; the patch at angle of inner margin is less distinct, and has a red margin; the discal and antemedian transverse rows of spots are larger and with indistinct red rings.——Hindwing buff, washed strongly with pink; abdomen pink.

♀. Has spots on forewing almost obliterated, but has a double grey spot with reddish ring in the cell at the basal end; abdomen crimson, last segment yellow.

Hab. Sapucay, Paraguay, January 1905 (W. Foster); Chiriqui.

1 ♂, 1 ♀.

13. **Prumala submarginalis** spec. nov. (Pl. IV. fig. 16).

♂. Palpi grey, with crimson line outside; head grey, spotted with crimson; tegulae, patagia, and thorax yellow, spotted with grey and crimson; abdomen crimson above, white below.—— Forewing: basal half purplish grey, running

obliquely from costa to vein 3 on outer margin, bordered exteriorly with crimson; veins crimson, a crimson dot where vein 9 springs from vein 10, a large grey diamond-shaped spot crimson-edged running from vein 9 nearly up to vein 10 beyond the cell; a submarginal row of grey red-edged spots on veins from 5 to 8, and a row of similar spots within this, largest towards costa.——Hindwing hyaline buff, washed with rose carmine; a brown marginal spot on vein 3.

Length of forewing: 14 mm.

Hab. Minas Geraës, October 1900 (A. Kennedy).

1 ♂.

14. **Prumala flavicollis** spec. nov. (Pl. IV. fig. 15).

♂. Palpi yellow, frons orange, head yellow with two grey spots; tegulae and base of patagia yellow, rest of patagia mauve brown with crimson edges; thorax brownish; abdomen crimson, tip yellow, a white dorsal spot on second segment.——Forewing dark purplish grey, fore basal two-fifths becoming paler towards inner margin, within this area vein 3 crimson; costa yellow, apical three-fifths yellow, separated from dark area by irregular crimson line running on to costa; marginal row of crimson dots, submarginal row of grey dots, followed by an irregular line; spots grey edged with crimson, expanding into large patches between vein 8 and costa; various dots on disc.——Hindwing pale crimson, costal area white.

Length of forewing: 15 mm.

Hab. Fonte Boa, Upper Amazons, May 1906 (S. M. Klages).

1 ♂.

15. **Prumala incisa** spec. nov. (Pl. IV. fig. 17).

♀. Palpi crimson, forelegs white, basal half of tibiae crimson; antennae above brown, underside crimson; head, tegulae, patagia, and thorax warm brown; abdomen crimson.——Forewing brown, slightly washed with crimson; costa pale crimson, a median and antemedian transverse zigzag line crosses the disc from subcostal vein to inner margin; outer margin from vein 2 yellow; between veins 3 and 6 this yellow area runs into the disc of the wing in a truncate-shaped patch 3 mm. wide, the whole yellow area separated from rest of wing by a crimson line.——Hindwing crimson.

Underside pale crimson, except yellow area of forewing.

Length of forewing: 16 mm.

Hab. Fonte Boa, Upper Amazons, June 1906 (S. M. Klages).

1 ♀.

16. **Prumala sordida** spec. nov. (Pl. IV. fig. 18).

♂. Palpi buff; head, tegulae, and patagia yellow-spotted and edged with dull red and grey; abdomen crimson, last five segments washed with clay-colour.——Forewing: basal two-thirds dirty clayish grey-brown; a distinct lobe protruding from inner margin about one-fourth from base; this lobe is blackish brown, and from its apex to the base of costa runs a scarlet oblique streak; outer edge of dark area bordered with scarlet, veins in this area irregularly dotted here and there with scarlet; outer third hyaline greyish buff with some indistinct lines of darker spots.——Hindwing greyish buff with pale crimson dash near base of inner margin.

Length of forewing : 14 mm.

Hab. La Union, R. Huacamayo, Carabaya, Peru, 2000 ft., November 1904 (G. Ockenden), 1 ♂ (type); Sapucay, Paraguay (W. Foster), 1 ♂.

17. **Antaxia affinis** spec. nov. (Pl. IV. fig. 20).

Nearest to *A. syrissa* (Druce) (Pl. IV. fig. 21).

♂. Palpi brick-red; legs and tibiae red and brown; tarsi yellow; thorax, abdomen, and head brownish brick-red.——Forewing: basal third brick-red, basal third of costa and broad band on outside of basal area deep reddish brown; the basal area is strongly angulated at the lower end, running out on inner margin between it and to beyond vein 2 in a broad band almost to angle of inner margin; rest of wing yellow; costa from apex towards base broadly brick-red for about 3½ mm., curving into a hooked patch on inner side; four brick-red dots in centre of yellow area.——Hindwing yellow, broadly pale brick-colour on inner area.

Length of forewing : 15 mm.

Hab. La Union, R. Huacamayo, Carabaya, Peru, 2000 ft., December 1904 (G. Ockenden).

1 ♂.

18. **Eupseudosoma grandis** sp. nov. (Pl. IV. fig. 23).

♂. Palpi and frons grey; head and tegulae orange-buff; patagia and thorax white; abdomen crimson with white dorsal dots; basal and two last segments white.——Forewing hyaline white, costal edge brown, three or four brownish streaks on disc.——Hindwing hyaline white.

♀. Similar, but more heavily scaled on the wings.

Length of forewing : ♂ 23 mm.; ♀ 27 mm.

Hab. Santo Domingo and R. Huacamayo, Carabaya, Peru, and Caradoc, Marcapata (G. Ockenden).

1 ♂, 2 ♀♀.

19. **Eupseudosoma aberrans** Schaus (Pl. IV. fig. 24).

This species is quite distinct from *agramma*, for it has dark brown costal margins in both sexes, and the inner two-thirds of hindwing in the male pale crimson.

Hab. 2 ♂♂ from Caparo, Trinidad (S. M. Klages) and 1 ♀ from Sapucay, Paraguay, 10. i. 1905 (W. Foster).

20. **Eupseudosoma albescens** spec. nov. (Pl. IV. fig. 25).

♀. Palpi white, head dull orange, legs and antennae brownish grey; rest of body and wings pure white.

Length of forewing : 19 mm.

Hab. Aroewarwa Creek, Maroewym Valley, Surinam, April 1905 (S. M. Klages); British Guiana.

4 ♀♀.

21. **Neaxia ockendeni** spec. nov. (Pl. IV. fig. 26).

♂ Palpi dirty white, tip and a narrow line outside brown; head yellow; tegulae yellow; patagia brown, spotted with yellow; thorax brown; abdomen pale crimson, last segment and dorsal spot on second segment yellow.——Forewing

yellow, three or four brown dots and spots at base; an irregular band of large confluent brown spots crosses the wing from costa to inner margin across basal end of cell, the last but one having the centre yellow; several brown spots in and around cell and beyond it; an irregular transverse band of large brown spots reaching inner margin, where it expands into a large blotch; a marginal and submarginal row of smaller spots.——Hindwing salmon-pink.

Length of forewing: 14 mm.

Hab. Fonte Boa, Upper Amazons, May 1906 (S. M. Klages); R. Huacamayo, Carabaya, 3100 ft., June 1904 (G. Ockenden), type.

2 ♂♂.

22. **Neaxia klagesi** spec. nov. (Pl. IV. fig. 27).

♂. Palpi yellow, streaked and tipped with brown; frons, head and tegulae yellow; patagia, base yellow, rest edged with brown; thorax yellow, spotted with brown; abdomen crimson, first and last segment and dorsal spot on second yellow.——Forewing yellow, a short brown streak runs from base obliquely to vein 2; an antemedian band of large irregular brown patches runs from the costa obliquely to the inner angle, broadly interrupted on inner margin to vein 2 with a yellow patch; veins in band partly crimson; in and above cell are two brown spots and a curved row of four; beyond it a marginal row of brown spots, and between these and the curved row of four spots an irregular transverse row of brown patches and spots.——Hindwing: costal area white, rest of wing buffish grey; a large greyish brown patch occupying outer third with a long yellow patch above it.

Length of forewing: 18 mm.

Hab. Aroewarwa Creek, Maroewym Valley, Surinam, August 1905 (S. M. Klages).

2 ♂♂.

23. **Eriostepta fulvescens** spec. nov. (Pl. IV. fig. 28).

Nearest to *E. bacchans* Schaus.

♂. Palpi buff with a red streak and black spot on third joint; head buff powdered with red; tegulae, patagia, and thorax buff streaked with red; abdomen dull crimson marked with buff; on each of the second and third segments is a curious scent organ filled with a large patch of androconial scales of a silvery opalescent hue.——Forewing buffy yellow; veins all edged with pale dull crimson, a marginal and submarginal transverse row of blackish spots, a post-median transverse dark grey curved line on the inside of which are six black dots; in the cell three black dots, two grey lines and a dull red spot; between the cell and the base several grey streaks and black dots, inner margin pink. ——Hindwing buff with two pink streaks.

Length of forewing: 20 mm.

Hab. Fonte Boa, Upper Amazons, June 1906 (S. M. Klages); Aroewarwa Creek, Maroewym Valley, Surinam, August 1905 (S. M. Klages).

8 ♂♂.

24. **Zatrephes rosacea** spec. nov. (Pl. IV. fig. 29, 30).

♂. Palpi white, pinkish carmine outside and at tips; head carmine, irrorated with white; abdomen deep carmine with white sides to last segment, and white below; forelegs carmine; thorax and forewing pale purplish brown, strongly

irrorated with crimson; beyond cell a transverse patch of four coalescent hyaline spots and a separate hyaline dot; costa white, irrorated with carmine.——Hindwing pale carmine, fringe white.

♀. Similar, but hindwing more like forewing.

Hab. Fonte Boa, Upper Amazons, August 1907 (S. M. Klages).

11 ♂♂, 1 ♀.

25. **Zatrephes klagesi** spec. nov. (Pl. IV. fig. 31).

♂. Palpi buff; head, tegulae, patagia, and thorax buff irrorated with pink; abdomen brownish crimson, last segment and dorsal dot on second buff.——Forewing dark buff irrorated thickly with brown; costal edge white, an antemedial transverse line from costa to inner margin brown, a black dot in cell, a postmedial transverse line from vein 7 to inner margin brown; hyaline patch placed obliquely, consisting of five coalescent spots, and bordered on the inner side with a brown line.——Hindwing crimson, costal area buffish.

Length of forewing: 15 mm.

Hab. Fonte Boa, Upper Amazons, June 1906 (S. M. Klages).

38 ♂♂.

26. **Zatrephes variegata** spec. nov. (Pl. IV. fig. 32).

♂. Palpi white, edged with carmine; head white, irrorated with pink; collar brownish; tegulae white, irrorated with pink; patagia and thorax greyish buff, irrorated with carmine and grey; abdomen crimson carmine, sides of last segment whitish.——Forewing: costa white, buffy yellow, irrorated with carmine and blotched and streaked with greenish grey; hyaline patch consists of five coalescent spots almost covered with yellow and crimson scales.——Hindwing crimson carmine; costal area white.

Length of forewing: 17 mm.

Hab. Fonte Boa, Upper Amazons, July 1907 (S. M. Klages).

12 ♂♂.

27. **Zatrephes flavipuncta** spec. nov. (Pl. IV. fig. 33).

♂. Palpi white with crimson streak; head, tegulae, and patagia rosy grey, irrorated with carmine; thorax carmine; abdomen deep carmine, sides of last segment whitish.——Forewing mauve brown, irrorated with carmine and red scales; costal edge whitish, in cell orange-yellow spot with scarlet ring followed by a black dot; hyaline patch made up of five coalescent greenish-yellow spots encircled by a carmine line; at apex and between hyaline patch and outer margin two irregular patches of buffy orange, irrorated thickly with brown and carmine scales.——Hindwing rosy carmine, fringe white.

♀. Similar.

Length of forewing: ♂ 14 mm.; ♀ 16 mm.

Hab. Aroewarwa Creek, Maroewym Valley, Surinam, April 1905 (S. M. Klages).

1 ♂, 1 ♀

28. **Zatrephes irrorata** spec. nov. (Pl. IV. fig. 34).

♂. Palpi white with brown line; head, tegulae, patagia, and thorax pale brownish yellow, thickly irrorated with brown; abdomen dull carmine.——Forewing brownish buffy yellow, thickly covered with little dark brown streaks and striae;

veins 2 and 3 thickly scaled with dark brown ; no hyaline patch, but two hyaline spots at end of cell and two nearer outer margin between veins 6 and 7 ; three small blackish lunules near apex.——Hindwing brownish crimson.

Length of forewing : 16 mm.

Hab. Fonte Boa, Upper Amazons, August 1906 (S. M. Klages).

1 ♂.

29. **Zatrephes cruciata** spec. nov. (Pl. IV. fig. 35).

♀. The only ♂ is too much rubbed to describe accurately. Palpi of ♀ whitish, with pale crimson line ; head, tegulae, patagia, and thorax pale buff, irrorated with pale crimson ; abdomen above dirty crimson, with a buff dorsal line, the last three segments much mixed with buff.——Forewing pale buff, irrorated with crimson, a black dot in cell ; costal edge white, an antemedian line from costa to inner margin brownish grey, inner margin greyish brown ; from the centre of inner margin on to the disc run two brownish grey lines 5 mm. long in the form of a X; hyaline patch much obscured by scales runs obliquely towards outer margin, is bordered on inner side by ill-defined brownish line and shade, and consists of four spots.——Hindwing : costal half buffish, irrorated and washed with pale crimson, inner half pale crimson.

♂. Appears similar, but abdomen brighter crimson, and two-thirds of the hindwing crimson.

Length of forewing : ♀ 18 mm. ; ♂ 17 mm.

Hab. Fonte Boa, Amazonas, July 1906 and August 1907 (S. M. Klages).

1 ♀ (type), 1 ♂.

30. **Zatrephes rufescens** spec. nov.

♂. Palpi white with crimson line; forelegs pale brown powdered with crimson, remaining legs white ; antennae, base crimson, basal third pale brown and crimson, rest brown ; head mixed crimson and brown ; tegulae, patagia, and thorax pale grey-brown, irrorated with crimson ; abdomen crimson, last segment brownish grey mixed slightly with crimson.——Forewing buffy orange, much irrorated with crimson, a black dot in cell, a dark brownish grey antemedian line from costa to inner margin ; from veins 5 and 6 to inner margin on the disc two zigzag dark brownish grey lines, and above them and surrounding the hyaline patch a large purplish brown-grey patch ; hyaline patch only slightly oblique, consisting of two large coalescent spots between veins 6 and 7 and 7 and 8, and two small ones between 8 and 9 and 9 and 10, and a small dot above not coalescent.——Hindwing buff, washed with pale crimson.

♀. Similar, but larger, and markings much less distinct ; hyaline patch with all spots much reduced ; hindwing dull crimson.

Length of forewing : ♂ 16 mm. ; ♀ 21 mm.

Hab. Fonte Boa, Amazonas, May and August 1906 and 1907 (S. M. Klages) ; Aroewarwa Creek, Maroewym Valley, Surinam, and Santo Antonio do Javary, Amazonas, May 1905 and June 1907 (S. M. Klages).

3 ♂♂, 10 ♀♀.

31. **Zatrephes ockendeni** spec. nov. (Pl. IV. fig. 36).

♂. This species is nearly allied to *Z. ossea* Schaus, but is distinguishable at once by the large hyaline patch ; palpi crimson on outside, buffy white in front : legs whitish, powdered with crimson ; head, tegulae, and patagia pinkish

cream-colour, irrorated with crimson ; thorax rufous brown ; abdomen crimson, last segment whitish.——Forewing pinkish cream-colour, strongly irrorated with crimson, a black dot in the cell, a sharply defined transverse antemedian line brownish or yellowish olive, a postmedian line of same colour less defined, inner margin olive-brown ; hyaline patch consists of four spots, uppermost small and round, second large and kidney-shaped, the third very large, oblong ovate, the lower small and triangular, the whole patch surrounded by a thin blackish line. ——Hindwing creamy white, very strongly washed and irrorated with pale crimson.

Length of forewing : 18 mm.

Hab. La Oroya, R. Inambari, Peru, September 1904, 3100 ft. (G. Ockenden).

1 ♂.

32. **Zatrephes brunnea** spec. nov.

♂. Palpi white with crimson stripe ; head, tegulae, patagia, and thorax pale brown, irrorated with pink ; abdomen crimson.——Forewing pale brown, so densely covered with darker brown scales that the wing at first sight appears a uniform umber brown ; it is also irrorated with crimson, a black dot in cell, and a broad median band of slightly darker shade than rest of wing crosses the wing ; hyaline patch small, consists of five smallish spots, the uppermost separate.——Hindwing crimson.

♀. Paler.

Length of forewing : ♂ 18 mm. ; ♀ 22 mm.

Hab. La Union, R. Huacamayo, Carabaya, Peru, 2000 ft., December 1904 (G. Ockenden).

2 ♂♂, 1 ♀.

33. **Zatrephes griseorufa** spec. nov. (Pl. IV. fig. 37).

♂. Palpi whitish with brown stripe ; forelegs brown, remaining legs and pectus pure white ; head, tegulae, and patagia grey, irrorated with brown ; thorax grey with brownish centre ; abdomen brown.——Forewing strongly truncate at apex, grey, slightly irrorated with tiny brown streaks, heavily so in the outer fourth of the wing ; two (one ante- and one postmedian) transverse rather faint lines dull brown ; hyaline patch consists of four spots, the upper one small, quadrate and detached, the second small, comma-shaped, the two lower ones large and oblong.——Hindwing orange rufous, costal area buff.

Length of forewing : 19 mm.

Hab. Fonte Boa, Amazonas, June 1906 (S. M. Klages).

2 ♂♂.

34. **Zatrephes binotata** spec. nov. (Pl. IV. fig. 38).

♂. Palpi and legs buffy brown ; pectus pure white ; head and thorax buffy brown ; abdomen slightly darker.——Forewing : apical area truncate, buffy brown irrorated with crimson and greenish grey ; an antemedian and a median transverse lines greenish grey ; hyaline spot very small, consisting of two small spots ; there is a hyaline dot on vein 9, nearer the apex.——Hindwing buff, slightly washed with orange, outer margin rufous.

Length of forewing : 17 mm.

Hab. Fonte Boa, Amazonas, May 1906 (S. M. Klages).

35. **Zatrephes bilineata** spec. nov. (Pl. IV. fig. 39).

♂. Palpi whitish; forelegs grey, rest whitish; head and thorax pinkish grey irrorated with crimson; abdomen darker.——Forewing: apical area truncate, pinkish grey irrorated with crimson; an antemedian and a postmedian transverse line very distinct greyish olive, outer one bordered on the outer side with buff; hyaline patch consisting of three median oblong spots, with two separate hyaline spots nearer the outer margin towards the apex; fringe of outer margin white.——Hindwing dark buff.

Length of forewing: 20 mm.

Hab. La Union, R. Huacamayo, Carabaya, Peru, 2000 ft., November 1904 (G. Ockenden).

1 ♂.

35A. **Zatrephes bilineata rufobrunnea** subspec. nov. (Pl. IV. fig. 40).

♂. Similar in all respects to *bilineata bilineata*, but ground-colour of forewing pinkish orange-rufous, thickly irrorated with brown and crimson.——Hindwing washed with rufous.

Length of forewing: 18 mm.

Hab. Fonte Boa, Amazonas, May 1906 (S. M. Klages).

2 ♂♂.

36. **Zatrephes foliacea** spec. nov. (Pl. IV. figs. 41—43).

♂. Palpi whitish in front, brown outside and at tip; head and thorax buff grey; abdomen more yellowish.——Forewing truncate, yellowish clay-grey, darker and somewhat irrorated with maroon between the somewhat faint ante- and postmedian transverse lines, the postmedian line bordered outside with buff; hyaline patch consisting of four spots, the three lower ones large and irregular, the upper one small and ovate, the whole surrounded by a narrow bright maroon ring; between the hyaline patch and the outer margin is a large maroon patch, somewhat irrorated, which fades away into the grey towards angle of inner margin; upper third of fringe of outer margin maroon and middle third white, rest uniform with wing ground-colour.——Hindwing bright buff, fringe rufous.

♀. Like the male but larger, and the transverse lines paler; 2 ♀♀ are brownish maroon all over the forewing, and the patch beyond the hyaline patch is deep reddish chocolate.

Length of forewing: ♂, 18·5 mm.; ♀, 22 mm.

Hab. Fonte Boa, Amazonas, July 1906 and August 1907 (S. M. Klages).

14 ♂♂, 4 ♀♀.

37. **Zatrephes subflavescens** spec. nov. (Pl. V. fig. 1).

♂. Palpi whitish; forelegs and tibiae brown, tarsi ringed brown and white; rest of legs and pectus white; antennae pale brown; head, thorax, and abdomen creamy buff irrorated with a darker greyish buff.——Forewing creamy buff, irrorated slightly on the basal half but very strongly on the outer half with greyish clayish brown; an ante- and a postmedian transverse line of same colour but darker; hyaline patch reduced to two widely separated round dots partially covered with whitish scales.——Hindwing creamy buff.

♀. Similar.

Length of forewing: ♂, 16—19 mm.; ♀, 21 mm.

Hab. Aroewarwa Creek, Maroewym Valley, Surinam, and Fonte Boa, Amazonas, April 1905 and July 1906 (S. M. Klages).

10 ♂♂, 1 ♀.

38. **Zatrephes gigantea** spec. nov. (Pl. V. fig. 2).

This is the largest species of the genus.

♀. Palpi white; forelegs and tibiae brown freckled with grey, rest of legs white; pectus white; head and thorax dull buff slightly irrorated with brown; abdomen buff, with a dorsal brownish tuft on the first, second and third segments. ——Forewing whitish buff, becoming darker buff towards the outer margin; very indistinct antemedian and median transverse lines of a dirty yellowish olive; the whole surface of wing strongly irrorated with greyish brown; hyaline patch large and very irregular, consisting of four coalescent spots and a detached round dot; outline of wing strongly truncate and angulated.——Hindwing yellowish salmon-colour; costal area bright buff.

Length of forewing: 31 mm.

Hab. Fonte Boa, Amazonas, August 1906 (S. M. Klages).

2 ♀♀.

39. **Zatrephes albescens** spec. nov. (Pl. V. fig. 3).

♂. Palpi whitish in front, dull brick on outside; head pink; thorax whitish, irrorated with brick-red; abdomen similar.——Forewing: costa pinkish brick-red: an antemedian transverse line, dull yellowish olive, runs obliquely from the inner angle outwards to the costa; a postmedian line of the same colour runs from the inner margin obliquely to vein 9, where it ends in a round semi-detached blackish spot; inner margin yellowish olive.——Hindwing dull white, fringe pinkish grey; hyaline patch consists of two round spots.

♀. Similar.

Length of forewing: ♂, 16 mm.; ♀, 22 mm.

Hab. Fonte Boa, Amazonas, May 1906 (S. M. Klages).

1 ♂, 1 ♀.

40. **Zatrephes nitida** spec. nov. (Pl. V. fig. 5).

♂. Palpi, legs and antennae pink; head and tegulae pearl grey powdered with pink; patagia greyish silvery; abdomen crimson, first and last segments buff.——Forewing: basal two-thirds of costa creamy white, apical third as well as outer and inner margin yellowish pink, rest of wing opalescent silvery white, thickly irrorated with grey; antemedian and postmedian transverse lines greenish yellow.

Length of forewing: 17 mm.

Hab. Fonte Boa, Amazonas, May 1906 (S. M. Klages).

1 ♂.

41. **Zatrephes miniata** sp. nov. (Pl. V. fig. 6).

♀. Palpi whitish, bordered and tipped with red; forctibiae red, rest of legs whitish: pectus white; head cinnabar red; thorax dark grey, washed and irrorated with cinnabar red; abdomen deep brownish grey.——Forewing greyish orange-brown, so closely irrorated with cinnabar as to appear almost entirely red; an antemedian and a median transverse line dark grey; hyaline patch large and

consisting of three closely coalescing spots surrounded by a greyish brown cloud. ——Hindwing dark sooty grey.

♂. Identical.

Length of forewing : 19 mm.

Hab. Fonte Boa, Amazonas, June 1906 (S. M. Klages).

1 ♂, 1 ♀.

42. **Zatrephes sublutescens** spec. nov. (Pl. V. fig. 7).

♂. Palpi whitish in front, dull carmine outside; forelegs dull carmine, variegated with yellowish grey; head brownish grey, powdered with carmine; thorax and abdomen yellowish buff, slightly irrorated with carmine.——Forewing greenish buff, dusted with carmine; an antemedian and postmedian transverse line olive; beyond postmedian line are two black dots, one between veins 7 and 8 and one between 8 and 9.——Hindwing whitish buff.

♀. Identical but larger.

Length of forewing : ♂ 20 mm. ; ♀ 27 mm.

Hab. La Oroya, R. Inambari, Peru, 3100 ft., October 1904 (G. Ockenden).

5 ♂♂, 1 ♀.

43. **Azatrephes fuliginosa** spec. nov. (Pl. V. figs. 8–12).

♂. Palpi brown ; forelegs red and grey, inside brown ; head brown ; tegulae white ; patagia brown, with mixed buff and red spots ; abdomen brown, with white dorsal patch on second and dull orange one on third and fourth.——Forewing sooty brown, two-thirds of disc occupied by a yellowish hyaline patch with three rows of minute brown dots on it ; on its outer side it is bordered by a serpentine line of silver spots which join an outer marginal row of reddish pink ones at vein 3 ; between the discal hyaline patch and the base is an irregular large patch, extending transversely across the wings, of bright silver intermixed with crimson streaks.——Hindwing sooty brown.

This appears to be the normal type, as five out of my eleven specimens are about like it ; but from this type the species varies so much that in one direction the extreme is reached in a specimen in which the whole forewing is sooty brown, only having two or three silver and red dots on the inner margin, the much reduced line of silver spots which joins the outer marginal line of pink spots, and a few pink spots on the costa; in the opposite direction a specimen has hardly any brown on the forewing and dirty orange hindwing washed with sooty brown.

Length of forewing : 14 mm.

Hab. Fonte Boa, Amazonas, May 1906 and July and August 1907 (S. M. Klages).

11 ♂♂.

44. **Azatrephes discalis** Walker (Pl. V. fig. 14).

This is a good species, much larger than *paradisea* Butler (Pl. V. fig. 13); silvery white, not silvery yellow ; has costa, outer margin, and oblique median band dull chestnut-brown instead of sooty brown and orange.

Expanse of ♂ 32 mm., of *paradisea* ♂ 25 mm. ; of ♀ 39 mm., of *paradisea* ♀ 28 mm.

A. discalis also has a silvery white abdomen in the female and washed with buff in the male, while *paradisea* has a crimson abdomen in both sexes.

45. **Amaxia affinis** spec. nov. (Pl. V. fig. 15).

♂. Nearest to *A. pulchra* spec. nov. (*infra*).

Palpi yellow, spotted and striped with crimson; legs yellow; pectus crimson; head yellow, collar crimson; tegulae yellow; patagia brown edged with crimson; thorax brown; abdomen dull crimson, yellowish at last two segments.——Forewing: basal two-fifths obliquely brown with a yellow wedge near base edged with crimson, reaching from vein 5 to costa; brown area outwardly edged with crimson; pinky white patch at base of inner margin; outer three-fifths of wing yellow; along outer margin a marginal and a submarginal row of brown dots; eight other similar dots scattered on disc, and three larger oval coalescent brown spots between veins 8 and 9, 9 and 10, and 10 and 11, each with a crimson ring.——Hindwing pinkish white.

Length of forewing: 20—23 mm.

Hab. Santo Domingo, Carabaya, Peru, 6000 ft., November 1901 (G. Ockenden).
23 ♂♂.

46. **Amaxia pulchra** spec. nov. (Pl. V. fig. 16).

♂. Palpi yellow; legs yellow with three crimson rings; head red and yellow, collar crimson; tegulae yellow; patagia, outer half yellow, inner half dark brownish grey, separated from the yellow by a crimson line; abdomen crimson yellow at last segment.——Forewing: base yellow with three scarlet rings on it; a large irregular blackish patch occupying one-fourth of the wing follows this yellow basal area; at the inner margin it reaches the angle, but on costa near base of cell it is quite narrow; a yellow spot in this patch on inner margin; a marginal and submarginal row of pinkish brown spots and six similar ones on disc; before apex three large blackish oval spots encircled with scarlet; between these and patch reaching angle of inner margin four pinkish brown spots.——Hindwing carmine pink, outer margin yellowish, costal area pinkish buff.

Length of forewing: 17—22 mm.

Hab. Santo Domingo and La Oroya, R. Inambari, Carabaya, Peru, January 1901, October 1902, January 1903 (G. Ockenden); Minas Geraës (A. Kennedy).
14 ♂♂.

47. **Amaxia pardalis parva** subspec. nov. (Pl. V. fig. 17).

♂. This is the representative of the Central American *pardalis* (Pl. V. fig. 18) in the Guianas and Brazil. Similar to *pardalis pardalis*, but smaller. The yellow is duller and the hindwing less rosy, more salmon-pink; the dark colour in the basal area of forewing paler and the irregular blotch beyond the cell less oblique and less irregular in outline; abdomen dull crimson mixed with yellow.

Length of forewing in *pardalis pardalis*, ♂ 18 mm.; in *pardalis parva*, ♂ 13—15 mm.

Hab. Aroewarwa Creek, Maroewym Valley, Surinam, April 1905 (S. M. Klages); Manaos, September 1906 (M. de Mathan).
12 ♂♂, 1 ♀.

48. **Amaxia rufobasalis** spec. nov. (Pl. V. fig. 19).

♂. Palpi, legs, and frons yellow; crimson line on vertex; collar and tegulae yellow; base of patagia and front of thorax crimson; rest of patagia and thorax dark crushed-strawberry red; abdomen dull crimson, sides of last

segment whitish.——Forewing: basal third crushed strawberry washed with grey outwardly, veins in this area crimson; basal fourth of costa bright yellow, rest duller, the outer third to apex dotted with crimson; rest of wing semi-transparent dull yellow; an outer submarginal row of greyish mauve dots and ten ocellated greyish mauve spots on the disc.——Hindwing: costal third opalescent pinkish white, rest crushed strawberry.

Length of forewing: 18 mm.

Hab. Fonte Boa, Amazonas, May 1906 (S. M. Klages).

9 ♂♂.

49. **Areomolis basalis** spec. nov. (Pl. V. figs. 20, 21).

♂. Palpi greyish brown; pectus orange-buff; legs orange-buff, streaked with brownish grey and crimson; frons crimson; head yellow, marked with crimson; tegulae, patagia, and thorax streaked and irrorated with yellow, grey, and crimson; abdomen orange buffy yellow with central dorsal row of crimson spots.——Forewing greyish rufous brown, basal third more yellowish, this basal third crossed by two bright yellow and four crimson zigzag transverse lines; near the outer margin between veins 3 and 4 and 4 and 5 are two coalescent yellow spots with crimson rings.——Hindwing: basal half buff, outer half blackish.

♀. Similar, but wings broader, and the submarginal spots between veins 3 and 5 are three in number.

Length of forewing: ♂ 16 mm.; ♀ 15 mm.

Hab. Fonte Boa, Amazonas, May 1906 (S. M. Klages).

9 ♂♂, 3 ♀♀.

50. **Areomolis alboapicalis** spec. nov. (Pl. VII. fig. 29).

♂. Palpi, legs, head, thorax, and forewings deep brown; a large white spot at apex.——Hindwing deep salmon, outer margin brown; abdomen dull crimson, last three segments sooty brown.

Expanse: 31 mm.

Hab. Aroewarwa Creek, Maroewym Valley, Surinam, March 1905 (S. M. Klages).

1 ♂.

51. **Areomolis griseata** spec. nov. (Pl. V. fig. 22).

♂. Palpi, pectus, and legs grey; head grey; two orange spots behind base of antennae; tegulae grey with buffy yellow edges; patagia grey; thorax grey with central whitish line; abdomen above grey, with segments 6, 7, and 8 yellow. ——Forewing dark mouse-grey with veins picked out in pale whitish grey; from costa to vein 2 a transverse line of whitish spots crosses cell, and beyond it a second line of five spots curves in and joins the first line.——Hindwing whitish grey, getting darker towards the outer margin.

Length of forewing: 14 mm.

Hab. Fonte Boa, Amazonas, May 1906 (S. M. Klages).

1 ♂.

52. **Areomolis ockendeni** spec. nov. (Pl. V. figs. 23, 24).

♂. Palpi reddish brown; pectus orange-buff; legs orange-buff striped with greyish brown; head whitish, collar crimson; tegulae and patagia brown; thorax whitish with crimson lines; abdomen brownish orange-buff with crimson rings.——

Forewing deep greyish rufous brown; near base a zigzag transverse white line edged with crimson; a similar line from costa across the cell; near outer margin between veins 2 and 5 three white spots encircled with crimson; cilia chequered with pinkish white and brown.——Hindwing buffy yellow with a wide blackish border, widest at apex and gradually narrowing till it fades away at anal angle.

Hab. La Oroya, Inambari R., Carabaya, Peru, 3100 ft., November and December 1905 (G. R. Ockenden); Aroewarwa Creek, Maroewym Valley, Surinam, July 1905; and Fonte Boa, Amazonas, July 1906 (S. M. Klages).

53. **Parevia maculata** spec. nov. (Pl. V. fig. 25).

♀. Palpi and legs greyish yellow; head yellow; thorax yellowish grey-brown; abdomen dull crimson.——Forewing yellowish grey-brown, antemedian and median irregular semihyaline white band from costa to vein 3, edged narrowly with reddish; an apical and four other marginal and submarginal whitish semihyaline spots edged with red; a round yellow dot on inner margin one-third from the base.——Hindwing dull crimson with wide sooty brown border.

Length of forewing: 14 mm.

Hab. Fonte Boa, Amazonas, August 1907 (S. M. Klages).

1 ♀.

54. **Automolis albescens** spec. nov. (Pl. V. fig. 26).

♀. This is the largest species of the genus, for whereas *A. grandis* and *A. flammans* have an expanse of 85 mm. this specimen has a total expanse of 95 mm.

Palpi clay-brown; pectus white; foreleg, tibia, and tarsus clay-brown, rest of leg crimson; frons white; summit of head crimson; thorax and abdomen dirty yellowish grey-white; antennae black.——Forewing dirty yellowish grey-white; hindwing semihyaline white.

Length of forewing: 44 mm.

Hab. British Guiana (bought at Georgetown by Mr. Whitford).

1 ♀.

55. **Automolis favillacea** spec. nov. (Pl. V. fig. 28).

♀. Palpi and legs brownish grey; pectus greyish buff; head and thorax pale wood-brown; abdomen sooty brown, sides of first two and whole of anal segment whitish grey.——Forewing fawn drab, strongly washed with wood-brown, deepest in subbasal area and cell, where it forms a semi-obliterated transverse band and a patch respectively; at apex and just before angle of inner margin is respectively a dark brown patch joined by a submarginal row of brown dots; from the patch before the angle of inner margin there runs also to the costa a postmedian transverse line of larger brown dots.——Hindwing: costal area whitish, rest of wing brownish mouse-grey.

Length of forewing: 22 mm.

Hab. Aroewarwa Creek, Maroewym Valley, Surinam, August 1905 (S. M. Klages).

1 ♀.

56. **Automolis ochracea** spec. nov. (Pl. V. fig. 29).

♂. Similar to *A. ochreata* Schaus (Pl. V. fig. 30), but larger subbasal band of grey dashes more oblique, and the one that crosses the end of cell instead of being straight or slightly oblique is deeply concave.——Hindwing has costal margin straight, and shows no trace of the large scent gland and patch of androconia so conspicuous in *ochreata*.

♀. Larger.

Length of forewing : ♂ 18 mm. ; ♀ 20 mm.

Hab. Santo Domingo, Carabaya, S.E. Peru, 6000 ft., June 1901 ; and La Oroya, R. Inambari, Peru, 3100 ft., September 1904 (G. Ockenden).

4 ♂♂, 4 ♀♀.

57. **Automolis metacrinis** spec. nov. (Pl. V. fig. 27).

♂. This species is intermediate between *crinis* and *herois*. Legs and palpi grey-brown ; head whitish ; tegulae, patagia, and thorax whitish, strongly washed and edged with crimson carmine ; abdomen carmine, tip whitish.——Forewing hyaline opalescent white, at the base a number of longitudinal brownish grey streaks forming a subbasal band ; this band is followed by a patch of pale yellow and then an almost straight transverse median band of blackish grey dashes, with more or less pale interspaces and veins.——Hindwing white, washed with pale carmine.

Length of forewing : ♂ 20 mm. ; ♀ 22 mm.

Hab. Onaca, Sta. Marta, 2000 ft. (Engelke) ; Paramba, Ecuador, January to May 1897 (Rosenberg) ; S. Javier, R. Cachabi, and R. Cayapas, N.W. Ecuador (Flemming & Miquetta).

1 ♂, 3 ♀♀.

58. **Automolis fasciipuncta** spec. nov. (Pl. V. fig. 31).

♂. Palpi and legs whitish ; head and tegulae and forepart of patagia and thorax buff, hindpart whitish ; abdomen buff, first and last rings white.——Forewing : basal third white, rest hyaline opalescent white ; from costa to inner margin across cell a band of black dots and dashes, twelve in number ; two faint subbasal black dots.

Length of forewing : ♂ 20 mm. ; ♀ 22 mm.

Hab. La Union, R. Huacamayo, Carabaya, Peru, November 1904 (G. Ockenden) ; La Oroya, R. Inambari, Peru, November—December 1905 (G. Ockenden) ; Fonte Boa, Amazonas, September 1906 (S. M. Klages).

3 ♂♂, 1 ♀.

59. **Automolis nigropunctata** spec. nov. (Pl. V. fig. 32).

♂. Palpi white ; forelegs brown ; head, tegulae, and patagia buff ; thorax and abdomen white.——Forewing : edge of costa brownish black ; a brownish black dot on vein on lower side of cell, a round blackish spot between veins 8 and 9 near outer margin, three blackish streaks above inner margin on disc between veins 1 and 4.——Hindwing white.

Length of forewing : 24 mm.

Hab. Fonte Boa, Amazonas, May 1906 (S. M. Klages).

1 ♂.

60. **Automolis bicolor** spec. nov. (Pl. V. figs. 34, 35).

♂. Legs and palpi grey; pectus crimson; head buff; thorax white, with crimson spot; abdomen crimson, tip whitish.——Fore- and hindwings white, slightly washed with yellow; at the end of cell in forewing two or three faint blackish streaks.

Length of forewing: ♂ 17 mm.; ♀ 20 mm.

Hab. Valencia, Venezuela; Onaca, Sta. Marta, 2000 ft. (Engelke).

61. **Automolis aureogrisea** spec. nov. (Pl. V. fig. 36).

♂. Palpi whitish yellow; legs yellow and black; head and thorax golden yellow, with dark steel-grey patch where it joins abdomen; abdomen orange-yellow, washed with grey.——Forewing deep golden yellow, with large ovate steel-grey patch, with blue reflections reaching from inner margin to beyond cell and from outer margin to within 2 mm. of base; a yellow splash runs into this from central third of inner margin.——Hindwing opalescent yellowish grey, washed with greyish brown, strongest towards outer margin.

Length of forewing: 18 mm.

Hab. Santo Domingo, Carabaya, Peru, June 1901 (G. Ockenden).

2 ♂♂.

62. **Automolis prumaloides** spec. nov. (Pl. V. fig. 38).

♂. Palpi white; legs white; head and thorax tawny olive-brown; abdomen crimson.——Forewing: costa pale tawny olive-brown, with golden splash in the centre; the basal half of wing obliquely tawny olive-brown; apical half hyaline yellow; in the apical half the veins inwards from outer margin for about a millimetre blackish brown, vein 10 almost entirely dark.——Hindwing salmon-crimson.

♀. Similar.

Length of forewing: ♂ 14 mm.; ♀ 14 mm.

Hab. Fonte Boa, Amazonas, May 1906 (S. M. Klages).

1 ♂, 1 ♀.

63. **Automolis cruenta** spec. nov. (Pl. V. fig. 39).

♂. Palpi, legs, head, thorax, and abdomen geranium-red.——Forewing scarlet, densely irrorated with rose-carmine; at end of cell is a round semihyaline white spot about 1½ mm. across; basal half of costa slate-blue; from the inner margin to vein 8 runs a transverse median band of slate-blue which curves round the top of the white spot and runs longitudinally to join the slaty fringe of outer margini; from the base runs an indistinct slate-blue band which joins the median one at inner margin.——Hindwing pale rosy carmine, costal and outer margins bright carmine.

Length of forewing: 18 mm.

Hab. La Union, R. Huacamayo, Carabaya, Peru, 2000 ft., December 1904 (G. Ockenden); Fonte Boa, Amazonas, May 1906 (S. M. Klages).

4 ♂♂.

64. **Automolis pseudidalus** spec. nov. (Pl. VI. fig. 14).

♀. Palpi and legs pale salmon-colour; head scarlet; tegulae yellow; patagia and thorax yellow, streaked with orange-chrome; abdomen salmon-colour, last two segments yellow.——Forewing bright yellow, a hyaline spot in cell surrounded by a number of ill-defined brownish grey blotches; costa strongly washed and tesselated with greyish mauve-brown; fringe of outer margin mauve-brown; wing crossed by six transverse vermiculated bands of varying breadth of a reddish orange, the outer three consisting of more or less perfect half-moons, between the fourth and fifth a line of mauve-grey spots.——Hindwing: costal third yellowish buff, rest salmon-colour.

Length of forewing: 30 mm.

Hab. Fonte Boa, Amazonas, July 1907 (S. M. Klages).

1 ♀.

65. **Automolis propinqua** spec. nov. (Pl. VI. fig. 2).

♂. Palpi, pectus, middle and hindlegs yellowish white; forelegs, head, and thorax vermilion, slightly irrorated with yellow; abdomen pale crimson.——Forewing buffy orange, irrorated with crimson and banded with leaden grey, much as in *A. crocos*. The most pronounced difference is in the hyaline yellow patch, which is larger and much wider than in *A. crocos*, but does not reach the outer margin as in that species.——Hindwing hyaline buff washed with salmon-crimson, not crimson as in *crocos*.

Length of forewing: 22 mm.

Hab. R. Huacamayo, Carabaya, Peru, June 1904 (G. Ockenden).

1 ♂.

66. **Automolis apiciplaga** spec. nov. (Pl. VI. fig. 3).

♀. Palpi, tibiae of forelegs, head, thorax, and abdomen crimson scarlet.——Forewing: basal three-fifths obliquely crimson scarlet, strongly washed with greyish mauve; apical two-fifths yellow with large apical patch of crimson scarlet washed with greyish mauve.——Hindwing paler crimson scarlet.

Length of forewing: 17 mm.

Hab. Fonte Boa, Amazonas, November 1906 (S. M. Klages).

1 ♀.

67. **Automolis flavonotata** spec. nov. (Pl. VI. fig. 4).

♀. Palpi pale brick-red; forelegs, tarsi yellow, rest crimson; head and thorax yellow, almost covered with crimson irrorations; abdomen pale crimson, with yellowish dorsal median line.——Forewing: basal half obliquely rosy magenta; near the base from the costa half across the wing a large yellow patch slightly irrorated with crimson; from the inner margin beyond this to within the cell a large wedge-shaped yellow patch almost hidden by scarlet irrorations; apical half yellow, dotted sparingly with rose dots, a subapical long narrow patch of rosy magenta edged with crimson.——Hindwing pale carmine with yellowish margin.

Length of forewing: 18 mm.

Hab. San Antonio do Javary, Amazonas, June 1907 (S. M. Klages).

1 ♀.

68. **Automolis carmesina** spec. nov. (Pl. VI. figs. 5, 6).

♂. Palpi yellowish, bordered with crimson ; pectus white ; forelegs crimson, rest of legs white ; tarsi and tibiae tipped with brick-red ; head and thorax crimson, irrorated with yellow ; abdomen and hindwing dull crimson.——Forewing greyish crimson-scarlet, banded transversely with four irregular bands of orange and scarlet irrorations, hyaline patch of three spots surrounded by scarlet crimson line.

♀ similar and larger, but the hyaline patch smaller, consisting of two spots only, and the transverse bands more distinct.

Length of forewing : ♂ 19 mm. ; ♀ 25 mm.

Hab. Fonte Boa, Amazonas, July 1906 (S. M. Klages).

69. **Automolis pseudopraemolis** spec. nov. (Pl. VI. fig. 1).

♂. Palpi and head blood-red ; tegulae yellow edged with brick-red ; patagia, thorax, and abdomen orange, washed and irrorated with mauve-grey ; sides of two middle segments of abdomen dull crimson.——Forewing : costa brick-red marked with dull mauve and buffy orange ; basal third very obliquely dull pinkish mauve with some half obliterated yellow patches irrorated with scarlet ; on the oblique outer border of this basal third is a bright blood-red band from costa to vein 3 ; near apex a dull brick-red streak runs obliquely from costa halfway to outer margin ; outer two-thirds of wing yellow.——Hindwing yellowish buff, strongly washed with pale crimson.

Length of forewing : 22 mm.

Hab. La Oroya, R. Inambari, Peru, September 1904 (G. Ockenden).

3 ♂♂.

70. **Automolis luteorosea** spec. nov. (Pl. V. fig. 40).

♀. Palpi grey and white ; pectus yellow ; legs grey ; head orange ; tegulae white ; patagia and thorax buffy yellow ; abdomen dull crimson.——Forewing buffy yellow crossed by two broad bands composed of maroon brownish grey longitudinal patches ; the subbasal one oblique, the postmedian straight and very broad, between the bands white, with a yellow patch within the white.——Hindwing dull crimson.

Length of forewing : 16 mm.

Hab. Christianeburg, British Guiana.

1 ♀.

71. **Automolis ockendeni** spec. nov. (Pl. V. fig. 41).

♂♀. Palpi, head, thorax, abdomen and forewing deep velvety black, across the latter runs an oblique golden buff band from middle of costa almost to angle of inner margin.——Hindwing, costal two-fifths pearl-grey, outer three-fifths deep black.

Hab La Oroya, R. Inambari, Peru, September 1904 (G. Ockenden).

7 ♂♂.

71A. **Automolis ockendeni lativitta** subsp. nov. (Pl. V. fig. 42).

♂. Differs from *ockendeni ockendeni* by having shorter forewing and the oblique band much darker, more orange buff, and one-third wider.

Hab. Fonte Boa, Amazonas, July 1907 (S. M. Klages).

4 ♂♂.

72. **Automolis subflammans** spec. nov. (Pl. VI. fig. 11).

♂. Differs from *flammans* by its much broader and blunter wings and duller colour.——Forewing dull ferruginous brown; only four instead of six white submarginal spots at outer margin, hyaline patch yellowish, much smaller, and made up of four, not six spots.——Hindwing reddish salmon, a hyaline white patch of two spots in centre; antennae much more strongly pectinated.

Length of forewing: 29 mm.

Hab. Sta Catharina, Brazil; Bogota.

2 ♂♂.

73. **Automolis subtruncata** spec. nov. (Pl. VI. fig. 12).

♀. Similar to ♀ of *A. pandiona*, but forewing less truncate.

Legs, palpi, head, and thorax buffy greyish cinnamon; abdomen buffish, pale crimson dorsally.——Forewing cinnamon brown, a yellow dot at base; basal half with three irregular rows of yellow spots; a postmedian discal row of two hyaline ovate spots with above and below a hyaline dot; between apex and vein 8 a yellow patch with veins brown; on each side of vein 7 two yellow submarginal spots and a yellow streak after vein 7.——Hindwing: costal half buffish, outer half pale crimson.

Length of forewing: 27 mm.

Hab. Sta. Catharina, Brazil.

1 ♀.

74. **Automolis hyalina** spec. nov. (Pl. V. fig. 33).

♂. Palpi, forelegs, and head black; collar, thorax, and abdomen golden orange.——Forewing smoky hyaline, clearer in apical third; a curved sooty grey semihyaline transverse line crosses wing one-third from outer margin; basal third golden orange, from middle of costa runs obliquely towards base a broad hyaline steel-blue band ending near base at vein 1 in a point.——Hindwing hyaline; inner margin broadly golden, a black patch 4·5 mm. long and 3 mm. wide near anal angle.

♀. Similar, but hindwing all buff, and in place of black patch cilia brown.

Length of forewing: ♂ 19 mm.; ♀ 17 mm.

Hab. La Oroya, Carabaya, Peru, 6000 ft., July 1904 (G. Ockenden); Colombia (A. E. Pratt).

6 ♂♂, 1 ♀.

75. **Automolis griseipennis** spec. nov. (Pl. VI. figs. 7, 8).

♂. Palpi and legs sooty grey; frons shining blue; head and thorax dark grey, a metallic blue dot at base of each antenna; abdomen, basal four segments reddish orange or lemon-yellow, anal five segments sooty black with a central and two lateral lines of metallic blue spots.——Forewing brownish grey, outer half obliquely much paler, separated from basal half by an ill-defined yellowish grey line.——Hindwing brownish grey with an orange-buff scent gland near base.

♀. Similar, but larger, and the two halves of forewing less sharply separated in shade of grey.

Length of forewing: ♂ 21 mm.; ♀ 25 mm.

Hab. Fonte Boa, Amazonas, July 1906 (S. M. Klages).

8 ♂♂, 2 ♀♀

76. **Automolis docis** Hübner (Pl. VII. figs. 30–41).

I have 13 ♂♂ and 6 ♀♀ of this species from between Itaituba and Obidos, January—April 1906 (W. Hoffmans); Obidos, Amazonas, October—November 1904 (M. de Mathan); Fonte Boa, Amazonas, 1906—1907 (S. M. Klages); and San Antonio do Javary, Amazonas, May 1907 (S. M. Klages). These specimens show a very great variation quite irrespective of locality. The one extreme is deep grey, with the patagia edged with dull red, and the basal two segments of the abdomen cinnabar red, the red line on forewing hardly defined, and hindwing uniform grey with orange scent spot; the other extreme has the tegulae, patagia and thorax orange scarlet, edged with dull black, first two segments of abdomen orange scarlet, forewing orange scarlet edged with black, and hindwing orange rose, broadly bordered with black.

77. **Automolis niveomaculata** spec. nov. (Pl. VI. fig. 21).

♂. Similar to *A. albiplaga* (Pl. VI. fig. 20), but much larger. Total expanse: *albiplaga*, 35 mm.; *niveomaculata*, 45 mm.

Differs from *albiplaga* in having the palpi black instead of white; the patagia sooty grey, with a central white stripe instead of an indistinct greyish white line, and the terminal third white as in *albiplaga*; abdomen has only two yellow lateral patches, one on each side of the segments 8 and 9, not five as in *albiplaga*, on each side of segments 5 to 9.——Forewing: basal two-thirds have the veins distinctly and broadly pure white, not faintly indicated in paler grey as in *albiplaga*; postmedian ovate white patch purer white and much larger, occupying fully one-fourth of the wing area.——Hindwing: the disc is much more extended white, which colour also is more sharply defined from the ground-colour of the wing; apex of wing much more produced, which gives it a much more triangular shape than in *albiplaga*.

Length of forewing: 20 mm.

Hab. La Union, R. Huacamayo, Carabaya, Peru, November 1904 (G. Ockenden).

1 ♂.

78. **Automolis uniformis** spec. nov. (Pl. VI. fig. 26).

♂. Palpi and legs brownish grey; head and collar orange; tegulae brownish grey, with faint white edging on inner side; patagia and thorax brownish grey; abdomen sooty, last segment brownish grey, three lateral yellow patches on each side of segments 6, 7, and 8.——Forewing brownish olive-grey; veins olive-buff. ——Hindwing sooty black, with central area of disc whitish grey.

Length of forewing: 18 mm.

Hab. Aroewarwa Creek, Maroewyn Valley, Surinam, April 1905 (S. M. Klages).

1 ♂.

79. **Automolis klagesi** spec. nov. (Pl. V. fig. 43).

♂. Palpi and legs brownish grey, striped longitudinally with white; head black, edged with white; collar orange; tegulae, patagia, and thorax brownish black, slightly edged with olive-buff; abdomen brownish blue-black, with five lateral orange-yellow patches on each side of segments 3 to 7.——Forewing velvety brownish black; veins in basal two-thirds olive-buff; a postmedian

oblique band of buffish yellow from the costa to angle of inner margin, narrower behind.——Hindwing brownish sooty black, centre greyish white.

Length of forewing : 18 mm.

Hab. Fonte Boa, Amazonas, May 1906 (S. M. Klages).

1 ♂.

80. **Automolis godmani** Druce.

This is a distinct species, and **not** the ♀ of *rutilus*, which has a ♀ similar to the ♂.

81. **Automolis cingulata** spec. nov. (Pl. VI. fig. 24).

♀. Differs from ♀ of *rutilus* in having entirely black hindwings and a broad yellow abdominal belt formed by the sixth and seventh segments being entirely yellow.

Length of forewing : 21 mm.

Hab. Quevedo, W. Ecuador (v. Buchwald).

2 ♀♀.

82. **Automolis sypilus** Cram.

Sir George Hampson says (*Cat. Lep. Phal. Brit. Mus.* vol. iii. p. 57) that this species was unknown to him, and that it might be the ♀ of *packardi* or drawn from a rubbed specimen. I have 5 ♂♂ and 1 ♀. These specimens are in perfect condition, and the ♀ exactly agrees with Cramer's figure. The ♂ much resembles *Prumala saturata* Walk., but there are two lateral yellow patches nearly meeting dorsally, one on each side of the third segment of the abdomen, instead of the basal half of abdomen being yellow, and the longitudinal central orange band of forewing is reduced to three widely separated orange streaks.

83. **Automolis pseudameoides** spec. nov.

♂. This species resembles *Prumala ameoides*. Palpi and legs brownish black, streaked longitudinally with yellowish white ; head and collar white ; tegulae golden yellow, broadly edged on inner side with black ; patagia golden yellow ; thorax golden yellow, with central black line ; abdomen velvety black, yellow on sides of first two segments, and having white streaks on last four segments.——Forewing : costal edge and vein 11 buff, rest of wing black ; from base to angle of inner margin placed obliquely is a large diamond-shaped golden yellow patch occupying one-third of the wing area ; in the apical half of the wing is another large golden yellow irregularly triangular patch, and between the two from the outer margin to edge of cell runs a narrow buff line.——Hindwing yellowish buff, with a broad band of sooty brownish reaching from anal angle to middle of outer margin ; costal third of the wing occupied by an enormous scent gland and patch of androconia.

♀. Similar, but sooty brown ; abdomen above and on sides entirely deep brown glossed with blue, and merely a few whitish scales near tip ; the two golden yellow patches on forewing smaller ; veins whitish.——Hindwing deep sooty brown ; basal third yellow.

Length of forewing : ♂ 19 mm. ; ♀ 21 mm.

Hab. La Union, R. Huacamayo, Carabaya, Peru, November 1904 (G. Ockenden).

7 ♂♂, 2 ♀♀.

84. **Automolis asara** Druce.

This is a very distinct species, not at all identical with *flavescens* Walk.

85. **Automolis superba** Druce.

This is distinct from *salma* Druce.

86. **Automolis salma** Druce.

This is quite distinct from the preceding.

87. **Automolis luteola** spec. nov. (Pl. VI. fig. 9).

♂. Allied to *bonoro* Schaus, but pectus deep buff, not black, with two white spots; head, thorax, and basal half of abdomen orange buff; apical half of abdomen black, with three rows of glittering blue spots.——Fore- and hindwings golden buff.

♀. Similar, but wings orange-buff.

Length of forewing: ♂ 19 mm.; ♀ 21 mm.

Hab. Patao Guiria, August 1891; Cucuta, Venezuela; Patino Cué, Paraguay, February (Montforts); Sapucay, Paraguay, July 14, 1902 (W. Forster).

3 ♂♂, 2 ♀.

88. **Automolis garleppi inversa** subspec. nov. (Pl. VI. fig. 17).

♂. Similar to *garleppi garleppi* (Pl. VI. fig. 18), but the large fuscous patch near angle of inner margin (tornus) reduced to an oval streak, while the three yellow costal patches are much larger.

Hab. Santo Domingo, Carabaya, Peru, November 1901 (G. Ockenden).

5 ♂♂ (13 ♂♂ of *garleppi garleppi* in Tring Museum).

89A. **Automolis buckleyi harterti** subspec. nov. (Pl. VI. fig. 15).

♂. Similar to *buckleyi buckleyi* (Pl. VI. fig. 16), but differs in the forewing being golden yellow instead of orange-salmon, and the parts between the sulphur-yellow costal patches as well as the apical area crimson scarlet.

Hab. Fonte Boa, Amazonas, October 1906 and July 1907 (S. M. Klages).

5 ♂♂.

89B. **Automolis buckleyi whitfordi** subspec. nov.

♂♀. Similar to *buckleyi buckleyi*, but differs in the forewing being pale vermilion, not orange-salmon, and in the black lines bordering the yellow costal patches being much wider and more pronounced.

Hab. British Guiana (bought at Georgetown by Mr. Whitford).

1 ♂, 1 ♀ (2 ♂♂ of *buckleyi buckleyi* in Tring Museum).

90. **Automolis persimilis** spec. nov. (Pl. VI. fig. 25).

♂. At first sight this species would be mistaken for *Idalus flavoplaga* Schaus. Palpi whitish; pectus golden yellow; head yellow, a black spot on frons and behind antennae; tegulae orange golden, with a black spot on each; patagia and thorax striped longitudinally yellow and brown; abdomen: basal three segments above black, yellow at sides, central ones golden yellow, three end ones blue-black, the last with pure white anal tuft.——Forewing mummy-brown, all the

veins strongly buffish yellow; a large wedge-shaped postmedian yellow patch from costa obliquely to vein 5.——Hindwing yellow.

Length of forewing: 17 mm.

Hab. La Oroya, R. Inambari, Carabaya, S.E. Peru, September and October 1904, March, November, and December 1905, and La Union, R. Huacamayo, Carabaya, Peru, December 1904, and Tinguri, Carabaya, August 1904 (G. Ockenden).

20 ♂♂.

90A. **Automolis persimilis marginata** subspec. nov. (Pl. VI. figs. 22, 23).

♂. Similar to *persimilis persimilis*, but hindwing has costal half yellow, rest of wing sooty brown.

♀. Has hindwing yellow, broadly margined with brown.

Hab. Tnis, Costa Rica; Fonte Boa, Amazonas, October 1906 (S. M. Klages).

1 ♂, 2 ♂♂.

91. **Automolis brunnescens** spec. nov. (Pl. VI. fig. 19).

♂. Palpi and legs mummy-brown; head and tegulae creamy white; patagia longitudinally outer half mummy-brown, inner half creamy white; thorax creamy white; abdomen pale orange, last segment buff.——Forewing mummy-brown with pale whitish dot beyond cell; in some specimens this is a distinct spot, in others hardly visible.——Hindwing: costal two-fifths buff, along inner margin orange yellow, outer two-fifths sooty brown.

♀. Larger entire hindwings sooty grey-brown.

Length of forewing: ♂, 21 mm.; ♀, 25 mm.

Hab. Fonte Boa, Amazonas, July and August 1907 (S. M. Klages).

10 ♂♂, 1 ♀.

91A. **Automolis brunnescens unicolor** subspec. nov. (Pl. VI. fig. 10).

♂. Differs from *brunnescens brunnescens* by the palpi, head, legs, and thorax being uniform brown and the forewing without the central whitish spot.

Hab. Buenavista, East Bolivia, August 1906 (J. Steinbach).

1 ♂.

92. **Automolis griseoniteus** spec. nov. (Pl. VI. fig. 27).

♂. Nearly allied to *A. angulosa* Walk. Palpi, legs, and pectus black, strongly iridescent with steel-blue; head blue; tegulae orange; patagia black, slightly glossed with steel-blue; thorax bright glittering blue; abdomen, first two segments orange, rest iridescent steel-blue.——Forewing greyish black, strongly iridescent with steel-green; an antemedian transverse orange band as in *angulosa*, but nearly double as wide; the oblique subapical orange band also wider, but farther from apex, so that the dark apical area is larger than in *angulosa*.——Hindwing: basal half buffish orange, outer half brownish steel-blue; all wings broader than in *angulosa* (Pl. VI. fig. 29).

♀. Similar.

Length of forewing: ♂, 22 mm.; ♀, 25 mm.

Hab. La Oroya, R. Inambari, S.E. Peru, March 1905, and Santo Domingo, Carabaya, Peru, October 1902 and January 1903 (G. Ockenden).

2 ♂♂, 1 ♀.

93. **Automolis ardesiaca** spec. nov. (Pl. VI. fig. 28).

♂. Also close to *angulosa* Walk. (Pl. VI. fig. 29). Palpi, pectus, legs, and head dark blackish slate, strongly iridescent with bright blue; tegulae buff; patagia and thorax pale slate-grey with bluish iridescence; abdomen deep iridescent blue, first two segments buff.——Forewing pale slate-grey with bluish green gloss; a broad antemedian transverse and a broad subapical band buff; the latter is so broad that only the bare apex is dark.——Hindwing: basal half buff, outer half brown-grey with bluish gloss.

Length of forewing: ♂, 20 mm.

Hab. Tuis, Costa Rica.

2 ♂♂.

94. **Automolis alboatra** spec. nov. (Pl. VI. fig. 30).

♂. Palpi, basal half orange, apical half blackish brown; pectus orange; legs blackish brown; frons blackish brown; head and collar orange, a black spot between and one behind antennae; tegulae and patagia, longitudinally, inner half brownish black, outer half creamy white; thorax and abdomen above brownish black, sides and last two segments of abdomen orange.——Forewing brownish black, veins 1, 2, and 3 slightly picked out in dull grey, basal half of wing from costa to vein 2 creamy white; in apical third a broad oblique creamy white band, reaching from costa to outer margin.——Hindwing: costal two-thirds creamy white, apex and inner third sooty greyish black.

Length of forewing: 20 mm.

Hab. Fonte Boa, Amazonas, July 1906 (S. M. Klages); Rio Demerara; La Union, R. Huacamayo, Carabaya, Peru, November 1904, and La Oroya, R. Inambari, S.E. Peru, March 1905 (G. Ockenden).

4 ♂♂.

95. **Automolis semicostalis** spec. nov. (Pl. VI. fig. 31).

♀. Palpi and legs sooty brown; head orange, a black dot behind antennae; tegulae and patagia, longitudinally, outer half white, inner half sooty brown; thorax and abdomen sooty brown, four lateral orange spots on each side, one on each side of segments 4, 5, 6, and 7.——Forewing sooty brown, basal half of costa creamy white, a subapical oblique broad band of pure white from costa to outer margin.——Hindwing sooty brown, a whitish patch on basal half of costal area.

♂. Similar.

Length of forewing: 20 mm.

Hab. Fonte Boa, Amazonas, October 1906 (S. M. Klages); Paramaribo, December 1892 (C. W. Ellacombe).

1 ♂, 1 ♀.

95A. **Automolis semicostalis apicalis** subspec. nov.

♀. Similar to *semicostalis semicostalis*, but whole apical two-fifths of forewing white. This may prove a distinct species, bearing the same relationship to *semicostalis* that *godmani* does to *rutilus*; but the unique specimen is too damaged to decide.

Hab. Ten miles above Mapiri, Bolivia, 2000 ft., 1895 (Maxwell Stuart).

1 ♀.

96. **Automolis packardi saturata** subspec. nov. (Pl. VI. fig. 33).

♂ ♀. Similar to *packardi packardi* (Pl. VI. fig. 32), but much larger, the brown much deeper and richer, and all orange markings narrower.

Hab. Rio Demerara, British Guiana; Sta. Catharina, Brazil.

1 ♂, 2 ♀♀.

This may be a distinct species.

97. **Automolis underwoodi** spec. nov. (Pl. VI. fig. 34).

♂. Similar to *A. pratti*, but at once recognisable in the forewing by the basal two-thirds of costa being orange yellow and the longitudinal orange-yellow band being much wider, half filling cell. No fuscous cilia.——Hindwing more extended yellow.

Hab. Costa Rica (Underwood).

98. **Automolis rosenbergi** spec. nov. (Pl. VI. fig. 35).

♂ ♀. Very similar to *A. collateralis*, but no yellow on costa and the central longitudinal band of forewing much narrower and curved downwards near apex, and it does not reach outer margin.

Hab. Paramba, Ecuador, 3500 ft., March 1897 (W. F. Rosenberg); Hacienda Ave Maria, West Ecuador (Buchwald); Tachira, Venezuela (Briceño).

3 ♂♂, 5 ♀♀.

99A. **Automolis vitrea borealis** subspec. nov. (Pl. VII. fig. 3).

♂ ♀. Resembles *vitrea vitrea*, but differs by having the black markings in basal half of forewing much reduced and wider apart, the paler lines cinnamon-yellow instead of brown, the dark markings on thorax much paler and the light ones orange-salmon, not brown, the submarginal row of black spots on forewing generally complete, consisting of five spots instead of one to three, hindwing yellowish salmon-pink instead of yellow-buff, and by the last two segments of abdomen being orange, **not** black.

Hab. Orizaba, Mexico, January to April (W. Schaus); Ciudad de Guatemala (Rodriguez); Huatuxco, Vera Cruz; Costa Rica (Underwood); Rosary Mine, Spanish Honduras.

8 ♂♂, 5 ♀♀.

99B. **Automolis vitrea occidentalis** subspec. nov. (Pl. VII. fig. 4).

♂. Differs from *vitrea vitrea* (Pl. VII. fig. 2) in having the lighter portions of the basal half of forewing chestnut, in the costal half rosy, in the inner half and hindwing washed with deep salmon; the abdomen is orange-rufous.

Hab. La Union, R. Huacamayo, Carabaya, Peru, November 1904 (G. Ockenden).

6 ♂♂.

99C. **Automolis vitrea meridionalis** subspec. nov. (Pl. VII. fig. 1).

♂. Has the black streaks in basal half of forewing almost obsolete, and the pink spread over basal third of the wing.

Hab. Sapucay, Paraguay, June 1902 (W. Foster); S. Brazil.

2 ♂♂.

100. **Automolis intermedia** spec. nov. (Pl. VI. fig. 37).

♂. This species forms the connecting link between *A. vitrea* and *A. tybris*. Palpi grey; head and legs white; tegulae white with two brownish streaks on the outer edge; patagia and thorax white, with brownish yellow edges; abdomen dull yellow, a white dorsal spot on each of the three first segments.——Forewing hyaline white, basal half with some irregular semi-obliterated blackish streaks; at end of cell a brown ocellated spot; from angle of inner margin (tornus) runs a brown streak for about 3 mm.; above this on disc are a few pale grey dots and a brown spot between veins 6 and 7 near outer margin.——Hindwing hyaline white, yellow from inner margin to vein 2.

Length of forewing: 20 mm.

Hab. La Union, R. Huacamayo, Carabaya, Peru, November 1904 (G. Ockenden).

2 ♂♂.

101. **Automolis reticulata** spec. nov. (Pl. VI. fig. 38).

♂. Palpi and tibiae of forelegs brown-grey; tarsi and remaining legs white; head, thorax, and abdomen earthy brown with paler reticulations.——Forewing: basal third earthy brown, reticulated with yellow spots, apical two-thirds yellowish hyaline with an irregular broad postmedian band and reticulations of earthy brown.——Hindwing hyaline white, a large brown patch at apex.

Length of forewing: 17 mm.

Hab. Fonte Boa, Amazonas, July 1906 (S. M. Klages).

1 ♂.

102. **Castrica sordidior** spec. nov. (Pl. VII. fig. 5).

♂. This species has the forewing much less truncate, more pointed, and the hindwing rounder, less angulated; the pectus is orange, not lemon-yellow; the thorax olive-green, not bright olive-yellow; abdomen black-brown, not yellow, last segment olive-yellow.——The forewing has the olive-green areas much darker and the hyaline areas much reduced by increased olive-green markings; the inner marginal area yellowish green, not yellow.——Hindwing olive-grey, not yellow.

Hab. Caparo, Trinidad, November 1905, and Fonte Boa, Amazonas, May 1906 (S. M. Klages).

4 ♂♂.

103. **Melesse peruviana** spec. nov. (Pl. VII. figs. 7, 8).

♀. This species is nearest to *M. laodamia* Druce (Pl. VII. fig. 10). The whole forewing is, however, purplish grey-brown, and there are in basal half a number of yellow spots enclosed in crimson scarlet rings; a similar spot in cell; outer margin from apex to vein 3 yellow as in *laodamia*, but the scarlet inner line runs into the yellow in a number of conical points; postmedian yellow; costal patch larger, more quadrate, and hardly produced towards apex.

♂. Almost identical, but the spots on basal half of forewing larger.

Length of forewing: ♀ 23 mm.; ♂ 18 mm.

Hab. Santo Domingo, Carabaya, Peru, November 1901, July, October, December 1902, September 1904, and March 1905 (G. Ockenden).

19 ♂♂, 2 ♀♀.

104. **Melesse klagesi** spec. nov. (Pl. VII. fig. 11).

♀. Closely allied to *M. babosa* Dognin (Pl. VII. fig. 12) and *M. chiriquensis* Schaus. Differs from *babosa* in the black spots in and around apex of cell of forewing being larger and very distinct, somewhat ocellate; the postmedian hyaline patch consists of a central linear oblong streak and the upper and lower spots reduced to dots, while in *babosa* the upper and central spots are large and irregular in shape, and the lower one only is a dot.——Hindwing sooty grey, black instead of pale grey; abdomen bright crimson instead of pale pinkish crimson.

Length of forewing: 13 mm.

Hab. Aroewarwa Creek, Maroewym Valley, Surinam, March 1905 (S. M. Klages).

2 ♀♀.

105. **Melesse flavipuncta** spec. nov. (Pl. VII. figs. 13, 14).

♂. Palpi pale crimson; head cinnamon-brown; base of antennae and collar pale crimson; thorax cinnamon-brown; abdomen rosy crimson.——Forewing cinnamon-brown, apical portion of costal margin and the outer margin rosy crimson; a subbasal round black spot, a half-obliterated darker median band and a dark patch at end of cell; about one-third from the base on vein 1 is a round spot; upper half yellow, lower half orange.——Hindwing rosy crimson.

♀. Larger and rather paler.

Length of forewing: ♂ 15 mm.; ♀ 19 mm.

Hab. Caparo, Trinidad, November 1905 (S. M. Klages), type; Quevedo, W. Ecuador (v. Buchwald); La Union, R. Huacamayo, Carabaya, Peru, December 1904 (G. Ockenden); Aroewarwa Creek, Maroewym Valley, Surinam, April 1905 (S. M. Klages); Sta. Catharina, Brazil; Fonte Boa, Amazonas, October 1906 (S. M. Klages); Buenavista, East Bolivia, August 1906 (J. Steinbach); Paramaribo, July 1892; S. Javier, R. Cachabi, Ecuador (Flemming & Miquetta).

21 ♂♂, 13 ♀♀.

106. **Melesse quadripunctata** spec. nov. (Pl. VII. fig. 15).

♀. Palpi and head yellowish crimson; thorax cinnamon-brown, variegated with yellowish crimson; abdomen and hindwing pale salmon-pink.——Forewing deep cinnamon-brown; costal and outer margin crimson; at end of cell a crimson dot with dark ring; a similar larger spot between veins 2 and 3 and 3 and 4; on vein 1 is a yellow spot with a crimson ring.

Length of forewing: 20 mm.

Hab. Huancabamba, Cerro de Pasco, 6000—10,000 ft., Peru (Böttger).

1 ♀.

107. **Melesse inconspicua** spec. nov. (Pl. VII. fig. 28).

♀. Head and body pale yellowish grey-brown.——Forewing darker, with five half-obliterated transverse dotted blackish lines.——Hindwing fuscous maize, semihyaline.

Length of forewing: 12 mm.

Hab. Fonte Boa, Amazonas, May 1906 (S. M. Klages).

1 ♀.

108. **Bertholdia ockendeni** spec. nov. (Pl. VII. fig. 16).

♂. Allied to *B. myosticta* Hmpsn.

Head and thorax rufous tawny; abdomen rosy crimson, last segment black with white tufts.——Forewing orange-tawny, more golden towards inner margin; outer margin uniform dark brown; cilia with whitish dots at end of veins; on vein 1, one-third from base, is a round golden yellow spot.——Hindwing hyaline pinkish white, along inner margin broadly pale carmine.

Length of forewing: 23—25 mm.

Hab. Oconeque, Carabaya, Peru, July 1904 (G. Ockenden).

3 ♂♂, 2 ♀♀.

109. **Bertholdia rubromaculata** spec. nov. (Pl. VII. fig. 17).

♀. Palpi white tipped with crimson; base of antennae crimson; head and thorax greyish cinnamon; abdomen rosy crimson with whitish anal tuft.——Forewing ochraceous cinnamon, more vinaceous in apical third, hyaline patch yellow; a crimson streak at base of inner margin, a white dot on vein 1, and above this dot a large scarlet blotch.——Hindwing hyaline pinkish white, rosy carmine on and beyond inner margin.

♂. Similar.

Length of forewing: ♀ 21 mm.; ♂ 18 mm.

Hab. Oconeque, Carabaya, Peru, July 1904 (G. Ockenden).

3 ♂♂, 1 ♀.

110. **Bertholdia steinbachi** spec. nov. (Pl. VII. fig. 19).

♀. Head and thorax crimson, irrorated with yellowish grey; abdomen crimson. ——Forewing: basal two-thirds crimson, washed with yellow towards hyaline patch, outer third vinaceous brown, hyaline patch yellowish; white dot on vein 1. ——Hindwing hyaline pinkish white, pale mauve-pink along inner margin.

♂. Similar.

Length of forewing: 20 mm.

Hab. Salta, N. Argentina, and Tucuman (J. Steinbach).

1 ♂, 1 ♀.

111. **Bertholdia grisescens** spec. nov. (Pl. VII. fig. 18).

♀. Palpi white with pink tips; head and thorax pale mouse-grey with narrow yellow edges; abdomen crimson.——Forewing: costal edge in basal third mauve-pink, then along hyaline patch creamy white, then pink to apex, cilia of outer margin grey with pink dots at end of veins; whole wing pale mouse-grey, shaded with darker grey in outer two-thirds; on vein 1 a golden yellow spot, and a similar nearer the base, half way between vein 1 and the costa.——Hindwing hyaline, a wide grey border on outer and costal margins, inner margin crimson, hyaline patch edged with intense black.

♂. Similar.

Length of forewing: ♀ 24 mm.; ♂ 18·5 mm.

Hab. La Oroya, R. Inambari, S.E. Peru, January 1906, and Tinguri, Carabaya, August 1904, and Santo Domingo, Carabaya, December 1902 (G. Ockenden); Salidero, N.W. Ecuador, February 1901 (Flemming & Miquetta); La Merced,

R. Toro, Peru, September 1901 (Simons); Sapucay, Paraguay, January 9, 1905, and December 31, 1904 (W. Foster); Columbia, R. Cayapas, N.W. Ecuador (Flemming & Miquetta).

14 ♀♀, 17 ♂♂.

112. **Prumala intensa** spec. nov. (Pl. IV. fig. 19).

♂♀. Very close to *P. hieroglyphica* Schaus, but the markings much more intense. The red markings of forewings much more intense and larger, the subapical oblique brown line of *hieroglyphica* replaced in *intensa* by a broad deep brown band, and the inner margin more than twice as wide as in *hieroglyphica* and deep brown.

Hab. Fonte Boa, Amazonas, May—August 1907 (S. M. Klages).

1 ♂, 1 ♀, in Tring Museum.

113. **Hyponerita sardanapalus** spec. nov. (Pl. VII. fig. 21).

♀. Palpi and head crimson; a yellow patch on vertex; thorax and forewing brilliant deep crimson, strongly washed with iridescent plum purple; apical two-thirds of costa and outer margin to vein 2 yellow, a median triangular costal patch also yellow.——Hindwing salmon-buff; abdomen scarlet dorsally, buff laterally.

♂. Similar, but hindwing yellow buff.

Length of forewing: 13·5 mm.

Hab. La Union, R. Huacamayo, Carabaya, Peru, December 1904 (G. Ockenden); Fonte Boa, Amazonas, May 1906 (S. M. Klages).

3 ♂♂, 5 ♀♀.

114. **Hyponerita grandis** spec. nov. (Pl. VII. fig. 20).

♂♀. Similar to *H. incerta* Schaus, but much larger. Palpi, head, and legs pale yellow; thorax deep mummy-brown; abdomen crimson.——Forewing deep mummy-brown; apical two-thirds of costal edge yellow, a large median irregular triangular costal patch yellow, a subapical smaller one, and the outer margin from vein 10 to vein 1 irregularly yellow.——Hindwing hyaline buff.

Length of forewing: ♀ 20 mm.; ♂ 16 mm.

Hab. Santo Domingo, Carabaya, Peru, November 1902 (G. Ockenden).

2 ♂♂, 6 ♀♀.

115. **Paranerita klagesi** spec. nov. (Pl. VII. fig. 22).

♂♀. Near to *P. metapyria* Dognin (Pl. VII. fig. 23).

Differs at first sight from *metapyria* by its abruptly truncate and pointed forewing; the subapical mauve patch is square, not ovate, and is joined to the oblique basal half of wing by a broad mauve band; a white patch and yellow dot in basal third of forewing; thorax blackish mauve instead of pale pinkish lavender.

Length of forewing: ♂ 15 mm; ♀ 17 mm.

Hab. Fonte Boa, Amazonas, August 1906 (S. M. Klages).

1 ♂, 1 ♀.

116. **Pseudalus leos occidentalis** subspec. nov. (Pl. VII. fig. 27).

♂. Similar to *leos leos*, but the oblique line from middle of inner margin to just before apex is not broken up into dots, the spot in cell is larger and the wing more pointed.

Hab. Tinguri, Carabaya, August 1904, and La Oroya, R. Inambari, S.E. Peru, March 1905 (G. Ockenden).

2 ♂♂.

117. **Pseudalus aurantiacus** spec. nov. (Pl. VII. figs. 25, 26).

♂. Palpi, legs, head, thorax, and abdomen orange-yellow.——Forewing yellow, strongly suffused with rufous orange; an antemedian and postmedian oblique deep rufous brown line across the wing from costa to inner margin.——Hindwing pale salmon.

♀. Resembles *P. leos leos*, but the postmedian band is integral and strongly marked, the antemedian unbroken and straighter, and the forewing is shorter and rounder.

Length of forewing: ♂ 12 mm.; ♀ 18 mm.

Hab. Aroewarwa Creek, Maroewym Valley, Surinam, April 1905 (S. M. Klages).

6 ♂♂, 1 ♀.

118. **Pseudalus strigatus** spec. nov. (Pl. VII. fig. 24).

♂♀. Palpi and legs orange; head yellow; tegulae yellow; patagia and thorax yellow, streaked with orange; abdomen orange.——Forewing yellow with broad orange stripes between the veins and on costa; a broad streak of orange-scarlet along inner margin; an antemedian and a postmedian deep brown oblique line, black where crossing veins from costa to inner margin, both angulated on and below costa.

Length of forewing: ♂ 17 mm.; ♀ 20 mm.

Hab. Tinguri, Carabaya, Peru, August 1904, and La Oroya, R. Inambari, S.E. Peru, September 1904 (G. Ockenden).

2 ♂♂, 1 ♀.

119. **Praemolis schausi** spec. nov. (Pl. IV. fig. 23).

♂. Nearly allied to *P. amaryllis* Schaus, but differs from it by having a well-defined fuscous median transverse band on forewing, and a greater number of and more distinct red zigzag lines across the forewing, and the postmedian fuscous band is much wider.

Length of forewing: 15 mm.

Hab. Fonte Boa, Amazonas, August 1906 (S. M. Klages).

1 ♂.

SOME NEW SIPHONAPTERA.

By THE HON. N. CHARLES ROTHSCHILD, M.A., F.E.S.

1. **Loemopsylla vigetus** spec nov. (Pl. VIII. fig. 3, 4).

A CLOSE ally of *L. scopulifer* Rothsch., *Nov. Zool.* xii. p. 480. n. 2. t. 13. fig. 5 (1905) (South and South-East Africa), and *L. tortus* Rothsch., *Parasitology* i. p. 53. n. 14. t. 5. fig. 4 (1908) (South-East Africa), but nearer to the former. The bristles are fewer in number and on the whole slenderer than in the two species mentioned. The first row on the epimerum of the metathorax contains 5 or 6 bristles, and the second row 4 to 6. The third and fourth abdominal tergites have each a row of 13 to 15 bristles on the two sides together. The numbers of the bristles on the sternites of segments 3 to 7 are as follows: ♂, 5–7, 6, 6, 6, 6; ♀, 8–10, 8–9, 8, 7–9, 7–11. The sternite of the seventh segment has in front of the row, on each side, a single bristle, which is sometimes absent. The hindfemur has 2 subapical ventral bristles on the outer side and a row of 5 or 6, rarely 4, on the inside. The bristles on the tibiae and the tarsi are less stout than in *scopulifer*, but of about the same length as in that species. The short subapical bristle situated on the posterior side of the foretibia deserves special mention as being decidedly thinner than the corresponding bristle in *scopulifer*.

Modified Segments.—♂. The eighth sternite bears laterally one, rarely two, long bristles near the base, and ventrally from 6 to 8 bristles, of which the most distal one is the longest; these bristles are arranged in four rows as follows: 2 or 3, 2 or 3, 1 or 2, 1. The outer flap of the clasper bears 7 bristles, of which the third is the thickest, while the fourth is the longest, being curved and twisted as in the allied species (Pl. VIII. fig. 3. F^1). These bristles are shorter than the corresponding bristles in *scopulifer*, and the third is much thicker than in *tortus*. The inner flap of the clasper (Pl. VIII. fig. 3. F^2) is less curved than in *tortus*, but much more so than in *scopulifer*; it is also more pointed than in the latter species. The ninth sternite is somewhat club-shaped in lateral aspect (Pl. VIII. fig. 3. ix. st.), the tip being distinctly widened and rounded off. The posterior edge of the ninth tergite bears on each side three bristles as in the allied species, but these bristles are even shorter and thinner than those in *scopulifer*.——♀. The eighth tergite (Pl. VIII. fig. 4) bears on the sides 6 to 8 bristles, an apical row of 8 to 10 (usually 9) bristles on the outside, and an apical row of 7 or 8 (usually 8) on the inside. The bristles on the anal segment are thinner than in the allied species.

We have a series of both sexes off "rats" collected by Dr. Kennan at Freetown, Sierra Leone; received from Dr. G. H. F. Nuttall.

2. **Ceratophyllus enoplus** spec. nov. (Pl. VIII. fig. 6).

Near *C. leucopus* Baker, *Proc. U.S. Nat. Mus.* xxvii. p. 401 (1904), which we know only from the description.

Head.—The frons bears a row of 3 long bristles in front of the eye; further upwards there are 3 or 4 small bristles, and between these and the eye a number

of small hairs. The occiput bears one rather short and thin bristle laterally above the antennal groove. The bristle which is situated at the ventral angle of the occiput is very long, and is not accompanied by a second bristle, as is the case in *leucopus*. The rostrum reaches to the apex of the trochanter, while in *leucopus*, according to Baker, it extends only four-fifths the length of the coxa.

Thorax.—The pronotum bears a comb of 19 spines, the ventral spine on each side being short and narrow. The meso- and metanota have each two rows of bristles as in *leucopus*; and the mesonotum bears in addition a row of numerous small hairs at the basal edge and 6 or 7 long slender spines on each side in front of the apex. The epimerum of the metathorax has about 7 bristles (3, 3, 1), which are rather irregularly arranged.

Abdomen.—The abdominal tergites, including the first, have each two rows of bristles. The seventh tergite has one long and one shorter apical bristle, the long one being only a little shorter than the first hindtarsal segment. The sternites of the third to seventh segments have each 3 bristles on each side, while the basal sternite bears one lateral and one ventral bristle on each side.

Legs.—The bristles on the tibiae and tarsi are less numerous than in *C. keeni* Baker (1896), the first hindtarsal segment bearing only 7 pairs on the hinder side. The longest apical bristle of the second hindtarsal segment reaches to the apex of the third segment. The proportions of the segments of the midtarsus are: 20, 17, 13, 9, 20, and of the hindtarsus, 48, 30, 21, 11, 23.

Modified Segments.—♂. Similar to those of *C. keeni*; but quite distinct. The eighth tergite bears a row of 8 long bristles on the upper portion of the dorsal edge, and about 20 along the lower edge, all these bristles being slender and some of them very long. The movable process of the clasper is broader than in *keeni*, and bears two short thick spines, and at the apex a long bristle, as shown in the figure (Pl. VIII. fig. 6); the upper of these spines ends in a short point. The ninth sternite bears very numerous small hairs along the ventral edge and on the outer surface. The anal segment is very long.

Length: 2·3 mm.

We have one ♂ off Californian Grey Squirrel, collected at King's River, California, on July 25, 1896; received from Dr. G. H. F. Nuttall.

3. **Ceratophyllus ponerus** spec. nov. (Pl. VIII. fig. 5).

Nearest to *C. asio* Baker, *Proc. U.S. Nat. Mus.* xxvii. p. 406 (1904). Only one ♀ known.

Head.—The frons bears two rows of bristles as in *C. asio*, and the occiput an oblique lateral row also as in that species. The first segment of the antenna bears numerous small hairs all over.

Thorax.—The pronotum has a comb of 24 spines. The mesonotum has one row of long bristles and three rows of short ones, in addition to numerous bristles situated at the basal edge, and another row of slender spines in front of the apex. The metanotum has an apical spine on each side, in this respect resembling the first to sixth abdominal tergites. The epimerum of the metathorax is furnished with 12 to 14 bristles arranged in four rows (3, 4 or 5, 4 or 5, 1).

Abdomen.—The seventh tergite bears 3 antepygidial bristles, the middle one being very long and surpassing in length the first segment of the hindtarsus. The basal sternite bears a lateral patch of small hairs, besides some small

ventral hairs and a ventral pair of bristles. The stylet is cylindrical, tapers at the tip, and is about four times as long as it is broad. The anal tergite is densely hairy.

Legs.—The hindcoxa bears posteriorly 3 subapical bristles. The hindfemur has 2 bristles on the outer side near the apex, and 1 on the inner side. The hindtibia bears on the outer surface two rows of about 15 bristles in all, and 2 or 3 bristles on the inner surface. Two of the apical bristles of the second hindtarsal segment extend beyond the third segment, and the longest one even reaches to the apex of the fourth segment. The longest apical bristle of the first segment reaches the apex of the second. The proportions of the segments are in the midtarsus 27, 20, 13, 8, 18, and in the hindtarsus 47, 27, 15, 10, 19.

Modified Segments.—The seventh sternite bears no sinus. The eighth tergite (Pl. VIII. fig. 5) has 6 long bristles along the ventral and apical margins, of which the third and fifth are the shortest; above the fourth and fifth of these bristles there is a patch of 9 short but stout bristles. Just below the stigma there are 2 very long bristles, and farther down 1 somewhat shorter one.

Length: 2·7 mm.

We have one ♀ off "Fox," collected at Palo Alto, California, in July 1895; received from Dr. G. H. F. Nuttall.

4. **Ischnopsyllus scitulus** spec. nov. (Pl. VIII. figs. 1, 2).

Nearest to *I. aegyptius* Rothsch., *Ent. Mo. Mag.* (2) xiv. p. 83. t. 1. fig. 1 (1903) (Cairo),* but abundantly distinct. We know only the ♂ of the new species. The dorsal parts of the occiput, the thorax, and the abdomen are strongly chitinised.

Head.—Resembles the head of *aegyptius*, but the bristles are very much stronger (Pl. VIII. fig. 1). The frontal portion bears a row of short bristles parallel to the frontal outline, as in *aegyptius*. The genal process is strongly chitinised, its colour being in parts brownish black. This black portion surrounds at the antennal groove an elongated transparent space which is probably a vestigial eye. Above this space there is a very strong curved bristle, and higher up a number of smaller bristles. The genal process ends in a small point. The occiput bears above the antennal groove a row of about 10 stout bristles, of which the lowest three or four are placed close together at the lower posterior angle of the head. On the sides of the occiput there are three transverse rows of stout bristles besides the apical row, each of these transverse rows containing 2 or 3 stout lateral bristles, there being moreover several small dorsal bristles. The first segment of the antenna is longer than the club. The first segment of the maxillary palpus is the longest, while the second and the fourth are of equal length, and the third is the shortest. The rostrum does not reach to the apex of the maxillary palpus; the fourth segment of the rostrum is nearly as long as the first three together, and the fifth only about as long as it is broad.

Thorax.—The pronotum has a comb of 22 spines, and bears, besides the usual postmedian row of bristles, several rather stout hairs further frontad. The

* Oudeman's in *Tijdschr. Ent.* p. 102 (1908) proposes the genus *Chiropteropsylla* for the reception of *I. aegyptius*, characterising this "genus" by the possession of a kind of comb on the epimerum of the metathorax and the small size of the first abdominal tergite. This comb is absent from the new species.

mesonotum bears numerous hairs at the base, and dorsally 5 transverse rows of stout short bristles, each row containing from 4 to 6 such bristles. As in *aegyptius*, the epimerum of the mesothorax rapidly narrows posteriorly and the stigma is not covered. The metanotum is also shaped like that of *aegyptius*. It bears a subapical row of 6 stout bristles on the two sides together, and 4 or 5 rows of shorter ones, all of which are restricted to the dorsal heavily chitinised portion of the metanotum. The epimerum of the metathorax has one stout bristle at the apex and a second one close to it, as well as about 5 shorter and thinner bristles on the side.

Abdomen.—The first abdominal tergite bears two rows of about 6 bristles each on the two sides together. The second to seventh tergites have each a bristle beneath the stigma and another above the stigma, these bristles being separated by a wide interspace from the dorsal portion of the row to which they belong. The first and second abdominal tergites, like the metanotum, bear two dorsal apical spines. The seventh tergite has one long apical bristle on each side, accompanied by two small hairs.

Legs.—The first foretarsal segment is only one-third longer than it is broad. The proportions of the segments are in the midtarsus: 24, 21, 14, 9, 18, and in the hindtarsus, 35, 25, 16, 10, 20.

Modified Segments.—♂. The eighth sternite is triangular in lateral view. The eighth tergite (Pl. VIII. fig. 2) bears 6 bristles at the upper edge posteriorly to the very large stigma, and two on each side. The movable process of the clasper is feebly incurved on the proximal side and slightly rounded distally; the distal side bears a row of minute hairs. The apex of the penis is apically produced into a slender hook, while the apical margin bears a tooth further down, as shown in the figure.

We have two ♂♂ off *Nyctinomus aegyptiacus*, collected by the Rev. Robert Godfrey, at King William's Town, South Africa, on September 25, 1908; received from J. Waterston.

NOTES ON FLEAS IN THE K. K. HOFMUSEUM IN VIENNA.

By THE HON. N. CHARLES ROTHSCHILD, M.A., F.E.S.

(Plate IX.)

1. **Echidnophaga ambulans** Olliff.

Echidnophaga ambulans Olliff, *Proc. Linn. Soc. N. S. Wales* (2). i. p. 172 (1886) (N. S. Wales, off *Echidna hystrix*).

THERE are a number of females in the collection of the K. K. Hofmuseum which belong to a species not known to us when we published the "Revision of the *Sarcopsyllidae*" in the *Thompson, Yates, and Johnston Laboratories Report*, vii. (1906). This insect, we think, is the true *E. ambulans*. Mr. W. J. Rainbow has kindly sent us a sketch of the tarsi of the type-specimen of *E. ambulans* which proves that *ambulans* has two ventral apical bristles on the fifth tarsal segment like *gallinaceus*, and that this segment bears on each side two strong bristles and one thin one. The Vienna specimens, taken off *Echidna hystrix*, show the same character, and doubtless are the true *ambulans*. We give a figure of the fifth segment of the midtarsus on Pl. IX. fig. 9.

2. **Echidnophaga myrmecobii** spec. nov. (Waterhouse indescr.).

Sarcopsylla myrmecobii Waterhouse, *Proc. Ent. Soc. Lond.* p. 23 (1887) (nom. nudum, West Australia, off *Myrmecobius*).

Echidnophaga ambulans, Rothsch. & Jord. (nec Olliff, err. determ.), *Thomps., Yates & Johnst. Labor. Rept.* vii. p. 54. n. 6 (1906) (N. S. Wales, Victoria, W. Austr., off *Trichosurus vulpecula*, *Bettongia lesueuri*, *Diamenia superciliosa*, *Myrmecobius fasciatus*, *Paragale lagotis*).

This insect was erroneously identified by us as *ambulans* (see above). We accept for it the name introduced by Mr. Waterhouse, making our ♂ off *Trichosurus* from Sydney the "type."

E. myrmecobii agrees very closely with *E. gallinaceus*, differing from the latter in having only one ventral apical bristle on the fifth tarsal segment instead of two.

3. **Ceratophyllus flaveolus** spec. nov. (Pl. IX. fig. 6.)

Allied to *C. gallinae* Schrank (1804); smaller and much paler. Only one ♀ known.

Head.—The frons bears 3 bristles in front of the eye and a row of 4 smaller ones before them. On the occiput there is one bristle behind the base of the antenna and two more above the middle of the antennal groove, besides the usual subapical row.

Thorax.—The comb of the pronotum consists of 32 spines.

Abdomen.—The tergites bear two rows of bristles and a few additional hairs in front of the rows, the number of bristles being on the first tergite 15 in the anterior and 13 in the posterior row, the second tergite bearing 19 bristles in each row. The first sternite has 7 bristles on each side, the following four sternites each bearing a row of 5 to 8 bristles on each side and 5 to 10 bristles in front of the row. The sternite of the seventh segment has a row of 8, in front of which there are more than 20 bristles. The antepygidial bristles are longer than in *gallinae*, and the central one of these bristles is only a little over twice the

length of the other two. The seventh sternite (Pl. IX. fig. 6) is produced into a pointed lobe, as shown in the figure.

Legs.—The hindfemur has a row of 8 bristles on the inside, and the hindtibia about 18 bristles on the outer surface exclusive of the bristles situated at the apex, the inside bearing a row of 8 or 9 bristles.

Modified Segments.—The eighth tergite (Pl. IX. fig. 6) bears about 20 long and 14 shorter bristles on the outer surface, 3 or 4 long ones being placed beneath the stigma. The stylet is shorter than in *gallinae*, the two lateral bristles being placed a very little beyond half-way between the base and the apex.

One ♀ off *Mustela erminea*, collected by von Frauenfeld, probably in the neighbourhood of Vienna. The occurrence of this insect on *Mustela* is doubtless accidental, as the species is a true bird-flea.

4. **Ceratophyllus phaulius** spec. nov. (Pl. IX. fig. 8).

Likewise a bird-flea. There is in the collection only one very pale and apparently immature ♀, which moreover is imperfect. The specimen exhibits some interesting distinctions, and we therefore do not hesitate to describe it.

Head.—The frons bears two rows of bristles. The posterior row, which is placed in front of the eye, contains 3 bristles, of which the central one is the shortest, while the anterior row consists of 5 short thin bristles. The occiput has no bristle behind the base of the antennal groove, but one long one and a short one above the centre of the groove. The long ventral bristle of the subapical row is separated from the bristle situated above it by a wide interspace. Below this ventral bristle there is a short slender one.

Thorax.—The pronotal comb consists of 28 spines.

Abdomen.—The first and fourth tergite bear on each side 2 slender pale apical spines. There are 3 antepygidial bristles on the seventh tergite, the middle one being long and the other two very short. The basal sternite has one ventral bristle on each side, the following three sternites bearing 3 bristles, and the sternite of the sixth segment 4 or 5 on each side. The sternite of the seventh segment has the apical edge unfortunately torn on both sides, so that it is impossible to describe the outline. This sternite bears a row of about 6 bristles, and in front of the row about 7 more bristles on each side.

Legs.—The hindfemur bears a row of 6 bristles on the inside and one subbasal and one subapical bristle on the outside.

Modified Segments.—The eighth tergite (Pl. IX. fig. 8) bears 4 long bristles at the apical margin and about 10 moderately long and 12 short ones on the lower portion of the outer surface, there being also several bristles below the stigma (not shown in the figure). Inside the eighth tergite lies the ninth sternite, which in this species bears more bristles at its edge than in any other species we are acquainted with (cf. fig. 8, ix. st).

We have one ♀ found in the nest of *Cotile riparia* at Stockerau, Lower Austria, by Herr Bernhauer. There was also a ♀ of *Ceratophyllus dalei* in the same tube, and the occurrence on *Cotile* is no doubt accidental.

5. **Ceratophyllus frontalis** spec. nov. (Pl. IX. figs. 1—5).

A very dark species, which is unlike any other described *Ceratophyllus*.

Head.—The frons bears a very strong tubercle in both sexes (Pl. IX. figs. 1, 2) and two rows of bristles as shown in the figure. The occiput has three rows of

bristles inclusive of the subapical row, the anterior row containing less bristles in the ♀ than in the ♂. The rostrum does not reach to the apex of the forecoxa.

Thorax.—The pronotum has a comb of 32—34 spines. The meso- and metanotum are very hairy, bearing three or four irregular rows of short bristles in front of the postmedian row of long bristles. The epimerum of the metathorax has 10 to 12 long bristles and a few minute hairs.

Abdomen.—The tergites are dorsally minutely denticulate, like the thoracic tergites, the four first tergites bearing moreover some apical spines, like the metanotum. They bear three rows of bristles, the first tergite having some additional bristles in front. There are 3 antepygidial bristles on the seventh tergite. The middle one of these bristles is long, the other two being short in the ♂, while in the ♀ the upper is short and the lower one two-thirds the length of the central bristle. The basal sternite has a patch of bristles on the lateral surface and several bristles along the ventral margin. The sternites of segments three to six bear on each side a row of 3 or 4 in the ♂, and 6 or 7 in the ♀, besides a number of small hairs in front of the row. The seventh sternite of the ♀ is very deeply sinuate, recalling *C. gallinulae* Dale (= *newsteadi* Rothsch.); cf. Pl. IX. fig. 4.

Legs.—The hindfemur has a row of 7 or 8 bristles on the outer surface, besides some subapical lateral bristles, and a row of 6 bristles on the inner side. The mid- and hind-tibiae bear four more or less irregular rows of bristles on the outer surface. The tibiae and tarsi resemble those of *C. styx* Rothsch.

Modified Segments.—♂. The eighth tergite is smaller than in other bird-fleas and the sternite much larger. This tergite is produced behind the stigma into a rounded lobe, which bears about 6 very long bristles, and at the apex about 5 additional smaller ones. The eighth sternite (Pl. IX. fig. 5) is rounded and is densely covered with numerous bristles. The process of the clasper is broad and at the apex rounded (Pl. IX. fig. 4, F). The movable process is very large (Pl. IX. fig. 4, F), being broadest at the apex. It bears a short stout spine at the upper distal angle on the inside. The ninth sternite is long and slender, and lies concealed in the eighth sternite.——♀. The eighth tergite bears about 12 small bristles above the stigma on each side, about 9 small and 6 long ones beneath the stigma, and between this patch and the ventral margin about 10 large and 24 small bristles. The inner surface of this segment bears some 5 short and stout bristles. The apical edge is short and bisinuate. The stylet resembles that of *gallinae* in bearing the two lateral bristles in the apical fourth.

Length: ♂ 3, ♀ 3·4 mm.

A long series of both sexes taken from the nest of the Alpine Chough (*Pyrrhocorax alpinus*), no locality being mentioned.

6. **Ceratophyllus dalei** Rothsch. (1903).

C. d. Rothsch., *Entom.* xxxvi. p. 297. t. 1. fig. 1—3 (1903).

There is a long series of both sexes in the collection obtained by Heger, neither host nor locality being mentioned. Also one ♀ found by Herr Bernhauer in the nest of *Cotile riparia* at Stockerau, Lower Austria.

7. **Ceratophyllus turbidus** spec. nov. (Pl. IX. fig. 7.)

A single ♀, related to *C. mustelae*.

Head.—The frons has a row of 3 long bristles before the eye, and farther frontad another row of 6 smaller ones. The occiput bears one bristle behind the base of the

antennal groove, and a row of 3 above the centre of the groove, besides the subapical row of 6. The bristles of the second segment of the antennae are much shorter than the club. The rostrum does not quite reach to the apex of the forecoxa.

Thorax.—The comb of the pronotum contains 20 or 21 spines. The epimerum of the metathorax bears 7 or 8 bristles (3 or 4, 3, 1).

Abdomen.—The tergites have each two rows of bristles, the first tergite bearing a few additional bristles in front. There are 3 antepygidial bristles on the seventh tergite, the middle one being long. The basal sternite has one ventral bristle on each side. The sternites of segments three to six have a row of 3 or 4 on each side, with one or two small bristles in front. The seventh sternite (Pl. IX. fig. 7) is bilobate, as shown in the figure, and bears a row of 5 or 6 bristles with about 5 smaller bristles in front.

Legs.—The hindfemur has but one lateral bristle on the in- and the outside, this bristle standing near the base, there being a subventral subapical bristle on both surfaces. The hindtibia has 12 bristles on the outer side arranged in two rows, besides some ventral bristles. The longest apical bristles of the first and second hindtarsal segments do not reach the apex of the second and third segments respectively.

Modified Segments.—♀. The eighth tergite (Pl. IX. fig. 7) bears 2 long bristles beneath the stigma, 4 long ones at the apical edge, 3 more above the ventral margin, and 1 long and 3 or 4 short ones on the lower portion of the lateral surface. The stylet is a little over twice as long as it is broad. The ninth (internal) sternite bears apparently only one short bristle.

One ♀ without host and locality, but doubtless from Austria.

8. **Goniopsyllus kerguelensis** Taschenb.

Pulex kerguelensis Taschenberg, *Notes Leyden Mus.* i. p. 169 (1880); id., *Die Flöhe* pp. 67 and 123. t. 2. fig. 12. ♀ (1880) (Kerguelen, off *Pelecanoides urinatrix*).

Goniopsyllus kerguelensis Baker, *Proc. U. S. Nat. Mus.* xxix. p. 128 (1905); Jord. & Rothsch., *Parasitology* i. p. 93. t. 4. fig. 2, t. 7. fig. 11 (1908) (Kerguelen and Antipodes).

The collection of the K. K. Hofmuseum contains a ♀ of this species in good condition, taken off "Sturmvogel" on Kerguelen Island. The specimen agrees with the original ♂♀ preserved in the British Museum.

In our paper quoted above we said the ♀ possibly had two receptacula seminis. We now clearly see from the specimen in the Vienna Museum that there is only one receptaculum.

ON SOME AMERICAN, AUSTRALIAN, AND PALEARCTIC SIPHONAPTERA.

By THE HON. N. CHARLES ROTHSCHILD, M.A., F.E.S.

(Plates X., XI.)

1. Dermatophilus penetrans L. (1758).

IN our Revision of the *Sarcopsyllidae* in *Thompson, Yates and Johnston Laborat. Rept.* vii. i. p. 15 (1906), we referred to Oviedo as being the first to have mentioned the Jigger or Chigoe. As Oviedo's work* entitled *Historia General y Natural de las Indias* (1551) is not well known, we give here a copy of what Oviedo says (Lib. II. cap. xiv.) about the Chigoe:

"Hay en esta isla y en todas estas Indias, islas é Tierra-Firme el mal que he dicho de las buas, y otro que llaman de las nignas. Esto de las nignas no es enfermedad, pero es un mal acaso; porque la nigua es una cosa viva é pequeñísima, mucho menor que la menor pulga que se puede ver. Pero en fin es género de pulga, porque assi como ella salta, salvo que es mas pequeña. Este animal anda por el polvo, é donde quiera que quisieren que no le haya, háse de barrer á menudo la casa. Éntrase en los pies y en otras partes de la persona, y en especial las mas veçes en las cabeças de los dedos, sin que se sienta hasta que está aposentada entre el cuero é la carne, é comiença á comer de la forma que un arador é harto mas; y despues, quanto mas allí está, mas come. De manera que como acuden las manos rascando, este animal se da tanta priessa á multiplicar allí otros sus semejantes, que en breve tiempo haçe muchos; porque luego que entra el primero, se anida é haçe una bolsilla entre cuero é carne tamaña como una lenteja, é algunas como garbanço, llena de liendres, las quales todas se tornan nignas. E si con tiempo no se sacan con un alfiler ó aguja, de la forma que se sacan los aradores, son malas; y en especial que despues que están criadas (que es quando comiençan mucho á comer), de rascarlas se rompe la carne y despárçense de manera que si no las saben agotar, siempre hay en qué entender. En fin, como en esto tampoco eran diestros los chripstianos, como en el curarse de las buas, muchos perdian los pies por causa de estas nignas, ó á lo menos algunos dedos dellos, porque despues se enconaban é haçian materia, y era nesçessario curarse con hierro ó con fuego. Pero aquesto es fácil de se remediar presto, sacándolas al principio; pero en algunos negros boçales son peligrosas, porque ó por su mala carnadura, ó ser bestiales é no se saber limpiar, ni deçirlo con tiempo, vienen á se manear de los pies, é assi otros muchos que se quexan. E yo las he tenido en mis pies en estas islas y en la Tierra-Firme, y no me paresçe que en hombres de raçon es cosa para se temer, aunque es enojo en tanto que tura, ó está la nigua dentro; mas fácil cosa es sacarla al principio. Yo tengo averiguado, é assi lo dirán las personas que tienen experiençia en sacar estas nignas, que es menester tener aviso, quando las sacan, para las mater; porque alguna vez, assi como con en alfiler ó aguja la descubren, rompiendo el cuero del pie, assi salta y se va la nigua como una pulga. Esto acaesçe si há poco que allí entró; y por esto se cree que la que entra en el pie, despues que ha hecho su mala simiente, se va

* The work is usually quoted as "*Coronica*" (= Cronica, Chronica) instead of *Historia*.

assi como vino á otra parte á haçer mas mal, ó por ventura por sí se despide del pie, despues de haber dexado en él nna mala enxambre de innumerable simiente y generaçion."

2 **Parapsyllus coxalis** spec. nov. (Pl. X. figs. 1, 2).

A very near ally of *P. cocyti* Rothsch. (1904), but distinguished at once by the peculiar forecoxa.

In both sexes the forecoxa is strongly widened posteriorly near the base (Pl. X. fig. 1), as shown in the figure. It bears a transverse row of slender bristles near the base, and farther down a row of strong bristles. At the hinder edge just below the widest point of the coxa there are two very stout bristles, and between these bristles and the apex of the coxa there is posteriorly only one more bristle, which is placed at some distance from the hind edge.

The fourth tarsal segment, moreover, is shorter than in *P. cocyti*, being twice as broad as it is long in the foretarsus and very little longer than it is broad in the hindtarsus. The fifth tarsal segment also is broader than in *P. cocyti*, being half as long again as it is broad in the foretarsus. The hindfemur bears a row of 7 to 11 bristles on the inside, and the hindtibia 9 to 12 on the outside, which are often arranged in two rows in the ♂. The longest apical bristle of the hindtibia of the ♀ does not extend to the subapical pair of bristles of the first tarsal segment, while in the ♂ this bristle reaches beyond the apex of the first tarsal segment. The first and second hindtarsal segments have 4 very long and slender apical bristles, the longest of the second segment reaching nearly to the tip of the fifth segment (claws excluded).

The genitalia of the ♂ also show some conspicuous differences. The movable process of the clasper is shorter than in *P. cocyti*, and bears a row of 6 or 7 slender hairs along the hinder edge from the base to the apex. The ninth sternite (Pl. X. fig. 2) more nearly resembles that of *P. corfidii* Rothsch. (1904), and is distinguished by bearing numerous hairs at the apex and by the shape of the vertical portion as shown in the figure. The bristles at the apex of the eighth tergite of the ♀ are more numerous than in *P. cocyti*, and the shorter ones stouter.

We have a series of both sexes from Valparaiso, Chile, found by J. S. Wolffsohn on *Octodon degus*.

3. **Parapsyllus australiacus** spec. nov.

Parapsyllus longicornis Jord. & Rothsch. (nec Enderl., err. determ.), *Parasitology* i. p. 85. t. 2. fig. 12, t. 4. fig. 5, t. 7. fig. 3 (1908).

When describing the present insect in the place quoted we said that our specimens did not exactly agree with Enderlein's figures, and might be a closely allied species. Dr. A. C. Oudemans, who has had an opportunity of comparing a cotype of *longicornis* with our insect, now informs us that our identification was indeed erroneous. It therefore becomes necessary to separate our species under a name of its own, and we propose to call it *australiacus*.

We have two pairs taken off *Eudyptula minor* on Bird Island, near Perth, West Australia, by J. Burton Cleland.

4. **Ceratophyllus graphis** spec. nov. (Pl. X. figs. 3, 4).

♂ ♀. In the shape and the bristles of the head somewhat resembles *C. pollionis* Rothsch. (1905), but is abundantly distinct.

Head.—The frons is very strongly curved in the ♂, less in the ♀. It bears three rows of bristles, the row nearest the eye containing 3 strong bristles; the second row 4, of which the upper one is the strongest, and the third row 5 or 6, of which the third from above is the strongest. There are, moreover, a number of minute hairs before the eye near the antennal groove. The occiput bears 3 (less often 2) bristles behind the base of the antenna, a row of 4 or 5 in the centre, and a subapical row of 5. The rostrum nearly reaches to the tip of the forecoxa, its apical segment being four times as long as it is broad, equalling in length the second segment of the maxillary palpus. The hairs of the second segment of the antenna are hardly longer than those of the first segment.

Thorax.—The pronotum bears a comb of 19 or 20 spines, and has, like the meso- and metanotum, a row of 9 or 10 long bristles on the two sides together. On the meso- and metanotum there are in front of this row two rows of small bristles, and on the back a number of additional hairs, these latter being especially numerous on the mesonotum. The epimerum of the metathorax bears 7 or 8 bristles (3, 3—4, 1).

Abdomen.—The tergites have two rows of bristles, except the first, which has a number of additional short bristles in front. There is one long antepygidial bristle; above it in the ♂ there is a minute hair and below it a short stout bristle. In the ♀ these two additional bristles are both stout, the lower one being about one-third the length of the central bristle (the upper one is broken). The sternites of segments three to six bear a row of 3 (more rarely 4) bristles in the ♂, and 4 (more rarely 3) in the ♀, there being no bristles in front of this row. The numbers on the seventh segment are 3 or 4 in the ♂, and 5 in the ♀.

Legs.—Similar to those of *C. pollionis*, but the first pair of bristles of the fifth tarsal segment are merely bent inwards, not placed in between the second pair.

Modified Segments.—♂. The eighth tergite bears 4 or 5 long bristles. The eighth sternite (Pl. X. fig. 4, viii. st.) is quite small, and has 3 to 5 long bristles. The clasper (Cl) is truncate, with the upper distal angle obtuse. The movable process is nearly halfmoon-shaped, and bears 3 strong bristles as shown in the figure (Pl. X. fig. 4, F). The ninth sternite is widened ventrally in the middle, and bears here several short stout hairs and a number of small ones. The apical portion of the ninth sternite is straight ventrally and bears several short bristles. The manubrium (M) of the clasper is but very slightly curved, and its apex is obtuse. The penis (Pen.) is much widened at the apex, and bears ventrally on each side a spine-like process as indicated in the figure.——♀. The eighth tergite has about 12 short bristles above the stigma, 2 very long and 1 short bristle below the stigma, and about 12 on the lower portion of the sides. The apical edge of the seventh sternite is very oblique (Pl. X. fig. 3).

Length, ♂ 2·5, ♀ 3 mm.

We have 3 ♂♂ and 2 ♀♀ from Nicaragua, taken off *Sciurus dippiei*, and received from Mr. W. F. H. Rosenberg.

5. **Ceratophyllus lasius** spec. nov. (Pl. X. fig. 6; Pl. XI. fig. 10).

♂ ♀. A very hairy species, which is very distinct from any other we know.

Head.—The frons bears a row of 3 bristles before the eye and in front of this row another row of 4 to 6 smaller ones, there being also a number of small hairs before the eye. The occiput has 1 bristle behind the base of the antenna,

a row of 2 to 4 in the centre, and a subapical row of 8 or 9. The bristles of the second segment of the antenna nearly reach the apex of the club in the ♂, while they are longer than the club in the ♀. The rostrum only extends to the apical third of the coxa, being but a little longer than the maxillary palpus. The first segment of the latter is longer than the second.

Thorax.—The prothorax bears a comb of 42 spines and one row of 15 (♂) or 18 (♀) bristles. The mesonotum is nearly covered all over with small hairs from the base to the postmedian row of bristles, these small hairs being less numerous in the ♂ than in the ♀. The metanotum bears two rows of small hairs in front of the row of long bristles and some additional hairs on the back. The mesosternite also has a number of small hairs in front.

Abdomen.—All the tergites bear two (♂) or three (♀) rows of small bristles in front of the row of long ones, besides a number of additional small dorsal bristles. The first to fourth tergites have 2 or 3 apical spines on each side. The basal sternite has on each side 3 to 5 bristles in the ♂, 7 or 8 in the ♀; the sternites of segments three to six have a row of 3 or 4 bristles in the ♂ and 8 to 10 in the ♀, with a number of rather long bristles in front of the row. There is one long antepygidial bristle, which is accompanied by 2 minute hairs in the ♂ and by 2 short bristles in the ♀. The seventh sternite, which in the ♂ bears 2 or 3 bristles on each side, has more than 30 on each side in the ♀. The hindmargin is shallowly incurved in the ♀, as shown in the figure (Pl. XI. fig. 10).

Legs.—The hindfemur bears a row of bristles on both sides, the number of bristles varying from 6 to 10. The hindtibia is covered with bristles all over the outer surface, and has a row of 6 lateral bristles on the inside. The longest apical bristle of the first hindtarsal segment reaches beyond the apex of the second segment, and the longest bristle of the second segment beyond the apex of the fourth. The fifth segment is peculiar. It is rather short, and bears a number of short stout bristles on the ventral surface, 4 of them being placed at and near the apical margin. Moreover, the first as well as the third pair of lateral bristles are distinctly shifted towards the middle line.

Modified Segments.—♂. The eighth tergite has the upper portion of the apical margin more slanting than usual, there being at and near this margin about 14 long bristles, while the lower proximal portion of the tergite bears about 8 long bristles. The eighth sternite is long and slender. Its apex cannot clearly be made out in our only specimen. The clasper (Pl. X. fig. 6) is long, and bears before the apex a vertical process (p) which is rounded at the tip. The movable process (r) is very strongly curved near its base and slightly widens towards the apex, the distal margin being rounded and the proximal apical angle pointed. This process bears 2 short stout bristles near the base and 2 long ones near the apex. The outline of the ninth sternite cannot clearly be made out. It appears to be widened ventrally proximally to the centre and to bear on this widened portion numerous minute hairs and a row of short stout bristles.——♀. The eighth tergite has about 18 short bristles above the stigma, a patch of 4 long and 4 to 6 short bristles below it, and about 24 bristles on the lower half. The stylet is nearly five times as long as it is broad.

Length: ♂ 2·6, ♀ 3·2 mm.

We have one pair from the foot of the Sierra de la Venturo, province of Buenos Aires, found on *Diplochelidon cyanoleucus* by Dr. K. Wolffhügel, July 28, 1905.

6. **Ceratophyllus danubianus** spec. nov. (Pl. X. fig. 5).

Both sexes closely resemble *C. tesquorum* Wagn. (1898); distinguishable by the somewhat more numerous bristles and by the genitalia of the ♂.

♂. The eighth abdominal tergite bears a lateral row of 11 to 13 bristles and an apical row of 9 to 13. The eighth sternite (Pl. X. fig. 5, viii. st.) bears 3 pairs of bristles ventrally near the apex. The clasper resembles that of *C. tesquorum*, but the movable process (F, Pl. X. fig. 5) is broader proximally, and bears 1 long bristle instead of 2 short ones as in *C. tesquorum*.

♀. Exactly like *C. tesquorum*, except that the abdominal segments bear one or two more bristles and that the fifth tarsal segment has one or two short spine-like bristles ventrally in front of the two apical spine-like bristles.

We have a series of both sexes from Malcoci, Roumania, off *Spermophilus cityllus*, collected by A. Rettig in March 1908. This insect is apparently the western representative of *C. tesquorum*.

Caenopsylla gen. nov.

♂ ♀. This new genus shows affinities on the one hand to *Ceratophyllus* and on the other to *Ctenopsyllus*.

Frons strongly curved, especially in the ♂, with a tubercle (Pl. XI. figs. 9, 11). Eye present, but not fully developed. Genal process with two spines. Antenna and antennal groove as in *Ceratophyllus*. Pronotum much wider above than at the sides, with a comb of curiously deflected spines. Mesonotum with setiform spines between the postmedian series of bristles and the apical margin. Metanotum with some short apical spines, similar spines being present on the three anterior tergites of the abdomen. The internal incrassation at the anterior edge of the metasternite narrow, being longer than it is broad. The tibiae resemble those of *Ctenopsyllus* in the exterior dorsal bristles being numerous and forming a kind of comb, although these bristles are not of such even length as in *Ctenopsyllus*; the hindtibia bears only 3 long dorsal bristles, the first being placed in the second notch, the second in the centre, and the third near the apex. The fifth hindtarsal segment has 5 lateral bristles, of which the first is very slightly bent inward.

Type: *Caenopsylla mira* spec. nov.

7. **Caenopsylla mira** spec. nov. (Pl. XI. figs. 9, 11, 12).

Head.—The frons bears a row of 2 or 3 bristles at some distance from the eye, and further forward a row of 4 or 5 smaller ones (Pl. XI. figs. 9, 11). The two spines situated at the apex of the genal process are narrow and directed backwards. The frons is very much more curved in the ♂ than in the ♀, its outline almost resembling in the ♂ that of *Ctenopsyllus musculi*. The occiput has 1 bristle behind the base of the antenna, 1 or 2 in the centre, and a row of 5 or 6 near the apex. The antennal groove extends to the vertex in the ♂, while it does not extend so far upwards in the ♀, there being in this sex also no internal incrassation from the base of the groove to the vertex. The first segment of the antenna is long in the ♂. The second segment bears a few very short bristles at the apex in both sexes.

Thorax.—The pronotum has a comb of 14 spines and one row of bristles (Pl. XI. fig. 9). The mesonotum has two rows of bristles and a number of additional hairs on the back, which are particularly numerous at the base. The mesosternite has 9 bristles. The metepisternum bears 2 or 3 bristles and the epimerum 6 or 7

bristles (2, 3—4, 1). The metanotum has two rows of bristles, the posterior row containing 10 bristles on the two sides together, there being also an apical comb of 6 short spines.

Abdomen.—The tergites bear each a postmedian row of 12 bristles on the two sides together; the first three tergites have an additional row of 6 to 8 bristles in front of this row, the additional row being represented on the other tergites by 1 or 2 bristles only. There are in the ♂ 2 antepygidial bristles, the upper one being short and the second moderately long; beneath the latter there is a small hair. The ♀ has 3 antepygidial bristles, the upper one being short, the second long, and the third nearly as long as the second. The sternites of segments three to six bear 2 bristles on each side in the ♂ and 3 in the ♀, the seventh segment having 2 in the ♂ and a row of 7 in the ♀.

Legs.—The bristles situated at the upper edge of the femora are long. The hindfemur bears exteriorly 2 subapical bristles and on the inner side a row of 5 to 7. The hindtibia has a row of 8 or 9 bristles on the outer surface, and bears 21 bristles at the dorsal edge, 3 of them being much longer than the others. The short bristles of the hindtarsi are numerous. The first segment has six notches on the hinder side and five on the anterior side, besides the apical notch, the ventral surface of this segment bearing 8 or 9 bristles. The longest apical bristle of the second hindtarsal segment is a very little longer than the third segment. The proportional lengths of the segments are in the midtarsus 15, 14·5, 9·5, 6, 13·5, and in the hindtarsus 27—31, 19—20, 11, 7, 14.

Modified Segments.—♂. The eighth tergite bears 2 or 3 bristles below the stigma and another pair close together farther back. The ventral edge of this tergite is apparently straight and the lower apical angle pointed. The eighth sternite (Pl. XI. fig. 12, viii. st.) is smaller than the tergite. It is about as long as it is basally wide vertically, being rounded-triangular and bearing near the apex 5 or 6 bristles. The clasper is sinuate on the distal side, the lobe above the sinus being short, while the one below it is long (P). The movable process (F) is slender. It is widest about the centre, and bears on the apical half of the distal edge one fairly long and several small hairs. The clasper bears 4 long bristles near the base of the movable process. The ninth sternite (ix. st.) is narrow. The ventral portion has numerous rather stout bristles along the ventral margin, and bears a triangular lobe at the apex. This lobe has some very short bristles at the lower angle. The tenth sternite is broad.——♀. The eighth tergite bears 5 small bristles above the stigma, and about 24 long and short bristles on the ventral half. The stylet is about three times as long as it is basally broad. The anal sternite is large, and is clothed with numerous bristles. It bears beneath on each side 3 short spine-like bristles.

Length: ♂ 2 mm., ♀ 2·3 mm.

We have one pair off *Ctenodactylus gundi*, collected by the Hon. L. W. Rothschild and Dr. E. Hartert at Biskra (Algeria).

Ctenoparia gen. nov.

♀. Near *Macropsylla* Rothsch. (1905), but easily recognised by the spines at the anterior edge of the antennal groove and the internal incrassation of the occiput being absent, and by the structure of the fifth tarsal segment.

Head.—Eye vestigial. A comb along the ventral edge of the gena (Pl. X.

fig. 7), somewhat recalling the comb of *Ctenocephalus* situated in this place. Antennal groove continued upwards to vertex. No internal incrassation on occiput. Club of antenna segmented all round.

Thorax.—Pronotum with comb. Internal incrassation situated at anterior margin of metasternum longer than it is broad and slightly curved upwards.

Abdomen.—Second segment with complete comb; third to sixth tergites mesially slightly emarginate. Seventh tergite with 3 long apical bristles on each side. Two receptacula seminis.

Legs.—The first segment of the midtarsus much longer than the second. The fifth segment of all the tarsi small, with 5 lateral bristles, the first pair not being more ventral than the others.

Type: *Ct. inopinata* spec. nov.

8. **Ctenoparia inopinata** spec. nov. (Pl. X. figs. 7, 8).

Head.—The frons bears an anterior row of 8 bristles, farther back two rows of 3 strong bristles each, and beneath the vestigial eye 1 more long bristle, there being also a number of small hairs in between these bristles. The ventral genal edge has a comb of 8 spines. The occiput bears three rows of bristles. The rostrum reaches to the apex of the forecoxa, the labial palpus consisting of five segments. The first segment of the maxillary palpus is longer than the second.

Thorax.—The pronotum bears a comb of 28 spines and two rows of bristles, besides some additional dorsal bristles. The meso- as well as the metanotum bears five rows of bristles, the anterior rows being somewhat irregular in position. The epimerum of the metathorax bears three rows of bristles (about 13 altogether).

Abdomen.—All the tergites have two rows of bristles besides a few dorsal bristles in front of these rows. The second tergite bears a comb of 38 spines, the other tergites having no spines at the apex. The three antepygidial bristles of the seventh tergite are of equal length, being longer than the second hindtarsal segment. The sternites of segments three to six have a row of 4 bristles on each side and before this row several smaller bristles. The apical edge of these sternites is distinctly emarginate.

Legs.—The forecoxa is very hairy. The sinus posteriorly near the apex of the hindcoxa is deep and narrow. The hindfemur bears ventrally before the apex 3 bristles on the outer side and 1 on the inner. The tibiae have several irregular rows of bristles on the outer surface. The foretibia has 7 long and about 13 short and stout dorsal bristles. The hindtibia has 17 to 20 shorter and only 4 long dorsal bristles. The tarsi are very hairy, but the hairs are short. The longest apical bristle of the first and second hindtarsal segments reaches just beyond the centre of the following segment. The proportional lengths of the segments are in the midtarsus 45, 29, 18, 12, 22, and in the hindtarsus 73, 58, 36, 18, 22.

Modified Segments.—♀. The seventh sternite is ventrally produced into a lobe on each side, as shown in the figure (Pl. X. fig. 8). The eighth tergite is completely divided in the dorsal line. It bears about 6 small hairs above the stigma, 2 beneath it, and about 12 bristles on the ventral portion of the sides. Of these latter bristles the most dorsal apical one is much the longest. The stylet is almost cylindrical, and is more than four times as long as it is broad at its base. It bears 1 long apical bristle and 2 minute hairs near this bristle, as in *Macropsylla hercules* Rothsch. (1905).

Length : 3·7 mm.

We have one ♀ off *Akodon oliraceus*, collected at Valparaiso, Chile, by J. A. Wolffsohn.

9. **Ctenophthalmus nivalis** spec. nov. (Pl. XI. figs. 13, 14).

Closely allied to *C. orientalis* Wagn. (1898), but differing in the modified segments of the abdomen.

♂. The eighth sternite is sinuate ventrally and produced at each side into a triangular lobe. The clasper has two non-movable processes. The upper one of them is rounded and bears about 10 bristles, while the lower one (P) is narrow and truncate, as shown in the figure (Pl. XI. fig. 13). The movable process (F) is somewhat longer than it is broad. It is obliquely truncate at the apex, the upper distal angle being produced into a short nose. The ninth sternite (ix. st.) bears numerous slender bristles at the apex.

♀. The seventh abdominal sternite, which in *C. orientalis* is produced into two broad and rounded lobes separated from each other by a narrow sinus, has only one long triangular lobe in the new species, as shown in the figure (Pl. XI. fig. 14). The eighth tergite bears 5 or 6 long bristles at the ventral and apical margins, 1 long one above the ventral margin, and proximally as well as distally a patch of 4 to 6 small hairs.

We have a small series of both sexes from Le Lautaret, Hautes Alpes, taken from a nest of *Arvicola nivalis* in August 1908 by Dr. K. Jordan.

10. **Palaeopsylla sibirica** Wagn. (1898).

Ctenopsylla sibirica Wagn., *Hor. Soc. Ent. Ross.* xxxi. p. 578. t. 8. figs. 13, 14 (1898) (Siberia; Charkow).

A ♀ agreeing with Wagner's description and figures has been received from St. Paul, Basses Alpes (France), where it was found on *Evotomys nageri* on October 26, 1907, by Monsieur Mottaz. The species does not belong to *Ctenopsyllus*, but to *Palaeopsylla*.

Wagner also described as *Typhlopsylla sibirica* (cf. *Hor. Soc. Ent. Ross.* xxxv. p. 26. t. 1. figs. 3, 4 [1900]) a ♀ from Transbaicalia which he placed afterwards in *Palaeopsylla*. If these two *sibirica* are different—as they appear to be—the second will have to receive a new name.

NEW AMERICAN *URANIIDAE* AND *GEOMETRIDAE* IN THE TRING MUSEUM.

By W. WARREN, M.A., F.E.S.

Family *URANIIDAE*.

Subfamily EPIPLEMINAE.

Symphytophleps gen. nov.

♂. *Forewing:* elongate; costa slightly curved at base and before apex, which is blunt; outer margin oblique, faintly curved, as long as inner margin, which is strongly sinuous, convex in basal half, concave beyond middle before the anal angle, which is rectangular.

Hindwing: short and broad; costa sinuous, excised at middle, the apex truncate to vein 7, which, as well as vein 6, is shortly toothed; outer margin inbent in middle, the anal angle rounded.

Antennae simple, minutely serrate beneath; palpi porrect, short, with appressed scales, the terminal segment acute; tongue and frenulum present; legs short and stout; abdomen short and thick (possibly damaged).

Neuration: forewing, cell less than half of wing; discocellular vertical, straight in upper half, concave in lower; vein 2 shortly before end of cell, 3 and 4 on a long stalk; 5 from angle of discocellular, just above the middle; 6 and 7 from upper angle of cell; 8, 9 very long stalked, from same point as, or even shortly stalked with, 10; 11 from one-half. Hindwing, cell short and very broad; vein 2 from beyond one-half: 3, 4 long stalked; 5 from middle of discocellular; 6, 7 short stalked; 8 arched at base.

Type: *S. latifascia* spec. nov.

1. **Symphytophleps latifascia** spec. nov.

Forewing: dull grey, freckled with darker; the lines blackish, most distinct below middle; first from about one-fourth of costa to one-third of inner margin, strongly excurved in cell, so that the lower course is oblique parallel to outer margin; outer line from quite three-fourths of costa, outcurved above and reaching inner margin at five-sixths; space between the lines on inner margin blackish brown with traces of other lines; a median cloud from costa towards anal angle; a black cell-mark; a black submarginal dash between veins 6 and 7; fringe grey.

Hindwing: with inner line bisinuate, from one-fourth of costa to about middle of inner margin; outer line double, waved below costa, the interval on inner margin darker, as in forewing; a black dot at top of discocellular.

Underside dark-freckled grey, without markings.

Face, palpi, thorax, and abdomen blackish; shoulders and patagia pale grey.

Expanse of wings: 38 mm.

1 ♂ from Huancabamba, Cerro de Pasco, Peru (Boettger).

The markings in costal half of forewing are somewhat obscured, owing to the worn state of the specimen.

Family *GEOMETRIDAE.*

Subfamily CYLLOPODINAE.

2. **Josia discrepans** spec. nov.

Forewing: velvety black, with a broad deep yellow streak from base to termen, its upper edge nearly straight, its lower somewhat curved, narrower in its terminal fifth, its end blunt; the fringe black.

Hindwing: black, the inner margin and the outer from anal angle to vein 4 deep yellow, the edge of the black portion evenly curved from base to vein 4; fringe black from apex to vein 4, the rest deep yellow; a narrow yellow costal stripe from base to four-fifths.

Underside like upper, but the yellow portions rather wider.

Palpi, antennae, a spot at top of face, the shoulders, patagia, and dorsum shining black; face and vertex, and the anal tuft pale ochreous; base of patagia externally, and a broad stripe down middle of thorax and dorsum deep yellow; venter and pectus pale ochreous.

Expanse of wings: 26 mm.

1 ♂ from Pozuzo, Huánuco, Peru, 800—1000 m. (Hoffmanns).

3. **Oricia augusta** spec. nov.

Forewing: velvety black, with the veins concisely yellow; from middle of costa to vein 1 at two-thirds a golden yellow blotch, swollen in middle, blunt-pointed below; on each side of it and along outer margin the yellow veins are interrupted by the black ground-colour; fringe black.

Hindwing: golden yellow, with a broad black border from apex to anal angle; broadest at apex, deeply excurved at middle, and truncate at anal angle.

Underside of forewing brown-black, with the yellow blotch broader; costal edge yellow to middle; tips of fringe white; hindwing yellow; the dark margin interrupted by a yellow tooth at costa; a slight dark basal streak along subcostal vein.

Palpi whitish in front, black laterally; face yellow; shoulders black, with lateral orange spots and a pale dot at middle; patagia dark with yellow edges; thorax and abdomen black, with yellow dorsal stripe and the latter with yellow lateral stripes; venter whitish.

Expanse of wings: 35 mm.

1 ♂ from Humayta, Rio Madeira, July—September 1906 (Hoffmanns).

4. **Oricia dominula** spec. nov.

Forewing: uniform olive-brown, with the veins yellow; a pale yellow wedge-like streak from costa beyond middle across the discocellular to just below vein 3; an elongate club-shaped yellow blotch from base along submedian interval to beyond middle; fringe dark brown; inner margin finely yellowish.

Hindwing: black, with the centre pale yellow from base to three-fourths of wing, where it is rounded; its upper edge is diffuse, and its lower indented at vein 2; along submedian fold is a streak of black scales; inner margin and fringe yellow.

Underside brown-black; forewing with both yellow blotches enlarged; hindwing with the yellow centre twice as wide: a yellow costal streak from base to beyond middle, which is also present on upperside.

Palpi laterally black, yellowish in front; face yellow; vertex brownish; shoulders brown, with three yellow spots; patagia streaked brown and yellow; thorax and abdomen blackish, with yellow dorsal stripe, the latter also with yellow lateral stripes.

Expanse of wings: 35 mm.

1 ♂ from La Soledad, Province Entre Rios, Argentina, close to frontier of Uruguay, April 1905 (Miss Britton).

5. **Oricia fulva** spec. nov.

Forewing: fulvous brown, much browner than *priverna* Cram.; the basal half dull fulvous; the veins in both areas paler; from costa at two-thirds a narrow oblique cream-coloured wedge-shaped mark ending on vein 5.

Hindwing: dull orange, with a purplish brown border shaped as in *priverna*; the costa with some brownish scaling.

Underside of forewing with an orange-yellow blotch along inner margin as in *priverna*, the costa remaining brown; the pale costal streak enlarged, running to vein 3, and emitting a spur inwards to discocellular; hindwing as in *priverna*, but in both wings the dark tints are brown, not black.

Head and thorax dark brown; abdomen paler, greyer brown; the venter cream-white.

Expanse of wings: 48 mm.

1 ♀ without locality label.

6. **Oricia imitatrix** spec. nov.

Forewing: dark purple-brown, the veins showing scarcely paler; a fusiform yellow transverse blotch at three-fifths, extending from subcostal vein to submedian fold; fringe concolorous.

Hindwing: with a central curved broad yellow fascia with waved edges from vein 8 to inner margin, where it is narrowed and dusted with blackish scales.

Underside with the blotches larger and deeper yellow; forewing with a whitish streak along median vein and inner margin; hindwing with one along costa and median vein.

Palpi black with basal segment white; face white; collar yellow; thorax and abdomen like wings, the latter with yellow dorsal spots.

Expanse of wings: 36 mm.

2 ♂♂ from Humayta, Rio Madeira, July—September 1906 (Hoffmanns).

This species is remarkably like *Ephialtias monilis* Hüb.

7. **Oricia projecta** spec. nov.

Forewing: olive-brown, with the veins yellowish; on the middle of the inner margin an oblique cream-white blotch, the inner edge parallel to costa, the outer to outer margin, the apex rounded and touching cell-fold, the outer edge bent on vein 2; beyond upper end of cell a similarly coloured blotch.

Hindwing: cream-colour, with a broad black marginal border from before apex to anal angle, its inner edge waved and with a sinus beyond cell; base brownish.

Underside like upper, without the yellow veins.

Head and thorax brown varied with pale spots and streaks; the patagia with pale edges; abdomen (rubbed) apparently dingy whitish with darker dorsal and lateral stripes.

Expanse of wings: 44 mm.

1 ♀ from Humayta, Rio Madeira, July—September 1906 (Hoffmanns).

8. **Oricia scissa** spec. nov.

Forewing: dark olive-brown, with the veins all yellow; from middle of costa a yellow wedge-shaped streak runs to submedian fold at three-fourths, the ground-colour on each side of it darker and interrupting the yellow veins; fringe pale brown.

Hindwing: deep yellow, the inner margin below cell and vein 2, a square blotch at apex above vein 4, and the margin between 2 and 4 narrowly brown-black; fringe dark brown; the extreme inner margin and its fringe yellowish.

Underside dark brown; forewing with an obliquely edged basal patch yellowish; a broad deep yellow band of uniform width from middle of costa nearly to anal angle; hindwing like upperside, but the dark areas brown; inner margin more broadly yellowish.

Face and vertex yellow; palpi yellow with the tips black; thorax and patagia streaked alternately olive-brown and dull yellow; dorsum brownish cinereous, edged by a broad orange lateral stripe; venter cream-colour; legs grey and whitish.

Expanse of wings: 40 mm.

Both sexes from Fonte Boa, Upper Amazons, May to July 1906 (Klages).

In this species vein 10 is stalked with 7, 8, 9, instead of rising free.

9. **Phaeochlaena biorbiculata** spec. nov.

Forewing olive-brown, with the veins yellowish, and two round whitish spots, one at lower end of cell between the cell-fold and base of vein 2, the other submarginal, crossed by veins 5 and 6; fringe brown.

Hindwing: cream-white, with broad black costal and outer marginal border, and the base diffusely brown; the veins and fold also streaked with brown across the white area.

Underside similar; both wings brown.

Palpi yellowish; face white; antennae black; patagia with yellow spot at base; thorax and abdomen brownish cinereous.

Expanse of wings: ♂ 28 mm.; ♀ 35 mm.

A long series from Fonte Boa, Upper Amazons, May to July 1906 (Klages).

The species differs from *Ph. tendinosa*, the type of the genus, in having vein 10 stalked with 7, 8, 9, and the antennae of the ♀ are shortly bipectinate.

10. **Polypoetes vidua** spec. nov.

Forewing: semitransparent, sparsely scaled, black, with the veins delicately white; a white semihyaline narrow streak from base to beyond middle between median vein and submedian fold; a white blotch beyond cell between vein 6 and the stem of 3, 4, its upper edge oblique; a small white tridentate mark before apex, caused by the swelling of veins 7, 8, 9, which rise nearly all together; fringe black.

Hindwing: with all the margins black, of uniform width, enclosing a broad white pyriform space, with diffuse black scales at base.

Underside duller black with similar white markings, the hindwing also with the costa narrowly and the inner margin broadly dusted with bluish white scales.

Head, thorax, and abdomen black; an orange spot at base of patagia laterally; segments of abdomen with whitish rings.

Expanse of wings: 26 mm.

1 ♀ from Limbani, Carabaya, Peru, November 1901, wet season (Ockenden); very much like *P. bistellata* Dogn. from Argentina; but the white area of hindwings is broader and the veins of forewing are white. I have seen another ♀ from Limbani, and 2 ♂♂ from Agualani, referred at the time to *bistellata*.

11. **Scotura fulviceps** ab. **quadripuncta** nov.

Differs from the type form of *fulviceps* Feld., figured as a *Cymopsis*, in having a fourth white spot beyond the end of cell above the large outer spot, which in the type form is rounded and reaches vein 5, but in the aberration is flattened and bounded by vein 4; at base of cell is also a distinct white spot.

2 ♂♂ from Fonte Boa, Upper Amazons, May 1906 (Klages), along with a fair number of the type form.

12. **Scotura fusciceps** spec. nov. and ab. **obstructa** nov.

Forewing: black, with the veins hardly paler; a dull whitish blotch beyond lower angle of cell embracing the forking of veins 3 and 4, the veins across it also white; fringe black.

Hindwing: black, with a whitish elongated blotch from base to three-fourths of wing, the median vein, vein 2, and the stalk of 3, 4, showing black along it.

Underside duller black, with the pale areas in both wings more extensive and bluish white in tint.

Head and thorax blackish; abdomen blackish with a strong bluish tinge.

Expanse of wings: 30 mm.

1 ♂ from Fonte Boa, Upper Amazons, July 1906 (Klages).

Distinguished at once by its dark head.

In the ab. *obstructa* the pale blotch of forewing is absent on the upperside, but equally distinct below; in the hindwing the central white area is wider, occupying the whole width of the cell, whereas in the type it is limited above by the cell-fold.

1 ♂ taken along with the type.

13. **Scotura intermedia** spec. nov.

Like *S. nigrata* Warr. in the forewing; in the hindwing the smoky grey patch along middle of wing, which in *nigrata* is white on the underside only, is in the present species white both above and below, with the edges diffuse.

Expanse of wings: 32 mm.

Both sexes from the Aroewarwa Creek, Maroewym Valley, Surinam, July to September 1905 (Klages).

Resembles *S. nervosa* Schaus, but the white area in hindwing more restricted, and not reaching base.

14. **Scotura leucophleps** spec. nov.

Forewing: blackish, with the veins all pale; the fringe black.

Hindwing: slaty black, with an elongated central white wedge-shaped streak from base, its point near outer margin between veins 3 and 4.

Underside black, with the veins towards outer margin of both wings distinctly white; the white central area of hindwing ampler.

Head and palpi fulvous; thorax and abdomen blackish.

Expanse of wings: 30 mm.

1 ♂ from Tuis, Costa Rica.

15. **Scotura longigutta** spec. nov.

Forewing: dull blackish, with all the veins pale grey, as in *nervosa* and *venata*.

Hindwing: deep brown-black, with a long drop-shaped central white blotch including the outer half of cell, its outer edge running from subcostal near the forking of veins 6 and 7 to the forking of veins 3 and 4, its lower edge parallel to upper along vein 2, both ends rounded.

Underside of forewing with a small white blotch beyond end of cell; hindwing with the white blotch ampler, pyriform, running narrowly to base; the inner margin pale grey.

Head and palpi deep orange; thorax and abdomen brownish fuscous.

Expanse of wings: 30 mm.

5 ♂♂, 1 ♀ from Fonte Boa, Upper Amazons, May to July 1906 (Klages).

16. **Stenoplastis eximia** spec. nov.

Forewing: olive-black, the veins distinctly yellow; basal area milky white, bounded by a vertical blotch from costa to median at one-third, and another from median to inner margin at two-fifths; base of costa and cell smoky grey, and a streak on each side of the submedian fold; on the discocellular a yellowish white vertical streak broadening downwards, and above it on each side of vein 11 some diffuse white scales; the starting-point of veins 7, 8, 9 swollen into a yellow spot; a submarginal series of faint whitish lunules between the veins.

Hindwing: pure white, with a black blotch on outer margin from costa to vein 2; beyond which the fringe is black, but white below.

Underside like upper, but the veins yellow only just before margin; basal area of forewing wholly white except costa.

Face, palpi, and base of patagia orange-yellow; thorax (rubbed) blackish; abdomen white in basal half, black towards anus, wholly white beneath.

Expanse of wings: 34 mm.

1 ♂ from Cushi, Province Huánuco, Peru, 1900 m. (Hoffmanns).

Allied to *S. jipiro* Dogn.

Subfamily GEOMETRINAE.

Anomphax gen. nov.

Near *Paromphacodes* Warr., from which it is separated by the absence of frenulum and the rudimentary tongue; the costa of forewing is more curved, so that the wing appears ampler; the antennae of the ♀ are bipectinate, though

more shortly than in the ♂ ; in *Paromphacodes* they are serrate only. Neuration identical ; in the hindwing the costal and subcostal are very closely approximated for half of cell, without any anastomosis.

Type : *Anomphax gnoma* Butler (*Omphax*).

In Guenée's genus *Omphax* even the ♂ has simple antennae.

17. Anomphax gnoma.

Omphax gnoma Butler. Tr. E. S. 1882, p. 367.

The two examples from Chili described by Mr. Butler as ♂♂ are both ♀♀, the pectinated antennae having misled him ; as a rule Chilian insects are not met with east of the Andes ; but I have lately seen a ♀ from Salta, Argentina, which cannot be separated, as far as I can see, from Butler's Chilian *gnoma*. This specimen was taken in February 1905 by J. Steinbach.

18. Dichorda uniformis spec. nov.

Like *D. remotaria* Wlk. from N. America, but with shorter and broader wings, the outer margin less oblique, the two lines ending on inner margin of forewing at one-third and two-thirds; in the hindwing the line, instead of ending close above the anal angle, runs to inner margin a little beyond the middle and is nearly central; the green tint is without any admixture of yellow.

Expanse : 22 mm.

2 ♂♂ from Caparo, Trinidad, December 1905 (Klages).

Eualloea gen. nov.

Forewing : elongate ; costa slightly arched at base, strongly convex before apex, which is depressed and acute; outer margin crenulate, concave between apex and vein 4, thence oblique, veins 4 and 3 forming a blunt projection.

Hindwing : with inner margin long, the anal angle nearly square ; outer margin produced to a short blunt tail at vein 4, and with a smaller tooth at veins 3 and 6.

Antennae in ♂ quite simple, lamellate ; palpi short, porrect ; tongue and frenulum present ; hindtibiae with four spurs ; abdomen without dorsal tufts.

Neuration : forewing, cell not half as long as wing ; discocellular vertical above, then incurved and oblique below ; first median nervule at quite two-thirds, second and third from lower end of cell ; 5 from the upper fourth of discocellular, 6 shortly stalked with 7, 8, 9, 10 ; 11 just before them, anastomosing with 12, and approximated to 10 ; hindwing with 3, 4 and 6, 7 stalked ; 5 from close below upper end of cell.

Type : *Eualloea subbifasciata* spec. nov.

Distinguished from *Neocrasis* Warr. from S. America and from the palaearctic genera *Gelasma* Warr. and *Episothalma* Swinh. by the simple antennae, and from *Euxena* Warr., with which it agrees in the antennae, by the absence of dorsal crests.

19. Eualloea subbifasciata spec. nov. and ab. suffusa nov.

Forewing : dull greenish grey ; the median area suffused with darker, and the whole surface striated with darker green ; lines thick, darker grey-green : first, slightly curved, at one-fourth, edged towards base with paler ; outer lunulate-dentate, from two-thirds of costa to two-thirds of inner margin, forming a bifid

projection on veins 4 and 3, and with a deep sinus between 3 and 1 ; a dark green, thicker, submarginal shade parallel to outer line; cell-spot diffusely dark green : fringe (worn) dull green.

Hindwing : like forewing, but the outer margin deeper shaded.

Underside whitish, freckled in forewing with dull olive ; both wings with the outer and submarginal lines forming thick olive-green bands, broader below costa of forewing.

Head, thorax, and abdomen pale green ; upper part of face dull reddish.

Expanse of wings : ♂ 40 mm. ; ♀ 48 mm.

2 ♂♂ from La Union, R. Huacamayo, Carabaya, Peru, 2000 ft., November 1904, wet season (Ockenden), type : 1 ♀, January 1905 ; 2 ♂♂ from Fonte Boa, Upper Amazons, November and June 1906 (Klages) : 1 ♀ from Pebas, Amazons, November 1906 (de Mathan). The Fonte Boa specimens, ab. *suffusa*, are clouded with dull olive-green, and show very little of the pale ground-colour.

20. **Gelasma dealbata** spec. nov.

Forewing : dull olive-green ; the costa yellow, speckled with purple ; the lines whitish, lunulate-dentate ; the inner obscure at one-fourth ; the outer from two-thirds of costa to quite three-fourths of inner margin, incurved below vein 3 and slightly insinuate beyond cell ; a faint dark green cell-mark ; fringe pale yellowish green, with dark chequering beyond veins.

Hindwing : with the outer half white, the postmedian line and a diffuse submarginal shade, both lunulate-dentate, olive-green ; a series of olive-green lunules along margin ; fringe whitish with dark olive-green mottlings.

Underside whitish green ; an interrupted dark marginal line on forewing and as far as vein 5 on hindwing, where it is preceded by a fuscous blotch fringes pale green mottled with fuscous ; costa of forewing yellow with purple speckling.

Face and palpi above brown ; vertex, thorax, and abdomen dull green ; fillet and antennal shaft white.

Expanse of wings : 25 mm.

2 ♂♂, 2 ♀♀ from La Oroya, R. Inambari, Carabaya, Peru, 3100 ft., September 1904—January 1905 (Ockenden) ; also from Tinguri and Oconeque.

21. **Gelasma subrufescens** Warr. and ab. (?) **pallescens** nov.

Of this species, described by me from three specimens only, in the *Proceedings of the United States National Museum*, vol. xxx. p. 417 (1906), I have lately seen a long series from Tinguri and La Oroya, Peru and Fonte Boa, Upper Amazons ; in the majority of cases the dorsum is marked with a double blackish spot on segments 3 and 4, and often with dark scaling beyond ; a single ♀, from Fonte Boa, is rather larger, with the abdomen tinged with red, and has the antennae pectinated, but not so strongly as in the ♂. The whole of these specimens are dull olive-green, and opaque. Of the form which I propose to call ab. *pallescens* I have seen only four specimens ; these are rather larger than typical *subrufescens*, quite pale green, and semidiaphanous, with scarcely any reddish tinge beneath ; but they all show traces of the dark dorsal spots. Of these, two are from Oconeque and one from La Union, R. Huacamayo, Peru ; the fourth, from Sapucay, Paraguay, shows the dorsal blotches well marked.

In the original description " Underside of forewing dull **gray** " is a misprint for dull rosy.

22. **Halioscia ruptimacula** spec. nov.

Closely resembling *H. congener* Warr. (*Oospila*), from Rio Demerara, British Guiana, described in *Nov. Zool.* vii. p. 136, but differing in the following particulars :

The cell-spots in both wings are round, not elongate ; the dark blotch on outer margin below apex of forewing is narrower, and distinctly divided by a pale submarginal line, as in *H. procellosa* Warr. ; that at anal angle is shorter and deeper, more rounded. In the hindwing the long apical blotch is broken up into two smaller and shorter blotches, one at apex, the other beyond cell, and the anal blotch is much reduced in size.

Expanse of wings : 32 mm.

1 ♂ from La Union, R. Huacamayo, Carabaya, Peru, 2000 ft., December 1904, wet season (Ockenden).

23. **Hemithea decipiens** spec. nov.

Forewing : dull grey-green ; the costa dotted purplish and yellowish ; the lines pale, the outer dentate-lunulate, at about one-third and two-thirds, the median area slightly darker ; cell-spot dark green, large ; marginal line purplish, interrupted at end of veins by rather large yellow spots ; fringe grey-green in outer half, the basal half yellowish, chequered with dark grey beyond the veins.

Hindwing : similar, without inner line.

Underside whitish green ; the apex of hindwing (and sometimes the anal angle of forewing) with a dark blotch reaching vein 5.

Head, thorax, and abdomen greenish ; vertex white ; palpi and forelegs tinged with reddish ; dorsum slightly marked with grey.

Expanse of wings : ♂ 18 mm. ; ♀ 20—22 mm.

1 ♂ from La Oroya, R. Inambari, Carabaya, Peru, 3100 ft., December 1905, wet season (Ockenden), type ; 2 ♂♂ from R. Huacamayo, Peru, June 1904, dry season (Ockenden) ; 2 ♀♀ from Aroewarwa Creek, Maroewym Valley, Surinam, April to June 1905 (Klages) ; 1 ♀ from Caparo, Trinidad, December 1905 (Klages) ; 1 ♀ Port of Spain, Trinidad (Birch).

Antennae of ♂ subserrate and pubescent merely ; otherwise indistinguishable from *Gelasma*.

24. **Hydata radiata** spec. nov.

Forewing : very pale hyaline green ; the costal streak, the cell, the inner margin, and a submarginal band pale fawn-colour ; this band is crossed by a fawn-coloured streak above vein 6, and is connected by a short streak above vein 4 with the cell ; a fawn-coloured marginal shading ; fringe pale green with yellow base ; across the central hyaline area two darker lines can be traced, the outer one excurved above.

Hindwing : fawn-colour, with a curved green band at one-third and a dull yellow wavy dentate one at two-thirds ; fringe green.

Underside very pale green, the dark markings showing through in forewing only.

Thorax and abdomen fawn-colour ; face, vertex, and antennae white.

Expanse of wings : 27 mm.

2 ♂♂ from Cushi, Province Huánuco, Peru, 1900 m. (Hoffmanns).

The outer margin of hindwing is bluntly prominent at vein 6.

25. **Hydata scripturata** spec. nov.

Forewing: semitransparent pale green; base of costa broadly brownish; lines finely black; inner line at one-third, wavy dentate, preceded by a black blotch in the cell and a larger blotch oblique from near base of cell to inner margin at one-third; outer line concisely lunulate-dentate from three-fourths of costa to three-fourths of inner margin, projecting outwards between veins 3 and 4, preceded by a large irregular black blotch on the discocellular, and followed by blackish blotches between the veins, that above 6 being long and prominent; fringe green.

Hindwing: similar, with the black lines and markings intensified; a black blotched and dentate fascia between the two lines.

Underside pale green, with the black markings partially visible.

Vertex, thorax, and dorsum olive brownish: fillet white; face brown and white; antennae white.

Expanse of wings: 17 mm.

1 ♂ from La Oroya, R. Inambari, S.E. Peru, 3100 ft., December 1905, wet season (Ockenden).

The outer margin of hindwing projects squarely between 3 and 4, and is dentate at veins 1 and 6.

Leptolopha gen. nov.

Like *Lissochlora* Warr., but the dorsum is not simple and smooth, as in that genus, but bears tufts of pale yellowish or greenish curved broad hair-scales on segments 3–7.

Type *Leptolopha flavilimes* Warr. (*Lissochlora*).

These tufts are of a much more flimsy character than the metallic red tufts of *Racheolopha*, and appear liable to be soon rubbed off; even when fresh, being of the same colour as the rest of the dorsum, they are easily overlooked.

26. **Leptolopha flavilimes** and ab. **decorata** nov.

Lissochlora flavilimes Warr., *Nov. Zool.* xi. p. 21 (1904).

When I described this species I entirely overlooked the dorsal tufts. Since then I have seen a considerable number, differing some of them both in markings and size, but agreeing in the possession of the dorsal tufts, which must all be transferred to *Leptolopha*. On comparison with these others I find that in *flavilimes* the yellowish margin of both wings shows a tendency to run inwards along the veins; in most cases this is very slight and inconspicuous; but in one example the yellow intrudes to such an extent that the green ground-colour forms a continuous festoon of lunulate projections between the veins; besides which, in this form, ab. *decorata*, the ground-colour itself is darkened by rufous olive scales sprinkled over both wings.

1 ♂ from Fonte Boa, Upper Amazons, 1906 (Klages).

27. **Leptolopha nigripunctata** spec. nov.

Closely allied to *L. flavilimes* Warr., but the hindwing has a black spot at the lower end of discocellular; in the forewing there is no red-brown apical patch running out into the fringe, but a concise oblique dash at the extremity of the

green ground-colour ; in both wings the inner edge of the yellow marginal area is straight, and the yellow does not run in along the veins ; the costal streak of forewing is broader and paler.

1 ♂ La Oroya, Carabaya, Peru, November—December (wet season) 1904 ; 1 ♂ Tinguri, Carabaya, Peru, August (dry season) 1904 (type); 1 ♂ La Union, R. Huacamayo, Peru, November 1904 (Ockenden); agreeing in size, 24 mm., with the females of *flavilimes*, which are on the average a little larger than their males.

28. **Leptolopha permagna** spec. nov.

Much larger and broader-winged than either *flavilimes* or *nigripunctata* ; costal margin of forewing broadly yellow ; the yellow marginal area of both wings without any reddish internal edging ; the apex of forewing without any red tinge ; the cell-spot large, oblique, dark green ; in the hindwing the cell-mark is yellowish, extending the whole length of discocellular, but much broader and plainer in the upper half.

Face and forelegs fulvous ; vertex and antennal shaft snow-white ; collar yellow.

Expanse of wings : 36 mm.

2 ♀♀ Tinguri, Carabaya, Peru, 3100 ft., August 1904, dry season (Ockenden), type ; and 1 ♀ from La Oroya, R. Inambari, Carabaya, Peru, 3100 ft., November—December 1904, wet season (Ockenden).

29. **Lissochlora albilineata** spec. nov.

Forewing : bright green, traversed by numerous pale striae ; costal edge white ; veins all finely white ; both lines white ; the inner fine, at one-fourth, slightly angled outwards on the median vein ; the outer broad, slightly curved, from four-fifths of costa to two-thirds of inner margin ; fringe shining white ; a large oval reddish brown cell-spot.

Hindwing : with both lines curved, the outer, as in forewing, farther from outer margin on the inner margin than on costa.

Underside paler green, the white lines and dark cell-spots showing through.

Palpi white, the terminal segment fuscous ; face white with the upper part green ; fillet and antennae white ; vertex, shoulders, and patagia green ; thorax and abdomen whitish ; the dorsum reddish-tinged, and with a square brown-black blotch on second segment ; venter, pectus, and legs white, the foretibiae blotched with brown-black.

Expanse of wings : 44 mm.

1 ♀ from Limbani, Carabaya, Peru, 9500 ft., May 1904, dry season (Ockenden).

30. **Lissochlora (?) marcida** spec. nov.

Forewing : pale yellowish green, more yellow towards costa ; the lines pale, obscure ; first curved from one-fourth of costa to one-third of inner margin, followed by a shade of deeper green ; outer at quite three-fourths, bent on vein 6, then straight to inner margin, preceded by a deeper green shade ; cell-spot black ; fringe yellowish green.

Hindwing : with the outer line only, at two-thirds, curved parallel to the margin ; cell-spot black.

Underside of forewing pale olive-green, with a broad deeper marginal border ;

the inner margin whitish ; hindwing whitish, with a broad olive-green border, and a small patch below lower end of cell ; cell-spots black.

Head, thorax, and abdomen pale yellowish green ; the dorsum slightly marked with reddish.

Expanse of wings : 30 mm.

1 ♀ from Fonte Boa, Upper Amazons, October 1906 (Klages).

Wings all very smoothly scaled, without darker speckling. It is referred to *Lissochlora* provisionally, in the absence of the male.

31. **Melochlora affinis** ab. **abscondita** nov.

Differs from the type of *affinis* Warr., from French Guiana, in having no dark markings on the upperside, those of the underside remaining the same. The present is probably the ordinary form of the species, and the single specimen from the Maroni River exceptional.

2 ♂♂, 1 ♀ from La Oroya, R. Inambari, S.E. Peru, 3100 ft., November 1904 to March 1905, wet season (Ockenden), type ; 6 ♂♂, 1 ♀ from Fonte Boa, Upper Amazons, May—August 1906 (Klages) ; and 1 ♂ from Aroewarwa Creek, Maroewym Valley, Surinam, April 1905 (Klages).

The species may be distinguished by the course of the outer line, which is parallel throughout to the outer margin on the forewing and slightly curved on hindwing ; and the outer margin of the hindwing is more curved, less elbowed than in other species of the genus.

32. **Melochlora discata** spec. nov.

Forewing : deep green ; the lines and cell-spot brown ; inner line at one-fourth, vertical and waved ; outer straight and oblique, from costa before apex to two-thirds of inner margin ; cell-spot small ; fringe paler green, with a black-brown apical spot.

Hindwing : with the line slightly curved and median ; cell-spot large, deep black, covering the discocellular, and edged on both sides with deep red.

Underside whitish green, without markings, except in the hindwing, where there is a blackish blotch below discocellular from median vein to submedian fold, the dark centre of the cell-spot also showing through.

Face and palpi pale green ; shoulders and patagia deep green ; thorax and abdomen ochreous, the base of dorsum greenish ; vertex white ; antennae reddish.

Expanse of wings : 31 mm.

1 ♂ from La Oroya, R. Inambari, Peru, 3100 ft., September 1904, dry season (Ockenden).

The outer margin of hindwing is visibly but bluntly elbowed at middle, of forewing scarcely bulged. *M. neis* Druce also has the lines brown, and shows in addition some brown exterior clouds, but is without the large red-marked cell-spot of hindwing, which well characterises the present species.

33. **Melochlora tenuis** spec. nov.

Forewing : bright pale green, semitransparent ; the costal edge with a few black specks ; basal area edged by some black striae below middle of wing ; marginal area with a broad dull black band with deeper black edges, marginal from anal angle to vein 4, then becoming submarginal, not reaching above vein 6, except

the edges, which are continued as striae towards 7 ; fringe green, black below vein 4.

Hindwing: similar, but the band is represented only by its inner edge, and a black blotch with some scattered striae at apex, along which the fringe is also black.

Underside the same ; but the subbasal striae coalescent into a blotch.

Head, thorax, and abdomen pale green, the last with a black belt at base; antennal shaft white, the pectinations black.

Expanse of wings : 37 mm.

1 ♂ from Belmont, Port of Spain, Trinidad (E. Lafond).

Closely related to *M. vagilinea* Warr. from French Guiana, from which it is separated by the absence of any red markings.

34. **Miantonota consimilis** spec. nov.

This species is very close to *M. dentilinea* Warr. (*Racheospila*), but differs as follows :

The marginal line of both wings is much finer, less distinctly red ; the fringes are not chequered beyond the veins, but have their basal half shining white and their apical half grey ; the forewing is proportionately broader, with the apex more prominent, and the hindwing is elbowed at middle, not rounded ; the abdomen is ochreous, possibly greener when fresh ; and instead of the white spots on segments 2 and 4 (not 1 and 3 as in the original description) bears a quadrate brown spot only on segment 2. Moreover, the teeth of the outer line of the wings are externally less prominently white, and internally are marked with brown instead of green.

2 ♂♂ from La Oroya, R. Inambari, Carabaya, Peru, 3100 ft., September 1904, dry season (Ockenden).

35. **Miantonota erina** Dogn. ab. **disjuncta** nov.

In his description of *Achlora erina*, M. Dognin (*Ann. S.E. Belg.* 1896, p. 143) speaks of one specimen which bore traces of a lunulate darker festoon connecting the series of dark points which form the outer line ; these connecting lunules are distinct in all three specimens of the ab. *disjuncta* ; but while in *erina* the points on veins 6, 7, and 8 are conjoined and individually lost in a black zigzag blotch ending in the apex, in the aberration there is no blotch, but the three points on these veins are distinct and black in a straight line, the uppermost on vein 8 lying well before the apex, and these three black points are not tipped externally with white, as is the case with all those on the lower veins. In the dorsal markings of the abdomen, moreover, the ab. *disjuncta* differs from typical *erina*, and agrees more nearly with the ab. *bipunctata* Dogn. (*Ann. S.E. Belg.* 1908, p. 17), the ♂ having a small blackish spot on segment 2 and a larger quadrate one on segment 5, while the ♀, besides the blotch on 5, has the whole of the first and second segments black-brown. The points forming the inner line and the discal spots are all distinct ; but the costal edge of forewing is not white.

1 ♂, 1 ♀ from Tucuman, 1100 m., January—February 1905 (Steinbach), type ; 1 ♂ from Sapucay, Paraguay, November 1903 (Foster). This last specimen shows a black spot at apex of forewing, beyond the other three black points.

Both *erina* Dogn. and *discipuncta* Warr. should be placed in *Miantonota*.

36. **Microloxia herbaria.**

Phal. Geom. herbaria Fabr. *E. S.* iii. 2, p. 162 (1794), W. Indies.

Nemoria paularia Moeschl. *Abh. Senck. Ges.* xiv. p. 68 (1888), Jamaica.

Lissochlora intacta Warr., *Nov. Zool.* xii. p. 318 (1905), Dominica, Cuba.

It is fairly certain that the three species above mentioned, all described from islands of the W. Indies, are identical. The green fades so soon, that it is very rarely the case that a trace of the outer line of pale dots is visible. The pectinations of the antennae of the ♂ are much longer and coarser than in typical *Lissochlora*, to which I referred *intacta*.

Nesipola gen. nov.

Like *Racheospila* and *Racheolopha*, but distinguished by the dorsum having neither raised crests nor white spots ; the first two segments are green, the rest dull white ; in *Miantonota* the whole dorsum is green, and the wings are not marked by variable spots and blotches.

Type : *Nesipola impunctata* spec. nov.

Racheospila anomalaria Moeschl. from Porto Rico, *R. centrifugaria* ♀ H.-Sch. (=*protractaria* ♂ H.-Sch.) from Cuba, and *R. heterospila* Hmpsn. from the Bahamas (=*albimacula* Warr. from Sta. Lucia), all of them probably different island forms of one and the same species, will belong here ; also *R. stellataria* Moeschl. (=*concentrata* Warr.) from Jamaica.

37. **Nesipola impunctata** spec. nov.

Distinguished from all of the species above mentioned by the deeper, brighter green of both wings ; the fringes are entirely green, without the reddish flecks between the veins which are seen in the other forms ; and the hindwing is distinctly elbowed at vein 4. In the varying development of the blotches beyond outer line it agrees with *centrifugaria* H.-S. Of the six examples, all ♀♀, that I have seen one has the large oval whitish blotch in forewing reaching from vein 6 to 1 and edged with reddish, and a smaller whitish blotch in hindwing above vein 1 ; a second has the same blotches dull reddish ; two others have a small snow-white red-edged round spot on the forewing between veins 2 and 3, and none on hindwing ; the remaining two have the spot wholly dark red-brown ; so that in this form at all events the variation in size and colour of the blotches is not sexual, as was supposed by Herrich-Schaeffer might be the case in *centrifugaria*.

Expanse of wings : 25 mm.

6 ♀♀ from Dominica, January, February, 1905 (E. A. Agar).

In his description of *centrifugaria* from 3 ♀♀ (*Corr.-Bl. Regensb.* 1870, p. 182) Herrich-Schaeffer speaks of the first as having the blotch of forewing smaller, and not reaching below vein 2 (perhaps a spot only between veins 2 and 3) ; the second as having the blotch large and extending from vein 6 to 1, and filled up with reddish grey ; while the third had the blotch equally large, but white, edged only with red ; neither he nor Gundlach (*Cuba*, p. 385) mentions any spot at all on the hindwing, while in their description of *protractaria*, the supposed ♂, both authors state the spot of forewing to be entirely wanting. I have seen five examples from Cuba, 3 ♀♀ and 2 ♂♂ ; 1 ♀ from Baracoa agrees with the second of Herrich-Schaeffer's ♀♀, the blotch being large and reddish, but with a smaller red blotch on hindwing ; a second ♀, from Santiago, is like it, but smaller and brighter ; the third, from Holquin, has a double white blotch from vein 3 nearly

reaching submedian fold, ringed with purple and with vein 2 purple across it, and no spot in hindwing. Of the 2 ♂♂, both from Santiago, one is like typical *protractaria*, the other shows a white red-ringed spot between veins 2 and 3 on forewing only. This ♂, like the second ♀ from Santiago mentioned above, is smaller and brighter green, and possibly both belong rather to the Dominican form now described as *impunctata*.

Moeschler, describing his *anomalaria*, a ♀ from Porto Rico, gives the blotch as extending from vein 4 to anal angle of forewing, white, edged with red, and partially dusted with reddish, with the veins across it red also, and a smaller blotch on hindwing only half the size.

In the types of *heterospila* Hmpsn. from the Bahamas, and *albimacula* Warr. from Sta. Lucia (wrongly described as a *Rhodochlora*), both ♀♀, the blotch of forewing is double, like that in the ♀ of *centrifugaria* from Holquin, Cuba; but the upper half, above vein 3, is smaller and red-brown, the lower half larger and white edged with red-brown, this lower half only reappearing on hindwing.

In all the forms the cell-spots and the spots representing the two lines are red-brown; those of the outer line running to the small blotch where present, except in the Cuban specimens, where the line is farther from the outer margin and passes on the inside of the blotch; when the blotch is enlarged, the row of dots is of course in all cases interrupted in the middle.

38. **Oospila longiplaga** spec. nov.

Forewing: green, with the markings much as in *depressa* Warr., but that from anal angle extending along inner margin for three-quarters instead of only half-way, and swollen towards base, both thickly striated with reddish and fuscous, and connected by a narrow purplish band at outer margin.

Hindwing: with the blotches similarly striated; that at anal angle elongated, reaching more than half-way along inner margin and extending somewhat beyond vein 2.

Face and palpi red-brown; thorax and two basal segments of dorsum pale green; abdomen bone-colour, with the tufts reddish.

Expanse of wings: 34 mm.

2 ♀♀ from Fonte Boa, Upper Amazons, July—September 1906 (Klages).

39. **Oospila minorata** spec. nov.

Like *O. albicoma* Feld. in markings, but always smaller, with the pale blotches pinker; the lower elongate blotch of forewing never extends above the cell-fold, whereas in *albicoma* it all but touches the costal streak.

Expanse of wings: 32 mm.

13 ♂♂ from La Oroya, Rio Inambari, Peru, 3100 ft., September 1905 to January 1906, wet season, and 2 ♂♂ from Tinguri, Carabaya, Peru, 3400 ft., August 1906 (Ockenden); 11 ♂♂ from Fonte Boa, Upper Amazons, May—September 1906 (Klages), type; and 2 ♂♂ from La Union, R. Huacamayo, Carabaya, Peru, 2000 ft., November, December 1904 (Ockenden).

40. **Oospila nasuta** spec. nov.

Forewing: green, with the pale blotches like those of *O. ruptimacula* Warr., but the apical blotch narrower, and that at anal angle not extending to middle of inner margin and emitting a broad oblique projection to below end of cell.

Hindwing · with the apical blotch subquadrate, that at anal angle small, hardly reaching to one-third of inner margin ; a long oval pale blotch on basal third of inner margin.

Vertex white ; thorax and abdomen bone-colour, only the patagia green ; face and palpi reddish brown.

Expanse of wings : 32 mm.

2 ♂♂ from Caparo, Trinidad, December 1905 (Klages).

41. **Oospila semiviridis** spec. nov.

Forewing : like *longiplaga*, but the two blotches bone-colour, almost without striae, and unconnected along outer margin.

Hindwing : with the anal blotch reaching only one-third along inner margin, and bilobed towards base ; a shallow blotch of bone-colour on inner margin before middle.

Thorax and two basal segments of dorsum deep green ; face and palpi reddish brown ; vertex rufous ochreous ; abdomen pale with the tufts metallic reddish.

Expanse of wings : 32 mm.

1 ♂ from La Oroya, R. Inambari, S.E. Peru, 3100 ft., March 1905, wet season (Ockenden).

42. **Prohydata benepicta** spec. nov.

Forewing : bright pale green ; the markings brown—viz. a basal patch with some green in centre, its edge vertical but slightly curved, and a broad sinuous band occupying the outer half of wing, its inner edge with a deep outward sinus between veins 2 and 5, its outer angularly indented above vein 5, where there is a large triangular green patch on outer margin ; the band runs to margin at apex and at vein 3 ; an interrupted brown marginal line ; fringe greenish, slightly mottled with brown.

Hindwing : similar, but the brown band is traversed by a narrow, very sinuous, green postmedian line, and reaches the margin throughout except for a green triangle between 4 and 6 ; marginal line brown ; fringe green, marked with brown at the angle at vein 6.

Underside very pale green, with the brown markings showing through.

Vertex, thorax, and dorsum brown ; face brown and green ; fillet white.

Expanse of wings : 18 mm.

1 ♂ from Fonte Boa, Upper Amazons, August 1906 (Klages).

43. **Racheolopha heteromorpha** spec. nov.

Closely resembling *R. plurimaculata* Warr. from Peru, from which it differs in the shape of the hindwing. The outer margin is rounded in the Peruvian species, but produced in the present one to a small tooth at vein 4, the margin below it to anal angle straight with faint crenulations, above it sinuous, the apical angle being well rounded and the margin slightly concave between veins 6 and 4. There is also a slight difference in markings : the pale blotches on margin have the veins pinkish and brown-dotted, as in *plurimaculata* ; but are also crossed transversely by pinkish red-brown dotted clouds, that in the apical blotch of hindwing being conspicuous ; the upper blotches do not extend below vein 4 in either wing ; the blotch on inner margin of hindwing is longer and shallower ; the tooth is filled up with red-brown.

Expanse of wings : ♂ 28 mm. ; ♀ 35 mm.

2 ♂♂, 1 ♀ from Sapucay, Paraguay, October 1904 (Foster).

The elbow at vein 6 in the outer margin of hindwing is more noticeable in the ♀.

44. **Racheolopha lactecincta** spec. nov.

Forewing : green, with all three margins broadly white, enclosing a green triangle, itself irregularly blotched and streaked with white ; a white blotch on discocellular enclosing a fine black cell-spot ; the median vein streaked with white ; costa in outer half speckled with green, more broadly towards apex ; outer margin narrowly green, slightly interrupted at vein 3 ; the inner margin with a few green specks ; marginal line green, interrupted at the veins ; fringe green and white.

Hindwing : with the margins broadly white ; the central area diffusely marked with partially confluent transverse green striae ; outer margin as in forewing ; veins speckled with green ; a long white cell-mark.

Underside white, iridescent, with the green showing through.

Head, thorax, and abdomen snow-white ; upper part of face greenish ; antennae with the shaft white and pectinations ferruginous ; dorsum slightly green-speckled, with three large metallic blackish crests on segments 3 to 5 and a reddish one on 6.

Expanse of wings : ♂ 35 mm. ; ♀ 40 mm.

1 ♂, 2 ♀♀ from Fonte Boa, Upper Amazons, May—July 1906 (Klages).

45. **Racheolopha lacteguttata** spec. nov.

Forewing : deep green, slightly diaphanous ; costal edge bone-colour, speckled with reddish ; a diffuse red-brown cell-spot ; traces of a lunulate-dentate outer line at two-thirds parallel to outer margin, the space beyond it slightly paler and bluer green ; the median area faintly darker ; marginal line purple, interrupted at each vein by a large white spot running out into the rufous white fringe.

Hindwing : with a white raised spot at upper end of discocellular ; outer line and margin as in forewing.

Underside iridescent green, flushed with reddish in forewing ; costa of forewing rufous speckled with fuscous, broadly fuscous at base.

Head, palpi, antennae, and forelegs dark reddish ; vertex white ; thorax, patagia, and two basal segments of dorsum green ; rest of dorsum and abdomen laterally red ; the dorsal tufts dark metallic red.

Expanse of wings : 34 mm.

2 ♂♂ from Huancabamba, Cerro de Pasco, Peru (Boettger).

Resembles *R. restricta* Warr., but larger, and without the white blotch at anal angle.

46. **Racheolopha lunicincta** spec. nov.

Forewing : very light green ; costal edge bone-colour, speckled with pink ; bone-coloured blotches, sparsely sprinkled with red, at apex and anal angle ; the apical blotch consists of a large double blotch between veins 4 and 6, a smaller one between 6 and 7, and a still smaller one above 7, each concisely bordered inwardly by red lunules ; the anal blotch, subquadrate in shape, reaches above vein 2 and along the outer third of inner margin, concisely edged with red, and with a slight blunt projection from its inner angle towards lower end of cell ;

marginal line fine, deep red, without white dashes at the vein-ends; fringe bone-colour.

Hindwing: with apical blotch elongated, formed of four contiguous blotches decreasing in size to vein 4, each concisely edged by a red lunule; anal blotch small, subquadrate, red-edged; a white cell-spot at upper end of discocellular.

Underside pale green, with the blotches showing through.

Face brown-red in upper half, pale below; vertex pinkish white; thorax and patagia green; abdomen bone-coloured, the dorsum reddish, with metallic red crests.

Expanse of wings: 30 mm.

1 ♂ from Sapucay, Paraguay, November 1903 (Foster).

Resembles *R. delacruzi* Dogn.; distinguished by its larger size, pale green colour, and concisely edged blotches, and especially by the absence of white dashes along the margin at the end of the veins.

47. **Racheolopha microspila** spec. nov.

Identical with *R. flavicincta* Warr., except in one particular: in that species the hindwing possesses a large, roughly diamond-shaped, brown-black blotch, reaching from costa before apex to vein 4; in *microspila* this blotch is round and situate between veins 4 and 7; the yellow edging of the brown blotches is also much less conspicuous.

Expanse of wings: 31 mm.

1 ♂ from La Union, R. Huacamayo, Carabaya, Peru, 2000 ft., December 1904, wet season (Ockenden).

The two examples of *flavicincta* that I have seen, the type from Venezuela and another from Ecuador, are both ♀♀; and it is therefore possible that the difference mentioned, though unusual, is merely sexual.

48. **Racheolopha trilunaria** Guen. ab. **obsolescens** nov.

Differs from the type in having the pale marginal blotches of the wings much reduced in size, that between veins 5 and 6 of forewings usually partially or quite obsolete, that at anal angle of hindwing always small and insignificant; on the other hand, in a few instances the small dark crescent at apex of hindwing is prolonged to vein 4. In one of three other ♀♀ from the same locality, which from the size of the blotches are referable to the type-form, a similar extension of the apical mark of hindwing is visible.

10 ♂♂, 6 ♀♀ from Fonte Boa, Upper Amazons, May—August 1906 (Klages), along with 3 ♀♀ of the type-form, as mentioned above.

49. **Racheospila fontalis** spec. nov.

Forewing: deep green; costal edge finely white; the two lines finely white, marked chiefly by white dots on the veins and folds; the first before one-third, slightly oblique outwards; the second at two-thirds, incurved below middle, and approximating to inner line on inner margin; a small dark cell-spot; fringe silvery white, chequered with bright pink beyond veins; the marginal line finely red, interrupted at the vein-ends by small white dots.

Hindwing: similar, the inner line scarcely marked.

Underside pale greenish, the lines showing through.

Palpi greenish white, terminal segment fuscous; face pale brownish, whiter below, with two green lateral spots, and dark green at top; fillet and base of antennae snow-white; apical half of antennae and a line behind fillet bright red; vertex, thorax, and dorsum green; a white spot on segments 2, 4, and 5; abdomen at sides and beneath, and the legs white.

Expanse of wings: 25 mm.

1 ♂ from Fonte Boa, Upper Amazons, May 1906 (Klages).

Antennal pectinations short and stiff.

50. **Rhodochlora albipuncta** spec. nov.

Forewing: apple-green; the costa red at base, white beyond; first line hardly visible, marked by a red dot on median vein and submedian fold; cell-spot small, red-brown; outer line concisely lunulate-dentate, vinous red, the teeth darker, the lunule on submedian interval containing a yellow red-edged blotch; fringe greenish white, green at base, with a reddish spot at apex of wing.

Hindwing: with the base yellow, bounded by a deep purple and vinous band; rest of wing green, crossed in middle by a lunulate-dentate green line, with the teeth red; fringe as in forewing.

Underside shining pale green; both wings with indistinct darker central shade; the pale and dark areas showing through; costa broadly white, the base red.

Face and palpi deep orange-red and yellow; fillet snow-white; shoulders, patagia, and thorax deep green; abdomen green, paler towards anus; tibiae black and white.

Expanse of wings: 56 mm.

1 ♂ from Cushi, Province Huánuco, Peru, 1900 m. (Hoffmanns).

Outer margin of forewing perfectly straight, of hindwing distinctly bent at middle.

51. **Rhodochlora brunneipalpis**, ab. **minor** nov. and ab. **rufaria** nov.

The type of *R. brunneipalpis* Warr. was described from a ♀ from Rio Demerara, British Guiana (*Nov. Zool.* i. p. 385), and I have only seen a single specimen since that thoroughly agrees with it—a ♂ in Mr. Schaus' collection from S. Jean, Maroni River, French Guiana. All the Peruvian examples from various localities agree in being smaller than the type in both sexes, and in the hindwing the yellowish basal area is in them followed by a curved band of darker grey-green. Out of a series of 11 ♂♂ and 1 ♀ from La Union, R. Huacamayo, Carabaya, Peru, taken in November 1904, wet season, at 2000 ft., by the late G. Ockenden, the ♂♂ expand from 40 to 44 mm., and the ♀ 44 mm.; and 2 ♂♂ from Oconeque vary to the same extent. These Peruvian specimens may be distinguished as ab. *minor*. A single ♂ from La Union, for which I propose the name ab. *rufaria*, demands a more detailed description. To a certain extent it resembles *R. exquisita* Warr., but it is not marked so brightly red. The outer line of forewing is redder and thicker than in the type, and is followed by red spots between the veins, the lowest of which forms a red blotch at anal angle. In the hindwing the grey-green curved band beyond the yellow base is followed by a broad space of dull rufous, which extends to beyond the postmedian line and leaves only a comparatively narrow marginal border of

green. On the underside the red-brown blotch at apex of hindwing, which is quite small and indistinct in ab. *minor*, is well developed and conspicuous, and the red on forewing shows in several places. In many respects this answers to the description of *gaujoniaria* Dogn., but the face and palpi are bright red, not deep black as in that species. Both aberrations, *minor* and *rufaria*, as well as the type form *brunneipalpis*, are distinguished by the rounded hindwings.

52. **Rhodochlora trifasciata** spec. nov.

Forewing: bright green; the costal edge red at base, white beyond; inner line bright red, zigzag, from cell to inner margin, lying in a pale yellow blotch between vein 1 and base of 2; outer line lunulate-dentate, dark vinous purple, running nearly parallel to outer margin as far as vein 6, the lunule between 1 and 2 on a pale yellow blotch, followed, also to vein 6, by a dull purplish band of contiguous lunules; cell-spot red-brown; fringe green, below vein 3 vinous red, where the marginal line is also vinous.

Hindwing: with basal half pale yellow, containing an inner broad iron-grey band in which stands the black-red cell-spot; in the green outer half are two vinous fasciae, one irregular, postmedian, the other broader and more uniform, submarginal; fringe green.

Underside pale green, with the markings slightly showing through; costa of forewing bright red at base, broadly white towards apex.

Palpi and face bright orange-red and yellow; fillet and thorax deep green; vertex white; abdomen green, whitening towards anus; foretibia black; venter and legs whitish.

Expanse of wings: 50 mm.

1 ♂ from Agualani, Carabaya, Peru, 9000 ft., December 1905, wet season (Ockenden).

Outer margin of hindwing curved; of forewing nearly straight.

53. **Rhodochlora ustimargo** spec. nov.

Forewing: yellow-green; first line marked by red dots on subcostal and median veins and on submedian fold, sometimes connected by a fine red line; cell-spot red-brown; outer line red-brown, lunulate-dentate, the marginal area beyond purplish red-brown, thinning out above vein 4; fringe pale green, red-brown below middle.

Hindwing: yellow-green, with the base paler, edged by a vinous red band just before the red cell-spot; a central lunulate-dentate line with the teeth red; a vinous blotch at apex, with indications of a submarginal line marked by reddish scales between veins.

Underside paler, the anal angle of forewing more restrictedly reddish, the apex of hindwing as above.

Face and palpi orange-red and yellow; fillet snow-white; thorax and abdomen yellow-green; abdomen at sides and beneath white; tibiae black and white.

Expanse of wings: 52 mm.

1 ♂ from Huancabamba, Cerro de Pasco, Peru (Boettger).

Outer margin of forewing nearly straight, of hindwing bent at middle.

Rhombochlora gen. nov.

Distinguished from *Racheolopha* Warr. by the shape of the hindwings: these, instead of being broad, with the outer margin well rounded, are diamond-shaped, the outer margin being strongly angulate at vein 4, which ends in a broad blunt tooth; the forewing has the outer margin bent at vein 4, the lower half more oblique.

Type: *Rhombochlora granulata* spec. nov.

The type species bears a strong superficial resemblance to *Drucia semispurcata* Warr. from French Guiana.

54. **Rhombochlora granulata** spec. nov.

Forewing: dull green, covered with rather coarse rusty brown granulated specks, more sparsely before and beyond the centre (where they are slightly confluent), suggesting an antemedian and postmedian band, and thickest along outer margin, which is narrowly brown from vein 4 to anal angle; costal edge white; cell-spot large, black; fringe white, with a brown-black line at base, and chequered with brown beyond veins.

Hindwing: with basal third unspeckled green, the outer third very densely speckled; marginal shade irregularly brown throughout; cell-spot black; fringe as in forewing.

Underside uniform whitish green.

Face and palpi pale brown; vertex and antennae white; patagia green, their edges and the thorax pale brown; dorsum green; the crests metallic red tufted with green.

Expanse of wings: 40 mm.

1 ♂ from Fonte Boa, Upper Amazons, July 1906 (Klages).

55. **Tachyphyle flaccida** spec. nov.

Forewing: pale dull green, somewhat transparent; basal two-fifths suffused, except on inner margin, with grey-brown, and along the costa irrorated with white scales; first line thick, brown, from two-fifths of costa to one-third of inner margin, bluntly angled outwards on median vein and inwards on the two folds, with an inward edging of white scales, and followed in cell by a diffuse brown cell-mark; outer line starting from a broad brown costal streak at two-thirds, oblique outwards to vein 6, there angled, and oblique inwards, parallel to outer margin, to three-fourths of inner margin, slightly darker than the ground-colour, and lunulate-dentate, the teeth marked by rust-coloured dots on veins; between the lines a few rusty brown dots on the veins, partly forming a median line parallel to outer line; costa brown before apex; fringe pale green.

Hindwing: pale green, whitish along costa; a rust-brown spot at base, a straight antemedian line of the same colour, followed by a brown cell-spot and some obscure striae; outer line at three-fourths, very obscure, darker green and dentate; fringe pale green.

Underside pale mealy green, with the brown markings slightly showing through.

Palpi, frons, vertex, and base of antennae brown; shoulders, patagia, thorax, and abdomen green; the patagia on outer sides and the dorsum brown-tinged.

Expanse of wings: ♂ 35—40 mm. ; ♀ 48 mm.

2 ♂♂ from La Union, R. Huacamayo, Carabaya, Peru, 2000 ft., December 1904, wet season (Ockenden), type ; 3 ♂♂, 2 ♀♀ from Fonte Boa, Upper Amazons, August 1906 (Klages).

Differs from the other species of the genus in the character of the outer line ; otherwise superficially resembling *T. basiplaga* Wlk. and *janeira* Schaus, but much larger.

The ♀♀ from Fonte Boa are of a much paler yellower green than the ♂♂, the yellow tint not being due to fading, as ♂♂ from Fonte Boa taken at the same time agree with those from La Union in colour.

56. **Tachyphyle fuscicosta** spec. nov.

Forewing: dull greyish green, the costa strongly and irregularly marked with fuscous, with two slight projections, one before middle above the black cell-spot, which it reaches, the other at two-thirds, from which a very obscure lunulate-dentate darker green line runs to two-thirds of inner margin ; a faint inner line is also visible at one-third, shortly before the cell-spot ; both lines are more visible at the inner margin ; fringe concolorous.

Hindwing: with a small dark cell-spot only.

Underside pale green, with black cell-spots, and the costa of forewing fuscous at apex.

Head, thorax, and abdomen dull green ; vertex white.

Expanse of wings : 18 mm.

1 ♂ from Fonte Boa, Upper Amazons, September 1906 (Klages).

Subfamily HYDRIOMENINAE.

57. **Anapalta acerbata** Feld., ab. **perscripta** nov. and **variegata** nov.

The form for which I propose the name *perscripta* differs from typical *acerbata* Feld. in having the forewing suffused with grey, with all the lines well expressed across the wing ; the dark basal patch is generally present, but the two dark costal spots at the origin of the bands limiting the central fascia and the apical blotch are variable ; the basal patch is edged with white, and the space between it and the central fascia is sometimes wholly whitish ; hindwing dull whitish grey, with the marginal area darker grey, and the postmedian and submarginal lines more or less evident.

1 ♂ from Huancabamba, Cerro de Pasco, Peru, 6400 ft. (Boettger), type ; 1 ♀ from La Oroya, R. Inambari, Peru, 3100 ft., September 1904, dry season (Ockenden).

This form seems widely spread in Peru.

The aberration *variegata* seems less common : in it the ground-colour is chalk-white, and the basal patch, costal blotches, and apical shade brown instead of black, and well marked ; the lines forming the bands of central fascia are strongly marked, the inner band being filled in with brown throughout ; the bands are joined in cell and submedian fold by irregular blackish horizontal smears, the latter extending sometimes to inner margin ; hindwing white, with the outer lines and shade dark grey.

1 ♂ from Cushi, Huánuco Province, Peru, 1900 m. (Hoffmanns).

58. **Anapalta subtrita** spec. nov.

Forewing: ochreous suffused with olive-rufous, the basal patch and central fascia dark olive-fuscous; the edges of the dark markings are diffuse and indistinct, the usual lines being ill-defined; the central fascia is bounded externally by a pale band, which is only evident on costa and inner margin; the area beyond is much obscured with fuscous scales, and a broad diffuse cloud runs obliquely from apex to central fascia beyond cell; fringe olive-fuscous, with fine pale pencils beyond veins.

Hindwing: dull cream-colour, with three dark outer lines visible only on inner margin above anal angle.

Underside of forewing dull olive-fuscous, with the band beyond central fascia paler; hindwing ochreous speckled with fuscous, with two postmedian dark lines; both wings with dark cell-spots.

Head, thorax, and abdomen olive-fuscous somewhat varied with rufous.

Expanse of wings: 40 mm.

1 ♀ from Oconeque, Carabaya, Peru, 7000 ft., July 1904, dry season (Ockenden).

59. **Perizoma curvisignata** spec. nov.

Forewing: grey, the darker shades fuscous; all the veins finely orange, thickened towards outer margin; basal area fuscous, edged by a very fine white line forming a curve above and below the median; central fascia fuscous, occupying more than the middle third of costa, its edges nearly conjoined beyond middle of inner margin, the inner oblique outwards and bisinuate, the outer curving parallel to outer margin and lunulate outwards between the veins; the inner edge followed by one, the outer preceded by two waved dark lines; cell-spot large, dark fuscous; beyond the fascia a pale band containing two lunulate-dentate dark lines; marginal area from vein 4 to vein 1 occupied by a semi-oval white patch, across which the submarginal line is marked by grey wedge-shaped spots, and above it in the orange-grey apical half by black white-tipped dashes; pairs of black marginal dots at the ends of veins; fringe white with a bright orange basal line, dotted and pencilled with black beyond the veins.

Hindwing: whitish smeared with grey; darker grey antemedian and postmedian lines; a diffuse grey marginal border containing white spots between the veins; fringe as in forewing, but chequered with grey instead of black.

Underside of forewing for three-fourths fuscous edged with a white band; apical area dull orange; some white blotches below middle; hindwing whitish with all the lines and shadings distinct; black cell-spots in both wings.

Head and thorax fuscous; abdomen pale grey, the dorsum tinged with orange.

Expanse of wings: 30 mm.

1 ♂ from Huancabamba, Cerro de Pasco, Peru (Boettger).

This peculiarly marked species bears a superficial resemblance to *P. stricti-fascia* Warr.

60. **Psaliodes albifulva** spec. nov.

Forewing: glossy white; costal streak and the veins thickly deep yellow; lines thick, olive-brown, interrupted by the broadly yellow veins, and marked clearly on costa by nine dark spots, of which the first three represent the origin of the lines of the basal patch; the middle three those of the central fascia, twice as wide on costa as on inner margin, the outer line oblique and projecting somewhat

on vein 4 ; this is followed by a parallel white band, succeeded by three more lines, of which the outermost is interrupted in the middle; submarginal olive-fuscous lunules between the veins, those between 4 and 6 largest, separated by white spots from a fulvous marginal line ; fringe white, chequered with dark beyond veins.

Hindwing : whitish, grey-tinged, the markings of underside showing through.

Underside of forewing like upper, with all the markings blurred ; of hindwing whitish speckled with olive-grey, with traces of postmedian and submarginal grey lines.

Head, palpi, and thorax orange ; abdomen wanting.

Expanse of wings : 25 mm.

1 ♀ from Huancabamba, Cerro de Pasco, Peru (Boettger).

Subfamily HETERUSIINAE.

61. **Heterusia ephestris** ab. **integra** nov.

The type of Felder's *ephestris* has a partial reproduction of the broad yellow band of the forewing indicated also in the hindwing ; he appears to have described as the type what is really only a comparatively rare form ; by far the commoner form has the hindwing wholly dark, which may be known as ab. *integra*.

62. **Mimomanes subpulchra** spec. nov.

Forewing : brown-black ; the base dull olive, paler along costa ; costal edge in apical half vinous red ; an oblique oval orange-red blotch beyond cell from vein 6 to 2, its upper end straight ; fringe black and vinous.

Hindwing : brown-black.

Underside of forewing olive-brown at base and along inner margin ; the orange-red blotch larger, and surrounded by velvety black ; the outer band broadens to the costa, where it is bright vinous red, and is edged externally by a pale curved line ; internally it is limited by a white costal spot, touching the orange blotch, and separated by a small vinous spot from a pale costal streak ; marginal area brownish grey, black at base of fringe, which is chequered with vinous and has a pale basal line ; hindwing with the base and a marginal band dull blackish ; traces of a black inner and much outcurved outer line, followed by vinous patches, especially towards costa, the whole sprinkled with vinous scales.

Head, thorax, and abdomen dark olive-brown ; anal tuft fulvous ; pectus and legs whitish.

Expanse of wings : 28 mm.

3 ♂♂ from Huancabamba, Cerro de Pasco, Peru (Boettger).

Subfamily EUCESTHINAE.

63. **Cophocerotis subrosea** spec. nov.

Forewing : cream-white, the basal third suffused with cloudy grey, the remainder with dark leaden fuscous ; the grey basal portion is separated from the fuscous by a pale band of ground-colour running from two-fifths of costa to near anal angle, its outer edge more defined ; the fuscous portion is further itself partially divided by a white band from three-fourths of costa reaching vein 4 and running parallel to the inner band ; fringe rufous grey ; base of costa brick-red.

Hindwing: dull white smeared and striated with grey, leaving two paler curved bands, one near base, the other towards outer margin.

Underside of forewing with the basal area grey darker speckled than above; the postmedian area leaden fuscous; the outer margin and costal area red speckled; the underlying ground-colour and the pale bands pale yellow; fringe deep red with pale base; hindwing pale yellow densely striated throughout with red, and with some long fuscous striae sparsely intermixed.

Head, thorax, and abdomen leaden grey, much mixed with red.

Expanse of wings: 44 mm.

2 ♀♀ from Oconeque, Carabaya, Peru, 7000 ft., July 1904, dry season (Ockenden).

Both examples being worn, this description is not as complete as could be wished.

Subfamily OURAPTERYGINAE.

64. **Pityeja fulvida** spec. nov.

Forewing: yellowish straw-colour; the usual six streaks fulvous edged on both sides with deep fulvous and above the subcostal vein with black; before anal angle all the edges become blackish, and the ground-colour on each side of the fifth streak grey; the sixth streak is edged internally with blackish throughout, and the marginal line is finely black below vein 7; fringe grey, with a darker grey median line.

Hindwing: orange, paler towards base; inner margin grey, broader towards anal angle, where the grey is edged by a curved black line; a black spot on margin above vein 2 touching a white dash above; a waved black mark along margin from vein 6 to below vein 4, ending in a white dash below; a subquadrate submarginal black blotch between veins 6 and 7; fringe orange, paler above.

Underside ochreous washed with fulvous, deeper in forewing; second and third streaks black from costa to median vein; apical third black embracing a white costal triangle; marginal spots black; fringe grey; hindwing with a square black blotch between 6 and 7 before margin; fringe orange below middle.

Head and thorax pale straw-colour; the patagia bright fulvous; abdomen dirty white, with two dark grey dorsal stripes; the two basal segments yellowish and the stripes reddish.

Expanse of wings: 40 mm.

2 ♂♂ from Agualani, Carabaya, Peru, 9000 ft., December 1905, wet season (Ockenden).

The emargination in hindwing beyond cell is much deeper than in *tigridata*, which also comes from Agualani.

65. **Pityeja tigridata** spec. nov.

Forewing: very pale fulvous; the six streaks disposed as in *histrionaria* H.-S., but more regular, slightly darker than the ground-colour and edged on both sides with darker fulvous throughout; costal edge paler; fringe pale fulvous with a darker median line.

Hindwing: white, with a yellow flush, with the outer third orange, deepening to anal angle; a red-brown patch towards extremity of vein 2, edged externally by a curved black line; a black spot on margin beyond it touching a single white

dash; a waved black mark along margin from above vein 4 to below vein 3; fringe orange, paler towards apex; sometimes a brownish mark between 6 and 7 before margin.

Underside of forewing ochreous washed with fulvous; the costal ends of second, third, fifth, and sixth streaks fuscous; some fuscous marginal spots; apex and costa cream-colour; hindwing cream-colour with a brownish spot before margin between veins 6 and 7; fringe orange below middle.

Head, thorax, and abdomen pale fulvous, with two deeper fulvous lines.

Expanse of wings: 46 mm.

2 ♂♂ from Agualani, Carabaya, Peru, 9000 ft., December 1905, wet season (Ockenden).

Subfamily DEILINIINAE.

66. **Lomographa languida** spec. nov.

Forewing: pale pearly grey, with two bands and the outer margin broadly faintly greyer; first band just before middle, second postmedian, both slightly incurved towards costa, like the inner edge of the border; a fine grey marginal line; fringe grey, with darker median line; costal edge grey; no cell-spot.

Hindwing: without inner line.

Underside white, faintly yellow-flushed; costa yellowish.

Face dark brown; vertex, thorax, and abdomen white.

Expanse of wings: 35 mm.

1 ♂ from Cushi, Huánuco, Peru, 1000 m. (Hoffmanns) type; 1 ♂ from Tinguri, 3400 ft., and 1 ♂ from Oconeque, Carabaya, Peru, 7000 ft., July and August 1904 (Ockenden); and 8 ♂♂ from Huancabamba, Cerro de Pasco, Peru (Boettger).

67. **Lomographa perampla** spec. nov.

Forewing: silky white; lines very faint, broad, grey; first slight, curved at middle; outer, somewhat plainer, from two-thirds of inner margin, nearly straight; an exceedingly faint submarginal shade; marginal line very fine; fringe white.

Hindwing: the same, without the inner line.

Underside pure white.

Face and front of forelegs dark brown; vertex, thorax, and abdomen white.

Expanse of wings: 40 mm.

1 ♂ from Huancabamba, Cerro de Pasco, Peru (Boettger).

68. **Lomographa rufifrons** spec. nov.

Forewing: silky white, with scattered coarse grey scales; the thickening of these scales forms a short antemedian shade below median vein, an oblique postmedian not reaching costa, and a slight submarginal cloud; a row of small black marginal dots between veins; fringe white; costa reddish ferruginous; cell-spot black.

Hindwing: white, without grey dusting except towards anal angle, where an outer and a submarginal band can be traced.

Underside pure white; costa of forewing reddish.

Face white below, deep ferruginous above; palpi and antennae ferruginous; vertex, thorax, and abdomen white, the last dusted with grey scales.

Expanse of wings : 36 mm.

1 ♂ from Huancabamba, Cerro de Pasco, Peru (Boettger).

Outer margin of forewing oblique, the apex acute.

Subfamily PALYADINAE.

69. **Berberodes commaculata** spec. nov.

Forewing : slightly iridescent white ; the costa pale yellow with a few dark specks ; crossed by three series of pale yellow brown-edged spots, more or less coalescent into lines ; the inner and median both angled outwards on the median vein ; the outer between veins 3 and 7 forming a confused blotch of yellowish scales overlaid with brownish fuscous, externally lunulate before the whitish submarginal line, beyond which the outer margin also between veins 7 and 2 is striated and suffused with purplish grey and brown ; a row of blackish marginal lunules ; fringe grey, white at anal angle.

Hindwing : white, with basal, antemedian, postmedian, and submarginal lines, formed of brownish scales and striae, which are plainest on inner margin ; some small black marginal spots ; fringe white.

Underside white ; forewing with small dark cell-spot and broad purple-brown marginal border, which is truncate from vein 3 to 2 ; hindwing with four round brown marginal spots at the end of veins 3, 4, 6, and 7.

Head and collar pale yellow-brown ; thorax and abdomen white.

Expanse of wings : 28 mm.

1 ♀ from La Union, R. Huacamayo, Carabaya, Peru, 2000 ft., November 1904, wet season (Ockenden).

70. **Berberodes fasciata** spec. nov.

♂. *Forewing :* iridescent white, subtransparent ; costa yellow with fine black speckling ; the usual three rows of spots, rarely complete, generally of coppery scales with some black intermixed ; the inner ending on inner margin in a small, and the median in a large coppery black-speckled spot, the spot at the origin of veins 3, 4 larger, yellow and black ; spots of the outer line usually complete ; a row of black marginal lunules, those above median large and contiguous, preceded by three contiguous coppery wedge-shaped marks on veins 5, 6, 7, often forming a blotch suffused with blackish ; fringe brown and yellow mottled above middle, white below.

Hindwing : first and second lines marked, as in forewing, by coppery, black-speckled blotches on inner margin ; from the second a thick curved black-brown line crosses the wing just before middle ; a similar line from a black blotch at anal angle runs to vein 5 ; between these lines is a black-brown fascia, marked above vein 6 by plum-coloured scales, with the long white cellmark distinct across it ; the lower part of this fascia on each side of vein 2 to anal angle bears rough curved hairy scales, and the fringe round anal angle is composed of long curved hair-scales with spatulate tips ; fringe otherwhere white beyond black marginal spots.

Underside iridescent white, with the subapical blotch and fringe beyond of forewing, and the fascia and anal blotch with its fringe of hindwing purplish brown.

Head, collar, and palpi ferruginous, the face below and palpi dotted with white ; shoulders, patagia, thorax, and two basal segments of abdomen white ;

rest of abdomen varied with brown-black, the antepenultimate dorsal segment generally white; underside and legs whitish; forelegs fuscous black in front.

The ♀ is wholly without the black fascia and anal spot of hindwing; instead the subapical blotch of forewing is repeated on the hindwing, with traces of a submarginal brown line, especially on submedian fold; and the dorsal segments of abdomen are less suffused with brown.

Expanse of wings: ♂ 32 mm.; ♀ 28 mm.

10 ♂♂, 2 ♀♀, from Fonte Boa, Upper Amazons, May—September 1906 (Klages), type; and 1 ♂ from British Guiana bought at Georgetown.

This species shows a departure from the typical ornamentation of the genus.

71. **Gyostega indentata** spec. nov.

Resembles the type species, *G. floccosa* Warr., but the forewing is narrower, with the outer margin perceptibly indented at vein 4; the coloration more uniformly brownish, without distinct purplish and white scaling, very much resembling, in fact, the forewing of *G. simplex* Warr. (*Berberodes*).

Hindwing: whiter, with only sparse fuscous speckling; the pale hairs in the furrow are covered with a tuft of pale brown hairs only, and the black tuft at middle of wing as well as the black scaling along vein 1 are wanting.

Underside dull cream-colour, with broad purplish brown marginal border.

Head brownish; shoulders white; patagia, thorax, and abdomen grey.

Expanse of wings: 27 mm.

2 ♂♂ from Fonte Boa, Upper Amazons, May—September 1906 (Klages).

72. **Gyostega longicomata** spec. nov.

Forewing: olive-brownish, striated with fuscous; costa yellow, with some dark scaling; below it in cell at base a white triangular mark and another beyond middle before the obscurely waved brown outer line, which is followed by some milk-white scaling to apex; some blackish spots before margin between veins; cell-spot large, blackish.

Hindwing: whitish; below the middle covered with brown striae, which also form an inner, a median, and an outer more curved brown shade; submarginal area milk-white, with purplish grey striae; the costal area as far as median vein white, containing a long black pencil of hairs from base of cell lying along the subcostal vein as far as the forking of 6 and 7.

Underside cream-coloured, with purplish grey marginal border and a dark cell-spot on forewing.

Head brown; shoulders and patagia white; abdomen grey, varied with whitish; the segmental rings white.

Expanse of wings: 20 mm.

1 ♂ from Fonte Boa, Upper Amazons, May 1906 (Klages).

This and the following species, *tricristata*, will form distinct sections of the genus.

73. **Gyostega tricristata** spec. nov.

Forewing: with apex acute and outer margin straight; inner margin lobed. Rufous brown; the costa yellow, with some fuscous shining scales; base whitish, fuscous-speckled; an obscurely darker median and submarginal band, the former

plainest on inner margin, the latter below costa ; a triangular white spot in base of cell and a larger white subcostal blotch between the median and outer lines ; apical area beyond outer line with some whitish scales ; a row of purplish grey marginal lunules ; fringe purplish brown.

Hindwing : whitish, varied with purplish grey and with brown before the whiter marginal area ; the inner margin is distorted as in *Gyostega* proper, but there is no real pocket concealing tufts of hair ; instead there is a close tuft of ochreous hair concealing some mealy scales in the upper outer half of cell just beneath the subcostal vein, and two grey and white spreading and sparser tufts on each side of the median vein and vein 2 respectively ; black marginal spots before the brown-grey fringe.

Underside dull white, with purplish brown outer border and distinct broad dark median line across both wings.

Head, thorax, and abdomen grey ; the patagia with long spreading hairs ; the basal segments of dorsum darker.

Expanse of wings : 24 mm.

1 ♂ from Fonte Boa, Upper Amazons, June 1906 (Klages).

Differing considerably from typical *Gyostega*, but certainly referable here.

74. **Leuciris amplimargo** spec. nov.

Forewing : white ; the marginal border broadly orange, its inner edge straight from two-thirds of costa to shortly before anal angle ; this edge is dull blackish, the black decreasing in strength to margin ; a row of metallic black marginal lunules ; fringe orange.

Hindwing : with the border only half as broad ; the blackish shading more restricted.

Underside white, the marginal areas both fuscous.

Head orange ; thorax and abdomen white.

Expanse of wings : 29 mm.

1 ♀ from La Oroya, R. Inambari, Peru, September 1904, dry season, 3100 ft. (Ockenden).

75. **Leuciris latimargo** spec. nov.

Forewing : white, with the marginal area broadly orange, its inner edge with a thick black border formed of contiguous lunules, running to three-fourths of costa, bent slightly at vein 4 ; this inner edge is dull, without any trace of lustrous scales ; otherwise like *L. fimbrialis* Stoll.

Hindwing : with the border as in forewing, but uniformly broad.

Underside with the marginal borders dull brown.

Head orange ; thorax and abdomen white.

Expanse of wings : 26 mm.

2 ♂♂ from Poznzo, Huánuco, Peru, 800—1100 m. (Hoffmanns).

76. **Ophthalmophora consequa** spec. nov.

Forewing : grey-brown ; costal streak yellowish buff, with an irregular lower edge, emitting a linear mark along discocellular and a small triangular one at three-fourths, from which a pale curved line runs into a pale yellow blotch on inner margin extending from one-fourth to anal angle ; on each side of the costal

triangle is a streak of dark steel-blue scales, and a small blotch of the same beyond the end of the curved line above anal angle; beyond the outer line the ground-colour is paler brown ; fringe dark brown, deep yellow round anal angle.

Hindwing: base narrowly grey-brown edged by a silvery pale belt, followed by a fulvous yellow space above; fringe and apical margin chrome yellow ; a streak of scattered lustrous scales along inner margin; a broad metallic band from anal angle to vein 4, above which is a small embossed metallic spot in a yellow ring; above it the yellow margin is edged internally by a steel-blue line which ends on costa; an isolated patch of steel-blue scales at base of interval between 6 and 7, followed by a large eye-spot ; rest of wing mottled with red and white atoms, except the area above vein 4, which is olive-grey and pinkish without dusting; inner margin and fringe whitish.

Underside cream-colour, dark grey towards outer margin of forewing; costa yellow.

Head brown ; shoulders pale pearly grey ; thorax and two basal segments of abdomen brown ; abdomen beyond pale grey.

Expanse of wings : 26 mm.

3 ♂♂ from La Union, R. Huacamayo, Carabaya, Peru, 2000 ft., January 1905, wet season (Ockenden).

A ♀ from La Oroya, expanding 30 mm., differs in having the pale triangular costal mark at two-thirds instead of three-fourths, with no pale curved line from it; the mottling of the hindwing is fuscous brown instead of reddish, and the lustrous patch before the large eye-spot is continued diffusely towards anal angle. With these exceptions the two sexes agree.

77. **Ophthalmophora contrariata** ab. **orbata** nov.

The examples of this species, especially those from La Oroya, Peru, described by me in *Nov. Zool.* xi. p. 94 (1904), are variable in the position of the eye-spots of the hindwing. In many cases these, instead of being in a curve convex outwards, are placed in a straight line; but in the ♀ to which I give the name ab. *orbata*, there are only two spots—the upper one, rather larger than the average, in the usual place between veins 6 and 7, but nearer the outer margin, and the second between 4 and 6, but quite close to the curved metallic line ; while below it, between 3 and 4, and still closer to the line, are a few metallic scales (more strongly marked in one wing than the other), representing the usual lowest spot. Again, in the ordinary form the three spots are placed on the inner edge of a curved greyish band, which passes into chrome yellow before the metallic line; in the aberration this grey belt is more external, and is bounded by the metallic line. Moreover, this metallic line in typical examples, after curving round at costa, ends, still as a line, on vein 6 close before the upper spot; in the aberration the line ends at the costa, and an isolated round patch of metallic scales lies at the base of the interval between 6 and 7 ; lastly, instead of the reddish cell-spot (which is often very obscure), this ♀ has a distinct pale yellow spot. Taken along with ordinary ♂♂ in September 1904 by Mr. G. Ockenden.

78. **Ophthalmophora curvilinea** spec. nov.

Forewing: lilac grey, crossed by two curved pale lines ; the inner at one-fourth, the outer at two-thirds, outcurved between subcostal vein and submedian

fold, with a slight indentation on vein 4, followed below that vein by first a buff band and then a metallic leaden line, which again is slightly edged with buff; fringe lilac grey; a pale linear cell-mark.

Hindwing: with the base lilac grey, limited by an oblique white band to middle of costa; a leaden submarginal line on a broad buff belt from anal angle curving round at costa to vein 6; two embossed metallic spots on a black ground in a yellow ring, one beneath the other on each side of vein 6, the upper one the smaller; rest of wing dappled with brownish grey and fuscous, with a sprinkling of lustrous scales; fringe grey.

Underside dull greyish white, darker towards margin of forewing.

Head, thorax, and abdomen grey; third segment of dorsum with a pale ring, beyond which the remaining segments are paler grey tinged with rufous.

Expanse of wings: 32 mm.

1 ♂ from La Union, R. Huacamayo, Carabaya, Peru, 2000 ft., December 1904, wet season (Ockenden).

79. **Opisthoxia cinerea** spec. nov.

Like *O. scintillans*, but both wings mouse-grey; the costa of forewing deep yellow; the metallic scales and spots as in *scintillans*; fringe grey.

Hindwing: the same; but the outer enveloping ring of the eye-spot deeper brick-red; outer margin curved, not bent at vein 4; fringe pale yellow.

Underside uniform dull grey.

Face and palpi brown; thorax and abdomen dull grey.

Expanse of wings: 27 mm.

1 ♂ from Huancabamba, Cerro de Pasco, Peru, 3100 ft., January 1905 (Boettger).

80. **Opisthoxia fosteri** spec. nov.

Forewing: dull red-brown; a broad cream-white costal streak, towards the edge with a yellow tinge; outer half of inner margin narrowly white; fringe white; two olive-grey lines; the first slightly curved from the edge of costal streak at one-fourth, the outer from two-thirds of the same edge to four-fifths of inner margin.

Hindwing: paler and more rufous; a broad white dark-edged line from one-fourth of inner margin to beyond middle of costa; an outer metallic line, interrupted below the middle and curved round at costa above and continued to anal angle, much as in *pamphilaria* Guen.; a single embossed metallic spot on a black ground in a yellow ring between 6 and 7; fringe and inner margin white.

Underside dull brownish cream-colour.

Head, thorax, and dorsum red-brown; third segment of dorsum with a white ring, beyond which the remaining segments are greyer; shoulders white; patagia grey.

Expanse of wings: 35 mm.

2 ♂♂, 1 ♀ from Sapucay, Paraguay, October 1903 and November 1904 (Foster).

Allied to *O. argenticincta* and *ockendeni* Warr.

Subfamily NEPHODIINAE.

81. **Nipteria obeliscata** spec. nov.

Dull grey without the luteous tinge of *N. exclamationis* Warr., with which it is closely connected, except in the following details: the outer line rises from costa at five-sixths instead of three-fourths, and is always nearer outer margin than to cell-spot; and instead of the ♀ being paler than the ♂, is of the same tint above, but underneath very much darker: the underside of the ♂ being clear pale grey, with the lunulate-dentate outer line, the cell-spot, and the elongate dash nearer base all black and distinct, while that of the ♀ is so densely covered with blackish speckling that these markings are nearly obscured. The species expands only 44 mm. as against 48 mm. and more in *exclamationis*.

1 ♂, 1 ♀ from La Oroya, R. Inambari, S.E. Peru, 3100 ft., October 1904, wet season (Ockenden).

Subfamily ABRAXINAE.

82. **Panthera pardalaria** ab. **obliterata** nov.

Forewing: dull olive-green, with all the usual ocellated blotches absent; instead there is a darker olive band from one-fifth of costa to one-third of inner margin, corresponding to the centre of the large basal blotch; a dull black kidney-shaped mark on discocellular, and some dark diffuse clouds in outer third of wing, most prominent at anal angle, in middle of outer margin, and at three-fourths of costa.

Hindwing: yellow, with a blurred olive shade along inner margin from base to end of vein 2, containing a darker mark at anal angle; a small black spot on discocellular, a short black submarginal streak between veins 4 and 6, and a black spot before apex; a few blackish scales on margin below vein 4.

Underside wholly yellow; forewing with black discocellular spot, two slight black spots on each side of vein 7 at its base, a black spot at apex, and a few black scales at the end of vein 4 and the submedian fold; hindwing with black cell-spot, and black spots at apex and anal angle, and a few black scales between 4 and 6 towards margin and at margin below 4.

Head, thorax, abdomen, and legs dark cinereous olive.

1 ♀ from Tucuman, April and May 1905 (Steinbach).

A strangely blurred colour form of the ordinary *P. pardalaria*.

Subfamily BRACCINAE.

83. **Devarodes interlineata.**

Cymopsis interlineata Berg.

I have lately seen a specimen of this species from Sapucay, Paraguay, and find that, though superficially resembling *Cymopsis* Feld., the hindwing has no radial; so that it will have to be transferred to the *Braccinae*.

Subfamily ASCOTINAE.

84. **Cymatophora tenebrosa** spec. nov.

Forewing: deep olive-fuscous; the lines thick and blackish; inner line at one-sixth, oblique outwards to middle of cell, then nearly vertical to one-third of inner margin, preceded by a similar but less distinct line; median line well

before the middle, nearly vertical, but slightly curved outwards above; outer line at two-thirds, sinuous, inbent on both folds, outcurved between; marginal third darker, especially just beyond outer line; submarginal line faintly edged with whitish scales and marked by white dots between, not, as usually, on the veins; fringe paler, with a dark middle line; cell-spot black.

Hindwing: dull fuscous, with paler speckles; a dark cell-spot and a dark postmedian line visible towards inner margin.

Underside uniform pale fuscous, darker speckled.

Head, thorax, and abdomen dark fuscous.

Expanse of wings: 39 mm.

1 ♀ from Tucuman, 1100 m., January, February 1905 (Steinbach).

The outer margin of forewing is visibly elbowed at vein 4.

Subfamily SELIDOSEMINAE.

85. **Callipseustes subsignata** Warr.

This insect was described from 2 ♂♂ from Bolivia; it has been received in some numbers from Peruvian localities along with the ♀♀. These are rather larger on the average and consistently darker than the ♂♂, but they lack the yellowish spot on the underside of the forewing which suggested the name of the species; this spot is likewise absent in the darker ♂♂. In the ♀ the fascia of forewing is slightly narrower than in the ♂, with the cell-spot outside it in the angle, as in *C. pullaria* Dogn.

86. **Callipseustes pullaria.**

Hyperetis pullaria Dogn., *Le Nat.* 1889. p. 88, ♀.
Callipseustes parambicola Warr., *Nov. Zool.* vii. p. 202, ♂ (1900).

Having seen more than a dozen of each of the above forms, I am persuaded that they are merely sexes of one species, the ♂ being a much brighter-looking insect than the dingy grey ♀. Though the types in each case were from Ecuador, nearly all the examples recorded have come from Peru, and one only from Bolivia.

87. **Callipseustes peninsulata.**

When in *Nov. Zool.* xiv. p. 285 I described this species and its aberrations, only ♂♂ were available; but lately, along with 7 ♂♂ from Agualani, Peru, a couple of ♀♀ have been received. These, which are slightly larger than the ♂♂, are noteworthy for the extreme narrowness of the dark antemedian fascia, which is constricted (and in one case all but interrupted) on the two folds, the pale area beyond it occupying as much as one-third or one-fourth of the wing, and containing the dark cell-spot quite isolated. The hindwing, as in the ♂, remains whitish.

88. **Ischnopteris illineata** spec. nov. and ab. **trimaculata** nov.

Forewing: dingy olive-ochreous, densely speckled and partially suffused with brownish fuscous; lines and markings very indistinct; inner line oblique from one-fifth of costa to one-third of inner margin, marked with blackish at costa and inner margin and on submedian fold, preceded by a brownish band, and

that by a slightly paler one; outer line from one-half of costa, outwardly oblique to vein 5, then vertical and waved, but very obscure; between these lines a narrow waved brown band; submarginal line dentate, edged with white, especially below costa, and preceded by a darker shade, the teeth below costa filled in with blackish; on the costa and in submedian interval the dark shade is preceded by a paler blotch; the blackish marginal lunules are connected with the submarginal line by obscure dark dashes.

Hindwing: dull fuscous, with indistinct darker postmedian line and submarginal shade.

Underside dirty greyish, with obscurely darker lines and shades; the hindwing with antemedian and postmedian lines and a cell-spot between them.

Head, thorax, and abdomen dull olive-fuscous.

Expanse of wings: 35 mm.

1 ♂ from Quevedo, W. Ecuador (von Buchwald).

The aberration *trimaculata* is much darker, and marked by three cream-white blotches: the first an oblique bar from base of cell to inner margin, corresponding to the slightly paler band of the type; the second and third correspond to the pale blotches preceding submarginal shade on submedian interval and at costa; the last connected with the white blotch beyond the line; the hindwing is uniform blackish fuscous. The single example, which expands 40 mm. against 35 mm. of the type, is also from Quevedo, W. Ecuador.

89. **Ischnopteris mediosecta** spec. nov.

Forewing: dull green, varied with brown and striated densely with darker; the brown tints chiefly along costa and submedian interval; inner line blackish, oblique and diffuse, from one-fifth of costa to one-third of inner margin, containing a black spot on submedian fold; in the middle of the wing a nearly vertical brownish fuscous fascia, slightly broader at costa and constricted in middle, containing two black spots on submedian fold; submarginal line acutely dentate towards costa, the teeth filled in with black and followed by greenish white, represented by an oblong white blotch across submedian interval preceded by a square black spot, and interrupted at middle by an oblique greenish grey blotch running to outer margin at vein 3; black marginal triangles between the veins; fringe dark green.

Hindwing: deep yellow, with broad blackish outer and inner margin, the latter diffusely edged internally, the former with a yellow spot between veins 3 and 4; traces of an interrupted dark central line.

Underside dull greenish fuscous, darkening before the paler outer margin, the costa yellowish; hindwing dull yellow, with the markings as above.

Head, thorax, and abdomen greenish fuscous; anal tuft and venter yellowish.

Expanse of wings: 33 mm.

1 ♂ from La Union, R. Huacamayo, Carabaya, Peru, 2000 ft., December 1904, wet season (Ockenden).

90. **Ischnopteris pronubata** Feld.

Felder's type was a ♀; the sexes differ, much in the same way as those of *I. catocalata* Guen., the ♂ having a large tooth of hairs before middle of inner margin, and with the anal angle of hindwing truncate; beyond the greenish

basal area the forewing is brownish to middle, followed by a whitish blotch at end of cell, with the black cell-spot on its outer edge.

This description is taken from a ♂ from Fonte Boa, Upper Amazons, December 1906 (Klages).

91. **Ischnopteris obfuscata** spec. nov.

Forewing: dull olive-fuscous, densely striated, and in parts blotched, with darker; the veins spotted black and white; lines black, often indistinct; first from one-fifth of costa to two-fifths of inner margin, outwardly angled on subcostal vein and on inner margin below vein 1; outer line from middle of costa, outcurved between subcostal vein and submedian fold, then vertical to three-fifths of inner margin, followed by a slightly paler line, and preceded by a diffuse dark shade; submarginal line indistinct, dentate, marked on costa by a white bracket-shaped spot, the two teeth below it and in submarginal interval filled in with black and tipped with white, and all followed by short black streaks between the veins towards the black marginal lunules; fringe olive-fuscous.

Hindwing: dull blackish fuscous; the fringe paler.

Underside reddish, clouded with blurred greyish black; both wings with curved black postmedian line and broad submarginal cloud; the forewing with median shade meeting postmedian line on inner margin.

Head, thorax, and abdomen dull greenish fuscous.

Expanse of wings: 48 mm.

5 ♂♂ from Fonte Boa, Upper Amazons, August 1906 (Klages).

Inner margin of hindwing densely fringed with blackish hairs.

92. **Ischnopteris multistrigata** spec. nov.

Forewing: pale greyish green, speckled with olive and fuscous, with a faint lilac tint along costa, in the space between first and second lines, and before submarginal line; the veins with dark and light dots; the lines black and fine; first from one-fifth of costa to one-third of inner margin, thrice acutely angled outwards, on the subcostal vein, on the submedian fold, and below vein 1, the last angle reaching to the middle of the wing; outer line from one-half of costa to near beyond inner line on inner margin, angled bluntly inwards on subcostal vein and very acutely outwards on veins 4 and 2, then running inwards and nearly touching the angle of inner line on submedian fold, and again bluntly angled outwards on vein 1; submarginal line of the ground-colour preceded by black dashes between the veins, those below costa tipped with white, the two on each side of submedian fold long and strongly marked, and followed by black dashes reaching the black marginal lunules; fringe green; cell-spot black; a long black blotch near base below vein 1.

Hindwing: dirty greyish fuscous, with a curved darker postmedian line and marginal shade separated by a paler space; area below median vein thickly fringed with long hairs; fringe whitish.

Underside pale dingy grey, darker speckled, with dark curved line and broad shade, central and submarginal on forewing, postmedian and marginal on hindwing; the latter with a short line from costa before middle; cell-spots dark.

Head, thorax, and abdomen greenish grey, the last with a rufous admixture both above and below; pectus and legs paler green; tarsi dark spotted.

Expanse of wings: 48 mm.

1 ♂ from Santiago del Estero, East Bolivia, 1905—1906 (Steinbach).

93. **Oenoptila camptogrammata** spec. nov.

Forewing: rusty ochreous, thickly and coarsely black-speckled and suffused in parts with dull vinous brown; lines vinous brown; first thick, from one-third of costa, angled in cell, thence nearly straight to one-third of inner margin; outer from three-fourths of costa to two-thirds of inner margin, indented beyond cell and projecting between veins 2 and 4, preceded by an irregular vinous shade; marginal area beyond, except beyond cell, vinous brown, leaving only a small triangular blotch at apex of the pale ground-colour; submarginal line denoted by black pale-tipped dashes; marginal line formed of dark lunules between the veins; fringe brown; cell-spot black in a rusty ochreous patch without speckles.

Hindwing: with basal half vinous brown as far as outer line, which is shaped as in forewing and joined on inner margin by a dark median line passing over the black cell-spot; the pale area beyond it broader than in forewing, and browner towards outer margin; submarginal line as in forewing.

Underside similar, but duller.

Head, thorax, and abdomen like wings.

Expanse of wings: 40 mm.

1 ♀ from Agualani, Carabaya, Peru, 9000 ft., September 1905, dry season (Ockenden).

In the character of the markings this insect much resembles many species of the subfamily *Hydriomeninae*, especially of the genus *Camptogramma*. It comes nearest to *Oenoptila separata* Warr. from Mexico, described in the *Proceedings of the United States National Museum*, vol. xxxiv. p. 107 (1908).

94. **Oenothalia plagiata** spec. nov.

♂. *Forewing:* yellowish ochreous or fulvous ochreous, suffused throughout with dark olive-brown, so that only a blotch at end of cell and another beyond cell, a smaller one below cell, and a subapical patch beyond submarginal line remain of the ground-colour; the outer line is black, lunulate-dentate, the teeth pointing basewards, but is rarely complete; generally only the black teeth edged with a white spot are visible; cell-spot black.

Hindwing: with the yellow patches smaller, and confined to the cell-fold. In the ♀ the yellow areas are larger and partially confluent, and the black spots of the lines more largely developed.

Underside greyish ochreous with a lilac tinge, the forewing darker; the cell-folds paler; cell-spots blackish; a slightly darker submarginal band.

Head and thorax fulvous; abdomen grey; the metathorax and basal segment with a pair of black spots each.

Expanse of wings: ♂ 44 mm.; ♀ 48 mm.

5 ♂♂, 5 ♀♀ from Agualani, Carabaya, Peru, 9000 ft., July—November 1905, both dry and wet seasons (Ockenden).

Like *Oe. nummifera* Warr., but larger and darker, the brown tints of a quite different shade. Of the 5 ♀♀ four agree in being all lighter than the ♂♂, while the fifth is quite as dark as the ♂♂, with the yellow patches similarly restricted.

95. **Oenothalia vestita** spec. nov.

Forewing: dull snuff-colour with faint olive tint and obscure dark striae; basal half of costa blackish; no distinct lines, but three broad darker shades can be seen; the inner preceded by three whitish dashes on the veins, and the outer preceded by seven, marking the teeth of the outer line, the upper four oblique outwards, the lower three inwards; the median shade passes over the black cell-spot; fringe concolorous.

Hindwing: with only the two outer dark shades.

Underside ruddy ochreous; a dark vinous submarginal band, broader and blacker in forewing; the outer margins, and costa of forewing grey with black speckling; cell-spots slight.

Head, thorax, and abdomen like wings, but the anal segments of abdomen cinereous; venter, pectus, and legs pale ochreous.

Expanse of wings: 36 mm.

1 ♂ from Tucuman, Argentina, 1100 m., January and February 1905 (Steinbach).

The whole insect has a furry appearance.

A ♀ from Salta, N. Argentina, 40 mm. in expanse, sent by the same collector, belongs apparently to the same species. The undersides are precisely similar; above, the ♀, which is not quite so fresh as the ♂ and lacks its furry appearance, has hardly any olive tinge, the ground-colour being dull brick-red covered with fine black striae; the three bands are in precisely the same position, but blackish and distinct, and the outer line is marked by distinct black spots on the veins, but neither it nor the inner line shows any signs of white dashes; the exterior band is more plainly dentate; fringe brick-red. The hindwing differs in the same way.

96. **Prostoma stabilis** spec. nov.

Differs from *P. fragilis* Warr. in the shorter and darker wings; the pale ground-colour is quite hidden by reddish fuscous suffusion covered with dark striae; the wavy black lines are placed as in *fragilis*, the outer being finely edged with whitish, but there is no pale space before it, as in that species; the black spot on vein 6 in the submarginal line is absent; the darker hindwing shows a whitish blotch at anal angle.

Underside with both cell-spots large and dark, and the outer line black; the whole marginal third of hindwing washed with whitish.

Head, thorax, and abdomen reddish fuscous.

In the ♀ the reddish tint is absent.

Expanse of wings: 20 mm.

1 ♂, 1 ♀ from La Oroya, R. Inambari, Carabaya, Peru, 3100 ft., November and December 1905, wet season (Ockenden).

The antennae of the ♂ are simple in both species.

97. **Thysanopyga deprivata** spec. nov.

Forewing: grey; the costal streak ochreous speckled with fuscous; first line from a black spot at one-fifth of costa, acutely angled on subcostal vein just before middle of wing, then oblique and broader to inner margin close to base, black-brown, inwardly lined with pinkish ochreous; median line thin, darker grey, from

subcostal vein a little beyond middle to before middle of inner margin, curved, and slightly bent on median vein; outer line pinkish ochreous, curved from costa before apex to three-fourths of inner margin, with a distinct but thin ferruginous line on its outer edge, followed below middle by a blackish dentated shade in the dark grey marginal area; a whitish semicircular apical blotch, inwardly edged by first a subcostal, sharply angled, white-edged black line, and then by a curved line to outer margin at vein 5, the angle at top and the upper and lower ends of the curved space filled in with dark grey; cell-spot black, white-edged; marginal line finely black, interrupted by white dots at the vein-ends; fringe pale grey.

Hindwing: pale grey, with a brown bar at base and a fine dark grey straight antemedian line; cell-spot white; marginal line and fringe as in forewing.

Underside pale grey, brown-speckled, with a diffuse dark apical patch on forewing.

Head, thorax, and abdomen grey; basal segment of the last with a broad brown ring.

Expanse of wings: 28 mm.

1 ♂ from Huancabamba, Cerro de Pasco, Peru (Boettger).

The hindwing possesses the fovea at base between costal and subcostal veins, but no trace of black tuft from sides of abdomen, nor woolly hair at base of hindwing beneath; but this last, as the insect is not quite fresh, may have been rubbed away. Otherwise it is wonderfully like typical *nigricomata*.

98. **Thysanopyga longistria** spec. nov.

Forewing: ash-grey in basal half, pale brown in outer, covered with long, slender black striae, except in the brown costal area beyond middle; an indistinct curved dark line near base marked by black dashes between the veins; a plainer continuous black line just before the middle, with the black cell-spot on its outer edge; an outer brown line at three-fourths, plainest on inner margin; an interrupted black marginal line; fringe brown, with a dark dividing line.

Hindwing: brown, with only the basal third grey; the whole wing striated.

Underside dull whitish, with a smoky fuscous border, which is paler towards margin, and twice as broad on forewing as on hindwing.

Head, thorax, and abdomen above brownish grey; venter and legs whitish.

Expanse of wings: 22 mm.

1 ♀ from La Union, R. Huacamayo, Carabaya, Peru, 2000 ft., November 1904, wet season (Ockenden).

Allied to *T. nicetaria* Guen.

99. **Thysanopyga suffecta** Warr. and ab. **distincta** nov.

This species, described in *Nov. Zool.* xi. p. 125 (1904) from a Bolivian ♂, turns out to be a dark form of a species closely allied to *T. nigricomata* Warr. from Chiriqui, and which also occurs in Peru, but larger and darker; it may in all cases be distinguished from that insect by the wider distance between the median and outer lines, this latter being less strongly concave than in *nigricomata*, and the median line less oblique. The woolly hair on basal half of hindwing beneath, concealing the foveal slit, and the lateral tuft of black hair on abdomen, are equally conspicuous.

Of typical *suffecta* a ♂ from Huancabamba and two ♂♂ from Cushi, Peru, have been received, along with 9 ♂♂ and 1 ♀ from Cushi of the more ordinary form, which may be known as ab. *distincta*.

Subfamily ENNOMINAE.

100. Bassania extremata.

Bassania amethystata ab. *extremata* Warr., *Proc. U.S. Nat. Mus.* xxx. p. 536, ♂ (1906).

The form described by me as an aberration of *amethystata* Wlk. must be separated as a distinct species. As often happens, the specimen which served as type is somewhat different from the ordinary form, of which I have now seen 5 or 6 more ♂♂ and 1 ♀. In these ♂♂ the outer line is not marked by white vein-dashes, but either by a fine darker line with pale edge, or by a pale line alone; there is no visible trace of an inner line, but the base of inner margin is pale green; the black triangle at apex is generally represented by the usual short blackish subapical streak followed by a white dot on costa. The ♀ is a very beautiful insect, the dull salmon-colour of the ♂ being deepened into amethyst, with the submarginal band standing out across the wing clear pale green; the costal area is slightly paler, and there is no trace of any black subapical mark; the outer margin and fringe of hindwing are flushed with amethyst, and the same tint takes the place of the olive shading of the underside of the ♂. As in the other species of the genus, the apex of forewing in the ♀ is produced, and the outer margin incurved below it and gibbous in middle.

All the examples are from Oconeque, Carabaya, Peru, taken in July (dry season) 1904, by Ockenden.

101. Bassania goleta.

Crocallis goleta Dogn., *Le Nat.* 1893, p. 159.
Bassania annulifera Warr., *Nov. Zool.* xiv. p. 299, ♀ only.
ab. *Bassania fortis* Warr., *Nov. Zool.* xi. p. 567, ♂.
ab. *Bassania annulifera* Warr., *loc. cit.*, ♂.

The specimen from which I described *fortis* is a very dark example, with the cell-spot of forewing, the upperside of hindwing, and the underside of both wings all nearly black; the example described as *annulifera* ♀ represents the more common and paler form, of which I have seen a pair from Agualani; in this form the red tints predominate over the olive; but in *annulifera* type ♂ the red tints are absent and the whole forewing is olive-green; of these I have seen 3 ♂♂ only from R. Huacamayo, agreeing with the original ♂ in coloration. Their identity with *Crocallis goleta* Dogn., which I have only recently observed, is unquestionable.

102. Microgonia subcana spec. nov. and ab. obfuscata nov.

♂. *Forewing:* dull fulvous, almost hidden by an olive-fuscous suffusion and numerous dark transverse striae; the lines chocolate-brown; inner line at two-fifths, visible only as an outwardly oblique costal streak; outer line at four-fifths, oblique outward to vein 7, there acutely angled, and inwardly oblique, slightly curved to three-fifths of inner margin, edged externally by a thin paler line; cell-spot black, followed by a diffuse brown median shade; attached to the inner side of outer line between veins 2 and 4 is a large pear-shaped yellowish ochreous

blotch, its upper part tinged with dull fulvous and spotted with brown ; outer area dull greenish with a dark submarginal shade, the veins across it fulvous ; apex pale greenish ochreous ; fringe brown tipped with white.

Hindwing : with the line slightly antemedian ; the whole wing dull fulvous with olive-fuscous speckling, thickest along the submarginal shade.

Underside flesh-coloured ochreous, striated with purple-grey in basal half; a median shade and outer line (not corresponding to the line above), bright olive-brown, the latter dentate ; marginal area dark, a mixture of purple-grey, greenish and hoary grey scales, these last forming a zigzag, partially interrupted, submarginal line and marginal patches ; cell-spots black.

Head, thorax, and patagia olive ; abdomen tawny spotted with black and grey ; pectus with thick woolly grey hairs ; legs tawny ochreous, black-speckled.

♀. Much brighter fulvous, dark mottled, but without olive-green suffusion, the line thicker, the apex black ; the underside with a pinkish flush ; the outer line only bright brown and very distinct ; the outer margin of hindwing rich brown.

In both sexes the underside of the wings is covered with very fine hoary down.

Expanse of wings : ♂, 56 mm. ; ♀, 72 mm.

1 ♂, 1 ♀ from Agualani, Carabaya, Peru, 9000 ft., December 1905, wet season (Ockenden).

In the ♂ the apex of forewing is shortly and bluntly produced, the outer margin at middle faintly convex ; in the ♀ the apex is prominently produced, and the outer margin protuberant at vein 4.

The aberration *obfuscata* is a smaller form of the ♂ (50 mm.), very much darker, and without the yellow blotch of forewing ; taken at the same time and place as the type form.

103. **Perusia complicata** ab. **plena** nov.

Differs from typical *complicata* Warr. in the basal patch and outer fascia of forewing being confluent along inner margin ; their converse edges not margined by double black angulated lines, but each showing within the edge traces of a dark line interrupted ; the band has a small sinus on its inner edge between 3 and 4 ; on the underside the pale yellow hindwing is flushed with dull rosy, and bears a row of submarginal purple dots on veins in place of a band.

2 ♀♀ from Oconeque, Carabaya, Peru, 7000 ft., July 1904, dry season (Ockenden).

104. **Sericoptera discolor** spec. nov.

Forewing : cream-colour, not white ; the markings as in *area* Cram. t the yellow spot on subcostal vein of forewing at one-third absent.

Head and palpi black ; antennae with very short sessile fascicles of cilia.

Expanse of wings : 52 mm.

2 ♂♂ from La Oroya, R. Inambari, S.E. Peru, 3100 ft., October 1904, wet season (Ockenden).

105. **Sericoptera insularis** spec. nov.

Resembling *S. reducta* in size and markings, but the outer line of forewing ends on a distinct olive crescent before anal angle, but smaller than that on *area* ; the inner line is represented by three distinct olive-yellow spots on the veins at one-fifth.

Underside of forewing wholly white.

Expanse of wings: 40 mm.

1 ♂ from Holquin, Cuba (H. S. Parish).

106. **Sericoptera reducta** spec. nov.

Differs from *S. area* Cram. in being smaller; the subapical costal blotch not more than half the size, with a faint olive-yellow curved line from it to inner margin before anal angle, where it is clearest (the large crescent-shaped blotch of *area* being altogether absent), followed by two slight rows of grey striae; no olive-yellow spot on subcostal vein at one-third.

Hindwing: with the markings grey and very obscure, the band grey with a very fine lunulate-dentate white line along it.

Underside with the black costal blotch small.

Expanse of wings: ♂, 40 mm.; ♀, 46 mm.

A long series of both sexes from Fonte Boa, Upper Amazons, May—September 1906 (Klages), type; and a solitary ♂ from Santiago del Estero, Eastern Bolivia, 1905—1906 (Steinbach).

The angle at vein 4 in outer margin of both wings is much less prominent.

107. **Erilophodes arana** ab. **fumipennis** nov.

Caripeta arana Dogn., *Ann. S.E. Belg.* xxxix. p. 117 (1895).

Of fourteen examples of this species, all from Agualani, Peru, 8 ♂♂ are typical; three others have the hindwings more or less tinged with grey, and 1 ♀ answers to the description of *Hasodima salapia* Druce (*A. & M.* 1900, i. 522), which must be regarded as an aberration, having a blackish marginal border to the hindwing; the remaining, two, ♂ and ♀, have the hindwing wholly blackish, except the basal third in the ♀; in the forewing the white bands are narrower, and the central area as dark as the rest of the wing. Underneath both wings are dull black, the hind wing with a dusting of pale scales. They are, however, evidently a dark form of *arana*, which may be known as ab. *fumipennis*.

NEW SPECIES OF *URANIIDAE* AND *GEOMETRIDAE* FROM THE AETHIOPIAN REGION.

By W. WARREN, M.A., F.E.S.

FAMILY *URANIIDAE*.

Subfamily EPIPLEMINAE.

1. **Epiplema confuscata** spec. nov.

Forewing: dark slaty fuscous, speckled with darker, and with distinct black striae along costa; lines marked by oblique black costal streaks at one-third and before two-thirds; the first obsolete at middle of wing; the second obscurely curved, but ending in a black spot at two-thirds of inner margin, where and at vein 4 it is faintly edged with whitish externally; a submarginal row of five black crinkled marks, internally pale-edged and slightly brownish externally; fringe concolorous.

Hindwing: quite smooth in costal half; below, a mixture of slightly shining grey scales mixed with black; outer line bracket-shaped, blackish with pale edge, hooked outwards on vein 4, preceded by a black shade from middle to inner margin; discocellular-mark oblique, broad and chestnut-brown, meeting a line of greyish white scales running from base along lower half of cell and ending in a wedge-shaped black mark before the discocellular streak, which is also followed by a similar black mark; a blackish lunulate submarginal line, preceded above vein 4 by some white scales; anal area filled with slightly lustrous grey scales, mixed with black striae and tinged in parts with brown.

Underside dull cinereous, darker in forewing.

Face and palpi black; vertex dark fuscous; thorax slaty grey; abdomen broken.

Expanse of wings: 26 mm.

1 ♀ from Moyamba, S. Leone, May 1903 (D. Cator).

Outer margin of forewing simply curved; of hindwing with two tails, at veins 7 and 4, and a short tooth between at 6.

2. **Epiplema rotunda** spec. nov.

Forewing: chalk-white; costa finely dotted with black; two strong black dashes above subcostal vein before one-fourth and one-half, marking the origin of first and second lines, of which the second only is distinct and outcurved, brownish, preceded by two brownish blotches, one at the end of cell, the other on inner margin; inner margin at base slightly clouded with grey-brown; similar diffuse clouds at anal angle and before outer margin at middle; four dark dots in a curve between veins 7 and 3 before outer margin; marginal line finely brown; fringe white.

Hindwing: with the outer line curved and double, bluntly bent on vein 4, the inner arm marked with black above submedian fold and preceded by a patch

of dark scales, followed below vein 4 by a bed of shining scales mixed with dark ones; a slight dark dot below lower tooth; marginal line brown.

Underside white, in the forewing faintly tinged with grey; costa of both wings black-dotted.

Face, palpi, and forelegs blackish; vertex, antennae, thorax, and abdomen white.

Expanse of wings: 15 mm.

1 ♂ from Moyamba, S. Leone, May 1903 (Cator).

Wings short and broad; costa and apex of forewing rounded; outer margin curved; hindwing with two minute teeth; costa of hindwing and inner margin of forewing nearly straight; antennae with short clavate teeth.

Subfamily PSEUDOTERPNINAE.

Nothoterpna gen. nov.

Forewing: triangular; costa straight; apex and anal angle rounded; outer margin slightly curved.

Hindwing: ample; both angles rounded; outer margin almost imperceptibly bent at vein 4.

Antennae bipectinate to apex; the pectinations stiff and thickened to their tips, ciliated; the shaft lamellate, semi-opaque between the joints; forehead somewhat prominent; palpi quite short, as in *Agraptochlora*; tongue present; frenulum wanting; legs short and thick; the femora hairy; hindtibiae with two pairs of approximate spurs.

Neuration: forewing, cell not half as long as wing; discocellular incurved above, oblique below; vein 2 at two-thirds, 3 at eight-ninths; vein 5 close below 6, which rises from the depressed end of subcostal; 7, 8, 9, 10 stalked from the bend in subcostal; 11 free, anastomosing with 12, 10 anastomosing with 11; hindwing, costal and subcostal approximating in basal half of cell; 6, 7 stalked; medians as in forewing; radial from near top end of discocellular.

Type: *Nothoterpna crassisquama* spec. nov.

The genus agrees with *Agraptochlora* Warr. in the shortness of the palpi and in the structure of the antennae, but the shape and coloration of wings are quite different. From the comparatively large size of the hindwings and thickness of scaling I am inclined to refer it to the neighbourhood of *Pseudoterpna*.

3. **Nothoterpna crassisquama** spec. nov.

Forewing: very pale yellowish green; the scales thick and somewhat roughened; a dark green cell-spot; a dark green outer line, interrupted by the veins, from costa shortly before apex to one-third of inner margin; fringe concolorous.

Hindwing: whitish with a faint green tinge, which is stronger along outer margin; cell-spot dark green; sometimes there are traces of an outer line corresponding to that of forewing.

Underside mealy whitish green, with traces of the two lines and cell-spots.

Head, thorax, and abdomen pale green; vertex and antennal shaft whitish.

Expanse of wings: 40 mm.

3 ♂♂ from Bihé, Angola.

Subfamily GEOMETRINAE.

4. **Antharmostes fuscimargo** spec. nov.

Forewing: dark green; the costa grey with fuscous dots; a broad vinous-fuscous shade along outer margin, starting from vein 7, broadly swollen from 5 to 2, and less strongly again from 2 to inner margin; between veins 3 and 4 the border is paler, pinkish grey; a dark lunulate marginal line; fringe brown.

Hindwing: with the border narrower, limited by dark lunules between the veins, broadly swollen from 4 to 2 and there filled up with grey; cell-spots of both wings dark green.

Underside greenish white, in forewing rufous-tinged; marginal border black-brown, with the inner edge straight and even.

Face, palpi, and antennae red-brown; thorax and abdomen green; the dorsum purple-grey.

Expanse of wings: 32 mm.

1 ♂ from Bopoto, Upper Congo, April 1903 (K. Smith).

The forewing shows a slight elbow at vein 4 and the hindwing at vein 6, with a prominent angle at vein 4.

5. **Syndromodes fleximargo** spec. nov.

Forewing: bluish green; the costal edge narrowly whitish; a darker green cell-mark and dentate-lunulate outer line parallel to outer margin; fringe paler.

Hindwing: with cell-spot only.

Underside whitish green; costa of forewing yellowish.

Face and palpi dark brown; vertex, antennae, thorax, and abdomen (faded) whitish green.

Expanse of wings: 35 mm.

1 ♀ from Ceramba, Bihé, Angola, March 1903 (W. C. Bell).

Hindwing with outer margin palpably elbowed at vein 4, concave above between it and the squarely rounded apical angle.

Antennae shortly pectinated.

Subfamily STERRHINAE.

6. **Chrysocraspeda nigribasalis** spec. nov.

Forewing: basal area dull dark yellow covered with reddish brown; central area dark purplish grey with darker reddish striae, edged by two diffuse blackish lines; the first strongly curved above, from one-fourth of costa to one-third of inner margin, the outer, less strongly curved, from two-thirds of costa to four-fifths of inner margin; a dark cell-spot in the middle; marginal area pale yellow thickly striated with blood-red, except along the extreme margin, which remains pure yellow; minute red marginal points at ends of veins; fringe pale yellow.

Hindwing: with a subbasal black band, not quite reaching middle of wing, the extreme base brown, like the forewing; outer half yellow with blood-red striae, which coalesce to form a band on the inside; fringe pale yellow.

Underside of forewing smoky vinous to the curved outer edge of central area, then deep rosy, leaving the outer margin from apex to anal angle and the fringe

pale yellow; hindwing smoky vinous at base edged with rosy, the outer half pale yellow, tinged with rosy at apex and anal angle.

Head and antennae dark red-brown; thorax and abdomen dark smoky vinous, the thorax with coarse shining scales; anal segment of abdomen pale.

Expanse of wings: 19 mm.

1 ♂ from Congella, Durban, Natal, November 1905 (G. F. Leigh).

7. **Craspedia protuberans** spec. nov.

Forewing: chalk-white, with sparse black dusting; first and second lines grey, ill-marked; first sinuous at one-fourth; second, median, irregularly dentate, from beyond middle of costa to middle of inner margin, outcurved above; outer line lunulate-dentate at three-fourths, oblique outwards to vein 6, forming a blacker double sinus beyond cell and across submedian fold; submarginal line pale, wavy, between two distinct dark grey shades, the inner one of which is marked with black scales on inner margin; marginal line black, continuous, but swollen between veins; fringe whitish; cell-spot grey.

Hindwing: more densely speckled; cell-spot in a grey sinus of median line; outer line not darkened on the folds.

Underside white, with all the outer lines and shades strongly marked in forewing, less so in hindwing; costa of forewing yellowish.

Upper half of face, outside of palpi and front of forelegs black; rest of face and palpi, thorax and abdomen white; collar grey.

Expanse of wings: 29 mm.

1 ♀ from Park Rynnie, forty miles above Durban (G. F. Leigh).

The outer margin of forewing is bluntly protuberant below middle, and the apex slightly subfalcate; the hindwing is toothed at vein 4, and with a smaller tooth at vein 6 and a sinus between.

8. **Somatina fungifera** spec. nov.

Forewing: cream-colour, semitransparent; a pale brown line from one-fourth of inner margin oblique to middle of discocellular; another, thicker and darker, from one-third runs parallel to it as far as vein 2, then outwards between 2 and 3 to three-fourths of wing, then upwards parallel to outer margin to between 3 and 4, curving inwards to vein 6, where it is again bent, and ends at the origin of vein 7; the space between veins 2 and 4 within the line tinged with brown; a double outer line strongly excurved from two-thirds of costa to inner margin shortly before anal angle, the outer arm the thicker, followed by an interrupted submarginal line; marginal line fine, brown; two marginal dots below apex; fringe concolorous.

Hindwing: with a fine brown median line curved outwards round the sharp black cell-spot; the outer lines as in forewing.

Underside cream-colour, without markings.

Head, thorax, abdomen above and below, and legs cream-colour; face brown; abdomen banded with brown.

Expanse of wings: 44 mm.

1 ♂ from Kassai district, Congo Free State (Taymans).

Nearest to *S. chalybeata* Wlk. (*Nebessa*).

SUBFAMILY DELINIINAE.

9. **Chloroctenis conspersa** spec. nov.

Differs from the type species, *C. similis* Warr. from West Africa, in the underside being pale green instead of red; on the upperside both wings have the green surface sparsely sprinkled with brown striæ, which are wholly absent in *similis*.

Expanse of wings: 30 mm.

1 ♀ from Dar-es-Salaam, German East Africa.

10. **Zamarada dentigera** spec. nov.

Forewing: hyaline green, with a few brown dots on the veins; costa and inner margin narrowly, outer margin broadly, buff; the inner margin varied with rufous and with some patches of black scales; the costa with a few dark speckles; inner edge of outer border black, dentate on the veins, with a small sinus above vein 6 and a deep one between 2 and 4; its inner portion below vein 2 with three black-brown angulated streaks; the border is traversed throughout from costa to anal angle by acutely angled sagittate marks edged on each side with rufous and blackish brown; a rufous marginal line; fringe pale buff, chequered with brown; a rather large round black cell-spot.

Hindwing: with the buff border broader, embracing half the wing, with a diffuse brown-black blotch on its inner edge at inner margin; the whole inner half, as in forewing, rufous-speckled; cell-spot round, black; inner margin near base pinkish-buff with dark speckles; a blackish mark at base.

Underside with the outer half of border buff, the inner half diffusely black-brown; cell-spots large, round and black.

Head and antennae rufous buff; shoulders and patagia pale pearl-grey; abdomen rufous ochreous mottled with brown and black, the anal tuft with a broad black base and pinkish apex; venter and legs buff.

Expanse of wings: 32 mm.

1 ♂, 1 ♀ from Lagos, West Africa.

Related to *Z. ilaria* Swinh. from S. Leone; but the antennae and the whole underside different. The ♀, which, though without abdomen, is fresher than the ♂, shows the cell-spot with raised lustrous scales and the black edge of border lined with similar scales.

11. **Zamarada dilucida** spec. nov.

Forewing: very pale hyaline green, with traces of faint slender striae; costa pale ochreous; marginal border pale grey-pink, with darker speckling and traces of darker wedge-shaped marks along middle; inner edge dark brown lined with yellowish, forming a very small sinus outwards above vein 6, and a large tridentate sinus between veins 2 and 4, almost touching margin; fringe concolorous.

Hindwing: similar.

Underside with the apical halves of marginal border filled with brownish scales, the anal portions less so.

Head, thorax, and abdomen pale grey-pink.

Expanse of wings: 24 mm.

1 ♂ from Lagos, West Africa. I have seen examples also from S. Leone, but have passed them by as *Z. adiposata* Feld. (=*nasuta* Warr.); but that species is larger, with broader marginal border, and a small basal patch.

12. **Zamarada exquisita** spec. nov.

Forewing: pearly white, semitransparent; the base and costa narrowly, a large roundish cell-spot, and the marginal two-fifths black-brown; the marginal area is limited by a black line, lunulate between the veins and slightly outcurved, but not forming a sinus. This line is edged outwardly by a similar line of dull metallic scales, followed by a band of olive-brown before the blacker central area, which again towards outer margin becomes slightly paler; marginal line black; fringe blackish.

Hindwing: with the marginal dark area narrower, especially towards anal angle, the limiting line forming a shallow sinus between veins 2 and 4; inner margin narrowly black.

Underside with the dark markings velvety brown-black.

Head, thorax, and abdomen black; abdomen beneath pale.

Expanse of wings: 30 mm.

1 ♀ from Moyamba, Sierra Leone, May 1903 (Cator).

13. **Zamarada flavicosta** ab. **regularis** nov.

Differs from the typical form of *flavicosta* Warr. in having the rufous border of both wings narrower, and its inner edge on forewing waved but straight, without any sinus between veins 2 and 4, only faintly bent outwards below vein 2; on the hindwing this edge is uniformly curved throughout; the hyaline portion of the wings is yellowish rather than green.

1 ♀ from Wassaw district, forty-five miles inland from Sekondi, Gold Coast. I have seen 2 ♂♂ from Sierra Leone agreeing with this ♀.

Subfamily ABRAXINAE.

14. **Nothabraxas conspersa** spec. nov.

Forewing: white, semitransparent, dotted and in parts suffused with fuscous grey; some larger black spots at base; first line from one-fourth of costa to one-third of inner margin, starting from a large brown spot, bent outwards on median vein and ending in a black spot; a black costal blotch before middle; outer line sinuous, from three-fourths of costa to two-thirds of inner margin, followed by black dashes on veins and a fuscous grey fascia formed of coalescent spots; a dark marginal blotch from below apex to vein 4; a paler oblique streak from apex; whole marginal area with coarse grey and black speckling; fringe whitish grey; lower half of discocellular black.

Hindwing: whitish, spotted with blackish towards outer margin, forming a blotch at apex and a submarginal spot beyond cell; cell-spot blackish.

Underside similar.

Head, thorax, and abdomen white spotted with grey; antennae dark grey.

Expanse of wings: 44 mm.

1 ♂ from Taveta, German East Africa.

Subfamily BRACCINAE.

15. **Ereunetea curvifera** spec. nov.

Differs from *E. fulgida* Warr. in having the line marking the division between the orange-red basal and the brown apical area of forewing a uniform curve instead of being flexuous, starting from before the middle of costa and

ending well before the anal angle on inner margin, the dark apical area being therefore much broader.

Hindwing: with the outer border also broader; the black discal spot as in *fulgida*.

Underside with the apical area of forewing much darker, chocolate-brown, containing a broad black shade on its inner edge from vein 6 to inner margin; basal area of forewing orange-yellow, of hindwing pale grey-brown.

Head, thorax, and abdomen orange-red, tinged with grey.

Expanse of wings: 30 mm.

2 ♀♀ from Moyamba, Sierra Leone (D. Cator).

16. **Ereunetea flava** spec. nov.

Like *E. fulgida* Warr., but the ground-colour of both wings above and below is pale yellow, instead of orange-red; the dividing line between the two colours in forewing is not flexuous, but evenly curved from middle of costa to anal angle.

Head, thorax, and abdomen yellow.

Expanse of wings: 30 mm.

1 ♂ from Sekondi, Gold Coast (N. T. Hamlyn).

17. **Ereunetea semifumida** spec. nov.

Forewing: dull reddish, suffused with smoky grey; a large black spot on discocellular; marginal area smoky brown, its inner edge running out from costa at two-thirds beyond cell, recurved to touch the lower end of cell-spot, to two-thirds of inner margin; fringe smoky brown.

Hindwing: bright orange, with a broad smoky brown outer border; the submedian fold smoky grey.

Underside like upper, but the basal areas of both wings deep orange-red.

Head wanting; thorax and dorsum smoky fuscous; abdomen beneath and at sides dull orange.

Expanse of wings: 34 mm.

1 ♀ from Luebo, Kassai River (P. Landbeck).

Nothypsa gen. nov.

Differs from *Pitthea* Wlk. only in part of the neuration of forewing. In *Pitthea* the discocellular is vertical and short—both the subcostal and median veins converging at their extremities—and the lower radial rises from its middle; in the present genus the upper portion is obliquely curved, the lower and shorter portion vertical, and the radial rises from the angle between the two, and therefore below the middle. Again, in *Pitthea* vein 2 rises beyond the middle of cell, and runs parallel to vein 3 throughout; in *Nothypsa* vein 2 rises at or before the middle, and the two veins converge towards outer margin. Both genera agree in the peculiar neuration of the costal vein; 7, 8, 9, and 10, 11 being stalked; but the costal vein is bifid, and 11 anastomoses with the lower arm, which is thrice as long as the short portion of 11 itself. In the face of this agreement it does not seem justifiable to remove the species agreeing with *Nothypsa* to the *Hypsidae*. Under *Pitthea* Wlk. I would therefore include,

not only *Terina* Wlk. and *Turckheimeria* Dewitz, but also the genera *Girpa* Wlk., *Hylemera* Butler, and *Amnemopsyche* Butler.

Type: *Nothypsa confluens* spec. nov.

18. **Nothypsa confluens** spec. nov.

Forewing: white; the veins grey; costal streak grey, from which a broad greyish fuscous blunt tooth runs obliquely across the discocellular, which is blacker; outer margin broadly fuscous, especially below vein 4, where it approaches but does not touch the discocellular mark.

Hindwing: with greyish fuscous border to outer margin, narrowed between veins 3 and 4, where in one instance the white reaches the margin.

Underside similar.

Head, thorax, and abdomen grey; face and vertex ochreous-tinged.

Expanse of wings: 40 mm.

2 ♀♀ from Moyamba, Sierra Leone, May 1902 (D. Cator).

19. **Nothypsa flaviventer** spec. nov.

Exactly like *N. funesta* Warr., except in the following points: the dark tints are not so deeply black; the outer border of hindwing is continuous to anal angle, whereas *funesta* has two black isolated spots before it; the thorax and abdomen above appear greyer; and the venter is yellow instead of white.

Expanse of wings: 35 mm.

1 ♂ from Luebo, Kassai River (P. Landbeck).

20. **Nothypsa impleta** spec. nov.

Closely related to *N. leonina* Warr. from Sierra Leone, but the forewing is narrower with a more acute apex, and the ground-colour of the markings blacker fuscous. The whole basal half of wing is fuscous, only the end of cell and an elongate spot obliquely below it, between the bases of veins 2 and 3, being dull whitish; the subapical white blotch as in *leonina*.

Hindwing: with the white ground running up to outer margin between veins 3 and 4, interrupting the dark border.

Underside with the basal area whitish, as in *leonina*.

Head, thorax, and abdomen dull grey, the face and collar mixed with fulvous.

Expanse of wings: 35 mm.

1 ♂ from Ogruga, Niger.

21. **Nothypsa leonina** spec. nov.

Forewing: dull white, marked with grey at base along submedian and median veins; costal streak fuscous grey to middle; from this point the edge of the white basal area runs out obliquely to between veins 2 and 3, is there bluntly angled, and incurved to inner margin at three-fifths; space beyond greyish fuscous, containing an oblique white mark from vein 7 to 4, along which it forms a pointed projection; in the fuscous band preceding it across the discocellular there is visible a blackish cell-spot.

Hindwing: white, with a fuscous grey marginal border from apex to anal angle, narrowed between veins 3 and 4.

Underside the same.

Head, thorax, and abdomen dull grey, the patagia somewhat paler; face and collar with a luteous tinge; antennae blackish.

Expanse of wings: 35 mm.

2 ♂♂ from Moyamba, S. Leone, September 1901 and April 1903 (Cator). Nearest to *H. remissa* Warr., from the same locality.

22. **Nothypsa ossicolor** spec. nov.

Like *N. pupillata* Warr., but the wings bone-white, slightly grey-tinged towards outer margins, instead of greyish white; the cell-spots, as in that species, large and black.

Head, thorax, and abdomen whitish; pectinations of antennae blackish.

Underside of wings dirty grey.

Expanse of wings: ♂ 34 mm.; ♀ 36 mm.

2 ♂♂, 1 ♀ from S. Leone (D. Cator).

23. **Pitthea internata** spec. nov.

Differs from *Pitthea latifascia* Wlk. from the Congo in the amplification of the black markings. In the forewing the bar from costa to anal angle is twice the breadth, its inner edge uniformly curved from one-third of costa to three-fourths of inner margin: the yellow praeapical blotch does not reach the costa, which remains black. In the hindwing the inner margin and fringe are black from base to anal angle.

Expanse of wings: 44 mm.

1 ♂ from Bihé, Angola.

24. **Pitthea latifascia.**

Terina latifascia Wlk., ii. p. 464.

In the *Transactions of the Entomological Society* for 1904, p. 577, Col. Swinhoe places the genus *Terina*, of which *latifascia* Wlk. is the type, among the *Orthostixinae*, sinking to it both *niphanda* Druce and *puncticorpus* Warr.; but the type of *puncticorpus* is certainly not an Orthostixid, having no radial in the hindwing. If, therefore, the identification is correct, the genus must be transferred to the *Braccinae*, and not only so, but it must sink to *Pitthea*.

I have not seen the type of *niphanda* Druce, but judging from the description, in which the thorax is called white, and a white spot is placed in the apical margin of both wings, *niphanda* must differ both from *latifascia* Wlk. and *puncticorpus* Warr.

25. **Pitthea thalassina** spec. nov.

Forewing: pale green, semidiaphanous, with a small dark cell-spot; fringe pale yellow.

Hindwing: like forewing.

Underside the same.

Head, thorax, and abdomen pale dull green; antennae black.

Expanse of wings: 40 mm.

1 ♂ from Kisilea, western shore of Lake Victoria Nyanza.

Subfamily BISTONINAE.

26. **Hemerophila curta** spec. nov.

Forewing : wood-brown, with fine dark speckling in places ; costa with fine black striations ; lines black ; first from one-third of costa to one-fourth of inner margin, bluntly angled inwards on subcostal vein and outwards above and below it ; outer line from four-fifths of costa to middle of inner margin, inangled between 6 and 7 and angled outwardly on 6, then sinuously curved inwards with slight teeth on veins ; between the lines a diffuse blackish median shade, oblique inwards at first and parallel in the main to outer line, but almost hidden in the blackish suffusion which fills the interval between the two lines from inner margin to middle of cell ; submarginal line very obscure, preceded between 4 and 6 by two black streaks and followed by short streaks to margin above 4 ; the marginal shade slightly deeper brown ; slight black marginal dots ; fringe brown.

Hindwing : with the inner line and median shade produced diffusely as antemedian shades forming a sort of fascia ; outer line black and distinct, from three-fourths of costa to three-fifths of inner margin, notched on vein 7, followed by a brown shade ; praesubmarginal shade strong towards inner margin and forming a black pale-tipped blotch beyond cell ; a small dark cell-spot.

Underside paler, brownish ochreous, with all the markings blackish ; outer line black, not corresponding with line of upperside, where it shows through on forewing.

Face, palpi, and antennae blackish ; thorax and abdomen wood-brown, the dorsum tinged with blackish ; foretarsi black, with pale joints.

Expanse of wings : 30 mm.

2 ♂♂ from Park Rynnie 40 miles above Durban (G. F. Leigh).

Subfamily SCOTOPTERYGINAE.

27. **Catascia alcides** spec. nov.

Forewing : fawn-colour, dark-speckled, especially along costa ; lines very indistinct, dull red-brown, marked by dark vein-dashes ; first at one-fifth, angled on subcostal vein, then vertical ; outer line at three-fourths, parallel to outer margin, lunulate-dentate ; submarginal line formed of slightly paler lunules, emphasized by the marginal area beyond being a little darker, the two between 4 and 6 filled in with reddish, tipped with paler and edged with black externally ; those on submedian interval also black-edged ; a reddish median line slightly before middle, followed by a broad diffuse darker shade enclosing a cell-mark of pale ground-colour ; a row of marginal black spots, those between 4 and 6 larger and followed in the fringe by blackish spots ; fringe concolorous.

Hindwing : similar, but without inner line ; the median shade strong, reddish fuscous, enclosing a white cell-spot.

Underside paler, with all the lines marked ; the lunules of submarginal line between 2 and 4 filled in with black.

Head, thorax, and abdomen all fawn-colour.

Expanse of wings : 48 mm.

1 ♂, 1 ♀ from Luebo, Kassai River (P. Landbeck).

Subfamily SEMIOTHISINAE.

Plateoplia gen. nov.

Intermediate between *Tephrina* and *Tephrinopsis*. The antennae of the ♂ have the shaft flattened out and broad, the segments angulate, ending laterally in tuberculated fascicles of cilia. The palpi are short and stout, drooping, laterally flattened, the segments obscure. The forewings show a distinct fovea covered with scales.

Type : *Plateoplia ochriciliata* Warr. (*Tephrinopsis*).

Tephrina acrobelia Wlngrn. from the Transvaal, a closely allied form, differing mainly in the unicolorous fringes, must be referred here.

Subfamily ENNOMINAE.

28. **Aeschropteryx ansorgei** ab. **fulvitincta** nov.

Like the type in coloration, but with the fulvous areas largely developed.

Forewing : with an oblique fulvous cloud at one-third of inner margin reaching to median vein, and representing first line ; the whole of the marginal area beyond the oblique line below vein 4 fulvous, with a darker patch in it on submedian interval ; a small fulvous mark on costa between outer line and apex.

Hindwing : with the marginal half beyond central line fulvous, becoming blackish towards margin, and paler along the portion immediately beyond line, which portion above middle is yellow.

Underside the same, but duller.

1 ♂ from Wassaw District, 45 miles inland from Sekondi, Gold Coast.

29. **Chloromiza rufaria** spec. nov.

Forewing : yellowish ochreous washed with fulvous, speckled and striated with darker fulvous and blackish ; crossed by two black lines ; the inner from one-fourth of costa, angled in cell, then oblique to one-fifth of inner margin, marked outwardly on both folds with black ; outer line from just before apex to two-thirds of inner margin, faintly convex outwards, followed by a pale line ; cell-spot blackish ; fringe with inner half deep brown, outer half white.

Hindwing : paler, less fulvous-tinged, especially in basal half ; a curved dark postmedian line showing through from the underside.

Underside more reddish ochreous without fulvous tint, speckled with black ; the outer line black on both wings.

Head, thorax, and abdomen fulvous.

Expanse of wings : 33 mm.

2 ♂♂ from Cambo Caquenje, Bihé, Angola, November 1904 (Dr. Ansorge).

Outer margin of hindwing more evenly rounded than in the type-species.

30. **Epigynopteryx deformis** spec. nov.

Forewing : pale wood-colour, thickly speckled with blackish ; markings indefinite ; a curved inner line at about one-third ; a dark blotch between veins 3 and 4 appears to form part of an oblique double line from two-thirds of inner margin, the inner arm of which is joined by an undefined streak from middle of costa, and the outer by a dark streak on costa before apex ; a dark cloud on outer margin below apex ; a minute black cell-spot ; fringe worn.

Hindwing: with a thick dark band from apex to inner margin above anal angle; cell-spot black; some dark speckling at apex.

Underside paler; forewing yellower; hindwing slightly pinkish; the speckling and markings blacker.

Head, thorax, and abdomen like wings, the abdomen tinged with blackish.

Expanse of wings: 22 mm.

1 ♀ from Durban, Natal (G. F. Leigh).

31. **Hyposidra mixtilinea** spec. nov.

Forewing: pale ochreous, speckled with brownish; veins and lines brown; first line from one-fourth of costa to one-fourth of inner margin, oblique outwards above and inwards below the median vein; median line from a dark brown spot on middle of costa, oblique inwards to the brown cell-spot, thence after a slight outward crook oblique to before middle of inner margin; a broad brown oblique streak from apex, where it is thickened, to before middle of inner margin; the brown speckling is thickened on each side of a pale, slightly sinuous submarginal band; fringe (worn) brown.

Hindwing: with the oblique line continued at one-third from vein 6 to inner margin; a fine brown postmedian line from four-fifths of costa to two-thirds of inner margin; a brown cell-spot.

Underside with the lines less distinct; forewing with an additional brown line from four-fifths of costa to two-thirds of inner margin, partially showing through on the upperside; cell-spots distinct.

Head, thorax, and abdomen all ochreous; segments ringed with brown, that continuing the oblique line broader.

Expanse of wings: ♂ 48 mm.; ♀ 56 mm.

1 ♂ from Kassai district, Congo Free State (Taymans); 1 ♀ from Wassaw District, 45 miles inland from Sekondi, Gold Coast.

Forewing with costa well arched; apex bluntly produced; outer margin straight, not incised.

32. **Miantochora ochreomaculata** spec. nov.

Forewing: dull chestnut-brown in the median space; costal streak fawn-colour spotted with blackish; basal patch externally pale ochreous, with some brown speckling, forming a rounded blotch in cell above median and a rounded triangular blotch from median to inner margin at nearly one-third; outer line brown, biconcave outwards, from costa shortly before apex to inner margin at five-sixths, angled on vein 5, and preceded throughout by a series of black spots on veins; an obscurely darker median shade, plainest on inner margin, where it is followed by a paler patch of mottled ochreous; the outer line is edged externally with faint lustrous, interrupted between veins 6 and 7 by a round blotch of pale ochreous, followed by a triangular patch of chestnut-brown; above this patch the apex is lilac-grey with coarse black speckling, and below it dull leaden grey with darker clouds; fringe brown.

Hindwing: with basal three-fourths dull brownish fulvous, speckled with fuscous, and paler towards costa and inner margin; a slight antemedian shade across wing before the black cell-spot; apical fourth dark brown, edged by a straight ochreous line from apex to above anal angle.

Underside fawn-colour, variously tinged with brown and lilac-grey, and dusted with blackish; lower part of median shade thickly black on both wings; an outer series of black spots also on both wings; the pale spot on forewing between veins 6 and 7 present and the brown marginal triangle on both wings.

Head, thorax, and abdomen greyish brown; shoulders lilac-grey, tipped with black.

Expanse of wings: 50 mm.

1 ♂ from Kassai district, Congo Free State (Taymans).

33. **Plegapteryx viridis** spec. nov.

In shape and markings exactly like *P. segmentata* Warr., but the whole forewing deep green, slightly paler and greyer, with slight lustre, beyond cell and beyond outer line, which is marked by blackish green vein-dashes and edged by a paler line; inner line waved, vertical, from one-fourth of costa to one-third of inner margin; a thick darker median shade from three-fifths of costa to middle of inner margin; costal edge pale grey for two-thirds, then ochreous; cell-spot a white dot in a dark diffuse ring.

Hindwing: with basal area deep green; outer greenish ochreous, with greener clouds; costa broadly, and inner margin narrowly, straw-colour; cell-spot small, white.

Underside of forewing yellowish green, deep yellow along costa, pale along inner margin, with some reddish patches along submedian fold; outer line and cell-spot darker; hindwing deep yellow, freckled with olive and brown, especially along costa; a brown spot at apex and curved red-brown median line.

Head, thorax, and dorsum dark green; palpi, legs, and venter deep yellow, like hindwings beneath.

Expanse of wings: 45 mm.

1 ♂ from Durban, Natal, March 1907 (G. F. Leigh).

Genus **Vaëna** Wlk.

Walker made this genus (cf. *Proceedings of the Natural History Society of Glasgow*, 1879, p. 341) for a species from the Congo which he called *cacleoides*, the type of which is in the British Museum collection. Hitherto it has not been possible to ascertain the neuration of the genus; but lately a single ♂ example of *cacleoides* has been received from Ogruga, Niger, which I have been able to examine, and the neuration is here appended.

Forewing: cell hardly half as long as wing; discocellular oblique; vein 2 at three-fourths of cell, 3 close before 4; 5 from above middle of discocellular; 6 long-stalked with 7, 8 from the bend in subcostal; the stem of 7, 8 arched and approximated to that of 9, 10, 11, which are also stalked together, the distal ends of these three veins very fine and short, like that of 12, and all easily overlooked; hindwing, with costal and subcostal approximated for half of cell; veins 3 and 7 both before angles of cell; no radial.

Ciropteryx ochreata Holland, *Entom. News* iv. p. 176 (1893), described from Ogowé River, is assuredly the same insect. The type of this genus, *viridifascia* Holl., I have not seen.

NEW SPECIES OF *THYRIDIDAE*, *URANIIDAE*, AND *GEOMETRIDAE* FROM THE ORIENTAL REGION.

By W. WARREN, M.A., F.E.S.

Family *THYRIDIDAE*.

1. **Pharambara squalida** spec. nov.

Resembles *Ph. variabilis* Pag. (=*fallax* Warr. = *phasianalis* Swinh.), but not quite so large and always dirty brownish ochreous instead of blackish fuscous: both wings have a small but distinct round black spot at end of cell, which is absent in the larger species.

Family *URANIIDAE*.

Subfamily EPIPLEMINAE.

2. **Epiplema flavida** spec. nov.

Forewing: pale yellow; a purplish grey red-edged patch at base extending along upper margin of cell to its end; a large purplish grey blotch before outer margin, reaching from below costa to vein 2, its inner edge angled inwards towards end of basal patch; a few purplish specks along costal and inner margins; fringe yellow.

Hindwing: with the marginal patch narrower and partially interrupted at middle; a purplish patch at middle of inner margin; a black cell-spot, and some purplish specks along costa; a dark speck below base of lower tooth.

Underside whitish, with the markings very dull purple.

Face, thorax, and dorsum purplish; vertex yellow; fillet and antennae white; abdomen beneath, and legs white.

Expanse of wings: 27 mm.

1 ♀ from the Taiping Hills, Malay Peninsula, August 1904.

Quite distinct from any other *Epiplema*, and recalling somewhat a *Plutodes*.

Family *GEOMETRIDAE*.

Subfamily DYSPHANIINAE.

3. **Dysphania flavicorpus** spec. nov.

♀. Differs from *D. imperatrix* Warr. from Isabel Island in having the dorsum yellow instead of purple, and the pale spaces of both wings whiter.

♂. Deep purple: the whitish spaces of forewing showing only as obscure paler purple or purplish white spots; hindwing wholly purple, the orange band of the ♀ much interrupted and variable; in the strongest marked example, which I have taken as type, there is an elongated orange blotch from above anal angle to vein 3 as in the ♀, but narrower; two irregular orange blotches towards outer margin between 3 and 5, and two contiguous horseshoe-shaped blotches, one on each side of vein 6; also a separate orange blotch on inner margin, corresponding with the yellow blotch in the white area of the ♀; in the least-marked and darkest example there is merely a long thin orange streak on inner margin to vein 3,

and a small round spot above it between 5 and 6; two other examples are intermediate.

Expanse of wings: ♂ 108 mm.; ♀ 100 mm.

4 ♂♂, 4 ♀♀ from Choiseul Island, Solomons, December 1903—January 1904 (Meek).

4. **Dysphania semifulva** spec. nov.

Differs from *D. fulvilauta* Warr. from New Hanover in having the fulvous coloration of hindwing confined to the space below the cell, the cell itself remaining white; the concise black streak along inner margin of hindwing, which characterises *tyrianthina* Butler, is replaced by a diffuse smoky purplish cloud. In the forewing the series of purplish white markings beyond the middle are more developed than in *fulvilauta*, especially in the ♀.

Expanse of wings: 90 mm.

2 ♂♂, 1 ♀ from Bougainville, Solomon Islands, April 1904 (Meek).

Subfamily PSEUDOTERPNINAE.

5. **Terpna differens** spec. nov.

Forewing: pinkish white, covered with dense olive-fuscous striae; lines black; first very oblique from one-sixth of costa to just before middle of inner margin, outwardly dentate on veins; basal area darker, containing an obscure black line marked by a spot at base of costa and an acute angle on submedian vein; outer line from three-fourths of costa, curved outwards to vein 4, where it is acutely angled near before outer margin, then incurved and sharply lunulate-dentate to three-fourths of inner margin; cell-spot linear, black; submarginal line obscure, pinkish, preceded below middle by dark wedge-shaped blotches, below costa preceded and followed by dark clouds, and swollen into a pinkish blotch above the angle of outer line; a row of black marginal lunules; fringe grey with darker mottlings.

Hindwing: paler, speckled along outer margin mainly, beyond a dark lunulate-dentate postmedian line; submarginal line obscure, but preceded by dark blotches.

Underside dull whitish, grey tinged in forewing; a diffuse dark outer line on forewing more or less vertical, the margin beyond it greyer, with a dark patch on costa; hindwing with a distinct dark curved postmedian line and no grey shade.

Face and palpi blackish; top of face whitish; vertex and shoulders cream-coloured; thorax and abdomen grey, beneath whitish.

Expanse of wings: 44 mm.

1 ♂ from the Kulu district, N. India (Maries).

Distinguished from all other species by the strongly oblique black basal line of forewing and the white underside without black marginal borders.

Subfamily GEOMETRINAE.

6. **Anisogamia subfasciata** spec. nov.

♂ very much like *A. lithocrossa* Meyr. from New Guinea, but the white transverse markings more developed; costa narrowly white from base, beyond first line more broadly; underside white, forewing green along costal half, with three deeper green bands from costa to middle.

♀. *Forewing:* deep emerald green; costa broadly white beyond first line; first line, as in ♂, from one-fourth of costa to near middle of inner margin, bent on subcostal vein, angled outwards on submedian fold and inwards on submedian vein, white, edged outwardly with darker green; outer line from three-fourths of costa to three-fourths of inner margin, white, between veins 6 and 2 rectangularly bent outwards to near outer margin; the marginal area beyond white, with the centre occupied by cloudy patches of grey and green scales, interrupted narrowly between 3 and 4, and more broadly above 6, the space immediately beyond line at costa and inner margin green; marginal lunules grey-brown; fringe white.

Hindwing: without inner line; outer line and marginal area as in forewing, but the central cloud narrower and darker, especially at apex and anal angle, where it forms a blackish blotch.

Underside of forewing bluish white; the cell and costal area to two-thirds pale grey-brown; a curved submarginal dark fuscous fascia from costal to inner margin, with both edges lunate, between two bluish white fasciae; marginal lunules fuscous; fringe white; hindwing wholly bluish white, the fascia blacker and narrowing towards anal angle.

Face, shoulders, thorax, and base of abdomen green; vertex, antennae, and abdomen white; patagia green with their base white; palpi and forelegs fuscous.

Expanse of wings: ♂ 30 mm.; ♀ 40 mm.

1 ♂, 2 ♀♀ from New Georgia, Solomon Islands, March 1904 (Meek).

Males of this species previously received from New Georgia have been hitherto referred by me to *lithocrossa* as a slightly differing local form; but the difference between the ♀♀ of the two species proves them distinct.

7. **Hemistola annuligera** spec. nov.

Forewing: bluish green, with two very fine white lines across the wing; the first near base, outcurved above and below median vein, dentate inwards on the veins; outer line dentate-lunulate, approaching first line on submedian fold; cell-spot a large white ring; fringe white.

Hindwing: without first line.

Underside whitish green; the costa of forewing yellowish white.

Face, palpi above, and forelegs in front dull reddish; vertex white; thorax and abdomen bleached, probably blue-green.

Expanse of wings: 39 mm.

1 ♂ from Srinagar, Kashmir, 7000 ft. (Col. Ward).

The wings of the single example have unfortunately become bleached from damp; but the costa of forewing above was probably naturally white. The outer margin of hindwing is rounded, with an exceedingly faint elbow at vein 4, and veins 3, 4 of the hindwing are not stalked.

8. **Microloxia rubripunctata** spec. nov.

Forewing: pale yellowish green with a red cell-spot; fringe green.

Hindwing: the same.

Underside whitish green.

Face and palpi brown-red; fillet white; thorax and abdomen pale green.

Expanse of wings: 22 mm.

1 ♂ from Kagoshima, July 1900 (Jonas).

Subfamily STERRHINAE.

9. **Problepsis attenuata** spec. nov.

Differs from *P. deliaria* Guen. in having the ear-shaped discal marking not closed and separated from the annulus on inner margin, the olive-brown edge running continuously; the portion above median is very much narrower, being, in fact, only slightly wider than on inner margin, the whole placed much more obliquely; some silvery scales appear along inner margin as in *deliaria*.

The marking of the hindwing resembles that of *deliaria*, but it is also narrower, and the metallic scales on it are darker; it runs obliquely from vein 6 to inner margin, continuing the oblique marking of forewing, with some silvery scales along inner margin to outer line. The abdomen also differs in being marked on dorsum with dark fuscous, except on basal segment, whereas in *deliaria* it is wholly white.

Expanse of wings: 35 mm.

1 ♂ from Merkara, S. India, August 1904.

In the continuity of the central markings this species resembles *delphiaria* Guen., which also has the dorsum darker; but that species has the marking of forewing broad and rounded, and the antennae clothed with sessile fascicles of long curled cilia instead of pedicellate fascicles.

10. **Somatina discata** spec. nov.

Forewing: dull white, slightly grey-speckled; markings much as in *plynusaria* Wlk., but much paler; costa, as in that species, dull reddish, more broadly before apex; cell-spot large, black, and round; a fine marginal line, preceded by a row of small dark dots between veins; a brown shade at anal angle.

Hindwing: whiter, with only the marginal markings distinct; the cell-spot black, not so large as in forewing.

Underside white, with the outer lines, cell-spots, and marginal spots black; forewings speckled slightly with darker, the costa ochreous grey.

Head, palpi, and antennae black; collar rufous; thorax and abdomen white.

Expanse of wings: 30 mm.

1 ♂ from Cheng-Mai, Hainan, July 1902.

Smaller and paler than *S. plynusaria*; in the large dark cell-spot it resembles *Somatinopsis nigridiscata* Warr., but the hindtibiae are without spurs.

Subfamily HYDRIOMENINAE.

11. **Epirrhoe submarginata** spec. nov.

Forewing: whitish grey, the markings dark olive, the lines blackish; the band between basal patch and central fascia partially pale grey, otherwise the whole wing to outer line is dull olive; the fascia contains a dark cell-spot and two or three darker waved lines, forming annuli towards inner margin; its outer edge is angled on vein 6 and forms a bilobed projection between 2 and 4; it is followed by a distinct white band with dark middle line, and edged by a dentate-lunulate line; marginal area olive, containing a regularly lunulate white submarginal line, the lunules edged outwardly with black; pairs of black marginal spots at ends of veins; fringe olive.

Hindwing : olive-grey, the costal area whitish grey ; a distinct lunulate whitish submarginal line ; cell-spot and marginal spots dark.

Underside whitish, speckled with grey, with the markings darker grey.

Head, thorax, and abdomen dark grey.

Expanse of wings : 28 mm.

1 ♂ from Srinagar, Kashmir, 7000 ft., June 1904 (Col. Ward).

12. **Perizoma (?) exangulata** spec. nov.

Forewing : pale pearly grey, finely dusted with olive-brown ; the central fascia velvety black-brown, occupying on costa slightly more than the middle third, and only the fourth fifth of inner margin ; its inner edge outcurved, with a slight bulge above middle ; the outer insinuate beyond cell, and sharply angled outwards below vein 4, then concave inwards ; its centre above median vein paler, containing two dark lines between which is a black elongated pale-edged cell-mark ; basal patch rather darker grey, crossed by four parallel brownish lines, outcurved parallel to inner edge of fascia ; submarginal line whitish, regularly lunulate, the lunules preceded and followed by darker ones ; marginal area above vein 4 brown, obliquely edged from apex ; a blackish marginal line interrupted by the pale veins ; fringe pale brown at base, pale grey in outer half, mottled darker beyond veins.

Hindwing : whitish grey, speckled with darker towards base before a darker grey postmedian line ; marginal line dark brown ; fringe pale grey.

Underside of forewing dark grey, with a whitish postmedian band beyond the blackish outer line ; hindwing whitish, with dark speckling ; a black cell-spot and three waved lines.

Head, thorax, and abdomen grey ; face and palpi blackish.

Expanse of wings : 40 mm.

1 ♀ from Srinagar, Kashmir, 7000 ft., June 1904 (Col. Ward).

Subfamily DEILINIINAE.

Chrostobapta gen. nov.

Differs from *Rhyncobapta* Hmpsn. in having veins 7, 8, 9 only stalked together instead of 7, 8, 9, 10, 10 and 11 being coincident throughout. The legs are short and stout instead of being long and slender, the hindtibiae swollen, with two pairs of short strong spurs. The hindwing is more decidedly angulated at middle of outer margin.

Type : *Chrostobapta deletaria* Moore (*Macaria*).

In vol. xiv. of the *Novitates Zoologicae*, p. 164 (1907), I described another species of the genus, *deludens*, from New Guinea, without characterising the genus.

Subfamily BRACCINAE.

13. **Bordeta bursadoides** spec. nov. and ab. **uniannulata** nov.

Forewing : velvety black, with an oblique deep yellow elongate blotch from below subcostal vein beyond middle to below vein 3 ; fringe black.

Hindwing : black, with the centre for three-fourths of the wing occupied by an elongate deep yellow space, which curves to the inner margin near base ; fringe black.

Underside the same, but the yellow spaces both ampler.

Head, thorax, and dorsum black, the second, third, and fourth segments broadly ringed with yellow, the anal segment also yellow-marked; abdomen beneath yellow; legs black; pectus and collar dirty whitish.

Expanse of wings: 40—44 mm.

3 ♂♂, 5 ♀♀, from the Aroa River, British New Guinea, 4000—5000 ft., May 1905 (Meek).

The yellow dorsal rings are variable: in some cases all the segments show yellow lines and the basal segments are broadly yellow; in one ♀ only the second segment shows a ring—ab. *uniannulata*.

Subfamily ENNOMINAE.

14. **Mimomiza fulvipennis** spec. nov.

Forewing: reddish fulvous, with a few coarse black speckles; costa paler, more yellowish, widening to apex; lines whitish, broad, the first edged outwardly, the second inwardly, with darker; first slightly waved at one-third; second, nearly straight from three-fourths of costa to two-thirds of inner margin; a black cell-spot, an oblique black streak from apex to vein 6, and a black blotch between 3 and 4; space between lines and before outer margin deeper fulvous; fringe fulvous, with a paler line at base.

Hindwing: with the line central; a few black scales forming a spot between veins 3 and 4.

Underside with the lines hardly showing; forewing with the black cell-spot, apical blotch, and spot between 3 and 4 all represented.

Head, thorax, and abdomen like wings; face darker.

Expanse of wings: 40 mm.

1 ♂ from Srinagar, Kashmir, 7000 ft., June 1904 (Col. Ward).

15. **Patruissa sternaria** ab. **plagicosta** nov. and **insulata** nov.

After describing the type-form of *sternaria* (*Phal.* ii. p. 537), Guenée goes on to describe what he calls var. A, as follows:

"Lignes des supérieures réduites à une simple tache évidée, qui ne dépasse pas la cellule, et sans anneau rond sous la 4."

For this aberration I propose the name *plagicosta*.

But there also occurs a form in which both the costal blotch and the ring-shaped mark below the median vein are represented, which may be distinguished as ab. *insulata*.

Of this form I have seen a ♂ example from Kuching, Borneo, which is in the Tring Museum.

TWO REMARKABLE NEW SPECIES OF DIPTERA.

BY ERNEST E. AUSTEN, F.Z.S.

THE two species described below are of interest not only on account of their very large size, but also because they appear to be mimics of particular species of Hymenoptera. According to the collector, the flies are met with in the same places and at the same time as the Hymenopteron mentioned in each case, from which they are very difficult to distinguish when on the wing or in the net. The types of both species are in the Tring Museum, and I have to thank the Hon. Walter Rothschild for permitting me to describe them.

PANTOPHTHALMIDAE.

Rhaphiorhynchus Wied.

1. **Rhaphiorhynchus rothschildi** sp. nov.

♂.——Length (2 specimens) 39 to 41·5 mm.; width of head 9 mm.; width of thorax at base of wings 9 mm.; greatest width of abdomen (second segment) 10·5 mm.; length of wing 37 to 38·6 mm.

Narrow-bodied, elongate species, with subulate antennae in the ♂; head, body, and legs deep black, dorsum of thorax tinged with mummy-brown, with black longitudinal stripes; humeral calli dark brown, with a buff-coloured streak on upper side, or a buff-coloured spot above, close to apex; dorsum of abdomen with an elongate shining median spot or longitudinal streak on each segment; wings dark brown, extreme base black, veins (including costa), costal cells, proximal third or rather more of marginal cell, first basal cell except lower and distal borders, and an irregular area sometimes extending from near base, across alula, into base of axillary cell, sometimes including proximal half or less of second basal and anal cells, ochraceous rufous.*

Head: facial "beak" large and thick, dull velvety clove-brown, except extreme tip, which is shining; jowls clothed with fine black hair; *eyes* a hair's-breadth apart on front, facets in upper half larger than those in lower half, but difference in size not very noticeable, and no sharp line of demarcation; *antennæ* clove-brown, distal extremity of style yellow, first and second joints and base of third joint clothed above and below with stiff black hairs, second and following annuli of elongate third joint with a few minute hairs above and below, style also with a few short hairs, and with a longer recumbent hair above and below, just before middle; *palpi* black, stout, curving outwards, densely clothed with stiff black hair. *Thorax* dull, clothed with short and fine black hair; dorsum with three approximate and complete longitudinal black stripes, broader in front and converging posteriorly. *Abdomen* tapering from base of second segment to distal extremity, clothed with short and fine black hair; dorsum, except elongate median spots, dull, its sides turned downwards, not sharp; *a large, roughly semicircular, white spot on each side of first segment*, close to distal angle, and a small whitish or yellowish fleck in each

* For names and illustrations of colours, see Ridgway, *A Nomenclature of Colors for Naturalists* (Boston: Little, Brown, & Company, 1886).

distal angle of third segment; median portion of ventral surface of each segment shining. *Wings:* first and second costal cells broad, costa being conspicuously bent upwards above humeral transverse vein; extreme tip of wing and axillary cell except extreme base dark brown, remaining cells within dark brown area usually with their centres lighter (more or less ochraceous-rufous); second posterior cell wide open at tip. *Halteres* ochraceous-buff. *Legs* entirely clothed with black hair, which, though generally inconspicuous and short, is thick and longer on the posterior tibiae, giving these a furry appearance; all femora shining; hind legs very long, hind femora with a large and conspicuous tooth beneath, at commencement of distal third, and with a small and inconspicuous terminal spine; first joint of hind tarsi with longer hair above.

Bolivia and Ecuador, S. America: type from Buenavista, Bolivia (*J. Steinbach*); a second specimen from Ecuador (*Buckley*) is in the British Museum (Natural History).

This species, which resembles *Pepsis elevata* Fabr., cannot, owing to the sombre coloration of the body, possibly be confused either with *Rhaphiorhynchus planiventris* Wied. (the only species of the genus already described), or with an undescribed species from Brazil represented by two ♀ specimens in the British Museum (Natural History), since in both of the latter species the abdomen, except the lateral margins, is orange-rufous. Although at first sight the unusual shape of the body, in conjunction with the remarkable coloration, might be regarded as indicating the advisability of founding a new genus for the reception of the species described above, careful consideration of the structural characters shows that there is nothing to warrant the adoption of such a course.

MYDAIDAE.

Mydas Fabr.

2. **Mydas praegrandis** sp. nov.

♀.—Length (1 specimen) 49 mm.; width of head 8·5 mm.; length of antenna 15 mm.; greatest width of abdomen (hind margin of fifth segment) 10·75 mm.; length of wing 44·6 mm.

Head, body, and legs deep black; third and fourth joints of antennae burnt-sienna-coloured, expanded portion of fourth joint ferruginous; proximal three-fourths of wing, except hind border, brownish black, opaque, distal fourth of wing and hind border of irregular width smoky-brown, with a strong violaceous tinge, and transparent.

Head: mystax, like hairs on remainder of head, entirely black; proboscis and first two joints of antennae black, first and second joints of antennae clothed with black hair. *Thorax:* dorsum almost bare, with an elongate lyrate mark of a deeper black than ground-colour, extending from front margin to scutellum, and with a narrow median longitudinal stripe; pleurae thinly clothed with black hair. *Abdomen:* dorsum clothed above with short appressed black hair, longer and more conspicuous on first segment; *basal angles each with a tuft of shining white or yellowish white hair*, of greater length. *Wings:* violaceous tinge of tip and hind border especially conspicuous when wings are viewed at certain angles, or in certain lights; alula deep brownish black. *Squamae* with a deep brownish black fringe. *Halteres* brownish black. *Legs* entirely clothed with black hair;

hind tibiae with a short spur at tip; claws black, faintly tinged in middle with chestnut.

Buenavista, Bolivia, S. America (*J. Steinbach*); resembles *Pepsis heros* Fabr.

I have little hesitation in regarding as conspecific with the ♀ described above two ♂ specimens from Brazil, in the National Collection; assuming this view to be correct, the ♂ of *Mydas praegrandis* may be characterised as follows:—

♂.—Length (2 specimens) 47·5 to 49 mm.; width of head 8 mm.; length of antenna 13 mm.; greatest width of abdomen (across first segment) 9·5 mm.; length of wing 40 mm.

Colour of head, body, and legs as in ♀; *colour of antennae as in* ♀, *though third and fourth joints may be darker (chestnut); dark area in wing of same shape and extent as in* ♀, *but much lighter in colour, mummy-brown, with more or less distinct, paler, raw-sienna-coloured, longitudinal streaks in central part; distal fourth and hind border of wing as in* ♀, *but paler, and with a scarcely noticeable violaceous tinge.*

Head: mystax as in ♀, except that it may contain two or three white hairs on each side; antennae with a narrow dark band at base of fourth joint. *Thorax* and *abdomen* as in ♀, except that longer hair clothing dorsum of first abdominal segment is dark brown instead of black. *Legs:* hind femora stouter than in ♀; hind tibiae with a long curved spine at tip; claws longer and more powerfully developed than in ♀. All other details (except shape and width of abdomen) as in ♀.

Brazil: type and one other specimen from Parana, 1906 (*E. D. Jones*): in British Museum (Natural History).

It would seem practically certain that the undescribed female *Mydas* from Chapada, Brazil, mentioned by Dr. S. W. Williston (*Kansas Acad. Sci.*, 1897, p. 56), as, in his belief, "the largest specimen of a dipteron ever recorded, measuring 50 millimetres in length with a spread of wings of over 100," should be assigned to this species. *M. praegrandis* is also referred to (as "an indeterminable species of *Mydas* from South America"), and figured by Dr. Williston, in his *Manual of North American Diptera*, 3rd Edition (New Haven: James T. Hathaway, 1908), p. 16.

A NEW AEGERIID.

BY THE HON. WALTER ROTHSCHILD.

Melittia superba spec. nov.

THIS very handsome species is nearest to *M. magnifica* Bentenmüller.

Head blackish brown, palpi brown, collar glittering pale blue, thorax metallic opalescent silvery with buff tinge, centre glossed with pale metallic blue, antennae black.

First two segments of abdomen metallic pale blue, rest of abdomen deeper steel blue; last two segments metallic bronzy green.

Underside of thorax opalescent silvery white, of abdomen whitish opalescent yellow.

Forelegs black, tarsi yellowish; middle legs metallic blue, tarsi somewhat silvery; hindlegs clothed with dense and long hairs; tibiae above and inside bright yellow, below and outside black glossed with metallic blue and mixed with metallic opalescent tufts; tarsi black mixed with grey hairs.

Forewings above and below brilliant metallic blue, costa and broad outer margin dull black.

Hindwings sharply divided obliquely from base to outer margin, upper three-fifths brilliant metallic blue, lower two-fifths transparent, fringe blackish, except at abdominal margin, where it is blue.

Length of forewing, 19 mm.

One ♂, Marcapate, E. Peru, 3500 ft. (Garlepp).

SYNONYMICAL NOTE ON *XENOPSYLLA PACHYUROMYIDIS* GLINK.

BY THE HON. N. CHARLES ROTHSCHILD, M.A., F.L.S.

FRAU ANNA GLINKEWICZ recently described (*Sitzber. Akad. Wiss. Wien*, cxvi. 1. p. 381. t. 1., 1907) a flea from Egypt under the above name. Through the kindness of Professor L. Ganglbauer and Professor K. Grobben of Vienna I have been able to examine a pair of cotypes of this species. The insect in question is undoubtedly identical with *Loemopsylla cheopis* Rothsch. (1903). The genus *Xenopsylla* was published before *Loemopsylla*, the name proposed by Dr. K. Jordan and myself in 1908 for the group of fleas to which *cheopis* belongs, and must therefore be retained.

NEUE ANSICHTEN ÜBER DIE MORPHOLOGIE DES FLOHKOPFES, SOWIE ÜBER DIE ONTOGENIE, PHYLOGENIE UND SYSTEMATIK DER FLÖHE.

VON DR. A. C. OUDEMANS (Arnhem, Holland).

(Tafel XII., XIII.)

I. Einleitung.

ALS ich in der *Tijdschrift voor Entomologie* (vol. li., p. 89, 1908) schrieb, dass einige Flöhe einen in zwei Teile gegliederten Kopf hätten, dachte ich wenig daran, dass diese und weitere Entdeckungen auf diesem Gebiete solche weitgehende Folgen haben würden.

Die Tatsache allein, dass ein Insekt einen gegliederten Kopf besitzt, ist eine so ausserordentliche, dass es sonderbar genannt werden muss, dass sie vor mir niemand wahrgenommen hat. Vergebens suchte ich danach in der Literatur. Ich finde nur einen Passus, welcher annäherend auf diese Kopfgliederung hinweist; die Autoren haben sie aber offenbar nicht als solche erkannt.

Vor einigen Wochen nämlich fand ich zufällig den folgenden Satz in Jordan und Rothschild's "Revision of the Sarcopsyllidae" (*Thompson, Yates & Johnston Laboratories Report* vii. p. 19, 1906):

"The head of the *Siphonaptera* is divided by the antennal groove into an anterior or frontal portion and a posterior or occipital portion. The antennal groove is usually prolonged dorsally as a narrow slit in the ♂ of *Siphonaptera*, the grooves of the two sides of the head often meeting on the top. There is normally also an internal incrassation of the skeleton from the groove upwards in both sexes. This arrangement is well marked in the Sarcopsyllid genus *Echidnophaga*. In the genera *Hectopsylla* and *Dermatophilus* the dorsal prolongation of the antennal groove and the internal thickening of the chitin are absent in both sexes, the genera *Dermatophilus* and *Hectopsylla* being in this respect more specialised than *Echidnophaga*. Such a specialisation is not confined to these two genera of *Sarcopsyllidae*. We meet with it also among the *Pulicidae* in the genera *Chaetopsylla* and *Vermipsylla*."

Jordan und Rothschild haben also zuerst wahrgenommen und publiciert—

1. Dass bei vielen Männchen der *Suctoria* die Antennengruben sich dorsalwärts als enge Spalten verlängern, so dass die Gruben der beiden Kopfseiten sich am Scheitel begegnen;
2. Dass bei vielen Flöhen, und dann in beiden Geschlechtern, sich eine inwendige Verdickung des Skelettes von den Antennengruben aufwärts befindet (*Echidnophaga* und die meisten *Pulicidae*);
3. Dass bei anderen Flöhen die oben erwähnten spaltförmigen Fortsetzungen der Antennengruben in beiden Geschlechtern fehlen (*Hectopsylla*, *Dermatophilus*, *Chaetopsylla*, und *Vermipsylla*).

Unabhängig von den genannten Autoren bemerkte ich im Anfang des vorigen Jahres (1908) dieselbe Chitinverdicknng bei einigen Flohgattungen und das Fehlen derselben bei anderen. Andere Tatsachen wurden dagegen zuerst von mir wahrgenommen, und ich publicierte sie in der genannten *Tijdschrift*.

Es scheint mir notwendig zu sein hier kurz zu wiederholen, was ich dort gesagt habe.

" Die meisten Flöhe besitzen einen gewöhnlichen ungegliederten Kopf (*caput integrum*). Es giebt aber Flöhe mit einem buchstäblich in zwei Teile gegliederten Kopfe, nämlich in einen Vorderkopf (*pars anterior*) und einen Hinterkopf (*pars posterior*). Hierzu gehören nur die *Ischnopsyllidae*. Die Teile sind selbst beweglich miteinander verbunden. Die Beweglichkeit ist nicht gross und besteht darin, dass sie nicht nur ein wenig seitwärts, sondern auch ein wenig auf und nieder geschehen kann, und zwar um einen Gelenkhöcker (*condylus*), welcher sich ungefähr im Zentrum des Kopfes befindet und stark chitinisirt ist. Die Folge der ventralen Flexion ist, dass der freie Hinterrand (*collare*) der *pars anterior* sich von der *pars posterior* abhebt (Fig. 3), und dass der dorsale Teil der Antennengrube sich erweitert, während umgekehrt der ventrale Teil derselben sich verengt. Im entgegengesetzen Falle schliesst sich das *collare* genau an die *pars posterior* an, verengt sich der dorsale Teil der Antennengrube, und erweitert sich der ventrale Teil derselben. Solch einen Kopf nenne ich ein *caput fractum*.

" Die *pars anterior* eines solchen gegliederten Kopfes besitzt, wie die *pars posterior*, die Thorax-Segmente und die Abdominal-Tergite, einen breiten, platten Hinterrand oder Kragen (*collare*), welcher über der *pars posterior* liegt, während diese wie alle hinter ihr folgenden Thoracal- und Abdominal-Tergite vorn ein Stosskissen (*nodulus*) besitzt, welches in eine Pfanne (*fossa noduli*) der *pars anterior* passt.

" Die *pars anterior* gleicht nun einem echten Kopfe ; die *pars posterior* ist zum Verwechseln einem Pronotum ähnlich.

" Was noch sonderbarer ist : an der *pars anterior* befinden sich die rudimentären Augen und die Mundwerkzeuge, während an der *pars posterior* die Antennen befestigt sind.

" Was nun die Köpfe der *Integricipita* betrifft, so zeigen auch diese manche Eigentümlichkeiten. Bei allen *Suctoria* treffen wir jenen centralen, stark chitinisirten Höcker (*tuber centrale*) mehr oder weniger entwickelt an ; die Bedeutung dieses Höckers war uns bei einem *caput fractum* klar, ist uns aber bei einem *caput integrum* unverständlich.

" Bei vielen Flöhen nehmen wir noch eine andere inwendige Chitinisirung wahr. In der Kopfhöhle befindet sich nämlich, dem Kopfdache anliegend, eine sichelförmige Chitinisirung (*falx*), welche sich von der einen Antennengrube nach der anderen hienzieht. Wozu diese *falx* dient, ist mir nicht deutlich ; gewiss nicht zur Anheftung von Muskeln, denn diese sind am Kopfdache selbst, sowohl vor wie hinter der *falx* befestigt."

In der *Tidjschrift* (*l. c.*) sind noch andere Punkte erwähnt, welche ich übergehe, da sie bei der gegenwärtigen Besprechung nicht in Betracht kommen.

Als ich obenerwähnte Entdeckungen (das Vorhandensein eines *tuber centrale*, das Fehlen oder Vorhandensein einer *falx* und der Kopfgliederung) publicierte, hatte ich nur die folgenden Floharten verglichen :

Ceratophyllus sciurorum (Schrank) und *fasciatus* (Bosc), *Ctenocephalus canis* (Curtis) und *felis* (Bouché), *Archaeopsylla erinacei* (Bouché), *Pulex irritans* L.,

Chaetopsylla globiceps (Tasch.), *Echidnophaga gallinaceus* (Westw.), *Ischnopsyllus elongatus* (Curtis), *hexactenus* (Kolen.), *simplex* (Rothsch.), und *Nycteridopsylla pentactenus* (Kolen.).

Ich teilte die Flöhe ein in *Integricipita* (mit den ersten sechs Gattungen) und *Fracticipita* (mit den letzten zwei), und war der Meinung, die *Integricipita* seien primitiver als die anderen.

Aber da fand ich vergangenen November auf einer Maus einige *Ctenophthalmus segnis* (Schönherr). Zu meinem Erstaunen hatte diese Art auch ein *caput fractum*, während ich (siehe oben) der Ansicht war, dass nur die auf Fledermäusen schmarotzenden *Ischnopsyllidae* einen solchen hätten. Diese neue Entdeckung überraschte mich so, dass ich den Hon. N. Charles Rothschild, Prof Dr. K. M. F. Kraepelin, Prof. Dr. Otto Taschenberg, Dr. G. Enderlein, Prof. Dr. Jul. Wagner und andere sofort bat, mir Weibchen der Typen oder Cotypen aller mir unbekannten Genera zur Untersuchung zuzusenden. Meine Absicht dabei war zu entscheiden, welche Genera zu den *Fracticipita* und welche zu den *Integricipita* gehörten, was ich aus den Beschreibungen und Abbildungen der verschiedenen Autoren unmöglich erkennen konnte.

Inzwischen fand ich bei meinen eigenen Exemplaren von *Ctenocephalus canis* (Curtis) und *Ct. felis* (Bouché) die Spur einer Naht, welche über die inwendige *falx* läuft. Diese Entdeckung war für mich eine ganz besondere, denn nun waren mir der *tuber centrale* und die *falx* nicht mehr unerklärlich. Ja noch mehr, die *Fracticipita* scheinen mir jetzt die primitivsten unter den jetzt lebenden Flöhen zu sein, die *Integricipita* dagegen leicht von den erstgenannten abzuleiten.

Die obengenannten Herren beantworteten meine Bitte mit der Zusendung von Weibchen aller Gattungstypen, welche sie besassen, speziell stellte mir the Hon. N. C. Rothschild reiches Material zur Verfügung, und ich kann diesen hervorragenden Flohforschern nicht dankbar genug dafür sein.

Von den folgenden Genera konnte ich die Typen *nicht* untersuchen:

Anomiopsyllus Baker 1904 (Type: *nudatus* Baker); ist nach Baker mit *Typhlopsylla* (jetzt *Spalacopsylla* Oudemans 1906) verwandt. Ich werde die Gattung auch als so betrachten, obwohl man mit sogenannter "Verwandtschaft" vorsichtig sein muss.

Dasypsyllus Baker 1905 (Type: *perpinnatus* Baker) ist ein sonderbares Tier, das vielleicht gar nicht mit *Ceratophyllus* verwandt ist, wie von Baker angenommen wird. Ich werde es trotzdem in die Nähe von *Ceratophyllus* setzen.

Hoplopsyllus Baker 1905 (Type: *anomalus* Baker). Ich konnte *H. glacialis* untersuchen, zweifle aber sehr an der Verwandtschaft dieser Arten, denn die abgebildete Antenne von *anomalus* ist zu verschieden.

Odontopsyllus Baker 1905 (Type: *multispinosus* Baker) ist vermutlich sehr entfernt mit *Ceratophyllus* verwandt; vorläufig setze ich die Gattung in die Nähe der letztern.

Rhopalopsyllus Baker 1905 (Type: *lutzi* Baker). Ich konnte nur *cleophontis* Rothsch. untersuchen, welche von Rothschild jedoch als äusserst nahe verwandt mit *lutzi* betrachtet wird.

Stephanocircus Skuse 1890 (Type: *dasyuri* Skuse). Ich hatte nur Gelegenheit *S. simsoni* Rothsch. zu untersuchen. Die *Stephanocircus*-Arten sind aber so nahe miteinander verwandt, dass es mir wohl nicht übelgedeutet werden kann, wenn ich handle als hätte ich die typische Art selbst gesehen.

Vermipsylla Schimk. (Type: *alacurt* Schimk.) ist mir nur aus den exacten

Beschreibungen und Abbildungen Wagners bekannt. Ausserdem kenne ich die *Verm. hyaenae* Kolen., so dass ich gewiss nicht fehlgreife, wenn ich sie in die Verwandtschaft von *Chaetopsylla* Kohaut 1903 bringe, worauf auch neuerdings Dampf hinweist (*Schrift. Physik. Oekon. Ges. Königsb.* i. Pr., vol. 49, p. 291).

Das Resultat meiner Untersuchungen lege ich nun in den folgenden Zeilen nieder :—

II. Morphologischer Teil.

Den sonderbarsten Kopf hat wohl *Macropsylla hercules* Rothsch. (Taf. XII, Fig. 1). Er ist nicht allein ein *caput fractum*, weil er aus zwei beweglichen Teilen besteht, sondern zeigt in der *pars posterior* eine schwere *falx posterior*. Diese erstreckt sich von der einen Kopfseite, dem Schädeldache angedrückt, nach der anderen und ist in der Mitte gewaltig dick. In der Figur ist nur dieses grosse *tuber postverticale* gezeichnet (= optischer Durchschnitt durch den dicksten Teil der *falx posterior*). Es scheint aus einer Verwachsung von zwei Lappen einer tiefen Falte der Kopfdecke entstanden zu sein. Der Raum der Falte ist mit einer hellen Chitinmasse völlig ausgefüllt. Scheinbar unter der *falx*, in Wirklichkeit aber der linken und rechten Kopfwand anliegend, setzen sich die beiden Hörner der *falx* fort (in der Figur sind nur die Grenzen mit Strichelchen angegeben). Zwischen diesen beiden Sichelhörnern liegt ein Teil des Gehirns und verläuft der Oesophagus. Weiter nach vorn sieht man die ebenfalls tiefe Kluft zwischen den zwei beweglichen Kopfteilen, das starke Stosskissen (*nodulus*) der *pars posterior*, und die damit übereinstimmende Pfanne (*fossa noduli*) der *pars anterior*, beide stark chitinisiert. Die Kluft am Vertex ist tief, reicht aber vertikal nicht weiter als die Stelle, wo der vorderste Teil des Stosskissens sich befindet und setzt sich an den Seiten des Kopfes bis an die Antennengrube fort. Das breite *collare* deckt einen Teill der Antennengrube.

Einen zweiten Kopftypus besitzt *Stephanocircus simsoni* Rothsch. (Taf. XII, Fig. 2). (Ich konnte den Typus der Gattung, *dasyuri Skuse*, nicht untersuchen.) Auch hier befindet sich in der Mitte der *pars posterior* eine schwere *falx posterior* mit gewaltigem *tuber postverticale*, worüber eine deutlich sichtbare Naht verläuft. Die beiden Hörner der *falx* liegen der linken und rechten Kopfwand an und sind nicht in der Figur angegeben. Zwischen ihnen liegt ein Teil des Gehirns und verläuft der Oesophagus. Am *tuber postverticale* kann man nicht mit Sicherheit sehen, ob er durch die Ausfüllung einer Falte der Kopfdecke entstanden ist; wahrscheinlich ist dies aber der Fall.

Weiter nach vorn sieht man die deutliche, schmale, nicht tiefe Kluft zwischen den zwei beweglichen Kopfteilen, das starke Stosskissen (*nodulus*) der *pars posterior* und die darauf passende Pfanne (*fossa noduli*) der *pars anterior*, beide stark chitinisiert. Die verticale Kluft reicht nicht tiefer als die Stelle, wo der vorderste Teil des Stosskissens sich befindet, setzt sich aber an den Seiten des Kopfes bis an die Antennengrube fort. Die Fortsetzung des schmalen *collare* deckt zum Teil die Antennengrube.

Am Kopfe der *Ischnopsyllus elongatus* (Curtis) (abgebildet ist *I. hexactenus*, weil meine Exemplare von *I. elongatus* nicht so gut das *collare* sehen lassen, Taf. XII, Fig. 3) und an den folgenden zu beschreibenden Köpfen ist keine Spur einer *falx posterior* zu bemerken. Die Gliederung zwischen den beiden Kopfteilen ist dagegen sehr deutlich. Die verticale Kluft is schief nach vorne gerichtet, reicht aber nicht tiefer als die Stelle, wo sich der vorderste Teil des *nodulus* der *pars*

posterior befindet. An den Seiten des Kopfes setzt sich jedoch die Kluft bis an die Antennengrube fort. Da die Kluft so schief nach vorn verläuft, hat sich hier am Hinterrande der *pars anterior* ein breiter Kragen (*collare*) gebildet, welcher über die *pars posterior* greift. Der Kragen bedeckt auch die Vorderseite der proximalen Hälfte der Antennengrube. Die Ähnlichkeit der *pars posterior* mit einem Pronotum ist überraschend. Vor der Antennengrube sieht man den Gelenkhöcker oder das *tuber centrale*. Über diesem und unter der verticalen Kluft verläuft der Oesophagus und zwar zwischen den Antennengruben und auch zwischen den chitinisierten Rändern der Hinterseite der *pars anterior*, und ebenfalls zwischen den chitinisierten Rändern der Vorderseite der *pars posterior*. Sehr weit nach vorn, gerade vor der Vorderspitze des Kopfes, bemerkt man ein dreieckiges Anhängselchen, einen *mucro*.

Am Kopfe von *Ctenophthalmus segnis* (Schönh.) (Taf. XII, Fig. 4) ist die Gliederung der beiden Kopfteile noch deutlich, obwohl die verticale Kluft nicht tief ist; sie reicht nicht weiter als die Stelle, wo sich der *nodulus* befindet. Das *collare* ist auch deutlich und bedeckt, obwohl schmal, noch dem vorderen Teil der Antennengrube. Die Kluft setzt sich bis an die Antennengrube fort. Die Ränder der hinteren Seite der *pars anterior* und der vorderen Seite der *pars posterior* sind gut chitinisiert. Zwischen diesen Rändern verläuft der Oesophagus (nicht mitgezeichnet). Das *tuber centrale* (in dieser Art hinter der Antennengrube) ist sehr deutlich.

Der Kopf der *Palaeopsylla gracilis* (Tasch.) (Taf. XII, Fig. 5) zeigt uns eine noch deutliche Gliederung. Die Beweglichkeit muss aber eine geringe sein, denn die verticale Kluft ist sehr seicht; ja, ich glaube, dass, wenn ich zufällig ein Exemplar untersucht hätte, bei dem das *collare* nicht aufgehoben war, die Feststellung der Gliederung nicht ganz leicht gewesen wäre. Bei genauer Untersuchung zeigt sich jedoch, dass die Chitindecken der beiden Kopfteile *nicht* ineinander übergehen. Die Kluft setzt sich an den Seiten bis an die Antennengruben fort, und geht eigentlich noch viel weiter; oder mit anderen Worten, das *collare* ist an den Seiten sehr breit und bedeckt einen grossen vorderen Teil der Antennengrube. Der Rand der Hinterseite der *pars anterior* ist hier nicht gut zu sehen, der der Vorderseite der *pars posterior* dagegen gut und breit chitinisiert. Weiter nach vorne bemerkt man einen inwendigen Höcker, das *tuber frontale*, das aussen in einer Vertiefung eine kleine dreieckige Spitze, einen *mucro*, trägt.

Die weiter zu beschreibenden Köpfe sind ungegliedert.

Der Kopf des *Ctenocephalus canis* (Curt.) (Taf. XII, Fig. 6) bietet uns ein Beispiel von einem sehr kräftigen *tuber verticale*, das wunderbarerweise aussieht wie das *tuber postverticale* der *Macropsylla hercules* Rothsch.; d. h. es scheint entstanden zu sein aus einer verticalen Falte, welche mit einer leichtgefärbten Chitinmasse ausgefüllt ist. Das Exemplar ist von Herrn Edw. Jacobson in seiner Wohnung in Semarang (Java) erbeutet worden. Ich besitze noch zwei andere Exemplare, und zwar aus Wien und aus Paris, aber keins von beiden zeigt das *tuber* so deutlich als eine Falte. Von diesem *tuber* aus verlaufen zwei inwendige, den Kopfseiten angedrückte Chitinleisten nach unten, und zwar vor und hinter der Antennengrube. Gerade über letzterer sieht man eine kaum bemerkbare Naht, welche als eine Verlängerung der scharfen Hinterkante des durchscheinenden Lappens erscheint, welcher die Vorderhälfte der Antennengrube bedeckt.

Weniger gross und fast kreisrund ist das *tuber verticale* (= der optische Durchschnitt durch den dicksten Teil der *falx verticalis*) bei *Pulex irritans* L.

(Taf. XII, Fig. 7). Hier ist keine Andeutung vorhanden, dass es aus einer ausgefüllten Falte entstanden ist. An den Kopfseiten befinden sich die allmählich dünner werdender Sichelhörner, welche sich vor und hinter den Antennengruben spalten. Über der *falæ* verläuft deutlich eine Naht, welche den Anschein hat, als wäre sie eine etwas nach vorne verschobene Verlängerung der scharfen Hinterkante des durchscheinenden Lappens, welcher die Vorderhälfe der Antennengrube bedeckt.

Beim Kopfe von *Malacopsylla grossicentris* Weyenb. (Taf. XII, Fig. 8) ist das *tuber verticale* kleiner, halbkreisförmig. Die Sichelhörner sind breit, dunkel, und an der Antennengrube gespalten. Uber der *falæ* verläuft eine sehr deutliche Naht, die aussieht als ob sie eine etwas nach hinten verschobene Verlängerung der scharfen Hinterkante des durchscheinenden Lappens wäre, welcher den vorderen Teil der Antennengrube bedeckt.

Als ich den Kopf von *Parapsyllus longicornis* Enderl. abbilden wollte, fand ich, dass dieser Typus von mir eben dem Herrn Dr. Enderlein zurückgesandt war. So behalf ich mich mit einer Skizze des Kopfes einer anderen *Parapsyllus*-Art aus der Sammlung des Herrn N. C. Rothschild (Fig. A, S. 158), *P. australiacus*. Die *falæ verticalis* ist deutlich, aber nicht schwer chitinisiert. Das *tuber verticale* (= der optische Durchschnitt durch den dicksten Teil der *falæ*) ist noch kleiner als bei der vorhergehenden Art. Hier scheint keine die Antennengrube deckende Platte vorhanden zu sein. Weit nach vorn, fast an der vordersten Kopfspitze, befindet sich ein inwendiges *tuber frontale*, welches aussen, in einer Vertiefung, ein sonderbar geformtes Läppchen trägt, einen *mucro*.

Keine Spur von *tuber verticale* zeigt der Kopf von *Dolichopsylla stylosus* Baker (Taf. XIII, Fig. 9). Aber es ist überraschend, dass er einen hellen, wenig chitinisierten, Streifen besitzt, welchen ich als ein Rudiment einer Grube oder Falte oder Naht ansehe. Der Streifen, welcher von jeder Antennengrube nach dem Vertex verläuft, erreicht diesen offenbar nicht; sonst wäre dort wohl eine Unterbrechung der chitinösen Kopfdecke zu sehen. Die schuppige Chitinzeichnung ist vor diesem Streifen nach hinten und oben gerichtet, hinter demselben dagegen nach vorn und oben, wie in der Figur angegeben ist. Ein Teil der vorderen Hälfte der Antennengrube ist von einem durchsichtigen, schmalen Lappen bedeckt. Weit nach vorn, fast an der vordersten Spitze des Kopfes, bildet die Chitindecke einen Winkel, der nach unten (nach vorn) gerichtet ist. Bei anderen Floharten ist dieser Winkel höher am Kopfe angebracht, und weist dann nach oben (nach hinten). Es ist ein Mittelding zwischen einem *mucro* und einem *protectum* (siehe *Tijdschrift*, loc. cit.), denn es ist kein Dreieckchen, wie Fig. 3 zeigt, auch kein Schutzdächlein, das unter sich einen Raum besitzt, wie in der folgenden Figur angegeben.

Keine Spur, weder einer *falæ*, noch eines *tuber verticale*, noch einer Naht ist am Kopfe des *Ceratophyllus hirundinis* Curt. zu finden. (Da das mir vorliegende Exemplar von *Ceratophyllus hirundinis* Curt. beschädigt war, behelfe ich mich hier mit einer Abbildung einer äusserst naheverwandten Art, *columbae*, Taf. XIII, Fig. 10). Selbst die schuppige Chitinzeichnung verläuft schräg über den Antennengruben nach hinten. Man bemerkt aber weit nach vorn ein wahres *protectum*, das wie ein Schutzdächlein einen kleinen Raum birgt; es erinnert uns an ein *collare*; es ist aber nach unten (nach vorn) gerichtet. Es gibt indes Floharten, bei denen das *protectum* höher am Kopfe steht, in welchem Falle es nach oben (nach hinten) gekehrt ist (*protectum inversum*), so dass es einem wahren *collare*

ähnelt. In beiden Fällen läuft der Rand des Schutzdächleins ein wenig links und rechts über den Kopf hin, wie in der Figur angegeben ist.

Demnach haben einen gegliederten Kopf (*caput fractum*):

Chiropteropsylla aegyptius (Rothsch.), *Ctenophthalmus segnis* (Schöuh.), *Hystrichopsylla talpae* (Curt.), *Ischnopsyllus elongatus* (Curt.), *Macropsylla hercules* Rothsch., *Nycteridopsylla pentactenus* (Kolen.), *Palaeopsylla gracilis* (Tasch.), *Stephanocircus dasyuri* Skuse, *Thaumapsylla breviceps* Rothsch., *Typhloceras poppei* Wagn.

Von diesen besitzen ein *tuber posterticale* die zwei folgenden:

Macropsylla hercules Rothsch. und *Stephanocircus dasyuri* Skuse.

Von den Gattungstypen mit *caput integrum* nennen wir die folgenden, welche ein *tuber verticale* besitzen, das aus einer Falte, welche wieder ausgefüllt ist, entstanden zu sein scheint. Zugleich haben sie eine schwere *falx*:

Ctenocephalus canis (Curt.) und *Moeopsylla sjoestedti* Rothsch.

Eine schwere *falx* mit einem massiven *tuber verticale* haben die folgenden:

Archaeopsylla erinacei (Bouché), *Hoplopsyllus anomalus* Baker, *Malacopsylla grossiventris* Weyenb., *Neopsylla bidentatiformis* (Wagn.), *Parapsyllus longicornis* Enderl., *Pulex irritans* L., *Rhopalopsyllus lutzi* Baker, *Spilopsyllus leporis* (Curt.).

Die folgenden Arten besitzen ein schwaches *tuber verticale* und eine schwache *falx* oder eine Spur davon, und zwar in allen denkbaren Graden von Deutlichkeit:

Anomiopsyllus nudatus Baker (?), *Echidnophaga ambulans* Olliff, *Goniopsyllus kerguelensis* (Tasch.), *Lycopsylla novus* Rothsch., *Odontopsyllus multispinosus* Baker, *Ornithopsylla laetitiae* Rothsch., *Pariodontis riggenbachi* Rothsch., *Pygiopsylla hilli* (Rothsch.), *Spalacopsylla bisoctodentatus* (Kolen.).

Eine deutliche Naht verläuft über die *falx* bei:

Goniopsyllus kerguelensis (Tasch.) und *Neopsylla bidentatiformis* (Wagn.).

Eine zum Teil deutliche Naht ist vorhanden bei:

Anomiopsyllus nudatus Baker, *Ctenocephalus canis* (Curt.), *Hoplopsyllus anomalus* Baker, *Malacopsylla grossiventris* Weyenb., *Pulex irritans* L., *Rhopalopsyllus lutzi* Baker, *Spalacopsylla bisoctodentatus* (Kolen.).

Nur eine Naht finden wir bei:

Dolichopsylla stylosus Baker.

Keine Spuren von *tuber verticale*, *falx*, und Naht sind zu bemerken bei:

Ceratophyllus hirundinis Curt., *Cerat. fasciatus* (Bosc), *Cerat. sciurorum* (Schrank), *Cerat. penicilliger* (Grube), *Chaetopsylla globiceps* (Tasch.), *Coptopsylla lamellifer* (Wagn.), *Dasypsyllus perpinnatus* Baker, *Dermatophilus penetrans* (L.), *Hectopsylla psittaci* Frauenf., *Listropsylla dolosus* Rothsch., *Loemopsylla chacopis* Rothsch., *Hectopsylla pulex* (Haller), *Uropsylla tasmanicus* Rothsch., *Vermipsylla alacurt* Schimk.

Wir treffen ein *tuber frontale*, mit oder ohne *mucro* oder *listron* (schaufelförmiges Läppchen) an bei:

Chaetopsylla globiceps (Tasch.), *Listropsylla dolosus* Rothsch., *Neopsylla bidentatiformis* (Wagn.), *Parapsyllus longicornis* Enderl., *Rhopalopsyllus lutzi* Baker.

Bei den folgenden Arten findet sich ein *protectum* oder ein *protectum* ähnliches Gebilde:

Ceratophyllus hirundinis Curt., *Cerat. fasciatus* (Bosc), *Cerat. sciurorum* (Schrank), *Cerat. penicilliger* (Grube), *Dasypsyllus perpinnatus* Baker, *Dolichopsylla stylosus* Baker, *Lycopsylla novus* Rothsch., *Odontopsyllus multispinosus* Baker.

Nur ein Genus zeigt ein *protectum inversum*, nämlich *Mocopsylla sjoestedti* Rothsch.

Ebenfalls ist nur ein Genus mit einem frontalen hufeisenförmigen Eindrucke versehen, und zwar:

Dermatophilus penetrans (L.).

III. Ontogenetischer Teil.

Wie die Nebelflecke, die Nebelsterne, die weissen, gelben, roten, einige veränderlichen und die verschwundenen oder dunkelen Sterne uns die Werdungsgeschichte der Himmelskörper erzählen, so belehren uns die oben abgebildeten und beschriebenen Flohköpfe über die Ontogenie dieses Körperabschnittes.

Betrachten wir die Figur 1, so können wir uns des Gedankens nicht erwehren, dass dieser Kopf bei der Larve dreiteilig, d.h. mit zwei Einkerbungen versehen war. Die hintere derselben muss während des Puppenstadiums stark chitinöse Ränder bekommen und sich darauf mit Chitinmasse ausgefüllt haben, während die vordere als Gelenk bestehen blieb.

Was die zweite Figur anbetrifft, so lehrt sie uns, dass die Larve ebenfalls einen dreiteiligen Kopf hatte, mit zwei tiefen Einkerbungen, wovon die vordere stark chitinöse Ränder bekam und als Gelenk blieb, während die hintere ebenso stark chitinöse Ränder erhielt, sich aber bald mit Chitinmasse so ausfüllte, das von einer Einkerbung keine Spur übrigblieb, sondern eine gewaltige inwendige Sichel gebildet wurde. Ein feiner auswendiger Schlitz verrät aber deren Ursprung.

Fig. 3. zeigt uns den typischen *Ischnopsyllus*-Kopf. Hier können wir uns vorstellen, dass die Larve ebenfalls vor den Antennen eine Gliederung aufweist. Aber wir sehen am vordersten Kopfvorsprunge ein dreieckiges Gebilde, einen *mucro*. Es sieht aus, als ob es aufgeklebt ist, und in der Tat, bei einigen Exemplaren kann es abbrechen oder abfallen. Die Stelle, wo dieser angeheftet war, ist dann in den meisten Fällen angedeutet, sei es dass sich dort eine sehr oberflächliche Einbuchtung befindet, oder eine kleine, gerade Strecke in der gebogenen Frontallinie zu sehen ist, oder aber ein Wölkchen von coaguliertem Eiweiss die Stelle verrät (siehe *Tijdschrift voor Ent.* vol. li. p. 94). Was ist die Bedeutung dieses *mucro*? Das wissen wir nicht; vermutlich ist er ein Sinnesorgan. Woraus entsteht er; was war er bei der Larve? Auch das ist ein Rätsel, denn die *Ischnopsylliden*-Larven sind noch nicht bekannt. Vielleicht lehren uns die folgenden Köpfe etwas Näheres.

An Figur 4 sehen wir nur eine einzige Gliederung und schliessen daraus, dass die Larve dieselbe Gliederung aufweisen muss.

Figur 5 zeigt uns, ausgenommen die Gliederung, welche sicher auch bei der Larve anwesend war, einen schönen kastanienförmigen *mucro*, welcher in einer seichten Vertiefung steht (die ich bisweilen auch bei *Ischnopsyllidæ* fand—siehe oben). Da die Kopfdecke an dieser Stelle nicht dünner ist, als vor und hinter dem *mucro*, so springt sie inwendig etwas hervor, als wollte sie ein kleines *tuber frontale* bilden. Der Zusammenhang des *mucro* mit dem *tuber frontale* ist deutlich. Da die Larve uns unbekannt ist, so können wir nichts Näheres über den Ursprung dieses Gebildes mitteilen.

Der Kopf des Hundeflohs, Figur 6, ist sehr interessant, da er uns ein *tuber verticale* zeigt, welches dem *tuber postverticale* des *Macropsylla hercules* Rothsch. (Figur 1) so ausserordentlich gleicht, dass wir unwillkürlich den Schluss ziehen, die beiden *tubera* seien gleichen Ursprungs. Da nun das *tuber verticale* des

Hundeflohs gerade an der Stelle angetroffen wird, wo die vorhergenannten Arten eine Kopfgliederung aufweisen, so schliessen wir, dass es früher, bei der Larve, eine Gliederung war, die aus gewissen Gründen verloren ging. Die Ränder, der Vorder- und Hinterfläche der Falte wurden stark chitinisiert, die Falte selbst füllte sich mit einer Chitinmasse aus, aber ein Teil der scharfen Kragenkante blieb als Naht über der Antennengrube sichtbar. Ist diese Betrachtung richtig, dann muss das *tuber postverticale* von *Macropsylla hercules* Rothsch. ebenfalls eine rudimentäre Gliederung sein.

Pulex irritans L. (Figur 7) besitzt einen Kopf, bei dem das *tuber verticale* keine Spur von Falte aufweist. Doch glaube ich, dass es, wie beim Hundefloh, ursprünglich, also bei der Larve, eine Falte war, welche ihrerseits eine rudimentäre Gliederung sein muss. Bei genauer Untersuchung unterscheidet man noch eine Naht über der Antennengrube, als Rudiment einer Kragenkante.

Der Fig. 8 abgebildete Kopf hat ein starkes, obwohl relativ niedriges *tuber verticale* und eine breite *falx*, worüber eine deutliche Naht von der einen Antennengrube zur anderen verläuft. Die Larve hatte hier gewiss eine Gliederung, welche aber nicht sehr beweglich war, also eine solche wie sie die ausgebildeten Flöhe Fig. 4 and 5 zeigen. Die Falte füllte sich ganz aus.

Sehr lehrreich ist der in Fig. A (S. 158) wiedergegebene Kopf. Erstens haben wir hier ein grosses *tuber frontale*, mit einer tiefen Einsenkung, worin ein länglich-viereckiges Läppchen steht. Erinnert das Gebilde nicht an Figur. 5? Ist es nicht ein Übergang zwischen dem kleinen *tuber frontale* der *Palaeopsylla gracilis* (Tasch.), Fig. 5, und dem grossen *Chaetopsylla globiceps* Tasch.? Zweitens ist das *tuber verticale* der vorliegenden Art sehr klein; aber dadurch gleicht es ungemein dem *tuber frontale* von anderen *Suctoria*, speziell von *Chaetopsylla globiceps*, da diese nur eine seichte Vertiefung, keinen *mucro* oder *listron* (wie *Listropsylla*), oder andersgeförmtes Läppchen trägt. Darum glaube ich, dass ein *tuber frontale*, mit oder ohne *mucro*, *listron*, oder andersgeförmtem Läppchen, ein Rudiment einer Falte und diese wieder eine rudimentäre Gliederung darstellt.

So muss ich wohl annehmen, dass bei der Larve zwei Kopffalten nachzuweisen sind, eine vor den Antennen, die andere nicht weit über den Mundteilen gelegen. Vielleicht ist die erste Falte selbst sehr tief, so dass sie beinahe eine Gliederung darstellt; denn woher soll sonst die breite braune *falx* herrühren?

Ebenfalls lehrreich ist Figur 9, welche den Kopf von *Dolichopsylla stylosus* Baker darstellt. Dieser besitzt über der Antennengrube einen hellen schmalen Streifen, welcher offenbar eine weniger chitinisierte Stelle ist, wie oben beschrieben. Dieser Streifen muss wohl eine seichte Falte bei der Larve sein. Eine zweite Eigentümlichkeit ist ganz vorn am Kopfe wahrzunehmen. Dort ist die Kopfdecke wie geknickt und wir dürfen vermuten, dass bei der Larve der Teil, welcher sich unter diesem Knicke befindet, in den darüber gelegenen Teil eingeschoben war oder werden konnte, mit anderen Worten, dass bei der Larve sich hier eine Gliederung befindet. Also gerade dort, wo bei den Larven eine Gliederung vorhanden ist, bildet sich ein *tuber frontale*, oder ein *mucro* etc.? Ja, und ich glaube auch, dass dieser Knick und der *mucro* und das *tuber frontale* gleichen Ursprungs sind.

Figur 10 stellt den Kopf des *Ceratophyllus columbae* Steph. vor. Ich hätte ebensogut den Kopf einer anderen *Ceratophyllus*-Art abbilden können, denn die Köpfe sind einander aussergewöhnlich ähnlich. Die einzige Merkwürdigkeit an diesem Kopfe ist das Schutzdächlein (*protectum*). Sieht es nicht aus wie der Knick am vorigen Kopfe? Gewiss, aber es birgt einen kleinen Raum unter sich;

es hat eine scharfe Kante, welche sich noch ein wenig zu beiden Seiten des Kopfes erstreckt. Dieses *protectum* ist ganz gewiss eine rudimentäre Falte der Larve, oder eine rudimentäre Gliederung, was dasselbe ist. Es ähnelt auch, obschon umgekehrt, einem *collare* (Kragen, Hinterrand jedes Leibessegments der Flöhe).

Nun besitse ich eine Larve von *Ceratophyllus fringillae* (Walk.). Wer beschreibt meine Erregung als diese meine Vermutungen bestätigte! Wie deutlich die tiefe Falte, oder Gliederung, sich über den Mundteilen hinzieht! Und gerade dort, wo bei der Imago das *protectum* hervorspringt! Noch mehr! Gerade vor den Antennen erstreckt sich ebenfalls eine Falte (hier nur eine halbe Gliederung), also gerade dort, wo bei der Imago von *Dolichopsylla* der weisse Streifen verläuft, bei anderen Flöhen die Naht, die *falx* oder die Gliederung sich befindet!!

Absolut sicher steht die Tatsache, dass die supra-antennale Gliederung, *falx*, Naht, Streifen, etc., gemeinsamen Ursprungs, homolog sind.

Ist dasselbe mit dem *tuber postverticale* der beiden erstgenannten Flohgattungen der Fall? Diese Frage ist entschieden zu bejahen, denn bei beiden Arten befindet sich das *tuber* in der Mitte der *pars posterior*, zwischen den zwei "augenähnlichen Organen."

Und wie steht es mit dem *tuber frontale*, dem *mucro*, etc.? Ich glaube, dass wir mit Vertrauen annehmen können, dass alle diese Gebilde gemeinsamen Ursprungs, also homolog sind. In den meisten Fällen befinden sie sich zwischen dem ersten und zweiten "augenförmigen Organe" (von der Stirnkante ab gerechnet). Es giebt zwei Ausnahmen: der *mucro* der *Ischnopsyllidae* ist gerade vor oder selbst unter dem ersten "augenförmigen Organe" gelegen; aber wenn man bedenkt, dass die Stellung dieser Organe kleinen Schwankungen ausgesetzt ist, dann nimmt man es nicht so genau damit. *Mocopsylla sjoestedti* Rothsch. besitzt ein sehr hoch, gerade vor dem Vertex, gelegenes *protectum inversum*. Ich erinnere mich nicht, wie dieses sich gegenüber den "augenförmigen Organen" verhält; denn ich machte darüber keine Notizen; ich glaube aber, dass es ohne Bedenken als homolog mit den anderen genannten Frontalorganen angesehen werden kann.

IV. Phylogenetisch-Biologischer Teil.

Bevor ich nun zu dem übergehe, was mich das Studium der Flohköpfe gelehrt hat, muss ich noch einige Grundsätze erwähnen.

Sowohl das Studium der *Acari*, als das der *Suctoria* hat mir in erster Linie gezeigt, dass die Weibchen die primitive Organisation fast immer weit besser bewahrt haben als die mehr spezialisirten Männchen. Darum sind z. B. die ♀♀ der Gattungen *Ceratophyllus* und *Ischnopsyllus* so schwer voneinander zu unterscheiden. Aus diesem Grunde basiren sich meine Betrachtungen und Klassifikation nur auf die Weibchen.

Was die Artkennzeichen betrifft, so ist es bekannt, dass bei schwer zu unterscheidenen Arten nur die hintersten Teile (Gonapophysen, etc.) benutzt werden können. Es ist darum logisch, dass man für die Unterscheidung von höheren Gruppen: Genera, Familia, Superfamilia, wenn möglich Unterschiede in mehr nach vorn gelegenen Teilen ins Auge fasst.

Wenn wir nun zu dem eigentlichen Gegenstande unseres Studiums übergehen, so müssen wir zunächst fragen, welche Eigenschaften die Flöhe allmählich bekommen oder verloren haben in Verbindung mit ihrer Lebensweise oder besser als Folge derselben.

A. Die Länge.—Wahrscheinlich waren die Vorfahren der jetztlebenden Flöhe Parasiten der ersten, kleinen, nervösen und daher sehr beweglichen Säugetiere, nämlich der *Allotheria*, *Monotremata*, *Marsupialia*, *Insectivora* und *Chiroptera* mit sehr dichter Behaarung. Die Tierchen müssen wohl eine lange, schmale Form gehabt haben und äusserst gewandt gewesen sein, um durch das Dickicht von Haaren eilen und dem Gekratze der Wirte entfliehen zu können. Ich sehe darum in langgestreckten Flöhen primitive Formen.

Wahrscheinlich durch fortgesetzten Parasitismus auf grösseren, ruhigeren Säugetieren, wurden die Flöhe selbst, da sie weniger beunruhigt wurden, auch allmählich weniger beweglich, weniger schlank.

Auch ist es denkbar, dass einige Floharten der schon kürzeren Formen sich gewöhnten, sich an gewissen blutreichen Stellen der Wirte festzusaugen und dann dort zu verharren. Wird solch ein einziger Stich ausgeübt, während der Wirt schläft oder flüchtet oder frisst, dann ist der Parasit fast ganz sicher nicht gestört zu werden, kann sitzen bleiben und wird im Laufe des Zeiten stets kürzer und fettreicher.

Lange Flöhe sind z. B.: *Ischnopsyllus*, *Ctenophthalmus*, *Hystrichopsylla*; kurze: *Pulex*, *Archaeopsylla*, *Ctenocephalus*; sehr kurze: *Dermatophilus*, *Echidnophaga*, *Hectopsylla*.

B. Die Beweglichkeit und die Sprungfähigkeit.—Wir können uns vorstellen, dass die ersten Flöhe gewöhnliche Gangbeine hatten und gar keine Sprungfähigkeit besassen. Es ist leicht zu begreifen, dass sie diese Fähigkeit allmählich erwarben, um dem Gekratz zu entgehen, oder besser, um nach dem Absterben des Wirtes so bald wie möglich einen anderen Wirt erreichen zu können. Ursprüngliche Flöhe müssen daher sprungunfähige Beine haben, oder nur sehr kleine Sprünge machen können. *Chiropteropsylla*, *Ischnopsyllus*, *Nycteridopsylla* und *Thaumapsylla* können hier genannt werden. Wir können auch annehmen, dass die Flöhe der Fledermäuse sekundär schlechte Springer geworden sind, weil ihre wirte Lufttiere und ziemlich hilflos sind. Viel bessere, ja gewaltige Sprünge machen gerade die mittellangen Flöhe wie *Archaeopsylla*, *Ctenocephalus* und *Pulex*. Und selbstverständlich machen die Fellhocker, wie man die sonderbar spezialisierten *Dermatophilus*, *Echidnophaga* und *Hectopsylla* nennen kann, gar keine Sprünge mehr, vielleicht abgesehen von den Weibchen, ehe sie sich festgesetzt haben, und den Männchen.

C. Die Behaarung und Beborstung.—Mir kommt es vor, als ob die ursprünglichen Flöhe dicht behaart oder besser beborstet waren, oder wurden. Denn waren die Vorfahren schon beborstet, dann war eine neue Beborstung nicht nötig. Waren sie aber stark behaart, so musste sich wohl die Behaarung allmählich in eine Beborstung umwandeln, d.h. jedes Haar wurde steifer. Steife Haare oder Borsten sind gewiss solchen zwischen Haaren lebenden und fortwährend beunruhigten Tieren vorteilhaft; sie setzen den Besitzer instand besser fortzugleiten. *Hystrichopsylla*, *Macropsylla*, *Dolichopsylla*, *Goniopsyllus*, *Listropsylla*, *Neopsylla*, *Odontopsyllus* (?), *Parapsyllus*, sind alle dicht oder ziemlich dicht beborstet.

Die Beborstung geht allmählich verloren, wenn die Tiere weniger beweglich werden, d. h. weniger zwischen den Haaren der Wirte forteilen. Die Mehrzahl der Flöhe ist denn auch wenig beborstet, d. h. jedes Tergit oder Sternit trägt etwa zwei oder nur eine Querreihe von Borsten.

Und endlich sind die Fellhocker: *Dermatophilus*, *Echidnophaga* und *Hectopsylla*, fast unbeborstet, kahl.

D. Die Bedornung der Beine.—Je beweglicher die Flöhe auf Ihren Wirten

sind, je schwerer sind die Beine bedornt und desto mehr ist die Sohlfläche des 5. Tarsalgliedes feinbehaart. Mit Dornen bezeichne ich dornförmige Haare, also bewegliche Gebilde.

a. Die Procoxae.—*Thaumapsylla*, *Ctenophthalmus*, *Hystrichopsylla* sind Beispiele von Flöhen mit polystichen (vielreihig behaarten) Procoxae. Merkwürdigerweise auch *Dermatophilus*. Mesostich sind die Procoxae z. B. von *Archaeopsylla*, *Parapsyllus* und *Spilopsyllus*. Wenig beborstet (oligostich) ist z. B. die Procoxa bei *Chaetopsylla*, *Malacopsylla* und *Vermipsylla*. Fast kahl ist die Procoxa von *Echidnophaga* und *Lycopsylla*.

b. Die Tibiae.—Eine geschlossene Reihe von Borsten findet man an den Pro-, Meso- und Metatibiae der *Chiropteropsylla* und *Ctenophthalmus*, an den Pro- und Mesotibiae von *Thaumapsylla*, an der distalen Hälfte der Protibia der *Hystrichopsylla* und an der distalen Hälfte der Metatibiae der *Thaumapsylla*. Dies sind alle ziemlich primitive Flöhe. Einen Übergang zu den "gewöhnlichen Flöhen" bildet *Stephanocircus*. Dieser Floh hat eine Protibia mit 6 Einschnitten, welche 2, resp. 2, 3, 3, 3 und 7 Borsten tragen, eine Meso- und eine Metatibia mit 7 Einschnitten, welche 2, resp. 2, 3, 3, 3, 3 und 7 Borsten tragen, sodass es scheint, als ob die Tibien mit einer geschlossenen Reihe von Borsten versehen wären. Auch *Macropsylla* ist hierin primitiv. Die Protibia hat 9 Einschnitte und Reihen von 3 und 4 Borsten, die Mesotibia 13 Einschnitte und Borstenpaare, und die Metatibia 14 Einschnitte, in denen abwechselnd zwei und drei Borsten stehen. In der Regel jedoch haben die Tibien nur 6 bis 10 Einschnitte, welche mit Borstenpaaren versehen sind. Wenig Einschnitte und wenig Borsten kennzeichnen spezialisierte Flöhe. So besitzen die folgenden Flöhe die daneben angegebene Zahl Einschnitte an drei Tibien :—

Ornithopsylla laetitiae Rothsch. . . .	6	6	5
Archaeopsylla erinacei (Bouché) . . .	5	6	6
Loemopsylla cheopis (Rothsch.) . . .	4	5	6
Hectopsylla psittaci Frauenf. . . .	5	5	5
Malacopsylla grossiventris Weyenb. . .	5	5	5
Pariodontis riggenbachi Rothsch. . . .	3	6	6
Dermatophilus penetrans (L.) . .	3—4	3—4	3—4
Mocopsylla sjoestedti Rothsch. . . .	3	3	4
Echidnophaga ambulans Olliff . . .	3	3	3

c. Das fünfte Tarsenglied.—Dieses ist ebenfalls ein lehrreiches Objekt. Es kann an seiner Plantarfläche laterale, subbasale, subapicale und plantare Borsten oder Haare tragen. Je mehr von jeder Sorte, je primitiver die Art. Wenn die plantaren in grosser Zahl vorhanden sind, so sind es immer sehr feine Härchen, womit die ganze Sohle oder nur die distale Hälfte derselben besetzt ist. Sie dienen gewiss dazu, das Ausgleiten zu verhindern. Ganz unbehaart ist die Sohle (abgesehen von den 1 oder 2 subapicalen Borsten) bei den folgenden Arten, welche entweder wenig oder gar nicht beweglich sind :

Dermatophilus penetrans (L.), *Echidnophaga ambulans* Olliff, *Hectopsylla psittaci* Frauenf., *Lycopsylla norus* Rothsch., *Malacopsylla grossiventris* Weyenb., *Ornithopsylla laetitiae* Rothsch.

E. Der Besitz von Ctenidia.—Mit Ctenidia bezeichne ich nur die unbeweglichen, meist dunkel gefärbten Zinken, welche die Ränder von Kopf, Thoracal- oder Abdominalsegmenten zieren. Also sind die platten, schwarzen Borsten

am Vorderkopfe des *Ctenophthalmus segnis* (Schönh.) und am 7. Tergite der *Nycteridopsylla pentactenus* (Kolen.) Pseudoctenidien.

Die Ur-Suctoria können keine Ctenidien gehabt haben. Diese müssen allmählich an den nach hinten gerichteten Kopf-, Thorax- und Abdominalrändern entstanden sein, und zwar sehr wahrscheinlich aus denselben Gründen, warum die ursprüngliche Behaarung sich in eine Beborstung umwandelte, nämlich um dem Insekt zu gestatten, schneller zwischen den Haaren der Wirte fortzueilen.

Wenn diese Meinung richtig ist, dann müssen wir bei den ersten Flöhen eine Steigerung der Ctenidienzahl, oder der Zinkenzahl in homologen Ctenidien aufweisen können. Wir können auch begreifen, dass mit der Abnahme der Beweglichkeit der Parasiten, die Zahl der Ctenidien, oder der Zinken in homologen Ctenidien, sich wieder verminderte. Ist diese Meinung richtig, dann ist schwer zu entscheiden, ob eine geringe Zahl von Ctenidien, oder von Zinken in homologen Ctenidien, ein primitives oder ein secundäres Merkmal ist. In solchen Fällen müssen andere Kennzeichen mithelfen, z. B. die Länge, die Beborstung, etc.

Die folgenden Flöhe tragen keine Ctenidien :—

* *Chaetopsylla globiceps* (Tasch.), *Coptopsylla lamellifer* Wagn., ! *Dermatophilus penetrans* (L.), ! *Echidnophaga ambulans* Olliff, *Goniopsyllus kerguelensis* (Tasch.), ! *Hectopsylla psittaci* Frauenf., *Loemopsylla cheopis* Rothsch., *Lycopsylla novus* Rothsch., **Malacopsylla grossiventris* Weyenb., *Mocopsylla sjoestedti* Rothsch., *Ornithopsylla laetitiae* Rothsch., *Parapsyllus longicornis* Enderl., *Pariodontis riggenbachi* Rothsch., *Pulex irritans* L., *Rhopalopsyllus lutzi* Baker, **Vermipsylla alacurt* Schimk.

Zum Teil sind es spezialisirte, zum Teil sehr spezialisirte Flöhe. Keine Art kann primitiv genannt werden. Die mit einem * bezeichneten sind im Begriff Eiersäcke zu werden ; die mit einem ! gekennzeichneten sind es schon.

F. Die comprimierte Leibesform.—Diese Leibesform ist entschieden die best geeignete zum schnellen Forteilen zwischen den Haaren des Wirtes. Ur-Suctoria waren wahrscheinlich cylindrisch oder etwas abgeflacht (wie die meisten freilebenden Insekten). Die Mehrzahl der jetztlebenden Suctoria besitzt eine comprimierte Leibesform. Mehr spezialisierte Flöhe, wie z. B. *Pulex irritans* L., sind, wenn pregnant, schon "etwas dick" zu nennen. Noch mehr ist dies der Fall bei *Chaetopsylla globiceps* (Tasch.), und besonders bei dem wenig beweglichen Weibchen von *Vermipsylla alacurt* Schimk. und *Malacopsylla grossiventris* Weyenb. Missgestaltet können die Weibchen der Fellhocker *Dermatophilus penetrans* (L.), *Echidnophaga ambulans* Olliff und *Hectopsylla psittaci* Frauenf. genannt werden. Die Monstrosität erreicht den Gipfel in der Kugelgestalt von *Dermatophilus caecata* Enderl.

G. Die Chitinisierung.—Solche zwischen Haaren lebende und forteilende, fortwährend beunruhigte, und dem Kratzen von Seiten des Wirts ausgesetzte Quälgeister müssen natürlich stark chitinisiert sein. Weiche Hautpartien sind bei Flöhen gefährlich. Aber sobald Flöhe sich gewöhnten, an gewissen blutreichen Stellen stille zu verharren, oder auf Tieren zu leben, die nicht kratzen können, wie die *Ungulata*, war die Möglichkeit vorhanden, dass die Chitinplatten des Abdomens weicher, und die Haut zwischen diesen Platten dehnbarer wurde. Solche Flöhe sind z. B. *Chaetopsylla globiceps* (Tasch.), *Vermipsylla alacurt* (Schimk.) und *Malacopsylla grossiventris* Weyenb. Die Chitinisierung ist verhältnismässig am meisten reduziert, die Dehnbarkeit daher am grössten, bei den Fellhockern und erreicht ihren Höhepunkt in *Dermatophilus caecata* Enderlein, bei welchem das

ganz weiche und dehnbare Abdomen sich ringsum über Thorax, Beine und Kopf nach vorn umbiegt, sodass diese Teile ganz eingeschlossen werden.

H. Die Vergrösserung der frontalen Region.—Wir können uns leicht vorstellen, dass die vor den Antennen gelegene Partie, das Vorderhaupt oder die *frons*, sich als bohrendes, das Dickicht von Haaren durchdringendes Organ stark entwickelte. Ich sehe denn auch in solch einer stark nach vorn gerichteten *frons* einen primitiven Zustand. Siehe z. B. Figuren, 2, 3 und 4. Das will jedoch nicht sagen, dass ich die *Ischnopsyllidae* für die primitivsten der jetztlebenden Flöhe halte. Denn andere Flöhe können in vielen anderen Punkten noch viel primitiver sein. Je mehr sich die Schnelligkeit der Fortbewegung zwischen den Haaren der Wirte verminderte, desto mehr nahm die *frons* wieder in der Entwickelung ab. Hiervon sind die Figuren 1, 5 und 6 gute Beispiele. Dieser Zurückgang ist am meisten bei den Fellhockern zu bemerken. Von diesen kann man wohl sagen, dass sie keine so typisch vorausstrebende *frons* haben, wie die anderen Flöhe.

I. Die Richtung der Antennen.—Antennen können als Gefühls-Gliedmassen nur nach vorn gerichtet gedacht werden. So bald aber die Vorfahren der Flöhe nicht mehr frei lebten, sondern für immer auf Säugetieren schmarotzten, konnten sie ihre Antennen nicht mehr nach vorn gerichtet halten, ohne sie zu verletzen. Die Folge war, dass sie sich angewöhnten, diese Gliedmassen stets nach hinten und unten zu halten, wobei zugleich die Bedeutung der Antennen als Gefühlsorgane verloren ging. Alle jetzt lebenden Flöhe halten ihre Antennen nach hinten und unten.

J. Die Stelle der Antennen.—So bald die Antennen ihre Bedeutung als Gefühlsorgane einbüssten, war ihre Stellung am vordersten Teile des Kopfes auch keine unbedingt notwendige mehr. Sowohl aus diesem Grunde als auch durch die enorme Entwickelung der *frons*, wurden sie sozusagen nach hinten verschoben, weit hinter die Mundteile, nicht immer hinter die Ocellen (siehe u. a. Figuren 2, 3, 4 und 10). Diese einmal eingenommene Stelle hat sich bei den jetztlebenden Flöhen erhalten.

K. Die Bildung der Antennengrube.—Wenn Blutgefässe fest gegen Knochen lagern, bilden sich in diesen bisweilen tiefe Gruben. So kann man sich auch vorstellen, dass die Haltung der Antennen nach hinten und unten und zugleich fest gegen die Seiten des Kopfes und der Propleuren die einzige Ursache der Entstehung von Antennengruben war. Diese scheinen sich also zur Zeit gebildet zu haben, als die *Suctoria* noch keine besonders harte Chitindecke hatten.

L. Die Verkürzung der Antennen.—Sobald die Antennen ihre Bedeutung als Gefühlsorgane veloren hatten, war ihre ursprüngliche Länge nicht mehr unbedingt nötig und begannen sie sich zu verkürzen. Ob die Antennen schon ziemlich kurz waren, als die Vorfahren der *Suctoria* zum Parasitismus auf Säugetieren übergingen, ist unmöglich nachzuweisen. Jedenfalls sind die längsten Antennen der jetztlebenden Flöhe kurz zu nennen. In der Ruhe reichen sie nicht weiter als ungefähr bis zur Mitte der Propleuren, auf die sie sich, wie man es ausdrückt, "fortsetzen." In Wahrheit betrachte ich gerade diese Fortsetzung als ein primitives Verhalten, und das Kürzerwerden der Antennen, zugleich mit dem Verschwinden dieser Fortsetzung der Grube als ein secundäres Merkmal. Merkwürdigerweise haben die Mehrzahl der Männchen in den langen Antennen primitivere Kennzeichen als die Weibchen (Fig. 12). Es sind wohl keine Gefühlsorgane, sondern ausgezeichnete Riechorgane, auf denen hunderte von zierlichen, spatelförmigen Riechhärchen stehen. Die Männchen sind im Stande ihre Antennen aufzuheben, sodass diese als Öhrchen

aufrecht stehen. In dieser Haltung sind die Antennen in fortwährender zitternder Bewegung.

Im Vergleich zu den Männchen besitzen die Weibchen die kürzeren Antennen. Da die Antennen wohl bei allen *Suctoria* dieselbe physiologische und biologische Bedeutung und ausserdem alle *Suctoria* wohl so ziemlich dieselbe Lebensweise haben, so sollte man meinen, dass die Antennen bei allen *Suctoria* dieselbe unveränderliche Gestalt aufwiesen, wie sie bei keiner anderen Tiergruppe wiederzufinden ist. Im grossen und ganzen ist dieses auch der Fall. Die Flohantenne ist sehr characteristisch. Sie besteht: (1) aus einem umgekehrt kegelförmigen, an der Basis etwas ausgehöhlten *scapus*; (2) aus einem in dieser Aushöhlung liegenden napf- oder becherförmigen *pedicellus*, und (3) aus einem im Boden desselben angehefteten zehngliederigen keulenförmigen *funiculus*. Das erste Glied des *funiculus* ist in seiner proximalen Hälfte immer sehr dünn. Ich werde es in der Folge das Stielchen oder den *petiolus* nennen, während ich die neun übrigen Glieder des *funiculus* zusammen als Keule, *clava* bezeichnen will. In der schon mehrmals genannten Tijdschrift beschrieb ich die Antennen als elfgliederig. Bei einem sehr günstig conservirten Objekte, dass ich Herrn Alfons Dampf in Königsberg i. Pr. verdanke, konnte ich feststellen, dass der *petiolus* ein Glied ist, das bis jetzt übersehen wurde (Fig. 12).

Warum ist der *petiolus* als Glied übersehen worden? Erstens weil bei Antennen in der Ruhe die Lage des Stielchens für eine exacte Beobachtung ungünstig ist, und zweitens weil bei den meisten Antennen der *petiolus* im zweiten Gliede des *funiculus* eingesenkt ist, also selbst in günstiger Lage schwer zu sehen ist.

Wenn nun von dieser Einförmigkeit der Antennen eine "Ausnahme" stattfindet, so müssen wir wohl annehmen, dass diese Abweichung ein gutes Merkmal für natürliche Gruppen ist. In der Tat, die *clava* weisst zwei typische Formen bei den Weibchen der Flöhe auf.

Die erste Form ist eine etwas länglich ovale oder elliptische (Fig. 13, 14, 19). Ich betrachte sie als die primitivere, denn erstens ist sie länger als die zweite Form, zweitens haben die Männchen dieser Weibchen noch längere *clavae*, und drittens sind die neun Glieder der *clava* ziemlich gleichgestaltet, nicht besonders spezialisiert.

Die zweite Form ist eine mehr runde (Fig. 15–18): sie ist zweifellos die mehr spezialisierte, weil sie noch kürzer ist als die erste; die Männchen dieser Gruppe keine längeren *clavae* haben als die Weibchen; und weil der freie Teil des ersten Gliedes, oft auch eins oder der zwei folgenden Glieder mandolinenförmig gestaltet ist. Phylogenetisch gesprochen ist diese *clava* jünger als die vorige.

M. Die Verwachsung einiger Antennenglieder.—Mit der Verkürzung geht Hand in Hand das Breiterwerden der Glieder und ihrer Ansatzflächen. In der *Tijdschrift voor Entomologie*, vol. li., p. 97 (1908) teilte ich mit, dass ich die "Stielchen" der verschiedenen Glieder gefunden hätte.

Ich muss meine Mitteilungen darüber leider verbessern. Nur der Petiolus ist in seiner proximalen Hälfte dünn; alle anderen Glieder sind mit breiter Basis am vorhergehenden Gliede befestigt. Nur bei den Männchen gewisser Gattungen, z. B. *Ceratophyllus*, könnte man sagen, dass auch das letzte Fühlerglied mit dünner Basis angeheftet sei. Nimmt man nun an, dass ein Antennenglied nur als solches bezeichnet werden kann, wenn es mit enger Basis am vorhergehenden Gliede befestigt ist, dann bestehen die Antennen der *Suctoria* aus nur zwei resp. höchstens

drei Gliedern. Das erste Glied ist dann *scapus* und *pedicellus* zusammengenommen, das zweite der *funiculus*. Nur bei den Männchen der *Ceratophyllus*-Gruppe kann man das letzte Antennenglied als drittes bezeichnen.

Wenn daher die Mehrzahl der Entomologen noch annehmen, dass die Antenne der *Suctoria* nur aus drei Gliedern besteht, nämlich aus *scapus*, *pedicellus* und *funiculus*, so handeln sie inconsequent. Denn erstens sind auch *scapus* und *pedicellus* breit miteinander verbunden, und zweitens werden doch bei anderen Insekten, die breit miteinander verbundenen Glieder als solche anerkannt, z. B. bei der grossen Käferabteilung der *Clavicornia* und anderen.

Nun kann man mir einwerfen, dass in der genannten *Tijdschrift* gesagt ist, dass ich die "Stielchen" der neun Glieder der *clava* gesehen habe und sie abbilde. Ich antworte hierauf, dass die Gebilde, welche ich für "Stielchen" angesehen, in Wirklichkeit vorhanden sind, aber dass ich mich damals in der Deutung derselben geirrt habe. Vielleicht sind es Sinnesorgane, welche sich an den Vorder- und Hinterseiten der scheibenförmigen Antennenglieder befinden, wo sie am besten gegen jede Verletzung geschützt sind.

Ich sagte oben, die Antennen beständen aus höchstens zwölf Gliedern. Andererseits giebt es Antennen, welche weniger als zwölf Glieder enthalten. Schon die Antennen von *Macropsylla* und *Stephanocircus* zeigen eine Tendenz, das erste Glied der ovalen *clava* zu verlieren. Es ist kleiner als die übrigen Glieder (Fig. 1, 2).

Die Antenne von *Hectopsylla* (Fig. 19) besteht aus vier Gliedern, nämlich dem *scapus*, dem *pedicellus*, dem *petiolus*, und den zusammengewachsenen Gliedern der ovalen *clava*. Diese selbst zeigt nur sieben Einschnitte zwischen acht Läppchen, was auf acht ursprüngliche Glieder hinweisst; also ist ein Glied spurlos verschwunden. Frage: Welches Glied? Antwort: Das ist vorläufig nicht festzustellen; "Übergangsformen" kennen wir noch nicht.

Die Antenne von *Ctenocephalus* (Fig. 16) hat neun Glieder, nämlich den *scapus*, den *pedicellus*, den *petiolus*, ein aus vier ursprünglichen Gliedern verwachsenes Glied, und die fünf distalen freien Glieder der runden *clava*.

Bei *Pulex* treffen wir (Fig. 17) eine Antenne von zehn Gliedern, bestehend aus dem *scapus*, dem *pedicellus*, dem *petiolus*, fünf freien Gliedern und einem aus den drei distalen Gliedern der runden *clava* verwachsenen Gliedern. Wir müssen noch hinzufügen, dass das dritte Glied der *clava* im Begriff ist sich rückzubilden; es ist bisweilen schwer zu sehen.

Fast unverkennbar ist die Verwachsung bei der Antenne der *Echidnophaga gallinaceus* (Westw.) (Fig. 18). Hier sind zu unterscheiden: *scapus*, *pedicellus*, *petiolus*, ein vermutlich aus zwei ursprünglichen Gliedern verwachsenes Glied, und ein aus vermutlich sieben ursprünglichen Gliedern verwachsenes Glied, also zusammen fünf Segmente. Zählt man die Furchen an der Hinterseite der Antenne (in der Figur getüpfelt), dann kommt man auf sieben Glieder. Ich bin mir nicht ganz im Klaren hierüber.

Wie man aus den Figuren 12 bis 19 und aus dem oben Gesagten ersehen kann, ist die Verminderung der Gliederzahl, sowohl durch Verwachsung als durch Verschwinden, bei beiden Formen von Antennen möglich, und ich glaube, dass wir es hier mit einer Convergenz-Erscheinung, nicht mit Verwandtschaft zu tun haben, dass also *Hectopsylla* nicht mit *Echidnophaga* verwandt ist.

N. Das Fehlen von zusammengesetzten Augen.—Es kann uns nicht verwundern, dass die Facetten-Augen, angenommen sie sind je vorhanden gewesen, spurlos verschwunden sind. Was sollten Insekten, die das freie Leben aufgegeben haben,

noch mit zusammengesetzten Augen machen, die ja befähigen, nach verschiedenen Richtungen hin gut zu sehen?

O. Die Reduction der einfachen Augen.—Nur die einfachen Augen, Dunkelaugen oder Ocellen, sind übriggeblieben und zwar auch nur bei denjenigen *Suctoria*, welche noch oft genug das Tageslicht eben sehen können, z. B. beim Hundefloh, Menschenfloh, ja selbst bei allen Fellhockern. Aber bei den Parasiten von in Höhlen oder hohlen Bäumen lebenden Säugetieren sind selbst die Dunkelaugen rudimentär geworden oder fehlen ganz, z. B. bei den Flöhen von Maulwürfen und Fledermäusen. Hieraus ersehen wir, dass der Besitz oder die Abwesenheit von Dunkelaugen oder Ocellen abhängig ist von der Lebensweise der Wirte, dass sie also keine Kennzeichen von höheren Gruppen, sondern höchstens von Genera oder Species sein können.

P. Die Richtung der Mundteile.—Als Folge der Lebensweise, ein fortwährendes Schiessen durch ein Dickicht von Haaren, richteten sich die Mundteile nach hinten, wurden zwischen die Vorderbeine aufgenommen. Dadurch wurden sie vollkommen gegen Verletzung geschützt. Durch die Entwickelung der *frons* nach vorn rückten auch die Mundteile scheinbar, oder auch in Wirklichkeit, nach hinten (vergl. z. B. Fig. 3). Aber je mehr die Schnelligkeit der Bewegung in dem Haargebüsch abnahm, desto mehr verminderte sich die Entwickelung der *frons*, desto mehr schoben sich die Mundteile wieder nach vorn, ja veränderten auch ihre Richtung. Sie nahmen wieder allmählich eine ursprünglichere Lage an. So findet man z. B. bei *Pulex* die Mundteile fast senkrecht auf der Kopfachse stehen. Und bei den Fellhockern, die jede Bewegung aufgegeben haben, sind die Mundteile fast ganz vorn am Kopfe gelegen und auch fast gerade nach vorn gerichtet. Jordan und Rothschild haben schon (*Revis. of Sarcops.* p. 23, 1906) hierauf hingewiesen.

Q. Die Beschaffenheit der Mundteile.—Diese sind, wie bekannt, sogenannte stechende und saugende, da die Flöhe sich anpassten, von Säugetier-, später auch von Vogelblut zu leben. Es ist die Frage berechtigt, ob die Mundteile schon stechend und saugend waren, als die Ur-*Suctoria* zum Parasitismus auf Säugetieren übergingen. Die Frage ist vielleicht erst sicher zu beantworten, wenn wir etwas mehr von der Verwandtschaft der *Suctoria* wissen. Aber bis jetzt scheinen die Ansichten darüber auseinander zu gehen und scheinen mir immer dunkler zu werden. Alle jetztlebenden *Suctoria* haben im grossen und ganzen die verschiedenen Mundteile gleichgestaltet. Vom Labrum ist noch zu wenig bekannt, um sich darüber zu verbreiten. Die Epipharynx oder der sogenannte Stechapparat ist bei allen *Suctoria* vollkommen gleichgestaltet, besitzt nur bei der einen Gattung zahlreichere nach vorn gerichtete Sinnesorgane in der Gestalt von winzigen Höckerchen in der distalen Hälfte als bei der anderen. Da, wie unten erörtert werden soll, die Mandibeln die eigentlichen die Haut durchbohrenden Organe sind, so ist die Epipharynx distal auch nicht spitz, wie die Stechorgane von Mücken, Stechfliegen, Wespen und Bienen, sondern stumpf abgerundet. Die Epipharynx besitzt hinten eine offene Rinne, wirkt daher capillarisch, wie die Mandibel der Myrmeleontiden-Larven. Die Capillarität in solchen dünnen Rinnen oder Röhren beträgt mehrere Centimeter. Es ist daher nicht nötig anzunehmen, dass die Epipharynx und die Mandibeln zusammen eine Saugröhre darstellen. Die Einförmigkeit der Epipharynx in der ganzen Ordnung zeigt, dass sie keinen systematischen Wert hat.

Die Mandibeln dienen erstens als Scheide für die Epipharynx, denn diese muss in erster Linie unverletzbar sein. Zweitens sind sie die eigentlichen die Haut durchbohrenden Organe, denn sie sind sägeförmig, sind also besser Säge- als

Stechapparat zu nennen. Dienen sie nur zum Durchsägen der Haut, so können die Zähne klein und fein und die Mandibel selbst ziemlich schwach und durchsichtig sein. Dienen sie dagegen auch zur Befestigung, dann müssen die Zähne grob und stark sein, wie bei den *Ixodidae*. In diesem Falle sind die Mandibeln selbst lang, stark und braun chitinisiert (*Spilopsyllus* und die Fellhocker). Diese Beschaffenheit der Mandibel ist also eine Folge der Lebensweise, kann daher auf Verwandtschaft weisen, oder aber mag auch eine Convergenz-Erscheinung sein.

Die Maxillen sind bei allen *Suctoria* ziemlich gleich gestaltet. Sie bestehen aus fünf Gliedern. Das erste Glied, das aus einer Verwachsung von cardo, stipes und malae entstanden gedacht werden kann, hat von der Seite gesehen eine ziemlich dreieckige Form. Wir nennen die Seiten: die obere, die vordere und die hintere, und finden zwei Entwickelungsextreme. Entweder ist die obere Seite die kürzeste, sodass die vordere und hintere zusammen eine scharfe, nach unten gerichtete Spitze bilden; oder die hintere ist die kürzeste, sodass diese eine nach hinten gerichtete Basis darstellt. Im ersteren Falle ist die Basis, im zweiten Falle die Spitze unter dem Rande der Gena versteckt. Wovon ist diese Gestaltung abhängig? Darauf bleibe ich die Antwort schuldig; aber es ist merkwürdig, dass die ziemlich primitiven *Ischnopsyllidae* und die sehr spezialisirten Fellhocker beide Maxillen besitzen, welche mit kurzer Basis nach hinten gerichtet sind, sodass in den Beschreibungen von stumpfen Maxillen die Rede ist; während die mittleren *Suctoria* spitze Maxillen haben. Es scheint also, dass die stumpfen Maxillen die primitiveren sind. Die Maxillarpalpen sind in der ganzen Ordnung gleichgestaltet, mögen sie kürzer oder länger sein.

Das Labium besteht aus einem einfachen Mentum und zwei Palpen. Diese Labialpalpen dienen hauptsächlich als Scheide für die Mandibeln. Darum sind die Labialpalpen vorn und hinten ziemlich stark chitinisiert und symmetrisch, wenn die Mandibeln ziemlich weich sind (primitives Merkmal). Sie sind dagegen nur vorn chitinisiert und hinten häutig, also asymmetrisch, wenn die Mandibeln stärker sind (secundäres Merkmal). Und endlich ganz häutig, wenn die Mandibeln gewaltig stark sind (äusserste Spezialisierung), wie bei *Spilopsyllus* und den Fellhockern. Die Labialpalpen sind gegliedert. Die Zahl der Glieder variiert. Es scheint, dass eine grössere Zahl Glieder auf primitivere Zustände hinweist: die primitive *Macropsylla* hat deren 12; obwohl auch spezialisierte Flöhe eine grosse Zahl aufweisen können. *Vermipsylla* besitzt deren 11—14; dagegen die noch mehr spezialisierten Fellhocker und *Spilopsyllus* nur 2.

Wagner (in *Hor. Soc. Ent. Ross.* vol. xxiii. p. 202, 1889) meint, dass zwischen der Dicke der Haut (Epidermis) der Tiere, auf denen der Floh lebt, und der Zahl der Tasterglieder der Unterlippe augenscheinlich eine Beziehung besteht. Als Wagner dies schrieb, kannte er nur eine Art mit vielen Labialpalpengliedern. Jetzt, nun er mehrere Arten kennt, wird er wohl seine Ansicht darüber ändern, denn erstens lebt *Macropsylla*, mit 12 Labialpalpengliedern, auf *Mus velutinus*, und zweitens giebt es *Suctoria* mit sehr langen Mandibeln und Labialpalpen, die aus nicht mehr als 5 Gliedern bestehen, während die Fellhocker, mit gewaltigen Mandibeln, nur zweigliederige Labialpalpen besitzen. Die Gliederzahl ist übrigens sehr gut systematisch zu verwerten, und wie zuerst Rothschild gezeigt hat, auch die Symmetrie oder die Asymmetrie der Labialpalpen.

R. Die Kopfgliederung und Bildung der Fühlergrubendecke.—Es scheint, dass der sehr lange Kopf der Vorfahren der *Suctoria* sich aus acht Segmenten zusammensetzte, nämlich (1) einem präoralen, (2) einem antennalen, (3) einem labralen

(4) einem epipharyngealen, (5) einem mandibularen, (6) einem maxillaren, (7) einem hypopharyngealen, und (8) einem labialen. Von diesen Segmenten ist das siebente spurlos verschwunden.

Es scheint, dass die Mundteile sich bald dicht bei einander hänften, dass die *frons* sich darauf stark entwickelte, und dass darauf die Antennen weit nach hinten rückten.

Es scheint ferner, dass nachdem dies alles geschehen war, der Kopf—ich habe diese Vermutung auch in der *Tijdschrift* ausgesprochen—noch sehr lang war, zu lang für die Besitzer, um bequem durch das Haarkleid ihrer Wirte zu schiessen. Es kommt hinzu, dass durch die nach vorn gerichtete Entwickelung der *frons* der Kopf noch länger wurde als er schon war. Dieses Längerwerden war nicht gerade vorteilhaft für die Schleich- oder Schlupfbewegung dieser Tierchen. Es war darum vorteilhafter, wenn der Kopf ebenso gegliedert war wie der Thorax und das Abdomen. Und so gliederte der Kopf sich auch wie es scheint in vier Segmente. Diese Glieder sind aber Pseudosegmente, welche nichts mit der ursprünglichen Segmentation zu tun haben. Offenbar sind sie auch entstanden, nachdem die Antennen schon längst weit nach hinten verschoben waren, weit hinter die Mundteile. Denn die hauptsächlichste Gliederung, welche an einigen noch jetzt lebenden Flöhen bestehen geblieben ist, die mittlere, befindet sich hinter den Mundteilen und den Ocellen und vor den Antennen. Wenn man nun fragt, wie diese Gliederungen zu Stande gekommen ist, so können wir nur inbezug auf die mittlere Segmentierung eine Antwort geben.

Hier kamen nämlich die Antennengruben zu Hülfe. An dieser Stelle war der Kopf sehr eingeschnürt, biegsam ; die Antennengruben wurden nicht allein tiefer, sondern an dem proximalen Teil derselben formte sich eine Verlängerung derselben, welche endlich in die der Gegenseite überging, sodass der Kopf wirklich "gebrochen" ward.

Aber wie die vorderste Gliederung zu Stande kam, wovon das *tuber frontale*, der *mucro* etc., noch die Zeugen sind, und auf welche Weise die hinterste entstand, welche zum Teil noch deutlich an *Macropsylla* und *Stephanocircus* (Fig. 1 und 2) zu sehen ist, davon habe ich keine Ahnung. Jedenfalls scheint es mir notwendig anzunehmen, dass die Köpfe damals noch nicht gut chitinisiert waren. Es ist undenkbar, dass ein stark chitinisierter Kopf, auch wenn er lang ist, durch Beugung, oder durch seitlichen Druck, in vier Teile bricht, und dass die auf diese Weise gebrochenen Köpfe erblich geworden sind.

Jede der vier Kopfabteilungen musste, den Lebensgewohnheiten entsprechend, hinten mit einem Kragen (*collare*) über den nächsten Teil greifen. Vom Kragen des ersten Abschnitts sind nur Spuren übriggeblieben, speziell in einem *protectum inversum*, welches bei *Moeopsylla sjoestedti* Rothsch. vorkommt. Die Gliederung zwischen dem zweiten und dritten Abschnitt ist noch bei einigen jetztlebenden *Suctoria* erhalten. Bei den meisten hat sie aber als solche aufgehört zu existieren. Aber die starken inwendigen chitinösen Ränder sind als *falx* und als *tuber verticale* noch anwesend ; die Kluft ist als Naht über der *falx* in vielen Fällen noch angedeutet ; der *condylus* ist als *tuber centrale* bei einigen Arten erhalten geblieben ; ja ich betrachte selbst die chitinöse Lamelle oder Platte, welche als Fühlergrubendecke gedeutet werden kann, und welche mehr oder weniger entwickelt bei allen *Integricipita* vorkommt, als einen unzweifelhaften Rest des *collare*. Ich bitte den Leser, die Figuren 1 bis 10 miteinander zu vergleichen, und zweifle nicht daran, dass er zugeben wird, dass viel für meine Ansicht spricht.

Von der dritten Gliederung sind unzweideutige Reste bei *Macropsylla* und *Stephanocircus* nachzuweisen, nämlich als *tuber postverticale* und als *falx posterior*.

Die Ur-*Suctoria* mit vier Kopfabschnitten waren offenbar lange Tierchen mit langem Kopfe, und mit schlankem, biegsamem, beweglichem Leibe. Sobald sich die Schnelligkeit, womit sie sich zwischen dem Haardickichte hindurcharbeiteten, verminderte, konzentrierten sich die Kopfabteilungen, wurden kürzer. Die zwei vordersten Abteilungen verwuchsen allmählich, und auch die zwei hintersten.

So sind die jetztlebenden *Suctoria* entstanden. Auf S. 139 gab ich eine Liste der Genera, welche einen in zwei Teile gegliederten Kopf haben. Ich vereinige diese in einem Subordo **Fracticipita.**

Bei fortwährender Verminderung der Beweglichkeit der Individuen wurde auch die Kopfgliederung überflüssig, sodass auch die zwei übriggebliebenen Abschnitte schon auf die Hälfte ihrer ursprünglichen Länge reduciert und miteinander verwachsen sind, wodurch das *caput integrum* (also secundär!) entstand. Da nach meiner Meinung alle jetzt lebenden *Suctoria*, die ein *caput integrum* haben, miteinander verwandt, gemeinsamen, monophyletischen Ursprungs sind, so vereinige ich sie in einen Subordo **Integricipita.** Drückt man ein *caput integrum* zwischen zwei Gläschen, so berstet er immer über den Antennengruben entzwei, wenn über den Antennengruben eine *falx* oder eine Naht oder selbst nur Spuren davon übrig sind.

Die Spuren der Verwachsung der beiden Kopfabschnitte nahmen von nun an in den zwei Unterabteilungen der **Integricipita** unabhängig voneinander allmählich ab, sodass wir in diesen Unterabteilungen parallele Reihen zu sehen haben.

S. Die Verbindung des Kopfes mit dem Brustabschnitt.—Der Kopf ist mit seiner ganzen Hinterfläche mit der Vorderfläche des Prothorax verbunden, wie bei den meisten Orthopteren und Coleopteren. Aber statt im Prothorax teilweise eingesenkt zu sein, ist seine Hinterfläche grösser als die Vorderfläche des Pronotums und greift selbst mit einem breiten Kragen (*collare*) auf den ersten Brustabschnitt über, ein einzig in der Insektenwelt darstehendes verhalten, welches offenbar wieder in Verbindung mit der Lebensweise steht (nicht direkt die Folge ist) und unbedingt nötig ist für Insekten, welche durch ein Haardickicht dringen.

Wenn nun die Beweglichkeit abnimmt, so wird auch das *collare* schmäler. Und wenn die Beweglichkeit ganz aufhört, so ist das *collare* auch nicht mehr nötig, und ist entweder äusserst schmal, oder verschwindet selbst, z. B. in *Vermipsylla* und den Fellhockern.

T. Die Verkürzung der Thoracalsegmente.—Hand in Hand mit der Verkürzung des ganzen Leibes (siehe oben, S. 143) geht die der Thoracalsegmente, aber in stärkerem Masse. Bei den langen Flöhen ist die Länge des Kopfes und des Thorax zusammengenommen oft grösser als die des Abdomens. Bei kürzeren Flöhen, z. B. *Pulex*, ist der Thorax nicht länger als der etwas grosse Kopf. Bei den sich gar nicht mehr bewegenden "Sarcopsyllidae" ist er sogar kürzer als das erste Abdominaltergit. Bei *Echidnophaga* ist das Metanotum am Rücken fast unterdrückt, bei *Dermatophilus* dort selbst mit dem *Mesonotum* verwachsen.

U. Die Verbindung der Thoracal- und Abdominalsegmente.—Selbstverständlich besitzen alle Thoracalsegmente denselben Kragen wie die Kopfabschnitte. Auch diese Erscheinung ist einzig unter den Insekten. Aber die übergreifenden Ränder der Abdominalabschnitte finden sich auch bei anderen schnell sich bewegenden Insekten. Dass diese Kragen in Verbindung stehen mit der schnellen Bewegung

zwischen Haaren, beweisst auch das fast vollkommene Fehlen derselben bei den Fellhockern, bei denen auch kein Grund für ihre Existenz mehr vorhanden ist.

V. Die Zahl der Antepygidialborsten.—Nach meiner Meinung sind Antepygidialborsten spezialisierte Borsten. Letztere stehen in Querreihen, welche eine ziemlich grosse Zahl Borsten enthalten. Mithin ist der Besitz von mehreren Antepygidialborsten, wie bei *Nycteridopsylla* und *Ctenophthalmus*, ein primitiveres Merkmal als die Anwesenheit von nur einer dieser Borsten, wie bei den meisten Flöhen. Und die Abwesenheit dieser Borsten, wie bei *Vermipsylla* und *Chaetopsylla*, bedeutet starke Spezialisierung.

VI. Die An- und Abwesenheit der cerci.—Nach den Untersuchungen von Lass haben sich die cerci der Weibchen wahrscheinlich aus den Nachschiebern der Larve entwickelt. Ist dies der Fall, dann sind die cerci primitive Organe und ist die Abwesenheit derselben ein secundäres Merkmal, ein phylogenetisch junger Character. Dieser Gedankengang wird durch die Tatsache bestätigt, dass fast alle Flöhe cerci besitzen und die Abwesenheit derselben nur bei spezialisierten Formen vorkommt.

X. Das doppelte Receptaculum seminis.—Wagner (in *Zool. Anz.* vol. xxi. p. 148, 1903) hat zuerst nachgewiesen, dass *Hystrichopsylla* ein doppeltes Receptaculum seminis besitzt, oder besser: zwei Receptacula. In 1905 (in *Nov. Zool.* vol. xii. p. 486) beschrieb Rothschild eine zweite Gattung, *Macropsylla*, welche ebenfalls zwei Receptacula seminis hat. Derselbe Autor meldete 1908 (in *Parasitology* vol. i. pp. 5 und 91) eine dritte Gattung, *Coptopsylla*, mit zwei Receptacula. Ich selbst publicierte einen vierten Fall (in *Ent. Berichten* vol. ii., 1909). Ich fand nämlich auch bei *Typhloceras* zwei Receptacula seminis.

Da die drei erstgenannten Flöhe primitive Formen sind, so muss man wohl annehmen, dass der Besitz von zwei Receptacula seminis auf primitive Verhältnisse hinweist. *Typhloceras*, obwohl selbst keine so primitive Form, hat also doch in ihren zwei Receptacula etwas Primitives bewahrt.

V. Allgemeine Betrachtungen.—Die Gruppe der *Suctoria* scheint mir eine durch Parasitismus in Degenerierung begriffene, sehr primitive Gruppe zu sein. Die Länge des Kopfes und der Besitz von zwei Receptacula seminis, welche keine andere Insektenordnung aufweisen kann, deuten auf eine uralte Abzweigung von dem Insektenstamme. Mit welchen anderen Insekten sie verwandt sind, scheint immer rätselhafter zu werden. Das Durchmachen einer Metamorphose, oder eines Larvenstudiums, selbst eines, das denen der Diptera gleicht, braucht noch keine Verwandtschaft mit den letztern anzudeuten; denn die secundär erworbene Larve, als Folge einer besonderen Lebensweise der jungen Flöhe, kann bei den *Suctoria* unabhängig von den anderen Insektenordnungen entstanden sein. Auch das Puppenstadium ist kein Beweis von Verwandtschaft. Es kann ebenfalls unabhängig von den anderen Insekten in den Lebenscyclus der *Suctoria* eingeschaltet sein. Kommt ja doch ein Puppenstadium auch bei den Männchen der Cocciden, einer Abteilung der Rhynchoten, vor, bei denen ein Puppenstadium etwas ganz Fremdes ist!

V. Systematischer Teil.

Eine grosse Anzahl der jetztlebenden *Suctoria* zeigen noch die schlanke Gestalt und den gliederten Kopf der *Ur-Suctoria*, also sehr primitive Merkmale. Ihre Antennen sind zwölfgliederig; die der Männchen sind lang, überragen in der Ruhe oft den Kopfrand, sodass der distale Teil in eine in den Propleuren eingesenkte Grube zu liegen kommt, oder, wie es mehrfach ausgedrückt worden, die

Antennengrube sich auf die Propleuren fortsetzt. Alle diese Formen bilden, meines Erachtens, einen einheitlichen primitiven Subordo, welchen ich *Fracticipita* (in *Tijd. v. Ent.* vol. li. p. 92; 6 Mai 1908, significatio emendata) genannt habe. Hierzu gehören die auf S. 139 genannten Gattungen.

Unter diesen bilden *Macropsylla* und *Stephanocircus* gewiss eine ältere Gruppe, gekennzeichnet durch ihren *tuber postverticale*. Daher nenne ich sie *Posttuberata* (nova Superfamilia). Sie steht den anderen jüngeren *Fracticipita* gegenüber, welche gar keinen *tuber* mehr aufweisen, und die zusammen die nova Superfamilia der *Intuberata* bilden.

Alle anderen Gattungen gehören zu dem Subordo der *Integricipita* (ebenda: significatio emendata), die ein *caput integrum*, einen Kopf aus einem Stück, besitzen, welcher aber ein ganz anderes *caput integrum* ist, als es andere Insekten haben, denn er ist, wie ich oben betont habe, secundär entstanden. Der monophyletische Ursprung dieser Gruppe ist, obwohl nicht unanfechtbar, doch sehr wahrscheinlich. Sie schliesst sich jedenfalls den *Fracticipita* an, und zwar wahrscheinlich durch die Gattungen *Neopsylla* und *Spalacopsylla* an die Gattung *Palaeopsylla* der *Fracticipita*.

Unter den *Integricipita* besitzen viele Gattungen eine lange, ovale, oder elliptische Fühlerkeule (Fig. 13, 14, 19). Sie bilden offenbar eine einheitliche Gruppe, welche ich Superfamilia *Longiclavata* nennen will.

Die übrigen Gattungen haben Antennen mit kurzer, runder *clava* (Fig. 15—18). Die *clava* zeigt noch eine andere Besonderheit; das freie Ende des ersten Gliedes ist mehr oder weniger mandolinenförmig. Diese Gattungen sind offenbar miteinander verwandt, und bilden Superfamilia *Breviclavata*.

Welche Gattung der *Breviclavata* am nächsten mit irgend einer Gattung der *Longiclavata* verwandt ist, kann ich nicht entscheiden. Hoffen wir, dass noch einmal Übergangsformen gefunden werden. Ich sehe keine Verwandtschaft zwischen *Pulex* und *Ctenocephalus* einerseits und *Spilopsyllus* anderseits.

Sowohl bei den *Longiclavata* als bei den *Breviclavata* finden wir Formen, die durch die Gewohnheit sich festzusangen, Fellhocker geworden sind, das heisst, äusserst kurze Flöhe mit einer Fühlerkeule, in der die meisten Glieder miteinander verwachsen sind, mit äusserst kurzem Thorax, und mit sehr ausdehnbarem Abdomen der Weibchen.

Die langen Formen unter den *Longiclavata*, mit langem Thorax, vereinige ich als *Dolichothoracica* (nova Sectio); während zu den *Brachythoracica* (nova Sectio) nur die Fellhocker, mit kurzem Thorax, gehören. Diese schliessen sich meines Erachtens am besten an *Spilopsyllus* an.

Die Superfamilia der *Breviclavata* wird ebenfalls eingeteilt in lange Formen, mit langem Thorax, und in kurze Formen, mit kurzem Thorax, oder in die *Solitothoracica* (in *Entom. Bericht.* vol. ii. p. 252, Juli 1908, significatio emendata) und *Brevithoracica* (ebenda: significatio emendata). Wie diese sich anschliessen an die *Solitothoracica* ist nicht deutlich; vielleicht an *Pulex*-ähnliche Formen. Neue Funde bringen hoffentlich mehr Licht.

Selbstverständlich sind mit dieser neuen Einteilung einige Familien aufgehoben; andere Familien habe ich vereinigen müssen; für neue Familien wählte ich neue Namen. So viel wie möglich behielt ich schon bekannte Namen bei, obwohl oft mit " significatio emendata."

Ich gebe hier eine Übersicht, welche zugleich als Bestimmungstabelle dienen kann.

Klassification der Suctoria.

A. Lange Flöhe, mit gegliedertem Kopfe, mit Ctenidien sowohl am Kopfe als am Thorax, mit lang-ovaler, freigliederiger *clava*. Subordo **Fracticipita** Oudemans 1908.

B. In der pars posterior des Kopfes ist noch deutlich eine Spur einer früheren Gliederung dieses Abschnittes übriggeblieben und zwar in der Form eines tuber postverticale mit falx posterior. Kein Auge. Superfamilia **Posttuberata** Oudemans 1909 (nova). Enthält nur eine Familie: *Macropsyllidae* Oudemans 1909 (nova).

C. Subfrontale, genale und anteantennale Ctenidien bilden keinen Helm. *Macropsylla* Rothsch. 1905.

CC. Subfrontale und anteantennale Ctenidien bilden einen Helm. *Stephanocircus* Skuse 1890.

BB. In der pars posterior des Kopfes ist keine Spur eines tuber postverticale mehr wahrzunehmen. Superfamilia **Intuberata** Oudemans 1909 (nova).

C. Mit genalen oder anteantennalen Ctenidien. Maxillen spitz. Labialpalpen 5-gliederig, symmetrisch. Auge schlecht entwickelt oder abwesend. Familia **Hystrichopsyllidae** (*-nae*) Tiraboschi 1904 (*-dae* Baker 1905). (*Trichopsyllidae* Tiraboschi 1904), (*Ctenopsyllidae* Baker 1905).

D. Nur Protibia distal mit geschlossener Borstenreihe. *Hystrichopsylla* Tasch. 1880.

DD. Alle Tibien mit geschlossener Borstenreihe. *Ctenophthalmus* Kolen. 1856.

DDD. Tibien nur mit Kerben und Doppelborsten. Kopf mit tuber frontale, mit oder ohne mucro. *Palaeopsylla* Wagner 1903.

CC. Nur (2 ×) 2 subfrontale Ctenidien. Maxillen stumpf bis spitz. Labialpalpen 5-gliederig, symmetrisch. Augen rudimentär oder abwesend. Familia **Ischnopsyllidae** Wahlgren 1907. (*Typhlopsyllinae* Tiraboschi 1904). (*Ceratopsyllidae* Baker 1905).

D. Pro- und Mesotibien ganz, Metatibia nur distal mit geschlossener Borstenreihe. Maxillen spitz. *Thaumapsylla* Rothsch. 1907.

DD. Alle Tibien mit Kerben und Doppelborsten. Maxillen mehr oder weniger stumpf.

E. Viele Antepygidialborsten, einem Ctenidium ähnlich. *Nycteridopsylla* Oudemans 1906.

EE. Nur eine Antepygidialborste.

F. Metepimerum ohne Ctenidium. *Ischnopsyllus* Westwood 1833.

FF. Metepimerum mit Ctenidium. *Chiropteropsylla* Oudemans 1908.

CCC. Mit genalem Ctenidium. Maxillen spitz. Labialpalpen asymmetrisch (hinten häutig). Auge anwesend. Familia **Typhloceratidae** Oudemans 1909 (nova).

AA. Kopf ungegliedert, d. h. aus zwei oder mehr Gliedern verwachsen, wovon oft noch Spuren vorhanden sind und zwar in der Form eines tuber verticale, einer falx, einer Naht. Subordo **Integricipita** Oudemans 1908.

B Clava lang, oval. Superfamilia **Longiclavata** Oudemans 1909 (nova).

C. Flöhe fast immer lang. Clava freigliederig. Thorax nicht kürzer als der Kopf, länger als das erste Tergit. Sectio **Dolichothoracica** Oudemans 1909 (nova).

D. Kopf (Gena) und Pronotum mit Ctenidium. Familia **Neopsyllidae** Oudemans 1909 (nova).

E. Labialpalpen 4- oder 5-gliederig, symmetrisch. Subfamilia **Neopsyllinae** Oudemans 1909 (nova).

F. Mit tuber verticale, schwerer falx, tuber frontale, mucro oder listron. Labialpalpen 5-gliederig. *Neopsylla* Wagner 1903.

FF. Mit leichter falx. Labialpalpen 5-gliederig. *Spalacopsylla* Oudemans 1906.

FFF. Keine Spur von falx. Tuber frontale mit Grube, worin listron oder protectum. Mit Auge. *Listropsylla* Rothsch. 1907.

EE. Labialpalpen 2-gliederig, durchsichtig, häutig. Subfamilia **Spilopsyllinae** Oudemans 1909 (nova). Mit nur einem Genus: *Spilopsyllus* Baker 1905.

DD. Kopf ohne, Pronotum mit Ctenidium. Familia **Dolichopsyllidae** Baker 1905.

E. Labialpalpen 5-gliederig, symmetrisch. Subfamilia **Dolichopsyllinae** Baker 1905.

F. Mit falx. Mit protectum. Mit Auge. Innenseite der Metacoxa mit Dörnchen. *Odontopsyllus* Baker 1905.

FF. Mit falx. Mit protectum. Mit Auge. Innenseite der Metacoxa ohne Dörnchen. *Dasypsyllus* Baker 1905.

FFF. Mit schwacher falx. Ohne protectum. Mit Auge. *Pygiopsylla* Rothsch. 1906.

FFFF. Mit weisser Naht. Mit protectum. Ohne Auge. *Dolichopsyllus* Baker 1905.

FFFFF. Nur mit protectum und Auge. *Ceratophyllus* Curtis 1829.

EE. Labialpalpen 4- oder 5-gliederig, asymmetrisch (hinten häutig), distal spitz. Subfamilia **Hoplopsyllinae** Oudemans 1909 (nova). Mit einem Genus: *Hoplopsyllus* Baker 1905.

DDD. Kopf und Pronotum ohne Ctenidium. Familia **Anomiopsyllidae** Oudemans 1909 (nova).

E. Labialpalpen 5- oder 6-gliederig, symmetrisch. Subfamilia **Anomiopsyllinae** Baker 1905. (*Lycopsyllidae* Baker 1905; *Malacopsyllidae* Baker 1905; *Megapsyllidae* Baker 1898).

F. Mit starker falx. Mit tuber frontale und protectum inversum. Mit Auge. *Parapsyllus* Enderl. 1903.

FF. Mit starker falx. Mit Auge. *Malacopsylla* Weyenb. 1881.

FFF. Mit Spur eines tuber verticale. Mit Naht. Mit Auge. *Goniopsyllus* Baker 1905.

FFFF. Mit schwacher Spur von falx (brauner Anflug über der Fühlergrube). Mit mucro oder protectum hoch am Kopfe. *Lycopsylla* Rothsch. 1904.

FFFFF. Mit tuber frontale. Mit Auge. *Chaetopsylla* Kohaut 1903.

FFFFFF. Mit Auge. Gena mit kurzem, breitem, stumpfem Anhang. *Coptopsylla* Jordan und Rothsch. 1908.

FFFFFFF. Kein Auge. Wenig Behaarung. *Anomiopsyllus* Baker 1904.

EE. Labialpalpen 7- bis 14-gliederig, symmetrisch. Subfamilia **Vermipsyllinae** Wagner 1889 (*-da* Wagner; *-dae* Baker 1905; *-nae* Baker 1905). Mit einem Genus: *Vermipsylla* Schimk. 1885.

CC. Flöhe sehr kurz. Clava verwachsengliederig. Thorax viel kürzer als der Kopf und als das erste Tergit. Sectio **Brachythoracica** Oudemans 1909 (nova). Mit nur einer Familia: **Hectopsyllidae** Baker 1904. (*Sarcopsyllidae* Tasch. 1880; *Rhynchoprionidae* Baker 1906; *Hectoropsyllidae* Oudemans 1906; *Dermatophilidae* Oudemans 1906.)

D. Clava verwachsen 8-gliederig. Maxillen stumpf. *Hectopsylla* Frauenf. 1860.

DD. Clava verwachsen 7-gliederig. Maxillen spitz. *Rhynchopsylla* Haller 1880.

DDD. Clava verwachsen 6-gliederig. Maxillen stumpf. Frons mit hufeisenförmiger Rinne über dem nasenförmigen Vorsprung. *Dermatophilus* Guérin 1838.

BB. Clava kurz, rund; freier Teil des ersten Gliedes der Clava mandolinenförmig. Flöhe gedrungen. Superfamilia **Breviclavata** Oudemans 1909 (nova).

C. Thorax nicht kürzer als der Kopf, länger als das erste Tergit. Clava frei- oder teilweise verwachsengliederig. Sectio **Solitothoracica** Oudemans 1908.

D. Kopf und Pronotum mit Ctenidium. Labialpalpen asymmetrisch (immer ?). Familia **Archaeopsyllidae** Oudemans 1909 (nova).

E. Mit subfrontalem (4), genalem (4), und angularem (1) Ctenidium. *Ctenocephalus* Kolen. 1857.

EE. Mit genalem (2—3) und angularen (1) Ctenidium. *Archaeopsylla* Dampf 1908.

DD. Kopf ohne, Pronotum mit Ctenidium. Labialpalpen symmetrisch (immer ?). Familia **Uropsyllidae** Oudemans 1909 (nova). Mit Genus *Uropsylla* Rothsch. 1905.

DDD. Kopf und Pronotum ohne Ctenidium. Familia **Pulicidae** Tasch. 1880.

E. Labialpalpen symmetrisch. Subfamilia **Rhopalopsyllinae** Oudemans 1909 (nova). Mit Genus *Rhopalopsyllus* Baker 1905.

EE. Labialpalpen asymmetrisch (hinten häutig). Subfamilia **Pulicinae** Tirab. 1904.

F. Mesosternit schmal, ohne inwendige stabförmiger Chitinisation von der Insertion der Coxa aufwärts. *Pulex* L. 1758.

FF. Mesosternit breit, mit inwendiger stabförmige Chitisination von der Insertion der Coxa aufwärts.

G. Mit falx. Mit protectum inversum. Gena mit dreieckigem Läppchen wie bei den *Hectopsyllidae*. Mit Auge. *Mocopsylla* Rothsch. 1908.

GG. Mit deutlicher Spur von falx. Mit Auge. Clava freigliederig. *Ornithopsylla* Rothsch. 1908.

GGG. Mit Andeutung einer falx. Mit Auge. Gena mit dreieckigem, scharfem Anhang. *Pariodontis* Jord. und Rothsch. 1908.

GGGG. Nur mit Auge. *Locmopsylla* Jord. und Rothsch. 1908.

CC. Thorax viel kürzer als der Kopf und als das erste Tergit. Sectio **Brevithoracica** Oudemans 1908. Mit nur einer Familie : **Echidnophagidae** Oudemans 1909 (nova). Mit nur einer Gattung : *Echidnophaga* Olliff 1886.

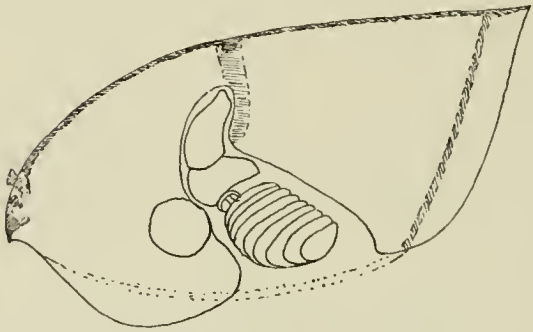

FIG. A. *Parapsyllus australiacus* Rothsch

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NOVITATES ZOOLOGICAE.

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NOTES SUR LES OISEAUX DE LA RÉPUBLIQUE ARGENTINE.

PAR E. HARTERT ET S. VENTURI.

(Planches II. et III.)

[THE following notes on the Birds of the Argentine Republic are based on a manuscript by Mr. S. Venturi, of Buenos Aires, on the nidification, eggs, and habits of Argentine birds. As long ago as 1906 Mr. Rothschild bought from Mr. Venturi a valuable collection of eggs and bird-skins from the Argentine Republic. Together with the collection Mr. Venturi sent us the manuscript mentioned above, which we promised to publish in some way or other. The manuscript was a French translation of the original article, which had been written in Spanish. The great value of Mr. Venturi's notes was evident and indisputable, but we could not very well publish them in the form they were before us. Having in our hands the material on which they were based, and many specimens not mentioned in the manuscript, and seeing that not only some species were wrongly identified, but that a number of new forms were among them, it became necessary carefully to compare every skin and to add considerably to the work. Moreover, the French was not quite fit for publication, and as I (a born German domiciled in England) had never written an article for print in French before, and was no more competent than Mr. Venturi (an Italian domiciled in the Argentine Republic), the editing of our notes involved some difficulty. I am greatly obliged to my friend Mr. C. E. Hellmayr and to Miss Michaelis for looking over the manuscripts and proofs, and I trust that by their kind help a work has been produced which even Frenchmen will be able to read without too great a horror over the violation of their language.

I decided to make use of this excellent opportunity, not only to enumerate the localities of the specimens of birds collected by Mr. Venturi, but also to mention what we had received from the Argentine Republic from other collectors. Not to mention some odd specimens, they were:

1. 135 skins from the Estancia S. Martino, Monte, province of Buenos Aires, collected in 1896 and 1897 by Mr. Paul Neumann, of Berlin.
2. Several hundred birds collected at La Soledad, Entre Rios, by Mr. C. B. Brittain, of Tring (now of Stony Stratford).
3. Some skins, mostly from Cosquin, a village in the mountains west of the city of Cordova, collected by E. W. White. (Cf. *Proc. Zool. Soc. London*, 1882, p. 591, 1883, pp. 37 and 432.)
4. Some of the skins collected by Mr. G. A. Baer, of Paris, near Tucuman. (Cf. *Ornis*, xii. p. 209, 1904.)

5. Over 400 skins collected by that excellent collector Mr. L. Dinelli in the provinces of Tucuman and Salta. Purchased from Mr. Rosenberg in London and Mr. Baer in Paris. (Cf. Berlepsch, *Ornis*, xiv. [*Proc. Congress, London*], p. 347.)
6. Over 100 skins, mostly collected in the province of Salta, by José Steinbach, the well-known collector of natural history specimens in the Argentine Republic, Bolivia, and South Algeria.
7. Eighty-one skins collected in Patagonia by Julius Koslowsky. Bought from Mr. Rosenberg in London.

The collection we purchased from Mr. Venturi consists of 1115 beautifully prepared and well-labelled skins and several thousand eggs; it is a very important one, inasmuch as it has been brought together during a number of years and in various parts of the Republic. Most of the specimens are, however, from Barracas al Sud (province of Buenos Aires), from Mocovi in the Chaco, Ocampo near the Rio Paraná, on the edge of the Chaco, and near Tucuman.

I have not attempted to make a list of all the birds known to occur in the Argentine Republic, but have only enumerated those of which specimens exist at Tring—as far as I came across them—and those mentioned in Mr. Venturi's manuscript. Nevertheless, there cannot be very many Argentine birds left unnoticed in this article, as I mention 509 forms; while Messrs. Sclater and Hudson's celebrated work, *Argentine Ornithology* (1888–9), contains only 434 species!

The share of the two authors is much the same as in Messrs. Sclater and Hudson's work. I have critically examined the skins, and am finally responsible for their nomenclature, and all the nomenclatorial and systematic notes are by me; while I have also sometimes added fuller descriptions and measurements of eggs where it seemed important, and when these were rather short and cursory in Mr. Venturi's notes. All the notes on nidification, habits, etc., and most of the descriptions of the eggs and their measurements, are by Mr. Venturi. His notes are enclosed in inverted commas and signed "(S. V.)." Mr. Venturi has, of course, also supplied the local names (*noms vulgaires*), and added references to Mr. Nehrkorn's *Katalog der Eiersammlung* (1899) and to Dr. von Ihering's valuable article on the nests and eggs of the birds of Brazil, "Catalogo critico-comparativo dos ninhos e ovos das aves do Brasil," in *Revista do Museu Paulista*, iv. pp. 191–300.

There are hardly any countries on the surface of the earth that can exceed the Argentine Republic in the variation of natural conditions and landscape. The territories of the Republic extend from the cold and bleak shores of Tierra del Fuego and Isla de los Estados (Staten Island) under 55° southern latitude, where birds belonging to the Antarctic regions are met with, to the hot Chaco, reaching as far as 22°—*i.e.* just into the tropics—and in the east to the province of Misiones, between the rivers Paraná and Uruguay, as far as 25½°.

We have thus the fauna of the sea-shores, of the vast prairies, of the extensive forests, swamps, and mountains, rising to above 5000 and even 6000 m. (Mount Aconquija, near Tucuman, in Atacama, Salta, Jujuy). The ornis of the mountains of Jujuy and Salta is naturally more that of Bolivia than that of Argentina proper, and many species therefore occur in those regions which are not elsewhere found in the Argentine Republic.

It is clear that such different countries are inhabited by different species and representative forms. An interesting fact is, that the ornis of the territory of Misiones is quite different from that of the central provinces (Buenos Aires, Entre

Rios, etc.), and that it agrees with that of Southern Brazil and Paraguay. I do not know exactly where the line of demarcation between the fauna of Misiones and that of—zoogeographically speaking—Argentina proper lies.

I cannot conclude these remarks without thanking Mr. Carl E. Hellmayr and Count Berlepsch for much help and trouble they took in lending me specimens and giving good counsel about certain species.

This article would have appeared long ago if I had not been exceptionally busy since I began to edit it; many other occupations, new buildings and rearranging of collections and library, and my long trips to Algeria in 1908 and 1909 with Mr. Rothschild, necessitated lengthy interruptions of the work.

ERNST HARTERT.]

TURDIDAE.

1. Turdus amaurochalinus Cab.

Turdus leucomelas auct. (cf. Hellmayr, *Journ. f. Orn.* 1902. p. 58); Nehrkorn, p. 36; Ihering, p. 197.

Nom vulgaire: Zorzal blanco.

♂ ad. Tucuman, 456 m., 21. ix. 1900 (No. 118).

♂ vix ad. Pacheco, Province Buenos Aires, 7. x. 1900 (No. 114).

♀ ad. Barracas al Sud, prov. Buenos Aires, 17. vii. 1900 (No. 115).

♂ juv. Ocampo, 15. xii. 1905 (No. 1093).

"Le nid de cette espèce diffère de celui de *T. rufiventris* en ce qu'il n'y a de boue ni à l'intérieur ni au bord supérieur. La femelle pond 3 œufs, dont la coloration ressemble à celle des autres merles. Ils sont d'un bleuâtre très pâle, converts de taches roussâtres plus nombreuses autour du gros bout et de mouchetures d'un lila grisâtre pâle. Les dimensions sont: 24·5—30 × 18·6—21·4 mm." (S. V.)

Venturi a pris des œufs à Barracas al Sud le 13, 26. xi, 4. xii. 1900, 13. xi. 1902, à Mocovi le 11. xi. 1903, à Ocampo le 28. x. 1905.

2. Turdus rufiventris Vieill.

Nehrkorn, p. 37; Ihering, p. 199.

♂♂♀ Barracas al Sud, août, décembre.—Au musée de Tring il y a aussi des exemplaires de La Soledad (C. B. Brittain), de Concepcion (Misiones, E. W. White), et de Tucuman (Dinelli coll.). Venturi a pris des œufs à Barracas al Sud, en novembre, à Ocampo en janvier, octobre, et décembre et à Hernandarias en décembre.

"A la bonne description d'Euler, *Rev. Mus. Paulista*, t. iv. p. 9, il faudra ajouter que cet oiseau nidifie aussi dans des trous naturels de troncs d'arbres. J'ai, de plus, trouvé un nid dans le four du *Furnarius rufus* qu'on avait en partie détruit pour en ôter les œufs. Quand on ôte les œufs de *T. rufiventris* avant la ponte définitive qui se compose de 4 œufs, l'oiseau continue à pondre au même endroit jusque par trois fois successives, mais les derniers œufs ne sont plus semblables aux premiers; la coquille devient rugueuse, la coloration générale de l'œuf est d'un vert cendré très clair et conserve des traces de taches ferruginenses très peu visibles. Cet oiseau est aussi commun à Buenos Aires qu'au Chaco."

"Les mesures des œufs, comme leur coloration, sont très variables, et il est difficile de trouver deux pontes égales; parfois même les œufs du même nid ne sont pas parfaitement égaux. Dim.: 25—32 × 19·5—22 mm. Ils sont tout à fait semblables à ceux de *T. amaurochalinus*." (S. V.)

3. Turdus magellanicus magellanicus King.

Nehrkorn, p. 37.

Venturi a tué une femelle adulte à Roca (Rio Negro) le 15. xi. 1899, et il a pris des œufs à Frutillar le 16. xi. 1899. Dimensions 30 × 21·5 (Venturi) et 31 × 22·5 (Hartert).

4. Turdus fuscater amoenus Hellm. (Pl. II. Fig. 3, 4).

Turdus fuscater amoenus Hellmayr, *Journ. f. Orn.* 1902, p. 68 (Mendoza).
Turdus fuscater auct.—Mons. Hellmayr a démontré que le nom de *fuscater* de d'Orbigny et Lafresnaye se rapportait à la forme bolivienne du groupe désigné par les auteurs sous le nom de *Turdus gigas*. (Voir *Bull. B.O.C.*, xvi. pp. 91, 92.)

Il y a à Tring quatre exemplaires, tués à Tucuman par MM. Dinelli et Venturi. Monsieur Louis Dinelli, observateur scrupuleux et préparateur zélé de Tucuman, en plus d'envoyer de précieux matériaux à Venturi, a aussi remis des notes sur la nidification de plusieurs espèces rares et intéressantes qu'il a observées. Il dit "que le nid de ce merle est très volumineux et placé entre des arbustes très touffus. Cet oiseau ne descend pas de la région des Alisiers et atteint la région des Queñas, profitant aussi de ces arbustes pour y placer parfois son nid. La ponte est de 2 ou 3 œufs. Au temps de l'incubation il est très difficile de faire l'oiseau abandonner son nid. On trouve les œufs aux mois de décembre, janvier et février. Deux œufs, recueillis par Monsieur Dinelli à La Hoyada (Tucuman) à une altitude de 1500 m., le 10. xii. 1901 sont semblables à ceux de *Turdus ruficentris*. Dimensions : 31 × 21 mm. Nom. vulg. 'vinda.'" (S. V.)

5. Turdus nigriceps Cab.

Nom vulgaire : Isma. ♂ La Hoyada, 1300 m. (Dinelli) ; ♂ ♀ Tafi Viejo, 500 m. (Venturi).

Monsieur Dinelli a trouvé des œufs de cette espèce à la Cumbre del Rayo (Tucuman) à 2300 m. d'altitude Coloration comme celle des espèces précédentes. Dimensions : 29 × 19·7, 29·7 × 19·8 mm.

Monsieur Dinelli écrit "que cet oiseau préfère les alisiers, et met son nid assez haut et sur des branches saillantes, mais il est moins volumineux que celui des autres merles. La ponte est généralement de 3 œufs." (S. V.)

6. Mimus saturninus modulator (Gould).

Orpheus modulator Gould, *P.Z.S.* 1836. p. 6 (appeared 9. iv. 1836).
Orpheus calandria D'Orb. & Lafresn., Syn. Av. in *Mag. Zool.* vii, cl. ii. p. 17 (1837).
Nom. vulgaire : Calandria.—Nehrkorn, p. 49 ; Ihering, p. 201.

Il y a à Tring des peaux de Tucuman, San Vicente (Buenos Aires), et de Barracas al Sud. Monsieur Venturi à recueilli des œufs à Ocampo (7. xi. 1905), Hernandarias (28. x. 1902) et Esperanza (28. x. 1900). Par leur coloration, les œufs ressemblent à ceux des merles de la république Argentine. Ils mesurent 28·6 × 21, 29 × 21, 27 × 20·5, 27 × 29 mm.

7. Mimus triurus (Vieill.).

Nom vulgaire : Calandria.—Nehrkorn, p. 49 ; Ihering, p. 201.

"Cette espèce est commune et nidifie dans tout le nord de la république Argentine. La coloration des œufs ressemble à celle de l'espèce précédente. Dimensions : 25—28 × 18—20·5 mm." (S. V.)

8. **Mimus patagonicus** (Lafr. et d'Orb.).

Nous en avons deux femelles tuées à Tucuman, en juin 1901, par Monsieur Dinelli, à 450 m. d'altitude sur mer. Monsieur Hellmayr a comparé ces deux peaux au type au musée de Paris, et il les lui a trouvées tout à fait identiques.

9. **Mimus dorsalis** (d'Orb. & Lafr.).

MM. Dinelli et Budin en ont pris des exemplaires aux mois de juillet et novembre. Un mâle et une femelle en sont préservées au Musée de Munich (Hellmayr in litt.). Cette espèce est nouvelle pour la république Argentine.

10. **Polioptila dumicola** (Vieill.) (Pl. II, Fig. 7).

Nehrkorn, p. 27 ; Ihering, p. 202.

Nous en avons à Tring des échantillons de : Barracas al Sud (Venturi coll., F. M. Rodriguez coll.), de Tucuman, Lagunas de Malvinas (Dinelli coll.), de Cordova (E. W. White coll.), de La Soledad (C. B. Brittain coll.), de Samaipata, Bolivie (Gustav Garlepp coll.), et de Paraguay (Bohls coll.).

" Le nid se trouve de préférence sur les arbres isolés au bord des bois ; il est généralement placé sur une fourche dont une branche monte perpendiculairement ; il mesure extérieurement 55 mm. de hauteur pour 50 mm. de diamètre ; son entrée est un peu plus étroite, ne mesurant que 30 mm. La ponte est de trois œufs d'un bleuâtre pâle, quelquefois presque blanc, couverts de petites taches brunes. Ils mesurent 14·5—16 × 11—12 mm." (S. V.)

TROGLODYTIDAE.

11. **Cistothorus platensis tucumanus** subsp. nov.

Cette forme nouvelle diffère de *C. platensis platensis* notamment par ce que l'uropygium est d'un fauve brunâtre uniforme sans stries noirâtres ou blanches ; toute la coloration est plus pâle ; les bandes transversales noirâtres des sus-caudales sont moins nettes, et les taches blanches apicales qui sont si bien marquées chez la forme typique y manquent complètement ; le bec est sensiblement plus long.

C. p. graminicola Tacz. du Pérou et de la Bolivie septentrionale est d'une teinte beaucoup plus roussâtre et plus vive sur les parties supérieures ainsi que sur les flancs, et les stries au sommet de la tête sont moins prononcées ; pour la coloration du piléum et des rectrices, la forme de Tucuman s'accorde parfaitement avec les *C. p. platensis* et *C. p. graminicola*, tandis que *C. p. polyglottus* (Vieill.) s'en distingue aisément par la couleur presque uniforme du piléum, et parce que les rectrices, sauf la paire médiane, ont la barbe interne d'un noirâtre uniforme excepté à la pointe. Ailes 47—48, queue 48—49, culmen 14 mm. (Deux femelles adultes de Tucuman.)

Type ♀, No. 136, Tucuman, 30. x. 1899 (S. Venturi coll.).

" Iris brun café."

C. fasciolatus Burm. de Mendoza, dont Monsieur Hellmayr a examiné les types, appartenant au musée de Halle, se rapporte à la forme typique, *C. p. platensis*.

12. **Cistothorus platensis platensis** (Lath.). (Pl. II. Figs. 1, 2, 5, 6.)

Nom vulgaire : Raton.

Venturi a tué des mâles adultes à Bahia Blanca (10. x. 1899) et à Barracas al Sud (14. vii. 1903), près de Buenos Aires.

La femelle pond 4 ou 5 œufs d'une couleur blanche, légèrement teintés de couleur de rose, et couverts de nombreuses taches rougeâtres qui, dans quelques exemplaires, forment une petite couronne au gros bout. Ils mesurent 15—17 × 12—14 mm. Venturi a trouvé les œufs aux mois d'octobre et décembre.

13. **Troglodytes musculus hornensis** (Less.).

Cf. Oberholser, *Proc. U.S. Nat. Mus.* xxvii. p. 203 (1904) ; Ihering, p. 199.
Nom vulgaire : Tacuarita ou Ratona.

Nous en avons une série de Barracas al Sud. Venturi y a aussi tué une femelle dont les parties supérieures sont d'une couleur d'isabelle, le bas du dos d'une nuance plus foncée. "La femelle pond 5 œufs, égaux à ceux de *Cistothorus platensis platensis*. Tant à Buenos Aires qu'au Chaco, cet oiseau commence à nidifier au mois de septembre et il finit au mois de mars." (S. V.)

14. **Troglodytes solstitialis auricularis** Cab.

Omis dans l'*Argentine Ornithology*.

2 ♀♀ S. Pablo, Tucuman, 1200 m., 29. viii., 3. ix. 1901 (L. Dinelli).

15. **Cinclus schulzi** Cab.

2 ♂♂ 2 ♀♀ Anfama, Tucuman, 1800 m., 7, 8, 9, 11. vi. 1906 (L. Dinelli, Nos. 4062, 4070, 4072, 4080).

MOTACILLIDAE.

16. **Anthus correndera** Vieill. (Pl. II. Figs. 17, 18, 19.)

Nom vulgaire : Cachirla.

Une belle série au musée de Tring :

Barracas al Sud, 7. i. 1902, 17. iv. 1901, 16. v. 1905, 13. xi. 1898 (S. Venturi coll.) ; Barracas al Sud, 18, 21. v. 1903 (F. M. Rodriguez coll.) ; Concepcion, Chile, 24, 28. v. 1903 (Charles S. Reed coll.) ; Chile (ex Bartlett coll.) ; San Sebastião, São Paulo, Brasil, juin, juillet 1901 (Hempel coll.).

Venturi a trouvé les nids avec 3 ou 4 œufs à Barracas al Sud aux mois de novembre et décembre. Les œufs sont d'un blanc grisâtre avec des taches cendrées et brunes, qui quelquefois forment une couronne au gros bout.

Dimensions : 19·5 × 13·3, 21·7 × 14·3 à 20 × 15·1 mm.

17. **Anthus lutescens lutescens** Less. (Pl. II. Figs. 8—12.)

Cf. Hellmayr, *Nor. Zool.* xiii. p. 307, 1906.

♂ ♀ Barracas al Sud, 19. xi, 17. xii. 1901 (Nos. 1008, 1009, 1010) (S. Venturi coll.) ; Tucuman, 450 m. alt. 12, 16, 20. vi. 1901 (L. Dinelli coll.).

"Cette espèce est commune à Barracas al Sud près des marais, au bord desquels il nidifie au printemps et en été. Elle profite des empreintes formées par les animaux dans le terrain mou, au fond desquelles elle construit son nid avec des tiges de graminées. Parfois cet oiseau le place dans les paquets d'herbes arrachés par les animaux. La petite ouverture du nid est presque invisible, comme le nid lui-même, du reste. La femelle pond 4 œufs, qui sont d'une couleur blanchâtre, quelquefois teintés de couleur de crème ou jaunâtre, tachetés de brun et grisâtre ; parfois ils sont presque uniforme, et souvent on trouve des lignes fines d'une couleur noire." (S. V.) Ils sont un peu plus petits que ceux de l'*Anthus correndera* et

A. hellmayri. Ils mesurent de 18·6 × 14 et 18·8 × 14 à 19·6 × 15·5, 20 × 15·6 et 20·4 × 15·3 mm.

18. **Anthus furcatus furcatus** Lafr. & d'Orb. (Pl. II. Figs. 13—16.)

Nom vulgaire : Cachirla.

♂ ♀ Barracas al Sud, 17. viii. 1903, 20. ix. 1899, 31. xii. 1900, 7. i. 1902 (Nos. 1003, 1005, 1006, 1007) (S. Venturi coll.).

♂ ♀ Barracas al Sud, mai, juin 1903 (F. M. Rodriguez coll.).

Ad., Valle Grande, Bolivie, 8. vi. 1890 (Gustav Garlepp coll.).

" Les œufs sont d'un blanc sale, couvert de taches brunes et grisâtres qui se réunissent parfois pour former une couronne de noir vers le pôle obtus ou vers le milieu. Quelques exemplaires ont des points ou des raies noirs. Ils mesurent 20—21 × 14—15·6 mm." (S. V.)

19. **Anthus hellmayri** nom. nov.

Anthus chii auctorum, nec Vieillot !

C'est à tort qu'on a employé le nom de *chii* pour désigner l'espèce qui a la rectrice ultime d'un fumé brunâtre, et la pénultime noirâtre, avec seulement une très petite tache blanchâtre à la pointe. Vieillot (*Nouv. Dict. d'Hist. Nat.*, 2e édit., vol. xxvi. p. 490) a dénommé " le chii " d'Azara qui est dit avoir " la penne extérieure blanche et une bordure de la même couleur à la seconde penne," et être plus petit que *correndera*. Évidemment cette description ne se rapporte pas à l'espèce nommée *chii* par les auteurs, mais s'applique plutôt au petit *A. lutescens*, ce qui est cependant trop incertain qu'on puisse accepter le nom de *chii* pour ce dernier.

Je dédie cet *Anthus* à mon ami Monsieur C. E. Hellmayr, qui m'a beaucoup assisté à rédiger ces notes sur les Oiseaux Argentins.

Type *d'Anthus hellmayri* : ♂ ad. Tucuman, 450 m., 12. vi. 1904. No. 3120, G. Dinelli coll. (Musée de Tring). Il y a à Tring deux autres exemplaires de Tucuman, S. Venturi coll., ♂ 17. vi. 1904, et G. Dinelli coll. " Iris marron ; pieds blanchâtres ; bec en dessus noirâtre, en dessous blanchâtre."

C'est évidemment l'espèce énumérée sous le nom d'*Anthus boyotensis* par Lillo, *Annales Mus. Nac.* Buenos Aires, sér. iii. vol. i. p. 173, 1902.

Tableau synoptique des espèces du genre *Anthus* trouvées en Argentine.

1. Rectrice ultime d'un fumé brunâtre, la pénultime noirâtre avec une très petite tache blanchâtre à la pointe . . . . . *A. hellmayri.*
   Rectrice ultime en partie blanche 2

2. Aile 61-66, ou même 68 mm. . . . . *A. lutescens.*
   Aile plus long que 72 mm. 3

3. Plumes interscapulaires avec des taches blanchâtres ou couleur de crème sur la barbe interne, formant une strie longitudinale claire le long des épaules ; bec grêle et allongé, ongle du pouce long, presque droit . . . . . *A. correndera.*
   Plumes interscapulaires sans taches blanchâtres, bec court et épais, ongle du pouce beaucoup plus court, courbé . . . . *A. furcatus.*

MNIOTILTIDAE.

20. Parula pitiayumi pitiayumi (Vieill.).

Nehrkorn, p. 88 ; Ihering, p. 203.

Venturi a trouvé deux œufs à Mocoví près d'Ocampo, le 3. xii. 1903, qui sont blancs avec de très petites mouchetures roussâtres, surtout au gros bout.

Dimensions : 16 × 12·1, 15·9 × 12 mm. Espèce commune.

21. Geothlypis aequinoctialis velata (Vieill.).

Nehrkorn, p. 90 ; Ihering, p. 203.

♂♂ ♀ ad. Barracas al Sud, 14. x. 1900, 27. iii. 1901. " Iris gris."

" Espèce commune tant à Buenos Aires qu'au Chaco. Les œufs sont blancs avec des taches rouges ou brun-noirâtre, et avec des taches primaires * d'un grisâtre pâle ; quelques exemplaires sont presque blancs, d'autres entièrement couverts de points et de taches rougeâtres." (S. V.) Ils mesurent 18 × 13·5, 17·4 × 13·6, 17·2 × 13·6, 17·6 × 13·6, 19 × 14·8, 18·5 × 14·2, 19·5 × 14, 19·3 × 13·8, 20·7 × 14·9 mm.

22. Setophaga brunniceps Lafr. & d'Orb.

Setophaga brunniceps Lafr. et d'Orb., Syn. Av. I. in *Mag. Zool.* 1837 Cl. ii. p. 50 (Yungas, Bolivia).
Setophaga virescens Burmeister, *Journ. f. Orn.* 1860, p. 251 (Tucuman !).

Il n'y a pas de différences constantes entre les exemplaires de la Bolivie et ceux de Tucuman. Le nom de Burmeister (omis dans le " Cat. B. x.") devient donc un synonyme.

MM. L. Dinelli et Venturi en ont pris une série à Tucuman, aux mois d'octobre et novembre.

23. Basileuterus auricapillus auricapillus (Swains.).

Nehrkorn, p. 90 ; Ihering, p. 203.

C'est un oiseau rare à Buenos Aires et dans le Chaco.

♂ ♀ Barracas al Sud, 28. vi. 1900, 10. viii. 1902 (S. Venturi).

♂ Ocampo, 27. x. 1905 (S. Venturi).

♂ Quebrada de los Piédros, Tucuman, 18. viii. 1901 (Dinelli).

24. Basileuterus leucoblepharus leucoblepharus (Vieill.).

Nehrkorn, p. 90 ; Ihering, p. 203.

Une série de Mocoví, S. Vicente et Ocampo, Chaco (S. Venturi).

" Cette espèce est très commune au Chaco. Elle se trouve aussi bien dans les bois des marais du Rio Paraná que dans les forêts de l'intérieur, et vit généralement sur le sol ou sur les branches peu élevées. Elle nidifie sous les troncs des arbres abattus et dans les broussailles de ' caraquata ' et de fougères. S. Venturi a trouvé le nid avec trois œufs à Ocampo (Chaco) le 18. xi. 1905. Les œufs sont blancs avec de nombreuses taches rougeâtres, plus denses au gros bout où elles forment, plus ou moins, une sorte de couronne. Dimensions : 20 × 15·3, 20 × 15·4, 20·5 × 15·5 mm." (S. V.)

" L'observation de M. Jean Lima est bien exacte. Quand on tue un des individus du couple, il est très facile, soit par la main soit au moyen d'une

* " Taches primaires " : *Schalenfleck* en allemand, " underlying spots " en anglais.—E. H.

badine, de s'emparer de l'autre. D'ailleurs Venturi fait remarquer que le nid de cette espèce est très difficile à retrouver, surtout quand il est placé dans le 'caraquatal.'" (S. V.)

Cette espèce, quoique omise dans le livre de Sclater et Hudson, avait été déjà signalée, dans la province de Corrientes par MM. Lafresnaye et d'Orbigny (*Sylvia leucoblephara*, Syn. Av. I., *Mag. Zool.* 1837, p. 20).

25. **Basileuterus bivittatus bivittatus** (Lafr. & d'Orb.).

3 ♂♂ ad., 3 ♀♀ ad. Ledesma, Jujuy, 520 m., juillet 1906 (L. Dinelli, Nos. 4124, 4209, 4213, 4246, 4247, 4272).

♂ ad. Rio Bermejo, province de Salta, 350 m., 27. vii. 1905 (J. Steinbach, 154).

Pas encore signalé en Argentine.

VIREONIDAE.

26. **Vireo chivi** (Vieill.).

Nehrkorn, p. 73 ; Ihering, p. 204.

"Très abondant à Buenos Aires pendant l'été. Il nidifie dans les bois de saules, à des hauteurs qui ne dépassent pas 1 m. 50 cm. Au Chaco, au contraire, il niche entre les feuilles et les branchettes du haut des arbres très touffus et hauts ; rarement on y trouve des nids à des hauteurs moindres de 4 mètres. Les œufs sont blancs avec des points et des taches noires, quelquefois tirant au rougeâtre. Dimensions : 19—20·4 × 14—16 mm." (S. V.)

27. **Cyclorhis ochrocephala** Tsch.

Nehrkorn, p. 74 ; Ihering, p. 205.
Nom vulgaire : Virgilio.

♂ ♀ Barracas al Sud, 15. vii. 1900, 27. x. 1900 (Venturi).

"Cette espèce abonde à Barracas al Sud pendant le printemps et l'été." (S.V.)

28. **Cyclorhis viridis viridis** (Vieill.) (Pl. II. Fig. 20).

C. altirostris Salvin, *Ibis* 1880 p. 352.

Comme l'a démontré le comte de Berlepsch (*Ibis* 1883, p. 89), c'est à l'espèce avec une tache ardoisée vers la base de la mandibule inférieure, qu'il faut conserver le nom de *C. viridis* (Vieill.) établi sur l'oiseau du Paragnay.

Venturi a recueilli des exemplaires à Mocoví et à Ocampo (Chaco), ainsi que près de Tucuman.

Les œufs sont blanc luisant avec des taches d'un noir de jais et avec des mouchetures primaires d'un gris cendré. Ils mesurent : 21·7 × 16·3, 22 × 16, 22·3 × 16·3, 22·8 × 16·1, 22·8 × 16·3 mm. "Les nids sont placés aux fourchettes d'arbres, à 4 ou 5 mètres du sol." (S. V.)

HIRUNDINIDAE.

29. **Hirundo rustica erythrogaster** Bodd.

Nehrkorn, p. 85 ; Ihering, p. 206.

"Espèce très commune au printemps et en été aux environs d'Ocampo. Elle fréquente les lagunes, reposant souvent sur les joncs au milieu de l'eau. Par les

jours de vent fort elle s'approche davantage des bords, alors elle est plus facile à tirer au vol. Au printemps, quand les oiseaux arrivent, les longues rectrices sont toutes tronquées: seulement après la mue, au mois de décembre, on trouve des exemplaires complets. Ces hirondelles nichent aux États-Unis." (S. V.)

30. **Progne chalybea domestica** Vieill.

Nehrkorn, p. 86 ; Ihering, p. 206.
Nom vulgaire : Golondrina.

♂ ♀ Barracas al Sud, 25. ii. 1902, 11. xi. 1896.

"Tant à Buenos Aires qu'au Chaco, elle nidifie sous les toits et dans les trous de murs des maisons. J'ai vu une énorme colonie de cette espèce à Puerto Borghi, au nord de Rosario ; c'est dans les trous qui se produisaient lorsqu'on sortit les échafaudages d'un grand mur de soutien de la berge sur le Rio Paraná, que ces hirondelles avaient nidifié, et il eût été relativement facile d'en retirer quelques milliers d'œufs." (S. V.)

Les œufs sont blancs. Un œuf trouvé à Esperanza le 6. xii. 1899 mesure 25·4 × 16·5 mm.

31. **Progne tapera** (L.).

Nehrkorn, p. 86 ; Ihering, p. 206.
Nom vulgaire : Golondrina.

2 ♂♂ 1 ♀ Barracas al Sud, Oct., Nov. (S. Venturi).

2 ♂♂ Tucuman, Nov., Déc. (L. Dinelli).

"Cette hirondelle se sert généralement des nids abandonnés de *Furnarius rufus*, des vieux nids des piverts, et des trous naturels de troncs. Pour en prendre possession elle attend patiemment que les jeunes *Furnarius* abandonnent leur habitation. J'ai également rencontré des œufs de cette hirondelle en compagnie des petits du *Furnarius rufus*, dans le même nid. Une fois, le 20. xi. 1905, en découvrant un nid de *Furnarius rufus*, je trouvai le *Progne tapera* en train de couver en présence du propriétaire du nid." (S. V.)

Les œufs sont d'un blanc peu luisant sans taches.

Dimensions de 28 œufs de 22·9 × 16 à 25·2 × 17 mm.

32. **Petrochelidon pyrrhonota** Vieill.

Nehrkorn, p. 87 ; Ihering, p. 207.
Nom vulgaire : Golondrina.

"Commune à Buenos Aires pendant l'été." (S. V.)

La Plata (Province Buenos Aires), 28. ii. 1896.

Barracas al Sud, 27. ii. 1902.

33. **Tachycineta leucorrhoa** (Vieill.).

Nehrkorn, p. 85 ; Ihering, p. 26.
Nom vulgaire : Golondrina.

♂ ♀ ad. Barracas al Sud, 5. vi. 1903, 22. vii. 1903 (F. M. Rodriguez coll.).

♂♂ ad. Barracas al Sud, 4. vi. 1901, 7. vii. 1903 (S. Venturi coll.).

♂ ad. La Soledad, 12. xi. 1901 (C. B. Brittain coll.).

♂ ♀ juv. Estancia S. Martino, Monte, province de Buenos Aires, janvier 1897 (Paul Neumann coll.).

Les descriptions de M. Sharpe dans le "Catalogue of Birds" et dans la

monographie des hirondelles sont incomplètes. Les taches brunes au croupion ne sont point de caractères du plumage des jeunes, mais au contraire elles se trouvent sur tous les exemplaires adultes en plumage frais que j'ai devant moi. Les jeunes ont les parties supérieures beaucoup plus mattes, d'un brun sombre à peine avec des reflets vert-bouteille.

Venturi a trouvé les nids de cette hirondelle dans les troncs d'arbres et dans les nids de *Furnarius rufus*.

" Cette espèce dérange les piverts, notamment les *Dendrocopus mixtus* en remplissant leurs nids de plumes. Il faut reviser jusqu'au fond les nids de cette espèce, parce que c'est là qu'on trouve souvent des œufs des propriétaires originaires. Il en est de même pour ceux de *Progne tapera*, de *Sicalis pelzelni*, de *Myiodynastes solitarius* et des *Myiarchus*, en un mot de toutes les espèces qui s'emparent des nids étrangers. Une seule fois j'ai trouvé les œufs de cette hirondelle dans un nid de *Pitangus bolivianus*." (S. V.)

34. **Atticora patagonica** (Lafr. & d'Orb.).

Hirundo patagonica Lafresnaye & d'Orbigny, Syn. Av. i., in *Mag. Zool.* 1837, Cl. ii. p. 69 (" Patagonie." Type au Musée de Paris examiné par Mons. Hellmayr).
Atticora hemipyga Burmeister, *Reise La Plata St.* ii. p. 479 (1861 —Mendoza).

Il y a certainement deux formes de cette hirondelle à distinguer, quoique leur distribution géographique ne soit pas encore tout à fait éclaircie.

Atticora cyanoleuca (Vieill.), établie sur la description d'Azara, ex Paraguay, a les sous-caudales tout entières noires, les axillaires et couvertures inférieures des ailes d'un brun fuligineux foncé, les ailes généralement un peu plus courtes, et la queue un peu moins fourchue. Le musée de Tring en possède des échantillons provenant du Costa Rica, de Mérida et du Cumaná (Vénézuéla), du Roraima (Guiane), de l'Équateur occidentale, des environs de Rio (Pétropolis), et enfin de la Sierra do Mar (Paraná). En plus, j'ai devant moi un mâle adulte tué près de Santo Domingo, province de Marcapata, Pérou, qui s'accorde sous tous les rapports avec la série que je viens d'énumérer. L'autre forme, *A. patagonica*, est caractérisée par les ailes généralement un peu plus longues, la queue un peu plus fourchue, et par les couvertures inférieures des ailes plus pâles, et par ce que les sous-caudales sont blanches sauf les plus longues, qui sont noirâtres avec plus ou moins de blanc vers la base. Le musée de Tring en possède les exemplaires suivants :

♂ ad. Barracas al Sud, 21. ix. 1902 ; ♀ ♀ ad. Bahia Blanca, 10. x. 1899, 10. x. 1902 (S. Venturi) ; 3 juv. ferme de S. Martino Monte, province de Buenos Aires, 26. xii. 1896, 4. i. 1897 (Paul Neumann) ; 1 ad., 1 juv. Nanta, Pérou (E. Bartlett coll.); ♂ juv. Yurimaguas, Haut Amazone, 16. iv. 1866 (E. Bartlett coll.); 5 ♂ ♀ Cosnipata, Pérou sud-oriental, département de Cuzco (H. Whitely coll.).

Un individu adulte de Colombie (de la préparation dite de Bogotá) est un peu intermédiaire entre les deux formes, mais se rapproche davantage de la forme méridionale (*A. patagonica*).

Nom vulgaire : Golondrina.

Nehrkorn, p. 86 ; Ihering, p. 207.

" J'ai chassé cette espèce à partir de Bahia Blanca vers le nord. Dans des talus sablonneux Monsieur Dinelli a trouvé des nids construits d'abondantes pailles et de plumes dans des trous peu profonds. Dans la province de Tucuman, pendant les mois de février et mars, elle pond 3 œufs blancs, un peu plus gros que ceux de l'*Atticora fucata*." (S. V.)

35. **Atticora fucata** (Temm.).

Ihering, p. 207.

♂ ad. Pindé (Chaco), 20. x. 1903 (S. Venturi).

♂ ♀ Tucuman, 1899 (S. Venturi).

♂ ♂ Tucuman, 1901, 1904 (Dinelli).

♂ Santo Tomé, Corrientes, 16. v. 1881 (E. W. White).

"J'ai trouvé leurs nids dans les trous délaissés par *Ceryle americana*. Dinelli les a observés dans les puits abandonnés, avec ou sans eau, et dans des torrents secs qui ne sont jamais fréquentés par *Ceryle americana* ni par *Bucco striatipectus*. Il a observé cette hirondelle en creusant son nid, et a vu que le travail s'effectue plus avec les pattes qu'avec le bec. Le même observateur dit qu'elle pourrait à peine se servir du nid de *Bucco striatipectus* à cause de la grande quantité de détritus et d'excréments que laissent les petits de cette dernière espèce en quittant le nid. Beaucoup de nids se trouvent les uns près des autres, et tous les trous sont très propres, bien qu'on trouve au fond quelques pailles et plumes. Les œufs sont blancs, et mesurent de 17 × 12·5 et 17·3 × 13 à 18·8 × 12, 19 × 13 et 19·5 × 13·9 mm." (S.V.)

Les œufs ont été trouvés aux mois de septembre et d'octobre.

TANAGRIDAE.

36. **Euphonia chlorotica serrirostris** Lafr. & d'Orb.

Euphonia serrirostris Lafr. & d'Orb. Syn. Av. i. in *Mag. Zool.* 1837. Cl. ii. p. 30 (Guarayos, Santa Cruz, Bolivia).

MM. L. Dinelli et Venturi nous ont envoyé une série de mâles de Tucuman et une femelle de Salta. Monsieur Hellmayr a comparé les deux sexes aux types du musée de Paris, et les leur a trouvés identiques.

37. **Euphonia chlorotica** (subsp. ?).

De S. Vicente Monsieur S. Venturi nous a envoyé un mâle qui se distingue de ceux de Tucuman par une teinte beaucoup plus foncée des parties inférieures et par une taille moins forte. Il est tout à fait semblable à divers échantillons provenant de Goyaz et de Bahia, mais il est impossible d'indiquer le nom exact de cette forme sans en connaître la femelle.

38. **Euphonia nigricollis nigricollis** Vieill.*

S. Venturi a tué un mâle typique de cette espèce à Tucuman le 6. ix. 1900.

39. **Pipridea melanonota melanonota** (Vieill.).

♂ ad. Barracas al Sud, 23. v. 1901 (S. Venturi).

40. **Pipridea melanonota venezuelensis** Scl.

♂ ad. Cerro de Tucuman, 700 m., 27. x. 1900 (S. Venturi).

Tucuman, une série par Monsieur L. Dinelli :

Cette forme bien caractérisée a les parties inférieures beaucoup plus pâles et la région interscapulaire plus foncée. Il faudra étudier la répartition géographique de ces formes avec plus de soin.

* Le nom de *Pipra cyanocephala* Vieillot (*Nouv. Dict.* xix. p. 165) cité comme synonyme par Monsieur Sclater (*Cat. B.* xi. p. 61) ne peut pas s'appliquer à cette espèce, parce que l'auteur ne mentionne pas le front orange

41. **Stephanophorus leucocephalus** (Vieill.).

Nehrkorn, p. 95 ; Ihering, p. 209.
Nom vulgaire : Cardenal azul.

♂ ♀ ad. Barracas al Sud, 28. v., 16. viii. 1900 (S. Venturi).

Venturi a trouvé le nid à 4—5 mètres de hauteur sur les arbres fruitiers des vergers de Barracas. Les œufs, variables comme ceux de *Tanagra bonariensis*, mesurent 25—26·5 × 16—17·5 mm. "Cette espèce assez rare, tant à Buenos Aires qu'au Chaco, est cependant très abondante à Godog, sur les rives de Rio de la Plata, environ 35 kilomètres au sud de Buenos Aires. Au printemps elle se tient par bandes, qui produisent de considérables dégâts en mangeant les verdures dans les vergers." (S. V.)

42. **Tanagra sayaca sayaca** L.

Nehrkorn, p. 96 ; Ihering, p. 209.
Nom vulgaire : Aculejo.

"Assez commune à Ocampo et à Buenos Aires. Dans le nid on observe presque toujours des troncs d'une plante cryptogame qui croît sur les vieux troncs de la forêt. Les 3 œufs sont très variables en grandeur et en coloration. Dimensions : 22—25 × 16—18 mm." (S. V.)

Dans le *Catalogue of Birds in the Brit. Mus.*, vol. xi. pp. 158, 159, Monsieur Sclater a encore confondu les *Tanagra cyanoptera* et *T. sayaca*. La description qu'il donne pour la femelle de *T. cyanoptera* et les spécimens *n* à *w*, c'est-à-dire tous les échantillons de l'Argentine et de la Bolivie, se rapportent au *T. sayaca*, qui a toujours les épaules d'un vert bleuâtre pâle dans les deux sexes. Le *T. cyanoptera*, d'autre part, se reconnaît au premier coup d'œil par une large tache bleu-outremer luisant sur les épaules. Cette dernière espèce ne se trouve jamais en Argentine ; son air de dispersion est confiné dans les provinces sud-orientales du Brésil de Bahia jusqu'à Rio Grande do Sul.

43. **Tanagra bonariensis** (Gm.).

Nehrkorn, p. 96 ; Ihering, p. 209.
Nom vulgaire : Siete colores ou Naranjero.

"Il abonde pendant l'hiver et cause des dégâts assez considérables aux orangers, mais il se retire au mois d'août." (S. Venturi). Les œufs ressemblent à ceux de *Tanagra sayaca* et de *Stephanophorus leucocephalus*.

44. **Piranga azarae** d'Orb.

Nom vulgaire : Fueguera.

♂ ad. Tucuman, 17. viii. 1899 (S. Venturi).
♂ med. Tucuman, 19. vii. 1898 (S. Venturi).
♀ ad. Tucuman, 7. viii. 1900 (S. Venturi).
♀ ad. Tapia, Tucuman (alt. 700 m.), 27. ix. 1902 (L. Dinelli).

"À la saison d'amour j'ai toujours vu cet oiseau sauter entre les branches les plus élevées des arbres très hauts et très gros couverts de 'barba del monte.' Comme il ne se tient pas dans les rameaux supérieurs aux autres époques de l'année, je suppose qu'il doit nidifier là-haut." (S. V.)

45. **Thlypopsis sordida** (Lafr. & d'Orb.).

♂ ad. S. Vicente (Chaco), 5. x. 1905 (S. Venturi).
♂ ♀ Tafi Viejo (Cerro de Tucuman, 18. 20. x. 1900 (L. Dinelli).

♂♂ Tafi Viejo (Cerro de Tucuman), 16. x. 1900, 3. xi. 1900 (L. Dinelli).

"Il n'est pas rare aux alentours d'Ocampo. Le 27. xi. 1905 je chassai un couple dont la femelle avait un œuf déjà formé dans l'oviducte, et il était reconnaissable qu'elle en avait pondu d'autres, mais je ne pus pas trouver le nid." (S. V.)

46. Thlypopsis ruficeps (Lafr. & d'Orb.).

♂ ad. Cumbre de Hoyada (Cumbre de Raco), Tucuman, 30. xii. 1901, 1. i. 1902, alt. 2100 m. (L. Dinelli, S. Venturi).

47. Chlorospingus fulvigularis Berl.

2 ♂♂, 2 ♀♀ Ledesma, Jujuy, 500 m., vii. 1906 (L. Dinelli; Nos. 4184, 4185, 4219, 4201).

♂ Metan, Salta, 850 m., 14. vi. 1905 (L. Dinelli, No. 3597).

Pas encore signalé en Argentine.

48. Pyrrhocoma ruficeps (Strickl.).

♂ ad. Santa Ana (Misiones), 8. ii. 1901 (S. Venturi). Espèce nouvelle pour l'Argentine.

49. Buarremon citrinellus Cab. (Pl. II. Fig. 23).

♂ ad. Malamala, Cerro Tucuman, 6. vi. 1901 (S. Venturi).

♂ ad. Tafí viejo, Tucuman, 1200 m., 23. ii. 1902 (S. Venturi).

3 ♂♂, 1 ♀ Villa Nouges, S. Pablo, Tucuman, 1200 m. (Dinelli).

2 ♂♂ Lagunita, Tucuman, janvier, février 1903, 3000 m. (J. A. Baer).

"Monsieur Paul Girard a trouvé les nids sur des arbustes élevés. L'œuf est blanc avec des taches de couleur café rougeâtre, et des taches primaires d'un brun rougeâtre pâle, plus nombreuses au pôle obtus. Les œufs mesurent 22 × 16 et 24·7 × 17·5." (S. V.)

50. Arremon flavirostris polionotus Bp. (Pl. II. Fig. 24).

Ihering, p. 211.

5 ♂♂, 1 ♀ Ocampo, septembre, octobre, décembre 1905 (S. Venturi).

"Ce bel oiseau est abondant dans les forêts d'Ocampo, où il vit constamment comme l'espèce suivante. Il chante plus ou moins comme le *Basileuterus leucoblepharus*, mais plus fort : il vit comme lui, et nidifie toujours sous quelque tronc pourri qui jonche le sol. Le nid, très difficile à voir, est construit avec de nervures des feuilles de mimosas et de fines tiges de graminées : il ne contient que 2 œufs blancs couverts de nombreuses taches rougeâtres, parmi lesquelles on aperçoit parsemées quelques mouchetures primaires d'un cendré lila. Ils mesurent 24 × 17 mm." (S. V.)

51. Arremon flavirostris d'orbignii Scl.

♂ Vipos (Tucuman), 650 m., 8. xi. 1899 (S. Venturi).

♀ Tucuman, 14. xii. 1899 (S. Venturi).

♂ San Pablo, Villa Nanoes, Tucuman, 1200 m., 2. ix. 1901 (L. Dinelli).

♂ Norco, Tucuman, 1200 m., 19. viii. 1904 (L. Dinelli).

♀ Metan, Salta, 850 m., 10. vi. 1901 (L. Dinelli).

♂♀ Ledesma, Jujuy, 520 m., 22, 28. vii. 1906 (L. Dinelli).

52. **Tachyphonus rufa** (Bodd.).

(*T. malaleucus* auctorum).
Nehrkorn, p. 97 ; Ihering, p. 97.

" Espèce très commune dans les forêts du Chaco. Pendant l'hiver ces oiseaux se réunissent par bandes parfois de 50 individus et plus, et s'approchent des hameaux des travailleurs de la forêt pour manger les restes des repas. Je n'ai pas obtenu le nid." (S. V.)

53. **Tachyphonus coronatus** (Vieill.).

Une femelle tuée à Yguazú (Misiones) le 17. ii. 1904 (S. Venturi).

Pas encore signalé en Argentine, comme l'espèce précédente. Cependant il est probable que l'oiseau mentionné par White de Misiones, sous le nom de *Tachyphonus cristatus*, se rapporte à cette espèce.

54. **Trichothraupis melanops melanops** (Vieill.).

Trichothraupis quadricolor auct. (Voyez Hellmayr, *Revision der Spixschen Typen*, p. 673, 1906.)

♂ ad. Posadas (Misiones), 7. viii. 1900 (S. Venturi).

" Cette espèce ne se trouve pas dans les provinces de Buenos Aires et de Santa Fé. Je l'ai tuée à Misiones. D'après les descriptions qu'on en donne, on a parfois confondu les œufs de *T. melanops* avec ceux de *Emberizoides platensis*." (S. V.)

55. **Saltator similis** Lafr. & d'Orb. (Pl. II. Figs. 21, 22).

Ihering, p. 211. (Nom vulgaire : Juan Chivivo.)

♂ ad. Posadas (Misiones), 9. iii. 1897 (S. Venturi).

♂ ad. Ocampo, 29. ix. 1905 (S. Venturi).

" Celle-ci et les deux espèces suivantes nidifient à Ocampo, plus ou moins de la même manière. Peut-être est-ce le *S. caerulescens* qui niche le plus haut, car j'en ai trouvé des nids jusqu'à 5 mètres de hauteur. Les œufs de ces trois espèces de *Saltator* sont fort semblables entre eux. Ils sont d'un bleu pâle, avec des points, de petites taches et des traits fins noirs entourant le gros bout. Ils mesurent 21·5—27·5 × 18—19·5 mm."

56. **Saltator caerulescens caerulescens** Vieill.

Nehrkorn, p. 98 ; Ihering, p. 211.
Nom vulgaire : Juan Chivivo ; pepitero.

" Les œufs ressemblent à ceux de *S. similis*, mais on trouve plus souvent des échantillons très allongés. Dimensions : 26·5—18.5 × 18·5—20·5 mm." (S. V.)

Venturi l'a chassé à Ocampo, Mocovi, et Tucuman.

57. **Saltator aurantiirostris** Vieill.

Nehrkorn, p. 98.
Nom vulgaire : Juan Chivivo.

♂ ad. Mercedes (Corrientes), 16. ix. 1898 (S. Venturi).

♂ ad. Tucuman, 29. ix. 1899 (S. Venturi).

♀ Mocovi, 5. xi. 1903 (S. Venturi).

♀ S. Vicente, 19. ix. 1905 (S. Venturi).

" C'est le vrai Juan Chivivo, car c'est ainsi qu'il chante. Le chant de *S. similis* diffère de celui des autres espèces de *Saltator*, et ressemble davantage à celui des *Tanagra*. Les œufs mesurent 24·5—30 × 18—20, et les plus allongés 33·5 × 18 mm." (S. V.)

FRINGILLIDAE.

58. **Pheucticus aureiventris** (Lafr. & d'Orb.).

Nom vulgaire : Reina mora, Sacha lora.

♂♂ ad. Tucuman, Dinelli et Venturi coll.

" Dinelli a trouvé des nids de cette espèce près de Tucuman dans la région des alisiers. C'est tant sur les grosses branches que dans les fourchettes voisines du tronc de ces arbres qu'on trouve le nid pas très volumineux et assez difficile à voir. La ponte a lieu aux mois de décembre et janvier. L'œuf est d'un bleu clair saupoudré de taches marron, plus denses et plus grandes vers le pôle obtus. Dimensions : 28 × 20 mm." (S. V.)

59. **Guiraca cyanea argentina** Sharpe. (Pl. II. Fig. 30.)

Nom vulgaire : Celestino.

♂ ad. ♀ ad. ♂ fère ad. Tucuman, v. 1902, vi. 1899 (S. Venturi).

3 ♂ 1 ♀ Tucuman, 450 m., 1901 (L. Dinelli).

" Monsieur Dinelli a trouvé les œufs de cette espèce sur des arbres peu élevés. Le nid, formé de branchettes courtes et de crins à l'intérieur, contient 3 œufs, qui sont très variables en grandeur et en coloration. Ils sont généralement, sur un fond blanchâtre ou blanc bleuâtre, couverts de pâles taches roux cannelle et quelques taches primaires d'un roux bleuâtre. Ils mesurent de 22 × 15 à 24 × 16 mm." (S. V.)

60. **Guiraca glaucocaerulea** (Lafr. et d'Orb.). (Pl. II. Figs. 25, 29.)

Pyrrhula glaucocaerulea Lafresnaye & d'Orbigny, Syn. Av. in *Mag. Zool.* 1837 Cl. ii. p. 85. ("Maldonado, rep. Oriental") (Uruguay).

♂ ad. Salto Grande, Rio Paranapanema, State of S. Paulo, Brésil. (Hempel coll.)

♂ ♀ Barracas al Sud, 3. xii. 1900, 30. viii. 1901 (S. Venturi coll.).

" J'ai trouvé plusieurs nids de cette espèce à Barracas al Sud. C'est près des bords des bois de saules et de 'ceibo' qu'elle fait son nid sur de petits arbustes, aux mois de novembre et décembre. Le nid est simple, tissu en dehors de tiges de plantes grimpantes et en dedans de fines racines." (S. V.)

La femelle pond 3 œufs d'un vert bleuâtre clair, saupoudré de taches primaires cendré violacé et de taches rougeâtres superficielles ; certains œufs portent de nombreuses taches, tandis que sur d'autres il n'y en a que très peu. Les mesures varient entre 18—21 × 14—15 mm.

61. **Spermophila ruficollis** (Cab.). (Pl. II. Fig. 27.)

Sporophila ruficollis Cabanis, *Mus. Hein.* i. p. 150 (1851—Montevideo) (Description d'un jeune mâle).

Spermophila plumbeiceps Salvadori, *Boll. Mus. Torino* x. No. 208, p. 5 (Tucuman) (Descr. d'un mâle adulte).

Sporophila ruficollis Hellmayr, *Verh. k. k. zool.-bot. Ges. Wien*, 1904, p. 523.

Il y en a une belle série au musée de Tring de :

Tucuman, 450 m., L. Dinelli et S. Venturi coll.

Mocoví (Chaco), Venturi et Rodriguez coll.

Ocampo, S. Venturi coll.

Selvo (Sgo. Estero), S. Venturi coll.

"Cette espèce est très commune dans tout le nord de la province de Santa Fé. Elle nidifie sur de petits arbustes ('chañarcillos') qui se trouvent par-ci par-là dans les champs élevés et secs. Le nid, construit comme celui des autres espèces du genre *Spermophila*, est suspendu entre deux branchettes ou quelques feuilles. La femelle pond 3 œufs d'un blanc bleuâtre, saupoudré notamment à la partie postérieure, de nombreux points et taches noirâtres et brun-rougeâtre superficielles, et de taches primaires d'un violacé pâle. Dimensions : 15—17 × 11·4—13 (17 × 12·7, 16·6 × 11·4, 16 × 13, 15·4 × 13, 15 × 12·5) mm." (S. V.)

62. **Spermophila hypoxantha** (Cab.) (Pl. II. Figs. 31, 32.)

Une série de Mocoví et d'Ocampo.

"Il niche parmi les petites herbes qui se trouvent sur les grands fourmiliers des marais ('tacurús'). La femelle pond 3 oeufs de couleur blanc bleuâtre très pâle, avec des taches primaires d'un brun rougeâtre pâle, et avec des taches et raies noirâtres formant une couronne au gros bout." (S. V.) Dimensions : 14·3 × 12, 14·4 × 12, 16 × 12·5, 16·5 × 12·5 mm.

63. **Spermophila melanocephala melanocephala** (Vieill.). (Pl. II. Figs. 33, 34.)

Venturi en a envoyé une belle série de Mocoví (Chaco) et de Barracas al Sud.

"Cette espèce et *Sperm. hypoxantha*, au lieu de vivre comme *S. ruficollis* dans les champs élevés, préfèrent les vallées et lieux marécageux converts de 'pajales.' Les nids que j'ai trouvés, tant à Barracas al Sud qu'au Chaco, sont semblables à ceux des autres espèces de *Spermophila*. Ils sont suspendus aux branchettes de petits arbustes qu'on rencontre parmi les joncs." (S. V.)

La femelle pond 3 œufs d'un fond bleu-verdâtre pâle, couvert de taches primaires cendré-violacé pâle, et d'autres presque noires, et quelquefois de raies fines. Dimensions : 16·5 × 12·6—17 × 13 et 18·2 × 13 mm.

64. **Spermophila leucoptera leucoptera** (Vieill.).

Cf. Hellmayr, *Verh. k. k. zool.-bot. Ges. Wien*, 1904 p. 537.

Venturi a tué un jeune mâle à Ocampo, le 27. x. 1905.

65. **Spermophila caerulescens** (Vieill.).

Pyrrhula caerulescens Vieillot, *Tabl. Enc. Méth.* iii. p. 1023 (1823—"Brésil," coll. Delalande, type de Rio Janeiro, au musée de Paris, examiné par E. C. Hellmayr).
(Cf. Nehrkorn, p. 105 ; Ihering, p. 213.)

La variation géographique de cette espèce n'est pas suffisamment connue.

"C'est la plus abondante des *Spermophila* et celle qui pond généralement des œufs plus volumineux et très variables dans leur coloration."

Dimensions : 16·5—20 × 12·5—13 mm.

66. **Spermophila lineola** (L.).

Nehrkorn, p. 106 ; Ihering, p. 213.

Trois mâles très typiques d'Ocampo, et une femelle (S. Venturi).

La distribution géographique de la forme *boucronides* de Lesson = *lessoni* Finsch 1870 = *trinitatis* Sharpe 1888 = *amazonica* Sharpe 1888 (?) sans blanc au sommet de la tête est fort singulière ; il est fort invraisemblable que cette forme soit spéci-

fiquement distincte du vrai *lineola* (avec une large bande blanche le long du milieu du dessus de la tête), mais ce qui m'empêche de traiter ces deux oiseaux en sous-espèces c'est qu'on les trouve ensemble dans plusieurs localités (lac de Valencia au Vénézuéla, sur les bords du Rio Négro supérieur, Guyane anglaise, etc.). Il est curieux que Sharpe ait appelé "a fine series" les matériaux au musée britannique en 1888 (*Cat. B.* xii. p. 133), et malgré cela ait redécrit le *boucronides* sous deux nouveaux noms.

"Cette espèce, comme le *Sperm. caerulescens*, niche sur les arbres, soit sur le bord des bois, soit dans les métairies, à des hauteurs qui dépassent presque toujours 2 mètres. Le nid, composé de racines fines et transparent comme celui des espèces voisines, contient trois œufs, qui ressemblent, par leurs coloration et dimensions, à ceux de *S. caerulescens*, mais souvent ils sont un peu plus petits et quelquefois plus bleuâtres. Elle est très commune à Ocampo au printemps et pendant l'été." (S. V.)

Trois œufs d'Ocampo (2. xii. 1905) mesurent 15·1 × 12, 16·4 × 12, 16·7 × 12 mm.

67. **Spermophila analis analis** (Lafr. & d'Orb.).

Mendoza, ♂ ad. Weisshaupt coll., ♂ juv. S. Venturi coll.
Tucuman, L. Dinelli coll., G. A. Baer coll.

68. **Volatinia jacarina jacarina** (L.).

Nehrkorn, p. 106 ; Ihering, p. 213.

Ocampo, Tucuman (Venturi, Dinelli).

"Commun au Chaco. Le mâle se reconnaît facilement par sa couleur et la particularité de chanter en sautant, ce que fait d'ailleurs aussi la femelle. Le nid est suspendu parfois à la tige des pailles dures et parfois placé à la bifurcation des branches de petits arbustes ; il est à 0m. 30—0m. 70 du sol. Construit de racines fines, et transparent, il contient 3 œufs." (S. V.) Les œufs sont d'un verdâtre très pâle avec des taches rousses, et quelques taches primaires d'un violacé pâle qui forment couronne au pôle obtus. Dimensions de 6 œufs: 16·6 × 13·5, 16·8 × 11·8, 16·9 × 13·4, 17 × 12, 17 × 13·5, 17·5 × 12 mm.

"Le 2. xii. 1905 j'obtins un nid avec 3 œufs à 3 mètres de distance de la fenêtre de mon laboratoire à Ocampo ; il était suspendu à la tige d'une 'radicheta' en fleur." (S. V.)

69. **Carduelis icterica icterica** (Licht.).

Nehrkorn, p. 107 ; Ihering, p. 213.
Nom vulgaire : Cabecita negro.

Barracas al Sud, Mocovi, Tucuman (S. Venturi).

"La description du nid donnée par le Dr. Ihering est exacte, comme aussi celle donnée des œufs par Monsieur Nehrkorn. La ponte est de 5 œufs. La couleur est blanc-bleuâtre avec de petites taches et points roussâtres. Dimensions : 15·5—16·5 × 12·5—13·5 mm." (S. V.)

70. **Carduelis atratus** Lafr. & d'Orb.

♂ ad. Lara (Tucuman), 4000 m., 9. ii. 1903 (S. Venturi).
♀ ad. Cerro Muños (Tucuman), 24. ii. 1905 (L. Dinelli).
♂ ad. Angosta Pardieta, Jujui norte, 2550 m., 3. xi. 1905 (L. Dinelli).

71. **Sicalis pelzelni** Scl.

Nehrkorn, p. 110 ; Ihering, p. 214.
Nom vulgaire : Jilguero, mixto cimarrón.

3 ♂♂ 2 ♀♀ Barracas al Sud, 10. iii. 1897, 16 ix. 1899, 14. viii. 1900, 1. vii. 1901, 14. xii. 1902, Nos. 315, 309, 310, 311, 768 (S. Venturi).

Tucuman, 1. i. 1901 (L. Dinelli).

" J'ai observé que cette espèce est très commune tant à Barracas qu'au Chaco pendant le printemps ; il y a toujours 3 individus (un mâle et deux femelles) qui se réunissent pour nidifier. Ce fait est difficile à observer pendant l'été, parce que les jeunes de la première ponte se tiennent avec leurs parents tandis que ceux-ci incubent de nouveau. Ils occupent généralement les nids des *Furnarius* et des Piverts, mais nidifient aussi dans des trous d'arbres, de murs, etc. Dans les jardins de Barracas al Sud, les enfants ont coutume de clouer au haut des murs de leurs maisons de boîtes en fer-blanc ouvertes d'un côté, afin que cet oiseau y nidifie. Les œufs, très bien décrits par le Dr. Ihering, mesurent 17·5—21 × 12—14·5 mm." (S. V.)

72. **Sicalis arvensis arvensis** (Kittl.).

Nehrkorn, p. 111 ; Ihering, p. 214.
Nom vulgaire : Mixto.

Barracas al Sud (S. Venturi, F. M. Rodiguez), Tucuman (L. Dinelli).

" La grandeur et la coloration des 5 œufs que pond ce ' mixto ' sont tellement variables que les descriptions de Nehrkorn, Hudson, Dalgleish et Ihering, quelque contradictoires qu'elles soient, peuvent être bien exactes. L'espèce est très commune à Buenos Aires, moins au Chaco. Dimensions : 15·5—19 × 12·5—14 mm." (S. V.)

73. **Brachyspiza capensis capensis** (P. L. S. Müller).

(*Zonotrichia pileata* auctorum).

Nehrkorn, p. 114 ; Ihering, 214 (*Zonotrichia pileata*).
Nom vulgaire : Chingolo.

" Il niche aussi bien sur le sol qu'à 3 ou 4 mètres de hauteur, et occupe parfois les nids de *Furnarius*. J'ai observé que les nids étaient toujours construits plus ou moins de la même manière, et consistaient, comme chez d'autres espèces, en matériaux que l'oiseau avait à sa portée. Un nid commencé aux premiers jours du décembre 1905 sur une vigne presque sous le corridor de ma maison à Ocampo fut fini en 5 jours ; il était très volumineux et fort, l'oiseau ayant employé des tiges de luzerne qu'on avait récemment coupée. Les œufs sont variables pour leur coloration, et mesurent 16·5—22·5 × 14—16 mm." (S. V.)

74. **Brachyspiza canicapilla** (Gould). (Pl. II. Fig. 35.)

♀ Cachi, province de Salta, 2500 m. (J. Steinbach).

♂ ♀ San Juan, 23. vii. 1902, 10. iii. 1902 (S. Venturi).

" Un nid avec 4 œufs que j'ai trouvé à Santa Cruz le 10. i. 1898 était placé entre les branches inférieures d'un ' calafato.' " (S. V.)

Les œufs d'un fond vert-bleuâtre clair sont converts de petits points et des taches rougeâtres plus denses à la partie postérieure, et de quelques taches primaires d'un cendré bleuâtre très pâle. Dimensions de 4 œufs : 21·6 × 16, 21·7 × 16·4, 21·9 × 16·2, 22 × 16·5 mm.

75. **Haemophila whitii** (Sharpe).

Zonotrichia whitii Sharpe, *Cat. B. Brit. Mus.* xii. p. 608 (1888—Cosquin, Cordova).

Venturi a tué des exemplaires près de Tucuman et dans la province de Salta.

76. **Poospiza nigrorufa** (Lafr. & d'Orb.).

Ihering, p. 214 ; *Revista Mus. Paul.* v. p. 293.
Nom vulgaire : Siete vestidos.

Les femelles sont striées sur les parties inférieures.

♂ ad. Barracas al Sud, 2. ix. 1901 (No. 273, S. Venturi).

♂ ad. Barracas al Sud, 7. x. 1899 (No. 272, S. Venturi).

♀ ♀ Barracas al Sud, 7. x. 1899, 24. viii. 1902 (Nos. 274, 731, S. Venturi).

La Soledad (Brittain coll.).

Venturi a trouvé les nids au Chaco. "Le Dr. Ihering a donné une bonne description des œufs. Ils sont d'un blanc bleuâtre très pâle, quelquefois teinté de grisâtre ou de rougeâtre pâle, avec des taches et des raies noirâtres et des taches primaires d'un cendré pâle. Plus que trente spécimens mesurent 18·5—22·5 × 14—16·5 mm." (S. V.)

77. **Poospiza whitii** Scl.

♂ Tapia, Tucuman, 700 m. (L. Dinelli).

♀ Ticucho, Tucuman, 750 m. (L. Dinelli).

♂ Los Vasquez, Cerra de Tucuman, 445 m. (L. Dinelli).

♂ Cerra de Tucuman, 1700 m. (G. A. Baer).

♂ ♂ Tucuman, 10. x. 1899, 11. vii. 1900 (S. Venturi).

"Monsieur Dinelli a trouvé le nid de cette Poospiza au mois de mars sur un petit arbuste : il était solide, hémisphérique, et formé de branchettes réunies par de petites fibres herbacées. Les œufs d'un blanc bleuâtre ont de petites taches marron très pâle. Dimensions 19 × 14 mm." (S. V.)

La femelle est plus pâle que le mâle, pourtant sans stries sur les parties intérieures.

78. **Poospiza erythrophrys** Scl.

♂ Quebrada de las piedras (Tucuman), 800 m. (No. 277, S. Venturi).

♀ ♂ Tafi viejo (Tucuman), 700 m. (Nos. 551, 749, S. Venturi).

79. **Poospiza torquata** (Lafr. & d'Orb.). (Pl. II. Fig. 37.)

Ad. Bolivia (Bridges coll.).

Ad. Mendoza (Weisshaupt coll.).

♂ ad. Pa. de Santiago del Estero, 330 m., 20. viii. 1904 (L. Dinelli coll.).

♂ ♀ ad. Arenal, Pa. de Salta, 750 m. 27. x. 1903 (L. Dinelli coll., S. Venturi).

♂ ♀ juv. près de Tucuman (Dinelli et Venturi).

Les oiseaux jeunes ont la gorge teintée de jaune souffre, la bande jugulaire lavée de brun, et les parties supérieures olivâtres.

"Monsieur Dinelli a trouvé le nid près de Tucuman, au mois de décembre. Il était placé sur un arbuste en terrain sablonneux et aride. Il est sphérique et transparent, formé de crin végétal et à l'intérieur avec de la pelouse de fleurs. Les œufs sont blancs avec quelques taches café obscur. Dimensions : 17·5—18·3 × 13—13·8 mm. La ponte est de 3 œufs." (S. V.)

80. **Poospiza melanoleuca melanoleuca** (Lafr. & d'Orb.).

Nehrkorn, p. 115.

2 ♀♀ Mocoví (Chaco) (S. Venturi).

♂♀ Tucuman (S. Venturi).

♂♂ Tucuman, 450 m. (L. Dinelli).

"Commun au Chaco. Il niche au bord des bois sur des arbres peu élevés. Le nid en dehors tissu de la 'barba del monte' et en dedans de fibres très fines de fleurs de graminées, contient 3 œufs; il mesure intérieurement 30 cm. de haut sur 45 cm. de diamètre; extérieurement il varie suivant la quantité de 'barba' employé, mais généralement son épaisseur ne dépasse pas 2 cm." (S. V.) La couleur des œufs est blanche bleuâtre avec des taches et des points noirs et avec quelques taches primaires d'un cendré pâle à la partie postérieure. Dimensions : 17·2—20 × 13·1—15·5 mm.

81. **Poospiza lateralis assimilis** Cab.

♂ Tigre (Buenos Aires), 1. xii. 1902 (No. 763, S. Venturi).

♀ Barracas al Sud, 7. xii. 1901 (No. 292, S. Venturi).

82. **Poospiza hypochondriaca affinis** Berl.

Berlepsch, *Bull. B. O. C.* xvi. p. 97 (1906) ; Ornis xiv. (*Proc. Congr.*) p. 352 (Tucuman).

♀ ad. Cachi, province de Salta, 2500 m. (J. Steinbach).

3 ♂♂ juv., 1 ♀ juv., Norco, Tucuman, 1200 m., viii. 1904 (L. Dinelli).

♀ juv., Aufama, Tucuman, 1800 m., 8. vi. 1906 (L. Dinelli).

83. **Myospiza manimbe** (Licht.).

Nehrkorn, p. 116 ; Ihering, p. 215 (*Ammodromus manimbe*).
Nom vulgaire : Cachirlito.

"La figure et la description données par Ihering du nid de cet oiseau sont très bonnes. Le 'cachirlito' est très commun dans les champs depuis Buenos Aires vers le nord. Il pond 3 œufs, blanc luisant sans taches. Dimensions : 18—21 × 14—15·5 mm." (S. V.)

84. **Embernagra platensis** (Gm.). (Pl. II. Fig. 40.)

Nehrkorn, p. 118 ; Ihering, p. 215 (la description de Nehrkorn est erronée).
Nom vulgaire : Verdon.

♂ juv. Ocampo, 28. xi. 1905 (S. Venturi).

♂♀ ad. Barracas al Sud (S. Venturi).

"Dans les champs élevés il place son nid à peu de distance du sol entre les paquets d'herbes, dans les marécages entre les pailles hautes et épaisses à ½ à 1 m. de hauteur." (S. V.) La femelle pond 3—4 œufs blancs, quelquefois légèrement teintés de crème, avec des taches ou des lignes et raies rougeâtres ou brun rougeâtre foncé, presque noires ; parfois les taches et lignes sont nombreuses, parfois rares et presque nulles ; dans quelques exemplaires elles sont distribuées sur toute la surface, dans d'autres limitées au gros bout où les lignes sont confluantes. Dimensions : 23 × 19, 24 × 18, 25 × 17·5, 26 × 18·5, 28 × 18, 28·9 × 19 mm.

Les jeunes d'*Embernagra platensis* sont assez différents des adultes ; les rectrices sont un peu pointues et portent une bande claire à l'extrémité ; le bec est brun foncé ; la coloration du plumage est bien décrite dans le *Catalogue of Birds*, xii. p. 759, par Monsieur Sharpe.

85. **Embernagra olivascens** Lafr. & d'Orb.

Nom vulgaire : Pepitero.

♂ ♀ Tucuman, 6. xi. 1899, 6. vi. 1902.

86. **Emberizoides macroura herbicola** (Vieill.).

♂ ♀ Mocovi (Chaco), 24. ix., xii. 1903 (Nos. 815, 815A, S. Venturi).

♂ Ocampo, 27. xi. 1905.

♂ Posadas (Misiones), 16. iii. 1897 (No. 304, S. Venturi).

"Cet oiseau vit dans les champs élevés et ouverts, et cache très bien son nid dans les herbes. Pour nidifier il emploie de la paille et la tapisse intérieurement de fines herbes ; il pond 3 œufs, qui tout en ressemblant à ceux d'*Embernagra platensis*, sont, en général, un peu plus petits. Dimensions : 23·5 × 18·7, 24 × 18·5, 24·3 × 18·8, 25·4 × 18·8, 24·3 × 18·6 à 25·6 × 18·5, 24·9 × 18·6, 24 × 19·3, 25 × 18 mm." (S. V.)

87. **Coryphosphiza melanotis** (Temm.).

3 ♂♂, 1 ♀ Mocovi (Chaco) (Nos. 857, 810, 841, 947, S. Venturi).

"Il est très difficile d'obtenir les femelles de cette espèce si commune au Chaco. Le 26. xii. 1905 je trouvai un nid près d'Ocampo ; il était construit de tiges de graminées, et placé au milieu d'une touffe d'herbes à 15 cm. du sol." (S. V.)

88. **Donacospiza albifrons** (Vieill.). (Pl. 11. Fig. 36.)

3 ♂♂ 2 ♀♀ Barracas al Sud, août, octobre, décembre (Nos. 269, 270, 271, 271a, 786).

"Espèce commune dans les fourrés d'herbes à Barracas al Sud et au Chaco. C'est là qu'on trouve le nid fait avec des tiges de ces herbes : l'intérieur est tapissé du même matériel, mais mieux choisi. Le nid mesure 10 cm. de diamètre sur 7 cm. de haut extérieurement. En dedans il a 5 cm. de profondeur pour 5 cm. de diamètre. Les 4 œufs sont blancs avec des taches et des points brun foncé ou rougeâtres ; quelques-uns en ont beaucoup, d'autres que peu. Dimensions : 18—20 × 14—14·5 mm." (S. V.)

89. **Phrygilus caniceps** (Burm.).

♂ Ushuaia, Tierra del Fuego, 3. iii. 1898 (No. 42, S. Venturi).

♀ Santa Cruz, Patagonia, 14. iii. 1898 (No. 282, S. Venturi).

"J'obtins un nid de cette espèce sur les bords du fleuve Santa Cruz en janvier 1898. Les œufs concordent avec la description que donne Nehrkorn pour ceux de '*P. gayi*.'" (S. V.)

90. **Phrygilus alaudinus venturii** subsp. nov.

Subspeciei *Phrygilus alaudinus alaudinus* dictae similis sed major, alis caudaque longioribus, colore pectoris schistaceo magis ad ventrem producto ; subspeciei *P. alaudinus excelsus* dictae simillimus, sed rostro validiore, colore schistaceo pectoris pallidiore distinguendus.

Hab. Tucuman. Typus : ♂ ad. Lagunita, Tucuman, 3000 m., 31. i. 1903 (G. A. Baer coll., No. 1352).

♂♂ Tafi del Valle. Tucuman, 2000 m., 19. ii. 1905 (G. Dinelli, Nos. 3459, 3458).

♂ Las Cienagas, Tucuman, 2500 m., 19. ii. 1903 (G. Dinelli, No. 1955).
♂ fere ad. Las Cienagas, Tucuman, 16. ii. 1902 (S. Venturi, No. 936).
♀ Lagunita, Tucuman, 3000 m., 4. ii. 1903 (G. A. Baer, No. 1378).
♀ Las Cienagas, Tucuman, 1. ii. 1903 (S. Venturi, No. 937).

Cette forme nouvelle diffère de *P. al. alaudinus* au premier coup d'œil par ses dimensions plus fortes et par la couleur ardoisée des parties inférieures plus étendue et moins nettement délimitée, passant graduellement au blanc du ventre.

Quant au *Ph. alaudinus excelsus* Berl. (*Proc. IV. Int. Congr.* p. 351, 1907) nous l'avons reçu de Tirapata, Carabaya, Pérou sud-oriental, 12,700 pieds anglais, où G. Ockenden a tué un mâle et une femelle.

91. **Phrygilus unicolor unicolor** (Lafr. & d'Orb.).

♂ ad. Las Cienagas, Tucuman, 2500 m., 23. ii. 1903 (S. Venturi).

"À une altitude de 3000 m. Monsieur Dinelli a trouvé, sur les berges des fleuves, des nids dans des trous abandonnés par d'autres espèces d'oiseaux. Les nids étaient peu profonds et faciles à observer."

"Le nid, construit avec quelques branchettes et racines sèches, du crin, de la paille et des plumes, contient 2 ou 3 œufs bleuâtres, saupoudrés de marron. La ponte se fait aux mois de janvier, février et mars. Dimensions des œufs : 22 × 15 mm." (S. V.)

92. **Phrygilus atriceps** (Lafr. & d'Orb.).

Dinelli en a envoyé une série tuée à une altitude de 2470 à 2550 m. des environs de Tucuman (Nos. 3782, 3820, 3825, 3874, 3875).

93. **Phrygilus erythronota** (Philippi & Landb.).

♂ ad. Cerro Muños, Tucuman, 4000 m., 1. vi. 1906 (No. 4049, Dinelli).
♂♂ ad. Laguna alta, Tucuman, 4500 m., 8. ii. 1903 (Nos. 884, 939, Venturi).

94. **Phrygilus fruticeti** (Kittl.).

♂ ad. Roca (Rio Negro), 13. xi. 1899 (No. 283, Venturi).

95. **Phrygilus carbonaria** (Lafr. & d'Orb.).

♂ ad. Roca (Rio Negro), 14. xi. 1899 (No. 285, Venturi).

96. **Pseudochloris aureiventris mendozae** Sharpe.

Pseudochloris mendozae Sharpe, *Cat. B. Brit. Mus.* xii. p. 778 (1888—Mendoza, Argentina).

♂ Cerro Muños, Tucuman, 4100 m., 23. ii. 1905 (No. 3469, L. Dinelli).
♂ Angosta Perchela, 2550 m., 8. xii. 1905 (No. 3908, L. Dinelli).
♂ Est. Tilcara, 2470 m., 25. xi. 1905 (No. 3810, L. Dinelli).

97. **Pseudochloris uropygialis** (Lafr. & d'Orb.).

♂♂ Cerro Muños, Tucuman, 4000 m., 29. v., 1. vi. 1906 (Nos. 4022, 4047, L. Dinelli).

98. **Coryphospingus cucullata** (P. L. S. Müll.).

(*Coryphospingus cristatus* auct. antiqu. ; cf. *Nov. Zool.* 1906 p. 278.)
Nehrkorn, p. 119 ; Ihering, p. 216.

♂ ad. Mocoví (Chaco), 25. xi. 1903 (No. 948, S. Venturi).
♂ ad. Tucuman, 2. ix. 1898 (No. 267, S. Venturi).

♀ ad. Tucuman, 2. x. 1898 (No. 268, S. Venturi).

Les œufs trouvés à Tucuman par Dinelli et à Ocampo par Venturi sont blancs avec une teinte bleuâtre à peine visible. Dimensions : 19·6 × 14 mm.

99. **Lophospingus pusilla** (Burm.).

♂♂ Tapia (Tucuman), 400 m., 17, 25. ix. 1902 (Nos. 751, 779, S. Venturi).

100. **Paroaria cucullata** (Lath.).

Nehrkorn, p. 119 ; Ihering, p. 216.
Nom vulgaire : Cardenal.

Les œufs varient de verdâtre pâle à brunâtre obscur, et sont couverts de taches brunes. Ils mesurent de 19·5 × 15·5 (exceptionnellement) et 20·4 × 16·4 à 26 × 18 et même 26·5 × 18 mm.

101. **Paroaria capitata** (Lafr. & d'Orb.). (Pl. III. Fig. 10.)

Ihering, p. 216.
Nom vulgaire : Cardenal.

♂♂ ♀ Ocampo, 14, 16, 27. xi. 1905 (S. Venturi).

♂ ♀ Mocoví (Chaco), 1. x. 1903 (S. Venturi).

♀ San Lorenzo (Santa Fé), 25. xi. 1902 (S. Venturi).

" Ce cardinal niche sur le bord des bois à proximité de l'eau. Le nid, fait avec de la paille et des herbes fines, est généralement placé sur une fourchette à 3·5—4 m. du sol. J'en ai trouvé plusieurs à Ocampo, où elle est très commune." (S. V.)

Les 3 œufs de la ponte sont blanc sale, complètement saupoudrés d'une couleur brun verdâtre, et de quelques taches primaires grisâtres. Dimensions : 19·7—20·5 × 13—15·5 mm.

102. **Gubernatrix cristata** (Vieill.).

Nehrkorn, p. 119 ; Ihering, p. 216.
Nom vulgaire : Cardenal amarilla.

♂ ad. Tucuman, 7. x. 1899 (L. Dinelli).

♀ Barracas al Sud 5. xi. 1900 (S. Venturi).

" À Entre Rios j'ai obtenu des œufs de cette espèce." (S. V.)

Par leur coloration ils ressemblent de très près à ceux de *Saltator*, mais sont plus arrondis et moins allongés. Dimensions : 23—25 × 18 mm. Cette espèce me parait être plutôt un *Saltator* huppé qu'un cardinal cette affinité étant indiquée par la forme du bec aussi bien que par la coloration des œufs.

103. **Passer domestica domestica** (L.).

Nom vulgaire : Gorrión.

" Cette espèce acclimatée niche non seulement près des peuples et des villes, mais aussi en plein bois, comme j'ai pu le voir le 18. x. 1901." (S. V.)

104. **Carduelis carduelis** (L.).

" Il n'est pas difficile de trouver des nids de cette espèce européenne dans les jardins de Barracas al Sud." (S. V.)

L'exemplaire que Monsieur Venturi a envoyé est une femelle d'assez petite taille et d'un brun très foncé sur les parties supérieures. Il serait très intéressant à savoir de quel pays de l'Europe ces oiseaux furent introduits.

ICTERIDAE.

105. **Archiplanus chrysopterus** (Vieill.).

Cassicus albirostris auctorum, nec *Cassicus albirostris* (L.) !
Nehrkorn, p. 99 ; Ihering, p. 218.
Nom vulgaire : Boyero.

Une série de Tucuman par Dinelli et Venturi.

" Cette espèce n'est pas rare à Tucuman et très commune au Chaco, et niche tant dans les forêts vierges de l'intérieur que sur les îles du Paraná. Dans le premier cas le nid, généralement suspendu à une petite branche de ' Guayacan ' (*Caesalpinia melanocarpa*), est de couleur noire ; dans l'autre, le nid est suspendu à un petit rameau de quelque gros arbre, et sa coloration varie du rouge au violet obscur. Plusieurs auteurs disent que le nid noir est composé de fibres décortiquées de ' barba del monte ' ; s'il en était ainsi il devrait parfois arriver que l'oiseau laissât quelque ' barba ' sans en sortir complètement l'écorce, et qu'on pût ainsi voir quelque peu de vert, ce qui pourtant ne se fait jamais. Les Indiens que j'eus à mon service m'ont montré à plusieurs reprises une fibre très mince et noire qui monte du sol et enveloppe le tronc d'un arbre très utile—je dis ' utile ' parce qu'avec ses feuilles on prépare un thé très bon—qu'on appelle ' ñangapirý ' ; ils me dirent que le boyero fait son nid avec cette fibre, et pendant les années que j'ai passées dans les forêts du Chaco, j'ai pu m'assurer de la réalité de ce fait. Les nids de couleur violacée qu'on trouve sur les îles du Paraná (Chaco) sont faits avec de la racine très fine d'une plante grimpante qui croît dans les sables déposés par les crues, mais qui sont ensuite enlevés par le vent et les eaux, de manière que ces racines restent à découvert. Les nids de couleur rouge, enfin, dont on y trouve aussi, sont construits avec de l'écorce des racines d'un arbre appelé ' Iguahay,' dont le fruit jaune est gros et comestible. Quand on ôte les œufs d'un nid tout en laissant celui-ci intact, le boyero commence immédiatement à en tisser un autre en employant les matériaux du premier, mais le second nid est toujours moins volumineux et mal construit. La longueur des nids varie beaucoup : j'en ai pris depuis 48 cm. jusqu'à 1·50 m."

" Les œufs sont généralement 4—5 par nid, mais le 1. xii. 1905 je retirai d'un nid du boyero 8 œufs tous frais." (S. V.)

La coloration et les dimensions des œufs correspondent parfaitement à celles qu'en ont données les auteurs.

106. **Amblycercus solitarius solitarius** (Vieill.).

Nehrkorn, p. 99 ; Ihering, p. 219.
Nom vulgaire : Boyero.

Une série de Barracas al Sud, S. Vicente et Ocampo (S. Venturi).

" Il fréquente, de préférence, les forêts voisines du Paraná ou de ses affluents. Les nids sont suspendus à 3 ou 4 mètres et même plus haut, soit sur des arbres soit sur des ' picanillas ' ou des ' tacuaras.' Ils sont faits avec des fibres fines et longues de feuilles de graminées ; ils sont très volumineux et quelques-unes des fibres sont appendues au nid et flottent à l'air. Les matériaux employés à la construction du nid sont aussi variés que chez l'espèce précédente. Ceux qui sont faits d'écorces des racines d' ' Iguahay ' ont une couleur rougeâtre et sont mieux tissus ; d'autres sont construits avec des fibres très fines de matière végétale qui conserve sa couleur verdâtre même étant sèche, et ceux-ci n'ont que quelques fibres d'écorce d'arbre

entrelacés. La longueur du nid dépend du matériel employé, mais elle oscille toujours entre 50 et 80 cm. Ce sont ceux faits avec de la paille qui atteignent le maximum de longueur." (S. V.)

La ponte est de 3—4 œufs d'un blanc légèrement teinté de bleuâtre avec des taches, points et des raies fines dont la couleur varie de marron rougeâtre à noirâtre ou rougeâtre pâle. Les dimensions varient entre 26·6 × 19, 32 × 19 et 33·7 × 19 ou 32 × 21·6 mm.

107. **Dolichonyx oryzivora** (L.).

Nehrkorn, p. 99 ; Ihering, p. 219.

"C'est pendant le mois de novembre que cet oiseau commence à passer par Ocampo en se dirigeant vers le sud ; il va toujours par bandes de 20 et plus d'individus. Le 5. i. 1906 ils passèrent en quantités énormes, la dernière troupe s'est montrée vers les 3 heures de l'après-midi et fit halte sur un morceau de 'carrizal' dont l'extension était d'environ 3 hectares. Par le nombre d'oiseaux réunis sur les diverses touffes d'herbes je jugeai que cette bande se composait de plus de 5000 individus. Je ne connais pas la limite sud de leur migration." (S. V.)

108. **Molothrus bonariensis bonariensis** (Gm.).

Nehrkorn, p. 100 ; Ihering, p. 220.
Nom vulgaire : tordo.

"Au Chaco, cet oiseau pond des œufs tachetés, bleuâtres ou rougeâtres, et parfois, mais plus rarement, aussi des œufs blancs sans taches. Les œufs coloriés sont assez constants dans leurs dimensions, tandis que les blancs varient de 22 × 17 à 25 × 21 mm. : en général, cependant, les œufs blancs sont plus petits que les autres. La femelle pond dans le nid d'autres espèces presque aussitôt qu'il est fini, et ce sont les jeunes de *Molothrus bonariensis* qui sortent les premiers. Comme ils sont très voraces, ils ôtent du bec de ses parents adoptifs la nourriture destinée à ses puînés, ceux-ci mourant parfois de faim. Aussitôt qu'il sait voler, il poursuit l'un ou l'autre de ses parents d'adoption pour leur exiger impérieusement un aliment qu'il leur est souvent difficile à trouver."

"Le nombre des œufs de ce 'tordo' que j'ai trouvés dans un nid varie de 1 à 5 ; il jette parfois les œufs des autres pour y mettre les siens. Ainsi j'ai vu un nid de *Vireo chiri* dont 3 œufs étaient brisés sur le sol et à leur place il y en avait 5 de *M. bonariensis*, et une autre fois le nid d'un *Anthus* avec 4 œufs de celui-ci et 5 du 'tordo.'" (S. V.)

109. **Molothrus brevirostris** (Lafr. et d'Orb.).

Nehrkorn, p. 100 ; Ihering, p. 220.
Nom vulgaire : Tordo.

♂♂♀ Tucuman (Nos. 322, 719, 720, S. Venturi).

"Il est très difficile de déterminer les œufs de cette espèce, parce qu'elle est parasite du *Molothrus badius*, et que les œufs du maître du nid sont variables en coloration et grandeur. Je crois tout de même que ceux de *M. brevirostris* sont les plus résistants dans leur coquille, et qu'ils ont, au Chaco, une coloration rosée ; c'est en les trouant qu'on observe la même résistance qu'offrent les œufs de *M. bonariensis*, tandis que la coque de l'œuf de *M. badius* est mince et facile à trouer. Mon ami Dinelli attribue à cette espèce plutôt des œufs petits, mais forts, de couleur cendrée ; moi, je n'ai pas trouvé cette variété à Ocampo. J'ai tenté à plusieurs reprises de résoudre ce problème en tuant des femelles de *M. brevirostris* pendant

l'époque de la ponte, espérant de trouver dans son corps l'œuf déjà formé, mais je n'y ai pas eu de succès. Les œufs cendrés que j'ai reçus de Tucuman, ainsi que les rosés que j'ai trouvés moi-même à Ocampo, mesurent 21—24 × 17 mm." (S. V.)

110. **Molothrus badius** (Vieill.).

Nehrkorn, p. 100 ; Ihering, p. 220.
Nom vulgaire : Tordo bayo.

♂♂ Buenos Aires et Catamarca (E. W. White).

♂♀ La Soledad, Entre Rios, 12. x. 1901 (C. B. Brittain, Nos. 50, 51).

♂ Barracas al Sud, 14. ix. 1896 (S. Venturi, No. 323).

♂ Los Vasquez, Tucuman, 17. iii. 1903 (L. Dinelli, No. 2743).

♀ juv. Tapia, Tucuman, 700 m., 12. xi. 1901 (L. Dinelli, No. 1503).

" Espèce excessivement commune à Ocampo. Au printemps, alors que les nids de *Phacellodomus* et *Synallaxis* sont occupés par leurs propriétaires, il se contente d'y ouvrir une cavité dans la partie supérieure, en mettant de côté des branchettes. À la seconde ponte il pond également les œufs dans les nids de ces espèces, mais il s'approprie aussi ceux de *Furnarius* et d'*Amblycercus*. À Ocampo je n'ai jamais trouvé de nids faits par le *M. badius* lui-même ni de pontes de 10 œufs, mais seulement de 5 ou 6. Les œufs sont variables en coloration et dimensions ; ils mesurent 21·5—25·5 × 16·5—18·5 mm." (S. V.)

111. **Agelaius thilius chrysocarpus** (Vig.).

Nehrkorn, p. 100 ; Ihering, p. 221.

♂ San Lorenzo, Prov. Rio Grande do Sul, 14. x. 1885 (Dr. H. von Ihering).

♂ La Soledad, Argentine, 13. iii. 1902 (C. B. Brittain).

♂ Est. S. Martino, Monte, Prov. Buenos Aires, 15. i. 1897 (Paul Neumann).

♂ ad., ♂ juv. La Plata et Flores, Prov. Buenos Aires, 1881, 1882 (E. W. White).

♂♀ Barracas al Sud, 20, 28. iii. 1903 (F. M. Rodriguez).

♂♂♀ Barracas al Sud, 4. vii. 1897, 14. viii. 1898, 23. ix. 1899 (S. Venturi).

Venturi a recueilli plusieurs nids à Barracas al Sud. La description et les mesures des œufs données par Nehrkorn sont exactes.

112. **Agelaius cyanopus** Vieill.

3 ♂♂ ad. S. Vicente (Chaco), 21. xi., xii. 1903 (S. Venturi).

1 ♂ juv., 2 ♀♀ Mocoví (Chaco), 7. x., 7. xi., 8. xii. 1903 (S. Venturi).

1 ♂ juv. Barracas al Sud, 7. vi. 1901 (S. Venturi).

(Quoique déterminés par Venturi comme *A. flavus*, ces oiseaux se rapportent incontestablement à l'*A. cyanopus*.)

" Il abonde dans les marais du Chaco. Le nid se trouve dans les touffes épaisses de paille ou dans les joncs environ 10 ou 20 cm. au-dessus de l'eau." (S.V.) Les œufs sont bleuâtre pâle avec des taches ou des raies noirâtres ou brun foncé et des taches primaires gris bleuâtre pâle. Dimensions : 21·7 × 16·3, 22·7 × 16·1—24·3 × 16·2, 26·7 × 17, 24 × 17·6 mm.

113. **Agelaius ruficapillus ruficapillus** Vieill.

Ihering, p. 221.

Barracas al Sud (Venturi); Tucuman (Dinelli).

" On voit parfois de véritables bandes de cette espèce. Elle niche dans les joncs sur les bords des grandes lagunes et des 'aguadas,' et dans les immenses

marais de l'intérieur. Les 4 œufs sont identiques, comme coloration, à ceux de *A. cyanopus*, leur grandeur étant généralement un peu moindre. À Tucuman, suivant M. Dinelli, cette espèce est des plus poursuivies par le *M. bonariensis*, qui dépose jusqu'à 8, 9 et 10 œufs dans chaque nid d'*A. ruficapillus*. Les nids étant ainsi remplis avec surabondance, les œufs sont abandonnés et restent sans être incubés." (S. V.)

114. **Leistes militaris superciliaris** (Bp.).

(Cf. *Nov. Zool.* xiii. p. 21.)
Ihering, p. 221.

Barracas al Sud (Venturi); Est. S. Martino, Monte, Prov. Buenos Aires (Paul Neumann); La Soledad (Brittain).

"Le nid de cette espèce est un des plus difficiles à trouver, à cause de la coutume de la femelle de marcher quelque distance avant de prendre le vol." (S. V.) Les œufs sont très variables. Ils sont d'un verdâtre clair et couverts, en tout ou en partie, de taches brun-rougeâtre, ou d'un sale blanchâtre avec de taches rougeâtre très pâle. Dimensions : 22—25 × 16·5—18 mm.

115. **Amblyrhamphus holosericeus** (Scop.).

Ihering, p. 221.
Nom vulgaire : Federal.

"Il niche dans les touffes de pailles très hautes, en reliant entre elles 5 ou 6 feuilles d' 'espadaña' ou de joncs à l'aide de quelques larges rubans de paille ; le nid solidement tissu se trouve à plus d'un mètre au-dessus de l'eau ; au printemps, il est facile à trouver, car le mâle a la coutume de se reposer tout à proximité. La femelle pond 3 œufs, qui sont bleuâtres avec quelques points noirs à la partie postérieure. Dimensions : 25—26 × 18—18·5 mm." (S. V.)

116. **Pseudoleistes guirahuro** (Vieill.).

Nehrkorn, p. 101 ; Ihering, p. 221.
Nom vulgaire : Pecho amarillo ; Guirahuro.

♂♂ ♀ San Vicente (Chaco), 16. xi., 13. xii. 1903 (Nos. 920, 921, 974, S. Venturi).
♂ ♀ Ocampo, 9. xi. 1905 (S. Venturi).

"Espèce assez commune au Chaco. Elle niche dans les hautes pailles des îles du Paraná et des marais de l'intérieur. Comme le *Pseudoleistes virescens*, elle fait son nid généralement au milieu d'une épaisse touffe de paille à 50 cm. du sol. Une fois j'en trouvai un sur une fourchette d'un arbuste sur le bord d'un marais à 1·70 m. de l'eau. La ponte est de 3 ou 4 œufs. Les œufs sont variables : blancs avec de taches roussâtres et quelques taches primaires d'un gris violacé, ou blanc rougeâtre avec un grand nombre de taches rouges qui couvrent toute la surface. Les dimensions moyennes des œufs de *P. guirahuro* sont de 27 × 19 mm., donc un peu plus grandes que ceux de *P. virescens*, ce qui correspond bien aux proportions des oiseaux." (S. V.)

117. **Pseudoleistes virescens** (Vieill.).

Nehrkorn, p. 101 ; Ihering, p. 221.
Nom vulgaire : Pecho amarillo ; Guirahuro.

♂ ♀ Est. S. Martino, Monte, Prov. Buenos Aires, 8. xii. 1896, 4. i. 1897 (Paul Neumann).

♂ ♀ La Soledad, 18, 26. xii. 1898 (Brittain coll.).

♂ ♀ Ocampo (Chaco), 9. xi. 1905 (S. Venturi).

♂♂ ♀ Barracas al Sud, 14. vii. 1896, 5, 18. x. 1899 (Nos. 338, 339, 340, S. Venturi).

"J'ai trouvé les nids tant à Buenos Aires qu'à Entre Rios et au Chaco. Comme l'espèce précédente, celle-ci niche dans les touffes épaisses de paille 'cortadera.' La femelle pond 5 œufs, dont la coloration est la même que chez *P. guirahuro* et dont les dimensions sont en général de 23—26 × 17 mm. Cependant j'en ai quelques-uns qui mesurent 28 × 19 mm. Les œufs de *Pseudoleistes* sont plus ou moins luisants." (S. V.)

118. **Curaeus curaeus** (Mol.).

Nehrkorn, p. 101.

♂ Lapataia (Tierra del Fuego), 10. ii. 1898 (No. 36, S. Venturi).

Deux œufs Ushuaia, 13. xi. 1902. Les œufs sont bleuâtre pâle (comme des œufs pâles de *Turdus musicus* auct.) avec des taches et des raies noires au gros bout.

119. **Trupialis militaris militaris** (L.).

Nehrkorn, p. 101 ; Ihering, p. 221.
Nom vulgaire : Pecho colorado.

♂ Bahia Blanca, 19. x. 1899 (No. 341, S. Venturi).

120. **Trupialis militaris defilippii** Bp.

Nehrkorn, p. 101 ; Ihering, p. 221.
Nom vulgaire : Pecho colorado.

♂ ad. Bahia Blanca, 13. x. 1899 (No. 342, S. Venturi). Il serait singulier que ces deux formes vivent côte-à-côte dans la même localité ; s'il n'y a pas d'erreur à cet égard, l'occurrence en Patagonie de *T. m. defilippii* est sûrement exceptionnelle.

♂ ♀ Barracas al Sud, 13, 23. ix. 1899 (Nos. 342, 344, S. Venturi).

"Les œufs de ces deux formes (*T. m. militaris* et *T. m. defilippii*) sont complètement semblables, bien que ceux de *militaris* soient un peu plus gros, mesurant jusqu'à 22 mm. de diamètre. Le *T. m. militaris* se trouve au sud et à l'ouest de la république Argentine et le *defilippii* abonde dans les provinces de Buenos Aires et de Santa Fé, mais je ne l'ai jamais chassé au Chaco." (S. V.)

121. **Xanthornus pyrrhopterus pyrrhopterus** (Vieill.).

Nehrkorn, p. 101 ; Ihering, p. 222.

♀ Barracas al Sud, 12. x. 1899 (No. 247, S. Venturi).

"À Barracas al Sud j'ai trouvé les nids de cet Ictéride suspendus aux branches basses des saules et des osiers, et faits avec des lanières fines de l'écorce de cette dernière plante. À Ocampo les nombreux nids que j'ai recueillis étaient suspendus à d'épais fourrés de plantes grimpantes, à des hauteurs toujours supérieures à 3 mètres, et ils étaient tissus de fines lanières de paille 'cortadera' et tapissés en dedans de quelques crins de vache. La femelle pond 3 œufs." (S. V.). Les œufs sont blanc bleuâtre avec des taches rougeâtres, brunes ou noirâtres, et des taches primaires d'un cendré bleuâtre. Dimensions de 24 × 17·1 et 25 × 17 à 26·5 × 16·6 mm.

122. **Aaptus chopi** (Vieill.).

[*Aphobus chopi* auct. Cf. Richmond. *Proc. Biol. Soc. Washington* xv. (1892), p. 85.]
Ihering, p. 222.
Nom vulgaire : Chopí.

" Le chopí est très commun à Ocampo. Il niche dans les nids délaissés par les gros pics faits dans les 'ombus' (*Phytolacca dioica*) qui se rencontrent isolés au bord des bois. Le nid, construit avec des feuilles et du fourrage, contient 4 à 6 œufs. Le 2. xi. 1905 j'en ai trouvé un dans un 'ombú' environ 6 mètres de hauteur : il contenait 4 œufs que j'emportai. Je revins 15 jours après, et je fus bien surpris de voir le chopí à la porte du nid : je montai de nouveau, et j'en retirai 6 œufs frais, observant en même temps que le nid avait été quelque peu refait." (S. V.)

Les œufs sont bleuâtres avec des lignes fines brunes ou noires réunies en forme de couronne à la partie postérieure, mais il y en a aussi quelques-uns qui ont seulement 2 ou 3 taches de couleur café obscur. Dimensions : 26—27 × 18—20 mm.

CORVIDAE.

123. **Cyanocorax chrysops tucumanus** Cab.

Cyanocorax tucumanus Cabanis, *Journ. f. Orn.* 1883 p. 216 (Tucuman).

♂♂ Près de Tucuman, 700 et 1200 m. (L. Dinelli).

♂♀ Tucuman, 29. x., 3. xi. 1899 (Nos. 350, 351, S. Venturi).

La race de Tucuman est seulement un peu plus grande que le *Cyanocorax chrysops chrysops* de Paraguay et du Brésil méridional. Cabanis, dans la description originale, dit que les derniers sont blancs en dessous ; mais c'est une erreur, parce qu'ils sont jaunâtres en dessous, tout comme la race *tucumanus*.

124. **Cyanocorax chrysops chrysops** Vieill.

Ihering, p. 223.
Nom vulgaire : Urraca.

♀ Mocoví (Chaco), 29. x. 1903 (No. 908, S. Venturi).

" C'est un dangereux destructeur d'œufs et de jeunes oiseaux : il repasse les arbres avec soin depuis le tronc jusqu'à l'extrémité pour y chercher les nids d'autrui. À Ocampo, il niche au mois de novembre, et c'est déjà dans la seconde quinzaine de décembre que s'envolent les petits. Il sait très bien cacher son nid, car je n'ai jamais pu en trouver, mais d'après le nombre des jeunes on peut conclure que la ponte doit être de 6 à 8 œufs. Les Correntins, qui, dans leur province, cherchent les jeunes pour les élever et les vendre ensuite, m'ont assuré que le nid de l'Urraca ainsi que des œufs ressemblaient à ceux de *C. cyanomelas*. Il se pourrait très bien que les descriptions qu'en donne H. Euler ne se rapportent pas à l'espèce dont nous parlons." (S.V.)

125. **Cyanocorax cyanomelas** (Vieill.). (Pl. III. Fig. 4.)

Nom vulgaire : Cahé ou Urraca azul.

♂♂ Mocoví (Chaco), 11. x., 29. xi. 1903 (Nos. 840, 949, S. Venturi).

" Le 'cahé' niche dans les forêts épaisses sur des arbres bas couverts de plantes grimpantes. Le nid placé environ 3 mètres du sol est construit avec des branchettes de plantes grimpantes et tapissé de leurs mêmes feuilles. Au Chaco

il niche en novembre et pond 5—6 œufs. Il abandonne le nid aussitôt qu'on s'en approche, même sans y toucher." (S. V.)

Un œuf trouvé à S. Javier, province de Misiones, le 17. xi. 1902, est d'un verdâtre clair, avec de nombreuses taches brunes et quelques petites taches d'un cendré pâle. Il ressemble aux œufs de *Pica pica*. Dimensions : 32·7 × 24 mm.

TYRANNIDAE.

126. **Agriornis striatus striatus** Gould.

♂ ad. Tucuman, 450 m., 20. v. 1901 (L. Dinelli, No. 1175).
♂♂ ad. Tucuman, 19, 28. vi. 1899 (S. Venturi, Nos. 352, 711).
♀ ad. Tucuman, 18. vii. 1899 (S. Venturi, No. 353).

127. **Agriornis livida fortis** Berl.

Agriornis livida fortis Berlepsch, *Proc. IV. Orn. Congr.* (Ornis xiv. p. 352).

3 ♂♂ Chubut, Valle del Lago Blanco, Patagonie, Juillet 1900 (types de la description) (Julius Koslowsky).

128. **Agriornis maritima maritima** (D'Orb. & Lafr.).

♂ Jujuy norte, 2470 m., 29. xi. 1905 (L. Dinelli, No. 3834).
♀ ad. Lara (Tucuman), 14. ii. 1903 (Baer, No. 1).
♂ Las Cienagas (Tucuman), 2500 m. (S. Venturi, No. 885).

129. **Myiotheretes rufiventris** (Vieill.).

♂♀ Barracas al Sud, 13. viii. 1899, 18. iv. 1902 (S. Venturi, Nos. 354, 607).

130. **Myiotheretes striaticollis pallidus** Berl.

Berlepsch, *Bull. B.O.C.* xvi. p. 98 (May 1906) ; Proc. iv. *Int. Orn. Congress*, p. 353 (1907) (Norco ! province de Tucuman).

♂♀ Norco, prov. de Tucuman, 1200 m., 13, 14. viii. 1904 (Terra typica !) (L. Dinelli, Nos. 3305, 3314).

♂♀ Tapia, Tucuman, 700 m., 23. v., 14. ix. 1902 (S. Venturi, Nos. 308, 781).

131. **Taenioptera cinerea** (Vieill.). (Pl. II. Fig. 38.)

(*Taenioptera nengeta* auct.—Cf. Berlepsch, Proc. iv. *Int. Congr.* p. 467).

♂♀ La Soledad, 4. xi. 1901 (C. B. Brittain, Nos. 73, 74. "Iris bright red ; feet black ; bill dark horn-colour.")

♂♂♀ Mocoví (Chaco), 24. ix., 11. xi. 1903 (S. Venturi).

♀ San Lorenzo (Santa Fé), 24. 11, 1902 (S. Venturi).

"Cette espèce vit plutôt dans les places et jardins publiques des petites villes. À Ocampo il nidifie sur les palmiers et orangers des jardins." (S. V.)

La femelle pond trois œufs d'un blanc rosâtre avec de grandes taches rougeâtres et quelques taches grisâtre pâle. Dimensions : 28—31 × 20 mm.

132. **Taenioptera coronatus** (Vieill.). (Pl. III. Fig. 7.)

♂ San Vicente, 15. ix. 1905 (S. Venturi).

♂♀♀ Tucuman, 8. v. 1899, 1. v. 1901, 29. v. 1902 (S. Venturi, Nos. 355, 356, 712.

♂♂ Tucuman, 450 m., 21. v. 1901 (L. Dinelli, Nos. 1177, 1182).

"Il abonde en hiver dans les bois des alentours d'Ocampo, et s'en retire au printemps. J'obtins seulement un nid de 5 œufs, le 20. ix. 1905." (S. V.)

Les œufs sont blanc pur avec quelques petites taches rougeâtres et des lignes en zigzag de la même couleur. Ils mesurent : 26 × 19, 26·4 — 19, 26·1 × 19, 27 × 19·4, 28 × 19·7 mm.

133. **Taenioptera dominicanus** (Vieill.).

Nehrkorn, p. 136 ; Ihering, p. 224.

♂ Barracas al Sud, 29. v. 1901 (S. Venturi, No. 357).

"Dans la mesure des œufs que donne Monsieur Nehrkorn il y a une faute d'impression : il doit lire 24 × 18·5 mm." (S. V.)

134. **Taenioptera irupero** (Vieill.).

Nehrkorn, p. 136 ; Ihering, p. 223.
Nom vulgaire : Vindita.

♂ ♀ Paraguay, 14, 15. xi. 1893 (Dr. Bohls).

♂ ♀ La Soledad, Entre Rios, Argentina, 4. i. 1899, 18. xii. 1901 (C. B. Brittain).

♂ ♀ Tucuman, 450 m. (L. Dinelli, Nos. 439, 781).

♂ ♀ ♀ Tucuman, 21. vii. 1898, 12. v. 1899, 19. iii. 1902 (S. Venturi, Nos. 358, 359, 713).

"Il préfère les nids énormes d'*Anumbius*, sans toutefois mépriser ceux de *Furnarius* et de *Phacellodomus*. Les 3 ou 4 œufs qu'elle pond sont d'un blanc jaunâtre avec peu de taches d'un rouge brunâtre foncé. Dimensions : 22—25 × 17—18 mm." (S. V.)

135. **Taenioptera pyrope** (Kittl.).

♂ Lago Nahuel Huapi (Huavi), Patagonia, 20. v. 1902 (S. Venturi, No. 198).

♂ ♀ Chubut, Valle del Lago Blanco, Patagonia, 1, 21. x. 1901 (Julius Koslowsky).

136. **Taenioptera rubetra** Burm.

♀ Bahia Blanca, 21. x. 1899 (S. Venturi, No. 363).

137. **Taenioptera murina** Scl.

Tucuman, 450 m., une série de L. Dinelli et de S. Venturi.

♀ ♀ Valle de Lerma, 1200 m., province de Salta, 9, 15. vi. 1905 (José Steinbach, Nos. 117, 130).

"Iris brown ; bill blackish grey, base of mandible pale ; feet black. Food small coleoptera. Searches for food on the ground."

138. **Ochthoeca leucophrys tucumana** Berl.

Bull. B.O.C. xvi. p. 98 (July 1906) ; *Proc. IV. Int. Orn. Congress*, p. 353 (1907 —Norco, Tucuman).

4 ♂ Norco, Tucuman, August 1904 (L. Dinelli, Nos. 3248, 3297, 3315, 3324). (Terra typica !)

♂ ♀ La Cienaga, Tucuman, 2700 m., 25. ix. 1902 (S. Venturi, Nos. 886, 887).

139. **Sayornis cineracea** (Lafr.).

♀ Vipos (Rio), Tucuman, 800 m., 29. viii. 1905 (S. Venturi, No. 1072).

♀ La Hoyada, province de Tucuman, 1300 m., 27. xii. 1901 (L. Dinelli, No. 1560).

"Au mois d'octobre Monsieur Dinelli a trouvé, près de Tucuman, un nid fait avec des branchettes, de fines racines et de la boue, et placé dans une petite dépression d'une berge. Il était tapissé intérieurement de plumes et de crins, et contenait 3 œufs blancs d'une forme ovale." (S. V.)

140. **Fluvicola albiventer** (Spix).

Nehrkorn, p. 137 ; Ihering, p. 224.

Barracas al Sud, Mocovi (Chaco), Ocampo (S. Venturi).

Lagunas de Malvinas, 380 m. (L. Dinelli).

"Le nid presque transparent, en forme d'une petite poche, est placé contre une branche verticale de quelque arbuste qui croît au bord de l'eau ; il est fait avec des nervures de feuilles, entrelacées avec quelques fibres de fourrage et de toiles d'araignées. L'entrée du nid est ouverte d'un côté en ayant la moitié supérieure environ 6 cm. de diamètre. Les 3 œufs sont blancs avec des taches et points d'un rouge brunâtre. Les dimensions sont très variables : 17·5—21 × 12·5—15 mm. Dates : Ocampo, 15. xi. 1905 ; Mocoví, 7. xi. 1903."

"L'espèce est commune au bord des ruisseaux de Barracas al Sud et au Chaco." (S. V.)

141. **Alectrurus risoria** (Vieill.).

Ihering, p. 225.
Noms vulgaires : Vijereta, Yetapá.

♂ ad. Selva, Sgo. Estero, 13. i. 1900 (S. Venturi).

♂ ad. Céres (Santa Fé), 17. i. 1900 (S. Venturi).

♂ ad. Ocampo, 1. xi. 1905 (S. Venturi, No. 1030).

2 ♂♂ ad., 4 ♀♀ ad. Mocovi, Chaco (S. Venturi et Rodriguez coll.).

♂ ad., ♂ juv. La Soledad (Entre Rios), 3. ii. 1899, 24. i. 1902 (C. B. Brittain coll.).

"Cette espèce est commune dans les immenses champs du Nord de Santa Fé. Elle fait son nid au milieu du fourrage court, les mâles demeurant parfois à de grandes distances des herbes hautes. Le nid est très difficile à trouver. Il est placé sur le sol au pied d'une touffe de graminées, et il est construit avec de petites tiges et racines de fourrage ; intérieurement il est revêtu de plumes." (S. V.)

Les 3 œufs sont d'un jaune blanchâtre ou de couleur de crème sans des taches. Ils mesurent 23 × 16·8, 23 × 16·4 et 22·5 × 16·5 mm.

142. **Gubernetes yetapa** (Vieill.)

♂ ad. Posadas (Misiones), 17. iii. 1897 (S. Venturi, No. 367).

143. **Sisopygis icterophrys** (Vieill.).

Nehrkorn, p. 137 ; Ihering, p. 225.

♂ ad. La Soledad, Entre Rios, 13. xi. 1901 (C. B. Brittain coll.).

♂ ad. Barracas al Sud, 26. v. 1903 (F. M. Rodriguez).

♂ ♀ Barracas al Sud, 27. ix. 1899, 18. x. 1900 (S. Venturi, Nos. 370, 371).

♂ La Criolla, Tucuman, 1500 m., 3. i. 1903 (G. A. Baer).

"Cette espèce est très commune. La description des œufs convient bien à celle donnée par Monsieur Nehrkorn, mais les dimensions sont un peu variables, depuis 19 × 14 jusqu'à 21 × 16 mm." (S. V.)

144. **Xenopsaris albinucha** (Burm.).

3 ♂♂ Tucuman, 450 m., décembre 1905 (L. Dinelli, Nos. 3921, 3925, 3926).

♂ Illhas Tigre (Buenos Aires), 4. i. 1903 (S. Venturi, No. 991).

♂ ad., ♂ juv. Ocampo (Chaco), 25. xii. 1905 (S. Venturi, No 1107).

"Cet oiseau, qui nidifie au Chaco, y est assez commun vers la fin de décembre et en janvier. Monsieur Dinelli l'a également observé à Tucuman. Il place son nid sur quelqu'une des plus hautes bifurcations des arbres. Pour sa construction il emploie les fleurs sèches des graminées et de fines fibres de paille d'où résulte un nid transparent et peu solide. Les dimensions externes sont : diamètre 0·06 m., profondeur 0·035 m. Dinelli a trouvé des pontes de 3 œufs, qui sont d'un blanc bleuâtre avec de petits points brun pâle les uns et brun ferrugineux les autres. Dimensions 17 × 12 mm. Le nid de *Xenopsaris albinucha* n'est pas difficile à trouver, parce que le mâle, en chantant, se tient de préférence à proximité de sa demeure." (S. V.)

145. **Knipolegus aterrimus aterrimus** (Lafr. & d'Orb.).

(Cf. Berlepsch, *Proceed. IV. Int. Orn. Congress*, p. 471.)

Une série de Tucuman, par S. Venturi, L. Dinelli, G. A. Baer.

"Aux mois d'octobre et novembre, Monsieur Dinelli a trouvé les nids de cette espèce dans les petites berges de ruisseaux formés par les pluies. Pour le placer, cet oiseau profite de n'importe quel trou, mais spécialement de ceux qui se produisent par la chute de quelque pierre. Le nid se compose de quelques branchettes et crins. La ponte est de 2 ou 3 œufs blancs, parfois couverts de quelques taches rondes de couleur café-obscur : leur forme est ovale courte. Dimensions : 20—21 × 16—17 mm. La mère se laisse presque toujours surprendre sur le nid." (S. V.)

146. **Knipolegus cyanirostris** (Vieill.).

Ihering, p. 225.

♂ ad., ♂ juv., ♀ Barracas al Sud, décembre 1900 et 1902 (S. Venturi).

"♂" S. Vicente (Chaco), 17. ix. 1905 (S. Venturi, No. 1028).

Monsieur Venturi a trouvé un œuf à Ocampo le 20. xii. 1905, et deux à Barracas al Sud le 7. xii. 1904. Les deux œufs de Barracas sont blanc pur, celui d'Ocampo teinté de crème, et on y aperçoit deux ou trois grandes taches couleur de bois de noyer, quelques points noirâtres et peu de taches primaires grisâtre pâle. Dimensions : 20·5 × 15·7, 21·5 × 16·5, 22 × 15·6 mm.

147. **Knipolegus cabanisi** Schulz. (Pl. III. Fig. 1.)

♂ ad. Tafi viejo (1000 m.), Tucuman, 26. viii. 1902 (S. Venturi, No. 747).

♂ ad. Quebrada de las Piedras, Tucuman, 800 m., 15. viii. 1901 (S. Venturi, No. 376).

♂ ad. Cumbre de Raco, 2100 m., Tucuman, 4. i. 1902 (L. Dinelli, No. 1594).

♂ ad. Villa Nougues, S. Pablo, Tucuman, 18. ix. 1901 (Dinelli, No. 1345).

♀ ad. Cumbre de Raco, Tucuman, 31. xii. 1901 (Dinelli, No. 1572).

(♀) imm. Ledesma, Jujuy, 28. vii. 1906 (Dinelli coll., No. 4226).

"J'ai reçu de mon ami Dinelli, de Tucuman, un œuf de cette espèce recueilli le 8. i. 1902 au Cerro de Raco (Tucuman). Monsieur Dinelli m'écrit que le nid se trouve aussi bien sur de petits arbustes que sur de gros troncs d'alisiers. Il est fait avec de la paille et des crins, et placé à une petite distance du sol Les 3 œufs qu'il contient sont blancs avec des taches couleur café répandues au pôle obtus. Dimensions : 21·5—22 × 16·5—17 mm." (S. V.)

148. **Knipolegus striaticeps** (Lafr. & d'Orb.).

Knipolegus cinereus auct.—Cf. *Nor. Zool.* 1906 pp. 318, 319.

♂ Vipos, Tucuman, 500 m., 10. xi. 1899 (S. Venturi, No. 377).
♂ Tapia, Tucuman, 20. x. 1901 (S. Venturi, No. 710).
♂ Tapia, Tucuman, 700 m., 23. ix. 1902 (L. Dinelli, No. 1906).
♂ Prov. Santiago del Estero, 21. vii. 1904 (L. Dinelli, No. 3222).
♀ Tapia, Tucuman, 12. xii. 1902 (G. A. Baer coll.). (Comparé au type par Monsieur Hellmayr.)

149. **Lessonia nigra nigra** (Bodd.).

"*Centrites niger*" auctorum.

♂♂♀♀ Barracas al Sud (S. Venturi, Nos. 185, 382, 384, 389).

150. **Lichenops perspicillata perspicillata** (Gm.).

Nehrkorn, p. 137 ; Ihering, p. 225.
Nom vulgaire : Pico de Plata.

♂♀ Barracas al Sud, 31. i. 1898, 8. xi. 1900 (S. Venturi, Nos. 378, 379).
♂♀ La Soledad, Entre Rios, 1902 (C. B. Brittain).

"Les descriptions des œufs données par Messieurs Hudson et Nehrkorn sont bonnes, seulement on peut ajouter que quelques exemplaires ont une tache rougeâtre peu apparente et qu'ils sont très luisants. Dimensions : 20—22 × 15·5—16 mm. Au Chaco j'ai trouvé les nids avec des œufs à la fin de mars." (S. V.)

151. **Muscisaxicola flavinucha** Lafr.

♂♀ Valle del Lago Blanco, Chubut, Patagonie, 2. x. 1901 (Julius Koslowsky coll.).
♂ Valle del Lago Blanco, Chubut, Patagonie, 26. ix. 1901 (Julius Koslowsky coll.).

"Iris bruno. Largo total ♂ 195, 197, ♀ 194 ; ala ♂ 141, 145, ♀ 134 ; cola ♂ 81, 83, ♀ 79 mm."

♂ Lara, Tucuman, 4000 m., 26. ii. 1903 (G. A. Baer coll.).

Le comte Berlepsch m'écrit que les exemplaires de la Bolivie et de Pérou ne diffèrent en rien des oiseaux de Chubut. On doit admettre que quelques individus sont plus pâles, mais d'autres sont plus foncés, et s'accordent bien avec ceux de Chubut. Comme nos exemplaires de Chubut et le mâle de Tucuman sont en plumage usé, il serait désirable de comparer des spécimens en plumage frais.

152. (?) **Muscisaxicola capistrata** (Burm.).

Berlepsch, *Proc. IV. Intern. Orn. Congr.* (Ornis xiv.), p. 468.

♂♂ juv. Cumbre de Mala mala, 3300 m., near Tucuman, 6. iv. 1904. "Iris, pattes, bec noirs" (L. Dinelli, Nos. 3010, 3013).

Ces exemplaires diffèrent de plusieurs oiseaux adultes de la Bolivie occidentale par leur coloration plus pâle, leur gorge un peu tachetée, et par les ailes et la queue un peu plus courtes.

Cette espèce est très rare dans les collections, quoiqu'elle ait été trouvée à beaucoup de localités : Chili (Plate), Patagonie (Scott), Mendoza (Burmeister, type), Tucuman, Sajama en Bolivie occidentale (Garlepp), Puno en Pérou (Kalinowski).

153. **Muscisaxicola frontalis frontalis** Burm.

Cf. Berlepsch, *Proc. IV. Int. Orn. Congress*, p. 468 (1907).

3 ♂♂, 1 ♀ Cerro Muñós, Tucuman, 4000 m., 24, 26. v. 1906 (L. Dinelli, Nos. 3993, 4000, 4005, 4024).

La différence entre *M. frontalis nigrifrons* et *M. f. frontalis* n'est pas bien établie. Les mâles sont plus grands que les femelles, et notre seule femelle de Tucuman est plus petite que l'exemplaire de Chili dans notre musée ; les bordures rougeâtres des plumes au sommet de la tête ne sont pas visibles dans la femelle. Berlepsch n'avait qu'un seul exemple de Chilé à comparer !

154. **Muscisaxicola macloviana mentalis** D'Orb. & Lafr.

♂ Chubut, Valle del Lago Blanco, 2. x. 1901 (Koslowsky coll.).

♀ Ushuaia, Tierra del Fuego, 8. ii. 1898 (S. Venturi, No. 38).

155. **Muscisaxicola maculirostris maculirostris** Lafr. & d'Orb.

♀ Lara, Tucuman, 4000 m., 11. ii. 1903 (G. Baer, No. 1431).

♀ Angosta Perchela, Jujuy, 8. xii. 1905 (L. Dinelli, No. 3905).

3 ♂♂, 1 ♀ Cachi, province de Salta, 2500 m., iii., iv. 1905 (J. Steinbach, Nos. 7, 22, 51, 66).

Mon ami le comte Berlepsch a comparé ces exemplaires à d'autres provenant de la Bolivie et du Pérou méridional.

156. **Muscisaxicola rufivertex rufivertex** Lafr. & d'Orb.

♂ ad. Cerro Muñós, Tucuman, 3. vi. 1906 (L. Dinelli, No. 4058).

♂ Cachi—pampa, province de Salta, 3000 m., 22. iv. 1905 (J. Steinbach, No. 76.—"Steigt von einem Stranche kerzengerade bis 10 m. hoch in die Luft und stürzt dann, sich seitwärts überschlagend zum Boden herab.")

157. **Machetornis rixosus** (Vieill.).

Nehrkorn, p. 137 ; Ihering, p. 226.
Nom vulgaire : Matadura.

♂♀ Barracas al Sud (S. Venturi) ; La Soledad (C. B. Britton) ; Tucuman (L. Dinelli).

"Commun à Buenos Aires et au Chaco. La description des œufs donnée par Nehrkorn est correcte, mais les dimensions sont 21—26 × 16·5—18 mm." (S. V.)

158. **Rhynchocyclus sulphurescens sulphuresceus** (Spix).

Le musée de Munich a reçu de Monsieur Dinelli une femelle tuée à Jujuy le 13. vii. 1906. (C. E. Hellmayr in litt.)

Pas encore signalé en Argentine.

159. **Euscarthmus margaritaceiventer margaritaceiventer** (D'Orb. & Lafr.).

Nehrkorn, p. 135 ; Ihering, p. 228.

S. Vicente, Ocampo, Mocoví (Chaco), et Tucuman (S. Venturi et L. Dinelli).

" Cette espèce vit dans les forêts épaisses et y niche. Elle n'est pas rare à Ocampo. Le nid, suspendu à des hauteurs variant depuis 1·50 jusqu'à 3 mètres, est fait en forme de poche, correspondant parfaitement aux figures qu'en donne le Dr. Ihering pour les autres espèces du même genre. Extérieurement il a toujours plusieurs morceaux d'écorce d'arbre, qui sont parfois retenus par des fibres de 'barba del monte,' d'autres fois par des racines très fines et aussi par des bandes étroites de feuilles d'herbes ; intérieurement il est tapissé par du duvet. Au-dessus de l'entrée du nid il y a un petit toit. Les deux œufs sont couleur chair avec de petites taches rougeâtres un peu effacées qui s'étendent généralement sur tout l'œuf. Ils ressemblent aux œufs de *E. gularis viridiceps*, mais les taches sont moins nombreuses et moins foncées. Dimensions : 18·5—19 × 12·5—13 mm." (S. V.)

160. **Euscarthmus gularis viridiceps** Salvad.

3 ♂♂, 2 ♀♀ Ledesma, Jujuy, 520 m., juillet 1906 (L. Dinelli, Nos. 4157, 4180, 4207, 4254, 4265).

Monsieur Hellmayr a comparé les spécimens de Jujuy au type du Musée de Turin.

161. **Phylloscartes ventralis angustirostris** (Lafr. & d'Orb.).

Cf. Hellmayr, *Nov. Zool.* xiii. 1906, p. 321.

♂♂ Tafi viejo, Tucuman, 700 m., octobre 1900 (L. Dinelli, Nos. 872, 930).

♂ Tafi viejo, Tucuman, 700 m., 21. x. 1900 (S. Venturi, No. 760).

♂ Quebrada de las Piedras, Tucuman, 800 m., 28. ix. 1902 (G. A. Baer).

♂♀ Villa Nougues, S. Pablo, Tucuman, 1200 m., 5. ix. 1901 (L. Dinelli, Nos. 1278, 1285).

162. **Hapalocercus dinellianus** (Lillo).

(Cf. Berlepsch, *Proc. IV. Int. Orn. Congress*, p. 487.)

Les stries au sommet de la tête ne sont pas noirâtres, comme chez *Hapalocercus sclateri*, mais brunes, avec des bordures fauves.

5 ♂♂ de Tucuman, 450 m., récoltés par S. Venturi et L. Dinelli.

163. **Hapalocercus acutipennis** (Scl. & Salvin).

♂♂ La Criolla, Tucuman, 1500 m., janvier 1903 (G. A. Baer).

♀ Lagunita, Tucuman, 3000 m., février 1903 (G. A. Baer).

♂♀♀ Cumbre de Raco et Tafi del Valle, Tucuman, 2100 m., janvier 1902 (L. Dinelli).

♀ Tafi del Valle, Tucuman, 2000 m., 1. ii. 1903 (S. Venturi).

164. **Hapalocercus meloryphus meloryphus** (Wied).

♂♂ ad. Arenal, Prov. de Salta, 750 m., 11. xi. 1903 (L. Dinelli, Nos. 1075, 2939).

165. **Hapalocercus flaviventris** (D'Orb. & Lafr.). (Pl. II. Fig. 28.)

Ihering iv. p. 229 ; v. p. 297.
Nom vulgaire : Tapuy.

Une série de Barracas al Sud, par Venturi et Rodriguez.

"Espèce commune à Barracas al Sud, mais se trouvant aussi au Chaco." (S. V.) Les œufs sont couleur crême, sans taches. Ils mesurent : 16·5—17·5 × 12—13 mm.

166. **Hapalocercus sclateri** (Oust.). (Pl. II. Fig. 26.)

Une belle série d'Ocampo, de Mocoví, et du Rio Amores (Chaco), par S. Venturi. Tous les exemplaires ont été tués aux mois de novembre et décembre. "Iris café." (Cf. Hellmayr, *Nor. Zool.* xiii. 1906, p. 320.)

"J'ai trouvé quelques nids de cette espèce, soit avec des œufs soit avec des petits. On les trouve dans les marais couverts de hautes et épaisses pailles 'cortaderas,' où les oiseaux se tiennent de préférence ; le nid est placé environ 0·50 m de l'eau, entre 5 ou 6 feuilles de paille, où il reste emprisonné sans être entrelacé. L'oiseau emploie, pour sa construction, des feuilles et des tiges de graminées tendres et de nombreux cocons d'araignées. Intérieurement le nid n'a aucun revêtement. Sa partie supérieure n'est pas à un même niveau, car le bord par où est suspendu le nid et où les feuilles sont plus nombreuses, et par où le petit oiseau ne pourrait passer, se trouve à 2 cm. plus haut que le bord opposé. La hauteur du nid est de 0·05 m. par devant et 0·075 par derrière ; le diamètre interne est de 0·03, l'épaisseur du nid 0·005, et la profondeur moyenne 0·04 m. Placé comme un coin au milieu des feuilles, le nid contient 3 œufs blanc-jaunâtre qui mesurent 15 × 11·5 mm. Il est difficile d'obtenir les oiseaux, mais encore plus difficile d'en obtenir les nids." (S. V.) Les deux œufs que nous avons reçus à Tring mesurent 15·5 × 11·9 et 15·8 × 12 mm.

167. **Habrura pectoralis minima** (Gould).

♂ ad., ♂ juv. Bahia Blanca, 14. x. 1900, 10. xi. 1899 (S. Venturi, Nos. 392, 393).

♂♂ ♀ La Soledad, Entre Rios, 20. xii. 1898, 4. x. 1901, 6. ii. 1902 (C. B. Brittain).

Cette sous-espèce, malgré son nom, est un peu plus grande que l'*Habrura pectoralis pectoralis*.

168. **Culicivora stenura** (Temm.).

♂ ♀ Mocoví (Chaco), 2. xii. 1903 (S. Venturi, Nos. 958, 959).

♂ Ocampo (Chaco), 1. xi. 1905 (S. Venturi, No. 1055).

"Cet oiseau vit dans les champs hauts et ouverts du Chaco. Il niche sur de petits arbustes et spécialement entre les rameaux fleuris de l'extrémité de certains chardons qui croissent isolés par la campagne. Le petit nid est des plus solidement construits, concourant à sa formation des fleurs de graminées et du duvet, le tout très bien agencé ; il est tapissé en dedans par du duvet. Les dimensions extérieures sont : hauteur 0·07 m., diamètre 0·05 m. ; intérieurement il mesure : profondeur 0·04, diamètre 0·025—0·03 m. La ponte est de 3 œufs blanc-jaunâtre qui mesurent 14—15 × 11—12 mm." (S. V.)

169. **Stigmatura budytoides flavocinerea** (Burm.).

♂ ♀ Tucuman (Tapia), 9. vi. 1899, 13. ix. 1902 (S. Venturi, Nos. 752, 394).

♂ ♀ ♀ Metan (Salta). 850 m., 4, 9. vi. 1905 (L. Dinelli, Nos. 3555, 3572, 3573).

♀ Santiago del Estero, 19. viii. 1904 (L. Dinelli, No. 3286).

"Pour ce qui est de sa manière de nidifier, cette espèce ressemble, d'après Dinelli, à *Sublegatus brevirostris brevirostris* (Lafr. & D'Orb.). Au mois de novembre ou décembre la femelle pond deux œufs d'un blanc rougeâtre avec des taches roux cannelle clair, et d'autres plus petites brunes, plus épaisses au pôle obtus, formant couronne. Dimensions : 17 × 12 mm." (S. V.)

170. **Serpophaga subcristata** (Vieill.).

Nehrkorn, p. 138 ; Ihering, p. 229.
Nom vulgaire : Piojito.

♂ ♀ Barracas al Sud, 26. v., 16. vii. 1903 (F. M. Rodriguez).

♂ ♀ ♀ Barracas al Sud, 10. vii., 28. xii. 1901 (S. Venturi, Nos. 395, 396, 397).

♂ ♂ Ocampo, 29. x. 1905, 19. i. 1906 (S. Venturi, Nos. 1050, 1050A).

♂ ♂ ♀ La Soledad, Entre Rios, 12. i., 2. ii. 1899, 10. xii. 1901 (C. B. Brittain).

"La ponte est bien des fois de 3 œufs. Les dimensions des œufs sont 15—18·5 × 11·5—12·5 mm." (S. V.)

171. **Serpophaga munda** Berl. (Pl. II. Fig. 39.)

Serpophaga munda Berlepsch, *Orn. Monatsber.* i. p. 12 (1893—Bolivie !).

♂ ♂ Rio Seco et Valle de Lerme, prov. de Salta, 350 et 1200 m. (J. Steinbach, Nos. 83, 175).

1 ad. San Lorenzo, prov. de Jujuy, 13. viii. 1905 (J. Steinbach, No. 139).

♂ ad. Ocampo (Chaco), 17. ix. 1905 (S. Venturi, No. 1031).

♀ ad. Los Vasquez, Tucuman, 445 m., 18. viii. 1902 (L. Dinelli, No. 8892).

"Il vit dans les 'tuscales' des bords des marais et niche dans les 'tuscas' même. Le nid est couvert et construit de 'barba del monte.' L'entrée en est située sur un côté. Le nid est généralement placé sur une assez grosse branche. L'oiseau pond 3 œufs d'un blanc jaunâtre avec d'assez grandes taches, disposées en forme de couronne au pôle obtus. Les 5 œufs que j'ai recueillis mesurent 15 × 12 mm." (S. V.)

172. **Serpophaga nigricans** (Vieill.).

Nehrkorn, p. 138 ; Ihering, p. 229.

♂ ad., ♀ ad., ♂ juv. Barracas al Sud, 1900, 1901 (S. Venturi, Nos. 398, 399, 400).

♂ ♀ ad. Barracas al Sud, 1903 (F. M. Rodriguez).

Jun. La Soledad, Entre Rios, 26. xii. 1901. "Iris brown ; feet black ; bill black ; gape deep yellow" (C. B. Brittain).

♂ ♂ ♀ ♀ Cosquin, Cordova, 1882 (E. W. White).

♀ Est. S. Martino, Monte, province de Buenos Aires, 13. i. 1897 (Paul Neumann).

"La couleur des œufs est jaune, mais d'une teinte plus foncée que chez les espèces précédentes. Dimensions : 15—18·5 × 12—13 mm." (S. V.)

173. **Anaeretes flavirostris** Scl. & Salvin.

♀ Tucuman, 22. ix. 1898 (S. Venturi, No. 401).

♂ ♀ ♀ Tucuman, 450—445 m., 31. v. 1904, 14. vi. 1901, 17. vii. 1903 (L. Dinelli, Nos. 1194, 2745, 3976).

♂ Cosquin, Cordova, 22. vi. 1882 (E. W. White).

174. **Anaeretes parulus parulus** (Kittl.).

♀ Ushuaia (Tierra del Fuego), 18. ii. 1898 (S. Venturi, No. 45).

175. **Ornithion obsoleta obsoleta** (Temm.).

Muscicapa obsoleta Temminck, *Pl. Col.* 275, fig. 1 (1824—Brésil, ex Natterer MS. !).

♂ ad. Arcual (Salta), 750 m., 25. x. 1903 (S. Venturi, No. 1074).

♂ ad. S. Vicente (Chaco), 14. ix. 1905 (S. Venturi, No. 1029).

♂ ♂ ♀ ♀ Ocampo, 1905 (S. Venturi, Nos. 1042, 1042A, 1057, 1067).

♀ Tapia, Tucuman, 9. xi. 1901 (L. Dinelli, No. 1484).

" Cette espèce est rare à Ocampo ; elle habite les bords du Paraná ainsi que les forêts de l'intérieur. Le nid, en forme d'une petite poche, est construit soit (Paraná) avec des feuilles sèches, du fourrage, des morceaux de racines et des feuilles de 'camalotes,' le tout bien relié ensemble par des toiles d'araignées ; soit (Chaco) avec de la 'barba del monte,' et a parfois un appendice de 40 à 50 cm. de long. L'entrée, qui se trouve à la moitié supérieure, a un petit toit saillant et son diamètre tient 0·025 m. La partie inférieure du nid est très solide et résistante. La grandeur du nid sans l'appendice est de 11—12 cm. de haut sur 6 de diamètre ; intérieurement il est tapissé par un duvet très fin. La ponte est de 2 œufs d'un blanc jaunâtre, converts, dans la partie postérieure, de petits points rouges qui, dans quelques exemplaires, forment une sorte de couronne. Dimensions : 16—17 × 12 mm." (S. V.)

176. **Elaenia parvirostris** Pelz.

Cf. Berlepsch, *Proc. IV. Int. Orn. Congress* (Ornis xiv.), p. 412.

4 ♂ ♂, 2 ♀ ♀ Flores, Buenos Aires, janvier, mars, décembre (E. W. White).

1 ♂, 1 ♀ La Soledad, xii. 1901, i. 1902 (Brittain coll.).

2 ♂ ♂, 1 ♀ Los Vasques, Tapia, Tucuman, novembre, décembre (Dinelli coll.).

♂ ♀ Ocampo, 17. xi., 27. xi. 1900 (S. Venturi coll.).

♂ ♀ Barracas al Sud, 27. x. 1900 (S. Venturi coll.).

1 ♀ Salta, 1750 m., 11. xi. 1903 (Dinelli coll.).

" Dimensions des œufs : 18—20 × 13·5—15 mm." (S. V.)

177. **Elaenia albiceps albiceps** (Lafr. & d'Orb.).

Cf. Berlepsch, *Proc. IV. Int. Orn. Congress* (Ornis xiv.) p. 403.

3 ♂ ♂ Catamarca, ix, x. 1880 (E. W. White coll.).

1 ♂ Cosquin, Cordova, 13. x. 1882 (E. W. White coll.).

2 ♂ ♂ Chubut, Patagonie, x. 1901 (Julius Koslowsky coll.).

178. **Elaenia strepera** Cab.

♂ ad. Tafi viejo, Tucuman, 700 m., 28. x. 1900 (S. Venturi, No. 410).

♂ ad. La Criolla, Tucuman, 1500 m., 23. i. 1903 (G. A. Baer).

♂ ad., ♀ La Hoyada, Tucuman, 1300 m., 24, 25. xii. 1901 (L. Dinelli, Nos. 1551, 1555).

La femelle a les parties supérieures olivâtres, les bordures des couvertures alaires roussâtres, et les parties inférieures teintées de jaune-olivâtre.

" Monsienr Dinelli a recueilli des œufs de cette espèce à La Hoyada, à 1500 m. d'altitude, près de Tucuman, pendant le printemps de 1902. Au sujet de ses coutumes il m'écrit qu'elle habite dans les vallées sombres et humides, apparaissant au printemps et émigrant en automne. Elle place son nid sur les arbres peu élevés à l'extrémité des branches horizontales snr quelque fourchette ; il est construit de quelques branchettes et tapissé de plumes et de crins, rappelant les constructions de tourterelles. Les œufs sont blanc-jaunâtre, avec des taches coulenr café et d'autres d'un brun obscur disposées en forme de couronne. Dimensions : 21—22 × 16 mm." (S. V.)

179. **Elaenia flavogaster flavogaster** (Thunb.).

(*Elainea pagana pagana* auctorum !).
Pipra flavogaster Thunberg, *Mém. Acad. St. Pétersbourg* viii. (1822) p. 286. (Typus ex Brésil, Mus. Upsala) ; Lönnberg, *Ibis*, 1903, p. 241.
Elaenia flavogaster Berlepsch, *Proc. IV. Intern. Ornith. Congress* (Ornis xiv.), p. 384.
Ihering, p. 230.

♂ ad. Ocampo, 29. x. 1905 (S. Venturi, No. 1052).

" Très rare au Chaco. Le couple que j'ai obtenu nidifia entre deux branches d'un 'Ceibo' à 4·50 m. de hauteur. Plat et mal construit, le nid se défit en l'enlevant ; il était fait d'herbes, de racines, et de lichens d'arbres. Il contenait seulement deux œufs frais, le 2. xii. 1905, mais la ponte n'était pas finie." (S. V.) Les œufs sont blancs teintés de couleur crème avec des taches rouges, plus grosses et plus nombreuses au pôle obtus. Dimensions : 20·2 × 16·5 et 21·5 × 15·9 mm.

180. **Elaenia mesoleuca** Cab. & Heine.

Cf. Berlepsch, *Proc. IV. Int. Orn. Congress* (Ornis xiv.), p. 415.
Nehrkorn, p. 139 ; Ihering, p. 332.

♂ ad. Ocampo, 17. xi. 1905. " Iris café claro." (S. Venturi, No. 1062.)

" Le 12. xi. 1905 je tuai une femelle près d'Ocampo, et recueillis le nid qui contenait un seul œuf. Il est blanc tacheté de rougeâtre. Dimensions : 19·5 × 14 mm." (S. V.)

181. **Elaenia viridicata viridicata** (Vieill.).

Cf. Berlepsch, *Proc. IV. Int. Orn. Congr.* (Ornis xiv.), p. 425.
Elainea grata Cabanis, *Journ. f. Orn.* 1883, p. 216 (Tucuman !).
Ihering. p. 233.

♂ ad. Tucuman, 28. xi. 1898. " Iris café oscuro." (S. Venturi, No. 411.)

Deux œufs de Tucuman, pris le 18. xii. 1901, sont très arrondis, de couleur blanche, avec des taches et des zigzags rouge-brun au pôle obtus. Ils mesurent : 19·9 × 15·5 et 19·2 × 15·5 mm.

182. **Elaenia obscura obscura** (Lafr. & d'Orb.).

♀ Villa Nougues (Tucuman), 1200 m., 12. ix. 1901 (S. Venturi, No. 362).

♂♂ ♀ Villa Nougues (Tucuman), 1200 m., viii., ix. 1901 (L. Dinelli, Nos. 1253, 1340, 1346).

" Au commencement du mois de janvier Monsieur Dinelli a trouvé deux nids de cette espèce, chacun avec deux œufs. Cet *Elaenia* apparait tard au printemps à Tucuman, et nidifie aussitôt. Très difficile à trouver, le nid est placé sur une grosse branche horizontale assez élevée ; il n'est pas très volumineux et très plat, n'ayant presque pas de lit, de manière que les œufs touchent de près l'écorce de la branche. Sa construction consiste à l'extérieur en lichens, et en quelques crins et plumes à l'intérieur. Extérieurement il mesure 0·09 de diamètre et 0·03 de hauteur.

" La couleur des œufs blanc rosacé avec une couronne de petites taches roux cannelle pâle au pôle obtus. Dimensions : 21—24 × 15·5—16·5 mm." (S. V.)

183. **Elaenia caniceps** (Swains.).

3 ♂♂ Ledesma, province de Jujuy, 13, 18, 22. vii. 1906 (L. Dinelli, Nos. 4171, 4210, 4230).

184. **Suiriri suiriri** (Vieill.).

Ocampo, Bahia Blanca (S. Venturi); Tucuman, 450 m. (L. Dinelli).

Les jeunes oiseaux ont l'abdomen jaunâtre très pâle (au lieu de blanc), les parties supérieures brun obscur marquées de petites taches triangulaires d'un blanc jaunâtre.

" Cette espèce, que j'ai aussi chassée à Bahia Blanca, n'est pas rare à Ocampo, où elle niche aux mois d'octobre à décembre. Le nid, comme ceux des espèces d'*Elaenia*, contient 3 œufs jaunâtres avec quelques grosses taches rouges plus pâles aux bords qui forment couronne au pôle obtus. Dimensions : 20·5 × 14 mm. Le 1. xii. 1905 je tuai 3 petits déjà bien développés, ainsi que leurs parents." (S. V.)

185. **Sublegatus brevirostris brevirostris** (Lafr. & d'Orb.) (Pl. III. Fig. 9).

S. Vicente, Ocampo, Mocoví (S. Venturi).

" Cet oiseau est commun pendant toute l'année aux alentours d'Ocampo. Il vit dans les 'tuscales' des bords des marais. En septembre, il se met à nidifier. Le nid, placé ordinairement à l'angle divergent de deux grosses branches de 'tusca' à 1 ou 2 m. du sol, est composé de lichens et de nervures de feuilles de 'tusca,' et très difficile à apercevoir. Son fond est constitué par l'écorce même de la branche où il repose ; c'est à peine si le bord circulaire a un centimètre de hauteur, et le diamètre de la petite cavité qui en résulte ne dépasse pas 4 cm. La ponte, quelquefois d'un seul œuf, n'est jamais supérieure à deux. Les œufs ressemblent à ceux de *Pyrocephalus r. rubinus*, mais s'en distinguent par ce que toute la surface est couverte de grandes taches noirâtres et de petits points et taches violacés et brun obscur. Dimensions : 16·5—17·5 × 13—14 mm." (S. V.)

186. **Mionectes rufiventris** (Licht.).

♂♂ Iguazú (Misiones), 14, 15. xi. 1901 (S. Venturi, Nos. 405, 406).

Cette espèce est nouvelle pour la faune de la république Argentine.

187. **Phyllomyias sclateri** Berl.

Phyllomyias sclateri Berlepsch. *J. f. O.* 1901 p. 90 (Bolivia).
Xanthomyias sclateri Berlepsch. *Ornis* xiv. p. 491.

♀ ad. Jujuy, 27. x. 1906, Dinelli coll. (Au musée de Munich, Hellmayr in litt.)

Pas encore signalé en Argentine.

188. **Cyanotis rubigastra rubigastra** (Vieill.).

Nehrkorn, p. 139 ; Ihering, p. 230.
Nom vulgaire : Siete colores.

♂♂ ♀ Barracas al Sud (S. Venturi, Nos. 402, 403, 404).

" Ce petit oiseau, si commun dans les joncs du Sud, est extrêmement rare au Chaco. La figure du nid et la description de l'œuf données par le Dr. Ihering sont bien exactes. Dimensions des œufs : 15·5—18 × 12—13 mm." (S. V.)

189. **Pitangus sulfuratus bolivianus** (Lafr.).

Nehrkorn, p. 140 ; Ihering, p. 234.
Nom vulgaire : Piloqué ou Bien te veo.

Ocampo, Barracas al Sud (S. Venturi) ; Tucuman, 450 m. (L. Dinelli).

La Soledad (Brittain).

" Les dimensions des œufs de cette espèce sont 27—33 × 18·5—21·5 mm." (S. V.)

190. **Myiodynastes solitarius** (Vieill.).

Ihering, p. 235.

♀ ad. Mocoví (Chaco), 5. xi. 1903. " Iris marron." (S. Venturi, No. 910.)

2 ♂♂ ad. Tucuman, 12. xi. 1898 (S. Venturi, Nos. 416, 417).

♂ ad. La Soledad (C. B. Brittain coll., No. 136).

" Cet oiseau nidifie de préférence dans les trous naturels de vieux troncs d'arbres, mais se sert aussi des nids des grands piverts et quelquefois de *Furnarius*. Le nid, composé de racines et d'herbes, contient quatre œufs d'un blanc rougeâtre, couverts de stries longitudinales et de taches rouge foncé, et des taches primaires d'un gris violacé. Les stries et taches forment souvent une couronne au pôle obtus. Dimensions : 24—27·5 × 16·5—18·5 mm." (S. V.)

191. **Hirundinea bellicosus** (Vieill.).

Tyrannus bellicosus Vieillot, *Nouv. Dict. d'Hist. Nat.* xxxv. p. 74 (1819—ex Azara. Hab : Paraguay)
Nehrkorn, p. 141 ; Ihering, p. 235.

♂ ♀ ♀ Catamarca, août, septembre 1880 (E. W. White coll.).

♂ juv. Tapia, Tucuman, 600 m., 2. xi. 1901 (L. Dinelli).

♂ ♀ Tucuman, 23. v., 23. vi. 1902 (S. Venturi, Nos. 706, 746).

Le jeune est plus pâle que les adultes.

" À Ocampo je n'ai vu qu'un seul couple de cette espèce. Il avait érigé son nid dans un trou de la cheminée d'une distillerie abandonnée." (S. V.)

192. **Myiobius fasciata fasciata** (P. L. S. Müll.).

Muscicapa fasciata P. L. S. Müller, *Natursyst. Suppl.* p. 172 (1776—ex Daubenton. Hab. : Cayenne).
(*Myiobius macrus* auctorum.)
Nehrkorn, p. 141 ; Ihering, p. 236.

♂ ♀ Flores, Buenos Aires ; janvier, février (E. W. Whyte coll.).

♂ Oran, Salta, 9. xi. 1880 (E. W. Whyte coll.).

♂ La Soledad, 10. i. 1902 (C. B. Brittain coll., No. 144).

2 ♂♂ Tucuman, 450 m., 5. x., 23. vi. 1904 (L. Dinelli, Nos. 3398, 3411).

2 ♂♂ 1 ♂ Barracas al Sud (S. Venturi, Nos. 418, 419, 420).

" À la très bonne description que donne le Dr. Ihering j'ajouterai qu'à Barracas

al Sud tous les nids que j'ai trouvés avaient une longue quene formée des mêmes matériaux que le nid lui-même, parfois d'une longueur de plus de 30 cm.; dans les forêts d'Ocampo, les nids ne présentent pas cette particularité. Je n'en ai jamais trouvé qui fussent tapissés de plumes intérieurement. Quelques œufs ont peu de taches. Le 20. x. 1905 je trouvai à Ocampo un nid dont les deux œufs étaient jaunes sans taches, ce qui me fit penser qu'ils pourraient appartenir à un autre oiseau, mais le propriétaire du nid fut tué, et c'était bien un *M. fasciata fasciata* (*naevius* auct.). En mesurant plus de 60 œufs je leur trouve les dimensions suivantes : 14·5—20 × 11·5—14 mm." (S. V.)

193. **Pyrocephalus rubinus rubinus** (Bodd.).

Muscicapa rubinus Boddaert, *Tabl. Pl. Enl.* p. 42 (1783—ex Daubenton & Buffon. Hab. : "Pays des Amazones").
Nehrkorn, p. 141 ; Ihering, p. 236.
Nom vulgaire : Churrinche.

3 ♂♂ 1 ♀ Barracas al Sud, octobre, décembre (S. Venturi, Nos. 421-424).

2 ♂♂ 3 ♀♀ près de Buenos Aires (E. W. White coll.).

1 ♂ 2 ♀♀ La Soledad, septembre, décembre 1901 (C. B. Brittain coll.).

"Au sujet du nid je dirai seulement que l'oiseau en commence la construction par employer des morceaux de branchettes sèches. Il se distingue de celui de *Sublegatus b. brevirostris* par ce qu'il y a toujours des plumes dans l'intérieur. Les 3 œufs varient en coloration et taille. Dimensions : 15—17·5 × 12—14 mm." (S. V.)

194. **Empidochanes fuscatus bimaculata** (Lafr. & d'Orb.).

Muscipeta bimaculata Lafresnaye & d'Orbigny, *Mag. Zool.* 1837, cl. ii. p. 48 (Yungas, Bolivie).
Cf. Berlepsch & Hellmayr, *Journ f. Orn.* 1905, p. 21 ; *Nov. Zool.* 1908, p. 52.

(Pour moi les "*Empidochanes*" ne sont pas séparables du genre *Empidonax* ; ils ne diffèrent que par un bec plus large, et par les tarses plus courts, différences qui me paraissent plutôt de valeur spécifique que générique.)

Nehrkorn, p. 141 (No. 2000) ; Ihering, p. 236, sous le nom *E. fuscatus*.

♂ Ocampo, 25. xi. 1905. "Iris café" (S. Venturi, m. 1103).

"Je n'ai trouvé que deux couples de cette espèce à Ocampo ; et j'obtins le nid de l'un d'eux, qui ressemble à celui d'*Elaenia parvirostris*. La coloration des œufs correspond à la description donnée par Nehrkorn. Les dimensions sont 23·2 × 15·5 et 22·3 × 16 mm." (S. V.)

195. **Empidonax euleri euleri** (Cab.).

Cf. Berlepsch, *Proc. IV. Intern. Orn. Congress*, p. 479.
Ihering, p. 236, sous le nom *Empidonax bimaculatus*.

♂ Pacheco, province de Buenos Aires, 12. x. 1902. "Iris castaño" (S. Venturi, No. 750).

1 Tafi viejo, Tucuman (S. Venturi, No. 1102).

"J'ai obtenu cette espèce de la province de Buenos Aires. Un nid que j'ai pris le 14. xi. 1902 à Entre Rios contint deux œufs couleur chair avec beaucoup de taches brunes et de taches primaires d'un grisâtre pâle, plus nombreuses au pôle obtus, les unes rondes et les autres allongées." (S. V.) Dimensions : 20·6 × 15 et 19 × 14 mm. Il est curieux de noter que les œufs de cette espèce soient beaucoup plus petits que ceux de l'*Empidochanes fuscatus bimaculatus*.

196. **Myiochanes cinereus pileatus** (Ridgw.).

♀ ad. Tucuman, 25. iv. 1902 (Girard coll.).
Au musée de Munich (E. C. Hellmayr in litt.).

197. **Horizopus fumigatus brachyrhynchus** (Cab.).

♂ ad. Tafi viejo (Tucuman) 18. v. 1903 (S. Venturi, No. 1073).
♂ ♀ ♀ Ledesma (Jujuy), juillet 1906 (L. Dinelli, Nos. 4139, 4141, 4156).
(Cf. Berlepsch, *Ornis* xiv. p. 478).

198. **Myiarchus tyrannulus chlorepiscius** (Berl. & Leverk.).

Myiarchus tyrannulus (*St. Müll.*), subsp. n. *chlorepiscius* Berlepsch & Leverkuhn, *Ornis* vi. p. 16 (1890—Mattogrosso).

♀ Oran, Salta, 1880 (E. W. White coll.).
♂ ♂ Tucuman (Dinelli).
♂ ♀ Tucuman (S. Venturi, Nos. 429, 707).
♀ Mocovi (Chaco), 13. x. 1903 (S. Venturi, No. 881).

"Dans les forêts du Chaco cet oiseau est aussi abondant que l'espèce suivante et nidifie de la même manière dans les troncs troués. Dans beaucoup de nids on trouve les œufs détériorés, ce qui tient, je crois, au peu de soin qu'il met au choix des lieux de nidification; généralement c'est une crevasse ouverte par le haut qui se remplit naturellement d'eau quand il pleut. La ponte est de 3 œufs, dont la coloration est blanc jaunâtre; leur surface est couverte toute ou en partie, soit par de grandes taches violacées, soit par des stries longitudinales de la même couleur comme les œufs de *M. ferox ferocior*. Dimensions: 22—23 × 15—16·5 mm." (S. V.)

199. **Myiarchus ferox ferocior** Cab.

Myiarchus ferocior Cabanis, *Journ. f. Orn.* 1883, p. 214 (Tucuman).

♂ ad. Tucuman, 9. xii. 1900 (S. Venturi, No. 425).
Barracas al Sud, Ocampo (S. Venturi).

Cette race a été bien caractérisée par Cabanis. Elle est bien distincte de *M. ferox swainsoni* Cab. 1859 (*M. cantans* Pelz. 1868) par ses plus grandes dimensions, les bordures blanchâtres des ailes, et par d'autres caractères.

"Cette espèce nidifie non seulement dans les mêmes endroits que la précédente, mais aussi sous le toit des maisons. La coloration des œufs est toujours égale: jaunâtre avec des stries d'un brun foncé et d'un gris violacé. Dimensions: 23—24 × 17, mais j'ai trouvé un nid dont les œufs mesurent 21 × 17·5 mm." (S. V.)

200. **Empidonomus aurantioatrocristatus** (Lafr. & d'Orb.).

Nehrkorn, p. 143; Iheringg, p. 237.

Mocovi (Chaco), Barracos al Sud, Tucuman (S. Venturi).
Tucuman (L. Dinelli).
La Soledad, 16. xi. 1901 (C. B. Brittain).

"La coloration des œufs varie depuis blanc pur jusqu'au blanc jaunâtre ou rougeâtre. Les taches sont ou très nombreuses ou presque nulles, et parfois ils forment un marbré rougeâtre. Les taches sont brunes ou brun rougeâtre, et les taches primaires gris violacé pâle. Dimensions: 19—21·5 × 14—16 mm.

"C'est une espèce commune depuis Buenos Aires vers le Nord." (S. V.)

201. **Empidonomus varia** (Vieill.).

Muscicapa varia Vieillot, *Nouv. Dict. d'Hist. Nat.* xxi. p. 459 (ex Azara, *Apunt.* ii. p. 125).
Nehrkorn, p. 143 : Ihering, p. 237.

♂ ad. Tucuman, 450 m., 26. xi. 1904 (L. Dinelli, No. 3415).

♂ ad. Tafi viejo, Tucuman, 24. ii. 1902 (S. Venturi, No. 432).

"J'ai des spécimens provenant du nord d'Entre Rios et du Tucuman, mais il se trouve aussi au Chaco. Un nid que j'ai obtenu le 21 xi. 1902 à Hernandarias (Entre Rios) contint 3 œufs couleur chair bien marquée de taches brunes et rouges et de taches primaires d'un gris violacé. Dimensions : 20·4 × 15·1, 21·4 × 16·4, et 22·7 × 15·8 mm." (S. V.)

202. **Tyrannus melancholicus melancholicus** Vieill.

Nehrkorn, p. 143 ; Ihering, p. 237.
Nom vulgaire : Ciriri

♂ ♀ Barracas al Sud, 7. xi. 1898, 13. xi. 1899 (S. Venturi, Nos. 433, 434).

♂ Punta Lara, Buenos Aires, 18. ii. 1881 (E. W. White coll.).

♀ ♀ La Soledad, 18. xi. 1901, 9. i. 1902 (C. B. Brittain coll.).

"La coloration des œufs est blanc jaunâtre ou blanc rougeâtre, avec peu ou beaucoup de taches que Nehrkorn appelle, très à propos, 'Tyrannidenflecken.' Les dimensions de plusieurs douzaines d'œufs que j'ai recueillis varient entre 22—26 × 16—19 mm." (S. V.)

203. **Muscivora tyrannus** (L.).

Nehrkorn, p. 143 ; Ihering, p. 237.
Noms vulgaires : Tijereta, Yetapá.

Bahia Blanca, Barracas al Sud (S. Venturi), Buenos Aires (E. W. White), Monte, province de Buenos Aires (Paul Neumann), La Soledad (C. B. Brittain).

"Les œufs de cette espèce si commune sont très variables en coloration et en taille. Les dimensions sont 20—24 × 15—17·5 mm. Il est facile de confondre les œufs des deux dernières espèces. Le 27. xii. 1900 je trouvai à Barracas al Sud un nid dont les œufs étaient presque uniformément jaunâtres, de petits points foncés étant à peine visibles." (S. V.) Le fond des œufs de *Muscivora tyrannus* est blanc jaunâtre. Les taches sont réunies à la partie postérieure ou couvrent toute la surface de l'œuf ; leur couleur est rouge ou rougeâtre plus ou moins foncé, et les taches primaires sont d'un cendré violacé.

COTINGIDAE.

204. **Hadrostomus rufa rufa** (Vieill.) (*H. atricapillus* auct.).

Tityra rufa Vieillot, *Nouv. Dict. d'Hist. Nat.* (Ed. Nouv.) iii. p. 347 (Paraguay.—ex Azara, No. 208); cf. Hellmayr, *Abh. K. bayer.* Ak. ii. Kl. xxii., iii. Abt. p. 669.
Nehrkorn, p. 144 : Ihering, p. 239.

♂ ♂ ♀ ♀ Ocampo, Mocoví (Chaco) (S. Venturi).

"Dans les îles du Paraná le nid est une énorme agglomération d'herbes, de racines, de 'camalotes,' etc., disposés en forme de boule avec un diamètre majeur de 0·30 m. Dans les forêts de l'intérieur il est fait avec la 'barba del monte' et encore plus volumineux. L'entrée se trouve sur le côté. Intérieurement il est tapissé de larges feuilles de paille, qui, parfois, font saillie par l'entrée. L'oiseau pond 4 œufs

dont la couleur varie depuis le blanc jaunâtre jusqu'au cendré brunâtre. La plupart d'eux présentent des taches affaiblies brunes et des taches primaires de couleur cendré, mais il y en a aussi qui ont très peu de taches et d'autres qui en ont beaucoup en forme de couronne au pôle obtus. Dimensions : 23—25 × 17—18·5 mm.

"Cette espèce n'est pas rare à Ocampo, et son nid se trouve facilement. Si l'on ôte les œufs l'oiseau commence immédiatement un autre nid, en employant les matériaux du premier et parfois sur le même arbre. Le 1. xi. 1905 je retirai 4 œufs d'un nid, et le 7 du même mois il y avait déjà deux œufs dans un autre nid placé à côté et non encore terminé. Le mâle continuait à porter des matériaux." (S. V.)

205. **Hadrostomus rufa audax** Cab.

Hadrostomus audax Cabanis, *Journ. f. Orn.* 1873, p. 68 (Monterico, Pérou occidental).

Le mâle de cette sous-espèce rare est un peu plus grand que les mâles de *H. rufa rufa*, les parties inférieures et les sous-alaires sont plus grisâtres. La femelle est également d'une taille plus forte ; le sommet de la tête est d'un gris cendré, le dos est d'un rouge plus foncé, enfin les parties inférieures sont plus pâles. Ailes : ♂ 101—103, ♀ 100·5 mm.

♂ ♀ La Hoyada, Sierra de Tucuman, 24, 30. xii. 1901 (L. Dinelli coll.).

♂ ♂ Tucuman, 22, 28. xi. 1898 (S. Venturi, Nos. 442, 443).

♂ ♀ Las Cuchillas, 1100 m., 2, 4. xii. 1906 (L. Dinelli coll.).

206. **Pachyrhamphus viridis viridis** (Vieill.).

Tityra viridis Vieillot, *Nouv. Dict. d'Hist. Nat.* (Nouv. Ed.) iii. p. 348 (Paraguay—ex Azara, No. 210).
Nehrkorn, p. 144 ; Ihering, p. 239. (L.)

♂ ♀ S. Vicente (Chaco), 25. ix. 1905 ; Ocampo, 25. xi. 1905 (S. Venturi, Nos. 1027, 1066).

Ailes : ♂ 82, ♀ 80 mm.

Ces exemplaires ont la même taille que les oiseaux typiques de Paraguay, mais ceux de Bahia sont plus petits : c'est *P. viridis cuvierii* (Swains.).

"Le nid de cette espèce est bien plus petit que celui de *Hadrostomus rufa*, mais construit avec les mêmes matériaux et de la même manière. Il est placé généralement très haut, à 15 mètres et plus, et toujours à l'extrémité de quelques branches horizontales. On le trouve assez souvent sur le même arbre que celui de *Hadrostomus rufa*. La ponte est de quatre œufs de couleur chocolat plus ou moins clair, en partie couverts de stries cendré foncé qui, dans quelques exemplaires, forment une couronne. Dimensions : 21—23·5 × 14·5—15·5 mm." (S. V.)

207. **Pachyrhamphus polychropterus polychropterus** (Vieill.). (Pl. III. Fig. 2.)

Ihering, p. 239.

♂ ♂ ♀ ♀ Barracas al Sud et Ocampo (S. Venturi coll.).

"J'ai recueilli des nids et des œufs de cette espèce, tant à Barracas al Sud, où il n'est pas rare en été, qu'au Chaco. Le premier ressemble à celui de *P. viridis* : une boule d'herbes, de racines et de paille tapissée intérieurement de paille 'totora' ou d'autres sortes pareilles. La ponte est de 3 œufs qui ressemblent, pour coloration et taille, à ceux de l'espèce précédente." (S. V.)

PIPRIDAE.

208. **Chiroxiphia caudata** (Shaw).

♂ ♀ Piray, Misiones, 9, 27. iii. 1897 (S. Venturi, Nos. 438, 439).

PHYTOTOMIDAE.

209. **Phytotoma rutila** Vieill. (Pl. III. Fig. 6.)

♂ ♂ Cosquin, Cordova, August and Sept. (E. W. White).

♂ ♀ Tapia, Tucuman, 600 m., janvier, décembre (Baer).

♂ ♂ Tapia, Tucuman, 600 m., mai, octobre (Dinelli).

♂ ♂ ♀ Barracas al Sud, 3, 15, 24. viii. 1902 (S. Venturi).

"Espèce commune à Buenos Aires et à Entre Rios ; j'en ai aussi des œufs de Tucuman recueillis par Monsieur Dinelli.

"La ponte est de quatre œufs d'un brun olive plus ou moins verdâtre, avec des taches brun noirâtre qui sont parfois peu apparentes, et des taches primaires grisâtres. Dimensions : 22·5—25 × 16·5—18 mm." (S. V.)

210. **Phytotoma rara** Molina. (Pl. III. Fig. 8.)

Nehrkorn, p. 145.

"J'ai recueilli deux œufs de cette espèce patagonienne au territoire du Rio Negro qui correspondent bien à la description donnée par Nehrkorn." (S. V.)

Leurs dimensions sont 24·5 × 18—19·5 mm.

DENDROCOLAPTIDAE.

211. **Geositta cunicularia cunicularia** (Vieill.).

Nom vulgaire : Caminante.

♂ ♀ La Soledad, 5. x. 1901, 24. i. 1902. "Iris dark brown ; feet black ; bill black, lower mandible light grey at base" (C. B. Brittain, Nos. 44, 154).

♀ ad. Bahia Blanca, 14. xi. 1899 (S. Venturi, No. 447).

"Aux alentours de Buenos Aires il nidifie près des 'vizcacheras' (terriers de Viscacha), où il n'est pas difficile à chasser. À Tucuman il choisit les berges perpendiculaires pour y creuser un trou très profond. A la fin de novembre, Monsieur Dinelli a trouvé le nid avec des petits déjà développés, au Cerro de Jujuy, à 2400 m. de hauteur." (S. V.)

212. **Geositta rufipennis** (Burm.).

♂ ♀ Tilcara, province de Jujuy, 2470 m., 29. xi. 1905 (L. Dinelli, 3827, 3829).

♂ ♀ Tucuman, 4000 m., 22., 31. v. 1906 (L. Dinelli, 3987, 3978).

"Monsieur Dinelli dit que cet oiseau a les mêmes habitudes que le précédent, mais qu'il préfère les montagnes couvertes de végétation et nidifie dans les berges des torrents formés par les grandes eaux. Les nids qu'il a trouvés contenaient des petits." (S. V.)

213. **Geositta tenuirostris** (Lafr. & d'Orb.).

Environs de Tucuman, 2500 à 4500 m. (L. Dinelli, Baer, Venturi).

214. **Furnarius rufus rufus** (Gm.).

Nehrkorn, p. 148 ; Ihering, p. 241.
Nom vulgaire : Hornero ou Alonso.

♂ ♀ Monte, province de Buenos Aires, décembre 1896 (Paul Neumann).
♂ ♀ Barracas al Sud, ix, x, xii. (S. Venturi).
♂ ♀ Sta. Ana, Tucuman, 350 m. (L. Dinelli, S. Venturi, G. A. Baer).
♂ Mocoví (Chaco), 10. x. 1903 (S. Venturi, No. 144).
♂ La Soledad, novembre (C. B. Brittain).

" Les dimensions des œufs sont un peu plus variables que celles indiquées par les auteurs : 30 × 19, 31 × 21·5, 29 × 22·5, 27 × 23 mm. Deux autres mesurent 35 × 21 et 32 × 21·5 mm. Ces œufs ne sont pas tous luisants : ceux qui sont pondus vers la fin de l'été sont presque toujours opaques et très rugueux, quelquefois avec quelques petites taches cendrées. Monsieur Dinelli a pu faire une singulière observation sur cet oiseau. En décembre 1903 il détacha un nid de l'arbre qui le supportait et en prit quatre œufs frais ; il replaca le nid dans sa position, et au bout de sept jours il en recueillit trois œufs de plus. Après un intervalle de huit jours d'abord et de dix ensuite, il y trouva trois, resp. deux oeufs : en tout 12 œufs pondus par le même oiseau dans l'espace d'un mois." (S. V.)

215. **Upucerthia validirostris** (Burm.).

♂ ♂ ♀ Cerro Muños, Tucuman, 4000 m., 25, 30. v. 1906 (L. Dinelli, Nos. 4002, 4032, 4033).
♂ Tucuman, 4000 m., 8. ii. 1903 (G. A. Baer, No. 1403).
♀ La Cienaga, Tucuman, 2700 m., 24. ii. 1903 (S. Venturi, No. 1083).
♀ Cachi, province de Salta, 2500 m., 18. iv. 1905 (J. Steinbach, No. 48).

216. **Upucerthia dumetaria darwini** Scott.

Upucerthia darwini Scott, *Bull. B.O.C.*, x. p. 63 (1900—Mendoza, Argentine).

Cette sous-espèce est très voisine de la forme type *U. dumetaria dumetaria*, mais montre toujours plus de roussâtre sur les ailes et à la barbe extérieure de la rectrice externe.

♂ Mendoza, février 1871 (Weisshaupt).
♂ Cosquin, Cordova, 14. viii. 1882 (E. W. White).
♂ Tucuman, 3. vii. 1900 (S. Venturi).
♂ ♀ ♀ Tucuman, 450 à 2000 m. (L. Dinelli).
♂ ♂ Cachi, prov. Salta, 11, 16. iv. 1905 (J. Steinbach, Nos. 17, 52).

217. **Upucerthia ruficaudus** (Meyen).

Ochetorhynchus ruficaudus Meyen, *Nov. Act. Acad. Leop. Carol.* xvi., *Suppl.*, p. 81, pl. xi. (1834—Chili).
Upucerthia montana Lafresnaye & d'Orbigny, *Syn. Av.* ii., in *Mag. Zool.* 1838, cl. ii. p. 22 (Pérou).
Upucerthia Baeri Oustalet, *Bull. Mus. Hist. Nat. Paris* x. p. 43 (1904—Tucuman).

3 ♂ ♂ Cerro Muños, Tucuman, 4000 m., 24. ii. 1905, 4, 26. v. 1906 (L. Dinelli, 3471, 3998, 4007).

218. **Upucerthia certhioides certhioides** (Lafr. & d'Orb.).

♂ S. Vicente, 15. ix. 1905 (S. Venturi).
♂ ♀ Mocovi, Chaco, 17. ix., 11. x. 1903 (S. Venturi).
♀ Ocampo, 24. x. 1905 (S. Venturi).

"Cette espèce nidifie dans les creux des troncs, à des profondeurs dépassant quelquefois 1 m. 50. Elle fait son nid avec des herbes, et pond deux œufs blancs dont la coquille a l'aspect de celle des œufs de *Furnarius rufus rufus*, c'est-à-dire, qu'elle paraît meurtrie. Dans deux des trois nids que j'ai trouvés il y avait des petits, et le troisième découvert le 3. xi. 1905 à Ocampo contenait deux œufs qui mesurent 25·5 × 18·3 et 24·5 × 18·8 mm. La ponte complète est de trois œufs. Je suppose que les œufs de *Upucerthia dumetaria darwini* doivent être plus grands." (S. V.)

219. **Upucerthia certhioides luscinia** (Burm.).

Oehetorhynchus luscinia Burmeister, *Journ. f. Orn.* 1860, p. 249 (Mendoza).

♂ Vipos (Tucuman), 10. xi. 1899 (S. Venturi).
♀ Tapia, près de Tucuman, 700 m., 27. x. 1901 (L. Dinelli).
♂ Arenal, près de Salta, 750 m., 12. xi. 1903 (L. Dinelli).
♂ Catamarca, 7. viii. 1880 (E. W. White).

Cette sous-espèce a les parties supérieures moins roussâtres et la queue plus courte. Pour le reste, elle s'accorde avec l'*Upucerthia certhioides certhioides*, qui habite le Chaco et les plaines des provinces de Corrientes et de Santa Fé.

220. **Cinclodes patagonica patagonica** (Gm.).

Motacilla patagonica Gmelin, *Syst. Nat.* 1. ii. p. 957 (1789—ex Latham : "in terra ignis").

"Dixon Cove" et "Grappler Bay," Terre de Feu (John Young).
♂ Ushuaia, 11. ii. 1898 (S. Venturi, No. 37).

221. **Cinclodes atacamensis** (Phil.) (? subsp.).

Upucerthia atacamensis Philippi, *Archiv f. Naturg.* xxiii. i. p. 263 (1857—"An den Ufern des Flusses von S. Pedro de Atacama").
Cinclodes bifasciatus Sclater, *P.Z.S.* 1858, p. 448 (Bolivie).

♂♂ ♀♀ Cerro Muños, Tucuman, 4000 m. (L. Dinelli).
♀ Tafi, Tucuman, 2300 m. (S. Venturi).

"Dinelli dit que cet oiseau vit sur les plateaux arides au nord de Jujuy, se tenant sur les bords des rivières. Il creuse des trous profonds dans les berges perpendiculaires au fond desquels il place son nid. Monsieur Dinelli a trouvé des nids avec des petits à la fin de novembre." (S. V.)

222. **Cinclodes fuscus fuscus** (Vieill.).

Anthus fuscus Vieillot, *Nouv. Dict. d'Hist. Nat.* xxvi. p. 490 (1818—ex Azara, No. 147 : Buénos-Ayres, Montévidéo et Paraguay)

♂ ♀ Cosquin, Cordova (E. W. White).
♂ ♀ Barracas al Sud, 13. vi. 1903 (F. M. Rodriguez).
♂ ♀ Barracas al Sud, v., viii., ix. (S. Venturi).
♂ Tucuman, 450 m., 21. v. 1900 (Dinelli, No. 827).

"Cette espèce est très abondante en janvier sur le bord des 'rigoles' qui traversent les prairies de Barracas al Sud. J'en ai aussi obtenu de Bahia Blanca qui sont blancs et presque sphériques." (S. V.) Ces œufs mesurent : 25·5 × 22·5 mm.

223. ? Cinclodes fuscus minor (Cab.).

Cillurus minor Cabanis, *Mus. Hein.* ii. p. 24 (1859—Aracauna, Chili).

♂ Lara, Tucuman, 4000 m., 14. ii. 1903 (G. A. Baer, No. 1452).

♂ ♀ Las Cienagas, 2500 m., 16. ii. 1903 (L. Dinelli, No. 1940).

♀ ♀ Cachi, province de Salta, 2500 m., 18. iv. 1903 (J. Steinbach, Nos. 9, 39).

Ces quatre exemplaires diffèrent des exemplaires de Cosquin, Barracas al Sud, et de Tucuman (450 m.!) par la couleur des parties supérieures beaucoup plus roussâtre. Je crois qu'ils appartiennent à la race nommée "*minor*" par Cabanis, qui est évidemment une forme des hautes montagnes. La distribution (comp. Ménégaux et Hellmayr, *Mém. Soc. d'Hist. Nat.* xix. 1906, p. 63) de ces races n'est pas bien établie.

"Monsieur Dinelli a trouvé un nid à une élévation de 2500 m. Il était placé au fond d'un trou peu profond creusé dans la berge d'une rivière. Il contenait des petits." (S. V.)

224. Phloeocryptes melanops melanops (Vieill.).

Nehrkorn, p. 148 ; Ihering, p. 242.

♂ pull. La Plata, Buenos Aires, 7. xi. 1882 (E. W. White).

♂ ad. La Soledad, 5. i. 1899 (C. B. Brittain coll.).

♂ ♀ Barracas al Sud, 30. v., 26. vi. 1903 (F. M. Rodriguez).

♂ ♀ Barracas al Sud, 21. ii. 1901 (S. Venturi, Nos. 458, 459).

"J'ai trouvé les nids de cette espèce dans les marais du Chaco. Les dimensions des jolis œufs bleus sont : 18·5—21·5 × 14—16·5 mm." (S. V.)

225. Aphrastura spinicauda (Gm.).

(*Oxyurus spinicauda* auct.)

♂ ♀ Ushuaia (Tierra del Fuego), 23. ii. 1898 (S. Venturi, Nos. 43, 44).

226. Leptasthenura platensis Reichenb.

♂ ♀ Cosquin, Cordova, 4. vii., 22. viii. 1882 (E. W. White).

♂ ♂ ad., juv. La Soledad, 1901, 1902 (C. B. Brittain).

♂ Tucuman, 29. vi. 1906 (L. Dinelli, No. 4108).

♂ ♂ Pacheco, province de Buenos Aires, 26. vi. 1902 (S. Venturi, Nos. 694, 737).

"De cette espèce assez rare j'ai obtenu le nid avec deux œufs ainsi que des oiseaux à San Lorenzo au nord de Rosario de Santa Fé. Les œufs sont blancs, et mesurent : 16·5 × 13·1 et 17·4 × 13·3 mm." (S. V.)

227. Leptasthenura fuliginiceps paranensis Scl.

♀ Catamarca, 28. vii. 1880 (E. W. White). (Cet exemplaire a été comparé au type de *L. paranensis* Scl. par Monsieur Hellmayr.) Une série de Tucuman, récoltée par Messieurs L. Dinelli et S. Venturi.

♀ Quebrada Escoipe, province de Salta, 1600 m. (J. Steinbach, No. 109 : "Feet yellowish green ; bill brownish black").

Le jeune est semblable aux adultes.

"Cette espèce vit dans les montagnes au-dessus de la région des alisiers, à

2500 m. d'altitude. Au mois d'avril Monsieur Dinelli a trouvé un nid contenant des petits qui était placé dans un trou étroit creusé d'une berge. Composé de branchettes lisses et d'autres épineuses, le nid faisait en partie saillie au dehors du trou." (S. V.)

228. **Leptasthenura aegithaloides berlepschi** subsp. nov.

Les spécimens de Salta, Jujuy, et de la Bolivie ne sont pas "typiques," mais diffèrent des *L. aegithaloides aegithaloides* de Chili par leur coloration plus pâle et les ailes plus longues. Les parties supérieures sont plus claires, les stries au sommet de la tête plus larges et plus claires, l'abdomen plus pâle et plus fauve. Le bec est un peu plus long et plus mince. Les ailes mesurent 64—68 mm. Type : ♂ ad. Augusto Pericheli, Jujuy, 2550 m. (L. Dinelli coll.).

Nous avons reçu les exemplaires suivants :

♂ ad. Augusto Pericheli, Jujuy, 2550 m., Nov. 1905 (L. Dinelli coll.).

♂ ad. Tilcara, Jujuy nord, 2470 m., Nov. 1905 (L. Dinelli coll.).

♀ Cachi, province de Salta, 2500 m., 17. iv. 1905 (J. Steinbach coll.).

♂ Lara, Tucuman, 10. ii. 1903, 4000 m (G. A. Baer coll.).

Mon ami le Comte de Berlepsch en possède une série provenant de la Bolivie, qui s'accorde parfaitement avec nos échantillons de Jujuy et Salta.

Lept. fuscescens Allen, de la Bolivie, doit être fort différent de notre nouvelle forme, car, suivant la description, ses couleurs sont plus foncées et les barbes intérieures des rémiges roux cannelle.

229. **Synallaxis frontalis frontalis** Pelz.

Nehrkorn, p. 148.

Les échantillons argentins ne diffèrent d'aucune façon de la forme typique brésilienne.

♂ La Soledad, 9. x. 1901 (C. B. Brittain, No. 46). ("Iris brown ; feet light brown ; bill black.")

♂ ♀ Sta. Ana, Tucuman, 350 m., Oct., Nov. 1902 (G. A. Baer).

♂ Tucuman, 450 m., 7. vii. 1904 (L. Dinelli).

♂ ♀ S. Vicente (Chaco), 20. ix. 1905 (S. Venturi).

♂ juv. Ocampo, 3. xii. 1905 (S. Venturi).

♀ ad. Barracas al Sud, 6. viii. 1899 (S. Venturi).

"Cette espèce commune dans les bois depuis Buenos Aires vers le nord construit son nid sur de petits arbres épineux à 2 ou 3 mètres de hauteur. Le nid, fait avec de petites branches, est généralement placé sur une branche horizontale, et le tube d'entrée est un peu incliné d'en haut vers le bas. La longueur totale du nid avec le tube dépasse 0·30 m. La ponte est de trois œufs d'un blanc bleuâtre qui mesurent 20—21 × 14·5—16·5 mm." (S. V.)

230. **Synallaxis superciliosa** Cab.

♂♂ Villa Nongues, Tucuman, 1200 m., 7. 11. viii. 1903 (S. Venturi, Nos. 855, 860).

"J'ai reçu de Monsieur Dinelli des œufs de cette espèce commune à Tucuman. Quelques échantillons sont blanc pur, d'autres blanc bleuâtre. Mon ami, dont j'ai appelé l'attention à cette différence, me répondit qu'il avait trouvé des œufs de ces deux types dans tous les nids examinés. Dimensions : 18·5—20 × 14—16 mm.

En outre, Monsieur Dinelli me donna les renseignements suivants sur la nidification de *S. superciliosa* : Le nid est construit avec de petites branches épineuses et placé horizontalement sur une branche ; il est très volumineux, et le tube d'entrée s'incline du dehors jusqu'au fond du nid, qui est assez spacieux. Les œufs sont placés sur un lit de feuilles tendres et duveteuses. La ponte est de 4 à 6 œufs." (S. V.)

231. **Synallaxis albescens albescens** Temm.

Nehrkorn, p. 148 ; Ihering, p. 243.

♂ ♀ La Soledad (C. B. Brittain).

♂ ♀ Mocoví (Chaco) (S. Venturi).

232. **Synallaxis spixi** Scl.

Synallaxis spixi Sclater, *P.Z.S.* 1856, p. 98 (Brésil)
Synallaxis spixi notius Oberholser, *Proc. U.S.N. Mus.* 25. p. 60 (1902—Conchitas, Buenos Aires).
Nehrkorn, p. 148 ; Ihering, p. 243.

(Il n'y a aucune différence entre les exemplaires du Brésil et ceux de la république Argentine. La couleur des parties supérieures est assez variable.)

♂ ♂ ♀ ♀ Barracas al Sud et Punta Lara (B. Aires) (S. Venturi).

" Cette espèce et la précédente ne sont pas rares dans les bois de Barracas al Sud et du Chaco ; dans la première de ces localités, le *S. spixi* fait le lit du nid avec de tendres feuilles de cognassier. La description qu'en donne Euler est bien exacte. La ponte est de 4 œufs blanc bleuâtre dans ces deux espèces de *Synallaxis*, et leurs dimensions sont 17—21 × 13·5—15·5 mm." (S. V.)

233. **Synallaxis cinnamomea russeola** (Vieill.).

Nehrkorn, p. 148 ; Ihering, p. 243.

♂ ♀ ♀ S. Vicente et Pindó (Chaco), x., xi., xii. 1903 (S. Venturi).

" Cette espèce se trouve depuis Buenos Aires vers le nord au bord des lagunes, et place son nid sur les 'camalotes' entre les joncs et les petits arbustes. La couleur de l'œuf est égale à celle des espèces précédentes de *Synallaxis*, les dimensions sont 17·5—20·5 × 14—15 mm. Le *Diplopterus naerius* est parasite de cette espèce." (S. V.)

234. **Synallaxis phryganophila** (Vieill.).

Nehrkorn, p. 149.

♂ ♀ Barracas al Sud, 6. ix. 1896 (S. Venturi).

♀ Mocoví (Chaco), 3. x. 1903 (S. Venturi).

" Il fait son nid avec des branches épineuses, et le dépose sur des arbres isolés a la lisière des bois. Le tube d'entrée est parfois long de 40 à 50 cm. et placé horizontalement. La femelle pond 4 œufs blancs, opaques, dont les dimensions sont 19—23 × 14·5—17 mm." (S. V.)

235. **Synallaxis maximiliani argentina** Hellm.

Synallaxis maximiliani argentina Hellmayr, *Bull. B.O.C.* xix. p. 74 (Avril 1907—De Tucuman au Chaco ; type de Tucuman).

♂ Tucuman, 450 m., 26. iv. 1905 (L. Dinelli, No. 3490).

♂ ♀ Norco, Tucuman, 1200 m., 6. viii. 1904 (L. Dinelli, Nos. 3243, 3244 [type]).

("Iris café oscuro; pico negroplomo; tars. pardo claro, blanquecinos, negruscos.")

♂♂ Tucuman, 9. iv., 22. vi. 1899 (S. Venturi, Nos. 483, 484).

♂♂ Mocovi (Chaco), 17. x., 31. xii. 1903 (S. Venturi).

"Au Chaco cet oiseau vit entre le 'caraguata' qui salit et rend impénétrable les forêts basses. À Tucuman, Dinelli l'a observé dans les 'pajonales' épais des montagnes et de la prairie. Il nidifie entre les pailles environ 20 cm. du sol. Le nid volumineux et spacieux est formé de feuilles de graminées et tapissé en dedans de fibres fines des mêmes feuilles. En décembre Dinelli a trouvé un nid avec 3 œufs couvés; ils étaient blancs avec quelques petites taches noires réunies près du pôle obtus. Pour leur coloration ils ressemblent à ceux de *Poospiza melanoleuca*, bien qu'ils soient un peu plus gros." (S. V.)

236. **Siptornis striaticeps striaticeps** (Lafr. & d'Orb.).

Synallaxis striaticeps Lafresnaye & d'Orbigny, Syn. Av. i. in *Mag. Zool.* 1837, p. 22 (Corrientes et Bolivie. La localité typique serait la Bolivie; cf. Berlepsch & Leverk., *Ornis* vi. p. 23, 1890).

♂ Arenal, près de Salta, 750 m., 27. x. 1903 (L. Dinelli).

♀ Metan, près de Salta, 850 m., 5. vi. 1905 (L. Dinelli).

? ♂ Rio San Francisco, province de Jujuy, 400 m. (J. Steinbach, No. 158).

("Iris brown; feet blackish grey; bill black, base pale rose.")

Les rectrices centrales ne sont pas toujours entièrement rousses, mais il y a généralement des taches brunâtre pâle vers la fin de la barbe externe. Cette forme se trouve aussi en Bolivie, mais jamais en Paraguay, comme l'indique Monsieur Sclater.

237. **Siptornis striaticeps heterocerca** (Berl. & Leverk.).

Synallaxis heterocerca Berlepsch & Leverkühn, *Ornis* vi. p. 22 (1890—Cosquin, Cordova). Nehrkorn, p. 149 (sous le nom de "Siptornis striaticeps").

♀ Cosquin, Cordova, 27. vi. 1882 (E. W. White).

♂♀ La Soledad, 10. xii. 1901, 24. i. 1902 (C. B. Brittain).

♀♀ Ceres, Sta. Fé, 10, 21. i. 1900 (S. Venturi).

♂♀ Mocovi, 1. xi. 1903 (S. Venturi).

♀ Barracas al Sud, 16. ix. 1899 (S. Venturi).

"Cette espèce grimpe, comme les piverts, aux arbres, différant en cela de toutes les autres *Siptornis* et *Synallaxis*. Au Chaco et à Santiago del Estero, elle construit son nid avec de la 'barba del monte' sur les arbres épineux et à demi secs des bords de bois. Le nid forme une espèce de boule de 11—12 cm. diamètre externe Il n'est pas tapissé à l'intérieur, et la petite ouverture d'entrée est sur le côté; celle-ci tient 2·5 cm. de diamètre. La femelle pond 3 œufs blancs, lisses et elliptiques, qui mesurent 19—20 × 14—15 mm." (S. V.)

238. **Siptornis sordida affinis** Berl.

Siptornis sordida affinis Berlepsch, *Bull. B.O.C.* xvi. p. 98 (1906); id. *Proc. IV. Int. Orn. Congress* p. 364 (Tucuman).

♂ Tucuman, 25. ix. 1900 (S. Venturi, No. 468).

♀ Chilecito (la Rioja), 1098 m., 4. iv. 1895 (S. Venturi, No. 469).

♂♀♀ Tucuman, 450 m., iii., iv. 1900 (L. Dinelli, Nos. 748, 794, 800).

239. **Siptornis sordida flavigularis** (Gould).

Synallaxis flavigularis Gould, Voy. Beagle, *Zool.* iii. p. 78, pl. 24 (Patagonie).

♂ ♀ Valle del Lago Blanco, Chubut, Patagonie, 25, 31. x. 1900 (Julius Koslowsky coll.).

♀ Barracas al Sud, 7. ix. 1901 (S. Venturi, No. 471).

240. **Siptornis baeri** Berl.

Siptornis baeri Berlepsch, *Bull. B.O.C.* xvi. p. 99 (1906); id. *Proc. IV. Int. Orn. Congress*, p. 363 (Cordova, La Soledad, Tucuman).

♂ ♂ ♀ Cosquin, Cordova, 12, 14, 19. vi. 1882 (E. W. White coll.).

♀ ♀ La Soledad, 26. xi., 1. xii. 1901 (C. B. Brittain, Nos. 94, 103).

♂ Rio Santiago (La Plata), 15. v. 1896 (S. Venturi, No. 470).

♂ ♀ Tucuman, 350 m., 4, 22. xi. 1902 (G. A. Baer, Nos. 1084, 1151).

♂ Tucuman, 450 m., 3. vii. 1901 (L. Dinelli, No. 1215).

♂ Salta, 850 m., 9. vi. 1905 (L. Dinelli, No. 3575).

" ♀ " Valle de Lerma, province de Salta, 1200 m., 7. vi. 1905 (J. Steinbach, No. 114).

" Monsieur Dinelli a trouvé les œufs de cette espèce à Tapia, près de Tucuman, à 700 m. d'altitude. Les deux œufs, qui sont blancs et lisses, et qui mesurent 21 × 16·6 et 22·3 × 15·8 mm., ont été trouvés dans un nid abandonné de *Coryphistera alaudina*." (S. V.)

241. **Siptornis modestus hilereti** Oust.

[*Synallaxis modestus* Eyton, Jardine's *Contr. Orn.* 1851, p. 159 (? Bolivia.—Terra typica Chili, teste Berlepsch).]
Siptornis Hilereti Oustalet, *Bull. Mus. d'Hist. Nat. Paris*, x. p. 44 (1904—Tucuman).
Nehrkorn, p. 149.

♂ ad. Lara, Tucuman, 4000 m., févr. 1903 (G. A. Baer coll., No. 1401 [cotype]).

♂ ♂ ♀ ♀ Cerro Muños, Tucuman, 4000 m., v., vi. 1906.

" Monsieur Dinelli a trouvé des nids avec des petits à 4300 m. d'altitude, aux environs de Tucuman. Il paraît que cet oiseau cherche ou creuse des trous profonds au bord de pierres à moitié enterrées." (S.V.)

242. **Siptornis d'orbignyi** (Rchb.).

♂ ♂ ♀ près de Jujuy (Nord), 2470 m., 23, 24, 28. xi. 1905 (L. Dinelli, Nos. 3781, 3793, 3826). (" Ojos café ou pardo oscuro; pico negro: tarso negro aplomado ").

Monsieur Hellmayr a comparé ces exemplaires au type au Musée de Paris.

243. **Siptornis steinbachi** sp. nov.

♀ Front brun grisâtre. Parties supérieures du corps d'un gris roussâtre délicat, plus grisâtre au nuque, supra-caudales rousses. Rémiges noirâtres, bordées de roux vif, secondaires roussâtres avec une ligne médiane noirâtre, couvertures des ailes roux cannelle vif. Rectrices latérales roux cannelle, les six médianes noirâtres, bordées de roux cannelle. Parties inférieures blanchâtres, teintées de grisâtre, flancs, ventre et sous-caudales roux cannelle, gorge blanche avec les points des plumes noirs. Sous-alaires roussâtres; iris brun; bec et pieds noirs. Ailes 66, queue 81, bec (culmen) 14, tarse 22 mm.

Hab.: Cachi, province de Salta, 2500 m. altitude.

Type : ♀ tuée le 17. iv. 1905 par Monsieur José Steinbach, No. 45.

Malheureusement Monsieur Steinbach n'a recueilli qu'une seule femelle de cette espèce nouvelle. Elle diffère de *Siptornis humicola* par la couleur de la gorge et des rectrices externes ainsi que par l'absence de la strie sourcilière blanche. Les autres espèces voisines, *S. orbignyi* et *S. arequipae*, sont encore plus différentes.

244. **Siptornis sulphurifera** (Burm.).

♂♂ ♀♀ Barracas al Sud (F. M. Rodriguez).

♂♂ ♀ Barracas al Sud (S. Venturi).

" Cette espèce est commune dans les ' pajonales ' de Barracas al Sud. Le nid en forme de boule est fait de paille et contient trois œufs lisses qui mesurent 19—20 × 14—15·5 mm." (S. V.)

245. **Siptornis maluroides** (Lafr. et d'Orb.).

♂ ♀ Barracas al Sud, 25. v. 1903 (F. M. Rodriguez).

♂♂ ♀ Barracas al Sud, x. 1899, i. 1901 (S. Venturi).

" Comme *Synallaxis cinnamomea russeola*, cette espèce vit au bord des lagunes. Le nid sphérique, composé de paille et d'herbes, est placé à une faible hauteur au-dessus de l'eau ; il contient trois œufs blanc luisant qui mesurent 17 × 14 mm." (S. V.)

246. **Siptornis anthoides hudsoni** (Sel.).

Nehrkorn, p. 149.

♂♂ ad., ♀♀ ad., ♂♂ juv., Barracas al Sud (S. Venturi).

♂ juv., Est. S. Martino, Monte, province de Buenos Aires, 11. i. 1897 (Paul Neumann).

Le jeune oiseau a des taches longitudinales sur la poitrine.

" C'est dans le fourrage ' puna ' que j'ai trouvé son nid à Barracas al Sud en octobre et novembre. Les œufs blancs et opaques mesurent 21—22 × 16—16·5 mm." (S. V.)

247. **Siptornis anthoides anthoides** (King).

4 ♂♂ Valle del Lago Blanco, Chubut, Patagonie, iii., viii., ix. 1900, 1901 (Julius Koslowsky).

248. **Siptornis lilloi** Oust.

Siptornis Lilloi, Oustalet, *Bull. Mus. d'Hist. Nat. Paris*, x. p. 44 (1904—Lagunita, Tucuman).

♂ La Cienaga, Tucuman, 2500 m., 16. ii. 1903 (S. Venturi).

♂ Lagunita, Tucuman, 3000 m., 4. ii. 1903 (G. A. Baer). (*Cotype.*)

♂♂ Norco, près de Tucuman, 1200 m., 16, 18. viii. 1904 (L. Dinelli).

C'est une espèce très distincte !

249. **Coryphistera alaudina** Burm.

Nehrkorn, p. 149.

♀ Cosquin, Cordova, 19. vi. 1882 (E. W. White).

♂ ♀ Tapia, Tucuman, 28. x. 1901, 600 m. (L. Dinelli).

♂ Lagunas de Malvinos (Tucuman), 22. iii. 1902 (L. Dinelli).

♀ ♀ Tucuman, 22. vii. 1898 (S. Venturi).

" À Ocampo j'ai trouvé un énorme nid fait de branches. Les 5 œufs blanc luisant mesurent 22—23·5 × 17—18 mm."

250. **Anumbius anumbi** (Vieill.).

Nehrkorn, p. 149 ; Ihering, p. 245.
Nom vulgaire : Leñatero.

♂ Flores, Buenos Aires, 28. xi. 1881 (E. W. White).

♂ ♀ La Soledad, 13, 14. xi. 1901 (C. B. Brittain). (" Iris chestnut ; feet and bill light brown.")

♂ ♀ Barracas al Sud, 18. v., 8. vi. 1903 (F. M. Rodriguez).

♂ ♀ Barracas al Sud, 18, 20. ix. 1900 (S. Venturi).

♀ Tigre (Buenos Aires), 3. viii. 1902 (S. Venturi).

" Les œufs de cette espèce si commune, et dont le nid est si caractéristique, sont blancs, lisses, et quelque peu luisants. Dimensions : 23—26 × 17—19 mm." (S. V.)

251. **Limnornis curvirostris** Gould.

Ihering, *Revista Mus. Paulista*, v. p. 299, pl. xi., fig. 9.

♀ Punta Lara, Buenos Aires, 21. ii. 1881 (E. W. White).

♂ ♀ Barracas al Sud, 11. vii. 1903 (F. M Rodriguez).

5 ♂ ♀ Barracas al Sud (S. Venturi).

Les œufs de cette espèce sont bleu verdâtre. Ils mesurent de 23·4 × 16·5, 23·9 × 18·5 et 24·8 × 18·3, 24·9 × 18·4, 24·5 × 19 à 25 × 17·7, 25·7 × 17·8, 26 × 17·7 et 26 × 19 mm.

252. **Phacellodomus ruber** (Vieill.).

♂ ♀ Mocoví (Chaco), 22. ix., 25. x. 1903 (S. Venturi, Nos. 823, 870).

♂ Tucuman, 6. iii. 1900 (S. Venturi, No. 498).

♂ ♂ Tucuman, 450 m., 10. vi., 8. vii. 1904 (L. Dinelli, Nos. 3110, 3191).

" Cette espèce est extrêmement commune au Chaco. Le nid est grand, construit avec des tiges épineuses et suspendu à l'extrémité d'une branche : l'entrée en est située d'un côté de la partie inférieure. Il consiste en deux chambres, dans l'une desquelles la femelle pond 4—5 œufs blancs, opaques, de coquille rugueuse, qui mesurent 25—27·5 × 17·5—18·5 mm. Plusieurs échantillons ont quelques petits points cendrés à la partie postérieure." (S. V.)

253. **Phacellodomus rufifrons sincipitalis** Cab.

Phacellodomus sincipitalis Cabanis. *Journ. f. Orn.* 1883, p. 109 (Tucuman).

♀ ♀ Oran, Salta, 10, 13. xi. 1880 (E. W. White).

♀ Sta. Ana, Tucuman, 350 m., 5. x. 1902 (G. Baer, No. 1096).

♂ ♀ ♀ Tucuman, 26. vii., 3. viii. 1898 (S. Venturi, Nos. 492, 493, 494).

♀ Valle de Lerma, 1200 m., province de Salta, 3. vi. 1905 (J. Steinbach, No. 101).

Cet exemplaire s'accorde bien avec les spécimens de Tucuman, et les autres de Salta.

♀ Rio seco, 350, province de Salta, 28. vii. 1905 (J. Steinbach, No. 166).

Cet exemplaire est plus roussâtre sur les parties supérieures ; il est assez jeune.

♂ ad. Arenal, 750 m., province de Salta, 7. xi. 1903 (L. Dinelli, No. 2911).

Cet exemplaire est plus grisâtre au-dessus du corps.

? ♀ juv. Valle de Lerma, 1300 m., province de Salta, 5. vi. 1905 (J. Steinbach, No. 108).

Cet exemplaire est beaucoup plus grisâtre que tous les autres.

"Le nid, plus petit que celui de *Phacellodomus ruber*, est aussi suspendu à quelque branche d'arbre. Il contient quatre œufs blancs, moins verruqueux que ceux de *P. ruber* et un peu plus petits. Dimensions : 23—25 × 16—17 mm." (S. V.)

254. **Phacellodomus striaticollis striaticollis** (Lafr. & d'Orb.).

Anumbius striaticollis Lafresnaye & d'Orbigny, *Mag. Zool.* 1838, cl. ii. p. 18 (Buenos-Ayres). Nehrkorn, p. 149 ; Ihering, p. 245.

♀ Pacheco, Buenos Aires, 12. iii. 1881 (E. W. White).

♂ ♀ La Soledad, 20, 24. xii. 1901 (C. B. Brittain).

♂ ♀ Barracas al Sud, 30. v., 16. vi. 1903 (F. M. Rodriguez).

♂ ♀ Barracas al Sud, 27. x. 1898, 27. ix. 1899 (S. Venturi).

"Espèce commune à Barracas al Sud, très rare au Chaco. Quelquefois le nid, semblable à celui de *P. ruber*, est placé sur une branche au lieu d'être suspendu à son extrémité. Les œufs, qui se trouvent toujours dans la seconde 'chambre,' sont blancs, opaques, et mesurent 22·5—24 × 16—18 mm. Un œuf uniformément blanc mesure 19 × 14 mm. J'ai trouvé peu d'exemplaires dont la partie postérieure fut saupoudrée de points cendrés." (S. V.)

255. **Phacellodomus striaticollis maculipectus** Cab.

Phacellodomus maculipectus Cabanis, *Journ. f. Orn.* 1883, p. 109 (St. Xavier, montagnes de Tucuman).

♂ ♀ ♀ Norco, Tucuman, 1200 m., 8, 17. viii. 1904 (L. Dinelli, Nos, 3259, 3261, 3341).

♂ Villa Nougues, Tucuman, 1000 m., 21. viii. 1903 (L. Dinelli, No. 2844).

♂ Villa Nougues, Tucuman, 1000 m., 9. viii. 1903 (S. Venturi, No. 1081).

Cette forme distincte de *Ph. striaticollis* a les dessus de corps plus foncé et les côtés de la tête, du cou et de la poitrine sont bien marqués de taches blanchâtres.

"Monsieur Dinelli a trouvé des nids de cette espèce au commencement de janvier dans la région des alisiers. Elle suspend son nid à peu près de la même manière que tous les autres *Phacellodomus* a l'extremite d'une branche. Dinelli ajoute que le nid a deux chambres superposées, et que la ponte se fait généralement dans la supérieure." (S. V.)

256. **Phacellodomus striaticeps** (Lafr. & d'Orb.).

♂ Jujuy Norte, 2470 m., 30. xi. 1905 (L. Dinelli, No. 3838).

♂ près de Tucuman, 2000 m., 22. v. 1906 (L. Dinelli, No. 3982).

♀ Norco, près de Tucuman, 1200 m., 8. viii. 1904 (L. Dinelli, No. 3258).

♂ près de Tucuman, 4000 m., 12. ii. 1903. (G. A. Baer, No. 1437).

Le mâle de Jujuy Norte est plus roussâtre que les exemplaires de Tucuman et représente peut-être une race particulière.

257. Phacellodomus sibilatrix Scl.

Phacellodomus sibilatrix Sclater, *P.Z.S.* 1879, p. 461 (ex. Doering MS. — Cordova, rép. Argentine).

♂ La Soledad, 24. i. 1902 (C. B. Brittain, No. 151). ("Iris pale olive; bill: upper mandible blackish, lower pale blue-grey; feet blue-grey.")

♂ ♀ ♀ Ocampo, 19, 29. xi. 1903, 17. xii. 1905 (S. Venturi, Nos. 1047, 1048, 1105).

♂ Mocovi, 15. x. 1904 (S. Venturi, No. 861).

"J'ai obtenu, il y a quelques années, deux exemplaires de cette espèce du nord de la province de Buenos Aires, chassés par M. Pierre Sérié, du Musée National, et je l'ai retrouvée depuis au Chaco. Elle vit exclusivement dans les bois bordant les grands marais par où passe quelque cours d'eau. Le nid est suspendu à l'extrémité d'une mince branche de quelque haut arbre, et bien fait de branchettes épineuses; il est d'une forme plus définie et d'une structure plus solide que tous les nids semblables. La forme varie selon le nombre des chambres superposées qu'il renferme. Quand il y a une seule chambre, les dimensions sont environ les suivantes: longueur 0·60, hauteur 0·45, et épaisseur 0·35 m. La hauteur des nids composés de 2 ou 3 chambres est naturellement beaucoup plus considérable, pourtant il est à remarquer que le corridor entre la seconde et troisième chambre est bien moins long que celui qui sépare les deux 'appartements' d'en bas. Même quand on détruit en partie le nid pour en enlever les œufs, l'oiseau ne l'abandonne pas, mais au contraire se met aussitôt à le renforcer ou à l'augmenter d'une autre chambre sans toucher à celle qui a été abîmée. Bien des fois la branche où le nid est suspendu n'admet pas une plus grande édification: alors il recompose et répare les dégâts qui ont été occasionnés et y revient pour pondre. Cette nouvelle construction n'a qu'une chambre et un corridor en forme de 'S.' Le 'lit' où sont placés les œufs se compose de fourrage et de paille menus. Le 15. xi. 1905 je sortis trois œufs d'un nid; le 2. xii. 1905 il fut déjà recomposé et contenait deux œufs que j'enlevai aussi en ouvrant le nid à coups de hache, comme la première fois, d'un côté de la chambre. Le 8. i. 1906, après avoir été parfaitement reconstruit, le nid contenait encore 3 œufs frais. Les mesures de ce nid sont celles que j'ai données plus haut, et son poids était de 2·700 kg. Un autre nid que j'avais presque complètement détruit au commencement de novembre pour en voir la forme intérieure, avait déjà une autre chambre construite sur la première à la fin du même mois: j'en sortis 3 œufs de la même manière que je l'avais fait auparavant de l'autre. L'oiseau construisit alors une troisième chambre qui contenait encore 2 œufs au bout de 15 jours. Le diamètre du canal d'entrée a partout 8—9 cm. La ponte est de 3 œufs blancs, lisses et opaques. Dimensions: 19—21 × 14·5—16 mm." (S. V.)

258. Pseudoseisura lophotes (Rchb.).

Nehrkorn, p. 149.
Nom vulgaire: Coperote.

♂ Cosquin, Cordova, 18. vii. 1882 (E. W. White).

♂ San Juan, 14. iii. 1902 (S. Venturi, No. 692).

♂ ♂ La Banda (Santiago), 200 m., 22, 24. iv. 1903 (G. A. Baer, Nos. 1509, 1519).

♂ ♀ La Soledad, 21. ii. 1899, 14. x. 1901 (C. B. Brittain, Nos. 53, 145). ("Iris yellowish white; bill: upper mandible dark grey, lower light blue-grey; feet bluish grey.")

♀ Province de Santiago, 20. vii. 1904 (L. Dinelli, No. 3282).

"Le nid, fait avec des branches épineuses, est placé sur des gros arbres isolés, à 4 ou 5 m. du sol : il est volumineux et couché horizontalement sur quelque grosse branche. J'ai pris des œufs dans les Llanos de la Rioja : ils sont blancs et mesurent 29—30 × 20—21 mm." (S. V.)

259. **Pseudoseisura gutturalis** (Lafr. & d'Orb.).

♂ ♀ Roca (Rio Negro), 14, 17. xi. 1899 (S. Venturi, Nos. 499, 500).

♀ ♀ Cachi, province de Salta, 2500 m., 9, 11. iv. 1905 (J. Steinbach, Nos. 5, 19).

260. **Xenicopsis rufosuperciliatus oleagineus** (Scl.).

Cf. Menegaux & Hellmayr, *Mém. Soc. d'Hist. Nat. d'Autun* xix. p. 93 (1906).

♂ ♂ ♀ ♀ près de Tucuman, 700, 800, 1200 m. (L. Dinelli).

♂ Tucuman, 29. x. 1899 (S. Venturi, No. 501).

♂ Ocampo, 17. x. 1905 (S. Venturi, No. 1041).

♀ Barracas al Sud, 8. xi. 1901 (S. Venturi, No. 548).

"Cette espèce se trouve dans les bois de Barracas al Sud, ainsi qu'au Chaco : elle nidifie dans les trous de troncs parfois très profonds. L'oiseau occupe aussi les nids abandonnés par les piverts, spécialement ceux de *Dendrocopus mixtus*. Il pond deux œufs d'un blanc jaune-verdâtre clair qui mesurent 24·1 × 17·2, 25 × 17 mm." (S. V.)

Monsieur Venturi a trouvé les œufs le 29. x. et le 1. xi. 1905.

261. **Sittasomus sylviellus chapadensis** Ridgw.

Sittasomus chapadensis Ridgway, *Proc. U.S. Nat. Mus.* xiv. p. 509 (1892—Chapada, Mattogrosso).

♀ Rio San Franciso, 400 m., province de Jujuy, 21. vii. 1905 (J. Steinbach, No. 148).

♂ Tucuman, 25. viii. 1898 (S. Venturi, No. 504).

♂ Mocovi (Chaco), 8. i. 1904 (S. Venturi, No. 987).

♂ ♀ ♀ Ocampo, 1, 20. xii. 1905 (S. Venturi, Nos. 1094, 1095, 1096).

♂ ♀ ♀ près de Tucuman, 700—1200 m. (L. Dinelli).

"Assez rare. Nidification comme celle de l'espèce précédente, mais le 'lit' du nid formé de mousse. La femelle pond quatre œufs blancs, lisses et opaques, qui mesurent 20—20·5 × 14·5—15 mm." (S. V.)

262. **Sittasomus sylviellus sylviellus** (Temm.).

Dendrocolaptes sylviellus Temminck, *Pl. Col.* pl. 72, 1 (livr. 12) (1821—"Brésil").
Dendrocolaptes Erithacus Lichtenstein, *Abh. Akad. Wiss.* Berlin, 1820-21, p. 259, 266, pl. 1, 2 (1822—"in prov. San-Paulo").

♀ ad. Posadas (Misiones), 8. iii. 1898 (S. Venturi, No. 505).

263. **Xiphocolaptes major major** (Vieill.).

Dendrocopus major Vieillot, *Nouv. Dict. d'Hist. Nat.*, Nouv. Ed. xxvi. p. 118 (1818—ex Azara : Paraguay).
Ihering, p 249.

♂ Tapia, Tucuman, 600 m., 24. x. 1901 (S. Venturi, No. 699).

♀ Tucuman, 8. vii. 1900 (S. Venturi, No. 507).

4 ♂ ♂ 1 ♀ Tapia, Tucuman, 6-700 m. (L. Dinelli, Nos. 1418, 1420, 1421, 1847, 1885).

♂ Ocampo (Chaco). 17. ix. 1905 (S. Venturi, No. 1036).

"Cette espèce niche dans les creux de troncs ou dans les nids abandonnés par les grandes espèces de piverts. Le nid est toujours construit avec les feuilles sèches d'arbres. La ponte est de deux œufs blanc rugueux qui mesurent 34—37 × 25·5—26 mm. Quand la crevasse du tronc qui sert d'entrée au nid est étroite ou raboteuse, l'oiseau l'agrandit, travail qui décèle sa demeure. Il s'entend que quand il emploie le nid d'un pivert, il n'a aucun travail : pour le surprendre il faut l'épier patiemment." (S. V.)

264. **Xiphocolaptes major castaneus** Ridgw.

Xiphocolaptes major castaneus Ridgway, *Proc. U.S. Nat. Mus.* xii. p. 17 (1889—Bolivia).

♀ ad. Rio San Francisco, 400 m., province de Jujuy, 21. vii. 1905.

(José Steinbach, No. 156. "Iris obscure red : feet dirty green ; bill grey, tip of upper mandible black. Shot in high forest.")

Cette sous-espèce est bien distincte de *X. major major*. La couleur des parties supérieures est plus foncée, celle de la tête plus brunâtre. La gorge est beaucoup plus brunâtre et plus foncée.

265. **Xiphorhynchus lafresnayanus** (d'Orb.).

Dendrocolaptes lafresnayanus d'Orbigny, *Voyage, Ois.* p. 368, pl. 53, fig. 2 (1847—Rio Paraná et Bolivie).

Xiphorhynchus rufo-dorsalis Chapman, *Bull. Amer. Mus.* ii. p. 160 (1889—Mattogrosso, Corumba).

2 ♂♂ 3 ♀♀ Ocampo (Chaco) (S. Venturi, Nos. 927, 1023, 1034, 1061, 1096).

"Cette espèce n'est pas rare aux environs d'Ocampo. Son chant, ainsi que celui de *Xiphocolaptes major*, est facile à imiter. Le 24. x. 1905, je trouvai un nid dans le tronc creux d'*Espina corona* à 3·50 m. de hauteur. Il contenait deux œufs blancs, lisses, qui mesurent 30 × 21 mm. Le lit du nid était constitué par des herbes et des feuilles de la même plante." (S. V.)

266. **Sclerurus caudacutus scansor** (Ménétr.).

Cf. Hellmayr, *Nov. Zool.* 1907, p. 58.
Nehrkorn, p. 149 : Ihering, p. 247. ("*S. umbretta.*")

"C'est un oiseau très connu des ouvriers qui travaillent dans les bois, spécialement paragnayens et missioneros. Dans les 'quebrachales' du Chaco, il est rare, bien que je l'y aie vu plusieurs fois. J'ai obtenu ses œufs à Misiones (Santa Ana) en décembre 1896 : ils sont d'un blanc sale et mesurent 28—29 × 19·5—20 mm." (S. V.)

267. **Picolaptes angustirostris** (Vieill.).

Nehrkorn, p. 150 ; Ihering, p. 247.

♂♂ La Soledad 4, 8. xi. 1901 (C. B. Brittain coll., Nos. 70, 77).

♂ Barracas al Sud, 10. xii. 1899 (S. Venturi, No. 508).

♂♂ ♀ Mocoví, 12. ix., 21. x., 5. xi. 1903 (S. Venturi, Nos. 220, 819, 869).

♂ Tucuman, 26. vii. 1898 (S. Venturi, No. 509).

♂ ♀ Sta. Ana et Tapia, Tucuman, 350 et 600 m. (G. A. Baer, Nos. 1064, 1203).

1 Salta, 1200 m., ix. 1903 (J. Steinbach).

♀ Valle de Lerma, 1200 m., province de Salta, 13. vi. 1905 (J. Steinbach, No. 122).

♀ Mendoza, février 1871 (Weisshaupt).

"J'ai examiné beaucoup de nids de cette espèce si commune au Chaco. Elle profite des trous naturels des troncs situés à une faible distance du sol. Une seule fois je l'ai trouvée à 4 m. de hauteur. Comme le *Xiphocolaptes major*, l'oiseau agrandit et arrondit l'entrée naturelle de son nid, et si le trou est très profond il le remplit de morceaux d'écorce d'arbre qu'il fait sauter à coups de bec ; parfois le remplissage a une hauteur de 0·50 m. à 1 mètre. Le lit est également fait avec des morceaux d'écorce, seulement un peu plus petits. La ponte est de quatre œufs blancs et lisses qui mesurent 24—27 × 17·5—19 mm." (S. V.)

268. **Picolaptes fuscus fuscus** (Vieill.).

Cf. Menegaux et Hellmayr, *Mém. Soc. d'Hist. Nat. d'Autun* xix. p. 113 (1906).

♂ Piray (Misiones), 30. iii. 1897 (S. Venturi, No. 510).

269. **Drymornis bridgesii** (Eyt.).

Nehrkorn, p. 150.

1 Cosquin, Cordova, 20. vi. 1882 (E. W. White).

3 ♂♂ ad. 1 ♂ juv. La Soledad (C. B. Brittain).

2 ♀♀ Tapia, Tucuman, 600 m., 10. x., 9. xi. 1901 (L. Dinelli).

♂ ♀ Tapia, Tucuman, 600 m., 28. x., 9. xi. 1902 (S. Venturi).

"Cette espèce est assez commune à Tucuman, où elle niche dans les arbres en employant de petites branches sèches." (S. V.)

270. **Philydor rufus rufus** (Vieill.).

♂ ♀ Ignaqú, Misiones, 10. iii. 1898 (S. Venturi, Nos. 34, 503).

271. **Dendrocolaptes picumnus** (Licht.).

♂ Posadas, Misiones, 20. iii. 1897 (S. Venturi, No. 506).

272. **Dendrocolaptes pallescens** Pelz.

♂ ad. Jujuy, 1. xi. 1906 (L. Dinelli). Au musée de Munich. (Bruch, *Revista Mus. La Plata* xi. 1904.)

FORMICARIIDAE.

273. **Thamnophilus major major** Vieill.

Nehrkorn, p. 150 ; Ihering, p. 248.
Nom vulgaire : Chororó.

♂ Mocoví (Chaco), 7. x. 1903 (S. Venturi, No. 839)

♂ ♀ Tucuman, 19, 30. vii. 1898 (S. Venturi, Nos. 511, 512).

♂ Los Vasques, Tucuman, 445 m., 16. viii. 1902 (L. Dinelli, No. 1689).

♂ San Lorenzo, province de Jujuy, 500 m., 13. vii. 1905 (J. Steinbach, No. 141).

"Espèce fort commune et très douce ; elle visite les tentes et foyers des campements dans les bois. Suspendu à une fourchette ou entre deux branches, le nid est composé d'herbes, de paille, de feuilles, et de tiges de plantes grimpantes. Il mesure 0·08 m. de diamètre et 0·055 m. de profondeur intérieure. Le nid est épais de 2—3 cm. La femelle pond trois œufs qui mesurent 27—28 × 20—21 mm." (S. V.)

274. **Thamnophilus gilvigaster dinellii** Berl. (Pl. III. Fig. 3.)

Thamnophilus dinellii Berlepsch, *Bull. B.O.C.* xvi. p. 99 (1906—Tucuman); *Proc. IV. Int. Congr. Orn.* p. 368. ("*Th. maculatus*" d'Orb. [nec Such] auct.)

2 ♂♂, 1 ♀ S. Vicente (Chaco), ix. 1905 (S. Venturi).

♂♂♀ près de Tucuman, 450—850 m. (L. Dinelli).

♂♀ Tapia, Tucuman, 600 m. (G. A. Baer).

♂♀ Tucuman (S. Venturi).

♂♂♀♀ Mocoví (Chaco) (S. Venturi).

♂ Rio San Francisco, province de Jujuy, 400 m., 20. vii. 1905 (J. Steinbach, No. 142).

"Cette espèce n'est pas rare au Chaco. Son nid est fait des mêmes matériaux que celui de *T. ruficapillus*. Le diamètre interne est de 5·5—6 cm. et la profondeur de 3·5—4 cm.; l'épaisseur ne dépasse pas généralement 1 cm. Les trois œufs sont couverts de taches brun-rouge foncé et de taches primaires cendrées, et non de stries et de lignes comme ceux de *Th. major* et *Th. ruficapillus*. Leurs dimensions sont 21—22·5 × 16—17 mm. J'ai aussi obtenu des œufs de Tucuman." (S. V.)

275. **Thamnophilus ruficapillus** Vieill.

Ihering, p. 248.

♂♀ Barracas al Sud, 23. v., 10. vi. 1903 (F. M. Rodriguez).

♂♂♀ Barracas al Sud, 31. viii., 26. ix. 1899, 18. x. 1901 (S. Venturi).

"Cette espèce abonde dans les bois des bords du Rio de la Plata à Barracas la Sud. Les œufs sont de la même couleur que ceux de *Th. major*, mais leurs dimensions sont moindres : 20—22 × 16—17 mm." (S. V.)

276. **Herpsilochmus atricapillus** Pelz.

♂ ad. Rio San Francisco, Jujuy, 400 mètr., 20. vii. 1905.

♀ jr. Jujuy, 520 m. 18. vii. '06. (Dinelli, No. 4206.)

277. **Rhinocrypta lanceolata** (Geoffr. & d'Orb.).

Nom vulgaire : "Gallito."

♂♀♀ Province de Santiago, 380 m., i., ii., iii. 1906 (L. Dinelli).

♂ Mendoza, 1. iv. 1901 (S. Venturi).

278. **Rhinocrypta fusca** Scl. & Salv.

♂ San Juan, 7. v. 1902 (S. Venturi, No. 695).

♀ Cachi, province de Salta, 2500 m., 19. iv. 1905. (J. Steinbach, No. 46 : "Iris braun; Schnabel schwarz, Unterschnabel bleifarben.—Lebt auf dürren Campos, läuft schnell, fliegt aber fast niemals. Vulgärname 'Corre-campo.'")

TROCHILIDAE.

279. **Chlorostilbon aureoventris aureoventris** (Lafr. & d'Orb.).

Nehrkorn, p. 152 ; Ihering, p. 252.
Nom vulgaire : Picaflor.

♂♂ ad., 1 juv. Barracas al Sud, 8. i. 1900, 3. ii. 1901, 1. ii. 1903 (S. Venturi, Nos. 478, 542, 736).

♂♀ ad. Tucuman, 6, 14. xi. 1899 (S. Venturi, Nos. 543, 544).

280. **Colibri serrirostris** (Vieill.).

♂ ♀ Vipos, Tucuman, 5, 7. xi. 1899 (S. Venturi, Nos. 525, 526).
♂ ♀ Tucuman (L. Dinelli).

281. **Colibri iolota** (Gould).

♂ ♀ Maimará, Jujuy, 22. xi. 1905 (S. Venturi).

282. **Leucippus chionogaster** (Tsch.).

♂ ♀ Tucuman, 4. xi. 1899, 19. iv. 1901 (S. Venturi, Nos. 534, 535).

" Dans un lieu sombre et protégé, il fixe son nid à quelque branche propre, le revêtant de lichens extérieurement et de coton intérieurement. Le nid mesure 5 cm. de diamètre sur 3·5 de hauteur."

283. **Patagona gigas** (Vieill.).

♂ ♀ Lara, Tucuman, 4000 m., 12. ii. 1903 (S. Venturi, Nos. 800, 801).
♂ Jujuy Norte, 2470 m., 24. xi. 1905 (L. Dinelli, No. 1098).
♂ Fuerte de Andalgaba, Catamarca, 20. ix. 1880 (E. W. White).

284. **Leucochloris albicollis** (Vieill.).

♂ ♀ Posadas, Misiones, 19. ii. 1902, 20. iv. 1897 (S. Venturi, Nos. 536, 765).

285. **Hylocharis ruficollis ruficollis** (Vieill.).

Nehrkorn, p. 153.
Nom vulgaire : Picaflor.

♂ ♂ ♀ ♀ Barracas al Sud (S. Venturi).

" C'est l'espèce la plus commune tant à Barracas al Sud qu'à Ocampo, et il y niche dans les forêts et sous le corridor des chaumières, le nid étant alors suspendu à quelque paille pendant du toit. Dans les forêts, il y a de petits morceaux de lichen à l'extérieur, et quand il se trouve aux maisons, de petits morceaux d'écorce très fine de petits arbustes. Le nid mesure : diamètre externe 35, interne 25 mm.; profondeur 25 mm. Les œufs, semblables à ceux de *Chlorostilbon a. aureoventris*, mesurent 13—14 × 8·5—9 mm." (S. V.)

286. **Oreotrochilus leucopleurus** subsp.?

Nous avons reçu un mâle adulte tué près de Tucuman le 26. vi. 1900, à une altitude de 1500 m., par Monsieur S. Venturi (No. 715 de sa collection). Cet échantillon, tout en s'accordant avec *O. leucopleurus*, en diffère pourtant par la couleur des parties supérieures plus pâle et par ses ailes plus courtes (68 mm.). Les rectrices latérales ont la même forme que chez *Or. leucopleurus*. Messieurs Simon et Hellmayr ont bien expliqué (*Noc. Zool.* 1908, p. 4) que l'*O. bolivianus* Boucard était tout à fait différent de l'*O. stolzmanni* Salv., mais comme seul caractère distinctif ils indiquent pour le type de Boucard un bec plus long, et les rectrices latérales plus larges et également plus longues. Le mâle de Tucuman, est-il donc une race différente de *leucopleurus* et de *bolivianus*—si toutefois ces deux sont séparables ? Il faut en examiner une série pour décider cette question.

Nous avons aussi reçu deux femelles—l'une indiquée comme " ♂ "—de Cachi,

province de Salta, 2500 m. au-dessus de la mer, par Monsieur J. Steinbach (Nos. 75, 77 de sa collection). L'une de ces femelles a les points arrondis sur la gorge bleuâtres, l'autre verdâtres. Sans connaître le mâle il est impossible de dire à quelle espèce elles se rapportent. Pour leur coloration générale, elles ne présentent pas de différence avec *O. leucopleurus*.

287. **Lesbia sparganura** (Shaw).

♂ ♀ & juv. près de Tucuman, 700 à 1200 m. (S. Venturi et L. Dinelli).

♂ ad. Mendoza, Weisshaupt.

" M. Dinelli a trouvé un nid de cet oiseau-mouche au mois de mars à une altitude de près de 2000 mètres. Il était fait avec de la laine et fixé à un cuir de mouton abandonné sur un tronc. Le nid contenait deux petits à demi emplumés ; il mesurait extérieurement 6·5 cm. de diamètre sur 5 de hauteur. On assurait à M. Dinelli que plusieurs couples se réunissent dans les grottes des montagnes et y nidifient tous au même endroit." (S. V.)

288. **Heliomaster furcifer** (Shaw).

Nehrkorn, p. 152.

♂ ♀ & juv. Barracas al Sud et Tucuman (S. Venturi).

♂ ♀ près de Tucuman, 600 m. (L. Dinelli).

" Ces deux espèces nichent sur les arbres et placent leurs nids sur les branches horizontales ou sur quelque petite fourche. Les œufs de *H. furcifer* sont un peu plus allongés que ceux de *Chlorostilbon aureoventris*, et mesurent 14—14·5 × 8·5—9·5 mm." (S. V.)

289. **Chaetocercus burmeisteri** Scl.

Cet oiseau-mouche si beau et si rare a été trouvé à Vipos et à Tapia, près de Tucuman, à des altitudes de 450 et 600 m. par Monsieur Dinelli, et à 1150 m. par Monsieur Venturi.

CYPSELIDAE.

290. **Apus andecolus dinellii** Hart.

Apus andecolus dinellii Hartert, *Bull. B.O. Club*, xxiii. p. 43 (Dec. 1908—Jujuy).

Le petit martinet qui habite les montagnes de Jujuy et de Mendoza est bien distinct de l'espèce nommée *Apus andecolus* (*Cypselus andecolus* Lafr. & d'Orbigny, *Mag. Zool.* vii., cl. ii. *Aves*, p. 70 — des montagnes de Santa Cruz de la Sierra, Bolivie). La forme typique de la Bolivie a les flancs et les couvertures inférieures des ailes noirâtres, la gorge blanc pur, et le dos plus noirâtre. Chez *A. and. dinellii*, à l'encontre, les parties inférieures sont couleur crême teintées de grisâtre, des sous-caudales il n'y a que les plus longues qui sont gris brunâtre, les couvertures inférieures des ailes sont grisâtres, et enfin le dos est plus brunâtre. Les ailes mesurent 138 — 144 mm. Cette forme est probablement un représentant de l'*A. andecolus*.

Type : No. 3855. Angosta Perchela (Jujuy), 3. xi. 1905 (Dinelli coll.).

♂ Jujuy, vii. 1905 (reçu de S. Venturi, No. 1097).

3 ♂♂, 2 ♀♀ Angosta Perchela (Jujuy), 2550 m., et Tilcara (Jujuy Norte), 2470 m. (L. Dinelli, Nos. 3785, 3813, 3855, 3911, 3912).

291. **Chaetura zonaris zonaris** (Shaw).

♂♂ ♀ Tucuman, 456 m., 24. iii. 1899 (S. Venturi, Nos. 283, 545, 546).
♂♂ ♀ ♀ près de Tucuman, 450 m. (L. Dinelli, Nos. 759, 760, 1027, 1030).
♀ juv. Tucuman, 450 m., 16. ii. 1900 (L. Dinelli, No. 700).

292. **Chaetura andrei meridionalis** Hellm.

Chaetura famosa (non Salvin !) Lillo, in *Revista letras S. Soc.* (Buenos Aires, 1905).
Chaetura andrei meridionalis Hellmayr, *Bull. B.O.C.* xix. p. 63 (1907—Argentina : type : Isca Yacu, province de Santiago, 380 m., L. Dinelli) ; id., *Verh. Orn. Ges. Bayern*, viii. p. 150 (1908—Argentina ; Brésil méridion.).

3 ♂♂ Isca Yacu, prov. de Santiago, 380 m. (L. Dinelli, Nos. 3950, 3953, 3976 (Type of subspecies).
♂ ♀ Ocampo, 10. ix. 1905 (S. Venturi, Nos. 996, 997).

CAPRIMULGIDAE.

293. **Nyctibius griseus griseus** (Gm.).

(Cf. Hellmayr, *Nor. Zool.* 1906 p. 37.)
Nyctibius jamaicensis griseus Hartert, *Tierreich*, *Lief.* i. p. 16.
Ihering, p. 257.
Nom vulgaire : Urutau et xacui.

" Il n'est pas rare au Chaco pendant le printemps et l'été. Comme les autres engoulevents, il ne fait pas de nid, mais pond dans les grandes fourches de gros arbres secs en pleine forêt vierge." (S. V.)

294. **Hydropsalis furcifer** (Vieill.). (Pl. III. Fig. 18.)

Nehrkorn, p. 157 ; Ihering, p. 256.
Nom vulgaire : dormilon.

Une série de Tucuman (L. Dinelli et S. Venturi).
Ocampo (S. Venturi).
La Soledad (C. B. Brittain).
" J'ai recueilli plusieurs œufs de cette espèce à Ocampo, où elle n'est pas rare. Dimensions des œufs : 27·5—30 × 21—22·5 mm." (S. V.)

295. **Podager nacunda** (Vieill.).

Ihering, p. 257 ; Nehrkorn, p. 158.
Nom vulgaire : dormilon.

1 ♂ La Soledad, 1. i. 1902 (C. B. Brittain, No. 130).
Une série de Tucuman (L. Dinelli).
" Il est commun, surtout dans les ' chacras ' de Buenos Aires et du Chaco. Il pond deux œufs. Ceux que j'ai recueillis mesurent 35 × 25 et 35·5 × 25·5 mm." (S. V.)

296. **Caprimulgus rufus** Bodd.

Nehrkorn, p. 156 ; Ihering, p. 255.

1 ♂ ad. Ocampo, 16. xi. 1905 (S. Venturi, No. 1064).
Les taches terminales des rectrices latérales sont plus petites que chez nos exemplaires du Vénézuéla et du Brésil. Peut-être existe-t-il une race spéciale dans l'Argentine. Il faut examiner une série.

"Le 16. xi. 1905 j'obtins un couple et les œufs dans un bois situé quatre lieues à l'ouest d'Ocampo. Les œufs sont d'un blanc luisant, avec de petites taches cendrées et violacé pâle disséminées sur toute leur surface. Ils mesurent 33 × 24 et 33·7 × 24 mm." (S. V.)

297. **Caprimulgus parvulus** Gould. (Pl. III. Fig. 19.)

Nehrkorn, p. 156 ; Ihering, p. 256.

♂ ad. La Soledad, 29. xi. 1901 (C. B. Brittain, No. 100).
Pull. La Soledad, 7. i. 1902 (C. B. Brittain, No. 139).
♂♂ Barracas al Sud, 10. xi. 1898, 19. xii. 1899 (S. Venturi, Nos. 563, 564).
♂♀ Ocampo, 23. x., 25. xi. 1905 (S. Venturi, Nos. 1085, 1086).
♂ Sta. Ana, Tucuman, 350 m., 1. xi. 1902 (G. A. Baer, No. 1072).

"Cet engoulevent est aussi commun que *Podager nacunda* dans les localités citées. Les œufs, d'un fond jaunâtre presque rose, sont parfois couverts de taches et de raies, parfois ils n'en ont pas. Dimensions : 25—28 × 19—20 mm." (S. V.)

298. **Chordeiles virginianus virginianus** (Gm.).

♂♂ Barracas al Sud, 20, 21. i. 1900 (S. Venturi, Nos. 560, 561).

299. **Eleothreptus anomalus** (Gould). (Pl. III. Fig. 17.)

Ihering, tom. v. p. 301.

"La description de M. Ihering s'accorde bien avec les échantillons que j'ai obtenus à Ocampo, mais les dimensions des œufs données au tome v. p. 301 (pl. xi. fig. 3), sont trop grandes, et je crois qu'il y a là une erreur. Les œufs que j'ai recueillis mesurent 26·5—29·8 × 20·6—21·4 mm." (S. V.)

BUCCONIDAE.

300. **Bucco maculatus striatipectus** Scl.

Cf. Hellmayr, *Nov. Zool.* 1908, p. 86.
Nom vulgaire : Dormilon ou Durmili.

"M. Dinelli a eu l'amabilité de m'envoyer deux œufs de cette espèce qu'il avait pris à Tucuman dans un nid souterrain. Ils sont d'un blanc luisant. Dimensions : 25·3 × 21 et 25·6 × 21·5 mm.

"C'est au bord des rigoles ou des canaux que l'on trouve les nids de cet oiseau. On voit presque toujours une racine ou une branche à l'entrée de la longue excavation, et l'on comprend qu'elle lui a servi d'appui pour commencer son travail. Parfois les galeries se tordent tout à coup à cause d'une racine ou d'une pierre qui se présentait en travers. Quelques nids étaient creusés dans des endroits très obscurs et étroits, de manière qu'en entrant l'oiseau interceptait le peu de lumière qui pénétrait à l'intérieur et que les petits restaient dans une obscurité absolue.

"Près de la pointe du bec, cet oiseau possède un crochet acuminé que perd le mâle à l'époque de la nidification. M. Dinelli en déduit que c'est le mâle qui travaille à creuser le nid. Comme la femelle n'use que très peu la pointe du bec, il paraîtrait que celle-ci aidât son compagnon seulement pour arrondir et élargir la voûte finale où se trouve le nid proprement dit. Comme le corps de ces oiseaux est

plat, dans le sens que le sternum est bas et la poitrine plane, il en résulte que l'entrée de la galerie n'est pas ronde sinon que le diamètre horizontal en est plus grand que le diamètre vertical.

"Le fond du nid est formé par une grande quantité de fragments de feuilles sèches. Pour examiner les nids de ces oiseaux il convient parfois de creuser depuis le haut en faisant tomber beaucoup de terre. Bien que l'entrée du nid reste ouverte, la mère, qui couve les œufs, ne bouge pas, et se laisse prendre avec les mains. Une fois prise, elle relève les plumes, hausse le corps, ouvre le bec et ferme presque les yeux sans se disposer à fuir. Il parait qu'elle veut dormir, d'où le nom vulgaire de *durmili-durmili*." (S. V.)

Nous en avons, dans la collection de Tring, les peaux suivantes :

♂ ♀ Tucuman, 450 m., 18. vi. 1899, 22. viii. 1898 (L. Dinelli—coll. Venturi, Nos. 53, 54).

3 ♂♂ 1 ♀ Tucuman, 450 m. (L. Dinelli, Nos. 401, 1007, 1149, 1150).

♀ ad. Valle de Lerma, province de Salta, 1200 m., 3. vi. 1905 (J. Steinbach, No. 103). ("Nom vulgaire : Rey de los pajaros ou Dormilio.")

PICIDAE.

301. **Colaptes agricola** (Malh.).

Nehrkorn, p. 164 ; Ihering, p. 258.
Nom vulgaire : Carpintero.

♂ ♀ La Soledad, 17. x. 1901 (C. B. Brittain, Nos. 58, 59).

♂ ♀ Mocoví (Chaco), 4, 29. ix. 1903 (S. Venturi, Nos. 4, 827).

♀ Coronel Dorrego (Buenos Aires), 19. x. 1899 (S. Venturi, No. 580).

"Il creuse son nid soit dans les grands fourmiliers des 'cannadas' (tacurús), soit dans les murs des maisons abandonnées dont les briques sont crues ou cuites, ou dans des arbres, comme l'Ombie, le Quebracho colorado, etc. La femelle pond 4 œufs blancs, qui mesurent 28—31·5 × 22—23 mm." (S. V.).

302. **Colaptes rupicola** d'Orb.

3 ♂♂ 2 ♀♀ La Cienega (Cienaga), Tucuman, 2500—2800 m. (L. Dinelli).

♂ Tucuman, 2900 m. (S. Venturi).

♀ Près de Tucuman, 3300 m. (L. Dinelli).

Il faut mentionner qu'un mâle (No. 3037 de M. Dinelli, pris à la Cienega, 2500 m.) a sur la nuque une tache de plumes rouges. C'est très intéressant, parce que cette tache rouge se trouve régulièrement chez *Colaptes puna* du Pérou.

(Comparez *Journ. f. Orn.* 1883 p. 98, et *Cat. B. Brit. Mus.* xviii. p. 26, note.)

"M. Dinelli a trouvé le nid de cette espèce, au mois de mars, sur des berges sablonneuses, à 2500 m. d'élévation ; c'était dans des trous très profonds et dont l'entrée était ouverte ; au fond, sur du sable propre, il y avait 4 œufs. Les nids sont généralement placés dans des parages inaccessibles, et la ponte commence au mois de décembre." (S. V.)

303. **Chrysoptilus cristatus** (Vieill.).

Nehrkorn, p. 165 ; Ihering, p. 258.

2 ♂♂ Tapia, Tucuman, 600 m. (L. Dinelli).

♀ Tucuman, 5. xi. 1899 (S. Venturi).

♀♀ Valle de Lerma, 1200 m., 2, 16. vi. 1905 (J. Steinbach, Nos. 97, 131).

♀ Mocoví (Chaco), 9. ix. 1903 (Rodriguez).

♂ Tigre (Buenos Aires), 1. xii. 1902 (S. Venturi).

♂ ♀ La Soledad, 17. i. 1898, 1901 (C. B. Brittain).

♂ ♀ Rio de Oro, Col. Gral. Vedia, Chaco austral. (ex coll. Dalmas).

"Cette espèce nidifie exclusivement dans des arbres et de préférence dans ceux à bois facile, quoiqu'il ne dédaigne pas non plus les autres. Le nid se trouve généralement à plus de 3 mètres du sol et contient 3—4 œufs, dont les premiers pondus sont toujours les plus petits. Ces derniers mesurent 25·5 × 18 mm., et les autres 29 × 21 mm. Je n'en ai trouvé aucun qui dépassât ces dimensions." (S. V.)

304. **Melanerpes candidus** (Otto).

Nom vulgaire : Carpintero blanco.

♀ Concepcion, Misiones, 12. vi. 1881 (E. W. White).

♂ ♀ Tapia, Tucuman, 700 m., 10, 15. ix. 1902 (L. Dinelli).

♀ Tucuman, 14. xi. 1899 (L. Dinelli).

♂ Mocoví (Chaco), 22. x. 1903 (S. Venturi).

"Monsieur G. A. Baer (*Ornis* xii. p. 224) dit que le *M. candidus* nidifie comme le *M. cactorum* ; au Chaco, où les Cerens sont de taille moindre, il profite des troncs secs et de bois blanc. Il est assez rare, et je n'en ai trouvé qu'un seul nid. Les deux œufs mesurent 25 × 18 et 25·1 × 19 mm." (S. V.)

305. **Melanerpes cactorum** (Lafr. & d'Orb.).

♂ ♂ ♀ ♀ Tapia, Tucuman, 600 m. (L. Dinelli).

♂ ♂ ♀ Tapia, Tucuman, 600 m. (L. Dinelli coll., S. Venturi, Nos. 571, 700, 734).

2 ♂ ♂ ad. 1 ♀ juv. La Soledad (C. B. Brittain, Nos. 29, 69, 176).

Les trois exemplaires de La Soledad et la plupart des échantillons de Paraguay ont le bec plus gros que les autres de Tucuman, mais les dimensions du bec et des ailes sont assez variables.

"Le nid de ces piverts attire l'attention des observateurs, comme le trou d'entrée se voit de loin à l'extrémité des énormes *Cereus* qui croissent sur la pente des montagnes. Il contient 3—4 œufs, qui mesurent 23·5 × 16·5 mm." (S. V.)

306. **Veniliornis olivinus olivinus** (Malh.).

Cf. Hellmayr, *Nov. Zool.* 1908 p. 81.

♂ ♀ Mocoví (Chaco), 25. x. 1903 (S. Venturi, Nos. 866, 867)

"J'ai toujours trouvé les nids à l'extrémité sèche des hautes branches des arbres, ce qui rend leur récolte très difficile." (S. V.)

Deux œufs pris par Monsieur Venturi a Ocampo le 21. xi. 1905 sont d'un blanc pur assez luisant. Ils mesurent 19·3 × 14·9 et 19·2 × 13·9 mm.

307. **Veniliornis olivinus frontalis** (Cab.).

4 ♂ ♂ 3 ♀ ♀ près de Tucuman, 1200 m. (L. Dinelli).

♂ Rio Seco, 350 m., province de Salta, 30. vii. 1905 (J. Steinbach, No. 174).

♂ Rio San Francisco, 400 m., province de Jujuy, 23. vii. 1905 (J. Steinbach, No. 157).

Les ailes des mâles mesurent de 95 à 98 mm.

308. **Chloronerpes chrysochlorus** (Vieill.).

♀ ad. Rio Bermejo, Salta, 350 m., 27. vii. 1905 (J. Steinbach, No. 163).
(Cf. Bruch, *Revista Mus. La Plata* xi. pp. 245–57, 1904.)

309. **Chloronerpes aurulentus** (Temm.).

Nehrkorn, p. 165 ; Ihering, p. 258.

Monsieur Venturi, malheureusement, n'a pas envoyé de peaux de cette espèce. Il écrit :

" Rare au Chaco Santafecino, où je ne l'ai vu que deux fois, mais on le rencontre assez souvent dans le territoire de Formosa. D'un nid que j'ai trouvé à S. Ignacio (Formosa) au mois de novembre 1897, j'ai pris trois œufs qui mesurent 23 × 24 et 18 × 19 mm." (S. V.)

La collection ne contient que deux œufs, pris le 13. xi. 1900 à Esperanza. Ils sont d'un blanc pur luisant et mesurent 25 × 18 et 23·1 × 19 mm.

310. **Chloronerpes rubiginosus tucumanus** Cab.

Chloronerpes tucumanus Cabanis, *Journ. f. Orn.* 1883, p. 103 (Tucuman).

Cette sous-espèce est bien distincte de *C. rubiginosus rubiginosus* par ses plus grandes dimensions.

Nous en avons reçu une belle série de 6 mâles et 4 femelles recueillies près de Tucuman à 520 à 1200 mètres, per Messieurs Dinelli et Venturi.

311. **Campephilus leucopogon** (Valenc.).

♂ ♀ Salta, 1300 m., vii., viii. 1903 (J. Steinbach).
♂ Province de Santiago, 330 m. (L. Dinelli).
♂ ad., ♀ ad., ♂ juv. Tucuman (S. Venturi).
♂ juv. Ocampo, 1. xii. 1905 (S. Venturi).

" C'est le Pic dont les coups de bec sont les plus forts sur les troncs secs : le bruit est fort semblable à celui d'une hache. Il niche dans des 'Ombus' et des 'Ceibas,' ainsi que dans le 'Quebracho colorado,' à une hauteur moyenne de 5 à 6 mètres. C'est l'espèce qui nidifie le plus tôt, car au mois d'octobre on trouve déjà des petits. Les jeunes ont toute la gorge noire. La ponte est de quatre œufs blancs, qui mesurent 28—31 × 21—23 mm." (S. V.)

312. **Dendrocopus mixtus mixtus** (Bodd.).

♂ La Soledad, Entre Rios, 25. xii. 1901 (Brittain coll.).
♂ ad., ♀ ad., ♂ juv. Barracas al Sud (S. Venturi coll.).
♀ ad., ♂ juv. Ocampo (S. Venturi coll.).
♂ ♀ jun. Tucuman, 380—700 m. (L. Dinelli coll.).
♂ ♀ Rio Bermejo, 350 m., province de Salta (J. Steinbach coll.).

" Espèce commune à Buenos Aires et au Chaco. Il niche de préférence dans les branches sèches du 'Ceibo' (*Erythrina crista-galli*), dont le diamètre est d'environ 10 cm. L'ouverture du nid est toujours pratiquée du côté inférieur de la branche : elle mesure de 3·5 à 4 cm. La profondeur du nid varie entre 25 et 40 cm. La ponte est de 4 œufs, dont les dimensions sont : 19—21·5 × 15—16·5 mm." (S. V.)

313. **Picumnus cirrhatus tucumanus** subsp. nov.

Les *Picumnus* de Tucuman sont très voisins de la forme nommée *P. cirrhatus pilcomayensis* Harg., mais ont les ailes plus longues, la queue un peu plus longue, et les couvertures supérieures des ailes toujours bordées de blanchâtre. Il faut les séparer comme sous-espèce.

Ailes : ♂ ♀ 52·5—54 mm. Type : No. 3177, ♂ ad., Rio Colorado, Tucuman, 390 m., 29. vi. 1902, L. Dinelli coll.

Nous en avons reçu :

♂ Tucuman, 16. v. 1902 (S. Venturi, No. 581).

♀ Sta. Ana, Tucuman, 350 m., 12. x. 1902 (G. A. Baer, No. 984).

2 ♂♂ 4 ♀♀ près de Tucuman, 390 à 1200 m. (L. Dinelli coll.).

Un mâle de Salta, 1200 m., tué par Monsieur Steinbach, a une indication de taches sur les côtés de la poitrine. Probablement cet exemplaire n'est qu'une variété de *P. c. tucumanus*, mais il faudrait examiner une série de Salta pour le décider.

C'est cette forme ou le *P. cirrhatus pilcomayensis* que Monsieur Venturi a observée à Ocampo et dont il écrit :

" Ce petit pivert niche dans de petits arbres ou branches sèches de bois blanc à l'intérieur des forêts et sur le bord des marais. Le nid, dont l'entrée mesure 2 cm. en diamètre, a une profondeur de 20 cm. La ponte est de 4 œufs, dont les dimensions sont les suivantes : 14—16·5 × 10·5—12 mm. Un nid trouvé le 23. xii. 1905 ne contint que 3 œufs, parfaitement sphériques et avec un diamètre de 12—13 mm. ; ils ne sont pas aussi lisses que ceux des autres Pics, mais bien plutôt rugueux.

" Pour obtenir les œufs des *Picumnus* et de *Dendrocopus mixtus*, il faut couper avec soin la branche où se trouve le nid, et de l'incliner ensuite de la manière que les œufs roulent par l'ouverture. Dans le cas où la ponte n'avait pas encore commencé nous rattachions la branche à sa place autant que faire se peut, et le pic n'abandonnait pas le nid. De la sorte j'ai pu suivre au jour le jour les progrès de la ponte et de l'incubation. Le *Picumnus* pond un œuf par jour." (S. V.)

314. **Picumnus orbignyanus** Lafr.

♂ ad., Jujuy, 29 vii. 1906, 320 m. (L. Dinelli, No. 4271).

♀ Rio San Francisco, 900 m., province de Jujuy, 23. vii. 1905 (J. Steinbach, No. 151).

315. **Picumnus** sp. nov. ?

♂ Quebrada Escoipe, 1600 m., province de Salta, 5. vi. 1905 (J. Steinbach, No. 107).

Cet exemplaire appartient probablement à une espèce nouvelle, mais peut-être s'agit-il d'une simple aberration de *Picumnus orbignyanus*, qui n'en différerait que par ce que les plumes de la gorge et des côtés de la poitrine sont bordées de noir au lieu d'en être rayées.

Il faudra en examiner une série.

RHAMPHASTIDAE.

316. **Rhamphastos toco** Müll.

Nom vulgaire : Tuco, Tucano.

1 Chaco austral, Rio de Oro, Sept. 1896 (A. Ros, ex coll. Dalmas).

1 ♂ Ocampo (Sta. Fé), Sept. 1, 1905 (S. Venturi, No. 995).

1 ♀ S. Javier (Misiones), 150 m., 24. xi. 1900 (S. Venturi, No. 66).

3 ♂♀ jun. Metán, province de Salta, 850 m., v., vi. 1905 (L. Dinelli, Nos. 3492, 3494, 3550).

Dans les jeunes oiseaux la ligne noire à la base du bec est à peine indiquée, le jaune de la gorge très étendu, et les plumes de la gorge inférieure sont bordées de rosâtre. La plupart des oiseaux adultes ont la gorge blanche ou avec peu de jaune. Le "*Rhamphastos albogularis*" n'est donc pas une espèce distincte.

"Cet oiseau niche dans les trous naturels des grandes 'ombús' qui peuplent les forêts du Chaco. Je n'ai pu obtenir d'œufs de cette espèce, ni ceux de *R. dicolorus*, qui n'est pas rare à Misiones." (S. V.)

317. **Rhamphastos dicolorus** L.

♂ ad., Iguazú (Misiones), 20. xi. 1900. (S. Venturi, No. 67. "Iris negro.")

CUCULIDAE.

318. **Tapera naevius** (L.).

[*Diplopterus naevius* auct.]
Nom vulgaire : Crispin.

♂♂ ad., ♀♀ ad., juv., environs de Tucuman, 450 m. (L. Dinelli).

"Cet oiseau pond 1 ou 2 œufs dans le nid de *Synallaxis cinnamomea russeola* et probablement dans ceux d'autres oiseaux : les œufs du Synallaxis périssent et seul le 'Crispin' se développe. Il est très méchant même quand il est tout petit et sans plumes, car il se lance pour piquer la main qui s'approche de lui. Quand je le trouvai pour la première fois, le 8. xi. 1905, je ne pouvai pas m'expliquer le phénomène : j'emportai le petit chez moi pour l'élever. Les deux premiers jours je ne suis pas parvenu à lui faire manger, mais ensuite il devint plus doux et avec beaucoup de patience je réussis à l'élevage.

"Le 28. xii. 1905 je trouvai un autre nid de *Synallaxis cinnamomea russeola*, mais il contenait deux jeunes du 'Crispin' déjà assez grands : ici aussi les œufs du propriétaire étaient pourris au fond du nid.

"Monsieur Dinelli a pu faire d'intéressantes observations sur ce Cuculidé. Il en recueillit deux petits des nids de *Synallaxis superciliosa*, un à Tucuman et l'autre à Santiago del Estero. Il en éleva un en le nourrissant exclusivement d'insectes ; l'oiseau paraissait de préférer les chenilles. Il a observé qu'à l'endroit où chante le 'Crispin,' il doit avoir un couple de *Synall. superciliosa* qui construit le nid au voisinage." (S. V.)

319. **Crotophaga ani** L.

Nehrkorn, p. 173 ; Ihering, p. 263.
Nom vulgaire : Pirincho negro.

♂ ♀, Mocoví (Chaco), et Posadas (Misiones). (S. Venturi.)

"Espèce commune au Chaco, où il est très facile de trouver le nid aux mois de novembre et décembre. La ponte est de trois œufs, dont les dimensions sont 30—32 × 22—23·5 mm. Il paraît qu'au Brésil cette espèce et la suivante pondent des œufs plus gros que dans la république Argentine." (S. V.)

Les œufs envoyés par Monsieur Venturi mesurent 30 × 22·5, 30·7 × 23·1, 30·7 × 24, 31·5 × 23·8, 31·6 × 24·1, 32·4 × 24·2, 32·8 × 24 mm.

320. **Crotophaga major** Gm.

Nehrkorn, p. 173 ; Ihering, p. 263.

♀ ad., Candelaria, Misiones, 140 m., 3. iii, 1897 (S. Venturi, No. 55).

" Un œuf de cette espèce que je recueillis en 1906 à Misiones, où elle n'est pas rare, mesure 38 × 28 mm. A Ocampo elle est rare et n'y nidifie pas. Parfois on chasse les deux espèces de *Crotophaga* dans les jardins voisins de Buenos Aires. J'ai offert un exemplaire de *C. major* au Musée National de Buenos Aires chassé à Barracas al Sud par Luis Muzzio." (S. V.)

321. **Guira guira** (Gm.).

Nehrkorn, p. 173 ; Ihering, p. 263.
Nom vulgaire : Pirincho.

1 Est. S. Martino, Monte, province de Buenos Aires, 1897 (Paul Neumann).

♀ La Soledad, 2. xi. 1901 (C. B. Brittain, No. 71).

♂ ♀, Barracas al Sud, ix., x. 1899, 1900 (S. Venturi, Nos. 56, 57).

♀ Tucuman, 450 m. (L. Dinelli).

" J'ai trouvé des nids de cet oiseau avec 5, 7, 11, 14, 19 et un avec 21 œufs ! Il faut noter qu'entre une litée de 7 œufs et une autre il y a toujours une couche d'herbes et de pailles ou de feuilles, ce qui indique qu'il y a deux ou trois nids superposés, car celui à 21 œufs que je découvris au mois de décembre 1900 sur un peuplier de la Caroline, sur les bords du ruisseau Maciel, à Barracas al Sud, était ainsi disposé. La ponte normale d'une femelle est de 5 à 7 œufs, plus ou moins couverts de matière calcaire et très variables en forme et taille. Dimensions : 38—43 × 28—33 mm. Comme le *Crotophaga ani* ce 'pirincho' s'apprivoise facilement." (S. V.)

322. **Piaya cayana macroura** Gamb.

Piaya cabanisi Allen, *Bull. Amer. Mus.* v. p. 136 (1893—Matto Grosso).
Piaya cayana guarania Ihering.
(Cf. Stone, *Proc. Acad. Philad.* Oct. 1908 [1909] pp. 494, 501.)

♂, Vipos, Tucuman, 700 m., 6. xi. 1899 (S. Venturi).

♀, Posadas, Misiones, 145 m., 5. iii. 1897 (S. Venturi).

" Nom vulgaire : Alma de gato, Gallo del monte. Iris rouge." (S. V.)

323. **Coccyzus melanocoryphus** Vieill.

Nehrkorn, p. 172 ; Ihering, p. 263.

♂ ♀, Barracas al Sud, 24. xi. 1900, 30. xii. 1898 (S. Venturi).

" Espèce commune qui niche dans les bois et les jardins et vergers ; les nids sont semblables à ceux de colombes. La ponte est de 3—4 œufs dont les dimensions sont 27—31·5 × 21—24 mm." (S. V.)

324. **Coccyzus cinereus** Vieill.

Nehrkorn, p. 172.

♂ ad. Barracas al Sud, 25. xii. 1898 (S. Venturi).

♂ juv. Mocovi (Chaco), 13. ix. 1903 (S. Venturi).

♀ juv. Hernandarias, 17. xi. 1902 (S. Venturi).

♀ Tucuman, 30. xi. 1898 (L. Dinelli).

Ad., Tapia, Tucuman, 600 m., 3. i. 1903 (G. A. Baer).

(Les ornithologistes argentins ont quelquefois confondu les jeunes de *C. cinereus* avec le *Coccyzus pumilus*.)

"Il niche, comme l'espèce précédente, à la lisière des bois, dans des arbres, bas isolés, ou dans des bois peu épais, à une hauteur d'au moins un mètre du sol. La femelle pond 3 œufs blancs couverts de matière calcaire, qui mesurent 23—25 × 17·5—20 mm." (S. V.)

ALCEDINIDAE.

325. **Ceryle torquata torquata** (L.).

Nehrkorn, p. 160 ; Ihering, p. 259.
Nom vulgaire : Martin-pescador, Matraca.

"Dans les berges des rivières du Chaco, on trouve beaucoup de nids de cette espèce commune, ainsi que de la suivante. Généralement le fond du nid est composé d'écailles et d'épines de poissons. Les excavations qu'ils pratiquent au haut des berges à 30 ou 40 cm. du bord sont plus ou moins profondes suivant la classe de terre, les racines qu'ils rencontrent et le temps dont ils disposent : les crues intempestives causent la perte de nombreuses pontes. Les œufs sont d'un blanc luisant, parfois avec de petits pores obscurs au fond. Dimensions : 35—45 × 31—35 mm." (S. V.)

326. **Ceryle amazona** (Lath.).

Nehrkorn, p. 160 ; Ihering, p. 260.

♂ ad. Barracas al Sud, 20. xi. 1898 (S. Venturi, No. 49).

♂ ad. Tucuman, 11. iii. 1901 (S. Venturi, No. 728).

"Les œufs de ce martin-pêcheur sont d'un blanc luisant, et mesurent 31—35 × 24—26 mm. *Ceryle amazona* est un peu plus rare que le *C. torquata*." (S. V.)

327. **Ceryle americana americana** (Gm.).

Nehrkorn, p. 160 ; Ihering, p. 260.
Nom vulgaire : Martin chico ; Pescador.

♂ ♀, La Soledad, Entre Rios, 14, 31. x. 1901 (C. B. Brittain, Nos. 52, 66).

♀, Barracas al Sud, 8. xi. 1899 (S. Venturi, No. 52).

♂, Tucuman, 17. vi. 1902 (S. Venturi, No. 729).

♂, Vipos, Tucuman, 700 m., 8. xi. 1899 (L. Dinelli).

♀, Tucuman, 450 m., 27. v. 1899 (L. Dinelli).

♂, Tucuman, 20. vi. 1900 (L. Dinelli).

"Tandis que chez les autres espèces de *Ceryle* la ponte est de 4 œufs, celle-ci en pond invariablement cinq. Les œufs sont blancs, lisses, peu luisants, et mesurent 24 × 18 mm. Une nichée de 5 œufs que je recueillis à la berge du Rio Amores le 24. ix. 1903, avait sur chaque œuf de 2 à 5 petites taches brunes à la partie postérieure." (S. V.)

PSITTACI.

328. **Conurus vittatus** (Shaw).

♀ Tobay, Misiones, 8. iii. 1897 (S. Venturi, No. 82).

"Nom vulgaire : Cotorra." (S. V.)

329. **Conurus molinae** Massena & Souancé.

♂ ad. Rio Seco, 350 m., province de Salta, 28. vii. 1905 (J. Steinbach, No. 164).

♂ ♀ Ledesma, Jujuy, 520 m., 26. vii. 1906 (L. Dinelli, Nos. 4223, 4256).

330. **Conurus acuticaudatus** (Vieill.).

♀ Cosquin, Cordova, 17. vii. 1882 (E. W. White).

♂ Mocoví, Chaco, 29. x. 1903 (S. Venturi, No. 904).

1 ♂ 3 ♀♀ Ocampo, ix., x. 1905 (S. Venturi).

3 ♂♂ 2 ♀♀ Tapia, Tucuman, 1888, 1889, 1901 (L. Dinelli).

4 ♂♂ ♀♀ Salta, 1100—1200 m. (J. Steinbach).

"Ce perroquet niche dans les trous de gros arbres, surtout dans les 'Quebrachos colorados' sur le bord des grandes forêts de l'intérieur du Chaco. Le 24. xii. 1905 je trouvai un nid avec deux œufs, et je capturai aussi la femelle, que j'ai emportée chez moi, où elle pondit un autre œuf le jour suivant. Les œufs sont blancs, luisants, et mesurent 30—32 × 26 mm." (S. V.)

331. **Conurus leucophthalmus** (P. L. S. Müll.).

2 ♂♂, 1 ♀, Ocampo, 20. x. 1905 (S. Venturi, Nos. 1037, 1038, 1039).

"Cette espèce, qui abonde à Ocampo, vit au printemps des fleurs du Ceibo, mais en été elle mange des fruits, surtout des cactacées. Au commencement du mois de novembre elle se retire pour nidifier, je suppose, dans les grandes forêts de l'intérieur, pour revenir ensuite à la fin de décembre avec ses petits ; ceux-ci continuent encore pendant longtemps à prendre leur nourriture du bec de leurs parents à peu près à la manière des colombes. Je n'ai trouvé ni le nid ni les œufs." (S. V.)

332. **Conurus aureus** (Gm.).

♂ Rivadavia (Chaco Salteño), 150 m., 7. xi. 1897 (S. Venturi, No. 73).

333. **Conurus mitratus** Tsch.

7 ♂♂ ♀♀ Tucuman, 450 m. (L. Dinelli).

♂ Tafi Viejo, Tucuman, 21. v. 1902 (S. Venturi).

♀ Salta, 1150 m., viii. 1903 (J. Steinbach).

La plupart des exemplaires de Tucuman sont d'une taille assez forte.

334. **Conurus nenday** (Vieill.).

3 ad. Rio de Oro, Chaco austral., Argentine, vi. 1896 (A. Ros coll., ex Mus. Comte de Dalmas).

335. **Cyanolyseus patagonus patagonus** (Vieill.).

♂ ♀ Roca (Rio Negro), 16, 19. xi. 1899 (S. Venturi, 532, 68).

♂ Mendoza (Weisshanpt).

336. **Myiopsitta monachus monachus** (Bodd.).

Nehrkorn, p. 175 ; Ihering, p. 264.
Nom vulgaire : Cotorra.

♂ ♀, Cosquin, Cordova, 3, 5. vii. 1882 (E. W. White).

♂, Ensenada, Buenos Aires, 11. xi. 1896 (S. Venturi, 74).

♂ ♀, La Soledad (Entre Rios), 17. xi. 1898, 7. i. 1899 (C. B. Brittain).

♂ ♀, Mocoví (Chaco), 21. x. 1903 (S. Venturi, Nos. 75, 872).

2 ad., Rio de Oro, Chaco austral, 1896 (A. Ros coll., ex Mus. Comte de Dalmas).

"Les observations de Dalgleish sont très exactes, excepté pour la forme des œufs, qui est très variable. J'ai recueilli beaucoup d'œufs de cette espèce, commune depuis la province de Buenos Aires vers le nord. Dimensions des œufs : 26—30 × 19—22 mm." (S. V.)

337. **Myiopsitta monachus calita** (Jard. & Selby).

Psittaca calita Jardine & Selby, *Ill. Orn.* pl. 82 (1837–40 Mendoza!).

3 ♂♂ 2 ♀♀ Estación Rio Colorado, Tucuman, 380—390 m. (L. Dinelli).

♂ ♀ La Banda, Santiago, 200 m., 22. iv. 1903 (G. A. Baer).

Les exemplaires de Tucuman et de Santiago sont sans doute différentes des spécimens du Chaco, Cordova, Entre Rios et Buenos Aires. Ils sont plus petits—l'aile plus courte de 6 à 16 mm.—avec les becs plus petits, et la couleur de la poitrine et du front est plus blanchâtre, l'abdomen plus pâle. Je crois que le nom "*calita*" est applicable pour cette sous-espèce bien caractérisée.

338. **Bolborhynchus aymara** (D'Orb.).

♀ Villa Nougues, S. Pablo, Tucuman, 1000 m., 12. viii. 1903 (L. Dinelli).

♀ „ „ „ 5. viii. 1903 (S. Venturi).

1 Salta, 1400 m., viii. 1903 (J. Steinbach).

339. **Bolborhynchus orbygnesia** (Sonancé).

2 ♂♂ 1 ♀ Cerro Muños, Tucuman, 4000 m., 24, 27, 28. v. 1906 (L. Dinelli).

2 ♂♂ 1 ♀ Tilcaro, Jujuy norte, 2470 m., 26, 30. xi. 1905 (L. Dinelli).

340. **Microsittace ferrugineus** (P. L. S. Müll.).

♀ Chubut, Lago Blanco, 21. v. 1899 (Julius Koslowsky coll.).

♂ ♀ Ushuaia, Tierra del Fuego, 5. ii. 1898 (S. Venturi, Nos. 32, 33).

341. **Amazona aestiva xanthopteryx** Berl.

Nehrkorn, p. 176 ; Ihering, p. 265.
Nom vulgaire : Loro hablador.

♂ ♀ Tucuman, 25. vii., 10. ix. 1898 (L. Dinelli).

♂ Sta. Ana, Tucuman, 350 m. (G. A. Baer).

"Ce perroquet niche aussi dans les creux des arbres. Le trou est parfois si profond qu'il n'y a pas d'autre recours que de hacher l'arbre, qui est très souvent un gros 'quebracho.' Quelques œufs que j'ai pris mesurent 38 × 29 mm." (S. V.)

342. **Amazona tucumana** (Cab.).

2 ♂ Sta. Ana, Tucuman, 350 m., 31. x. 1902 (G. A. Baer).

♂ Villa Nougues, Tucuman, 29. viii. 1903 (S. Venturi).

♀ S. Pablo, Tucuman, 1000 m., 2. viii. 1903 (S. Venturi).

♂ Villa Nougues, Tucuman, 1000 m., 30. vii. 1903 (L. Dinelli).

343. **Pionus maximiliani lacerus** Heine.

2 ♂♂ 2 ♀♀ Tucuman, 450—460 m. (L. Dinelli).

Malgré l'assertion contraire de mon ami le Comte Salvadori (*Boll. Mus. Torino*, No. 208 p. 19, 1895), *P. lacerus* de Tucuman se reconnaît facilement à sa taille un peu plus forte, la couleur verte du plumage moins foncée, et les bords des plumes du jugulum plus lilacés.

STRIGES.

344. **Asio stygius** Wagl.

♂ ad. Tucuman, 11. ix. 1902 (S. Venturi, No. 761. "Long. tot. 41, ala 32·5, cola 19·5. Iris amarillo").

Le mâle de cette espèce rare s'accorde bien avec les descriptions, cependant il faudra comparer plusieurs exemplaires de diverses localités pour comprendre la distribution et les races.

345. **Asio accipitrinus** (? subsp.).

Nehrkorn, p. 12 ; Ihering, p. 266.
Noms vulgaires : Lechuzon ; Baho ; Quitilipi.

♂ Correas, Buenos Aires, 12. ix. 1899 (S. Venturi).

♂ Tucuman, 450 m., 11. ix. 1900 (L. Dinelli).

"Au mois d'août on trouve assez souvent son nid, surtout dans les luzernes. Un œuf recueilli à Tucuman par Monsieur Dinelli mesure 41·5 × 33 mm." (S. V.)

346. **Bubo magellanicus magellanicus** (Gm.).

Ihering, p. 226.
Nom vulgaire : Ñacurutú.

"Les observations de Dalgleish sont bien exactes. Espèce pas rare au Chaco." (S. V.)

347. **Pisorhina choliba choliba** (Vieill.).

(= *Scops brasilianus* ; cf. Berlepsch, *Bull. B.O.C.* xii. p. 8, 9.)
Nehrkorn, p. 11 ; Ihering, p. 266.
Noms vulgaires : Ñacurutu-i ; Alilicuco.

♂ Ocampo, 1. xii. 1905 (S. Venturi).

♀ Pacheco, Buenos Aires, 9. ix. 1900 (S. Venturi).

"Le nid, fait avec des feuilles et du fourrage sec, est placé au fond d'un trou naturel de quelque gros tronc d'arbre, et contient au mois de septembre ou octobre deux ou trois œufs qui mesurent 34—36 × 28—29 mm. C'est une espèce très commune dans les forêts du Chaco, où elle se tient cachée pendant le jour dans le creux des troncs." (S. V.)

348. **Speotyto cunicularia cunicularia** (M.) (?)

Nehrkorn, p. 11 ; Ihering, p. 267.

2 ♂♂ (?) "Esperanza," Argentine, 1900 (achetés de Rolle).

♂ ♀ Barracas al Sud (B. Aires), 14. ix. 1899 (S. Venturi).

♀ albino, La Soledad, 12. xii. 1901 (C. B. Brittain, No. 113 : cet exemplaire est tout à fait blanc, avec les yeux jaune clair, les pieds et le bec jaune citron).

♂ Tucuman, 450 m., 29. iv. 1901 (L. Dinelli).

♀ Valle de Lerma, N.W., 1903 (J. Steinbach).

L'étude des sous-espèces de *Speotyto cunicularia* est encore assez incomplète. Il me semble que la race de la république Argentine soit un peu plus grande que la forme typique du Chili, qui, elle aussi, est d'une taille plus forte que les races de l'Amérique du Sud septentrionale (Vénéznéla, Colombie, Équateur) et de l'Amérique septentrionale, etc.

" Les galeries creusées à Ocampo par cette chouette ne sont pas si longues qu'à Buenos Aires. Les œufs sont généralement blancs, parfois blanc cendré, mais toujours rugueux, notamment ceux de couleur cendré. Dimensions : 31—37 × 26—28 mm." (S. V.) (Il me semble que les œufs cendrés ne sont pas normaux.)

349. **Glaucidium nanum** (King).

Nom vulgaire : Caburé.

♀ Córdoba, 250 m., 20. vi. 1898 (S. Venturi, No. 89).

" Avec l'oiseau j'ai obtenu ses œufs dans les îles du Paraná, en face de Hernandarias, où il n'est pas rare. Dimensions : 28 × 21·5—23 mm." (S. V.)

350. **Glaucidium brasilianum brasilianum** (Gm.).

(*Glaucidium ferox* auct. ; cf. Berlepsch, *Bull. B.O.C.* xii. p. 8.)

♂ Tapia, Tucuman, 700 m., 27. ix. 1902 (S. Venturi).

351. **Strix flammea perlata** Licht.

Nom vulgaire : Lechuza ; Suindá.

♂ ad. Barracas al Sud, 25. iii. 1892 (S. Venturi, No. 31) ; les parties inférieures de cet exemplaire sont blanches avec de petites taches noirâtres.

Ad. Salta, 1200 m., 20. vi. 1903 (J. Steinbach) ; les parties inférieures sont brunes.

" Cette espèce vit et nidifie comme le *Strix flammea flammea* aux maisons, églises, etc. Au nord de la République il pond pendant les mois de l'hiver." (S. V.)

ACCIPITRES.

352. **Cathartes urubitinga** Pelz.

Ihering, tom. iii. p. 342.

♀ ad. Mocoví (Chaco), 28. ix. 1903 (S. Venturi, No. 831).

" L'espèce à tête jaune avec vertex bleuté est la plus petite et la plus abondante à Ocampo. Le 3. x. 1903 je chassai une femelle qui avait l'œuf complètement formé dans le ventre. Le 17. xi. 1905, je trouvai deux œufs et j'obtins aussi les oiseaux. Les œufs sont d'un blanc rosacé ou jaunâtre et couverts de grandes taches rongeâtre pâle et d'autres plus petites d'un brun obscur. Dimensions : 62 × 46·5 mm." (S. V.)

353. **Cathartes aura aura** (L.).

Nehrkorn, p. 2 ; Ihering, p. 268.
Nom vulgaire : Cuervo cabeza colorada.

♂ ad. Roca (Rio Negro), 10. x. 1900 (S. Venturi, No. 207).

♀ ad. Mocoví (Chaco), 7. ix. 1903 (S. Venturi, No. 208).

"Cette espèce est assez rare à Ocampo. Le 21. x. 1904 j'ai vu un oiseau sortir du tronc d'un 'ombú,' gros et un peu incliné, à peu de mètres de distance d'un chemin qui se trouve environ 6 lieues à l'ouest d'Ocampo. Croyant que le nid serait en haut, je grimpai, et je pus me convaincre que le trou descendait jusqu'au sol en formant une espèce de cheminée d'environ 5 mètres de haut. J'ouvris donc, à l'aide d'une hache, la base du tronc : sur le sol il y avait un œuf d'un blanc rosacé couvert de taches rouge-violacé foncé qui se joignent presque à la partie postérieure. Dimensions : 70 × 47 mm." (S. V.)

354. **Catharista atrata brasiliensis** (Bp.).

Nehrkorn, p. 2 ; Ihering, p. 267.
Noms vulgaires : Urubí, Cuervo negro.

♂ ad. Mocoví (Chaco), 20. ix. 1903 (S. Venturi, No. 911).

"Au mois de janvier 1899, j'ai découvert un nid au sud de Santiago del Estero qui correspondait parfaitement à la description qu'en donne le Dr. Ihering. A Ocampo je trouvai deux fois le nid de cet oiseau, le 18. xi. 1903 et le 20. ix. 1904, à 4 et 5 mètres du sol en pleine forêt vierge. Un autre nid, que je trouvai au mois de décembre 1904, également dans un trou d'un gros 'vivapitá' à 4 mètres du sol, contenait deux petits déjà développés. Ces derniers nids n'avaient pas de lit artificiel. Les œufs sont blanc verdâtre, les uns avec de grandes taches marron-rouge à la partie postérieure, un autre avec quelques taches brunes, et un autre sans aucunes taches. Dimensions : 71—74 × 49—51·5 mm." (S. V.)

355. **Polyborus tharus** (Mol.).

Nehrkorn, p. 2 ; Iheriog, p. 269.
Nom vulgaire : Carancho.

♀ Barracas al Sad, 11. viii. 1901 (S. Venturi, No. 203).

♂ ♀ Los Vasques, Tucuman, 19. v. 1903, 9. vii. 1902 (L. Dinelli).

"Espèce commune dont les nids abondent aux alentours de l'abattoir d'Ocampo. Cet oiseau nidifie deux fois par an dans les bois peu touffus sur les arbres très épineux de hauteur moyenne. La femelle pond trois œufs qui ont été bien caractérisés par le Dr. Burmeister. Dalgleish ayant bien décrit le nid, il est d'autant plus étonnant que le Dr. Goeldi ait confondu les œufs de *Milvago chimachima* avec ceux du 'carancho,' quoique les derniers soient deux fois plus grands. Ceux que j'ai recueillis mesurent 56·5—62 × 45—46 mm." (S. V.)

356. **Milvago chimachima** (Vieill.). (Pl. III. Fig. 15.)

Nehrkorn, p. 2 ; Ihering, p. 269.
Nom vulgaire : Chimachima.

♂ ad. ♂ juv. Mocoví (Chaco), 3. ix., 3. x. 1903 (S. Venturi, Nos. 842, 843).

"J'ai trouvé plusieurs nids de cette espèce très commune au Chaco, sur de hauts arbres dans l'intérieur des forêts d'Ocampo. Le nid est grand, fait avec des branches de plantes grimpantes, et contient deux œufs d'une teinte un peu plus claire que ceux du 'carancho.' Dimensions : 42—44 × 33 mm.

"Comme le 'chimachima' se trahit par son cri, on en trouve le nid avec facilité. C'est au commencement du mois de novembre qu'il y a déjà des petits qui sont complètement blancs." (S. V.)

357. **Milvago chimango** (Vieill.).

Nehrkorn, p. 2 ; Ihering, p. 269.
Nom vulgaire : Chimango.

♂ ♀ Barracas al Sud, 14. vii. 1899 ; 15. ix. 1902 (S. Venturi).

♂ Tucuman, 450 m., 16. vii. 1901 (L. Dinelli).

" Le chimango nidifie soit sur le sol des champs hauts et secs, soit sur les 'tacurús' dans les vallées marécageuses, soit sur des arbres de 2 à 3 mètres de hauteur dans les îles du Paraná. Il construit son nid avec des branches et de la paille en défaisant parfois le dessus de la demeure d'*Anumbius* ou de *S. phrygano-phila* et en mettant un peu de paille sur les branches. La ponte est de quatre œufs, très variables en coloration. Dimensions des œufs : 36—46 × 33—35 mm. (S. V.)

358. **Circus cinereus** Vieill.

♂ ♀ Coronel Dorrego (province de Buenos Aires), 17. x. 1899, 19. xi. 1900 (S. Venturi, Nos. 181, 182).

♂ Tucuman, 450 m., 13. ii. 1900 (S. Venturi, No. 722).

359. **Circus maculosa** (Vieill.).

Nom vulgaire : Gavilan.

2 ♀♀ Barracas al Sud, 6. x. 1901, 10. viii. 1902 (S. Venturi, Nos. 199, 1068).

" Vit dans les lagunes." (S. V.)

360. **Accipiter erythrocnemis** Gray.

♂ ad. Tucuman, 6. vi. 1902 (S. Venturi, No. 1070).

♂ ♀ juv. Tucuman, 16. v., 26. vii. 1899 (L. Dinelli—ex Venturi).

2 ♂♂ 1 ♀ ad. Tucuman, 450—700 m. (L. Dinelli, Nos. 469, 879, 1859).

♀ ad. Valle de Lerma, 1200 m., province de Salta, 3. vi. 1905 (J. Steinbach, No. 99).

361. **Accipiter guttatus** (Vieill.).

♂ juv., ♀ juv. Los Vasques, Tucuman (L. Dinelli, Nos. 1998, 2056).

♂ ad. Tucuman, 456 m. 8. iii., 1900 (L. Dinelli—ex Venturi).

♀ ad. Cumbre de Raco, Tucuman, 31. xii. 1901 (L. Dinelli, No. 1575).

1 ♂ ad., 2 ♀♀ (? ad.) Ledesmo, Jujui, 8, 20, 24. vii. 1906 (L. Dinelli, Nos. 4131, 4224).

♂ ad. Metan, Salta, 850 m., 1. vi. 1905 (L. Dinelli, No. 3543).

♀ (? ad.) Rio de Oro, Chaco austral., v. 1896 (A. Ros—ex Dalmas).

362. **Heterospizias meridionalis** (Lath.).

Nehrkorn, p. 5 ; Ihering, p. 270.
Nom vulgaire : Aguila colorado.

♀ ad., ♂ juv. Mocovi (Chaco), 1. xii. 1903, 13. i. 1907 (S. Venturi, Nos. 957, 990).

♂ ♀ Los Vasquez, Tucuman, 27. v. 1899, 1. vii. 1902 (S. Venturi, Nos. 368, 697).

♂ ad., ♂ juv., Tucuman, 23. v., 22. vi. 1900 (L. Dinelli, Nos. 831, 846).

" Le nid, fait avec des branches et tapissé de feuilles fraîches, est placé très

haut sur des arbres dans l'intérieur de la forêt, à 15—20 mètres du sol. A Ocampo la ponte est toujours d'un seul œuf blanc ou blanc cendré ; quelques exemplaires portent de très petites taches brunes. Dimensions : 57—64 × 47—48 mm." (S. V.)

363. **Geranoaëtus melanoleucus** (Vieill.).

Nehrkorn, p. 5 ; Ihering, p. 270.
Nom vulgaire : Aguila blanca.

♀ juv. Ceres, Santa Fé, 26. i. 1900 (S. Venturi, No. 206).

♂ ♀ ad., 2 ♂♂ juv. près de Tucuman, 445—600 m. (L. Dinelli).

"C'est dans les fourches supérieures des hauts arbres qui croissent au bord des forêts que nidifie cette espèce. Elle emploie de grosses branches et d'autres plus fines pourvues de feuilles. Au mois de janvier 1899 un nid que j'ai trouvé à Selva, au sud de Santiago del Estero, eut le fond fait avec des branchettes de 'quebracho-blanco' dont les feuilles ne sont pas bien tendres. Cet aigle niche aussi au Chaco, et pond un seul œuf qui est blanc-jaunâtre avec de grandes taches violacé clair et assez peu distinctes, plus denses à la partie postérieure. Dimensions : 67 × 52 mm." (S. V.)

364. **Buteo albicaudatus** Vieill.

♂ ♀ ad. Mocoví (Chaco), 8, 14. i. 1904 (S. Venturi, Nos. 203, 204).

Juv., Ceres, Santa Fé, 22. i. 1900 (S. Venturi, No. 202).

365. **Parabuteo unicinctus** (Temm.).

♂ ♀ ad. Tucuman, 28. v. 1901, 21. ix. 1899 (S. Venturi, Nos. 197, 724).

3 ♀♀ jun. Tucuman, iii., iv., v. (L. Dinelli, 2023, 2046, 3971).

366. **Rupornis magnirostris pucherani** (Verr.).

Ihering, p. 270.

♀ ad. Barracas al Sud, 14. v. 1902 (S. Venturi, No. 723).

♂ ad. Roca (Rio Negro), 19. v. 1899 (S. Venturi, No. 184).

1 ♂ ad., 3 ♀♀ jun., Tucuman, 450 à 800 m. (L. Dinelli, Nos. 183, 1257, 1438, 459).

"Cette espèce commune niche dans les forêts épaisses à des hauteurs variant de 4 à 10 mètres. Le nid, fait avec des branches, a le fond formé de feuilles vertes, qui sont renouvelées quand elles se sèchent : les 10 ou 12 nids que j'ai examinés, soit avec des œufs soit avec des petits, avaient en effet des feuilles fraiches. Le nid n'est pas rond, mais bien plutôt allongé (environ 30 × 20 cm.), et contient deux œufs blancs avec des taches brun-rougeâtre tantôt nombreuses, grandes et assez distinctes, tantôt très petites et à peine visibles. Dimensions : 45—50 × 36—39 mm." (S. V.)

367. **Busarellus nigricollis** (Lath.).

Ihering, p. 271.
Nom vulgaire : Aguila pampa.

♂ ad., Mocoví (Chaco), 3. ix. 1905 (S. Venturi, No. 1015).

"Ce bel aigle, qui brille au soleil comme du feu, n'est pas rare au Chaco. Il est pêcheur, comme l'espèce suivante, et fréquente le voisinage des fleuves ou des lagunes. Le 25. xii. 1905 je trouvai un nid sur un arbre très haut environ 200 mètres du Rio Amores, à l'ouest d'Ocampo. Il contenait un seul petit encore très peu développé." (S. V.)

368. **Urubitinga urubitinga** (Gm.).

Ihering, p. 271.
Nom vulgaire : Aguila negro.

♂ ad. Mocoví (Chaco), 17. x. 1903 (S. Venturi, No. 901).
♂ ad. Malvina (Tucuman), 11. vi. 1902 (S. Venturi, No. 200).
♀ juv. Barranca colorado (Tucuman), 4. v. 1902 (S. Venturi, No. 201).

"De tous les aigles qui nichent au Chaco, cette espèce construit le nid le plus volumineux, sa partie supérieure ayant environ 1 mètre de diamètre. Le 21. xii. 1905 je trouvai un nid placé à une dizaine de mètres du sol sur un grand arbre dans l'intérieur de la forêt épaisse sur les bords du Rio Amores, au sud d'Ocampo. Le seul petit était déjà complètement revêtu de plumes noires." (S. V.)

369. **Ictinia plumbea** (Gm.).

Ihering, p. 272.

♂ ♀ Mocoví (Chaco), 6, 10. i. 1904 (S. Venturi, Nos. 985, 986).
♂ Ocampo, 17. xii. 1905 (S. Venturi, No. 984).

"Un nid que j'ai trouvé vers la mi-novembre était fait dans un trou naturel d'un gros 'ombú' environ 6 mètres de hauteur. Il contenait un petit et un œuf déjà marqué : celui-ci était d'un blanc sale sans taches." (S. V.)

370. **Elanus leucurus** (Vieill.).

Nom vulgaire : Halco blanco.

♂ ad. Mocoví (Chaco), 23. ix. 1903 (S. Venturi, No. 832).
♂ ♀ Tucuman, 456 m. (L. Dinelli).

371. **Rostrhamus sociabilis** (Vieill.).

Ihering, p. 271.
Nom vulgaire : Caracolero.

♂ ad., ♀ juv. Barracas al Sud (Buenos Aires), 11. ix. 1899, 20. vi. 1900 (S. Venturi, Nos. 195, 196).

"Aux mois d'octobre et novembre 1905 plusieurs couples nidifiaient sur les arbustes croissant entre deux lagunes au sud-est d'Ocampo, mais comme le terrain était un bourbier dangereux, je n'ai pu reviser les nids." (S. V.)

372. **Falco fuscocaerulescens** Vieill.

♂ ad. Mocoví (Chaco), 1. xii. 1903 (S. Venturi, No. 983).
2 ♂♂, 2 ♀♀ Tucuman (L. Dinelli).

373. **Cerchneis sparverius australis** (Ridgw.).

Nehrkorn, p. 10 ; Ihering, p. 272.
Nom vulgaire : Halconcito.

♂ jun. Bahia Blanco, 21. vii. 1902 (S. Venturi, No. 725).
♂ ad. Tucuman, 586 m., 25. iii. 1898 (L. Dinelli—ex Venturi).
♂ ad. Villa Nougues. Tucuman, 1200 m., 15. ix. 1901 (L. Dinelli, No. 1326).

"Ce Faucon niche dans les hautes berges, en profitant des nids abandonnés des martin-pêcheurs. Dans les forêts du Chaco il occupe les nids délaissés par les grands piverts. Le 20. x. 1905 je trouvai un nid placé dans la fourche d'un gros arbre sec. La ponte est de 4—5 œufs blanc jaunâtre ou blanc rosacé

saupoudrés de taches brunes et rouges qui parfois couvrent toute la surface. Dimensions : 29—35 × 25—28 mm. Cinq œufs que je recueillis le 20. xii. 1902 à San Lorenzo sur la berge du Paraná étaient très différents entre eux comme coloration et taille." (S. V.)

PHALACROCORACIDAE.

374. **Phalacrocorax vigua** (V.).

Nehrkorn, p. 235 ; Ihering, p. 273.
Nom vulgaire : Mbigua.

♂ Cosquin, Cordova, 18. viii. 1882 (E. W. White).

♂ ♀ Est. S. Martino, Monte, Buenos Aires, Dec. 1896—Jan. 1897 (Paul Neumann).

♂ ♀ Barracas al Sud, 12. ix. 1899, 23. iii. 1901 (S. Venturi, Nos. 209, 210).

" Cette espèce nidifie sur les arbres qui croissent au bord des fleuves et des marais du Chaco." (S. V.)

375. **Phalacrocorax albiventer** (Less.).

Nehrkorn, p. 235.

♂ Ushuaia, Tierra del Fuego, 10. ii. 1898 (S. Venturi, No. 35).

" J'ai obtenu des œufs de cette espèce de l'île de 'Año Nuevo' ; ils sont semblables à ceux de *P. vigua*, et mesurent 61 × 39 mm." (S. V.)

376. **Plotus anhinga** L.

Nehrkorn, p. 236 ; Ihering, p. 273.

" Il vit et nidifie à côté du *Phalacrocorax vigua*." (S. V.)

ANATIDAE.

377. **Cygnus melanocorypha** (Mol.).

Anas melanocorypha Molina, *Saggio Stor. Nat. Chili*, p. 207 (1782).
Cygnus nigricollis auct. mult.
Nehrkorn, p. 242 ; Ihering, p. 278.
Nom vulgaire : Cisne.

♂ ♀ ad. Barracas al Sud, 27. v. 1901 (S. Venturi, Nos. 112, 113).

" Le 27. ix. 1901 j'ai obtenu des œufs dans une lagune près de Junin, province de Buenos Aires." (S. V.)

378. **Coscoroba coscoroba** (Mol.).

Nehrkorn, p. 242 ; Ihering, p. 279.
Nom vulgaire : Ganso.

Ad. Est. S. Martino, Monte, province de Buenos Aires (Paul Neumann).

♂ ad. ♀ ad. Barracas al Sud, province de Buenos Aires, 1. iii. 1902, 13. viii. 1901 (S. Venturi, Nos. 102, 103).

" Cette espèce se trouve aussi au Chaco, mais elle n'y est pas si abondante qu'au sud et à l'ouest de la République Argentine. J'en ai des œufs qui mesurent 91 × 58 mm." (S. V.)

379. **Cairina moschata** (L.).

Nehrkorn, p. 242 ; Ihering, p. 279.
Nom vulgaire : Pato real.

♀ Barracas al Sud, 5. vi. 1901 (S. Venturi, No. 104).

" On trouve son nid sur les troncs secs des 'quebrachos colorados,' au bord des marais de l'intérieur du Chaco. Il met les petits sur son dos quand il les porte à l'eau." (S. V.)

380. **Chloëphaga magellanica** (Gm.).

Nehrkorn, p. 243.
Nom vulgaire : Ahutarda.

" Un nid que je trouvai sur le versant d'une montagne au bord d'une fontaine à quatre lieues de Sauta Cruz contenait trois œufs d'un blanc rosacé. Dimensions : 76—78 × 50—52 mm." (S. V.)

381. **Dendrocygna fulva** (Gm.).

Ihering, p. 279.
Nom vulgaire : Pato silbon.

2 ad. Est. S. Martino, Monte (Paul Neumann).

2 ♂♂, 1 ♀ Barracas al Sud, 3. viii. 1900, 13, 17. x. 1902 (S. Venturi, Nos. 151, 152, 756).

♂ ♀ Barracas al Sud, 2. x. 1903 (F. M. Rodriguez, Nos. 123, 123 A).

" Le 3. xi. 1900 je sortis du corps d'un exemplaire de cette espèce un œuf d'un blanc sale que mesure 53·5 × 42 mm." (S. V.)

382. **Dendrocygna viduata** (L.).

Nehrkorn, p. 243.

♂ ad. Mocoví (Chaco), 17. ix. 1903 (S. Venturi, No. 836).

383. **Anas cristata** Gm.

♂ ad. Laguna du Pelado (Tucuman), 5000 m. (S. Venturi, No. 897).

♂ ad. Près du Tucuman, 1800 m., 15. vi. 1906 (L. Dinelli, No. 4096).

" Un œuf de cette espèce que j'obtins du lac Nahuel-Huapi est jaunâtre et mesure 62 × 44 mm. Dans le Tucuman Monsieur Budin a trouvé, au commencement du mois de février, à un endroit nommé ' las Cumbres Calchaquies ' (4300 m.), sur les bords de la Laguna Grande, un nid avec six œufs derrière une grande pierre. Il était tapissé dedans d'une quantité considérable de plumes que la femelle avait dû arracher de son abdomen." (S. V.)

384. **Querquedula brasiliensis** (Gm.).

Nehrkorn, p. 245 ; Ihering, p. 280.

♂ ♀ Barracas al Sud, 7. x. 1901 (S. Venturi, Nos. 179, 180).

" Il niche dans les grandes lagunes de la province de Buenos Aires ainsi qu'au Chaco. Le 2. i. 1906 je chassai près d'Ocampo un canard de cette espèce couché sur son nid : celui-ci contenait six œufs jaunâtres qui mesurent 48—50 × 34—36 mm." (S. V.)

385. **Querquedula cyanoptera** (Vieill.).

Nehrkorn, p. 245 ; Ihering, p. 280.

♀ Est. S. Martino, Monte, prov. Buenos Aires, 15. i. 1897 (Paul Neumann).

2 ♂♂, 1 ♀ Barracas al Sud, 17. viii. 1899, 26. iii., 29. v. 1901 (S. Venturi, Nos. 163, 164, 165.

" Sur 12 œufs couvés d'une nichée que j'ai trouvée le 17. xi. 1904 dans les îles du Parana (Puerto Ocampo), je ne pus sauver que trois, qui sont jaunâtres et qui mesurent 48—48·5 × 38 mm." (S. V.)

386. **Querquedula versicolor** (Vieill.).

Ihering, p. 280.
Nom vulgaire : Pato argentino.

3 ad. Est. S. Martino, Monte, prov. Buenos Aires (Paul Neumann).

♂ ♀ Barracas al Sud, 14. ix. 1899, 3. vii. 1901 (S. Venturi, Nos. 171, 172).

2 ♂♂, 1 ♀ Barracas al Sud, viii., ix. 1903 (F. M. Rodriguez).

" Deux œufs de cette espèce que j'obtins auprès de leurs parents sur les bords de la laguna 'Los Parongos,' au sud de Santiago del Estero, le 7. i. 1899, sont jaunâtres et mesurent 48—49 × 35 mm." (S. V.)

387. **Querquedula flavirostris** (Vieill.).

Nehrkorn, p. 245.

♂ Bahia Blanca (prov. Buenos Aires), 23. x. 1899 (S. Venturi, No. 169).

♀ Barracas al Sud (prov. Buenos Aires), 1. xi. 1901 (S. Venturi, No. 170).

388. **Querquedula torquata** (Vieill.).

♂ ♀ Barracas al Sud, 15. x. 1901 (S. Venturi, Nos. 173, 174).

389. **Dafila spinicauda** (Vieill.).

Nehrkorn, p. 245 ; Ihering, p. 280.
Nom vulgaire : Pato barcino.

♂♂ ♀ ♀ Est. S. Martino, province de Buenos Aires (Paul Neumann).

♂ ♀ ♀ Barracas al Sud, iv., ix., vi. (S. Venturi, Nos. 158, 159, 159 A).

♂ ♀ Barracas al Sud, 17. vii., 6. x. 1903 (F. M. Rodriguez).

" Le 23. x. 1899 j'ai recueilli, près de Bahia Blanca, quatre œufs qui sont d'un blanc jaunâtre et qui mesurent 49—53 × 35—37 mm." (S. V.)

390. **Dafila bahamensis** (L.).

♂ ♀ Barracas al Sud, 11. iii. 1902, 13. vii. 1899 (S. Venturi, Nos. 156, 157).

391. **Mareca sibilatrix** (Poeppig).

Nehrkorn, p. 244.

♂ ♀ Province de Buenos Aires, 14. viii. 1898, 21. vii. 1902 (S. Venturi, Nos. 160, 696).

♂ ♀ Magdalena, 26. x. (F. M. Rodriguez).

392. **Spatula platalea** (Vieill.).

♀ ♀ ♂ juv., Est. S. Martino, Monte, prov. Buenos Aires, 7. i. 1897 (Paul Neumann).

♂ ♀ ad. Barracas al Sud, 31. viii., 10. ix. 1899 (S. Venturi, Nos. 161, 162).

393. **Metopiana peposaca** (Vieill.).

Nehrkorn, p. 246 ; Ihering, p. 281.
Nom vulgaire : Pato picaso, cresta rosa.

♂ ♀ ad. Est. S. Martino, Monte, prov. de Buenos Aires, déc.—janvier (Paul Neumann).

♂ ♀ La Soledad, 1. x. 1901 (C. B. Brittain, Nos. 41, 42).

♂ ♀ ad. Barracas al Sud, 7, 21. viii. 1903 (F. M. Rodriguez, Nos. 113, 113 A).

♂ ad., ♀ ♀ Barracas al Sud, 14. ix., 13. x. 1899, 13. vi. 1901 (S. Venturi, Nos. 153, 154, 155).

" C'est l'espèce la plus abondante et la plus connue. Le 8. i. 1899, à Selva, et le 13. x. 1900, à Barracas al Sud, j'ai retiré du corps de femelles deux œufs d'un cendré verdâtre qui mesurent 58—61 × 43—44 mm." (S. V.)

394. **Heteronetta melanocephala** (Vieill.).

♂ Est. S. Martino, Monte, province de Buenos Aires, 29. i. 1897 (Paul Neumann).

♂ ♀ ad. Barracas al Sud, 26. iii. 1901 (S. Venturi, Nos. 175, 176).

395. **Erismatura ferruginea** Eyton.

♂ ad. Chubut, Valle del Lago Blanco, Patagonie, 15. xi. 1900 (Julius Koslowsky).

Cette localité paraît très intéressante. Le comte Salvadori, dans le *Cat. B. Brit. Mus.* xxvii. p. 449, donne comme aire de dispersion de cette espèce " Bolivia and Peru."

396. **Erismatura vittata** Phil.

Nehrkorn, p. 247.

♂ ad. Coronel Dorrego (Buenos Aires), 20. x. 1899 (S. Venturi, No. 166).

♂ juv. Barracas al Sud, 18. vi. 1901 (S. Venturi, No. 168).

♀ Roca (Rio Negro), 23. x. 1899 (S Venturi, No. 167).

Nom vulgaire : Pato zambullidor. (S. V.)

397. **Merganetta berlepschi** spec. nov.

♂ ad. Speciei *Merganetta turneri* dictae similis, sed differt plumarum dorsalium scapulariumque marginibus lateralibus albescentibus, nec rufescenti-brunneis, auchenio albo griseoque mixto, nec pure nigro, subcaudalibus magis brunnescentibus, rostro paullo longiore. Al. 185 ; caud. 125 ; tars. 40 ; culm. 42 mm.

Typus : ♂ près de Tucuman, 1800 m., 13. vi. 1906 (L. Dinelli, No. 4089).

Cette forme nouvelle est très différente de *Merganetta garleppi* Berl. (cf. *Cat. B. Brit. Mus.* xxvii. p. 460), et se rapproche plutôt de *M. turneri* du Pérou, mais le mâle en diffère par les bordures des plumes dorsales et des scapulaires plus ou moins blanches, et par les autres caractères indiqués dans la diagnose. La femelle est presque identique à celle de *M. turneri*, seulement le bec est un peu plus long. Elle ne présente pas non plus de différence avec la femelle de *M. garleppi*, pourtant il est à noter que les femelles de ces trois espèces sont plus pâles en-dessous que celle de *M. armata*.

Probablement toutes les "espèces" de *Merganetta* sont des formes représentatives, mais, comme leur distribution n'est pas encore bien connue, il faut les regarder comme des espèces propres. Nous n'avons que deux exemplaires de *Merganetta berlepschi*.

♂ ad. près de Tucuman, 1800 m., 13. vi. 1906 (TYPE) (L. Dinelli, No. 4089). ("Ojos negros ; pico colorado naranjado ; tarso morado purpureo.")

♀ ad. Rio Ñorco, province de Tucuman, 23. v. 1905 (E. Budin). ("Lt. 44·00 ; ala 15·50 ; cola 12·60. Ojo castaño oscuro.")

398. **Nomonyx dominica** (L.).

Nehrkorn, p. 247 ; Ihering, p. 281.
Nom vulgaire : Pato fierro.

♀ ♀ Barracas al Sud, 5. vi., 3. ix. 1901 (S. Venturi, Nos. 177, 178).

"Le 18. ix. 1903 je trouvai dans une lagune d'Ocampo un nid de ce canard avec quatre œufs frais qui sont d'un blanc jaunâtre et qui mesurent 50—51 × 37—39 mm." (S. V.)

PHOENICOPTERIDAE.

399. **Phoenicopterus chilensis** Mol.

Nehrkorn, p. 241 : Ihering, p. 277.
Noms vulgaires : Flamenco ; Penitente.

1 ad. Salado, Argentina, 29. vi. 1888.

♂ ♀ (?) Est. S. Martino, Monte, prov. de Buenos Aires, décembre—janvier 1897 (Paul Neumann).

♀ Barracas al Sud, 24. vii. 1901 (S. Venturi, No. 106).

"De cette espèce, ainsi que de l'*Ajaja ajaja*, j'ai trouvé une quantité de nids avec de petits, à la Mar Chiquita (Cordoba), et dans les Saladillos (Santiago del Estero), au mois de janvier 1899." (S. V.)

PALAMEDEIDAE.

400. **Chauna cristata** (Swains.).

Nehrkorn, p. 241 ; Ihering, p. 278.
Nom vulgaire : Chajá.

♂ La Plata (Buenos Aires), 18. xi. 1882 (E. W. White).

♂ ♀ Est. S. Martino, Monte, prov. de Buenos Aires, 14, 15. i. 1897 (Paul Neumann, Nos. 115, 116).

♀ La Soledad, 22. i. 1899 (C. B. Brittain).

♀ Barracas al Sud, 22. x. 1903 (F. M. Rodriguez, No. 150).

♂ ♀ Barracas al Sud, 11. x. 1901 (S. Venturi, Nos. 108, 109).

"Le Chaja fait son nid énorme au milieu du 'Camalatal,' loin des rives. Les œufs sont d'un blanc jaunâtre sale. Les divers œufs que j'ai recueillis mesurent 77—87 × 54—57 mm. Au Chaco, le Chaja est la sentinelle avancée des 'Tolderias' des Indiens." (S. V.)

ARDEIDAE.

401. **Ardea cocoi** L.

Ihering, p. 274.
Nom vulgaire : Garza mora.

♂ Est. S. Martino, Monte, prov. de Buenos Aires, 17. i. 1897 (Paul Neumann, No. 111).

♂ ♀ Barracas al Sud, 21. x. 1901, 19. viii. 1902 (S. Venturi, Nos. 101, 738).

"À Ceres, au nord de Santa Fé, j'ai trouvé un nid fait dans un Cereus ('Cardon') planté comme défense au bord d'une clôture en fil de fer et à peu de distance des maisons. Composé de branches à 1 m. 50 cm. du sol, le nid contenait deux petits. Il n'y avait ni lagunes ni marais dans le voisinage." (S. V.)

402. **Leucophoyx candidissima** (Gm.).

Nom vulgaire : Mirasol.

3 ad. Est. S. Martino, Monte, province de Buenos Aires, déc.—janvier (Paul Neumann).

♀ ad. Barracas al Sud, 22. ix. 1901 (S. Venturi, No. 1).

" Autrefois si abondant, ce héron est aujourd'hui très rare. Ainsi que l'espèce suivante, il se retire, au printemps, aux 'garzales': endroits paisibles de l'intérieur ou îles du Paraná, où ces oiseaux se réunissent par milliers pour nidifier." (S. V.)

403. **Herodias egretta** (Wilson).

Nehrkorn, p. 274 ; Ihering, p. 274.
Nom vulgaire : Garza blanca.

♂ ♀ Barracas al Sud, 23. xii. 1900, 17. viii. 1902 (S. Venturi, Nos. 4, 479).

" Celle-ci et l'espèce précédente tapissent leur nid intérieurement de longues plumes qui leur croissent à l'époque des amours et qu'elles s'arrachent elles-mêmes. Cette particularité est bien connue des chasseurs de hérons, mais les plumes ainsi obtenues n'ont que peu de valeur." (S. V.)

404. **Nycticorax tayazu-guira** (Vieill.).

Nehrkorn, p. 231 ; Ihering, p. 274.
Noms vulgaires : Bruja ; Pájaro yaguá.

♂ ♀ ad. La Soledad, 6. xii. 1901 (C. B. Brittain, Nos. 107, 109).

2 ♂♂ ad., 2 ♀♀ juv. Barracas al Sud, 11, 17. x. 1899 (S. Venturi, Nos. 6, 7, 8, 9).

" Ce héron se réunit aux autres espèces pour nidifier. Les œufs sont d'un verdâtre pâle. Deux œufs de ma collection mesurent 54 × 34 mm." (S. V.)

405. **Syrigma cyanocephala** (Vieill.). (Pl. III. Fig. 14.)

[*Syrigma sibilatrix* (Temm.).]

Nom vulgaire : Chiflón.

2 ♂♂ ad. Mocoví (Chaco), 18. ix., 7. x. 1903 (S. Venturi, Nos. 5, 851).

" Cette espèce de flute vivante nidifie comme les colombes, c'est-à-dire elle réunit quelques branchettes croisées sur une branche d'arbre horizontale à 3—6 mètres de hauteur. La femelle pond quatre œufs que l'on voit au travers du nid, d'un bleu clair et couverts de petites taches violacées et brunes. Dimensions : 48—49 × 35 mm." (S. V.)

406. **Butorides striata** (L.).

Nehrkorn, p 231 ; Ihering, p. 275.
Nom vulgaire : Garcita.

2 ♂♂ La Soledad, 19. ii. 1899, 29. xii. 1901 (C. B. Brittain, Nos 129, 129A).

♂ ♀ ad. Est. S. Martino, Monte, province de Buenos Aires, 11, 12. i. 1897 (Paul Neumann, Nos. 10, 98).

♀ ad., ♂ juv. Barracas al Sud, 2. ii. 1901, 6. x. 1901 (S. Venturi, Nos. 13, 14).

♀ ad. Mocoví (Chaco), 27. ix. 1903 (S. Venturi, No. 835).

" Espèce commune qui, à Barracas al Sud, niche sur les arbres fruitiers des jardins et, au Chaco, sur les arbres des bords des marais. Elle pond quatre œufs d'un bleu verdâtre pâle qui mesurent 35—41 × 26·5—30·5 mm." (S. V.)

407. **Ardetta involucris** (Vieill.). (Pl. III. Fig. 5.)

Nehrkorn, p. 232 ; Ihering, p. 275.
Nom vulgaire : Garcita.

♂♂ ad. Est. S. Martino, Monte, province de Buenos Aires, 27. xii. 1896 (Paul Neumann).

♀ ad. Laguna de Malvinas, Tucuman, 380 m., 31. iii. 1902 (L. Dinelli, No. 720).

♂ ad. Barracas al Sud, 31. ix. 1903 (F. M. Rodriguez, No. 88).

♀ ad. Barracas al Sud, 23. xi. 1898 (S. Venturi, No. 3).

♀ ad. San Vicente (province de Buenos Aires), 13. xii. 1900 (S. Venturi, No. 2).

"J'ai trouvé des nids de cette espèce à Barracas al Sud ainsi qu'au Chaco. La femelle pond sur quelques morceaux de jonc presque à fleur d'eau. Les deux œufs sont d'un vert clair, qui change en jaunâtre avec le temps. Dimensions : 33—35 × 23·5—25 mm." (S. V.)

408. **Tigrisoma marmorata** (Vieill.). (Pl. III. Fig. 13.)

Nom vulgaire : Okó ; Garza colorado.

♂ ad. Barracas al Sud, 14. vi. 1901 (S. Venturi, No. 10).

Cet exemplaire ne s'accorde pas avec la description de Salvadori (*Cat. B. Brit. Mus.* xxvi. p. 196). Il est très grand—aile 345 mm.—mais les vermiculations du dos et des axillaires ne sont pas plus fines que dans les exemplaires du nord : il y a une ligne de plumes sous les yeux. Je ne crois pas que les formes de *Tigrisoma* soient bien comprises à présent.

"Oiseau très connu par son chant, qui ressemble au mugissement d'un gros veau. Je l'ai chassé plusieurs fois au bord des ruisseaux de Barracas al Sud, et il n'est pas rare au Chaco. Il nidifie à l'extrémité des hautes branches, tant en pleine forêt et loin de l'eau que sur les arbres qui croissent au bord des ruisseaux. Le nid, fait avec des branches et de la paille, contient deux œufs d'un bleu clair, saupoudrés de petites taches violacées et brunes, souvent presque invisibles. Dimensions : 57—61 × 42—45 mm." (S. V.)

409. **Botaurus pinnata** (Wagl.).

Nom vulgaire : Okó.

♂ ♀ ad. Barracas al Sud, 18. v., 14. vi. 1901 (S. Venturi, Nos. 11, 12).

♂ ad. Mocoví (Chaco), 2. x. 1903 (S. Venturi, No. 850).

"Je n'ai pu obtenir d'œufs de cette espèce, qui n'est pas rare dans les joncs de Barracas al Sud et du Chaco." (S. V.)

CICONIIDAE.

410. **Tantalus americana** (L.).

Mycteria americana Linnaeus, *Syst. Nat.* x. i. p. 140 (1758—Brasilia) : cf. Hellmayr, *Rev. Spix Typ.* (*Abh. Bayer. Ak.* xxii. 3) p. 710.
Tantalus loculator Linnaeus, *Syst. Nat.* x. i. p. 240 (1766—Amérique mérid.), et auctorum !
Nehrkorn, p. 234 ; Ihering, p. 276.
Nom vulgaire : Tuyuyú ou Hablador.

♂ ♀ Barracas al Sud, 21. xi., 1 xii. 1901 (S. Venturi, Nos. 105, 107).

"Cette espèce est commune dans les marais, où elle arrive au printemps. Les Indiens m'ont toujours assuré qu'elle nichait dans les marais, mais ils la confondent, peut-être, avec l'espèce suivante." (S. V.)

411. **Ciconia maguari** (Gm.).

Ardea Maguari Gmelin, *Syst. Nat.* i. 2. p. 623 (1789—"in America, praesertim Brasilia"—ex Brisson).
Euxenura maguari (!) Sharpe, *Cat. B. Brit. Mus.* xxvi. p. 297.
Ihering, p. 276.
Nom vulgaire : Cigueña.

♂ ♀ ad. Barracas al Sud, 3, 10. viii. 1901 (S. Venturi, Nos. 110, 111).

412. **Mycteria mycteria** (Licht.).

(*Mycteria americana* auctorum, non Linnaeus 1758! Cf. supra : *Tantalus americana*).
Ciconia mycteria Lichtenstein, *Verz. Doubl. Samml. Berlin* p. 76 (1823—São Paulo. Cf. Hellmayr, *Rev. Spix Typ.* p. 711).
Ihering, p. 276.
Nom vulgaire : Tuyuyú coral.

"Au Chaco cet oiseau niche sur les 'Quebrachos colorados' les plus hauts. Pour trouver le nid, il faut se fixer à la direction de son vol quand il emporte du matériel de construction, car l'arbre élu est parfois à plusieurs kilomètres dans la forêt. Un nid que je trouvai le 10. x. 1904 fut 26 mètres au-dessus du sol et contenait un seul œuf d'un blanc sale un peu plus gros que celui du cygne. Il était très volumineux, et formé de grosses branches, de boue et de paille." (S. V.)

PLATALEIDAE.

413. **Ajaja ajaja** (L.).

Nom vulgaire : Espatula.

♂ ad. Barracas al Sud, 21. x. 1901 (S. Venturi, No. 25).
♀ ad. San Vicente, province de Buenos Aires, 21. ix. 1899 (S. Venturi, No. 19).

IBIDIDAE.

414. **Molybdophanes caerulescens** (Vieill.).

Nom vulgaire : Banduria mora.

♂ ♀ ad. Barracas al Sud, 22. v., 1. vi. 1901 (S. Venturi, Nos. 17, 18).

415. **Plegadis falcinellus guarauna** (L.).

Nom vulgaire : Cuervo.

♂ ad., ♂ juv., ♀ juv. Barracas al Sud, 31. x., 10, 17. ii. 1901 (S. Venturi, Nos. 20, 22, 26).

♂ juv., ♀ ad. Laguna de Malvinas, 380 mètres, Tucuman, 23, 31. iii. 1902 (L. Dinelli, Nos. 1716, 1721).

416. **Phimosus nudifrons azarae** Berl. & Hart.

Phimosus azarae Berl. & Hart., *Nov. Zool.* 1902, p. 123 (Paraguay & Argentina).
Nom vulgaire : Cuerbo.

♂♂ ad., ♀ juv. Barracas al Sud, 28. xii. 1900, 7. iii., 31. x. 1901 (S. Venturi, Nos. 23, 24, 27).

Est. S. Martino, Monte, Buenos Aires (Paul Neumann).

CARIAMIDAE.

417. **Cariama cristata** (L.).

Nom vulgaire : Chuña de patas coloradas.

" Cet oiseau si commun dans les plaines du nord de la République Argentine se trouve aussi sur les montagnes jusqu'à une altitude de 2000 m. Il nidifie sur de grosses branches d'arbres, et au milieu du nid il fait provision d'une grande quantité d'ordures qui servent de lit aux œufs. La ponte est de deux œufs blancs, opaques, saupoudrés de quelques taches de couleur cannelle foncé et d'autres d'un brun très pâle. On trouve des œufs frais au commencement du mois de décembre. Dimensions : 62 × 46 mm." (S. V.)

418. **Chunga burmeisteri** (Hartl.).

Noms vulgaires : Chuña negra ; Chuña.

♀ ad. Tapia (Tucuman), 700 m., 12. ix. 1902 (S. Venturi, No. 755).

♂ Rioja, 1. xi. 1895 (Alberto Carreras).

♀ Salta, 800 m., 30. v. 1903 (L. Dinelli, No. 3539).

" Le 'Chuña negra' a les mêmes coutumes que le *Cariama cristata*, mais on ne le trouve pas sur les montagnes élevées. La ponte est de 2 œufs rougeâtres avec de grandes taches ferrugineux foncé, plus denses au pôle obtus. Dimensions : 52 × 46 mm. La fin du mois de décembre est l'époque favorable pour la récolte des œufs frais. Tant pour cette espèce que pour la précédente il est très difficile de faire abandonner le nid à la femelle qui couve." (S. V.)

ARAMIDAE.

419. **Aramus scolopaceus scolopaceus** Vieill.

Nehrkorn, p. 206 ; Ihering, p. 288.
Noms vulgaires : Caráu, Caráo.

♂ ♀ ad. Est. S. Martino, Monte, prov. de Buenos Aires, 1, 29. i. 1897 (Paul Neumann, Nos. 21, 303).

♂ Barracas al Sud, 25. v. 1901 (S. Venturi, No. 15).

♀ San Vicente, prov. de Buenos Aires, 13. xii. 1900 (S. Venturi, No. 16).

" Cet oiseau nidifie au bord des marais et des lagunes, tant dans les 'Pourrés' des hautes herbes, qu'il brise et entrelace, que sur les arbres voisins. Dans ce dernier cas le nid est fait avec des 'camalotes' et des herbes qui forment une masse grosse et compacte. Il contient de 5 à 7 œufs d'un jaune cendré avec des taches violacées et brunes peu apparentes, parfois réunies au pôle obtus ; d'autres exemplaires ont des lignes en zigzag sur toute ou partie de la surface. Les dimensions des cinquante et quelques œufs que j'ai recueillis varient entre 59 × 43 et 71 × 47 mm. Au Brésil cette espèce paraît pondre des œufs plus petits. Au Chaco on trouve des œufs du 'caráu' pendant toute l'année, excepté à l'époque de sécheresse ; les œufs d'été et d'automne sont généralement plus gros que ceux de printemps." (S. V.)

PARRIDAE.

420. **Parra jacana** L.

Nehrkorn, p. 211 ; Ihering, p. 289.
Nom vulgaire : Gallito.

♂ ad. La Soledad, 18. xii. 1898 (C. B. Brittain).

♂ ad. San Vicente, prov. de Buenos Aires, 13. xii. 1900 (S. Venturi, No. 637).

♀ ad. Saladillos, prov. S. Estero, 14. xii. 1900 (S. Venturi, No. 638).

" Euler a très bien décrit le nid et les œufs de cette espèce. Les dimensions d'une série dans ma collection sont 28—32 × 21—23 mm.". (S. V.)

CHARADRIIDAE.

421. **Ptiloscelis resplendens** (Tsch.).

♂♂ ad. Lagunas Grandes, près de Tucuman, 4500 m., 5. ii. 1903, Laran, Tucuman, 4000 m., 12. ii. 1903 (S. Venturi, Nos. 802, 893).

♂ ad. Los Cienegas, Tucuman, 2500 m., 23. ii. 1903 (L. Dinelli, No. 1976).

" En février 1903, Monsieur Dinelli trouva un nid de cette espèce à 4400 m. d'altitude dans les montagnes de Tucuman ; il y avait 4 œufs brisés par suite d'une forte grêle. Le nid était à découvert dans une simple dépression du sol ; les œufs piriformes étaient d'une couleur gris olivâtre et fort tachés de brun et de cannelle foncé." (S. V.)

422. **Belonopterus cayennensis** (Gm.).

Nehrkorn, p. 213 ; Ihering, p. 290.
Nom vulgaire : Teru-tero.

♂ ♀ Barracas al Sud, 14. ix. 1898 (S. V., Nos. 585, 590).

" Les dimensions des œufs varient entre 45—48 × 32—34 mm." (S. V.)

423. **Belonopterus chilensis** (Molina).

♂ ad. Chubut, Valle de Lago Blanco, Patagonie, 2. ix. 1901 (J. Koslowsky).

♀ ad. Carpintevia (S. Juan), 7. iii. 1902 (S. Venturi, No. 691).

Je crois qu'on pourrait regarder cette forme comme sous-espèce de *B. cayennensis*.

424. **Oreophilus ruficollis** (Wagl.).

Nom vulgaire : Chorlo cabezon.

♂ ♀ ad. Barracas al Sud, 7. iv. 1899, 10. vi. 1901 (S. Venturi, Nos. 598, 599).

♂ ad. Barracas al Sud, 14. v. 1903 (S. Venturi, No. 104).

♀ ad. Chubut, Valle del Lago Blanco, Patagonie, 25. xi. 1901 (J. Koslowsky).

425. **Zonibyx modestus** (Licht.).

Charadrius modestus Lichtenstein, *Verz. Doubl. Berlin* p. 71 (Montevideo).
Nom vulgaire : Chorlo canela.

♂♂ ad. Barracas al Sud, 27. ix. 1899, 15. viii. 1902 (S. Venturi, Nos. 591, 618).

♀ juv. Ushuaia, Tierra del Fuego, 20. ii. 1898 (S. Venturi, No. 46).

426. **Haematopus palliatus** Temm.

Nehrkorn, p. 212 ; Ihering, p. 290.

" J'ai trouvé les œufs de cette espèce sur les dunes des côtes de l'Atlantique près de Mar Chiquita (Buenos Aires)." (S. V.)

427. **Aegialitis collaris** (Vieill.).

Nehrkorn, p. 215 ; Ihering, p. 290.
Noms vulgaires : Chorlo, Chorlito.

♂ Barracas al Sud, 10. xi. 1898 (S. Venturi, No. 595).

♂ ♀ près de Tucuman, 456 m., 12, 26. iv. 1899. L. Dinelli coll.

" Le femelle pond ses œufs sur les sables des bords du Paraná et des lagunes de l'intérieur. Dimensions des œufs : 28—30 × 21—22 mm." (S. V.)

428. **Aegialitis falklandicus** (Lath.).

"♀" ad., ♂ jun. Barracas al Sud, 13. ii. 1901 (S. Venturi, Nos. 593, 594).
"♀" ad. Bahia Blanca, 8. x. 1899 (S. Venturi, No. 592).
♀ juv. Barracas al Sud, 16. vi. 1903 (F. M. Rodriguez).

429. **Charadrius dominicus dominicus** P. L. S. Müll.

Nom vulgaire : Chorlo pampa.

♀ ♀ Barracas al Sud, 25. x. 1898, 14. xi. 1901 (S. Venturi, Nos. 587, 589).

430. **Tringa canutus** L.

♀ ad. Barracas al Sud, 1. xi. 1901 (S. Venturi, No. 615).

431. **Heteropygia maculata** (Vieill.).

♂ ♀ ♀ Barracas al Sud, 11. ii. 1901 (S. Venturi, Nos. 616, 617, 625).

432. **Heteropygia fuscicollis** (Vieill.).

Nom vulgaire : Carachilla.

♂ ♀ Barracas al Sud, 16. v. 1901, 10. ix. 1902 (S. Venturi, Nos. 628, 739).
♀ Mocoví (Chaco), 18. i. 1904 (S. Venturi, No. 992).

433. **Bartramia longicauda** (Bechst.).

Nom vulgaire : Batitú.

♂ Est. Wilde, province de Buenos Aires, 30. xii. 1900 (S. Venturi, No. 600).
♀ Barracas al Sud, 26. xii. 1901 (S. Venturi, No. 601).

434. **Calidris arenaria** (L.).

♂ ad. San Vicente, province de Buenos Aires, 1. i. 1900 (S. Venturi, No. 614).

435. **Tringites subruficollis** (Vieill.).

♀ ad. Barracas al Sud, 14. vi. 1899 (!) (S. Venturi, No. 606).

436. **Steganopus tricolor** (Vieill.).

(*Phalaropus wilsoni* Sabine et auct. mult.).

♂ ♀ Barracas al Sud, 7. x. 1901, 13. ix. 1902 (S. Venturi, Nos. 605, 740).

437. **Helodromas solitaria solitaria** (Wilson).

Nom vulgaire : Chorlo.

♂ ♀ ♀ Barracas al Sud, 4. x. 1900, 11. i. 1901, 23. iii. 1902 (S. Venturi, Nos. 129, 608, 609).

438. **Totanus flavipes** (Gm.).

Nom vulgaire : Pata amarilla.

♂ ♀ Barracas al Sud, 14. xi. 1898, 2. i. 1902 (S. Venturi, Nos. 610, 611).
♀ Laguna de Malvinas, Tucuman, 380 m., 24. iii. 1902 (L. Dinelli, No. 1718).
♀ Est. S. Martino, Monte, prov. de Buenos Aires, 11. i. 1897 (Paul Neumann).

439. **Totanus melanoleucus** (Gm.).

Nom vulgaire : Chorlo real.

♂ ♀ Barracas al Sud, 5. vi., 25. xi. 1901 (S. Venturi, Nos. 612, 613).

♀ Laguna de Malvinas, 380 m., Tucuman, 31. iii. 1902 (L. Dinelli, No. 1722).

440. **Gallinago paraguaiae** (Vieill.).

[*Gallinago paraguaiae* Vieillot, 1816, et *G. frenata* Lichtenstein, 1823, ne sont pas différents. Cf. Berlepsch, *Journ. f. Orn.* 1887. p. 36.—E. H.]
Nehrkorn, p. 214 : Ihering, p. 292.
Nom vulgaire : Becasina.

♂♂ ♀ ad. Barracas al Sud, 10. x. 1899, 11. x. 1900, 11. iii. 1901 (S. Venturi, Nos. 621, 622, 623).

♂♂ ad. Barracas al Sud, 16, 21. vii. 1903 (F. M. Rodriguez, Nos. 114, 114A).

Pullus : Barracas al Sud, 2. xi. 1901 (S. Venturi, No. 619).

♂ ♀ ad. Laguna de Malvinas, Tucuman, 380 m., 22. iii. 1902 (L. Dinelli, Nos. 1705, 1712).

"J'ai trouvé les nids de cette bécassine dans les marais de Barracas al Sud et du Chaco, depuis le mois d'octobre jusqu'en mars. Dimensions de sept œufs 37·5—42 × 27—30 mm." (S. V.)

441. **Himantopus melanurus** Vieill.

Nom vulgaire : Tero real.

♀ Est. S. Martino, Monte, province de Buenos Aires, 27. xii. 1897 (Paul Neumann).

♂ ♀ Barracas al Sud, 14. viii. 1899, 19. xi. 1901 (S. Venturi, Nos. 584, 586).

♂ ♀ Rio Sali, Tucuman, 450 m., 17. v. 1901 (L. Dinelli, Nos. 1173, 1174).

"Un nid que je trouvai près de Bahia Blanca le 23. x. 1899 contenait quatre œufs qui ne sont pas tous piriformes. Dimensions : 42·5—43 × 31·5 mm." (S. V.)

442. **Rostratula semicollaris** (Vieill.).

Nehrkorn, p. 218 ; Ihering, p. 293.
Nom vulgaire : Agachona.

♂ ♀ Barracas al Sud, 17. ix. 1899, 23. vi. 1900 (S. Venturi, Nos. 620, 624).

♂♂ ♀ Laguna de Malvinas, Tucuman, 380 m., 22. iii., 25. iv. 1902 (L. Dinelli, Nos. 1704, 1708, 1726).

"Mœurs et nidification comme chez *Gallinago paraguaiae*. La femelle pond 2 œufs de 34—37 × 23—24·5 mm." (S. V.)

THINOCORYTHIDAE.

443. **Thinocorus orbignyanus** Geoffr. & Less.

♂ ♀ Cerro Parallon et Laguna alta, Tucuman, 4500 m., 6, 14. ii. 1903 (S. Venturi, Nos. 894, 935).

♂ Cumbre calchaquies, Tucuman, 4700 m., 7. ii. 1903 (L. Dinelli, No. 1912).

"Monsieur Budin a trouvé un nid de cette espèce au mois de janvier, à 4300 m. d'altitude, à la Cumbre calchaquies, Tucuman. Le nid était fait dans un petit trou du sol, peut-être naturel. Les 3 œufs piriformes étaient d'un cendré olivâtre saupoudrés de petites taches brunes et cannelle foncé." (S. V.)

444. **Thinocorus rumicivorus** Eschsch.

Nom vulgaire : Chorlo agachou.

♂♂ ♀ Barracas al Sud, 3. xii. 1899, 4. vi. 1901 (S. Venturi, Nos. 602, 603, 604).

♂ ad. Chubut, Valle del Lago Blanco, Patagonia, 27. ix. 1901 (Julius Koslowsky).

LARIDAE.

445. **Phaethusa magnirostris** (Licht.).

Nehrkorn, p. 220 ; Ihering, p. 293.
Nom vulgaire : Martin pescador ou Gaviota.

♂ Barracas al Sud, 16. xi. 1902 (S. Venturi, No. 758).

♂ San Vicente (Chaco), 30. x. 1903 (S. Venturi, No. 902).

♀ Puerto Ocampo, 27. ix. 1903 (S. Venturi, No. 837).

"Cette espèce abonde non seulement à Buenos Aires, mais aussi dans tout le Rio Paraná et ses affluents ; on la trouve également dans les grandes lagunes de l'intérieur (Mar Chiquita : Cordoba). J'ai découvert, le 15. ix. 1903, beaucoup de nids sur les bancs de sable en face de Bella Vista (Corrientes), où elle pond au milieu d'autres espèces d'hirondelles de mer. Les œufs, dont il y avait deux ou trois, sont jaunâtres ou cendrés, avec de grandes taches cendré foncé et sur celles-ci d'autres plus petites d'un brun-rouge. Dimensions : 46—51·5 × 35—37 mm." (S. V.)

446. **Gelochelidon anglica** (Mont.).

♂ ad., ♀ ad. Barracas al Sud, 18. ix. 1904 (S. Venturi, Nos. 1011, 1012).

♂ juv. Barracas al Sud, 10. ii. 1903 (S. Venturi, No. 788).

447. **Sterna hirundinacea** Less.

Nehrkorn, p. 220 ; Ihering, p. 293.
Noms vulgaires : Gaviotin, Gabiotin, Golondrina de mar.

"J'ai trouvé ses nids dans l'île Leones à l'embouchure du Rio Santa Cruz, et j'ai reçu des œufs pris dans les îles Orcades du Sud. Ils sont d'un vert jaunâtre, tachetés de brun et noir, et mesurent 43—44 × 33 mm." (S. V.)

448. **Sterna trudeauii** Audub.

♂♂ ♀ ad. Barracas al Sud, 30. ix. 1899, 2. vi. 1901, 3. xii. 1902 (S. Venturi, Nos. 633, 634, 766).

♂ ♀ Barracas al Sud, ix. 1903 (F. M. Rodriguez, Nos. 44, 44A).

♂ Est. S. Martino, Monte, prov. de Buenos Aires, 2. i. 1897 (Paul Neumann).

449. **Sterna superciliaris** Vieill.

Nehrkorn, p. 222 ; Ihering, p. 294.
Nom vulgaire : Gaviotin (C'est le nom de toutes les hirondelles de mer).

♂ ♀ ad. Mocovi (Chaco), 9. xi. 1903 (S. Venturi, Nos. 912, 913).

♂ Barracas al Sud, 16. xi. 1902 (S. Venturi, No. 759).

"Au mois de septembre 1903 je trouvai les nids de cette espèce sur les bancs de sable du Rio Paraná, en face de Bella Vista. Dimensions : 30—44 × 24—25 mm." (S. V.)

450. **Rhynchops nigra cinerascens** (Spix).

Cf. *Nov. Zool.* 1902. p. 132 ; Hellmayr, *Rev. Spix's Typen*, p. 715 (*Rhynchops melanura* auctorum).
Nehrkorn, p. 223 ; Ihering, p. 294.
Nom vulgaire : Rayador.

♂♂ ad. San Vicente et Rio Amores (Chaco), 11. xi. 1903 (S. Venturi, Nos. 915, 916).

Ces exemplaires sont typiques, les couvertures inférieures des ailes étant foncées, et les rectrices noirâtres avec d'étroites bordures blanchâtres. Ailes 355 et 373, mandibule inférieure 90 mm.

" Le Bec-en-ciseaux nidifie aux mêmes endroits que le *Phaetusa magnirostris* et à la même époque. Les trois œufs sont d'une coloration très variable en ce qui concerne les taches. Dimensions : 45—46·5 × 30—34 mm." (S. V.)

451. **Rhynchops intercedens** Saund.

Cf. *Cat. B. Brit. Mus.* xxv. p. 156 ; Hellmayr, *Nov. Zool.* 1908. p. 102.

Ad. Est. S. Martino, Monte, prov. de Buenos Aires, 1897 (Paul Neumann).

♂ ♀ Avellaneda, 16, 17. xii. 1904 (F. M. Rodriguez, Nos. 273, 273A).

Ces deux exemplaires sont adultes. Les couvertures inférieures des ailes sont blanches, les rectrices latérales blanches, seulement les tiges et une ombre du côté interne des barbes sont obscures. Le mâle est beaucoup plus grand que la femelle : aile 412, mandibule inférieure 125, supérieure 100 (aile de la femelle 380, mandibule inférieure endommagée, supérieure 75 mm.). Les exemplaires de Goyaz mentionnés par Monsieur Hellmayr (*Nov. Zool.* 1908. p. 102) ont les couvertures inférieures des ailes teintées de brunâtre. Ils sont aussi plus petits : ♂, aile 393, mandibule supérieure 82, inférieure 90 mm.

452. **Larus cirrhocephalus** Vieill.

Nehrkorn, p. 223 ; Ihering, p. 295.
Nom vulgaire : Gaviota.

♂ ♀ jun. Barracas al Sud, 22. xi. 1900, 25. iii. 1901 (S. Venturi, Nos. 629, 635).

453. **Larus maculipennis** Licht.

Nehrkorn, p. 223 ; Ihering, p. 295.
Nom vulgaire : Gaviota.

♂ ♀ ad. Barracas al Sud, 4. x. 1899, 26. vi. 1901 (S. Venturi, Nos. 630, 631).

♂ fere ad. Rio Sali, Tucuman, 450 m., 22. vi. 1901 (L. Dinelli, No. 1107).

♂ fere ad., ♀ ad. (veste hiem.) Barracas al Sud, 16, 26. v. 1903 (F. M. Rodrignez, Nos. 107, 107A).

" Au mois de novembre 1896 j'ai trouvé plusieurs nids de cette espèce et de la précédente dans les immenses marais voisins de Bahia Blanca. Je recueillis les œufs, mais n'ayant pu me procurer d'oiseaux, je ne suis pas en état de les attribuer à l'une ou l'autre espèce." (S. V.)

454. **Larus dominicanus** Licht.

Nehrkorn, p. 224 ; Ihering, p. 295.
Nom vulgaire : Gaviota.

♂ fere ad., ♂ ♀ juv. Barracas al Sud, 21. viii. 1899, 8. i. 1903, 17. i. 1904 (S. Venturi, Nos. 632, 636, 1018).

" Le 17. xi. 1900 j'obtins près d'Ajo, au bord de l'Atlantique, un nid avec deux œufs de cette monette. Dimensions : 67 × 49 et 77 × 50·5 mm." (S. V.)

STERCORARIIDAE.

455. **Megalestris chilensis** Bp.

♂ Barracas al Sud, 18. ix. 1904 (S. Venturi, No. 1016).

TUBINARES.

456. **Diomedea melanophrys** Temm.

Nehrkorn, p. 228 ; Ihering, p. 296.

"Nidifie également à l'Ile des Etats (Staten Island). Un œuf que j'ai obtenu de là, pris le 4. xii. 1902, est blanc avec quelques taches rosacées d'innombrables points violacé-foncé plus nombreux à la partie postérieure. Dimensions : 103 × 66 mm." (S. V.)

457. **Daption capensis** (L.).

"Presque toutes les années on chasse quelques exemplaires de cette espèce à Barracas al Sud. Un œuf que j'ai reçu des îles Orcades (South Orkney Islands) comme appartenant à *D. capensis* est blanc et mesure 60·3 × 43·5 mm." (S. V.)

Monsieur Nehrkorn, *Katalog der Eiersammlung*, p. 227, No. 3189, donne les mesures d'un œuf comme 38 × 30 mm., et comme localité La Nouvelle-Zélande—sans autorité ! Nous avons dans la collection à Tring trois autres œufs de cette espèce : deux pris aux îles Orcades par Monsieur R. C. Moseman, qui mesurent 61·4 × 40·5 et 59·6 × 41·4, et un autre trouvé aux îles Crozet par Monsieur Koren, qui mesure 63·3 × 43 mm. Il est donc évident que celui décrit par Monsieur Nehrkorn ne peut pas être l'œuf de *Daption capensis*. D'ailleurs *Daption capensis* ne nidifie pas dans la Nouvelle-Zélande.

PYGOPODES.

458. **Aechmophorus major** (Bodd.).

Ihering, p. 296.
Nom vulgaire : Macá.

♂ ♀ ad. Barracas al Sud, 17. ix. 1900 ; ♂ juv. Barracas al Sud, 3. vii. 1901 (S. Venturi, Nos. 646, 645, 643).

"Aux mois d'août et septembre il niche au Chaco en faisant son nid sur les 'camalotes.' Les œufs sont verdâtre clair." (S. V.)

459. **Colymbus americanus** (Garnot).

Podiceps americanus Garnot, *Voy. Coquille, Zool.* i. p. 599 (1826—Chili, Brésil) ; *Podiceps rollandi*, auct. mult. : errore !
Nom vulgaire : Chumuco.

♂ La Soledad, 4. iii. 1902 (C. Brittain, No. 169).

♂ ad. Ignacio Correos, province de Buenos Aires, 5. ix. 1898 (S. Venturi, No. 644).

♂, ♀, ♂ juv. Barracas al Sud, 23. xii. 1900, 6, 13. vi. 1901 (S. Venturi, Nos. 647, 649, 650).

♂ ad. ! ♀ juv. Laguna de Molinas, 380 m., près de Tucuman, 1. xii. 1903 (L. Dinelli, Nos. 2964, 2967).

" Monsieur Dinelli m'informe que cet oiseau construit son nid flottant avec de plantes aquatiques macérées, le fond étant environ 10 cm. au-dessus de l'eau. Tantôt le nid est caché au milieu des 'pajas totoras,' tantôt il se trouve au bord des joncs. En quittant le nid l'oiseau couvre soigneusement les œufs avec les détritus qui se trouvent à l'entour. La ponte est généralement de sept œufs allongés dont les pôles sont presque égaux : leur couleur est un bleuâtre clair avec une couche calcaire blanchâtre sur presque toute la surface de l'œuf. Dimensions : 41—45 × 29—31 mm." (S. V.)

460. **Colymbus calipareus** (Less.).

♂ Chubut, Valle del Lago Blanco, Patagonie, 15. xi. 1900 (Julius Koslowsky).
♀ juv. Viedma (Rio Negro), 3. x. 1899 (S. Venturi, No. 641).

" Monsieur Budin, de Tucuman, a observé un couple de cette espèce dans une lagune des Cumbres calchaquies, à 4300 m. d'altitude. La lagune étant dépourvue de végétation, il put très bien voir le nid flotter sur l'eau, et observer les gestes de la mère." (S. V.)

461. **Podilymbus podiceps** (L.).

♂ ad. Barracas al Sud, 11. xi. 1897 (S. Venturi, No. 648).
♂ juv. Barracas al Sud, 10. ii. 1901 (S. Venturi, No. 642).

SPHENISCIDAE.

462. **Catarrhactes chrysocome** (Forst.).

Nehrkorn, p. 240.

" C'est de l'île de Año Nuevo (près de l'île des États) que j'ai obtenu un œuf de cette espèce. Il est blanc avec beaucoup de verrues réunies en forme de couronne au pôle aigu. Dimensions : 71 × 51 mm." (S. V.)

463. **Spheniscus humboldti** Meyen.

Nehrkorn, p. 240.

" Également de l'île de Año Nuevo. Les œufs que je possède sont blancs, presque lisses, et mesurent 72 × 61 mm." (S. V.)

464. **Spheniscus magellanicus** (Forst.).

Nehrkorn, p. 241 ; Ihering, p. 297.

" De cette espèce commune qu'on chasse aussi à Mar del Plata, j'obtins des œufs à l'île Leones (Santa Cruz) où les nids abondaient. Dimensions des œufs : 70—80 × 53—56·5 mm." (S. V.)

RALLIDAE.

465. **Limnopardalus rytirhynchus rytirhynchus** (Vieill.).

Ihering, p. 285.
Nom vulgaire : Gallineta.

♂ juv., ♀ ad. La Soledad, 22, 25. ii. 1902 (C. B. Brittain, Nos. 164, 166).
♂ ad. Barracas al Sud, 4. ix. 1899 (S. Venturi, No. 663).
♀ ad. Barracas al Sud, 12. v. 1901 (S. Venturi, No. 680).
♂ juv., ♀ juv. Barracas al Sud, 15. iii. 1901 (S. Venturi, Nos. 677, 681).

" À Barracas al Sud, j'ai trouvé les nids de cette Râle et des autres espèces de *Limnopardalus*.—*L. rytirhynchus* et *maculatus* nichent dans la 'saja brava' à 0·50 ou un mètre de hauteur, où la paille est la plus touffue, et c'est avec ce matériel qu'ils construisent leur nid en l'entrelaçant de toutes manières. Celui-ci est très solide et contient 4—5 œufs blanc-rosacé avec des taches roussâtres et grisâtre pâle, en général beaucoup plus denses au pôle obtus. Dimensions: 36—41 × 28—29·5 mm." (S. V.)

466. **Limnopardalus nigricans** (Vieill.).

♂ ad. Posadas (Misiones), 13. ix. 1899 (S. Venturi, No. 1017).

Cette forme est bien distincte de *L. rytirhynchus*. Je suis enclin à supposer qu'elle ne constitue qu'une simple sous-espèce de *L. rytirhynchus*, mais dans ce cas la distribution géographique donnée au *Cat. B.* xxiii. pp. 30-32 ne serait pas exacte.

467. **Limnopardalus maculatus** (Bodd.).

Iheriug, p. 285.
Nom vulgaire : Gallineta overa.

♂ ad. Barracas al Sud, 17. ii. 1901 (S. Venturi, No. 672).

♂ juv., ♀ juv. Barracas al Sud, 4. iii. 1901 (S. Venturi, Nos. 685, 686).

" L'œuf de cette espèce est généralement plus sphérique que celui de *L. rytirhynchus*; les taches sont plus nombreuses, mais moins étendues. Dimensions: 36·5—38 × 29 mm." (S. V.)

468. **Rallus antarcticus** King. (Pl. III. Fig. 20.)

Nom vulgaire : Gallineta.

" J'ai trouvé deux nids de cette espèce dans une lagune de Barracas: ils étaient placés dans une touffe d'herbes à 20 cm. au-dessus de l'eau, et contenaient quatre œufs de couleur crème rosacé converts de petits points rouges plus denses à la partie postérieure, et de quelques petites taches secondaires d'un gris pâle. Dimensions : 40—42 × 28—30 mm. Le premier œuf pondu d'un nid pris le 1. xi. 1900 est plus petit : 34 × 25·5 mm." (S. V.)

469. **Aramides ypacaha** (Vieill.).

Nehrkorn, p. 201 ; Ihering, p. 285.
Nom vulgaire : Ypacahá, ou Guáscara.

♂ ♀ ad. Barracas al Sud, 25, 30. vi. 1901 (S. Venturi, Nos. 668, 684).

♂ ad. Mocoví (Chaco), 7. x. 1903 (S. Venturi, No. 876).

♀ ad. Barracas al Sud, 17. vii. 1903 (F. M. Rodriguez).

♂ ad. La Soledad, 22. i. 1899 (C. B. Brittain).

" Cette espèce, dont le chant puissant 'ypá-ca-há' résonne si fort dans les 'pajonales' de Buenos Aires et du Chaco, nidifie de la même manière que l'*Aramus scolopaceus*. La ponte est de 5 œufs d'une couleur crème rosacé, couverts de taches rouges et brunes, et de grandes taches secondaires moins marquées. Dimensions très variables : 53—63 × 37—39 mm." (S. V.)

470. **Aramides chiricote** (Vieill.).

Nom vulgaire : Chiricote.

" Je n'ai rencontré cette espèce que dans les épaisses et hautes forêts du Chaco, et je crois qu'elle ne va jamais aux marais. Son chant est 'chiricô-té,' et elle le

répète plusieurs fois, comme l'ypacahá, notamment au lever et au coucher du soleil. Cet oiseau niche sur les arbres à 3—4 mètres de hauteur, employant à cet objet des branches, de la paille et de l'herbe. Il pond 5 œufs dont la coloration est en tout semblable à ceux de l'espèce précédente. Dimensions : 50—51·5 × 35—36 mm." (S. V.)

471. **Porzana albicollis** (Vieill.).

Nom vulgaire : Gallareto.

♂♂ San Felipe (Tucuman), 9, 15. xi. 1902 (ex S. Venturi, Nos. 775, 776).
♂ San Felipe (Tucuman), 440 m., 9. xi. 1902 (L. Dinelli, No. 1951).
♀ Tamailla (Tucuman), 350 m., 11. xii. 1901 (E. Budin).

472. **Porzana spiloptera** Durnf.

Porzana spiloptera Durnford, *Ibis*, 1877. p. 194. pl. 3 (Buenos Aires.—Ex Burmeister MS.).

♂ ♀ Barracas al Sud, 18. vi. 1900 (S. Venturi, Nos. 669, 1013).

473. **Creciscus melanophaius** (Vieill.). (Pl. III. Fig. 16.)

Nehrkorn, p. 203 ; Ihering, p. 286.
Nom vulgaire : Burrito silbón.

♂ ♀ Barracas al Sud, 10. xi. 1901 (S. Venturi, Nos. 679, 1014).

" Pas rare à Barracas al Sud et au Nord, et j'en ai récolté beaucoup d'œufs. Dans quelques échantillons les taches sont régulièrement distribuées sur toute leur surface ; dans d'autres elles sont plus denses à l'un ou à l'autre pôle. La ponte normale consiste en 5 œufs, mais une fois j'ai trouvé un nid avec 9. Dimensions : 29—33 × 23—24 mm." (S. V.)

474. **Creciscus leucopyrrhus** (Vieill.).

Ihering, v. p. 303.
Nom vulgaire : Burrito.

3 ♂♂, 1 ♀ Barracas al Sud, 23. vii., 11. x. 1900, 15, 30. viii. 1902 (S. Venturi, Nos. 452, 670, 682, 683).
2 ♀♀ Barracas al Sud, 30. v., 11. vii. 1903 (F. M. Rodriguez, Nos. 100, 100A).

" Espèce également rencontrée à Barracas al Sud. Ses œufs sortent de la normale par leur couleur uniformément blanche, pas luisante. Les nids des *Creciscus* se distinguent de ceux des autres Râles par leur forme presque sphérique ; ils sont composés d'herbes et toujours placés à un endroit plus élevé que le niveau normal des grandes crues. Leur entrée est située sur le côté. Dimensions des œufs : 31—37 × 23—27 mm." (S. V.)

475. **Gallinula chloropus galeata** (Licht.).

Nehrkorn, p. 204 ; Ihering, p. 287.
Noms vulgaires : Gallineta ; Pollona.

♂ ♀ Barracas al Sud, 7, 20. vi. 1901 (S. Venturi, Nos. 671, 678).

" Les 5 œufs d'un nid pris près d'Ocampo le 27. xii. 1905 mesurent 43 × 32 mm." (S. V.)

476. **Porphyriops melanops** (Vieill.).

Nehrkorn, p. 204 ; Ihering, p. 287.

" Comme la précédente, cette espèce est commune dans presque toute la République Argentine." (S. V.)

Monsieur Venturi nous a envoyé un exemplaire de *Porphyrio poliocephalus* Vieill., tué à Rio Cuarto, province de Cordoba, et il dit dans ses notes que cette espèce n'est pas rare dans les "saladillos" du sud de Santiago del Estero, qu'il l'a vue vivante dans le petit jardin zoologique de Campo de Marte à Corrientes et qu'on a pris les petits dans les îles du Paraná. Le spécimen (No. 658) qu'il a envoyé a les ailes mutilées et sans doute cette espèce indienne a été acclimatée dans la République Argentine.

477. **Ionornis martinica** (L.).

Nehrkorn, p. 205 ; Ihering, p. 287.
Nom vulgaire : Gallineta agul.

♂ ♀ ad. San Vicente (Chaco), 1. ii. 1904 (S. Venturi, Nos. 981, 982).

"J'ai rencontré cette espèce assez souvent à Barracas al Sud, à Santiago del Estero et au Chaco. Le 28. xii. 1905 j'ai trouvé un nid fait dans les joncs à 20 cm. au-dessus de l'eau ; il contenait trois œufs. Dimensions : 41 × 31 mm. L'un d'eux plus allongé mesure 44 × 31 mm." (S. V.)

478. **Fulica armillata** Vieill.

Nehrkorn, p. 205 ; Ihering, p. 237.
Nom vulgaire : Gallareta ; pollona.

♂ ad. La Plata, Buenos Aires, 4. xi. 1882 (E. W. White).

♂ ad., ♀ ad., ♀ jun. Barracas al Sud, 25. v., 6. vi. 1901 (S. Venturi, Nos. 653, 657, 660).

"Le 21. x. 1900 j'ai trouvé un nid de cette espèce dans un épais fourré de joncs à Barracas al Sud sur les bords d'une lagune. Il était posé sur un amas de joncs doublés par les loutres et construit de joncs courbés de manière à former une assiette peu profonde. Quand je fus près du nid la femelle, avant de s'envoler, fit rouler avec ses pattes les œufs dans l'eau. Dans cet endroit le fond de la lagune étant très vaseux, c'est avec beaucoup de peine que je réussis à pêcher trois œufs qui mesurent 54—58 × 39—40 mm." (S. V.)

479. **Fulica rufifrons** Phil. & Landb.

Fulica rufifrons Philippi & Landbeck, *Arch. f. Naturg.* xxviii. vol. i. p. 223 (1862—Chili).
Fulica leucopyga Sharpe, *Cat. B. Brit. Mus.* xxiii. p. 220 (1894—errore ! Non *F. leucopyga* Wagler, *Isis*, 1831. p. 516 ex Mexico, quae syn. speciei *F. leucoptera* dictae !).
Nehrkorn, p. 205 ; Ihering, p. 288.
Nom vulgaire : Gallareta.

♂ ♀ Barracas al Sud, 20. iii., 12. vi. 1901 (S. Venturi, Nos. 627, 687).

"Parmi les œufs que j'ai recueillis, il y a un d'une couleur très foncée presque brune. Dimensions : 53—54 × 36—37 mm." (S. V.)

480. **Fulica leucoptera** Vieill.

Nehrkorn, p. 206 ; Ihering, p. 288.
Nom vulgaire : Gallareta.

♀ La Soledad, 23. ii. 1902 (C. B. Brittain, No. 165).

♂♂ ♀ Barracas al Sud, 22. ix. 1899, 12. vi., 1. vii. 1901 (S. Venturi, Nos. 673, 674, 676).

♂ Barracas al Sud, 2. x. 1903 (F. M. Rodriguez, No. 48). Cet exemplaire n'a que des indications de la bordure blanche aux remiges secondaires, néanmoins je crois qu'il se rapporte aussi à *F. leucoptera*.

" C'est la plus abondante de toutes les *Fulica* qui habitent l'Argentine. La moyenne des dimensions des œufs de cette espèce est 49 × 34 mm." (S. V.)

481. **Fulica cornuta** Bp.

Cf. Rothschild, *Bull. B. O. Club*, xiv. p. 38 ; Baer, *Ornis*, xii. p. 232.)

♂ ad. Laguna del Cerro Pelado (Mt. Pelé), 5000 m., 24. ii. 1903 (G. A. Baer, No. 1471).

♂ Lagunas, Cumbre calchaquies, 8. ii. 1903 (E. Budin).

" Habite les lagunes des hautes montagnes de Tucuman. Au mois de février, Monsieur Dinelli a trouvé, à 4600 mètres, un nid avec deux œufs. Il était posé sur une pierre d'une lagune, un peu au-dessus du niveau de l'eau ; il était fait avec des algues et assez profond au milieu. Les deux œufs sont de couleur olivâtre fortement saupoudrés de taches brun pâle et d'autres de couleur café foncé répandues sur toute la surface. Dimensions : 39 × 41 mm. Quand cette *Fulica* ne trouve pas d'appui naturel, elle en construit un en ramenant de petites pierres et en les empilant jusqu'à former une espèce de pyramide au haut de laquelle elle met son nid. Monsieur Dinelli suppose que ce travail s'effectue sous l'eau. Dans beaucoup de lagunes desséchées on peut encore apercevoir les restes des nids. Monsieur Budin a observé que dans les lagunes à végétation trop dense la *Fulica cornuta* ne peut réunir de pierres ; elle se contente alors de rassembler des plantes aquatiques en quantité suffisante pour en former un nid flottant et solide. Les petits, qui n'ont pas de caroncule, sont couverts d'un duvet épais et presque noir ; à l'extrémité de la mandibule supérieure ils ont une épine cornée de couleur jaune." (S. V.)

COLUMBAE.

482. **Columba picazuro venturiana** subsp. nov.

Nehrkorn, p. 182 ; Ihering, p. 281.
Noms vulgaires : Picazuró ; Turca.

Subspeciei *Columba picazuro picazuro* appellatae persimilis, sed coloribus sincipitis, occipitis, uropygii supracaudaliumque saturatioribus, abdomine dilutiore haud difficile distinguenda.

Les exemplaires de Mocoví, de Tucuman, de Salta et de la Bolivie méridionale (province de la Cordillera, José Steinbach coll.), tout en s'accordant entre eux, diffèrent de ceux de Goyaz (Brésil méridional—cf. Hellmayr, *Nov. Zool.* 1908. p. 90) par la couleur plus foncée de la tête, du croupion, des couvertures des ailes et de la queue, et l'abdomen un peu plus pâle.

Type : No. 826. Mocoví, 24. ix. 1903 (S. Venturi coll.).

♂ ad. Vipos, Tucuman, 7. xi. 1899 (S. Venturi, No. 90).

?♀ Tapia, Tucuman, 680 m., 9. xii. 1902 (G. A. Baer, No. 1186).

♂ ad. Arenal, province de Salta, 750 m., 9. xi. 1903 (L. Dinelli, No. 2934).

" Ce pigeon est très commun à Ocampo. Il fréquente les forêts hautes et épaisses. On trouve les nids à des hauteurs de 3 à 6 mètres. Ils ne consistent qu'en quelques branchettes à travers lesquelles on apercevoit les œufs. J'ajouterai quelques mots sur un nid très curieux de cette espèce : Les matériaux de quelques

chaumières construites au temps de la grande crue du Paraná de 1905 avaient été détruits ou portés autre part. Les petits morceaux de fil de fer qui avaient servi pour réunir ces divers matériaux restèrent tirés çà et là. Un couple de *Columba picazuro* en profita et en fit un nid très solide, de sorte qu'il me fallut assez d'efforts pour l'enlever des branches où il était posé. Les 60 et quelques morceaux de fil de fer employés pesaient 200 grammes. Le nid contenait deux œufs, ce qui est normal, mais j'en ai trouvé beaucoup d'autres avec un seul œuf ou un seul petit. Dimensions des œufs : 40·5—44 × 28—30·5 mm." (S. V.)

483. **Columba maculosa** Temm.

Nehrkorn, p. 182 ; Ihering, p. 281.
Nom vulgaire : Paloma del monte.

♂♂ ad. Tucuman, 4. xii. 1901, 10. xii. 1902 (S. Venturi, Nos. 932, 782).

♀ ad. Tucuman, 22. viii. 1898 (L. Dinelli : ex Venturi, No. 91).

♂♀ Tapia, Tucuman, 700 m., 13. ix., 3. xii. 1902 (L. Dinelli, Nos. 1848, 1849).

♂♀ Arenal, province de Salta, 750 m., 27, 28. x. 1903 (L. Dinelli, Nos. 2894, 2898).

♂ La Soledad, 7. i. 1902 (C. B. Brittain, No. 140).

"Très abondant dans les bois peu épais du Sud de Santiago del Estero, où j'ai trouvé plusieurs nids. Les œufs mesurent 37—40 × 28 mm." (S. V.)

484. **Columba rufina sylvestris** Vieill.

(Cf. Hellmayr, *Nov. Zool.* 1906. p. 47.)
Nehrkorn, p. 182 ; Ihering, p. 281.
Nom vulgaire : Yurutý.

♂ Posadas (Misiones), 13. x. 1902 (S. Venturi, No. 773).

♂ Tucuman, 450 m., 24. i. 1904 (L. Dinelli, No. 2991).

"J'ai pris un seul nid de cette rare espèce à 8 lieues à l'ouest d'Ocampo. Les deux œufs mesurent 35·5 × 28 et 39 × 26·5 mm." (S. V.)

485. **Columba albilinea** Bp.

Columba albilinea Bonaparte, *Consp. Av.* ii. p. 51.
Columba tucumana Salvadori, *Boll. Mus. Torino* x. No. 208, p. 22 (1895) (L'auteur a décrit par erreur un jeune oiseau comme espèce nouvelle).
Nehrkorn, p. 182.

♂ ad. Villa Nougues (Tucuman), 1000 m., 4. viii. 1903 (S. Venturi, No. 931).

♂ ad. La Criolla, Tucuman, 1500 m., 24. i. 1903 (G. A. Baer, No. 1337).

♂ ad. Cumbre S. Pablo, 1000 m., 10. viii. 1903 (L. Dinelli, No. 2801).

Monsieur Baer a trouvé cette espèce exclusivement dans les parois rocheuses à pic, d'accès très difficile.

486. **Zenaida auriculata auriculata** (Des Murs).*

Nehrkorn, p. 183 ; Ihering, p. 282.
Nom vulgaire : Paloma torcaz.

Il me semble que les exemplaires de la République Argentine appartiennent à la race "typique," tandis qu'à l'Équateur et au Pérou il y a une race dont la couleur blanche des extrémités des rectrices latérales est beaucoup plus étendue. (Cf. aussi : Salvadori, *Cat. B.* xxi. p. 386 ; Hellmayr, *Nov. Zool.* 1908. p. 92.)

* Ce n'est pas Gay qui est l'auteur des nouveaux noms dans la *Historia Física y Política de Chile* de Gay, mais bien Des Murs. Cela ressort d'une note au bas de la page 183.—E. H.

♂♂ ♀ Barracas al Sud, 21. ix., 14, 17. x. 1899 (S. Venturi, Nos. 92, 93, 94).

" Les dimensions de nombreux œufs sont : 27—32 × 20·5—24·5 mm. Dans presque toutes les pontes il y avait un œuf de couleur blanche et un autre jaune." (S. V.)

487. **Leptotila chloroauchenia chloroauchenia** Gigl. & Salvad.

Nehrkorn, p. 186 ; Ihering, p. 283.
Nom vulgaire : Paloma montaraz.

♂ ♀ Barracas al Sud, 24. xi. 1900, 15. viii. 1902 (S. Venturi, Nos. 99, 588).

♂ ad. La Soledad, 7. i. 1902 (C. B. Brittain, No. 141).

♂ ♀ Tapia, Tucuman, 600 m., 6, 9. xi. 1901 (L. Dinelli, Nos. 1469, 1481).

" La femelle pond deux œufs dont l'un blanc et l'autre jaunâtre tirant au rouge chair. Dimensions : 27—34 × 22—24·5 mm. Je ferai remarquer que les œufs jaunâtres sont généralement plus larges que les blancs. Le 2. xi. 1900, à Barracas al Sud, je trouvai un nid avec deux œufs, dont l'un opaque, verruqueux et taché à la partie postérieure : il mesure 32 × 23·5 mm." (S. V.)

488. **Metriopelia melanoptera** (Mol.).

Nehrkorn, p. 185.

♂ ♀ Las Cienegas (Tucuman), 2500 m., 17, 19. ii. 1903 (L. Dinelli coll. Ex Venturi, Nos. 890, 933).

♂ Las Cienegas (Tucuman), 2500 m., 17. ii. 1903 (L. Dinelli).

489. **Metriopelia aymara** (Knip. & Prév.).

♂ ad. Laguna de Pavayau (Tucuman), 4500 m., 10. ii. 1903 (S. Venturi, No. 891).

♂ ♀ Lara, Tucuman, 4000 m., 13. ii. 1903 (S. Venturi, Nos. 873, 874).

3 ♂♂ Lara, Tucuman, 4000 m., 10, 13, 14. ii. 1903 (G. A. Baer, Nos. 1422, 1446, 1455).

490. **Gymnopelia morenoi** Sharpe.

Gymnopelia morenoi Sharpe, *Bull. B. O. Club*, xii. p. 54 (1902—Salta !).
Gymnopelia erythrothorax Baer, *Ornis* xii. p. 233 (1904—Errore ! Tucuman).

♂ ♀ Tafi, Tucuman, 2800 m., 11, 12. iv. 1901 (S. Venturi, Nos. 100, 892).

♂ ♀ ♀ Lara, Tucuman, 13, 14. ii. 1903 (G. A. Baer, Nos. 1443, 1448, 1457).

♂♂ Las Cienegas, Tucuman, 2500 m., 12. iv. 1901, 19. ii. 1903 (L. Dinelli, Nos 1094, 1956).

" Niche dans les parois argileuses des quebradas " (G. A. Baer).

491. **Columbula picui** (Temm.).

Nehrkorn, p. 184 ; Ihering, p. 282.
Noms vulgaires : Tortola, Urpilita, Palomita.

♂ Flues, Buenos Aires, 6. xii. 1881 (E. W. White).

♂ ♀ Barracas al Sud, 7. vi., 4. ii. 1898, 9. xii. 1900 (S. Venturi, Nos. 95, 96, 665).

♂♂ ♀ Tapia, Tucuman, 600 m., 10, 14. i. 1903 (G. A. Baer, 1291, 1299, 1300).

" Cette petite colombe est la plus commune de toutes, et niche même sur les arbres des jardins. Dimensions des œufs : 21—26 × 16·5—18·5 mm. Deux fois j'ai trouvé un œuf de *Molothrus bonariensis* dans le nid de ce Pigeon." (S. V.)

492. **Chamaepelia talpacoti** (Temm. & Knip).

Nehrkorn, p. 184 ; Ihering, p. 282.
Nom vulgaire : Palomita.

♀ Oran, Salta, 19. xi. 1880 (E. W. White).
♀ Concepción (Misiones), 27. vi. 1881 (E. W. White).
♂ Barracas al Sud, 15. v. 1901 (S. Venturi, No. 98).
♂ Posadas (Misiones), 7. xi. 1900 (S. Venturi, No. 97).

" Quoique un peu rare, cette espèce se voit aussi à Barracas al Sud. Dimensions des œufs : 20—24 × 15·5—17 mm." (S. V.)

CRACIDAE.

493. **Penelope obscura bridgesi** Gray.

Penelope bridgesi Gray, *Proc. Zool. Soc. Lond.* 1860. p. 270 (Bolivie).
Pipile cumanensis (non Jacq.) Baer, *Ornis* xii. p. 233 (1904 errore !).
Nom vulgaire : Pava del Monte.

♂ ♀ Tafí, province de Tucuman, 28. x. 1899 (S. Venturi, Nos. 28, 29).
♂ Cumbre, S. Pablo, Tucuman, 1000 m., 16. viii. 1903 (L. Dinelli, No. 2831).
♂ Villa Nougues, S. Pablo, Tucuman, 1200 m., 16. ix. 1901 (L. Dinelli, No. 1327).
♀ Norco, province de Tucuman, 1200 m., 17. viii. 1904 (L. Dinelli, No. 3389).

Cette forme est bien distincte de *Penelope obscura obscura* : les bordures blanches des convertures des ailes sont beaucoup plus larges et les plumes du front sont pourvues de larges bordures grisâtre pâle.

494. **Penelope obscura obscura** Temm.

Penelope obscura Temminck, *Pig. et Gall.* iii. pp. 68, 693 (1815—ex Azara et Illiger : Paraguay).
Nom vulgaire : Pava del Monte.

♂ ♀ Mocoví (Chaco), 15. xi. 1903 (S. Venturi, Nos. 954, 1111).

" Les trois nids que j'ai trouvés dans les forêts du Chaco étaient placés à l'extrémité des longues branches du 'Quebracho colorado', à plus de 10 mètres de hauteur : j'en ai vu les œufs, mais je n'ai pu les obtenir ! " (S. V.)

495. **Ortalis canicollis** (Wagl.).

Nom vulgaire : Charata.

♀ ad. Mocoví (Chaco), 11. x. 1903 (S. Venturi, No. 875).
♀ ad. Tafí (Tucuman), 8. xi. 1899 (S. Venturi, No. 30).
♂ ad. Tapia (Tucuman), 21. vi. 1902 (S. Venturi, No. 727).
♂ ad. Arenal (province de Salta), 26. x. 1903 (L. Dinelli, No. 2889).
♂ ad. Metan (Salta), 12. vi. 1905 (L. Dinelli, No. 3592).

" Cet oiseau niche dans les forêts de l'intérieur et aux bords du Paraná, et place son nid composé de branches et d'herbes à peu de hauteur. Il pond en novembre ou décembre quatre œufs jaunâtres, rugueux, à coquille très grosse : quelquefois ils sont marqués de taches sanguinolantes qui pénètrent dans la coquille. Dimensions : 61—65 × 41—43 mm." (S. V.)

" Cet oiseau, qui vit par petites bandes dans l'intérieur des forêts peu élevées, a une voix très forte et très désagréable, rappelant celle de l'*Opisthocomus cristatus* " (G. A. Baer, *Ornis* xii. p. 233).

TINAMIDAE.

496. **Crypturus tataupa** subspec.?

Nom vulgaire : Perdiz del monte.
(Cf. Nehrkorn, p. 248 ; Ihering. p. 298.)

Les exemplaires de *C. tataupa* que nous avons reçus du Tucuman et de Salta ont le vertex brun, les parties inférieures assez pâles et les couvertures des ailes supérieures bordées de blanchâtres. Il n'est pas impossible que ces échantillons soient jeunes ou appartiennent à une race particulière. La plupart de nos spécimens du Brésil méridional ont le vertex ardoisé foncé et les parties inférieures plus foncées. Büttikofer (*Notes Leyden Museum* xviii. p. 1, 1896) a décrit une forme de *C. tataupa* provenant de la République Argentine sous le nom de *Crypturus kerberti*. Le type est un oiseau mort en mauvais état dans un jardin zoologique. Le "*C. kerberti*" a le pileum, la gorge et la poitrine plus foncées, presque noirâtres. Nos exemplaires du Tucuman et de Salta ont la gorge blanchâtre, la poitrine plus pâle, et le sommet de la tête brun.

(♀?) Sta. Ana, Tucuman, 350 m., 23. x. 1902 (G. A. Baer, No. 1033). (Aile : 134 mm.)

♂ ♀ Campos près de Tucuman, 456 m., 9. vii., 14. ix. 1898 (L. Dinelli, ex Venturi, Nos. 661, 667). (Aile : 130, 131·5 mm.)

♀ Metan, Salta, 850 m., 13. vi. 1905 (L. Dinelli, No. 3592). (Aile : 130, 134 mm.)

♂ jun. Metan, Salta, 850 m., 14. vi. 1905 (L. Dinelli, No. 3599).

"Espèce commune au nord de la République Argentine, apparaissant parfois dans les rues du village d'Ocampo. Elle pond quatre œufs d'un violacé grisâtre clair ou plus foncé, mesurant : 40—44 × 30—32 mm. Quatre œufs que je trouvai le 1. iv. 1903 à Ocampo ont la coquille plus verruqueuse." (S. V.)

497. **Crypturus parvirostris** Wagl.

(Malheureusement le Musée de Tring n'a pas reçu cette espèce de la République Argentine.)

"Le 17. xi. 1903 je chassai près de l'établissement 'El Mocovi' à Ocampo un *C. parvirostris* qui était couché sur le nid ; j'ai pu le déterminer d'après la description qu'en donne le Dr. Ihering, tom. v. p. 460. Des 5 œufs que couvait l'oiseau, j'en détruisis 3 au tir, et je conserve les deux autres, qui sont peu luisants, plus cendrés et plus petits que les œufs du *C. tataupa* ; à la partie postérieure ils ont de petites verrues. Dimensions : 39·3 × 37·3 et 39·3 × 37·9 mm." (S. V.)

498. **Crypturus obsoletus** Temm.

Cf. Nehrkorn, p. 248.

♂ ad. Posadas (Misiones), 14. iii. 1897 (S. Venturi, No. 662).

"Cette 'grande perdiz del monte' n'est pas rare dans les forêts du Chaco." (S. V.)

499. **Rhynchotus rufescens rufescens** Temm.

Cf. Nehrkorn, p. 249 ; Ihering, p. 299. (Cf. *Nov. Zool.* xiv. p. 411.)
Noms vulgaires : Perdiz grande ; Martineta.

"Je n'ai rien à ajouter à la bonne description de l'œuf donnée par le docteur

Ihering. Les dimensions des 16 échantillons dans ma collection sont les suivantes : 54—62 × 40—48 mm." (S. V.)

♂ Coronel Dorrego (Buenos Aires), 19. x. 1899 (S. Venturi, No. 655).

♀ San Vicente (Buenos Aires), 30. viii. 1899 (S. Venturi, No. 654).

♀ Mocoví, Chaco, 18. ix. 1903 (S. Venturi, No. 824).

500. **Rhynchotus maculicollis** subsp. ?

Cf. *Rhynchotus maculicollis*, *Cat. B.* xxvii. p. 550. pl. xiv.

♂ Villa Nougues, S. Pablo, Tucuman, 1200 m., 20. ix. 1901 (L. Dinelli, No. 1354).

♂ ♀ Noreo, province de Tucuman, 1200 m., 13, 16. viii. 1904 (L. Dinelli, Nos. 3311, 3334).

Ces trois exemplaires sont quelque peu différents du type de *Rhynchotus maculicollis* au Musée britannique : le cou du type est plus roussâtre et plus foncé, les parties supérieures sont un peu plus brunâtres, et les stries des côtés de la poitrine plus larges. Les exemplaires envoyés par Gustav Garlepp de Tanampaya et Iquico (Bolivie) ne se concordent pas non plus avec le type de *R. maculicollis* (cf. *Cat. B. Brit. Mus.* xxvii. p. 550). Est-ce qu'il y a trois races de *R. maculicollis* ? C'est très vraisemblable, mais il serait hasardeux de leur donner des noms puisque nous ne connaissons pas encore les variations effectuées ni par l'âge ni par les saisons.

501. **Nothoprocta cinerascens** (Burm.). (Pl. III. Fig. 12.)

♂ Tapia, Tucuman, 600 m., 24. xii. 1902 (G. A. Baer, No. 1242).

♂ Arenal (Salta), 11. xi. 1903 (L. Dinelli coll., ex S. Venturi, No. 934).

♀ Tucuman, 3600 m., 7. vi. 1899 (S. Venturi, No. 656).

♂ Arenal (Salta), 750 m., 1. xi. 1903 (L. Dinelli, No. 2913).

♀ Tapia (Tucuman), 600 m., 10. x. 1901 (L. Dinelli, No. 1386).

"Monsieur Dinelli m'a envoyé des œufs de Tucuman. Ils sont d'un olivâtre très foncé et très luisants. Dimensions : 46—49 × 35·5—37 mm. La ponte, qui est de 8—10 œufs, s'effectue en novembre et décembre, sur le sol à l'abri de quelque petite plante. Par rapport à la taille de cette perdrix, ses œufs sont plutôt petits." (S. V.)

502. **Nothoprocta pentlandi** (Gray).

♂ ♂ ♂ ♀ ♀ Noreo, province de Tucuman, 1200 m., 3, 10, 12, 15. viii. 1904 (L. Dinelli, Nos. 3291, 3304, 3327, 3292, 3281).

"Monsieur Dinelli m'a également cédé un œuf de cette espèce ; il est de couleur chocolat clair et mesure 48·3 × 33·5 mm. Cet œuf, accompagné de deux autres, fut trouvé le 7. xi. 1901 environ 1200 m. d'altitude, non loin d'une colline, en un terrain non accidenté et à l'ombre d'un tunal." (S. V.)

503. **Nothoprocta ornata rostrata** Berl.

Nothoprocta ornata rostrata Berlepsch, *Proc. IV. Int. Orn. Congress* (*Ornis* xiv.) p. 371 (1907—Tucuman).

Nom vulgaire : Perdiz del cerro.

♂ ♀ Las Cienegas (Tucuman), 2500 m., 21, 22, 27. ii. 1903 (L. Dinelli coll., ex S. Venturi, Nos. 899, 900).

♂♂♀ Las Cienegas (Tucuman), 2500 m., 21, 22, 27. ii. 1903 (L. Dinelli, Nos. 1964, 1969, 1988).

"Suivant Monsieur Dinelli, la ponte se fait de décembre à mars ; à cette dernière date il a tué une femelle qui avait un œuf déjà formé dans le ventre, mais à la même époque il a aussi obtenu des petits qui devaient avoir trois mois. Il paraît que la ponte ne soit pas supérieure à six œufs : ceux-ci sont de couleur chocolat vif et luisant. Dimensions : 56 × 40 mm." (S. V.)

504. **Nothura maculosa nigroguttata** Salvad.

Nothura nigroguttata Salvadori, *Cat. B. Brit. Mus.* xxvii. p. 560 ("Central Pampas, Argentine Republic").

2 ♂♂, 4 ♀♀, 1 ♀ pull., La Soledad (Entre Rios), 3. xii. 1898, 3, 11, 16, 18. ii. 1899 (C. B. Brittain).

♂ Mocoví (Chaco), 19. x. 1903 (S. Venturi, No. 879).

?♀ Barracas al Sud, 30. ix. 1900 (S. Venturi, No. 666).

?♀ Barracas al Sud, 8. vi. 1903 (F. M. Rodriguez, No. 103).

Ces derniers exemplaires sont un peu plus grands et plus foncés sur les parties inférieures, mais pourtant moins foncés que des spécimens de Paraguay et de São Paulo (*N. maculosa maculosa*). Je ne suis pas sûr s'ils appartiennent à une autre race différente intermédiaire, ou au vrai *N. maculosa maculosa*.

"C'est la perdrix la plus commune de la République. La ponte consiste en 8—9 œufs de couleur olivâtre vinacé plus ou moins foncé ; quand ils sont frais ils sont vinacé vif, mais avec le temps ils prennent une teinte plus olivacé foncé. Dimensions : 40—46 × 30—33 mm. Un nid que j'ai trouvé le 12. xii. 1905 contenait 8 œufs dont l'un était considérablement plus petit que les autres : 34·5 × 25 mm." (S. V.)

(Les œufs de la collection Venturi provenant de Barracas al Sud—du mois de décembre—ces notes se rapporteraient donc à la race intermédiaire.)

505. **Nothura salvadorii** spec. nov.

Nothura boraquira (non Spix !) Salvadori, *Cat. B. Brit. Mus.* xxvii. pp. 561, 562—errore !

Les oiseaux décrits sous le nom de "*Nothura boraquira*" par Salvadori sont tout à fait distincts du vrai *N. boraquira*, qui a l'abdomen blanc pur, et la coloration des parties supérieures, des couvertures des ailes et du cou toute différente. (Cf. Hellmayr, "Revision d. Spix'schen Typen," in *Abh. K. Bayer. Akad.* ii. Kl., xxii., iii. Abt. pp. 705, 706. 1906.)

Nothura salvadorii, au contraire, a l'abdomen fauve ; elle diffère de *Nothura maculosa* comme décrit par Salvadorii au *Cat. B. Brit. Mus.* xxvii. p. 562, par les flancs moins bandés, presque uniformes, et de *Nothura darwini* (qui est fort différent de *N. maculosa*) par les vermiculations moins fines des plumes des parties supérieures, la couleur de l'abdomen plus fauve et les ailes plus longues.

Ailes de *N. salvadorii* : 131—146 mm. Type : ♀ Salta, 6. xi. 1903 (L. Dinelli, No. 2920).

Nous en avons reçu deux femelles : Arenal, prov. de Salta, 750 m., 3, 6. xi. 1903 (L. Dinelli, Nos. 2915, 2920).

506. **Nothura darwini** Gray. (Pl. III. Fig. 11.)

Monsieur Venturi nous en a envoyé deux œufs pris à Santa Cruz, Patagonie, le 18. xi. 1902. Ils sont très luisants et la figure en indique bien la couleur.

507. **Calopezus elegans** (D'Orb. & Geoffr.).

Nehrkorn, p. 249.
Nom vulgaire : Martineta.

♂ Bahia Blanca, 7. x. 1899 (S. Venturi, No. 659).

♀ pull. Coronel Dorrego, province de Buenos Aires, 16. x. 1899 (S. Venturi, No. 651).

♀ La Rioja, 12. v. 1898 (H. Larreras).

♂ ♀ Colhul-hnapi, Chubut, Patagonie, 22. vii., 1. viii. 1902 (J. Koslowsky).

(Ces deux échantillons sont très fortement rayés en dessous et un peu pâles, mais la plumage n'est pas fraiche.)

" Pas rare dans la province de Buenos Aires. Je l'ai aussi chassé dans les provinces de San Juan et de La Rioja. Les œufs sont vert jaunâtre et très luisants. Ils présentent les dimensions suivantes : 48—55 × 36·5—40 mm." (S. V.)

RHEIDAE.

508. **Rhea americana** (L.).

Nehrkorn, p. 250 ; Ihering, p. 299.
Nom vulgaire : ñandú.

" J'ai réuni une petite série d'œufs dont voici les dimensions : 124 × 79, 127 × 84, 129 × 89, 131 × 94 et 136 × 92 mm." (S. V.)

509. **Rhea darwinii** Gould.

Nehrkorn, p. 250.
Nom vulgaire : Charra.

" Un œuf que j'ai recueilli dans la vallée de Chubut mesure 128 × 90 mm. Les pores y sont plus visibles que dans les œufs de l'espèce précédente." (S. V.)

DESCRIPTION OF SOME NEW SOUTH AMERICAN *ARCTIADAE*, WITH NOTES.

By the Hon. Walter Rothschild, Ph.D.

1. **Prumala ockendeni** spec. nov.

♂. Pectus clay-buff; legs clay-buff, ringed with dark brown and pale crimson; inside of coxae crimson; palpi buff, spotted with crimson and brown; frons and antennae fuscous, the latter strongly pectinated; vertex of head, tegulae, patagia, and thorax buff with pale scarlet rings and streaks; abdomen salmon-colour.——Forewing deep dull brown with numerous bands and patches of buff blotches, each blotch with central pale scarlet markings; there are one submarginal and two post-median transverse bands of such blotches, a half moon-shaped band in and around the cell, one blotch near base of costa and two on basal third of inner margin.——Hindwing hyaline buff, tinged with pale rose.

♀. Similar.

Length of forewing: ♂ 18·5 mm.; ♀ 21 mm.

Hab. La Oroya, Rio Inambari, S.E. Peru, 3100 ft., wet season, October 1904; La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season, December 1904; Tinguri, Carabaya, 3400 ft., dry season, August 1904; Santo Domingo, Carabaya, 6000 ft., wet season, December 1901 (G. R. Ockenden).

12 ♂♂, 5 ♀♀.

2. **Prumala affinis** spec. nov.

♂. This species, like the preceding and the following one, is very close to *P. optimus* Butl. Pectus pale buff; legs buff with black, brown, and pale crimson rings; palpi, basal half buff and crimson, apical half brown; frons fuscous; antennae fuscous, apical fifth white pectinations very short and weak; vertex of head, tegulae, and patagia cream-white, marked with crimson; thorax crimson, marked with buff; abdomen crimson.——Forewing deep brown, with numerous patches of creamy white marked with salmony crimson, two patches at base of inner margin, a patch from costa to end of cell, two on costa nearer the base, and a large band occupying most of the disc and curving round to costa one-fourth from apex; an apical and subapical patch, and a series of buff chequers on cilia from apex to vein 4.——Hindwing hyaline salmon with a golden buff tinge.

Length of forewing: 17 mm.

Hab. Santo Domingo, Carabaya, 6500 ft., January 1903, wet season; Caradoc, Marcapeta, 4000 ft., November 1901; La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season, November 1904; La Oroya, Rio Inambari, S.E. Peru, 3100 ft., wet season, October 1904 (G. R. Ockenden); Foute Boa, Amazonas, June 1906; Potaro, British Guiana, February 1908 (S. M. Klages); British Guiana (bought at Georgetown by Mr. Whitford).

12 ♂♂.

3. **Prumala similis** spec. nov.

♂. Pectus crimson; palpi buff with crimson and brown rings; legs dull crimson with narrow brown rings; frons brown; vertex of head pale brownish red; antennae pale rufous brown, hardly pectinated; tegulae, patagia, and thorax white,

marked with pale brick-red ; abdomen dull crimson.——Forewing deep brown ; two pale buff patches with crimson centres occupy basal two-fifths of inner margin, postmedian and submarginal transverse bands of similar patches, and the basal three-fourths of costa and whole disc of wing covered with such patches.——Hindwing pale hyaline crimson.

Length of forewing : 16 mm.

Hab. Fonte Boa, Amazonas, July 1907, and Codajas, Amazonas, April 1907 (S. M. Klages).

4 ♂♂.

4. **Demolis flavithorax** spec. nov.

♀. Pectus, legs, and underside of abdomen white ; palpi fuscous ; antennae pale brown, anterior fourth white ; head and thorax yellow, patagia margined exteriorly with crimson : abdomen crimson, tip and dorsal spot on second segment white.——Forewing : basal half purplish brown-grey, darker on costa, basal half of costal edge white, outer edge of this area bordered broadly with scarlet, outer half bright yellow, four brownish dots between veins 4 and 7.——Hindwing hyaline buff, washed strongly with pale crimson.

♂. Similar.

Length of forewing : 16 mm.

Hab. Fonte Boa, Amazonas, May 1906 (S. M. Klages) ; Teffé, Amazonas, September 1907 (M. de Mathan).

1 ♂, 1 ♀.

5. **Neaxia costaricensis** spec. nov.

♂. Allied to *N. pulchra* Rothsch. Pectus and forelegs yellow ; palpi, head, and tegulae yellow ; antennae fuscous grey ; patagia and thorax dark purple brown ; base of patagia yellow, margins crimson ; abdomen crimson.——Forewing : basal third obliquely dark purple-brown edged with scarlet, in centre of inner margin a yellow dot in a scarlet blotch ; costa and outer two-thirds of wing bright yellow, a submarginal row of brownish mauve spots and five ditto on disc ; between the discal and submarginal spots near apex three larger similar spots with big scarlet rings.——Hindwing : costal half obliquely hyaline buff, inner half pale crimson.

Length of forewing : 17 mm.

Hab. Careblanco de Sarapiqui, Costa Rica.

1 ♂.

6. **Neaxia kennedyi** spec. nov.

♂. Nearest to *pardalis* Wlk., but the dark portion of forewing extending nearly to the base and also to outer angle of inner margin ; disc of forewing also more closely spotted and the base more strongly marked with scarlet.

Length of forewing : 16 mm.

Hab. Minas Geraës (Kennedy).

1 ♂.

7. **Areomolis rhodographa peruviana** subspec. nov.

♂. Differs from *rhodographa rhodographa* in having the whole basal half of the forewing buff with red rings, and the hindwing pale hyaline rose instead of hyaline buff with rose margins.

Length of forewing : 13 mm.

Hab. La Union, Rio Huacamayo, Carabaya, wet season, November 1904 (G. R. Ockenden).

1 ♂.

8. **Areomolis persimilis** spec. nov.

♂. Nearly allied to *rhodographa* Hmpsn. Pectus white ; palpi and antennae fuscous, the pectinations of antennae much shorter and less close; head and thorax cream-white with crimson rings ; abdomen crimson.——Forewing deep brown, nervures not so conspicuously marked with crimson : spots on inner margin much reduced and only at base and outer angle; the pale markings on disc and submarginal area not so long and with less crimson; hyaline spot at end of cell larger.——Hindwing hyaline yellowish rose.

♀. Similar, but all pale markings on wings much reduced.

Length of forewing : ♂ 13 mm. ; ♀ 15·5 mm.

Hab. Fonte Boa, Amazonas, May and September 1906 and August 1907 (S. M. Klages); La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season, November 1904 (G. R. Ockenden) ; Aroewarwa Creek, Maroewym Valley, Surinam, March 1905 (S. M. Klages); Humayta, Rio Madeira, July—September 1906, and Alliança, below San Antonio, Rio Madeira, November and December 1907 (W. Hoffmanns).

18 ♂♂, 8 ♀♀.

9. **Parevia mathani** spec. nov.

♂. Differs from *P. metachryseis* Hmpsn. in the ground colour of the forewing and the thorax, being golden mouse-grey instead of sooty brown ; the pale spots on forewing are deep golden instead of lemon-yellow, the spots on inner area larger and six in number, the one on costa and in cell smaller, and the one at apex and the one on outer margin larger. The dark border to hindwing much narrower.

Length of forewing :

Hab. Teffé, Amazonas, September 1907 (M. de Mathan).

1 ♂.

10. **Automolis testacea** spec. nov.

♂. Nearest to *A. virescens* Rothsch. Legs, pectus, palpi, and head black ; vertex of head fuscous ; antennae black ; thorax buffy testaceous ; abdomen pale fuscous, last two segments orange.——Forewing semihyaline, whitish testaceous ; veins dull brownish, two brown spots on costa above cell ; a brownish, indistinct band crosses wing from discocellulars to inner margin, becoming well marked from vein 3.——Hindwing semihyaline, whitish testaceous, tinged with brownish on basal half.

Length of forewing : 18 mm.

Hab. La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season, November 1904 (G. R. Ockenden).

1 ♂, 2 ♀♀.

11. **Automolis elissoides** spec. nov.

♂. This species is closely allied to *A. elissa* Schaus. It differs from it, in the ♂ sex, by the reduction of the black on basal four segments of the abdomen to dorsal patches only, and by the pectus as well as the rest of the underside being orange. The legs are dull brown, not black as in *elissa*. The ♀ differs in the same way, but has darker brown legs.

Length of forewing : ♂ 22 mm. ; ♀ 26 mm.

Hab. Port of Spain, Trinidad, January 1897 (Dr. Rendall) ; Belmont, Port of Spain, Trinidad (E. Lafond) ; Merida, Venezuela (Briceño) ; Rio Solocame, Bolivia, 1200 m., January 1901, 67° W. 16° S. (Simons) ; Caparo, Trinidad, December 1905 (S. M. Klages).

2 ♂♂, 3 ♀♀.

12. **Melesse drucei** spec. nov.

♂. Nearest to *M. peruviana* Rothsch. Pectus and palpi deep crimson ; frons lavender-grey, vertex deep crimson, collar lavender-grey ; tegulae, bases of patagia and thorax crimson, powdered with orange ; patagia lavender-grey ; abdomen crimson, last segment orange brick-red.——Forewing greyish purple-brown ; in cell a golden spot ringed with scarlet followed by a scarlet dot ; at apex of cell below costa a yellow spot with scarlet ring, and below it a wedge-shaped hyaline patch with scarlet margin ; between cell and inner margin on disc a number of orange-golden patches edged with scarlet ; from apex to vein 4 a large golden patch.——Hindwing hyaline buff, rosy on inner margin.

♀. Similar to ♀ of *choxeba* Druce, but the brick-red patches on disc of forewing brighter and larger, and instead of a small whitish spot at end of cell it has the same yellow spot and hyaline patch as in the ♂, only larger.

Length of forewing : ♂ 17 mm. ; ♀ 21 mm.

Hab. Potaro, British Guiana, May 1908 ; Aroewarwa Creek, Maroewym Valley, Surinam, April 1905 ; Fonte Boa, Amazonas, September 1906, and Omai, June 1908 (S. M. Klages) ; La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season, November 1904 (G. R. Ockenden).

17 ♂♂, 1 ♀.

13. **Melesse hebetis** spec. nov.

♂. Pectus crimson ; legs and antennae whitish brown ; palpi crimson ; head and thorax dull brown-grey, strongly washed and mixed with yellow ; abdomen dull brick-red.——Forewing dull clay-brown, the basal half washed and splashed with gallstone-yellow ; a round hyaline spot at end of cell, a large patch of gallstone-yellow at apex reaching to vein 4.——Hindwing hyaline white.

Length of forewing : 17 mm.

Hab. La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season, November 1904 (G. R. Ockenden).

10 ♂♂.

14. **Melesse sordida** spec. nov.

♂. Pectus, legs, head, thorax, and antennae dirty clay-colour ; abdomen pale crimson, tip whitish.——Forewing clay-colour ; a subbasal and a cellular dot black ; a white dot on vein 1 one-fourth from base.——Hindwing hyaline white, washed with rose.

♀. Pectus and basal joint of palpi pale crimson ; antennae and legs dull brown ; head brown ; thorax brown, slightly mixed with scarlet ; abdomen dull crimson.——Forewing brown ; between vein 2 and inner margin one-fourth from base a scarlet patch with white centre, beyond that two scarlet spots, and above them on vein 3 a smaller scarlet spot ; a white spot on vein 6 one-fifth from apex.——Hindwing pale crimson.

Length of forewing : ♂ 16 mm. ; ♀ 19 mm.

Hab. Tingnri, Carabaya, 3400 ft., dry season, August 1904, and Santo Domingo, Carabaya, 6000 ft., July 1902, dry season (G. R. Ockenden).

3 ♂♂, 1 ♀.

15. **Melesse hampsoni** spec. nov.

♂. Coxae, pectus, and palpi crimson; antennae pale fuscous with white tips; head and thorax brownish grey; abdomen crimson.——Forewing brownish grey; in cell a minute black dot, beyond cell two black dots; below these two dots an ill-defined brown patch; from base for two-thirds of length of inner margin a large irregular orange patch between inner margin and vein 4; a cell-spot within this orange patch.——Hindwing crimson.

Length of forewing: 12 mm.

Hab. Potaro, British Guiana, April 1908; Fonte Boa, Amazonas, May 1906, and Aroewarwa Creek, Maroewym Valley, Surinam, April 1905 (S. M. Klages); La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season, November 1904 (G. R. Ockenden).

21 ♂♂.

16. **Melesse punctata** spec. nov.

♂. Pectus, palpi, and coxae pale crimson; legs whitish clay-brown; antennae pale brown, strongly pectinated; head and thorax lavender-grey, strongly washed with pale crimson; abdomen pale crimson.——Forewing pale testaceous brown, a double yellow spot ringed with scarlet on and below costa one-fourth from apex; in cell and on disc six scarlet spots, one between vein 1 and inner margin with yellow centre.——Hindwing pale crimson.

Length of forewing: 12·5 mm.

Hab. Bulim, Ecuador, December 1900 (Flemming & Miquetta).

1 ♂.

17. **Melesse pusilla** spec. nov.

♂. Pectus and palpi pale crimson; legs, head, and thorax brown; antennae brown, anterior one-third white: abdomen crimson, tip yellowish.——Forewing bright brown, a subbasal and a cellular blackish dot with pale centre one-fourth from apex; from costa to vein 7 a greyish white streak; a pale grey ill-defined patch above inner margin on disc.——Hindwing pale crimson.

♀. Pectus pale crimson; palpi, head, antennae, and thorax pale brown; abdomen dull crimson.——Forewing reddish brown, one-fifth from base between veins 2 and 4 two white dots with dark rings; a blackish dot in cell and a white spot on costa one-fourth from apex.——Hindwing pale crimson.

Length of forewing: ♂ 11 mm.; ♀ 11 mm.

Hab. Potaro, British Guiana, May 1908; Fonte Boa, Amazonas, October 1906; and Aroewarwa Creek, Maroewym Valley, Surinam, May 1905 (S. M. Klages).

3 ♂♂, 1 ♀.

18. **Melesse nigromaculata** spec. nov.

♂. Pectus, legs, palpi, head, antennae, and thorax pale yellowish brown; abdomen pale crimson.——Forewing pale yellowish brown, a white spot on costa and one below it at apex of cell; a square black patch in cell and a subbasal black spot; a white spot on vein 3 and a similar one on vein 2 on disc.——Hindwing pale rose.

♀. Similar, but brighter, and the lower spot at apex of cell half black and white; the spot on vein 3 black and the subbasal spot black and white.

Length of forewing: ♂ 14 mm.; ♀ 16 mm.

Hab. Minas Geraës (Kennedy); La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season, November 1904 (G. R. Ockenden); Aroewarwa Creek, Maroewym Valley, Surinam, March 1905 (S. M. Klages).

3 ♂♂, 4 ♀♀.

19. **Melesse columbiana** spec. nov.

♀. Pectus and palpi crimson; legs brown-grey; tarsi white; head and thorax grey-brown; abdomen rose-crimson.——Forewing yellowish grey-brown, a few darker shades appearing round cell on costa down to vein 8, a white hyaline streak one-fourth from apex, a white dot on vein 2 one-fourth from base; wings excised above and below apex, and cilia at both excisions rose-colour.——Hindwing rose-crimson.

Length of forewing: 17 mm.

Hab. Santa Fé de Bogotá.

1 ♀.

20. **Melesse surdus** spec. nov.

♂. Pectus white; palpi and legs brownish white; head, thorax, and antennae pale brown; abdomen dull crimson.——Forewing dull clay-brown.——Hindwing hyaline whitish, washed with dull rose.

♀. Similar, but forewing brighter brown, with tiny orange dot on vein 1 one-third from base.——Hindwing hyaline salmon-colour.

Length of forewing: ♂ 12 mm.; ♀ 16 mm.

Hab. Fonte Boa, Amazonas, May 1906 and July 1907; Aroewarwa Creek, Maroewym Valley, Surinam, March 1905, and Tumatumari, British Guiana, December 1907 (S. M. Klages); Paramaribo, July 1892; S. Javier, Rio Cachabi (Flemming & Miquetta).

2 ♂♂, 9 ♀♀.

21. **Melesse albogrisea** spec. nov.

♀. Pectus, legs, head, antennae, and thorax whitish; abdomen pale pink.——Forewing whity brown-grey, on costa reaching to vein 8; one-fourth from apex a good-sized hyaline white patch.——Hindwing dull pale pink.

Length of forewing: 15 mm.

Hab. Sapucay, Paragnay, January 10th, 1905 (W. Foster).

1 ♀.

22. **Pachydota drucei** spec. nov.

♂. Differs at first sight from *P. saduca* Druce, with which it has hitherto been mixed up, by the hindwings being dark sooty brown only slightly hyaline, not hyaline buffy white with brown border, and by the absence of the black margins to the abdominal segments. The abdomen has on the first four segments transverse dorsal black patches, and the sides of the last segment are black, not orange.

Length of forewing: 28 mm.

Hab. New Grenada (*fide* Felder); Jalapa, Mexico, June 1897 (Schaus).

3 ♂♂. (1 ♀ in British Museum).

23. Pachydota affinis.

♂. Has hindwing still deeper and more uniform sooty brown than in *P. drucei*. Segments of abdomen with narrow black rings; a dorsal tuft of black hair on first, second, and third; sides of last one black.

♀. Differs in having a black dorsal tuft only on second segment.

Length of forewing: ♂ 27 mm.; ♀ 31 mm.

Hab. Popayan (Lehmann): Merida, Venezuela (Briceño).

1 ♂, 1 ♀.

24. Pachydota peruviana spec. nov.

♂. Abdomen above orange with narrow black segmental edges; dorsal tufts of black hair on second and third segments.——Hindwing hyaline sooty grey-white, passing into a sooty brown towards margins.

♀. Much larger, has tufts on three first segments; last segment black.

Length of forewing: ♂ 25 mm.; ♀ 32 mm.

Hab. Santo Domingo, Carabaya, 6500 ft., dry season, October 1903; La Oroya, Rio Inambari, S.E. Peru, 3100 ft., wet season, March 1905; Tinguri, Carabaya, 3400 ft., dry season, August 1904; Oconeque, Carabaya, 7000 ft., dry season, July 1904 (G. R. Ockenden).

13 ♂♂, 2 ♀♀.

25. Pachydota punctata spec. nov.

♂. This species can be at once recognised by the yellowish white spot on tuft at the juncture of thorax and abdomen. It differs also from *albiceps* Wlk. in the narrower black abdominal segmental rings and the last segment being yellow, not black. It has been hitherto always confounded with *albiceps*.

Length of forewing: 25—28 mm.

Hab. Aroewarwa Creek, Maroewym Valley, Surinam, February 1905; La Vuelta, Caura River, June 1903; La Union, Caura River, May 1902 (S. M. Klages); Dominica, September 1904 (E. A. Agar); Paramba, Ecuador, January—May 1897; Palma Sola, Venezuela; Bulim, Ecuador, 160 ft., December 1900 to February 1901, and Rio Cayapas, N.W. Ecuador (Flemming & Miquetta).

16 ♂♂, 6 ♀♀.

26. Carathis ockendeni spec. nov.

♂. Pectus orange; legs orange with several brown bands; palpi, head, and antennae brown: tegulae brownish orange; thorax chocolate-brown: abdomen above black, last segment above and whole of abdomen below orange; last three segments laterally washed with brick-red.——Forewing chocolate-brown, three or four orange-buff spots at base, two minute reddish pin points at apex of cell; at apex of wing reaching to vein 3 a conglomeration of buffy white spots, but only about one-half the area of the similar one in *C. byblis* Schaus.——Hindwing hyaline sooty black.

Length of forewing: 17 mm.

Hab. Santo Domingo, Carabaya, 6000 ft., wet season, March 1902 (G. R. Ockenden).

1 ♂.

27. Carathis affinis spec. nov.

♂. Near to *C. byblis* Schaus. Pectus orange: legs pale brown with buffy white rings; palpi and antennae brown; head and tegulae buff; thorax brown; patagia brown, broadly margined exteriorly with buff; abdomen above except

last segment black; sides of abdomen and last segment above brick-red; abdomen below orange.——Forewing chocolate-brown, basal buff patch much larger than in *byblis*: the buff spots on middle of inner margin in that species absent in this, the light patches on costa above cell much larger; a broad band of buff patches extends across wing from costa obliquely towards base over apical portion of cell to vein 1.——Hindwing hyaline sooty, base pinkish.

Length of forewing: 18 mm.

Hab. Oconeque, Carabaya, 7000 ft., dry season, July 1904 (G. R. Ockenden).

1 ♂.

28. **Baritius sannionis grandis** subsp. nov.

Similar to *sannionis sannionis* Rothsch., but very much larger and brighter in colour. It is the western representative of *s. sannionis*.

Length of forewing *sannionis sannionis*: ♂ 12 mm.

" " *sannionis grandis*: ♂ 17 mm.

Hab. La Oroya, Rio Inambari, Peru, 3100 ft., dry season, September 1904 (G. R. Ockenden); Tuis, Costa Rica; Quevedo, W. Ecuador (v. Buchwald).

5 ♂♂, 1 ♀.

29. **Tricypha nigrescens** spec. nov.

♂. Similar to *T. furcata* Möschl., but larger and much darker in colour. Pectus bright orange; head, palpi, and antennae deep sooty brown; collar deep orange; thorax deep sooty brown; abdomen above deep black, basal half dorsally densely clothed with sooty brown hairs, sides and tip orange, undersurface deep brown.——Forewing deep sooty-brown.——Hindwing sooty black.

Length of forewing: 19 mm.

Hab. Sapucay, Paraguay, November 25, 1903 (W. Foster).

1 ♂.

30. **Elysius felderi** spec. nov.

♂. Differs from *atrata* Feld. in having the whole abdomen orange above and on the sides, a black patch dorsally on the second and third segments, and a black heart-shaped spot on the last; below the last segment is orange. Hyaline area of hindwing less extended.

Length of forewing: 26 mm.

Hab. Oconeque, Carabaya, 7000 ft., dry season, July 1904 (G. R. Ockenden).

4 ♂♂.

31. **Elysius terraoides** spec. nov.

♂. Differs from *terra* Druce; the three central segments above and at sides orange narrowly margined with black, not black with orange lateral spots; the hyaline area of hindwings much more extended than in *terra*.

Length of forewing: 28 mm.

Hab. Huancabamba, Cerro de Pasco (E. Boettger); Charpulaya, Bolivia, 1300 m., July 1901 (Simons); Peru.

3 ♂♂.

32. **Ischnacampa brunneitincta** spec. nov.

♂. Similar to *tristis* Schaus, but of a brown, not sooty grey, colour. Pectus, legs, head, and antennae brown; collar orange; thorax and abdomen brown.——Forewing semihyaline brown.——Hindwing hyaline white; cilia brown

♀. Similar.

Length of forewing ; ♂ 21 mm. ; ♀ 25 mm.

Hab. Oconeque, Carabaya, 7000 ft., dry season, July 1904, and Santo Domingo, Carabaya, 6000 ft., November 1901, wet season (G. R. Ockenden); Cushi, Province Huanuco, Peru, 1900 m. (W. Hoffmanns).

2 ♂♂, 1 ♀.

33. **Opharus intermedia** spec. nov.

♀. Exactly intermediate between *O. piperita* H.-S. and *O. flavimaculata* Hmpsn. Pectus crimson ; frons brown ; vertex lemon-yellow with brown patch behind antennae ; tegulae black-brown, margined inside with lemon-yellow ; patagia lemon-yellow, margined with black-brown ; abdomen dorsally basal half black-brown, anterior half pale crimson, margined segmentally with black-brown, laterally and inferiorly black-brown, laterally spotted with lemon-yellow.——Forewing black-brown, five yellow spots on costa, six transverse rows of various-sized yellow spots and dots on wing, and a marginal row of yellow dots.——Hindwing black-brown, slightly paler ; two yellow dots at apex, and a series of yellowish white patches on disc ; extreme base pink.

Length of forewing : 27 mm.

Hab. ? (ex. coll. Felder).

34. **Opharus hampsoni** spec. nov.

This is the insect Sir George Hampson described in Vol. III. of the *Catalogue of Moths* as *Opharus decrepida* H.-S. I have true *decrepida*, which is quite different and much larger ; the yellow markings of forewing being larger and more numerous, and in the ♂ the hindwing being light with a rather darker submarginal band, while in *hampsoni* the whole wing is black-brown. I have 17 ♂♂ and 10 ♀♀ of true *decrepida*, and 32 ♂♂ and 14 ♀♀ of *hampsoni*.

Length of forewing *hampsoni* : Largest ♂ 23 mm., ♀ 25 mm. ; smallest ♂ 18 mm., ♀ 21 mm.

Length of forewing *decrepida* : Largest ♂ 27 mm., ♀ 30 mm. ; smallest ♂ 21 mm., ♀ 23 mm.

35. **Opharus decrepidoides** spec. nov.

♀. Differs from *decrepida* by having the yellow markings on forewing reduced to four zigzag transverse bands, one antemedian, one median, and two postmedian. The dark markings of hindwing are reduced to a wide marginal band extending three-fourths of the way round the wing.

Length of forewing : 26 mm.

Hab. Santo Domingo, Carabaya, 6500 ft., dry season, October 1903 (G. R. Ockenden).

1 ♀.

Opharus nexa H.-S. & **O. punctularis** H.-S.

These two species are quite distinct, not ♂ and ♀ as Sir George Hampson thought. I have both sexes of each, 4 ♂♂, 3 ♀♀ *nexa*, 3 ♂♂, 2 ♀♀ *punctularis*. *Opharus albimaculata* Jones is a subspecies of *nexa*, and must stand as *Opharus nexa albimaculata*.

36. **Opharus astur cubensis** subspec. nov.

♂. Differs from *astur astur* in the markings on wings being much darker brown and the ground-colour pale buff. The thorax and basal half of abdomen grey-brown.

♀. Differs in having the markings on wings much obliterated and the ground-colour testaceous brown instead of white.

Expanse of forewing : ♂ 25 mm. ; ♀ 28 mm.

Hab. Cuba.

2 ♂♂, 2 ♀♀.

37. **Opharus astur arizonensis** subspec. nov.

♀. Differs from *astur astur* by the uniform whitish grey of the ground-colour of the wings and the pale brownish grey of the markings. Thorax pale grey ; basal half of abdomen whitish.

Length of forewing : 25 mm.

Hab. Huachuca Mts., Arizona, August 1903 (Oslar).

3 ♀♀.

38. **Hemihyalea erganoides peruviana** subspec. nov.

♀. Differs from *H. e. erganoides* by the darker brown margins to the wings and the more brown-rufous of head and thorax.

Length of forewing : 33 mm.

Hab. Agualani, Carabaya, 9000 ft., August 1905, dry season (G. R. Ockenden).

2 ♂♂.

Hemihyalea cornea, mansueta, rhoda, etc.

Sir George Hampson has united all these under *cornea* H.-S. I have large series of them, and find them very distinct ; they are not subspecies, as they all occur together in various parts of their range, therefore this group must stand as follows as distinct species :

Hemihyalea cornea Herr.-Schäff.
Hemihyalea mansueta H. Edw.
Hemihyalea rhoda Druce.
Hemihyalea testacea Rothsch.
Hemihyalea ochracea Rothsch.

39. **Hemihyalea argillacea** spec. nov.

♂. Pectus, head, thorax, sides and underside of abdomen clay-buff; dorsal surface of abdomen salmon-crimson.——Forewing hyaline, with clay-buff margins. ——Hindwings hyaline, with abdominal area salmon-rose.

Length of forewing : 32 mm.

Hab. Gold Hill, Oregon (Biedermann).

2 ♂♂.

40. **Hemihyalea fuscescens** spec. nov.

♀. Pectus and underside of abdomen and legs clay-buff; head and thorax clay-brown ; abdomen above salmon-crimson.——Forewings hyaline, powdered with golden brown scales, thicker on margins and anterior third of wing.——Hindwing similar, but with abdominal third salmon-rose.

♂. Similar.

Length of forewing : 28 mm.

Hab. Costa Rica (Underwood).

2 ♀♀, 1 ♂.

41. **Hemihyalea battyi** spec. nov.

♀. Allied to *edwardsi* Pack. Pectus, head, and thorax brown : abdomen pale dirty crimson, last segment clay-brown : antennae dark brown.——Forewing rufous brown, an antemedian broad transverse dark buff band, a dark buff blotch at apex of cell, and another opposite on inner margin : two postmedian transverse bands of dark buff patches.——Hindwing hyaline dark buff, abdominal area salmon-rose.

Length of forewing : 32 mm.

Hab. Palenka Island, Colombia, January 22, 1902 (J. H. Batty).

42. **Amastus affinis** spec. nov.

♀. Similar to *suffusa* H.-S. Pectus dark crimson ; palpi and antennae dark brown ; head and tegulae clay-brown : collar crimson ; patagia clay-brown, with central yellow streak margined with black ; thorax crimson, with median clay-brown line ; abdomen bright crimson, a lateral row of whitish patches ringed with black, beneath which are two double orange and black lines.——Forewing deep brown, crossed by various clay-yellow bands, lines, and shades ; a brown patch on discocellulars.——Hindwing hyaline buffy clay.

♂. Similar.

Length of forewing : ♂ 31 mm. ; ♀ 36 mm.

Hab. Zamora, Ecuador, 3000—4000 ft. (O. T. Baron) ; Santo Domingo, Carabaya, 6000 ft., July 1902, dry season : Oconeque, Carabaya, 7000 ft., dry season, July 1904 ; Tinguri, Carabaya, 3400 ft., dry season, August 1904 ; Agualani, Carabaya, 9000 ft., dry season, July 1905 ; and Chiri-Mayo, S.E. Peru, 1000 ft., July 1901, dry season (G. R. Ockenden).

10 ♂♂, 8 ♀♀.

43. **Amastus flavicauda** spec. nov.

♀. Pectus pale crimson ; legs and antennae deep brown : head clay-brown ; collar pale crimson ; tegulae, basal half clay-brown, apical half orange, a transverse black central line ; patagia clay-grey, a central band of orange margined with black : thorax crimson, a central dark brown line ; abdomen dorsally crimson, sides and last two segments yellow, a lateral row of greyish white spots in black rings, below which are two black lines.——Forewing dark rufous brown, crossed by numerous cinnamon bands and lines.——Hindwing hyaline pale cinnamon.

♂. Similar.

Length of forewing : ♂ 35 mm. ; ♀ 38—40 mm.

Hab. Chiriqui, Panama ; Volcano de Chiriqui, 5000—9000 ft., and Bogava, Chiriqui, 800 ft. (Watson) ; Caroblanco, Costa Rica (Lancaster).

3 ♂♂, 10 ♀♀.

44. **Amastus erebelloides** spec. nov.

♀. Similar to *erebella* Mosn., but larger. Pectus crimson ; palpi, frons, and antennae deep brown : vertex rufous chestnut : tegulae rufous chestnut, base grey-brown ; patagia grey-brown, bordered with rufous chestnut ; thorax rufous chestnut ; basal half of abdomen crimson, apical half sooty brown.——Forewing chocolate-

brown, powdered with light chestnut scales.——Hindwing, costal half obliquely hyaline brown, abdominal half hyaline rose.

Length of forewing : 38 mm.

Hab. Agualani, Carabaya, 9000 ft., wet season, December 1905, and Limbani, Carabaya, 9000 ft., January and February 1904 (G. R. Ockenden).

3 ♀♀.

45. **Amastus pseuderebella** spec. nov.

♀. Pectus pale dull crimson ; antennae rufous brown ; head and thorax greyish chocolate-brown ; basal half of abdomen pale brownish pink, apical half sooty clay-brown.——Forewing hyaline, thinly covered all over with brown-grey scales.——Hindwing hyaline yellowish grey.

Length of forewing : 32 mm.

Hab. Bogotá, round town, June ; Bogotá ; Bogotá (Child).

8 ♀♀.

46. **Amastus umber** spec. nov.

♀. Pectus pale crimson ; legs brown ; palpi, head, antennae, and thorax dark chocolate-brown ; abdomen dorsally salmon-crimson, sides and last four segments golden yellow, a lateral row of dark brown spots.——Forewing semihyaline deep rufous chocolate, crossed by five very indistinct wavy cinnamon bands, one antemedian, one median, and three postmedian ; the first two of these later close together.——Hindwing hyaline brown.

♂. Similar.

Length of forewing : ♂ 36 mm. ; ♀ 40 mm.

Hab. Merida, Venezuela (Briceño).

1 ♂, 4 ♀♀.

47. **Amastus hyalina orientalis** subspec. nov.

♂. Differs from *hyalina hyalina* in the pectus being cinnamon clay-colour, not whitish clay, in the head and thorax being uniform pale rufous clay, not pale buff with orange margins to tegulae and patagia, and in the margins of the wings being darker.

♀. Similar differences are shown in this sex, but the thorax is much darker in comparison, and the last four segments of and sides of abdomen are blackish clay-brown, not whitish clay.

Length of forewing : ♂ 29 mm. ; ♀ 33 mm.

Hab. Merida, Venezuela (Briceño).

2 ♂♂, 6 ♀♀.

48. **Amastus childi** spec. nov.

♀. Pectus, head, and thorax pale rufous clay ; antennae brown ; abdomen clay-colour, base with pale crimson hairs. Forewing pale rufous. Hindwing hyaline brown-grey.

Length of forewing : 32 mm.

Hab. Bogotá (Child).

49. **Halisidota maculata texana** subspec. nov.

This form is nearest to *maculata angulifera* Wlk., but is as a rule smaller and paler, and the markings in the ♂ are less pronounced. The ♀ has the markings much more like the ♂ than in the other subspecies.

Hab. Texas.

4 ♂♂, 1 ♀.

50. **Halisidota tucumana** spec. nov.

♂. Nearest allied to *maculata*. Pectus and legs golden buff; head and thorax golden buff; antennae orange-brown; abdomen bright yellowish buff.——Forewing bright golden buff, crossed by six irregular wavy pale rufous bands, one basal, two antemedian, one median, one postmedian, and one submarginal; a white spot surrounded by dark rufous on discocellulars.——Hindwing pale hyaline buff.

♀. Larger and paler, and the transverse bands more indistinct.

Length of forewing: ♂ 18 mm.; ♀ 21 mm.

Hab. Ciudad de Tucuman, Argentina, August 1903 (L. Monetti); Tucuman (Steinbach).

4 ♂♂, 2 ♀♀.

51. **Halisidota distincta** spec. nov.

♂. Similar to *alsus* Cram., but much larger, the colour deeper, and the markings all much more distinct. Pectus and forelegs deep chocolate-brown; palpi golden; head and tegulae bright golden buff; patagia golden buff, broadly banded on inner side with deep brown; thorax golden buff with median brown band; abdomen golden buff with a reddish iridescence.——Forewing bright golden buff, crossed by eight zigzag brown lines and two darker brown bands, one median and one antemedian; at apex of cell a silvery spot surrounded broadly with dark brown, inner margin broadly black-brown, at outer margin a row of black dots. ——Hindwing hyaline buff.

♀. Similar.

Length of forewing: ♂ 26 mm.; ♀ 29 mm.

Hab. Agualani, Carabaya, 9000 ft., wet season, March 1905 (G. R. Ockenden).

7 ♂♂, 2 ♀♀.

52. **Halisidota distincta brunnescens** subspec. nov.

Similar to *distincta distincta*, but all the markings on forewings wider and more rufous brown.

Hab. Huancabamba, Cerro de Pasco, 6000—10,000 ft. (E. Boettger).

3 ♂♂, 1 ♀.

53. **Halisidota moeschleri** spec. nov.

♂. Similar to *atomosa* Wlk., but pale rufous cinnamon, not buff; the transverse band across end of cell is uniform throughout in colour, not darker from costa across cell than between cell and inner margin.

♀. Shows similar differences from female *atomosa*, and the transverse bands are more distinct.

Hab. Jamaica.

11 ♂♂, 3 ♀♀.

I also have 2 ♂♂ and 2 ♀♀ of *atomosa* from Rio Janeiro.

54. **Halisidota affinis** spec. nov.

♂. Allied to *lurida* H. Edw., but the wings much shorter in proportion and broader. Pectus, legs, and underside of abdomen pale cream-buff: head, tegulae, and base of patagia clay-grey; rest of patagia and thorax pale cream-buff: abdomen dorsally sooty grey, last segment cream-buff.——Forewing clay-grey, basal fourth; costa, some irregular spots in cell and on disc, and a zigzag line of spots and

streaks one-fifth from outer margin cream-buff.——Hindwing clay-grey buffish on costal third of disc ; antennae pale cream ; pectinations dark brown.

♀. Similar, but much paler, ground-colour brownish grey-buff, with a number of cream patches all over disc of forewing.

Length of forewing : *lurida*, ♂ 29 mm. ; ♀ 30 mm.

„ „ : *affinis*, ♂ 28 mm. ; ♀ 31 mm.

Breadth of forewing at outer margin : *lurida*, ♂ 14 mm. ; ♀ 13 mm.

„ „ „ „ : *affinis*, ♂ 16 mm. ; ♀ 18 mm.

Hab. Santo Domingo, Carabaya, 6000 ft., wet season, February 1902, and Tinguri, Carabaya, 3400 ft., wet season, January 1905 (G. R. Ockenden).

2 ♂♂, 4 ♀♀.

Halisidota falacra Dogn., etc.

This insect has been identified by Sir George Hampson as the *baetris* of Sepp. I have carefully compared the figures with my long series of 26 ♂♂, 4 ♀♀, and in none of them is there any trace of the two transverse bands shown in the figures ; and therefore there is no reason, in my opinion, to identify this species with Sepp's insect. Sir George has also identified Sepp's *Phalaena citrina* and *Phalaena rhomboidea* with *Charidea seruba* Herr.-Schäff. and *Halisidota strigulosa* Wlk. respectively. Here again, on comparison, I cannot see any likeness between Sepp's drawings and the respective insects.

Therefore these insects must stand as *Thalesa seruba* (H.-S.) and *Halisidota strigulosa* Wlk.

My *Halisidota albipuncta*, Ann. Mag. N. H. (8) iv. p. 221, is the giant form of the ♀ from the west of the S. American continent of *Thalesa seruba*, and must stand as *Thalesa seruba albipuncta*, and the small form from the Amazonas and Guianas may be named *Thalesa seruba* **parva** subsp. nov.

55. **Halisidota falacroides** spec. nov.

♂. Similar to *lurida* and *falacra*. Pectus pale cream-colour ; coxae sooty black ; head and thorax creamy clay-colour ; abdomen above sooty brown-grey.——Forewing cream-buff, washed strongly with sooty grey on basal half, and marked on apical half with sooty, narrow, long, cuneate marks close together, a round blackish spot at apex of cell.——Hindwing sooty brown-grey, hyaline buffish towards costa.

♀. Similar, but more greyish, and the forewing irrorated and dotted all over with brown-grey.

Length of forewing : ♂ 26 mm. ; ♀ 28 mm.

Hab. Santo Domingo, Carabaya, 6000 ft., wet season, November 1902 (G. R. Ockenden) ; Huancabamba, Cerro de Pasco, 6000—10,000 ft. (Boettger) : S. Javier, Rio Cachabi (Flemming & Miquetta).

56. **Halisidota subterranca** spec. nov.

♂. Similar to *terranca*, but larger. Pectus pale cream-buff ; head, antennae, tegulae, and base of patagia clay-grey ; thorax and rest of patagia pale cream-colour ; abdomen sooty grey-black, tip and sides cream-colour.——Forewing dark buff, irrorated, spotted, and streaked with sooty and cream ; black stigma on discocellulars.——Hindwing sooty grey, costal third cream.

♀. Similar, but larger and paler.

Length of forewing : ♂ 20 mm. ; ♀ 25 mm.

Hab. Santo Domingo, Carabaya, 6000 ft., dry season, July 1902 ; Oconeque, Carabaya, 7000 ft., dry season, July 1904, and La Oroya, Rio Inambari, 3400 ft., dry season, September 1904 (G. R. Ockenden).

16 ♂♂, 3 ♀♀.

57. **Halisidota dinellii** spec. nov.

♂. Pectus and legs, palpi and frons sooty brown ; vertex, antennae, and thorax buffish clay-brown ; abdomen testaceous yellow.——Forewing brownish clay-buff, irrorated all over with dark brown dots, larger in apical third of wing.——Hindwing pale hyaline buff.

Length of forewing : 23 mm.

Hab. La Hayada, Tucuman, Argentina, 1300 m., 4225 ft. (Dinelli).

1 ♂.

58. **Halisidota fuliginosa** spec. nov.

♂. Allied to *atra*, but instead of being black, brown like ♀. Pectus orange ; legs banded cream, black and orange : palpi deep brown with two orange bands ; head olivaceous grey ; antennae black-brown : tegulae olivaceous brown-orange with sage-green borders : patagia similar, but with black central line ; thorax similar : abdomen black above, yellowish testaceous grey below.——Forewing olivaceous orange-brown, with three olive-yellow patches on costa, and some bands and patches of darker brown edged with black lines.——Hindwing hyaline sooty black.

♀. Similar, but larger, the margins to tegulae, patagia, and thorax bright green, and the hindwing in the costal half more brown.

Length of forewing : ♂ 23 mm. ; ♀ 29 mm.

Hab. Cuernavaca, Mexico, September 1904 (Dr. Gadow) ; Santo Domingo, Carabaya, 6000 ft., dry season, July 1902 (G. R. Ockenden).

1 ♂, 4 ♀♀.

59. **Halisidota bricenoi** spec. nov.

♂. Also closely allied to *atra*. Pectus orange ; legs banded orange and black ; head and thorax fuliginous, washed with a tinge of orange and the edges faintly showing green : abdomen above sooty black-brown, below sooty earth-brown.——Forewing sooty brown, crossed by numerous irregular bands of a dark colour ; a large black stigma on discocellulars.——Hindwing hyaline sooty brown.

♂. Similar, but larger and darker.

Length of forewing : ♂ 23·5 mm. ; ♀ 28 mm.

Hab. Merida, Venezuela (Briceño).

1 ♂, 4 ♀♀.

Halisidota cinctipes and **interlineata**.

Here there is a great deal of confusion, Sir George Hampson having united under these two names at least five species. He places in his catalogue *H. darisii* H. Edwds. under *cinctipes*, while, in my opinion, it is a distinct species. The only two alternatives are either to lump *atra*, *interlineata*, *cinctipes*, and *tessellaris* as one variable species (as they occur all together), or, as I think right and am doing here—viz. dividing them into eleven species and eight subspecies. I have here to describe two new species of this group, to name three species hitherto overlooked, and to describe several subspecies.

60. **Halisidota steinbachi** spec. nov.

♂. Pectus buffy grey; legs whitish, ringed with grey bands, each band edged with black; palpi ringed orange and grey; head whitish buffy grey; antennae dark brown, basal joint orange; tegulae and patagia buffy grey, the latter with a narrow black central line; thorax buffy orange with central grey line; abdomen buffy orange.——Forewing hyaline brown-grey; at base a long olive-grey patch joined to two similar patches on basal third of costa, a median olive-grey band from costa to inner margin, a darker olive-grey band from costa across apex of cell, a broad, very pale olive-brown irregular band from costa to inner margin; a very broad marginal band of pale rufous olive-brown from termen to tornus.——Hindwing hyaline pale buff, abdominal third more orange.

♀. Similar, but olive-grey patches and bands on forewing much darker and more distinct.

Length of forewing: ♂ 25 mm.; ♀ 21—27 mm.

Hab. Tucuman and Salta, Argentina, April—November 1903 (J. Steinbach); Ciudad de Tucuman, Argentina, March 1903 (L. Monetti); Ciudad de Tucuman, 450 m., January 1901 (Dinelli).

4 ♂♂, 7 ♀♀.

61. **Halisidota oslari** spec. nov.

♂. Differs from *tessellaris* Abbot & Smith by its much rounder forewing and convex, not semiconcave, outer margin of forewing, absence of green margins to the tegulae and patagia, and sooty grey, not buff, tarsi. All the wings are uniform creamy white, and the bands of forewings, which are distinct in *tessellaris*, are here only indicated by the very faintest remains of the black hair-streaks that form the margins of these bands in *tessellaris*. This form I consider a good species as I received from Oslar from the same localities typical *tessellaris*.

♀. Similar, but shows traces of green margins to patagia.

Length of forewing: ♂ 23 mm.; ♀ 25 mm.

Hab. Denver, Colorado, and Glenwood Springs, Colorado (Oslar).

6 ♂♂, 4 ♀♀.

62. **Halisidota interlineata intensa** subspec. nov.

♂. This is the western form of *interlineata* Wlk. Walker's type came from Brazil, and I have specimens from the Eastern side of Mexico down to Rio Janeiro; while my twenty-eight specimens of *interlineata intensa* range from Western Costa Rica, Merida, Venezuela, down to South Peru.

It differs from *interlineata interlineata* by its much larger size, intense black and orange of the costal and discocellular patches, and the more intense orange-buff ground colour. The postmedian transverse band of forewing is always present, while in *int. interlineata* it is mostly entirely absent, but occasionally indicated in Mexican examples by a single small spot. The green margins to tegulae and patagia are very broad and intense in colour.

♀. Similar.

Length of forewing: largest *int. interlineata* ♂ 25 mm.; ♀ 28 mm.

" " " *int. intensa* ♂ 30 mm.; ♀ 33·5 mm.

Hab. Costa Rica; Asahar de Cartago, Costa Rica, February 1899 (Underwood); Tnis, Costa Rica; La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season,

December 1904, and Santo Domingo, Carabaya, 6500 ft., wet season, November 1902. (G. R. Ockenden); La Merced, Chanchamayo; Merida, Venezuela (Briceño).

18 ♂♂, 10 ♀♀.

63. **Halisidota underwoodi** spec. nov.

♀. This species has hitherto been mixed up with *interlineata*, and, moreover, upsets the key to the species in the *Brit. Mus. Catalogue*, for the discoidal band is sometimes joined to the median, forming a V, but more often not.

Differs from *interlineata* below by the whiter clay-buff of the abdomen, by a median and two lateral rows of black spots on the abdomen, by the much broader and more intense black borders to the grey bands on the legs, the more intense orange pectus. Above the colour is much less bright and greyer than in *interlineata*, and the margins to patagia, thorax, and tegulae are dark sage-green.——On the forewing the costal patches are orange with narrow black margins, not black with yellow and black margins as in *interlineata*; the discoidal band has a black stigma, only not being practically all black as in *interlineata*.——Hindwing more brownish hyaline buff, and abdomen above much deeper orange.

♂. Similar, but has black margins to the orange patches, and the discoidal and median bands wider.

Length of forewing: ♂ 30 mm.; ♀ 29 mm.

Hab. Jalapa, Mexico; Vera Cruz, Mexico; Orizaba, Mexico, March—June 1896 (W. Schaus); Tuis, Costa Rica; San José, Costa Rica, May and June 1899 (Underwood); Chanchamayo, Peru (Schunke); Rio Huacamayo, Carabaya, 3100 ft., dry season, June 1904 (G. R. Ockenden).

11 ♂♂, 12 ♀♀.

64. **Halisidota underwoodi orientalis** subspec. nov.

♂. This is the Eastern form of *underwoodi*. It is smaller and paler, and has a larger discoidal stigma.

♀. Similar.

Length of forewing: ♂ 25 mm.; ♀ 27·5 mm.

Hab. Caparo, Trinidad (F. Birch); ditto, December 1905 (S. M. Klages); Port of Spain and Tabaquite, Narieva District, Central Trinidad (F. Birch); British Guiana.

7 ♂♂, 7 ♀♀.

65. **Halisidota schausi** spec. nov.

This has hitherto been confounded with *cinctipes* Grote.

♂. Pectus orange; legs pale orange, banded with greyish white, the bands edged with darker grey; head pale buff; tegulae and patagia pale buff, edged with verditer-blue, the latter with a central black streak; thorax orange with central verditer-blue line; abdomen orange, tip whitish buff.——Forewing hyaline whitish buff, the patches on costa and discoidal band pale orange, the median, subterminal, and terminal bands pale buffy brown.——Hindwing hyaline cream-yellow on abdominal third.

♀. Similar, but discoidal band broken up into five separate spots, and the thoracic stripe and margins verditer-green.

Length of forewing : ♂ 30 mm. ; ♀ 31 mm.

Hab. Costa Rica (Underwood) ; San José, Costa Rica, May and June 1899 (Underwood) ; Popayan (Lehman) ; Ciudad de Guatemala (Rodriguez).

66. **Halisidota schausi pallida** subspec. nov.

♂. Similar to *schausi schausi*, but considerably paler ; in fact, with exception of the costal and discoidal pale orange patches, the bands and spots are hardly more relieved from the ground colour than in *tessellaris*.

♀. Similar, but orange patches darker.

Length of forewing : ♂ 28 mm. ; ♀ 31 mm.

Hab. Guadalajara, Mexico ; Cuernavaca, Mexico, September 1904 (Dr. Gadow).

13 ♂♂, 24 ♀♀.

67. **Halisidota schausi insularis** subspec. nov.

♂. This little form is at once distinguished by its small size, darker colour, and in having the subterminal band more or less broken up into spots. The tegulae and patagia are dull orange in ♂, and the costal and discoidal patches and band are not orange, but grey-brown.

Length of forewing : ♂ 21 mm. ; ♀ 23 mm.

Hab. Sta. Lucia, Lesser Antilles, June 1900 (type bred 1890) (Branch).

7 ♂♂, 7 ♀♀.

68. **Halisidota schausi tucumana** subspec. nov.

♂ ♀. Differs from the remaining forms of *schausi* at first sight by the bands and spots on forewings being wider and much brighter and more distinct.

Length of forewing : ♂ 25 mm. ; ♀ 28 mm.

Hab. Tucuman, Argentina (J. Steinbach) ; Ciudad de Tucuman, 450 m., March 1903 (L. Monetti) and April 1902 (Dinelli).

4 ♂♂, 4 ♀♀.

69. **Halisidota schausi meridensis** subspec. nov.

♂. Differs from *schausi schausi* in having shorter and broader wings in proportion ; and the bands and patches are broader and closer together and the colour is brighter.

♀. Similar.

Length of forewing : *schausi schausi*, ♂ 30 mm. ; ♀ 31 mm.
Breadth „ at outer margin : *schausi schausi*, ♂ 14 mm. ; ♀ 14 mm.
Length „ : *schausi meridensis*, ♂ 26 mm. ; ♀ 23 mm.
Breadth „ at outer margin : *schausi meridensis*, ♂ 13·5 mm. ; ♀ 12 mm.

2 ♂♂, 1 ♀.

Hab. Merida, Venezuela, Briceño.

70. **Halisidota schausi brasiliensis** subspec. nov.

♀. Differs from *schausi pallida* by the greater width of median and subbasal bands at inner margin, and by the costal and discoidal patches being pale buffy brown with no trace of orange.

Length of forewing : 30 mm.

Hab. Castro, Paraná, Brazil.

1 ♀.

71. **Halisidota tessellaris meridionalis** subspec. nov.

♂ ♀. Similar to *tessellaris tessellaris*, but much larger, the bands wider, ♀ usually paler, but at once recognisable by the median band being narrowed almost to a point on inner margin. No trace of green on thorax.

Length of forewing : *tessellaris tessellaris*, ♂ 23 mm. ; ♀ 25 mm.
" " *tessellaris meridionalis*, ♂ 28 mm. ; ♀ 30 mm.

Hab. Orizaba, Mexico. February 1896 (W. Schaus).

3 ♂♂, 2 ♀♀.

72. **Halisidota jonesi** spec. nov.

♂. Pectus, head, and antennae pale golden brown ; legs, palpi, and thorax bright golden buff with faint golden brown streaks ; abdomen pale rufous buff.——Forewing bright golden buff, closely irrorated with rufous half-moons ; a rufous band extends along centre of wing from base to termen.——Hindwing opalescent cream-white, abdominal area buff.

Length of forewing : 20 mm.

Hab. Castro, Paraná (E. D. Jones).

2 ♂♂.

73. **Halisidota venezuelensis** spec. nov.

♂. Allied to *cedon* Druce. Pectus and legs buffy clay-colour ; head and thorax greyish brown ; abdomen sooty clay-brown.——Forewing yellowish clay-colour, splashed and streaked with brown patches, spots, and half-moons.——Hindwing buffy clay, washed strongly with brown.

Length of forewing : 22·5 mm.

Hab. Palma Sola, Venezuela.

3 ♂♂.

74. **Halisidota batesi** spec. nov.

♂. Pectus clay-brown ; legs buff, banded with brown ; head and thorax clay-brown, mixed with golden buff ; two black dots on patagia ; thorax, first segment golden buff, tinged with brown, second and third brown, rest clay-colour. ——Forewing dark golden buff, irrorated with rufous chocolate ; an antemedian and postmedian irregular broad band of same colour, and an oblique bar from costa one-fourth from base to the apex of vein 2 at outer margin also rufous chocolate.——Hindwing, costal half minus broad outer margin buff, outer margin and abdominal half brownish grey.

Length of forewing : 23 mm.

Hab. Teffé, Amazons, 1 ♂, September 1907 (M. de Mathau), 1 ♂ (Bates, ex coll. Felder).

75. **Halisidota pseudoconiata** spec. nov.

♂. Allied to *coniata* Hmpsn., but differs from it at first sight by the square, blunt, not long-pointed, forewing. Pectus and legs lemon-yellow ; palpi and frons brown ; vertex and tegulae brownish buff ; thorax and abdomen orange-buff ; patagia whitish buff.——Forewing whitish buff, strongly washed with yellow, a brown spot at apex of cell near costa, a large black-brown spot on discocellulars at lower end of cell, a dark brown shade occupying disc and varying from a mere

line at termen to 3·5 mm. wide between veins 2 and 3, and again narrowing to a line on inner margin near base; a subterminal row of black dots.——Hindwing buff.

♀. Similar, but larger ; three blackish patches from termen to vein 6, and costa and wing more irrorated and spotted with brown.

Length of forewing : ♂ 20 mm. ; ♀ 23 mm.

Hab. Limbani, Carabaya, 9500 ft., dry season, April 1904, and Agualani, Carabaya, 9000 ft., wet season, December 1905 (G. R. Ockenden).

1 ♂, 3 ♀♀.

76. **Halisidota stuarti** spec. nov.

♀. Pectus rufous clay ; legs blackish chocolate ; head and thorax chocolate rufous ; abdomen clay-buff.——Forewing chocolate rufous, slightly irrorated with brown, a dark brown band from termen to base.——Hindwing hyaline white.

Length of forewing : 19 mm.

Hab. Reyes, Amazons, August 7th, 1895 (Maxwell Stuart).

1 ♀.

77. **Halisidota cuneipuncta** spec. nov.

♂. Pectus pale clay-buff : legs buffy clay ; palpi and frons brown ; vertex and thorax buff, strongly mixed with brown ; abdomen pale buffy rufous ; antennae pale brown.——Forewing buff, irrorated with dark rufous, a double subterminal row of long dark rufous cuneate marks.——Hindwing buff, shaded deeply with rufous brown-grey.

Length of forewing : 23 mm.

Hab. Vera Cruz, Mexico.

1 ♂.

78. **Halisidota liparoides** spec. nov.

♂. Pectus buff with two sooty grey patches ; legs buff ; head and thorax buff, irrorated with dark grey scales ; antennae pale brown ; abdomen dark rufous buff. ——Forewing pale buff, irrorated and shaded with mauve-grey.——Hindwing golden buff ; from tornus half-way to termen a broad sooty brown band followed by a few indistinct spots, fringe white.

Length of forewing : 20 mm.

Hab. Aroewarwa Creek, Maroewyn Valley, Surinam, May 1905, and Fonte Boa, Amazonas, July 1907 (S. M. Klages); La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season, November 1904 (G. R. Ockenden).

6 ♂♂.

79. **Halisidota aurantiaca** spec. nov.

♂. Pectus, palpi, and legs dark buff; coxae orange ; head and thorax brownish orange ; abdomen above pale orange, first four segments clothed with brown hairs. ——Forewing buffy orange, irrorated closely with rufous brown spots and half-moons, a small black discoidal stigma, a terminal and subterminal row of dark brown dots.——Hindwing : costal half orange, rest dark sooty grey.

Length of forewing : 20 mm.

Hab. Allianca, below San Antonio, Rio Madeira, November—December 1907 (W. Hoffmanns) ; La Vuelta, Caura River, May 1903 (S. M. Klages).

2 ♂♂.

80. **Halisidota lacteogrisea** spec. nov.

♂. Pectus pale buff; legs buff with pale brown patches; head and thorax clay-buff with brownish streaks; abdomen brown, tip pale buff.——Forewing pale cream-colour with pale brown patches and dark brown dots.——Hindwing, costal half buff, washed with brown, abdominal half pale sooty brown, two brown spots at termen.

Length of forewing: 20 mm.

Hab. La Vuelta, Caura River, May 1903 (S. M. Klages).

2 ♂♂.

81. **Halisidota stipulata** spec. nov.

♂. Pectus and forelegs, frons, palpi, and antennae pale clay-brown; head and thorax orange-buff, slightly tinged and mottled with brown; abdomen: basal half pale sooty brown, apical half buff.——Forewing bright orange-buff, mottled and clouded with pale orange-brown, a dark streak from termen to base.——Hindwing buff, heavily washed and clouded with sooty grey-brown, two dark brown short streaks at termen.

♀. Similar, but paler.

Length of forewing: ♂ 23 mm.; ♀ 25 mm.

Hab. La Oroya, Rio Inambari, S.E. Peru, 3100 ft., wet season, March 1905; Tinguri, Carabaya, 3400 ft., dry season, August 1904 (G. R. Ockenden); Cushi, Province Huanuco, Peru, 1900 m., and Pozuzo, Huanuco, 900—1000 m. (W. Hoffmanns); Chulumani, Bolivia, 2000 m., December, wet season (Simons): Caradoc, Marcapata, 4000 ft., February 1901, and Santo Domingo, Carabaya, 6500 ft., dry season, August 1902 (G. R. Ockenden); British Guiana.

19 ♂♂, 6 ♀♀.

82. **Halisidota nebulosa** spec. nov.

♂. Pectus, legs, and palpi brownish pale buff; head and thorax orange-buff, mottled with reddish brown; abdomen orange-buff.——Forewing dark orange-buff, mottled all over with rufous brown wedge-shaped spots and streaks; below apex of cell a large brown manve or manve-brown patch.

♀. Similar.——Hindwing buff.

Length of forewing: ♂ 20 mm.; ♀ 25·5 mm.

Hab. Fonte Boa, Amazonas, August 1906 (S. M. Klages); La Oroya, Rio Inambari, S.E. Peru, 3100 ft., wet season, March 1905 (G. R. Ockenden); Quevedo, W. Ecuador (von Buchwald); Corcovado, Brazil.

7 ♂♂, 11 ♀♀.

83. **Halisidota contempta** spec. nov.

♂. Pectus and legs pale buffy white; antennae whitish brown; head and thorax buffy white; abdomen: basal two segments buffy white, rest clay-grey, margined with white.——Forewing buffy white, a minute discoidal stigma brown, whole wing irrorated with brown specks, a brown streak on vein 1.——Hindwing buffy white, with a brown splash half-way between tornus and termen.

Length of forewing: 16 mm.

Hab. Fonte Boa, Amazonas, July 1907 (S. M. Klages).

84. **Halisidota pterostomoides** spec. nov.

♂. Much resembles a Japanese species of the Notodont genus *Pterostoma*. Pectus rufous clay-grey ; head and thorax yellowish buff with pale rufous lines ; abdomen buff.——Forewing lemon-buff, veins marked in very pale rufous ; from base to termen a broad rufous band.——Hindwing hyaline buff.

Length of forewing : 24 mm.

Hab. Santo Domingo, Carabaya, 6000 ft., dry season, June 1902 (G. R. Ockenden).

1 ♂.

85. **Halisidota hadenoides** spec. nov.

♀. Underside of body, legs, and palpi clay-brown ; head and thorax wood-brown ; abdomen sooty wood-brown.——Forewing wood-brown, dotted all over with darker dots and strigae, a discoidal dark brown stigma, and a subterminal row of dark brown lunules.

♀. Similar.——Hindwing wood-brown.

Length of forewing : ♀ 30 mm. ; ♂ 23—26 mm.

Hab. Iquitos, Amazonas, 1893 (Maxwell Stuart) ; Codajas, Amazonas, April 1907, and Fonte Boa, Amazonas, September 1906 (S. M. Klages) ; Allianca, below San Antonio, Rio Madeira, November—December 1907 (W. Hoffmanns).

19 ♂♂, 3 ♀♀.

86. **Halisidota maasseni** spec. nov.

♂. Similar to *conspicua* Maassen, but the terminal fourth of forewing, thorax, and head more yellowish grey-brown, not orange rufous as in *conspicua* ; abdomen clay-buff, not sooty rufous brown as in *conspicua*.——Hindwing pale hyaline clay-buff, not hyaline buffy rufous.

♀. Similar.

Length of forewing : 27 mm.

Hab. Limbani, Carabaya, 9500 ft., dry season, May 1904, and Agualani, Carabaya, 9000 ft., dry season, August 1905 (G. R. Ockenden).

3 ♂♂, 2 ♀♀.

87. **Halisidota muscosa** spec. nov.

♀. Pectus, legs, head, and thorax soot-brown-black, mingled with grey ; abdomen sooty brown.——Forewing dark hyaline brown, densely striated with black ; terminal fourth hyaline clay-brown, less densely striated with black.——Hindwing hyaline brownish clay-white.

♂. Similar.

Length of forewing : 32 mm.

Hab. Agualani, Carabaya, 9000 ft., wet season, March 1905, and Limbani, Carabaya, 9500 ft., dry season, May 1904 (S. M. Klages) ; Huancabamba, Cerro de Pasco, 6000—10,000 ft. (Boettger).

4 ♂♂, 3 ♀♀.

88. **Halisidota rufocinnamomea** spec. nov.

♀. Pectus, head, and thorax buffy orange rufous ; abdomen yellowish clay-buff. ——Forewing rufous orange-buff, densely powdered with rufous specks, a terminal and subterminal band of rufous.——Hindwing hyaline buff.

♂. Similar, but subterminal band somewhat more pronounced.

Length of forewing : ♂ 23 mm. ; ♀ 25 mm.

Hab. Agualani, Carabaya, 9000 ft., wet season, March 1905; Limbani, Carabaya, 9500 ft., dry season, April 1904, and Oconeque, Carabaya, 7000 ft., dry season, July 1904 (G. R. Ockenden).

2 ♂♂, 1 ♀.

89. **Agorea ockendeni** spec. nov.

♂. Near *longicornis* H.-S. Head orange; antennae fuscous; thorax yellowish grey; abdomen above orange, with median row of black spots.——Forewing hyaline clay-grey, veins marked in dark brown.——Hindwing hyaline clay-grey; cilia brown.

Length of forewing: 15 mm.

Hab. La Oroya, Rio Inambari, S.E. Peru, 3100 ft., wet season, March 1905 (G. R. Ockenden).

2 ♂♂.

90. **Agorea citrinotincta** spec. nov.

♂. Pectus, head, and thorax orange; patagia with darker central stripe; antennae fuscous; abdomen, basal two segments pale grey, rest orange, a central indistinct darker line.——Forewing semihyaline whitish, washed with lemon-yellow; veins fuscous.——Hindwing semihyaline white.

♀. Similar, but larger.

Length of forewing: ♂ 15 mm.; ♀ 17 mm.

Hab. Onaca, Sta. Marta, 2200 ft., wet season, September—October 1901 (Engelke).

2 ♂♂, 3 ♀♀.

91. **Agorea boettgeri** spec. nov.

♂. Pectus, head, tegulae, and patagia orange; thorax and basal half of abdomen grey, apical half of abdomen orange, a dark grey median line; antennae black.——Forewing yellowish grey, veins darker.——Hindwing similar.

Length of forewing: 18 mm.

Hab. Huancabamba, Cerro de Paseo, Peru, 6000—10,000 ft. (Boettger).

92. **Agorea schausi** spec. nov.

♀. This is the insect that has hitherto been mistaken for *longicornis* H.-S. Pectus, head, and tegulae deep yellow; thorax and basal half of abdomen brown-grey, apical half of abdomen deep yellow, a median row of blackish spots. ——Forewing dark brown-grey.——Hindwing semihyaline whitish grey, washed with darker grey.

♂. Similar, but has in some specimens the veins in forewing slightly darker than ground-colour.

Length of forewing: ♀ 16 mm.; ♂ 13 mm.

Hab. Orizaba, Mexico, March 1896 (W. Schaus); Bogava, Chiriqui, 800 ft. (Watson).

4 ♂♂, 1 ♀.

93. **Agorea klagesi** spec. nov.

♀. Allied to *semivitrea* Rothsch., but smaller. Pectus, legs, head, and thorax mouse-grey, a darker median streak on thorax and each of the patagia; abdomen orange, a median row of black spots.——Forewing thinly scaled mouse-grey, veins darker; below cell two sooty internervular streaks; at apex of cell a sooty patch

drawn out into a gradually narrowing streak to outer margin.——Hindwing hyaline white, shaded with grey scales.

Length of forewing : 13 mm.

Hab. Fonte Boa, Amazonas, August 1906 (S. M. Klages).

2 ♀♀.

94. **Agorea semivitrea** nom. nov.

This is the insect which has been hitherto identified as the *Phalaena pellucida* of Sepp, though the presence of the black discoidal stigma and the line of black spots on abdomen being confined to the basal and apical segments in most specimens ought to have prevented this error. I have two specimens of an insect from Surinam which agree exactly with Sepp's figures, but it is a *Bituryx* and not an *Agorea*. Therefore Sepp's insect must in future stand as *Bituryx pellucida* (Sepp).

95. **Agorea nigrostriata** spec. nov.

♀. Pectus whitish grey ; legs, head, and thorax mouse-grey, a spot on vertex, central stripes on patagia, and a median line on thorax black ; abdomen deep yellow, a black dot on each of the two basal and on the sixth segment.——Forewing pale grey ; costa, inner margin, and internervular streaks darker grey ; a black line from base of wing to apex of cell ; veins for about a millimetre from outer margin black, a sooty smear from apex obliquely inwards to vein 8. ——Hindwing semihyaline grey.

Length of forewing : 18 mm.

Hab. Ciudad de Tucuman, March 1903 (L. Monetti).

1 ♀.

96. **Bituryx hoffmannsi** spec. nov.

♂. Pectus, palpi, and legs brownish grey ; head deep yellow ; thorax and abdomen deep grey, last abdominal segment deep yellow.——Forewing yellowish grey, veins darker ; antemedian, median, and postmedian cloud-like transverse bands of grey-brown.——Hindwing semihyaline grey, darker on outer half.

Length of forewing : 12·5 mm.

Hab. Allianca, below San Antonio, Rio Madeira, November—December 1907 (W. Hoffmanns).

4 ♂♂.

97. **Bituryx mathani** spec. nov.

♀. Pectus, legs, head, and thorax pale wood-brown ; collar yellow ; abdomen sooty brown-grey.——Forewing pale yellowish wood-brown, veins darker ; an indication of a darker subterminal band.——Hindwing hyaline whitish, scaled with wood-brown on outer third.

♂. Similar.

Length of forewing : 14 mm.

Hab. Muzo, La Palma, Cundinamarca, and Canauche, Cundinamarca, August 1903 (M. de Mathan).

1 ♂, 10 ♀♀.

98. **Neritos griseotincta** spec. nov.

♂. Similar to *N. steinbachi* Rothsch., but much smaller and darker grey Hindwings and abdomen sooty, and the veins not darker than rest of wings.

Length of forewing : 10 mm.

Hab. Aroewarwa Creek, Maroewym Valley, Surinam, March 1905 (S. M. Klages).

7 ♂♂.

99. **Neritos rosacea** spec. nov.

♂. Pectus and head orange-yellow; legs and thorax grey; abdomen crimson, last two segments grey.——Forewing grey.——Hindwing: costa and termen grey, rest of wing crimson.

Length of forewing: 12 mm.

Hab. Palma Sola, Venezuela.

1 ♂.

100. **Neritos affinis** spec. nov.

♂. Allied to *rosacea*. Pectus, legs, and thorax grey; head orange; abdomen salmon-colour, penultimate segment grey, last segment whitish.——Forewing brownish grey, veins darker.——Hindwing: basal half salmon, outer half brown-grey.

Length of forewing: 11 mm.

Hab. Aroewarwa Creek, Maroewym Valley, Surinam, March 1905, and Fonte Boa, Amazonas, September 1906 (S. M. Klages).

8 ♂♂, 2 ♀♀.

101. **Neritos hampsoni** spec. nov.

♂. Pectus, legs, and palpi orange; head apple-green; collar scarlet; tegulae white; patagia and thorax mauve-grey; abdomen salmon-colour, tip yellow.——Forewing, basal third obliquely mauve-grey, bordered anteriorly by a silvery white band edged with scarlet; a scarlet line crosses the white band one-third from inner margin; central portion of wing apple-green; apical fourth mauve, clouded with white; cilia of outer margin and apical three-fourths of costa orange.——Hindwing reddish orange.

Length of forewing: 14 mm.

Hab. Fonte Boa, Amazonas, May 1906 (S. M. Klages).

3 ♂♂.

102. **Neritos granatina** spec. nov.

♂. Pectus buff; legs, palpi, and head golden yellow; thorax brown-mauve; abdomen bright crimson.——Forewing: basal half obliquely brown-mauve, a large scent-gland and androconial patch on this area; apical half of wing bright yellow; a large round patch in terminal area brown-mauve; costa above this patch crimson.——Hindwing bright crimson, deeply excised on outer margin; a large scent-gland and androconial patch on costa.

Length of forewing: 13 mm.

Hab. Buenavista, East Bolivia, 750 m., August 1906—April 1907 (J. Steinbach).

1 ♂.

103. **Neritos inequalis** spec. nov.

♂. Pectus creamy buff; frons reddish mauve-brown; vertex yellow, edged posteriorly with scarlet; antennae brown-mauve, basal fifth scarlet, apical fifth white; thorax mauve-brown; abdomen scarlet, a silvery white patch on basal segment, tip buff.——Forewing: basal two-fifths obliquely reddish mauve-brown, with a few scarlet streaks and a scarlet edging apically; a large scent-organ with

patch of androconia; apical three-fifths yellow; a large subterminal, somewhat rounded patch of reddish mauve-brown with scarlet edging.——Hindwing short hyaline crimson, deeply excised at outer margin.

♀. Similar, but subterminal patch joined to basal area by a narrow band.

Length of forewing: ♂ 15 mm.; ♀ 13·5 mm.

Hab. Palcazu, Department Junin (Sedlmayer); Cajan, Cuzco, October 1900 (Garlepp); Yungas de la Paz, Bolivia, November 1899 (Garlepp); San Ernesto, Bolivia, 1000 m., August—September, 1900, wet season, and Salampioni, Bolivia, 800 m., dry season, August 1901 (Simons); Codajas, Amazonas, April 1907, and Fonte Boa, Amazonas, September 1906, Aroewarwa Creek, Maroewym Valley, Surinam, May 1905 (S. M. Klages); La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season, January 1905 (G. R. Ockenden).

18 ♂♂, 1 ♀.

104. **Neritos persimilis** spec. nov.

♂. Very similar to *inequalis* Rothsch., but has no scent-organ or andraconial patch on forewing; the basal area and subterminal patch of forewing and thorax more brown-mauve, washed with crimson, and the hindwing crimson and not excised.

♀. Similar.

Length of forewing: ♂ 13 mm.; ♀ 14 mm.

Hab. La Oroya, Rio Inambari, S.E. Peru, 3100 ft., wet season, December—March 1905 (G. R. Ockenden); Aroewarwa Creek, Maroewym Valley, Surinam, June 1905 (S. M. Klages).

9 ♂♂, 3 ♀♀.

105. **Neritos triangularis** spec. nov.

♂. Pectus white; legs orange-buff; frons scarlet; vertex yellow, edged posteriorly with scarlet; thorax reddish mauve-brown; abdomen dull scarlet, tip yellow, a silvery white patch on basal segment.——Forewing: basal half obliquely reddish mauve-brown, edged on costa and anteriorly with scarlet; basal fifth between vein 1 and inner margin yellow, edged with scarlet; a scarlet streak on vein 1 on disc; apical half of wing yellow; a large somewhat round subterminal patch reddish mauve-brown, edged and veined with scarlet.——Hindwing buffy orange, washed with scarlet; tornus produced, giving wing a triangular shape.

♀. Similar, but subapical patch much enlarged, and joined to basal area by broad central band; a subbasal costal streak and a spot near base above vein 2 yellow, edged with scarlet.——Hindwing: tornus not produced.

Length of forewing: ♂ 13—16 mm.; ♀ 15·5 mm.

Hab. La Oroya, Rio Inambari, Carabaya, 3100 ft., November—December 1905, wet season (G. R. Ockenden); Cuzco, Peru, March 1901, and Chanchamayo, Peru, August 1901 (Garlepp); Pozuzo, Huanuco, 800—1000 m. (W. Hoffmanns); Potaro, British Guiana, May 1908 (S. M. Klages).

6 ♂♂, 5 ♀♀.

106. **Neritos androconiata** spec. nov.

♂. Allied to *cyclopera* Hmpsn., but differs by having a large scent-organ and androconial patch in basal area of forewing, which area also is more emarginate than in *cyclopera*.——Hindwing rosy pink, with terminal sooty blotch and much excised.

♀. Differs from ♀ of *cyclopera* in the excised basal area of forewing, and by the hindwing being buffy yellow with a central sooty splash.

Length of forewing: ♂ 11 mm.; ♀ 15 mm.

Hab. La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season, November 1904; Tinguri, Carabaya, 3400 ft., dry season, August 1904, and La Oroya, Rio Inambari, S.E. Peru, 3100 ft., wet season, March 1905 (G. R. Ockenden).

1 ♂, 7 ♀♀.

107. **Neritos lavendulae** spec. nov.

♀. Pectus whitish; legs and palpi buff; head yellow; antennae, basal half brown-grey, rest white; thorax grey; abdomen scarlet.——Forewing: basal half obliquely lavender brown-grey, an orange edge on costa; outer half yellow, a large subterminal somewhat round patch lavender brown-grey edged with orange. ——Hindwing: costal third and basal half of abdominal margin pale pink, rest of wing sooty grey.

♂. Similar, but grey areas of forewing and thorax more brown; a large scent-gland and androconial patch on forewing, and the hindwing pale pinkish washed with sooty grey and excised at outer margin.

Length of forewing; ♀ 13 mm.; ♂ 15 mm.

Hab. Fonte Boa, Amazonas, July 1906, and Aroewarwa Creek, Maroewym Valley, Surinam, April 1905 (S. M. Klages); La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season, November 1904 (G. R. Ockenden).

1 ♂, 5 ♀♀.

108. **Neritos lavendulae meridionalis** subspec. nov.

♂. Differs from *lavendulae lavendulae* in having the hindwing all sooty grey, whitish towards base and costa.

Hab. Southern Brazil.

2 ♂♂.

109. **Neritos perversa** spec. nov.

♂. Pectus and legs yellow, coxae scarlet; head yellow; thorax mauve-brown; abdomen scarlet, a silvery white patch on basal segment, tip yellow.——Forewing: basal half obliquely and subterminal patch crushed strawberry, rest yellow.—— Hindwing buffy orange.

Length of forewing: 11 mm.

Hab. Fonte Boa, Amazonas, June 1906 (S. M. Klages).

1 ♂.

110. **Neritos drucei** spec. nov.

♂. Pectus white; legs inside white, outside buff; palpi crimson; head and thorax crushed strawberry, washed with crimson; abdomen, basal segment crimson, rest orange-brown.——Forewing crushed strawberry; an androconial patch and scent-gland; terminal half of costa, apical two-thirds of outer margin, and a broad oblique hyaline band from costa to outer margin lemon-yellow.——Hindwing hyaline salmon.

Length of forewing: 14 mm.

Hab. Aroewarwa Creek, Maroewym Valley, Surinam, April 1905 (S. M. Klages).

2 ♂♂.

111. **Belemnia mygdon marthae** subspec. nov.

♂. Differs from *mygdon mygdon* by the crimson bar on underside of forewing beyond cell being present on the upperside. Three of the 8 ♀♀ only show a few crimson scales on the upperside.

Hab. Onaca, Santa Martha, 2000 ft., wet season, October—November 1901 (Engelke).

3 ♂♂, 8 ♀♀.

112. **Diospage semimarginata** spec. nov.

♂. Pectus, legs, and frons silvery metallic green-blue; collar, centre of vertex, and base of tegulae metallic green; rest of tegulae, patagia, and thorax metallic bronze-green with black margins; abdomen black, banded with silvery metallic blue.——Forewing: basal third obliquely metallic bronze-green, rest of wing black, a metallic blue dot at apex of cell, a dull crimson patch beyond cell between 4 and 9. ——Hindwing black, base brilliant metallic blue, cilia of outer margin pink, a longitudinal narrow patch of dull crimson in centre of outer margin. Underside of both wings black, basal third brilliant silvery green-blue, crimson patch on forewing darker and brighter, outer margin of hindwing broadly crimson, beyond cell of both wings some irregular metallic green-blue splashes; underside of abdomen crimson except two basal segments.

Length of forewing: 22 mm.

Hab. Paramba, Ecuador, 3500 ft. (W. Rosenberg).

2 ♂♂.

113. **Diospage steinbachi** spec. nov.

♂. Pectus and frons silvery metallic blue-green; thorax black, with six or eight metallic greenish spots; abdomen black, the first three segments broadly, the next narrowly, banded with metallic green-blue.——Forewing black, basal third metallic bronze-green; an indistinct dull crimson spot in cell, a dull glaucous crimson band beyond cell between veins 9 and 4.——Hindwing black, basal third deep metallic blue. Underside of both wings black, basal fourth metallic blue, a large discal irregular patch on forewing and a subterminal patch on hindwing rosy crimson. Underside of central abdominal segments crimson.

Length of forewing: 23 mm.

Hab. Buenavista, East Bolivia, 750 m., August 1906—April 1907, and Province Sara, Department Santa Cruz de la Sierra, February—April 1904 (J. Steinbach).

5 ♂♂.

114. **Diospage violitincta** spec. nov.

♂. Pectus metallic blue; head, thorax, and abdomen deep velvety black.——Forewing: basal half metallic copper-colour, washed with purple, rest black with a very slight coppery sheen in certain lights.——Hindwing velvety black, base metallic purple. Underside of both wings black, with a dark olive oily green sheen, basal two-thirds of forewing and costal two-thirds of hindwing bright metallic purple-blue. Underside of abdomen pale brick red, two basal and terminal segments black.

Length of forewing: 26 mm.

Hab. Corinto, Cauca Valley, May—July 1906 (Payne & Brinkley).

115. **Diospage engelkei** spec. nov.

♂. Above somewhat similar to *cleasa* Druce, but larger. Pectus silvery metallic blue-green; head, antennae, and thorax velvety black, the latter with a few metallic green dots; abdomen velvety black above, deep shining violet on sides, sides of basal segment silvery metallic green-blue.——Forewing deep velvety olive-green.——Hindwing velvety black glossed with purple, basal sixth silvery metallic green-blue. Underside of both wings deep blackish steel blue-green, basal third silvery metallic green-blue, an irregular patch of same colour at apex of cell; underside of abdomen, except basal and terminal segments, scarlet.

Length of forewing: 25 mm.

Hab. Onaca, Santa Martha, 2200 ft., wet season, September—October 1901 (Engelke).

1 ♂.

116. **Turuptiana affinis** spec. nov.

Nearest to *obliqua* Walk. I should have treated this insect as the Andean subspecies of Walker's species, only I have examples of typical *obliqua* from West Ecuador.

♂. Pectus orange; legs and palpi brown; head white; antennae black; thorax chocolate brown, a white patch on patagia; abdomen above brown except last three segments, sides and last three segments orange with black bands.——Forewing white, costal, inner, and outer margins broadly chocolate-brown, a broad oblique band of chocolate-brown from tornus across cell to costa.——Hindwing white, yellowish grey on abdominal area.

♀. Similar.

Length of forewing: ♂ 25 mm.; ♀ 25 mm.

Hab. Merida, Venezuela (Briceño); Santo Domingo, Carabaya, 6000 ft., dry season, June 1902, and La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season, December 1904 (G. R. Ockenden).

10 ♂♂, 2 ♀♀.

117. **Turuptiana ockendeni** spec. nov.

Nearest *neurophylla* Walk., but much larger.

♂. Pectus orange; palpi, legs, and frons black; head and tegulae clay-buff, latter with rufous orange margins; patagia and thorax clay-buff, inner margins of former and median line of latter black; abdomen orange, a black dorsal patch from fourth to eighth segments strongly glossed with metallic steel-blue.——Forewing whitish clay-buff, veins orange, two black patches on costa above cell, a subterminal black patch, and a subterminal row of oblong black spots on veins, some almost obliterated; a large irregular black patch from costa across apex of cell, from which proceed two black lines to inner margin; from the inner of these lines proceeds a third black line obliquely to the inner margin near the base, forming a Λ: surrounding the lines and the large black patch is a broad irregular band of clay-brown, and the outer third of wing is more or less shaded with clay-brown.——Hindwing: basal half orange, outer half deep buff, an oval black patch in cell, a black spot at tornus, and two oblong black spots at termen.

Length of forewing: 29 mm.

Hab. Santo Domingo, Carabaya, 6000 ft., dry season, June 1901 (G. R. Ockenden).

1 ♂.

118. **Turuptiana bricenoi** spec. nov.

Allied to *nemophila* H.-S.

♂. Differs from *nemophila* in much paler colour and smaller size, all black markings on forewings being smaller, in the two central curved lines being broadly interrupted, in the tornus of hindwing being produced, and in having on hindwing only two dark marks at tornus and a smaller one just above.

Length of forewing : 19 mm.

Hab. Merida, Venezuela, 1630 m., 1897 (Briceño).

1 ♂.

119. **Paranerita rosacea** spec. nov.

♂. Pectus, legs, and palpi buff; frons scarlet; vertex yellow ; antennae brown, terminal third white; thorax and collar brownish crushed strawberry ; abdomen dull scarlet, a whitish dot at base, tip yellow and brown.——Forewing : basal half obliquely brownish crushed strawberry, margined with scarlet and with two scarlet streaks on inner margin, outer half yellow with large roundish subapical patch of brownish crushed strawberry edged with scarlet.——Hindwing sooty wood-brown.

Length of forewing : 12 mm.

Hab. Fonte Boa, Amazonas, May 1906 (S. M. Klages).

1 ♂.

120. **Paranerita rosacea occidentalis** subspec. nov.

♀. Similar to *rosacea rosacea* in pattern, but differs at first sight by the much broader crimson, not scarlet, edges to dark areas of forewing, and the semihyaline rose-pink, not brown, hindwings.

Hab. Chimbo, Ecúador, 1000 m., August 1897 (W. Rosenberg).

1 ♀.

121. **Paranerita irregularis** spec. nov.

♂. Pectus, legs, and palpi whitish yellow ; head yellow ; antennae, basal third pale red, middle brown, apical third white ; thorax mauve-grey ; abdomen crimson, tip yellowish white.——Forewing mauve-grey, termen, a large median wedge-shaped patch running in from costa towards tornus to vein 3, and a smaller patch on outer margin yellow, two yellow spots broadly edged with scarlet on inner margin, a subbasal scent-gland and androconial patch.——Hindwing rosy pink, a double sooty spot near termen.

Length of forewing : 11·5 mm.

Hab. Aroewarwa Creek, Maroewym Valley, Surinam, May 1905 (S. M. Klages).

3 ♂♂.

122. **Paranerita polyxenoides** spec. nov.

♂. Differs from *polyxena* Druce at first sight by the hindwing being yellowish buff with broad sooty border, **not** sooty brown, with whitish basal area.

♀. Similar to ♂, but costa, termen, and outer margin joined broadly yellow.

Hab. Fonte Boa, Amazonas, May 1906 (S. M. Klages); British Guiana ; La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season, November 1904, and Rio Huacamayo, Carabaya, 3100 ft., dry season, June 1904 (G. R. Ockenden).

4 ♂♂, 2 ♀♀.

123. **Paranerita peruviana** spec. nov.

♂. Pectus, legs, palpi, and head yellow; thorax deep grey ; abdomen above deep grey, tip yellow.——Forewing deep grey, termen, an irregular patch running

in from outer margin, and a large wedge-shaped patch across cell from costa to vein 3 yellow.——Hindwing buffish yellow, shaded grey towards termen.

♀. Similar, but hindwing basal half whitish, outer half dark grey.

Length of forewing: ♂ 14 mm.; ♀ 12 mm.

Hab. La Oroya, Rio Inambari, S.E. Peru, 3100 ft., wet season, March 1905, and La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season, November 1904 (G. R. Ockenden).

7 ♂♂, 2 ♀♀.

124. **Paranerita suffusa** spec. nov.

♂. Pectus dark buff; legs and palpi scarlet; head yellow, edged with scarlet; thorax dirty clay-colour; abdomen buffy orange.——Forewing brown with slaty tinge, and basal half strongly washed with dirty yellowish clay-colour, a yellow wedge-shaped large patch extending across cell to vein 3, outer margin from termen to within a fifth of tornus yellow; a scarlet line runs from costa round discal wedge-shaped patch back along costa to termen and inside of the yellow area on outer margin.——Hindwing semihyaline orange.

Length of forewing: 13·5 mm.

Hab. Tumatumari, British Guiana, December 1907 (S. M. Klages).

1 ♂.

125. **Paranerita suffusa trinitatis** subspec. nov.

♂. Differs from *suffusa suffusa* in being larger, head and tegulae crimson, thorax and abdomen clayish orange suffused with crimson, a large crimson lunule on inner margin of forewing, red line wider, more suffused, and bright crimson.

Length of forewing: 16 mm.

Hab. Caparo, Trinidad, November 1905 (S. M. Klages).

2 ♂♂.

126. **Hyponerita viola borealis** subspec. nov.

♀. Differs from *viola viola* in the larger subapical patch and bright yellow head.

Hab. Cartago, Costa Rica, 5000—6000 ft. (Underwood).

1 ♀.

127. **Hyponerita ockendeni** spec. nov.

Allied to *rhodocraspis* Hmpsn.

♂. Differs at first sight from *rhodocraspis* by the produced tornus of hindwing, which thus is strongly triangular in shape, and by the dirty grey-brown, not sooty black, of forewings. There are a few scattered red dots on the forewing, but the conspicuous scarlet patches and margins of *rhodocraspis* are absent.

Length of forewing: 15 mm.

Hab. La Oroya, Inambari, Peru, September 1904, 3100 ft., dry season (G. R. Ockenden).

4 ♂♂.

128. **Hyponerita ockendeni posterior** subspec. nov.

♀. Markings and colour similar to *ockendeni ockendeni*, but hindwing sooty grey.

Length of forewing: 18 mm.

Hab. La Union, Caura River, June 1902 (S. M. Klages).

1 ♀.

129. **Hyponerita garleppi** spec. nov.

♂. Pectus whitish grey; legs and vertex yellow; thorax brown; abdomen crimson.——Forewing chocolate brown, more reddish towards base, extremity of termen and a wedge-shaped patch from costa across cell yellow, costal edge between wedge-like patch and termen scarlet.——Hindwing sooty.

Length of forewing: 13 mm.

Hab. Cajon, Cuzco, November 1901 (Garlepp).

1 ♂.

130. **Hyponerita similis** spec. nov.

♂. Differs at first sight from ♂ of *lavinia* Druce by the longer, narrower forewings, with pure crimson markings, the yellowish buff, **not** pale crimson, hindwings, and the much narrower yellow outer margin to forewings.

♀. Has buff hindwings slightly suffused with crimson, *not* bright pale crimson as in *lavinia*.

Hab. Potaro, British Guiana, May 1908; Omai, British Guiana, June 1908; Aroewarwa Creek, Maroewym Valley, Surinam, 1905, and Fonte Boa, Amazonas, May 1906 and July 1907 (S. M. Klages).

19 ♂♂, 1 ♀.

131. **Hyponerita persimilis** spec. nov.

♂. Differs from *similis* at first sight by the markings of the forewings being slate-grey, only edged with scarlet-crimson.——Hindwings buff.

♀. Similar, but has crimson hindwings.

Hab. Rio Huacamayo, Carabaya, 3100 ft., June 1904, dry season; La Oroya, Rio Inambari, S.E. Peru, 3100 ft., wet season, March 1905; La Union, Rio Huacamayo, Carabaya, 2000 ft., wet season, November 1904; and Santo Domingo, Carabaya, 6000 ft., wet season, April 1902 (G. R. Ockenden); Fonte Boa, Amazonas, May 1906 (S. M. Klages).

21 ♂♂, 10 ♀♀.

In *Ann. Mag. N.H.* (8) iv. p. 218 (1909) I described *Halisidota pseudocarye*. Owing to the accidental misplacement of a label in the British Museum I unfortunately did not perceive that my supposed new species was *Halisidota carye mixta* of Neumoegen.

Sir George Hampson has put Cramer's *Noctua onytes* and his *Sphinx psamas* down as ♂ and ♀: this is incorrect, as they are two species. *N. onytes* Cram. = *cotes* Druce, so that that name sinks as a synonym, and the species must stand as *Neritos onytes* (Cram.), while Sir George Hampson's ♂ of *onytes* must stand as *Neritos psamas* (Cram.).

ON THE SPECIES OF *CRICULA*, A GENUS OF SATURNIIDAE.

By K. JORDAN, Ph.D.

MONSIEUR E. ANDRÉ, of Mâcon (France), informed me early this year that he had been successful in breeding from ovae laid by specimens obtained from imported pupae (from North India, presumably Assam), a species of *Cricula* which differed conspicuously, especially in the larva, from the Javan insect known to him as *Cricula trifenestrata*. As several names had been published for various forms of *Cricula*, Monsieur André sent me a ♂, a cocoon, and a very fine inflated full-grown larva of the insect he had bred, and asked me to ascertain which name, if any, applied to this species.

The insect is undoubtedly the one figured by Westwood as *Saturnia zuleika*. As this name cannot stand, for reasons given below, I have the pleasure of naming Monsieur André's species.

Cricula andrei nom. nov.

In the course of this summer, Mr. J. Henry Watson, of Withington, Manchester, who takes a great interest in Saturnids, also supplied me with the same species (imagines, live cocoons, full-grown live larvae and fertile eggs), as well as with young larvae, fertile eggs, live cocoons, and imagines of *Cricula trifenestrata*, the original cocoons of both species having come from Assam. This kind assistance on the part of Mr. Watson will enable us, we hope, to compare and describe all the stages of *C. andrei* and *trifenestrata* before the year closes.

Although an examination of the genitalia alone would have convinced us of the distinctness of *andrei* from *trifenestrata*, the evidence from breeding is especially welcome in a case like this, where the imagines are not always very easy to distinguish by their external appearance, and are mixed up in collections as mere colour-varieties of one species.

It is evident from the pattern and structure of the two species that the fact of the similarity being greater between the imagines than between the larvae is not due to secondary convergent development. On the contrary, the imagines appear to have preserved the facies of the common ancestor, whereas the larvae have become very different. As the various stages in the life of the individual have different functions, it is not surprising that in the phylogeny of the species these stages march at a different pace, and that the advance made in the larva may not be noticeable in the imago, or the inverse. In this respect the stages in the life-history of the individual may be likened to the various organs of a species, which as a rule vary independently of each other, one organ or part of it deviating very strongly from that of the nearest allied species, while another organ has remained stationary or has progressed but slowly.

Among *Saturniidae* it is of quite common occurrence that closely allied species differ much in the earlier stages. This fact should be borne in mind when dealing with classification, lest undue weight be laid on such differences.

1. **Cricula andrei** nom. nov.*

Saturnia zuleika Westwood (nec Hope, 1843), *Cab. Or. Ent.* p. 25. t. 12. fig. 1. ♂ (1848) (Sylhet; ♂ only, "♀" is ♂ of *trifenestrata*).

The specimen figured by Westwood is undoubtedly the insect bred by Monsieur André. The individual described as the female, however, is a male of *Cricula trifenestrata*; it is preserved in the collection of the Hope Department at Oxford, and has been examined by me. Westwood's "species" therefore was a mixture of two species, one of which had already a name. In such cases I treat the new name given to the mixture as a synonym of the older name. Moreover, the name *S. zuleika* was a very unfortunate choice, as Hope had already described and figured another silk-moth as *Saturnia zuleika*.

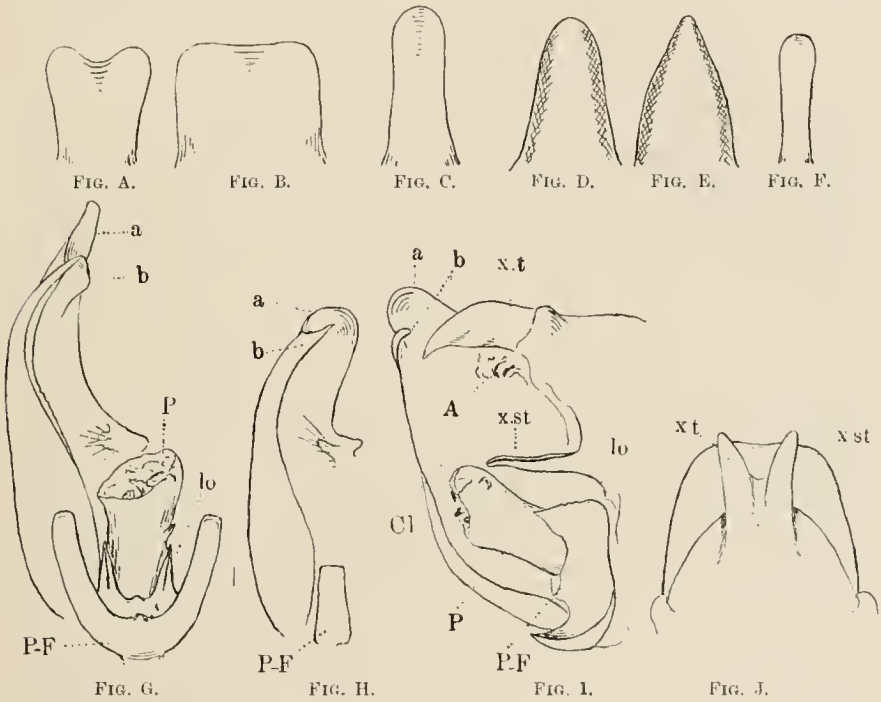

FIG. A. FIG. B. FIG. C. FIG. D. FIG. E. FIG. F.

FIG. G. FIG. H. FIG. I. FIG. J.

Imago.——*Male:* Forewing more strongly falcate than in *C. trifenestrata*, the apex being more produced and the outer margin more deeply incurved; the transparent spot larger; the postdiscal line in the upper half nearer to the margin, in the lower half farther away from it; the marginal area of a greyer shade than the disc, contrasting with it. Hindwing also with a larger transparent spot; the outer margin a little less rounded, and the anal angle somewhat more acute than in *C. trifenestrata*. On the underside the postdiscal white line is more prominent on both wings than in *C. trifenestrata*.——*Female:* The apex of the forewing more produced, the outer margin of both wings less rounded, and the

* J. English has just published a description of the larva, in *Entom. Zeitschr.* xxii. p. 120 (Sept. 25, 1909, Stuttgart), under the name of *C. trifenestrata*.

white postdiscal line on the underside more prominent than in the ♀ of *C. trifenestrata*.

In North India both sexes are as a rule of a much brighter reddish tawny colour than *C. trifenestrata*.

Genitalia.——*Male :* The anal tergite (x. t. : cf. figs. I and J, *C. trifenestrata* *) is cleft at the apex, the two processes being pointed, a little curved downwards and hollowed out underneath. The anal sternite (x. st.) is a smooth brown ridge, which widens centrally into a broad truncate lobe. The clasper (fig. G) is apically divided by a sinus into two lobes, one apical (*a*) and the other ventral subapical (*b*), both being rounded and, like the clasper, concave on the inside. The subapical lobe is placed tranversely to the plane of the outer surface of the clasper, presenting its broad surface when viewed either from the apical or the basal side of the clasper. In *C. trifenestrata* (fig. H) the corresponding lobe is always more or less in the same plane as surface of the clasper. The difference is easily perceived without dissection by removing or brushing aside the scaling at the tip of the clasper. The most remarkable difference, however, is found in the chitinous ridge which surrounds the base of the penis-sheath. This structure, which we termed "penis-funnel" in 1898,† consists in *Cricula andrei* of a ring, which is widened ventrally and here produced into two long cylindrical pale but hard processes, which are flattened at the tip (P-F, fig. G). In *C. trifenestrata* there is always a **single** central process instead of the fork (P-F, fig. H ; and figs. A—F). The penis-funnel, moreover, bears on each side of the penis-sheath, and close to it, a pointed process in the shape of a three-sided pyramid (*lo*). The penis-sheath itself (P) has in the Indian race on the right side, at some distance from the apex, a black tubercle or tooth which is directed distad. This tubercle is also present in *C. trifenestrata* (fig. I), but stands nearer the apex in that species, and is never enlarged to form a pointed tooth. Within the penis-sheath there is in the Indian race another armature, consisting of three pointed, and usually all three distinctly serrated, black processes (love-daggers ‡), which are pushed out with the duct during copulation, and doubtless serve as stimulating organs. Such organs are found in the majority of moths. In one of the females of *C. andrei* such a process was lying in the copulation cavity.——*Female :* The transverse chitinised ridge situated behind the genital orifice, and plainly visible as a rule without dissection, is centrally sinuate ; this sinus is about as broad as it is deep in *C. andrei*, while it is always much narrower in *C. trifenestrata*.

Cocoon.——Spun up singly or in twos or threes, not in large clusters ; pale yellow when quite fresh, fading into grey after some time ; opaque, with a variable number of holes.

Chrysalis.——Less densely and less deeply punctured than in *C. trifenestrata* ; the antennae and the upper lip somewhat broader. The last skin in the cocoon easily recognised as that of *C. andrei* by the numerous black spines.

* Explanation of Figures A to J :

Figs. A to F = ventral process of penis-funnel.

x. t. = tenth tergite ;	P = penis-sheath ;
x. st. = tenth sternite ;	P-F = penis-funnel ;
A = anus ;	*a* = apical lobe of clasper ;
Cl. = clasper ;	*b* = subapical lobe of clasper ;
	lo = lateral process of penis-funnel.

† *Nov. Zool.* v. p. 561 (1898).

‡ *Nov. Zool.* ix. *Suppl.* p. lxxxii. (1903).

Larva.*——First stages greenish yellow, tubercles of the same colour; last stage bright green with the tubercles red; the two dorsal tubercles of the eleventh segment united, in the first stages black, in the last stage reddish and placed on a green prominence; the bristles stouter than in *C. trifenestrata*, in first stages pale with dark tips, in last stage with black tips or quite black, central bristle of each tubercle more or less prolonged, on segments 1—4 and 10—11 ending in a long twisted filament. First stages with six rows of black spots; last stage without spots, but with a pale lateral line and numerous minute white granules, evenly distributed, each bearing whitish hairs; these hairs so thin that the body appears naked, apart from the setiferous tubercles. Head black or brownish green, immediately after ecdysis of the colour of the body.

Food-plants: oak, plum, blackthorn, etc.

We know the species from North India and Java, our specimens representing two geographical races:

a. Cricula andrei andrei.

♂♀. Very bright tawny, reddish tawny or ochraceous, as a rule much brighter than *C. trifenestrata*. The transparent spot of the hindwing of both sexes is larger than in *C. trifenestrata*. The female has at least one small transparent spot in the cell (at the proximal side of the large spots).

A series of both sexes in the Tring Museum from Sikkim, Bhutan, and Assam.

Type of name: ♂ from the Khasia Hills in Assam.

b. Cricula andrei elaezia subsp. nov.

♂. Olivaceous clay-colour, without any rufescent tints. Forewing darker olivaceous on disc; in front of the round transparent spot a row of three minute transparent dots.——Underside: the grey scaling and the grey lines more prominent than in *C. trifenestrata*.

Clasper as in *C. andrei andrei* (penis-funnel destroyed by an accident); penis-sheath much thinner than in *C. andrei andrei*, without armature on the out- and inside.

Only one specimen known: Dradjad, G. Kendang, Preanger, Java (ex coll. van de Poll).

In spite of the differences in the structure of the penis-sheath, I cannot but regard this Javan insect as a form of *C. andrei*. The genitalia vary to some extent also in the geographical races of *C. trifenestrata*.

2. **Cricula trifenestrata** Helf. (1837).

Saturnia (?) *trifenestrata* Helfer, *Journ. As. So. Beng.* vi. p. 45 (1837) (Assam; ♀ and cocoon).

This species is known to us from Ceylon, South and North India, Burma, the Malay Peninsula, the Andamans, Sumatra, Java, Lombok, Borneo, and Luzon, and may have a still wider range. The imago occurs, presumably in all places, in a

* We abstain here from giving a detailed account of the various larval stages; the full descriptions will be published at a future date, when our observations are more complete.

paler or brighter form and a darker one, which are connected by intermediate shades of colour. The species, moreover, varies considerably geographically, not only in colour and external details, but also in the genitalia of the male. All races, however, are sharply separated from *C. andrei* in the genitalia of both sexes. The early stages, too, which we know from North India and Java, are very different from those of *C. andrei*.

Imago.——Both sexes vary from dark olive-brown without any tawny or yellow shade to bright ochraceous ; the brightest specimens are more tawny than the palest individuals of *C. andrei*. The differences mentioned under *C. andrei* are generally sufficient for separating the two species. In doubtful cases the genitalia are a sure guide.

Genitalia.——*Male :* The tenth tergite (x. t., fig. 1) narrower in lateral view than in *C. andrei*. The apical lobe of the clasper (*a*, figs. H and I) broader and the subapical lobe (*b*) much narrower, the latter almost in the same plane as the surface of the clasper, being but slightly twisted and appearing pointed in a ventral aspect (*b*, fig. H). The penis-funnel (P-F, fig. 1) is dorso-laterally produced into a flat triangular process (*lo*), and bears ventrally in the centre a single process of variable shape (figs. A—F) instead of the lyra-shaped fork of *C. andrei*. The penis-sheath (P) is similar to that of *C. andrei*, but the tubercle placed subdorsally on the right side is situated closer to the apex.——*Female :* The sinus in the centre of the postvaginal ridge is much narrower than it is deep.

Cocoon.——Smaller than in *C. andrei* and more yellow, generally spun up in large clusters. It varies much in texture, being an open network in some specimens, while in others it is opaque with a very variable number of pores.

Chrysalis.——Smaller than in *C. andrei*, more densely and deeply punctured in parts ; antennae and upperlip narrower ; cremaster as in *C. andrei*, obtuse, with thirty to forty strongly curved hooks, by means of which the chrysalis is fastened to the cocoon.

Larva.——Before first moult blackish above, pale yellow beneath, without sharply defined black spots ; dorsal tubercles of eleventh segment nearer together than on the other rings, but remaining quite separate in all the stages. From the second stage onward the head and partly also the abdominal legs red, otherwise the second, third and early fourth stages nearly quite black ; numerous whitish granules appear behind the tubercles, and a smaller number in front of the tubercles, each bearing a long hair ; no granules and hairs on the intersegmental membranes. These granules and the tubercles later on are more or less surrounded with red, so that the full-grown larvae are black with red belts, the head, abdominal legs, a broad ventral stripe, and a lateral stripe being also red. All the tubercles with the central hair long, white, and twisted, the bristles of the substigmatical tubercles being all long and thin. As the bristles on the numerous granules are also long and much thicker than in *C. andrei*, the larva of *C. trifenestrata* looks almost woolly.

Food-plants : oak, cherry, plum, blackthorn, etc. In its native country *Machilus odoratissima* seems to be its favourite tree.

We know the larvae and cocoons from Java and North India. It appears to us doubtful if the larvae from the Andamans, Ceylon, Nilgiris, and Philippines, from which countries the caterpillar of *C. trifenestrata* is not yet known, will turn out to be identical with Javan and Indian examples. The imagines are readily distinguished by some slight differences.

a. Cricula trifenestrata ceylonica subsp. nov.

♂. Clayish ochraceous; transparent spot of forewing more heavily edged with black than usually. The process of the penis-funnel (fig. A) sinuate; subapical lobe of clasper broad.

♀. Tawny ochraceous. The three transparent spots of forewing heavily edged with black, especially on distal side; upper spot deeply incurved, its lower angle pointed; very little purplish grey shading on forewing. Antemedian line of hindwing heavy; transparent spot with conspicuous black border; marginal area purplish grey from anal angle nearly to third radial.——On underside the transparent spots of both wings more strongly edged with black than in the other races, the spot of hindwing transverse, anal area of both wings densely shaded with purplish grey like the disc, and this area more sharply defined than usually. Legs red.

Hab. Ceylon.

Several specimens in the Tring Museum and the British Museum.

b. Cricula trifenestrata agria subsp. nov.

A large form.

♂. Some specimens mummy-brown, others tawny ochraceous. In the dark (nymotypical) form the black lines prominently edged with grey; the grey line of the underside heavy in both the dark and light forms; forewing beneath with the black dot in centre of cell absent, occasionally vestigial in dark form; on hindwing beneath the costal area more densely scaled with purplish grey than the disc.——The process of the penis-funnel very broad, truncate, flat, faintly depressed in centre of apex (fig. B); the two pointed processes of the anal tergite wider apart than usually; the subapical lobe of the clasper short and broad, sometimes very short.

♀. Only the dark form known to us. Very distinct from all the other geographical races. Body tawny ochraceous; wings so much shaded with fuscous and grey that the ochraceous ground-colour appears only along the costal edge of the forewing, at the costal margin of the hindwing in between the dark lines and sometimes at the abdominal margin of the hindwing; first and third transparent spots of forewing large, second relatively small.——Underside almost entirely shaded with grey, the grey postdiscal line very broad and diffuse on both wings.

Hab. Travancore.

A series of both sexes in the Tring Museum.

c. Cricula trifenestrata trifenestrata Helf. (1843).

Saturnia (?) *trifenestrata* Helfer, *l.c.* (Assam).
Saturnia zuleika Westw., *Cab. Or. Ent.* p. 25 (1848) ("♀" is ♂ of *trifenestrata*).
Cricula burmana Swinhoe, *Tr. Ent. Soc.* p. 191 (1890) (Burma).

Apparently everywhere a dark and a pale form; sometimes body and wings mummy-brown without tawny shades; other specimens, especially often the ♀♀ from Sikkim, bright tawny. The genitalia of the ♂ vary to some extent in our long series of specimens, a certain type being more often found in one country than in another. The ventral process of the penis-funnel narrow, flat, with the apex truncate, rounded, or pointed, or sometimes slightly widened (figs. C and H); the subapical lobe of the clasper always narrow and long.

Hab. Nilgiris, Sikkim, Assam, Burma, Malay Peninsula, Sumatra, Java, Borneo.

Common in collections.

The type of *burmana*, in the collection of the British Museum, belongs to this subspecies.

d. Cricula trifenestrata luzonica subsp. nov.

♂. Only one specimen known to us. In colour, shape, and pattern agreeing with ochraceous specimens of *C. t. trifenestrata*. Process of penis-funnel (fig. F) narrower than in the previous subspecies, slightly spatulate; subapical lobe very short on one clasper, absent from the other; penis-sheath slenderer than in the other races, without internal armature (lost in copulating?): anal tergite dorsally grooved.

Hab. North Luzon.

One ♂ in the Tring Museum.

e. Cricula trifenestrata andamanica subsp. nov.

A large subspecies, both sexes appearing in a dark and a pale form. The fuscous form is more or less strongly shaded with vinaceous.

♂. The costal margin of the forewing more strongly curved and the apex less produced than in true *trifenestrata*, the transparent spot small, the blackish postdiscal line straighter than usually. The two blackish lines of hindwing anteriorly united (which happens occasionally also in the other subspecies); discocellular spot without transparent centre or the pupil extremely small. Markings of underside less distinct than in *C. t. trifenestrata*.——Process of penis-funnel (figs. D, E, and I) always narrowed at the apex and its under-surface convex, not flat, the subapical lobe of clasper broader than in *C. t. trifenestrata* and as long as the apical lobe.

♀. Posterior half of outer margin of forewing more rounded than in *C. t. trifenestrata*; the three transparent spots large, in cell always a fourth spot of about one-third the size of the second spot of the row of three; postdiscal line a little more distal than usually, crossing the third radial midway between the outer margin and the third transparent spot instead of being nearer to this spot than to the margin. The two lines of hindwing approach each other anteriorly, but do not unite; the purplish grey shading at the outer margin forms a narrower band than in *C. trifenestrata*.

Hab. Andaman Islands.

A series of both sexes in the Tring Museum.

3. **Cricula drepanoides** Moore (1865).

Cricula drepanoides Moore, *Proc. Zool. Soc. Lond.* p. 817 (1865) (Sikkim).

Very different from *C. andrei* and *trifenestrata*. Only the ♂ known to us. Much more variegated than the other two species; forewing with a large irregular patch of numerous ochreous semitransparent spots; hindwing with one large and several small spots, which are ochreous edged with blackish brown and partly transparent. The genitalia are also different.

Hab. Sikkim and Bhutan.

A series of ♂♂ in the Tring Museum.

SOME NEW SOUTH INDIAN *ANTHRIBIDAE* IN THE COLLECTION OF MR. H. E. ANDREWES.

By K. JORDAN, Ph.D.

1. **Litocerus nilgiriensis** spec. nov.

♂ ♀. Brownish-black. Rostrum and the whole under-surface densely pubescent clayish grey, like the markings of the pronotum and elytra. Segments 1—3 of the antenna and the joints of segments 4—8 pale testaceous, the apex of the eleventh segment testaceous and pubescent white, the antenna of the ♂ longer than the body, 4—8 cylindrical. Pronotum punctured laterally, with a transverse groove before the middle, the sides (exclusive of two brown spots), a broad mesial stripe, and two spots at each side of this stripe clayish grey; carina straight above, and forming a semicircle at the sides. The clayish grey pubescence of the elytra forms three irregular transverse bands, one at the base, much frayed out posteriorly and enclosing a brown humeral halfring; a second band behind the middle, and a third at the tip, the last two usually more or less connected by additional markings placed between them, there being also small clayish grey spots in the large anterior black-brown area, a square spot at the basal third of the suture being particularly conspicuous. Basal third (♀) or two-thirds (♂) of femora pale testaceous; proximal portions of the tibiae and first tarsal segment and the whole second tarsal segment white. Abdomen of ♂ without tubercle. In the ♀ the clayish grey pubescence on the side of the pronotum is broken up into spots, and the sterna bear brown lateral spots.

Length: 6—7 mm.

Hab. Nilgiri Hills.

A considerable series of both sexes.

The pale tip of the eleventh antennal segment and the shape of the pronotal carina will be sufficient to distinguish this species from others.

2. **Hypseus picticollis** spec. nov.

♂ ♀. Brownish black. Rostrum twice as broad as long, sparsely pubescent grey. Frons triangular; in ♂ hardly so broad as the club of the antenna; in ♀ about one-fourth the width of the rostrum. The first, second, seventh and eighth segments of the antenna rufous, the eleventh pale luteous. Prothorax a little broader than long, coarsely punctured at the sides, more finely in centre, with an interrupted yellowish mesial line, which is dilated to a spot before the scutellum; the central space of the pronotum is bounded by four grey lines, forming a rhomb, and the sides are occupied by three grey longitudinal lines, which are more or less connected with one another; carina convex above, with acute lateral angles. Elytra depressed behind the base, the basal margin rufescent, the third interspace somewhat elevate, with a luteous elongate spot at the base and another behind the middle, the latter being placed between two black elongate spots; a third luteous elongate spot at the base in the fifth interspace, suture with numerous small luteous spots; the other interspaces more dispersedly spotted with luteous.

Underside pubescent grey, with weak brown lateral spots; sterna coarsely punctured. Knees, tip of tibiae, and tarsi rufescent.

Length: 3 mm.

Hab. Nilgiri Hills.

A small series.

3. **Phaulimia lineata nilgiriensis** subspec. nov.

♂ ♀. Differs from *P. l. lineata* in the sides of the pronotum being more densely pubescent clayish grey, and the elytra bearing two clayish grey patches across the suture, the antemedian patch being large and at the suture continued to the base, and the postmedian one being narrow. The legs, moreover, are darker.

Hab. Nilgiri Hills.

One pair.

4. **Disphaerona andrewesi** spec. nov.

♂ ♀. Black, upperside with grey and clayish pubescence, which is denser in some places than in others. Rostrum nearly twice as broad as long, with mesial carina; frons about three-fourths as broad as the rostrum, slightly convex; upper-lip, palpi, and the first, second, and eleventh antennal segments pale rufous; rest of antenna black-brown, rufescent, especially at the joints. Pronotum strongly punctured, with a transverse row of three callosities, of which the central one is the highest; between each and the carina a grey line, the two lateral ones of these lines continued beyond the carina to the basal edge and here bordered on the dorsal side by a black spot. Elytra very strongly punctate-striate, the third interspace with four tubercles, of which the first and second are the largest; small tubercles also in the fifth and seventh interspaces, the first tubercle of the third interspace quite black, and this colour continued as a short line to the basal edge of the elytrum. Legs rufous; middle of femora, a small spot at base of tibiae, and a large ring between middle and tip of tibiae brown

Length: 3—4 mm.

Hab. Nilgiri Hills.

Several specimens.

5. **Dinectarius** (?) **basiplaga** spec. nov.

♀. Rufescent, clothed with a grey pubescence. Rostrum transversely depressed at the base, nearly twice as broad as long. Eye very slightly sinuate. Antenna brown, segment 1, the bases of segments 2 to 9, and the tip of 11 pale testaceous. Prothorax broader than long, widest behind, with the sides feebly rounded; the grey pubescence somewhat more condensed in the mesial line and at the sides than before the carina, where the brown ground forms some large patches; carina concave in middle, convex towards the sides, evenly flexuose, the extreme end being bent forward. Scutellum white, conspicuous on account of a large blackish patch of the elytra surrounding it. The elytra otherwise pubescent grey, the ground blackish at the sides, the pubescence interrupted by some small spots arranged in irregular transverse rows. Legs pale testaceous; apex of femora blackish. Underside of body blackish, densely pubescent grey.

Length: 3 mm.

Hab. Nilgiri Hills.

Two specimens.

ON SOME OF THE AFRICAN LONGICORNS DESCRIBED BY HOPE AND WESTWOOD.

By K. JORDAN, Ph.D.

PROFESSOR E. B. POULTON kindly lent me the African Longicorns of the Hope Department for some time, so that I was enabled to compare them with the specimens in the collection of the Tring Museum and take notes on the types contained among the material of the Hope Department. I find that some of Hope's species have been wrongly identified by subsequent authors, myself included. It is especially his paper in *Ann. Nat. Hist.* 1843, p. 366, "On some New Insects from Western Africa," which has given rise to much uncertainty, owing partly to the shortness of the descriptions and partly to the erroneous place assigned to some of the insects. The following list gives all the Longicorns named in that paper.

1. Stenodontes downesi.

Mallodon downesii Hope, *l.c.* p. 366. n. 47 (1843) (Fernando Po ; Cape Palmas).

The well-known common Prionid. Hope mentions *Mallodon picipennis* and *raddoni* as being taken at Sierra Leone ; these are *nomina in coll.* of specimens of *downesi*, which varies a good deal.

2. Acanthophorus palini.

Acanthophorus palinii Hope, *l.c.* no. 48 (1843) (Sierra Leone).

This is the insect which Waterhouse figures in *Aid to the Identification of Insects*, p. 25, t. 167, fig. 1 (1888 ?).

3. Acanthophorus longipennis.

Acanthophorus longipennis Hope, *l.c.* no. 49 (1843) (Sierra Leone).
Acanthophorus megalops White, *Cat. Brit. Mus.* vii. p. 15 (1853) (Fernando Po).

Lameere, *Ann. Mus. Congo, Zool.* iii. *Longic.* (1903), treats the name as a synonym of *yolofus* Dalm. (1817). The type-specimen of the name (nymotype), however, which is a female, is very near to *megalops* White (1853), and in my opinion the same species. The puncturation is much more dispersed than in other *Acanthophorus* ; the femora are quite smooth ; the tibiae bear only scattered punctures and, in the lateral depression, a few setiferous granules. The apex is dorsally emarginate in all the tibiae, each angle of the sinus being produced into a tooth nearly as in *A. palini*. The antennal segments are not channelled.

4. Phyllarthrius africanus.

Phyllarthrius africanus Hope, *l.c.* no. 50 (1843) (Sierra Leone).

The antenna is described as having only ten segments. What Hope called the second segment is really the third, the second being quite short. The pronotum has a depression on each side, much as in *Ptycholaemus*. The elytra are cylindrical, nearly as in *Purpuricenus*, the apical margin of each being rounded. The black apical area of the elytra measures about 2 mm.

We have a female from Benito, Portuguese Cameroons, which agrees with the nymotype of *africanus*, but the apical area of the elytra is twice the size (about 4½ mm.) and the lobes of the antennal segments are narrower. I name this form

P. africanus benitensis subsp. nov.

5. Phyllarthrius unicolor.

Phyllarthrius unicolor Hope, *l.c.* p. 367. no. 51 (1843) (Ashanti).

I have not seen a second specimen of this species.

6. Phycholaemus signaticollis.

Hamaticherus signaticollis Hope, *l.c.* no. 52 (1843) (Cape Palmas).
Phycholaemus troberti Chevrolat, *Ann. Soc. Ent. France* p. 324. no. 5 (1858) (Guinea).

This species is the same as *troberti* Chevr.

7. Plocederus viridipennis.

Hamaticherus viridipennis Hope, *l.c.* no. 53 (1843) (Sierra Leone).

Antenna and legs yellowish tawny. Prothorax as in *P. chloropterus*, the transverse folds not quite so regular, the spine pointed. Elytra tawny, but this colour almost entirely suppressed by a blue-green gloss; puncturation more minute than in *chloropterus*; sutural angle with a short tooth, outer angle with a longer one. Abdomen tawny ochraceous.

8. Domitia pilosicollis.

Hamaticherus pilosicollis Hope, *l.c.* no. 54 (1843) (Cape Palmas).

This is not a Cerambycid, but a Lamiid. It belongs to *Domitia*, which is nearly allied to *Monochamus*, and is very near to *D. aenea* Parry (1849), the type of which I have not compared. *D. aenea* stands under *Sternotomis* in the Munich Catalogue.

9. Plocederus glabricollis.

Hamaticherus glabricollis Hope, *l.c.* no. 55 (1843) (Cape Palmas).

Legs and the first segment of the antenna tawny red, rest of antenna blackish tawny; knees black. Thorax smooth on disc, with some minute punctures and posteriorly two callosities; no spine on the side, but three callosities. Elytra green; puncturation minute and sparse; sutural angle with acute spine, outer angle pointed, but very little produced.

10. Ionthodes amabilis.

Ionthodes amabilis Hope, *l.c.* no. 56 (1843) (Sierra Leone).

The type-specimen seems to be somewhat discoloured. The elytra are blue with a velvety streak along the centre of each. The spots of the prothorax are white, while they are yellowish in our specimens from Sierra Leone.

11. Callichroma afrum.

Callichroma assimile Hope, *l.c.* no. 57 (1843) (Sierra Leone).

I consider this to be the same as *C. afrum* L. (1771).

12. Mecaspis laetum.

Callichroma laetum Hope, *l.c.* p. 368. no. 58 (1843) (Cape Palmas).

Greenish blue, or blue; antenna and legs black. No velvety pubescence on pronotum and elytra. *M. dires* Pascoe, *Tr. Ent. Soc. Lond.* p. 495 (1888), from Delagoa Bay, seems to be the same.

13. Mecaspis atripenne.

Callichroma atripenne Hope, *l.c.* no. 59 (1843) (Sierra Leone).

This is a well-known species, which cannot be confounded with any other *Mecaspis*.

14. Callichroma igneicolle.

Callichroma igneicolle Hope, *l.c.* no. 60 (1843) (Ashanti).
Callichroma imitator Jordan, *Nov. Zool.* i. p. 168. no. 86 (1894) (Gold Coast).

My *imitator* is the same as *igneicolle*. There are in collections several similar forms which have received names. They differ slightly from *igneicolle*, especially in the plication of the pronotum. Their distinctness is doubtful.

15. Oxyprosopus speciosus.

Cerambyx speciosus Dalman, in *Schoenh., Syn. Ins.* i. 3. App. p. 153. no. 210 (1817) (Sierra Leone).
Promeces carbonarius Hope, *l.c.* no. 61 (1843) (Sierra Leone).

Bluish black, legs yellowish tawny. The only *Oxyprosopus* of this colour known to me.

16. Euporus amabilis.

Euporus amabilis Hope, *l.c.* no. 62 (1843) (Cape Palmas).

Anterior half of pronotum purplish blue like the occiput, without any punctures: disc of the dilated central part of the prothorax densely punctured, the puncturation more dispersed on the sides. Shoulders smooth, glossy, but the area between the shoulder and the scutellum as densely rugate as the rest of the elytrum.

17. Euporus strangulatus.

Euporus strangulatus Serville, *Ann. Soc. Ent. France*, p. 21 (1834) (East Indies ?).
Rhopalophora? resplendens Newman, *Ent. Mag.* v. p. 496 (1838) (Fernando Po).
Euporus chrysocollis Hope, *l.c.* no. 63 (1843) (Fernando Po).

The puncturation of the thorax is very coarse; the anterior half of the pronotum is not quite smooth, there being some large punctures in the depression; the punctures on the disc of the wider part of the prothorax are centrally less numerous than at each side of the middle line, the smooth area penetrates mesially into the patch of punctures. There occurs a similar species in the same districts which has a broader prothorax, with the centre of the wider portion very densely punctured.

18. Sternotomis principalis.

Lamia principalis Dalman, in *Schoenh., Syn. Ins.* i. 3. App. p. 162. no. 223 (1817) (Sierra Leone).
Sternodonta palini Hope, *l.c.* no. 64 (1843) (Sierra Leone).

In this form the spots in the posterior half of the elytra are green. We have several specimens from Sierra Leone. The individuals from Angola have all the

markings of the elytra buffish ochraceous; the pubescence between these markings is duller green than in the *principalis principalis*. This Angola form may be called

St. principalis hilaris subsp. nov.

19. Prosopocera princeps.

Sternodonta princeps Hope, *l.c.* p. 369, no. 65 (1843) (Ashanti).
Lamia (*Sternotomis?*) *princeps*, Westwood, *Arc. Ent.* ii. p. 125. t. 78. fig. 2 (1845); id., *l.c.* p. 147 (1845).

A very distinct species, easily recognised by the pattern of the elytra.

20. Sternotomis mirabilis forma amabilis.

Sternodonta amabilis Hope, *l.c.*, no. 66 (1843) (Ashanti).
Sternotomis submaculata Kolbe, *Ent. Zeit. Stett.* p. 65. n 31 (1893) (Togoland: Ashanti) (1801).

Drury's *St. mirabilis* is dichromatic, nymotypical *mirabilis* being the green form and *amabilis* the tawny one.

The base of the pronotum in *amabilis* is green, as in *S. imperialis* F.; the elytra bear a green sutural spot as in *S. chrysopras*, but the suture is more or less extended green also in front of and behind this spot; sometimes the ochraceous markings are separated by more or less green interspaces. The structure by which the species can be most easily recognised is the basal tooth of the mandible of the male. This tooth, as Kolbe has already explained of *submaculata*, is curved inward, the tips of the two teeth pointing towards each other.

There appear to be several other species which have a tawny and a green form.

I add a note on another species of *Sternotomis*, described by Westwood:

Sternotomis virescens.

Sternotomis virescens Westwood, *Arc. Ent.* ii. p. 83. no. 1. t. 69. fig. 1 (1845) (Sierra Leone).
Sternotomis dubocagei Coquerel, *Ann. Soc. Ent. France*, p. 186, no. 3. t. 5. fig. 2 (1861) (Angola).
Sternotomis aglaura Kolbe, *Ent. Zeit. Stett.* p. 61. no. 30 (1894) (Uganda; Cameroons).

The markings of worn specimens are much smaller and greener than those of fresh ones, which are chalky white or but slightly greenish. In the examples from Uganda the markings have sometimes an ochraceous tint.

Sternotomis gama Coquerel, *l.c.* no. 4. t. 5. fig. 4 (1861) (Angola) is based on a buffish individual of *virescens*, and *St. bohndorfi* Waterhouse, *Ann. Mag. N. H.* (5) xvii. p. 501 (1886) (Niam-Niam), also does not seem to be specifically different from *virescens*.

DESCRIPTION OF A NEW KIND OF APTEROUS EARWIG, APPARENTLY PARASITIC ON A BAT.

By K. JORDAN, Ph.D.

(Plates XVI., XVII., XVIII.)

THE insect which forms the subject of the present paper was discovered by Messrs. Ed. Gerrard & Sons, of Camden Town, "in the sack formed by the membrane of the wings of *Cheiromeles torquatus*," the naked bat of the Sunda Islands. The bat has an exceedingly strong and nauseous smell, and is known from the Malay Peninsula, Sumatra, Java, and Borneo. It flies at dusk, and sleeps in daytime in hollow trees and in fissures of the soil and rocks. Both sexes of the bat have a large gular pouch, which is said to be used for storing the young during flight—Mr. Gerrard informs me that one of the bats in his possession had a young one in the pouch—and it is suggested that, in the case of twins being born, the father and mother take each charge of one of the offspring. Besides the excretions of the gular glands there may occur at times an accumulation of the excrements of the young bat sufficient for insects to feed and thrive upon. Messrs. Gerrard received a number of specimens of *Cheiromeles torquatus* from Sarawak, where they were obtained by Mr. Chas. Hose. In the pouch of one of these specimens the new insect was found, which we name

Arixenia esau gen. et spec. nov.

At first sight we were inclined to attribute to accident the occurrence of such a large insect in the nursing-pouch of the naked bat. But the study of *Arixenia* has convinced us that the insect, which is related to the earwigs, is parasitic. Indeed, it does not require a great stretch of imagination to understand how a kind of earwig arrived at living in the pouch of a creature sleeping in fissures of rock or soil. The reduction of the eye and the structure of the mandible and of the inner lobe of the maxilla seem to indicate that *Arixenia* lives in a dark place, and feeds principally on matter which has already been masticated or requires little mastication. The contents of the alimentary canal consist of a soft amorphous matter and numerous fragments of insects. We obtained from the anterior portion of the oesophagus, within the head, two comparatively large pieces of chitin, which proved to be the apex of the tibia and the first and the base of the second tarsal segment of, we think, some small fly. The fragments have the appearance of being fresh, and we believe we detect some remnants of muscles attached to them, which, if correct, would justify the conclusion that *Arixenia* feeds, perhaps incidentally, also on live or freshly killed insects.

Arixenia is interesting not only on account of the peculiar place where it was discovered, but also for the morphological and anatomical characteristics which it presents. We received four specimens, two of them being half as large again as the other two. They were in alcohol, and very well preserved as regards the chitinous parts. But the soft inner organs are so much macerated that we cannot give any histological details. Moreover, none of the specimens are quite full grown, so that the account of the anatomy is incomplete also for this reason.

Our description and figures, however, will be sufficient, we trust, for recognising the species, and it is to be hoped that, now we have drawn attention to *Arixenia*, the peculiar interest attached to all parasites will induce naturalists residing or travelling in the Malayan countries to collect all the stages of development of the insect.

Since in the earwigs generally the young and adult do not differ very much in structure, especially in the wingless forms, we may assume that also in this case the adult specimens will present essentially the same appearance as the individual here figured (Pl. XVI. fig. 1). This assumption, we think, is the more justified as our smaller specimens of *Arixenia* differ from the larger ones in a similar way as do young earwigs from adult ones—for instance in having a smaller number of segments in the antenna.

The large specimens measure 18 mm. from the upper lip to the apex of the pygidium, the small specimens 12 mm. Head, thorax, mouth-parts, antenna, and legs ochraceous; sterna of thorax and the coxae pale buff; abdomen blackish tawny. The whole insect covered with pale ochraceous hairs, which are longest near the edges of the segments. The thoracic nota bear each seven elongate spaces which are devoid of hairs (Pl. XVI. fig. 1). There are no wings.

Head.

The *head* is broader than long, being widest posteriorly. In general outline it agrees with the head of the earwigs, being obtusely heart-shaped. The upper-side slants slightly downwards from near the hindmargin to the upper lip. In front of the antennae there is a curved depression, which extends from side to side and separates the anterior portion of the capsule of the head, the clypeus, from the central part or frons (= epicranium). The suture situated in this transverse depression is but vestigial. Another suture is found between the eyes; it is much less distinct than in the earwigs. The occiput (or protocranium), which lies behind this second suture, is divided by a minute central longitudinal suture, as is also the case in the earwigs. The hind portion of the occiput is incurved and centrally depressed, so that the sides are somewhat globose and project backwards.

The eye is smaller than in the earwigs, and contains only eighty odd facets. It is situated close behind the antenna, and is a little more dorsal than ventral, only a small portion of it being visible in a ventral view of the head (Pl. XVII. fig. 1). It is elliptical and but little raised above the surface of the capsule of the head. The somewhat loose arrangement of the facets and their small number indicate that a reduction has taken place, the eye being on the way towards becoming vestigial and lost.

The antenna is lateral, being inserted where the dorsal and lateral surfaces of the head meet. The membrane connecting it with the capsule of the head is rather large, and allows a full play backwards and sideways. The antenna cannot be held straight forward. There are thirteen segments in the antenna of the large specimens. They are nearly circular in a transverse section. The first segment is much longer and thicker than any other, and somewhat curved, as shown in the figure. The second, on the contrary, is very short, and serves as a kind of condylus, the remaining segments forming a flagellum which is freely movable in all directions. The third segment is a little more than one-third the length of the first, while the fourth as well as the fifth are less than half the length of the third, the sixth and seventh being but little longer than the fifth.

Segments 8 to 13 are distinctly slenderer than the preceding ones, and are nearly equal to each other in length. All the segments, with the exceptions of the first and second, bear two patches of sensory pits near the apex (Pl. XVII. fig. 5), one patch being placed on each side, and each pit bearing a very short bristle. The number of pits is less on the proximal segments than on the distal ones. The same sensory organ exists in *Hemimerus*.*

In our smaller specimens the antenna consists of but eight segments instead of thirteen. The third segment is much longer than in the thirteen-jointed antenna, being about as long as the first segment. Segments 4 to 8 are each about two-fifths the length of the third, the eighth being the shortest. A comparison of the antennae of the large and small specimens proves that the increase in the number of segments as the insect grows takes place in the region of the third to sixth segments, *Arixenia* agreeing therein with the earwigs. The structure of the segments is practically the same in the large and small specimens. I think we may expect the adult *Arixenia* to have at least fourteen segments in the antenna.

The mouth-parts present several characteristic points. The membrane connecting the clypeus with the upper lip or labrum is rather large and, like most membranes connecting the sclerites with one another, whitish and smooth, bearing no hairs. The *labrum* itself (*lr*, Pl. XVII. fig. 10 and Pl. XVIII. fig. 1) resembles that of the earwigs. It is transverse, with the angles rounded off. The anterior edge is feebly incurved and very slightly bent downwards, much less so than in *Hemimerus*. The hind edge, seen from beneath in fig. 10 of Pl. XVII., is straight, and the lateral angles are produced backwards. Numerous longitudinal muscles are attached to the labrum, as indicated in fig. 1 of Pl. XVIII.

The mandible differs remarkably from the ordinary type of insect mandible. The right and left mandibles are practically alike. They are but little longer than broad, and appear nearly flat (Pl. XVII. figs. 3, 4). Both the upper and under surfaces are convex along the centre and depressed at the inner edge. The upper-side is more convex than the underside and bears a small patch of hairs at the outer margin, while the under surface has no hairs at all. The inner and outer margins of the mandible are rounded. As in the earwigs, the apex is armed with three teeth, which remind one of the claws of a mammal, their apical surface being convex and the proximal surface concave. The whole inner margin is densely clothed with bristles. This edge is quite narrow and is not at all suitable for mastication, as it is in *Hemimerus* and *Forficula*. The bristles placed near the apex of the mandible are thick, rigid, and somewhat curved in hook-shape, whereas those of the more proximal portion of the edge are like ordinary bristles, being longer and more flexible and becoming gradually thinner towards their tips. The bristles are not placed in a single row, but stand closely packed on the whole narrow surface of the edge of the mandible. It is clear from this peculiar armature, which closely resembles that of the inner lobe of the maxilla of *Arixenia*, *Forficula*, and other mandibulate insects, that the food of *Arixenia*, or at least the way of feeding, is different from that of the earwigs. The mandibles of *Hemimerus* and the earwigs have, as far as they are known, the ordinary triangular shape with the inner margin incurved, as widely found in the mandibulate insects. There may be earwigs which approach *Arixenia* in the structure of the mandibles. Unfortunately these organs cannot be well seen without being dissected out,

* Hansen, in *Tidskr. Ent.* xv. p. 67 (1894).

and for that reason we have not been able to compare them with the collection of earwigs in the British Museum.

The mandibles of *Arixenia* appear to me to be much more suitable for brushing food into the month than for cutting it up. The length of the bristles placed on the inner edge near the apical teeth speaks against the mandible being used for cutting up hard substances, with the exception perhaps of small pieces not so large as the three teeth together. The hook-like shape of the bristles also indicates that the mandible is largely used as a kind of brush.

The *maxilla*, which is represented in fig. 2 of Pl. XVII. from the underside, agrees on the whole with that of the earwigs and *Hemimerus*. As in the allied insects, it lies in a deep sinus, bounded laterally by the lateral portion of the capital capsule, and mesally by the mentum. The lateral edge of this sinus or groove is much less sharply cariniform than in the earwigs. The proximal portion of the maxilla, in live specimens of earwigs, is capable of a strong forward movement, and can slide but little sideways. The latter movement is reserved for the distal parts of the maxillae, which open and shut like the mandibles. In consequence of this opening and shutting and the simultaneous forward movement of the maxilla the food is hauled into the mouth, which latter at that moment is widened on account of the underlip flapping downwards and its apical lobes moving sideways. The sutures on the proximal parts of the maxilla are very distinct in *Arixenia*, and we were surprised to find that the part which corresponds to the cardo of other insects consists of two sclerites (Pl. XVII. fig. 2, a 1, a 2). The cardo is generally stated to be one single sclerite in all insects. A comparison of *Forficula* and *Hemimerus*, however, convinced us that also in these insects there is a suture extending, as in *Arixenia*, from about the centre of the outer margin inward and forward. We can hardly assume that this suture is of secondary origin, but believe the non-divided cardo of insects to be the result of the fusion of two sclerites in consequence of stronger chitinisation. The cardo acting as a lever to the maxilla requires to be rigid, especially in insects in which the maxillae are pushed far forward when feeding, or have to execute abrupt movements. In the earwigs the mouth-parts are relatively soft, and it would therefore be intelligible that here a suture was preserved which had disappeared in more strongly chitinised insects.

The central portion of the maxilla, the so-called stipes, consists of three sclerites (Pl. XVII. fig. 2, b 1, b 2, b 3). The inner and the median sclerites (b 1 and b 2) are hollowed out on the upperside for the reception of the muscles. The two apical lobes c 1 (= lacinia) and c 2 (= galea) resemble those of the earwigs. The inner lobe is armed at the apex with two teeth which stand one beside the other, the longer one being dorsal and the smaller one ventral. Both teeth are claw-like, their apical surface being convex and the proximal surface concave. The inner margin of the lacinia gradually widens proximally, so that the molar surface thus formed represents a narrow triangle, the point of which lies at the apex of the lacinia. The two sides of this surface bear each a single row of stiff bristles. This row becomes more irregular proximally, where additional bristles appear on the lateral surfaces near the edge, and some also in between the two rows. The stiff bristles are slightly bent twice, reminding one of the letter S. The lacinia of *Hemimerus* has four apical teeth instead of two as in *Arixenia* and *Forficula*, and the edges of the inner margin are very thin and cariniform, the molar surface being deeply hollowed out.

The number of bristles, moreover, is much smaller in *Hemimerus* than in *Arixenia*. The common earwig, too, has but a small number of bristles at the molar margin of the lacinia, and the latter is much slenderer than in *Arixenia*, but bears two apical teeth as in that insect.

The outer lobe of the maxilla, the galea, is almost identical in *Forficula*, *Hemimerus*, and *Arixenia*. It is gently curved inwards, and its transverse section is circular. The apex is pale, without bristles and but slightly chitinised, serving doubtless a sensory purpose.

The maxillary palp consists of five segments, as in the allied insects. The two proximal segments are very short, and the third is a little longer and stouter than the fourth. The fifth bears at the apex short and stumpy bristles which differ from the ordinary bristles with which the palp is clothed. There is, moreover, a minute accessory segment at the tip of the fifth, as is the case in the labial palp also. This accessory segment, which gives the palpi their very characteristic appearance, is found in the earwigs as well as *Hemimerus*, whereas the Locusts, Blattids, Mantids, etc., have quite different palpi.

The gap in which the maxilla is inserted nearly extends to the hind edge of the head, being separated from the occipital foramen only by the narrow submentum, which is joined rigidly at each side to the lateral part of the caputal capsule (Pl. XVII. fig. 1). The submentum (*sm*, Pl. XVII. fig. 7) is the posterior sclerite of the second pair of maxillae or the labium. The suture which separates it from the main part of the labium is quite distinct. The second sclerite is the mentum. It is broader than long and strongly rounded at the sides, and its anterior margin is incurved at each side, so that the angles, which are strongly rounded, project a little. The surface is nearly flat, being slightly impressed from the sinus of the anterior margin backwards and somewhat convex at the sides. Neither the mentum nor the submentum shows a distinct trace of a mesal suture. The two apical segments of the labium are divided in the middle line, and therefore can not only execute a downward movement, but can also move horizontally, especially the two apical lobes, which open and shut like the maxillae. The third segment, or the palporium (= palpiger), which bears the palpi, is separated by sutures from the mentum as well as the two apical lobes, which form the ligula (*li*, Pl. XVII. fig. 7). The apex of the ligula is white and without bristles, and recalls the pale apex of the galea of the maxilla. The inner edges of the two lobes of the ligula bear some rigid bristles. The labial palp (*lp*, Pl. XVII. fig. 7) is composed of three segments as in the allied insects, bearing like the maxillary palp a minute apical accessory segment.

On the upperside of the apical lobes of the labium there lies the hypopharynx (or endolabium). It consists of a broader central flap and two narrow lateral flaps; the latter are strongly chitinised at their outer edges and partly cover the central flap in a dorsal view (Pl. XVII. fig. 9). The chitinised edges of the lateral flaps extend backwards for a short distance and send out a side-branch towards the maxillae. The hypopharynx is remarkably similar to that of *Hemimerus*, whereas it differs somewhat in shape from that of *Forficula*.

Thorax.

The prothorax is the longest of the three thoracic rings. The pronotum is broader than it is long, and its lateral and posterior edges almost form an evenly curved semicircle, reminding one of certain Forficulids. The disc is feebly convex

anteriorly, the upper surface being somewhat depressed at the sides and behind. The anterior margin is sinuate at each side, and the central portion depressed so as to fit into the concave occipital part of the head. There is no sharp edge either on the occiput or at the base of the pronotum, nor are head and pronotum closely applied to one another. In *Hemimerus*, on the other hand, the hind edge of the head projects backwards, overlapping to a slight extent the pronotum. This overlapping, which is not often observed among insects, is best known of some Hemiptera parasitic on bats and of the fleas. In the beaver parasite, *Platypsyllus castoris*, the head and pronotum fit well together, and there is, moreover, a comb of spines extending from the edge of the head on to the thorax, bridging over the gap which might be formed when the head is bent down. The overlapping we find in these parasites, which live in the fur of mammals, renders the surface of the head and pronotum more uniform and hence more suitable for gliding through the fur, and is certainly a secondary development which has taken place independently in these not nearly related insects.

In certain lights there appears a thin pale line along the centre of the pro- and mesonotum, which is also found in *Hemimerus*.

The mesonotum is similarly rounded as the pronotum, but still more strongly at the sides. The metanotum, however, though its sides are also strongly rounded, resembles in outline more the abdominal segments, inasmuch as its hindmargin is slightly incurved instead of rounded. The metanotum, moreover, is a little broader than the pro- and mesonotum. The three nota project much less sideways than in *Hemimerus*, and do not even quite conceal in a dorsal view the pleural sclerites and trochanters (Pl. XVI. fig. 1).

As the head is longer above than below, the membrane connecting it with the thorax is more extended beneath than above (Pl. XVII. figs. 1 and 8). Ventrally this membrane expands between the submentum (*sm*) and a small sclerite which lies in front of the sternum of the prothorax and undoubtedly belongs to the thorax and not to the head. Hansen considered this transverse sclerite in *Hemimerus* to be the sternum of the labium, *i.e.* a part of the head, and drew it as lying close to the submentum and well separated from the prosternum. Our specimens of *Hemimerus*, however, prove that the sclerite in question has the same position in that insect as in *Forficula* and *Arixenia*. Verhoeff,* with customary acumen, recognised it from Hansen's figures as being part of the thorax, and identified it as the sternal plate of the "microsternum." † The sclerite, I think, is homologous with what I termed "mesoclidium" in the mesosternite of insects, the sclerites extending from this central plate upwards corresponding to the peri- and parasterna.‡ The mesoclidium is not developed in the mesosternite of *Arixenia*, but is quite distinct in the mesosternite of some other Orthoptera—for instance, *Acridium*.

The prosternum is nearly as long as it is broad, and overlaps the mesosternum, which latter projects over the metasternum. The sternal parts of the thorax are much less densely hairy than the nota (the hairs are not indicated in our figs. 1 and 8 of Pl. XVII.). The meso- and metasterna are much broader than long. The metasternum is the widest of the sterna, and bears on each side a small groove, from which extends inward a narrow, rod-like, pointed endoskeleton. The coxal cavities are large and lateral, and are situated at the hind edge of the

* In *Zool. Anzeig.* xxv. p. 201 (1902).

† For the morphology of the thorax of insects, see Börner, in *Zool. Anzeig.* p. 290 (1903).

‡ In *Verh. V. Intern. Zool. Congress, Berlin*, p. 820 (1902).

sternites, being porteriorly closed only by a narrow strip of membrane, which, in a lateral view (Pl. XVII. fig. 8), appears widest in the prothorax. The pleural sclerites are but feebly chitinised. Their position is best seen in a lateral view (Pl. XVII. fig. 8). The so-called meral suture, which separates the anterior or sternal part of the sternite from the posterior or meral part, is plainly visible in all three sternites. The episternum (*epst*) is larger than the epimerum (*epm*). The latter projects backwards over the membranous posterior marginal part of the sternite. In the meso- and metathorax the epimerum is narrowed posteriorly, forming a conical process, which is visible also in a dorsal view (Pl. XVI. fig. 1). Between the episternum, sternum, and coxa there lies a triangular sclerite (*ti*), which was regarded by Hansen in *Hemimerus* with some doubt as the trochantine. We believe this identification to be correct. In front of the trochantine there is another small sclerite in the pro- and mesosternite which, we think, is the lateral sclerite, the peristernum (*per*), of Verhoeff's microthorax. It is somewhat globose and wrinkled in the prothorax of *Arixènia*. Above this plate there is in the prothorax a narrow sclerite extending upwards in front of the pronotum. This is the parasternum.*

The legs are long and of a characteristic structure. At rest they appear to be held in the position in which they are represented in fig. 1 of Pl. XVI., lying in our four specimens almost in a plane with the body, the tibiae being directed forwards, scorpion-fashion. Many earwigs hold the legs in a similar position. The mid- and hindlegs of *Arixenia*, when moved upwards and the tibiae backwards, remain in this position, so that it is probable that *Arixenia* walks like an ordinary earwig with the mid- and hindlegs directed back- and sidewards. Except for a slight difference in length the three pairs are identical. The coxae (*co*) are larger than in *Hemimerus* and *Forficula*, and are ventrally much longer than dorsally. They bear ventrally before the apical edge a transverse, pale, membranaceous groove. The trochanter (*tr*) is considerably narrower behind than in front. The femora are slightly compressed. They are hollowed out beneath at the apex for a short distance for the reception of the tibiae, which can be laid close along the femora. The tibiae are as long as the femora, but much thinner and nearly cylindrical, slightly narrowing towards the base, which is gently curved. The apex of the tibia is dorsally cut off obliquely and somewhat impressed so as to allow the tarsus to be laid back on the tibia. The tarsus is characteristic. It most nearly resembles of all earwigs that of *Tagalina* and *Apachyus*. The first segment is quite short and curved upwards, its under-surface (*a*, Pl. XVII. fig. 6) being clothed with ordinary small bristles, which are absent from two elongate areas. The second segment (*b*) is still smaller than the first. It is shorter dorsally than ventrally, as is also the case in the first segment, and the apical surface therefore is slanting, the second and third segments having the appearance of being inserted on the dorsal side of the preceding segment, as in the earwigs. The tips of the first and second segments are pale, soft, and without bristles. The third segment (*c*) is quite long, subcylindrical, and slightly curved. Its ventral surface is less hairy than that of the first and second segments. The apical edge is marginate, *i.e.* there runs a groove along the edge, except on the ventral side, so that the edge itself is slightly elevate. Ventrally the edge projects as a small rounded lobe. The claws (*un*) are slender, and there is the vestige of a pad between them.

* Jordan, *l.c.*

Abdomen.

The imbrication of the abdominal segments is exactly the same as in the earwigs. The intersegmental membranes, which are quite concealed from view in non-dissected specimens, bear laterally numerous short hairs, the hairy area being especially large on the underside. The first tergite forms part of the thorax and resembles the thoracic tergites in being rounded at the sides. There are eleven tergites altogether in the small as well as the large specimens, counting the pygidium (or telson) as a separate segment (Pl. XVI. figs. 2, 3; Pl. XVII. fig. 8). The ninth and tenth tergites are the shortest. The tenth has a hump in the centre clothed with longer bristles. The pygidium is rounded, its upperside being convex.

The first abdominal segment has no sternite. The eighth sternite (= sternite of the eighth segment) is the largest, and moreover differs from the others in being evenly rounded posteriorly from side to side (Pl. XVI. fig. 2). The ninth sternite is smaller than all the preceding ones. It is narrowed at the apex, which is truncate-emarginate, the sides being rounded proximally and incurved distally, While in *Hemimerus* and *Forficula* the tenth sternite is represented by two chitinised plates placed at the base of the cerci (*xtg*, Pl. XVIII. fig. 7), respectively callipers, in *Arixenia* the two plates are quite membranaceous.

The callipers of the earwigs are represented in *Arixenia* by a pair of cerci, which are hairy, like the body, and almost circular in a transverse section. They are non-segmented, and therefore agree with the cerci of *Hemimerus*, and not with the segmented cerci of certain immature earwigs: *Diplotaxys*, *Karschiella*, etc. The cerci are longer, slenderer, and less curved in our small specimens of *Arixenia* than in the larger specimens. In the individual figured the left cercus is a little longer than the right one. This, we think, is accidental. Unfortunately the left cercus is broken in our second large specimen. In the smaller specimens the right cercus is as long as the left one.

We may presume that in adult *Arixenia* similar sexual differences will be found as in the earwigs and *Hemimerus*. It was the close agreement in the abdomina of the small and large *Arixenia* which first aroused our suspicion that all our specimens might be immature.

Respiratory System.

The position of the spiracles is exactly the same as in *Hemimerus* and the earwigs. The stigma situated on the prothorax (*sti*, Pl. XVII. fig. 8) is much larger than the others. On the meso- and metathorax the spiracles are placed behind the epimerum, being concealed underneath the lobe of the latter. The seven abdominal stigmata are situated in front of the upper anterior angle of the sternites of segments 2 to 8. The tracheae agree on the whole with those of the common earwig.

Nervous System.

Here, again, *Arixenia* does not present any essential characters which would remove it from among the Dermaptera. The main chain consists of eleven ganglia, namely, the supra- and infra-oesophageal ganglia, three thoracic and six abdominal ones. The infra-oesophageal ganglion escaped Dufour's notice in the earwigs,*

* *Ann. Sci. Nat.* xiii. p. 361 (1828).

which was doubtless due to the strong development of a very remarkable chitinous plate, the tentorium of Kleuker,* which conceals the ganglion from view. The tentorium of *Forficula* is a horizontal plate (brown like the exoskeleton) which lies beneath the oesophagus, and extends from near the occipital foramen almost to the centre of the head. The plate is slightly concave on the upperside, and nearly evenly incurved anteriorly. The anterior and posterior angles are each produced into a slender process. The two anterior processes are curved and join the capsule of the head in front of the antennae, while the posterior processes end at the hind wall of the head, all four being so firmly attached to the head that it requires some force to break them off. Between these two pairs of processes there is another process on each side, branching off from the anterior process and extending obliquely upwards, being but loosely connected with the upper wall of the head in the neighbourhood of the eye. The tentorium of *Arixenia* (*te*, Pl. XVII. fig. 10, ventral side; Pl. XVIII. fig. 1, dorsal side) is similar to that of *Forficula*, except that its anterior half is much broader. The second process being subvertical is drawn shortened in our figures. *Hemimerus* also has a tentorium of the same type (*te*, Pl. XVIII. fig. 2). This endoskeleton divides the capsule of the head into an upper chamber containing the oesophagus and the brain serving the higher faculties, and a smaller lower chamber which contains the sub-oesophageal ganglion working the mouth-parts. The commissures connecting the infra- with the supra-oesophageal ganglion are in front of the tentorium.

Alimentary Canal.

Considering that the nervous and respiratory systems and, in the main, also the external anatomy agree so well with what is observed in *Forficula*, we were rather surprised to find that the gut deviates markedly from the type known in the earwigs. In fact, the alimentary canal of *Hemimerus* resembles that of *Forficula* much more than does the gut of *Arixenia*. The digestive system of insects is often remarkably different in forms not very distantly related. A difference in the kind of food on which the species of insect subsists appears to be generally accompanied by some distinct difference in the shape or structure of the digestive organs, and this may account for the peculiarities observed in *Arixenia*.

The oesophagus of *Arixenia* (*oe*, Pl. XVIII. fig. 1) consists of two divisions. The anterior division, extending from the mouth to the occipital foramen, is very muscular in itself, and numerous muscles are attached to its lateral and upper surfaces. The upper wall unites with the underside of the upper lip, the muscles of the latter extending backwards above the oesophagus. On opening the oesophagus from above, and at the same time pressing the under lip from beneath, the lower wall of the oesophagus can be seen ending in the hypopharynx (or endotabium), which is described above (p. 313). Where the oesophagus leaves the head it is constricted, and from this point backwards its wall is thin and very expansible. This wide portion, which extends into the abdomen, where it ends abruptly, is the "crop." Upon the oesophagus follows the short proventriculus or gizzard (*pr*), which has internally six folds lined with a chitinous membrane armed with minute teeth, which stand rather far apart. The folds project into the stomach as conical processes, which are about three times as long as they are broad at their bases. The teeth on these processes are minute, transverse, and slightly curved ridges, the teeth placed on the apical portions of the processes being produced into

* *Dissert. Göttingen* (1883).

a point (Pl. XVI. fig. 4). The principal function of the proventricle appears to me to serve as a kind of sieve by which the food, which may have become lumped together in the crop, is divided up into smaller particles. The proventricle cannot cut up any hard substances. In one of the specimens of *Arixenia* a piece of chitin covered with long hairs was lying in the hind part of the proventricle. It was unbroken, although its diameter nearly equalled the transverse diameter of the proventriculus.

The stomach (*sto*, Pl. XVIII. fig. 1) is not quite so wide as the crop. It is asymmetrical at the base, bulging out towards the right side, forming a kind of sack. The stomach of *Forficula* was represented by Dufour* to be quite straight, without any convolutions, and this statement is still being copied in text-books. In all the specimens of *Forficula auricularia*, however, the apex of the stomach forms one convolution together with the anterior portion of the small intestine, as is the case also in *Hemimerus* (Pl. XVIII. fig. 2). As the crop of the oesophagus of *Arixenia* takes up so much room—its enormous capacity seems to indicate that *Arixenia* takes a large quantity of food at a time and stores it, so to speak, in the capacious oesophagus—the stomach is completely coiled up so as to acquire but little space. It forms nearly two convolutions, and a third is formed by the basal portion of the small intestine. The coil is arranged like the convolutions of a shell, the anterior half of the stomach forming the largest convolution, which is ventral and gradually ascends dorsad. The centre of the coil is the most dorsal point of the spiral. At this point the small intestine descends vertically, and then curves backward, as indicated by the dotted lines in our figure. The small intestine ends in a large rectum, whose six internal projections are long and narrow.

The Malpighian tubules (*Mp*, Pl. XVIII. fig. 1) are very narrow. They form a densely coiled up mass which lies on the top of the stomach and a similar mass placed beneath the stomach. When the stomach is uncoiled the tubules are found to be arranged in four bundles of about twenty tubules altogether. The tubules of each bunch open in a very short common duct. The largest bunch is inserted dorsally on the posterior (or left) side of the apex of the stomach, and consists of ten tubules. A second bundle of five tubules is found subventrally on the right side. There are further three tubules placed on a short tube subdorsally on the right side, and two similarly connected tubules subventrally on the left side. The numbers vary very slightly in our specimens. The places where the dorsal bundles are inserted are marked black in our figure. Many of the tubules branch off in twos and threes from a short common tube, as in the earwigs.†

I have not found any salivary glands.

Systematic Position.

The agreement with the earwigs is too close to admit any doubt that *Arixenia* is a kind of wingless Dermapteron. If the characters, however, which distinguish *Hemimerus* from the true earwigs are considered of sufficient weight for placing *Hemimerus* in a separate suborder of Dermaptera, we must erect a third suborder for the reception of *Arixenia*. But I abstain from giving a name to the suborder, as there is still some uncertainty what name the whole order of earwigs should bear. I have referred to them as Dermaptera, which name is the most commonly

* *l.c.*

† I find 16 tubes in *Forficula auricularia*, arranged in 4 bundles (5, 3, 4, 4). The statements by Dufour and Schindler that there are about 30 or 40 tubules are certainly erroneous.

in use ; but some authors object to the name (originally employed for almost all the Orthoptera), apparently with good reason.

Arixenia is to a certain extent a connecting-link between the earwigs and *Hemimerus*, not in a phylogenetic sense, but anatomically and morphologically. The eyes, which are quite absent in *Hemimerus*, are much smaller in *Arixenia* than in the earwigs. The cerci, moreover, agree with those of *Hemimerus* in being hairy, non-segmented, and not modified into callipers, and at the same time resemble in our larger specimens of *Arixenia* a little the earwig-callipers, inasmuch as the cerci are somewhat curved towards each other. The sensory pits of the antenna are found both in *Hemimerus* and *Arixenia*, and the hypopharynx is almost the same in the two insects. On the other hand, the inner lobe of the maxilla bears in *Arixenia* two apical teeth as in *Forficula*, not four as in *Hemimerus*. The head is, as in the earwigs, not closely applied to the pronotum. The legs are long and slender, and have a tarsus which recalls *Tagalina* and *Apachyus* among the earwigs by the proportional length of its segments. The mandible of *Arixenia*, however, has in its setose inner edge a character which separates the insect very markedly from the earwigs (as far as their mandibles are known) and *Hemimerus* ; and the alimentary canal, which in *Hemimerus* is almost the same as in *Forficula auricularia*, is very different in *Arixenia*.

The similarities between *Hemimerus* and *Arixenia* do not indicate any close relationship, we think. The discussion of that question, however, is better left until the adult *Arixenia* and the reproductive system of that insect are known. If we may speculate on the derivation of *Arixenia*, we should say that the insect is a development from some form of earwig like *Tagalina*, the approximate agreement in the relative lengths of the tarsal segments at least suggesting a connection between the genera. The loss of wings in *Arixenia*, the reduction of the eyes, and the peculiar structure of the mandibles are explained by the parasitic life. The hairy cerci, which are found again only in *Hemimerus*, are ancestral organs, and at first sight appear to speak against *Arixenia* being a derivation from earwigs with callipers. However, as cerci, though segmented ones, are known to exist in the larvae of several genera of earwigs (*Diplatys*, *Karschiella*, *Bormansia*), it is quite sound to assume that *Arixenia* developed from a species of earwig which had segmented cerci in its larval stages and callipers in the adult stage, and that, in consequence of the assumption of parasitic habits, the ancestral *Arixenia* retained the larval cerci through all stages in a shape intermediate between the long segmented cerci and the smooth callipers.

I append a short diagnosis of the family and genus which we have to create for the new species :

Arixeniidae fam. nov.

Facies as in apterous earwigs. Head cordiform, not closely applied to the prothorax. Eye present, but reduced (eighty odd facets). Mandible toothed at apex, its inner edge rounded and densely clothed with rigid bristles. Inner lobe of maxilla with two apical teeth. Hypopharynx trilobate. Antennal segments with two patches of sensory pits from the third onwards. First and second tarsal segments short, third long. Cerci non-segmented, hairy. Crop of oesophagus large and long; gut with three convolutions. Malpighian tubules arranged in two small and two large bunches. Eleven ganglia in the main chain. Ten spiracles. (Reproductive system not known.)

Arixenia gen. nov.

Wingless, hairy. Head broader than long, the clypeus longer than the frons. Upperlip four times as broad as long, its anterior edge very slightly bent downwards in the centre. The space between the two rows of bristles at the molar edge of the inner lobe of the maxilla very narrow. Mentum broader than long, strongly rounded at the sides. Antenna three-fourths the length of the body, segment 1 extending to middle of pronotum, 2 very short. Pronotum nearly semicircular, much broader than long, as long as the meso- and metanotum together. Mesonotum strongly rounded at the sides and behind. Legs long, all of nearly equal length and the same in structure; femora about as long as the tibiae, equalling the thorax in length; first tarsal segment but little longer than the second, both without a very dense covering of hairs on the underside, third segment almost three times the length of the first and second together.

Type: *Arixenia esau* spec. nov.

The nymotypical specimen of the species which served as original for fig. 1 of Pl. XVI. has been presented to the British Museum.

EXPLANATION OF PLATES XVI., XVII., & XVIII.

Plate XVI.

Fig. 1. *Arixenia esau*, enlarged × 9.

„ 2. Seventh to eleventh abdominal segments of the same, ventral view.
A = anus.
ci = cerci.

„ 3. Sixth to eleventh abdominal segments, side-view.
A = anus.

„ 4. Intima of proventriculus of *Arixenia*.

„ 5. The same of *Hemimerus*.

Plate XVII.

Fig. 1. Head, thorax, and proximal segments of abdomen of *Arixenia*.
mi = microsternum.
epst = episternum.
ti = trochantine.
tr = trochanter.
co = coxa.

„ 2. Left maxilla of *Arixenia*, ventral view.
a 1, *a* 2 = the two sclerites of the cardo.
b 1, *b* 2, *b* 3 = the three parts of the stipes; *b* 3 = palpiger.
c 1 = lacinia (inner lobe of the maxilla).
c 2 = galea (outer lobe of the maxilla).

„ 3. Right mandible of *Arixenia*, dorsal view.

„ 4. Left mandible, ventral view.

„ 5 Eighth segment of the antenna, showing the patch of sensory pits present on each side of segments 3 to 13.

„ 6. Hindtarsus, ventral view.
a, *b*, *c* = first, second, and third segments.
un = claw.
tb = tibia.

Fig. 7. Labium of *Arixenia*.
sm = submentum.
m = mentum.
pg = palpiger.
lp = labial palp.
li = ligula.

,, 8. Head, thorax, and segments 1 to 3 of abdomen of *Arixenia*, lateral view.
ant = antenna.
o = eye.
mi = microsternum.
st = sternum.
per = peristernum.
epst = episternum.
epm = epimerum.
ti = trochantine.
sti = stigma.
at 1, *at* 2, *at* 3 = first, second, and third tergites of abdomen.
as 2, *as* 3 = sternites of first and second abdominal segments.

,, 9. Hypopharynx of *Arixenia*, dorsal view.

,, 10. Head of *Arixenia*, the mandibles, maxillae, and labium, as well as a part of the wall of the head-capsule removed, ventral view.
lr = labrum.
hp = hypopharynx.
te = tentorium.
oe = oesophagus (lying dorsally of the tentorium, in our figure therefore beneath the tentorium).
cy = condylus for the mandible.

Plate XVIII.

,, 1. Alimentary canal of *Arixenia*, dorsal view.
lr = labrum.
te = tentorium, lying beneath the oesophagus.
o = facetted eye.
oe = oesophagus.
pr = proventriculus.
sto = stomach, with two bundles of Malpighian tubules on the dorsal side of the inner coil and two bundles on the ventral side.
Mp = Malpighian tubules.
in = small intestine.
r = rectum.
sa = sack-like enlargement of base of stomach.

,, 2. Alimentary canal and ovaries of *Hemimerus*, dorsal view.
te = tentorium.
oe = oesophagus.
pr = proventriculus.
sto = stomach, with the Malpighian tubes.
in = small intestine.
r = rectum.
ov = ovaries.
ovd = oviduct.

Fig. 3. Posterior part of head of *Hemimerus*, dorsal view.
nch = nuchal plate, forming the dorsal wall of the foramen occipitale.

„ 4. External portion of the ductus ejaculatorius of *Hemimerus* ♂, ventral view.
tm = bundle of transverse muscles.
ca = chitinous armature (valvae).
pe = penis, with two orifices.

„ 5. Reproductive system of ♂ of *Hemimerus*, dorsal view (only the right testicle drawn).
ts = testicle.
cd = vas deferens.
vs = vesicula seminalis.
re = reservoir.
dei = ductus ejaculatorius.
lev = chitinous lever for the chitinous genital armature.
tm = bundle of transverse muscles.
lm = bundle of longitudinal muscles.
ca = chitinous armature of the penis (valvae).
ct = dorsal plate of penis.
pe = penis.

„ 6. Last abdominal segments of ♀ of *Hemimerus*, ventral view.
ci = cerci.
VII. *tg* and VII. *st* = seventh segment of abdomen.

„ 7. The same, with the seventh sternite removed.

VIII. *st* = eighth sternite.	VIII. *tg* = eighth tergite.
IX. *st* = ninth „	IX. *tg* = ninth „
X. *st* = tenth „	X. *tg* = tenth „
	XI. *tg* = eleventh „ (pygidium).

ci = cerci.

„ 8. Reproductive system of ♀ of *Hemimerus*, ventral view (only the right ovary drawn).
Eight tubes, each containing one embryo.
h = head of embryo.
nch = nutriment chamber.
ovd = oviduct.

„ 9. Head and anterior part of pronotum of embryo of *Hemimerus*, dorsal view.
h = head.
prt = pronotum.
nch = nuchal organ, corresponding to *nch* of Figs. 3, 8, and 10.

„ 10. The same from the side.
The labium is not visible in a side-view.
mx = maxilla.
md = mandible.
ant = antenna.
h = head.
nch = nuchal organ.
prt = pronotum.

NOTES ON THE ANATOMY OF *HEMIMERUS TALPOIDES*.

By K. JORDAN, Ph.D.

(Plate XVIII.)

WHEN studying the insect described as *Arixenia esau* on pp. 313-326 of this Journal it was necessary to compare the morphology and anatomy of *Hemimerus talpoides*, the peculiar parasite found on *Cricetomys* apparently throughout tropical Africa. We have an account of the morphology of *Hemimerus* by Hansen, accompanied by very neat figures*; but of the internal anatomy hardly anything is known, except that Hansen found in the body of a female a number of embryos, one of which he figures. Mr. N. Charles Rothschild was in possession of a few specimens of *Hemimerus* collected by Mr. A. F. R. Wollaston on the Ruwenzori Expedition, a male and several females, and these he put very kindly at my disposal. Although the soft parts were but indifferently preserved, the facts ascertained advance our knowledge of this interesting insect, and appear to be worth publishing.

Hansen considered his specimens as being identical with *H. talpoides* Walk. Sharp,† however, believed them to be "probably distinct," and called them *hanseni*. Subsequent writers‡ have shown, however, that so far only one species of *Hemimerus* is known, *hanseni* being considered a synonym of *talpoides*. I have compared Walker's specimens with individuals from various districts of Africa, and found them to be all, specifically, the same apart from a slight difference in length and width.

Our account of the anatomy of *Hemimerus* confirms another opinion expressed by Hansen. The relationship of *Hemimerus* was very obscure before the appearance of Hansen's paper. In that excellent treatise the opinion was advanced on good evidence that *Hemimerus* was nearly related to the earwigs. Subsequent writers, especially Verhoeff,§ have accepted that view, and we also are in complete agreement with it. The similarity to Blattids is purely superficial.

One of the most interesting and puzzling points in *Hemimerus* is the question as to its food. Hansen suggested that the insect might feed on "other small parasites" of the rat; but there is no evidence whatever that *Hemimerus* attacks other insects. Vosseler‖, in 1906, gave a very interesting account of the habits of *Hemimerus*, and entered at some length on the question of its food. From the state of the skin of the live host Vosseler arrived at the conclusion that *Hemimerus* derives its nourishment from the skin by eating the epidermis, not only the outer dead layers, but down to the roots of the hair. Unfortunately Vosseler had, it seems, no microscope, as otherwise he could hardly have abstained from further substantiating his observations of the live host and life parasites by examining the contents of the alimentary canal of the insects. There is one very suggestive point in Vosseler's account. The rat does not try to get rid of the parasites, but acts as if it were entirely indifferent to them. Now, if the parasites attack the skin of the host down to the live cells, so as to cause patches bare

* *Tidskr. Ent.* xv. pp. 65-93. t. 2. 3 (1894).

† *Cambridge Nat. Hist.* v., *Insects* i. p. 218 (1895).

‡ Poche, *Zool. Anzeiger* xxv. p. 668 (1902); Bouvier, *Bull. Soc. Ent. France*, p. 170 (1906); Saussure, *Rev. Suisse Zool.* iv. p. 227. t. 10 (1896).

§ *Sitzb. Nat. Freunde Berlin*, p. 87 (1902)

‖ *Zool. Anzeiger* xxxi. p. 436 (1906).

f hair, the indifference of the host towards this destruction is very remarkable indeed. If we meet with associations of this kind, the stronger leaving the weaker unmolested, the explanation lies generally in the mutual benefit derived by both parties from their association, and we believe that the contents of the gut of *Hemimerus* afford evidence that this is so also in the case of that insect and its host. We have examined the gut of four specimens. The contents are the same in all four, which may possibly be explained by the specimens being perhaps obtained from the same individual of *Cricetomys*. The oesophagus and crop were filled with a whitish matter, and the same substance was found in the other divisions of the alimentary canal. In this mass is embedded everywhere a large number of variously shaped brown bodies, which prove to be the spores and sporangia of fungus. There is also some dark amorphous matter, which may have come into the alimentary canal accidentally with the food as dirt. I have examined the epidermis (and the foreign matter covering it) of the two stuffed specimens of *Cricetomys* contained in the Tring Museum. The specimens had been living in captivity in England for some time before they came into the collection. The scurf taken from these skins very much resembles the pale matter in the alimentary canal of *Hemimerus*, and I also found some brown spores of fungus. This result goes far to corroborate Vosseler's conclusion that *Hemimerus* feeds on the epidermis of the host. But the presence of the fungus suggests that the bare patches on the skin of *Cricetomys* are not caused by *Hemimerus*, but by a fungus, and that the parasite becomes beneficent to its host by eating the fungus as well as the scurf. We have at present no means to further investigate the problem, but hope that some scientist resident in tropical Africa will be able to compare minutely the food which has just entered into the oesophagus of *Hemimerus* with the surface of the skin of the specimen of the host on which the parasite has been feeding.

Alimentary Canal.

The nutritive system is very similar to that of the earwigs. The divisions of the alimentary are almost the same in shape and size as in *Forficula auricularia*. The oesophagus (*oe*, Pl. XVIII. fig. 2) is as long as the stomach, ending abruptly at the base of the abdomen. The short gizzard or proventriculus (*pr*) has the same shape as in *Forficula*. Its intima bears numerous minute transverse continuous ridges armed with minute teeth. At the base of the gizzard and along the centre of the six longitudinal folds these ridges have developed into prominent teeth (Pl. XVI. fig. 5). The six folds extend into the stomach as finger-like processes, containing each a bundle of longitudinal muscles. Hansen, *l.c.*, erroneously says that there is no such armature in the proventriculus. The tips of these processes are similarly armed as in *Arixenia* (Pl. XVI. fig. 4), whereas the armature of the other parts is different in the two insects. The stomach (*sto*), together with the beginning of the small intestine, makes a single convolution, as in *Forficula auricularia*. The small intestine lies underneath the convolution of the stomach.

The Malpighian tubules are arranged in four bunches, as in the earwigs, there being twenty odd tubules altogether (5, 5, 5, 7). Two of these bunches are dorsal and two ventral.

On the posterior half of the oesophagus, and at both sides of it, there lie a number of small spindle-shaped salivary glands united to one large bunch with a single duct. As I am not certain of the structure of the glands, I have not drawn them.

Nervous System.

Apart from the reduction of the optic nerve, there is no essential difference from the nervous system of the earwigs and *Arixenia*. The main chain consists of eleven ganglia, inclusive of the brain: two cephalic, three thoracic, and six abdominal. The suboesophageal ganglion lies underneath a strongly developed tentorium (*te*, Pl. XVIII. fig. 2), which resembles the tentorium of the earwigs and *Arixenia*.

Reproductive System.

The sexual organs of both the male and the female of *Hemimerus* present very striking features. However, we know the internal organs of the reproductive system of but few earwigs, and therefore we should always bear the possibility in mind that similar features may occur in that group.

Male.——The right and left testes are alike (*ts*, Pl. XVIII. fig. 5). They are large, and have the position as in our figure (the left testis is not drawn). The testis consists of two follicles coiled up together, as shown in our figure (dorsal aspect). The vas deferens (*vd*, Pl. XVIII. fig. 5) runs backwards as far as the convolution of the stomach, and thence turns straight forward, being dilated into a small vesicula seminalis before meeting the vas deferens of the other side. The two vasa are then coiled up together and united, a single duct leading into the narrow channel of a large muscular body, which is the beginning of the ductus ejaculatorius, and may serve as a kind of reservoir (*re*, Pl. XVIII. fig. 5). The ductus ejaculatorius emerges from this organ on the left side and soon enters the strongly developed copulatory apparatus. The inner half of this apparatus consists of three large bundles of muscles—namely, two bundles of transverse muscles (*tm*) and one central bundle of longitudinal ones (*lm*). There is, moreover, on the dorsal side, and lying on the top of the muscles, a broad, thin chitinous lever (*lev*), the edges of which are strongly chitinised and unite with the dorsal edges of the chitinous ventral valves of the external part of the organ of copulation. The sclerites surrounding the penis (*pe*) are a long dorsal, central plate, which is but feebly chitinised, and two ventral plates, the valvae. The latter are very strongly chitinised, and are divided into an inner and an outer portion, as shown in fig. 4 (ventral aspect). Both valvae end in a hook, the left hook being more curved than the right one. The apex of the penis (*pe*), with its two orifices, is asymmetrical, and bears numerous small teeth direct inward. The ductus ejaculatorius seems to divide where it enters the outer half of the organ of copulation; but I am not sure on that point.

Female.——Hansen, *l.c.*, discovered the skins of six embryos of different sizes in a female which he had cleared with caustic potash, and gave a fairly accurate figure of the largest of them. The most remarkable feature they presented is an organ situated between the head and the pronotum. To the best of his understanding, says Hansen, this organ must be in connection with the interior wall of the female genital organs, and thus serve the nutrition of the young, which are growing to an astonishing size, this peculiar gestation being unique among insects. As the tissues of the mother and embryos were destroyed by the process of clearing, Hansen could not elucidate the matter any further.

The organs of reproduction of the female are symmetrical. We give a view of them *in situ* (Pl. XVIII. fig. 2). The ovaries lie along each side of the stomach. They are very large, and each consists of eight tubes placed subvertically and leaning frontad, partly covering the stomach. Fig. 8 of Pl. XVIII. gives a view,

from the ventral side, of the right-side ovary spread out. The eight tubes open successively in a common duct, whose walls are very expansible. This duct is continued by the oviduct proper (*ovd*), which has very thick walls. The two oviducts are united to form a very short vagina. In all this there is nothing very peculiar. The interesting point is the structure of the egg-tubes. Each tube contains a single egg, which develops into a young *Hemimerus* within the tube. The youngest stage is found in the apical tube, and the most advanced embryo in the tube nearest the oviduct. The embryos in the right and left ovaries are of practically the same size, and, judging from the two almost fully developed embryos found in the lowest chamber of the right and left ovaries of one of the specimens dissected, I believe that, at least occasionally, two young are born one soon after the other. The lowest right chamber of the ovary represented in fig. 2 of Pl. XVIII. was an empty sack, the young presumably having left the mother. In another ovary the fourth and sixth tubes counting from the top were reduced to a small process. The specimens were too much macerated for a study of the histology; but so much could be ascertained that the embryo is nourished by means of the process from the neck. The egg is connected with the small nutriment chamber (*nch*), which forms the apex of each egg-tube, by means of a kind of duct. The egg-chamber of *Hemimerus* bears some resemblance to that of *Forficula auricularia*, in which insect it consists also of a single egg and a nutriment chamber intimately connected with the egg. The connection remains in *Hemimerus* until the embryo is full grown. When the embryo is peeled out of the ovary the nuchal organ breaks off, and the remnant attached to the embryo has the appearance as represented in fig. 9 (*nch*, dorsal view) and fig. 10 (lateral view). We have failed to gain any knowledge of the kind of connection of this organ with the interior of the embryo. Sagittal and transverse sections of two embryos proved that maceration had gone too far. Comparing a nearly full-grown embryo, whose exoskeleton was already becoming brown, with an adult *Hemimerus*, it appeared to us probable that the nuchal organ of the embryo develops into the plate covering in the adult the occipital foramen dorsally, as shown in fig. 3. The mature embryo remains enveloped in its original skin (Pl. XVIII. fig. 10), the first ecdysis doubtless taking place while the embryo passes through the oviduct. We do not believe that the embryo could possibly cast the skin while it is coiled up in the ovary. Its position in the chamber of the ovary suggests that it passes in that state into the oviduct. The latter is widened at its lower end, and here the embryo is perhaps retained until it has moulted and is fit to shift for itself.

The external genital armature is very simple in the female. The seventh sternite (vii. st., Pl. XVIII. fig. 6) is very large, and completely conceals the genital area. On removing this plate (fig. 7) the small sclerites representing the eighth and ninth segments become visible. The eighth sternite (viii. st.) is fairly strongly chitinised, and resembles a buttonhook. The ninth sternite (ix. st.) is for the greater part membraneous, forming a large distally rounded flap which is proximally united with the eighth sternite. The sexual orifice lies between these flaps.*

* Carpenter has recently been able to show that *talpoides* from Sierra Leone is broader than *hanseni* from more southern and central districts of Africa, and that it differs also in a few other small points. There are therefore at least two geographical races (cf. *Ent. Mo. Mag.* 1909, p. 251, tab. 4).

NOTE ON THE LARVA OF *SOMABRACHYS*, A GENUS OF MOTHS.

By K. JORDAN, Ph.D.

THE position of the North African genus *Somabrachys* Kirby (1892) is still uncertain. In the *Catalogue* of Standinger and Rebel the genus is placed in the South American family *Megalopygidae*. Its affinities are indeed with the more generalised type of moth, as represented by the *Megalopygidae*, *Limacodidae*, and *Zygaenidae*. A good account of the life-history of *Somabrachys* was published in 1899 by Chrétien.* The larva, though in general appearance uncommonly like a Zygaenid larva, has several characters which distinguish it sharply from the caterpillars of the families mentioned. Mr. Rothschild and myself observed the larva in several places in Northern Algeria, and found it quite common in the hills above Blida. Besides the lateral grooves studded with large scales, already described by Chrétien, we were much struck with another organ which that able lepidopterist does not mention, and which we had not previously found in any other kind of caterpillar. On the upper wall of the anus, and ordinarily concealed from view, there is a kind of fork or rake with three or four tines,

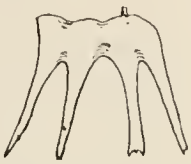

Fig. A.

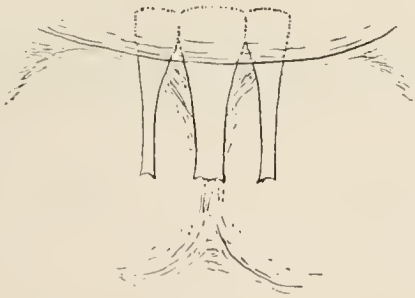

Fig. B.

as shown in figs. A and B. This rake is black-brown. It lies flat on the upper wall of the anus, or rather on the lower side of the broad lobe which covers the anus from above, and its tines are directed backwards.

All the specimens which we examined had either three or four tines, this variability being observed in specimens found together. The tines are, apparently always, practically of equal length. They vary in shape, inasmuch as some are

* *Ann. Soc. Ent. France* p. 451. t. 8 (1899).

pointed and others truncate and dentate, as our figures show. The insect can so move the organ that it is directed downward. We ascertained its use by observing the live larva under a lens. When the faeces leave the anus the rake is employed to push them outside and give them a final jerk, which sends them rolling off the anal segment.

Small peculiarities like this are often a good guide in determining the relationship of the species, and we had hoped to find some such kind of rake among the larvae (in alcohol and inflated) which we have of the Zygaenids, Limacodids, and Megalopygids, but did not observe it anywhere.

In fig. B the rake is drawn as if its base could be seen through the supra-anal lobe of the last ring, which is not the case. In dead specimens the entire rake can only be seen plainly by lifting the supra-anal lobe.

SOME ADDITIONAL NOTES ON FLEAS DEALT WITH IN PREVIOUS PAPERS.

By the HON. N. CHARLES ROTHSCHILD, M.A., F.L.S.

DR. BAKER has ceded to me the Siphonaptera which were recently in his possession. We find among this material a pair of Baker's *Pulex brasiliensis*, which in 1907 we considered to be probably identical with *Xenopsylla cheopis* Rothsch., and treated it as such. The two specimens of *brasiliensis*, however, prove that this identification was erroneous. The insect is the same as *Xenopsylla rigetus* Rothsch., described in 1909 from South Nigeria in West Africa. The latter name, therefore, sinks as a synonym of *brasiliensis*. The species is doubtless an African one which was imported into Brazil, very likely at the time when the slave-trade was flourishing.

Xenopsylla nesiotes Jord. & Rothsch., *Parasitology* i. p. 47. n. 10. t. 3. fig. 3, and t. 6. fig. 4 (1908), was collected by Dr. H. E. Durham, not C. W. Andrews as stated.

Ctenopsyllus sobrinus Rothsch., *Ent. Mo. Mag.* (2) xx. p. 186. n. 5. t. 2. fig. 3 (1909), was obtained at St. Paul and Etupes, not Etapes.

Ceratophyllus graphis Rothsch., *Nov. Zool.* xvi. p. 62. n. 4. t. 10. fig. 3. 4 (1909), was collected by M. G. Palmer.

Ctenopsylla granti Rothsch., *Nov. Zool.* xi. p. 66. n. 34. t. 15. fig. 84. 87, t. 17. fig. 91 (1904), was found on *Macroscelides proboscideus*.

NASUA VITTATA Tsch.

By THE HON. WALTER ROTHSCHILD, Ph.D.

(Plate I.)

THE specimen from which the accompanying plate was drawn during life, lived for several years in the Zoological Gardens in London. My reasons for figuring it were twofold: firstly, to show the very prolonged nose as compared with ordinary *N. rufa*, and secondly, to draw attention to the peculiar periodical change of colour. Every year the long pelage was shed, and for some months the animal was covered with a rather shorter new pelage of a black colour. This was again shed, and the long brownish isabelline pelage reappeared. Thus this animal, in spite of its tropical habitat (British Guiana), sheds its coat twice a year and appears to have thicker hair at one time than at another. The black colour of the one phase may, however, have made the hair appear less long, for, owing to its viciousness, it was impossible to handle the animal while alive.

One of the Schomburgks mentioned, in addition to the brownish isabelline type specimen now in the Berlin Museum, a black individual, but considered it was *N. socialis*. That this was not so was already pointed out by Tschudi.

ON SOME RECENTLY DISCOVERED AFRICAN BIRDS.

By ERNST HARTERT, Ph.D.

(Plates XIV. & XV.)

1. **Xenocopsychus ansorgei** Hart.

(Pl. XIV. fig. 1.)

THIS remarkable bird was described in the *Bull. B. O. Club*, xix. p. 81, May 1907. It is of an unusual interest because it cannot be united with any known genus of African birds. It appears to be related to the genus *Copsychus*, which inhabits India, the Greater Sunda Islands and Philippines, and one species of which is found on the Seychelles. *Xenocopsychus* is, in fact, so closely allied to *Copsychus* that Professor Reichenow, to whom I sent one of our two specimens for inspection, wrote to me that in his opinion my new bird might be included in *Copsychus*. However, I think it is better to separate it, because the bill of the new bird is slightly more depressed, the culmen less arched, the operculum covering the nostrils bare, and the frontal feathers are directed backwards, while in *Copsychus* the nasal operculum is covered with stiff, short feathers which are directed forwards. Moreover, the tail is differently shaped: the lateral pair of rectrices is about 23 mm. shorter than the following pairs, while the middle pair is, in the male, considerably (*i.e.* 7 mm.) shorter than the rest (except the lateral pair); in the female this latter peculiarity is only indicated. In Indian *Copsychus* the tail is graduated or strongly rounded.

The sexes are alike, as in *Copsychus seychellarum*, while in all Indian species the female differs considerably from the male.

A single pair of *Xenocopsychus ansorgei* was obtained by Dr. W. J. Ansorge, after whom the bird has been named, at Lobango in Mossamedes, in February 1906.

The male is in perfect condition, while the female is, unfortunately, much damaged by shot.

2. **Graueria vittata** Hart.

(Pl. XIV. fig. 2.)

Described *Bull B. O. Club*, xxiii. p. 8, October 1908.

This curious new bird is also generically different from all known birds. I think it is nearest allied to the genus *Macrosphenus*, but the bill is much stronger and shorter and less hooked at the tip, while the tail is rather longer and the rectrices are much wider. The rictal bristles are weak. The sexes are alike. The barred throat and foreneck have the appearance as if they were signs of immaturity, but we have received a nice series, mostly of adult birds.

Mr. Rudolf Grauer sent us the following specimens :

4 ♂♂, 1 ♀ from the high forest about 90 kilometres west of Lake Albert-Edward, 1600 m. above the sea, shot in February 1908.

1 ♀, Rugege forest, S.E. of Lake Kivu, 6. xii. 1907.

4 ♂♂, 5 ♀♀, Primeval forest west of Lake Tanganyika, 2000 m., shot in June and July 1908.

1 ♂, 1 ♀, 1 sex not stated, Primeval forest near Baraka in the Congo Free State, north-west of Lake Tanganyika, 2000 m., November and December 1908.

3. **Diaphorophyia graueri** Hart.

(Pl. XV. figs. 1, 2.)

Described *Bull B. O. Club*, xxiii. p. 7, October 1908.

We have only received the two males and two females which served for the original description. They were obtained in the primeval forest about 90 kilometres west of Lake Albert Edward, at elevations of 1600 m. above the level of the sea.

Of *Diaphorophyia ansorgei* Hart. (*Bull. B. O. Club*, xv. p. 74, May 1905) another female has been obtained in Kamerun by Mr. Bates. This has been figured in the *Ibis*. The male remains still unknown.

4. **Lioptilus rufocinctus** Rothsch.

(Pl. XV. fig. 3.)

This beautiful large species has been described by Mr. Rothschild in the *Bull. B. O. Club* xxiii. p. 6, October 1908. We have only received the five specimens mentioned in the original description, which were obtained in December 1907 in the Rugege forest south-east of Lake Kivu, by Mr. Grauer.

The species has no near ally. Both Professors Reichenow and Neumann, who examined specimens of this bird, were in favour of creating a new genus for it, but I agree with Mr. Rothschild that it can safely be included in the genus *Lioptilus*, or *Parophasma* if the latter is separated, though the rictal bristles are not quite so strongly developed in the new species.

5. **Laniarius graueri** Hart.

Bull B. O. Club, xxiii. p. 9.

I described this beautiful new shrike from one pair from the forest west of Lake Albert Edward. The Tring Museum has since received two other males in perfect condition from the Primeval forest west of Lake Tanganyika, 2000 m. They were obtained by Mr. Grauer in June 1908. These two males agree in every detail with the type.

6. **Laniarius rubiginosus rudolfi** Hart.

Bull B. O. Club, xxiii. p. 10.

Of this form another specimen, marked "♂," has been sent by Mr. Grauer from the forest west of Lake Tanganyika. It agrees with the type, which is marked "♀," in every detail, except that the wing is slightly longer, measuring 94 mm., and the breast slightly paler; moreover, the greater upper wing-coverts, which are uniform in the type, have wide yellow tips.

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[illegible]	41.	[illegible]	p. 174
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[illegible]	43.	[illegible]	p. 174


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DESCRIPTION DE PLANCHE III.

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" [illegible] p. 221
" 4. [illegible] p. 188
" 5. [illegible] p. 247
" 6. [illegible] p. 206
" 7. [illegible] p. 139
" 8. [illegible] p. 236
" [illegible] p. 239
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" 11. [illegible] p. 236
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" 13. [illegible] p. 247
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" 19. [illegible] p. 235
" 20. [illegible] p. 257

H. Grönvell, pinx.

EGGS OF ARGENTINE BIRDS COLLECTED BY S. VENTURI

EXPLANATION OF PLATE IV.

Fig.	1.	*Robinsonia* [illegible]	p. 21
,,	2.	,, [illegible]	p. 21
,,	3.	,, [illegible]	p. 21
,,	4.	,, [illegible]	p. 21
,,	5.	[illegible]	p. 21
,,	6.	[illegible]	p. 22
,,	7.	,, [illegible]	p. 22
,,	8.	*Pachis la*[illegible]	p. 23
,,	9.	,, [illegible]	p. 23
,,	10.	,, [illegible]	p. 23
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,,	13.	,, *margaritacea*	p. 24
,,	14.	*Pr*[illegible]*da indistincta*	p. 24
,,	15.	,, *flavicollis*	p. 25
,,	16.	,, *submarginalis*	p. 24
,,	17.	,, *incisa*	p. 25
	18.	,, *sordida*	p. 25
,,	19.	[illegible]	p. 31
,,	20.	[illegible]	p. 26
,,	21.	[illegible]	p. 26
,,	22.	*Pr*[illegible]	p. [illegible]
	23.	*Eupsendosoma grandis*	p. 26
	24.	,, *aberrans*	p. 26
	[illegible]	,, [illegible]	p. 26
	[illegible]	[illegible]	p. 26
,,	27.	,, [illegible]	p. 27
,,	28.	[illegible] *fulvescens*	p. 27
,,	29.	*Zebrephes* [illegible] ♂	p. 27
,,	30.	,, ,, ♀	p. 27
,,	31.	,, *klagesi*	p. 28
,,	32.	,, *variegata*	p. 28
,,	33.	,, *flavipuncta*	p. 28
,,	34.	,, *irrorata*	p. 28
,,	35.	,, *cruciata*	p. [illegible]
,,	36.	,, *eckendeni*	p. [illegible]
,,	37.	,, *griseovitta*	p. [illegible]
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	40.	,, *rufoberaneae*	p. 31
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	[illegible]	,, ♀	p. 31

Witherby & Co. sculp. et imp.

EXPLANATION OF PLATE V.

Fig. 1.	*Zatrephes* [illegible]		p. 31
„ 2.	„ *a*[illegible]		p. 32
„ 3.	„ *a*[illegible] ♂		p. 32
„ 4.	„ [illegible] ♀		p. 32
„ 5.	„ [illegible]		p. 32
„ 6.	„ [illegible]		p. 32
„ 7.	„ *s*[illegible]		p. 33
„ 8.	*Azenophes* [illegible]		p. 33
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„ 11.	„ „		p. 33
„ 12.	„ „		p. 33
„ 13.	„ *paradisea*		p. 33
„ 14.	„ *discolis*		p. 33
„ 15.	[illegible] *affinis*		p. 34
„ 16.	„ *pulchra*		p. 34
„ 17.	„ *pardalis parva*		p. 34
„ 18.	„ „ *pardalis*		p. 34
„ 19.	„ [illegible]		p. 34
„ 20.	[illegible] ♂		p. 35
„ 21.	„ „ ♀		p. 35
„ 22.	„ *griseata*		[illegible]
„ 23.	„ *ochreiana* ♂ (from La Oroya)		p. 35
„ 24.	„ „ ♀ (from [illegible])		p. 35
„ 25.	[illegible]		p. 36
„ 26.	[illegible]		p. 36
„ 27.	„ [illegible]		p. 37
„ 28.	„ *fr*[illegible]		p. 36
„ 29.	„ *ochracea*		p. 37
„ 30.	„ *ochreata*		p. 37
„ 31.	„ *fasciapicta*		p. 37
„ 32.	„ *agropinctata*		p. 37
„ 33.	„ *hyalina*		p. 41
„ 34.	„ *h*[illegible] ♂ (from Valencia)		p. 38
„ 35.	„ „ ♀ (from Oaxaca)		p. 38
„ 36.	„ *aurovrisea*		p. 38
„ 37.	„ *flavescens* Walk.		p. 44
„ 38.	„ *primulodes*		[illegible]
„ 39.	„ *cruenta*		p. 38
„ 40.	„ *lut*[illegible]*osa*		p. 40
„ 41.	„ *ochreiceri*		p. 40
„ 42.	„ „ *luteitta*		p. 40
„ 43.	„ *blagesi*		p. 42

Witherby & Co. sculp. et imp.

EXPLANATION OF PLATE VI

[illegible]	[illegible]	[illegible]	p. 41
[illegible]	[illegible]	[illegible]	p. 39
[illegible]	[illegible]	[illegible]	p. 39
[illegible]	[illegible]	[illegible]	p. 38
[illegible]	[illegible]	[illegible] ♀	p. 40
[illegible]	[illegible]	,, ♀	p. 40
[illegible]	[illegible]	*[illegible]* ♂	p. 41
[illegible]	,,	,, ♂	p. 41
[illegible]	,,	*[illegible]*	p. 44
[illegible]	,,	*[illegible]*	p. 43
[illegible]	,,	*[illegible]*	p. 41
[illegible]	,,	*[illegible]*	p. 41
[illegible]	,,	*[illegible]* Stoll	p. 41
[illegible]	[illegible]	*[illegible]*	p. 43
[illegible]	[illegible]	[illegible]	p. 44
[illegible]	[illegible]	[illegible]	p. 44
[illegible]	[illegible]	[illegible]	p. 43
[illegible]	[illegible]	[illegible]	p. 43
[illegible]	[illegible]	[illegible]	p. 45
[illegible]	[illegible]	[illegible]	p. 42
[illegible]	[illegible]	[illegible]	p. 42
[illegible]	[illegible]	[illegible] ♂ (Great Pearl Boa)	p. 45
28	,,	,, ♀ (Great Costa Rica)	p. 45
[illegible]	[illegible]	[illegible]	p. 43
[illegible]	,,	[illegible]	p. 44
[illegible]	,,	[illegible]	p. 42
[illegible]	,,	*[illegible]*	p. 45
[illegible]	,,	*[illegible]*	p. 46
[illegible]	,,	[illegible]	p. 45
[illegible]	,,	*[illegible]*	p. 49
[illegible]	,,	*[illegible]*	[illegible]
[illegible]	[illegible]	*[illegible]*	p. 45
[illegible]	,,	,, *[illegible]*	p. 47
34	,,	*[illegible]*	p. [illegible]
[illegible]	,,	*[illegible]*	p. [illegible]
[illegible]	[illegible]	*[illegible]* Hamps.	p. 47
[illegible]	[illegible]	*[illegible]*	p. 48
[illegible]	[illegible]	*[illegible]*	p. 48

Witherby & Co, sculp. et imp.

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" 2. " [illegible] . . . . . p. 47
" 3. " [illegible] . . . . . p. 47
" 4. " *[illegible] occidentalis* . . . . . p. 47
" 5. *[illegible]* . . . . . p. 48
" " *[illegible]* Drury.
" 7. *Melinaea [illegible]* ♂ . . . . . p. 48
" 8. " ♀ . . . . . p. 48
" 9. *[illegible] eudamia* ♂ . . . . . p. 48
" 10. " ♀ . . . . . p. 48
" 11. " *klagesi* . . . . . p. 49
" 12. " *babosa* . . . . . p. 49
" 13. " *decipuncta* ♂ (from Capare) . . . . . p. 49
" 14. " " ♀ (from Quevedo) . . . . . p. 49
" 15. " *quadripunctata* . . . . . p. 49
" 16. *Berthelia [illegible]* . . . . . p. 50
" 17. " *[illegible] [illegible]* . . . . . p. 50
" 18. " *[illegible]* . . . . . p. 50
" 19. " *[illegible] bachi* . . . . . p. 50
" 20. *Hypoleria grandis* . . . . . p. 51
" 21. " *[illegible] [illegible]* . . . . . p. 51
" 22. *Pavonerita klagesi* . . . . . p. 51
" 23. " *metapyrrha* . . . . . p. 51
" 24. *Pseudolucas [illegible]* . . . . . p. 52
" 25. " *[illegible] occidentalis* ♂ . . . . . p. 52
" 26. " " ♀ . . . . . p. 52
" 27. " *[illegible] occidentalis* . . . . . p. 52
" 28. *Melinaea [illegible]* . . . . . p. 49
" 29. *Ithomia albiapicalis* . . . . . p. 35
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" 31. " " ♂ " " " . . . . . p. 42
" 32. " " ♂ . . . . . p. [illegible]
" 33. " " ♀ (from the Upper Amazon) . . . . . p. 42
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Witherby & Co. sculp. et imp.

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,, 3.	*Loemopsylla vigetus* ,, ,,	,, ,, ...	p. 53
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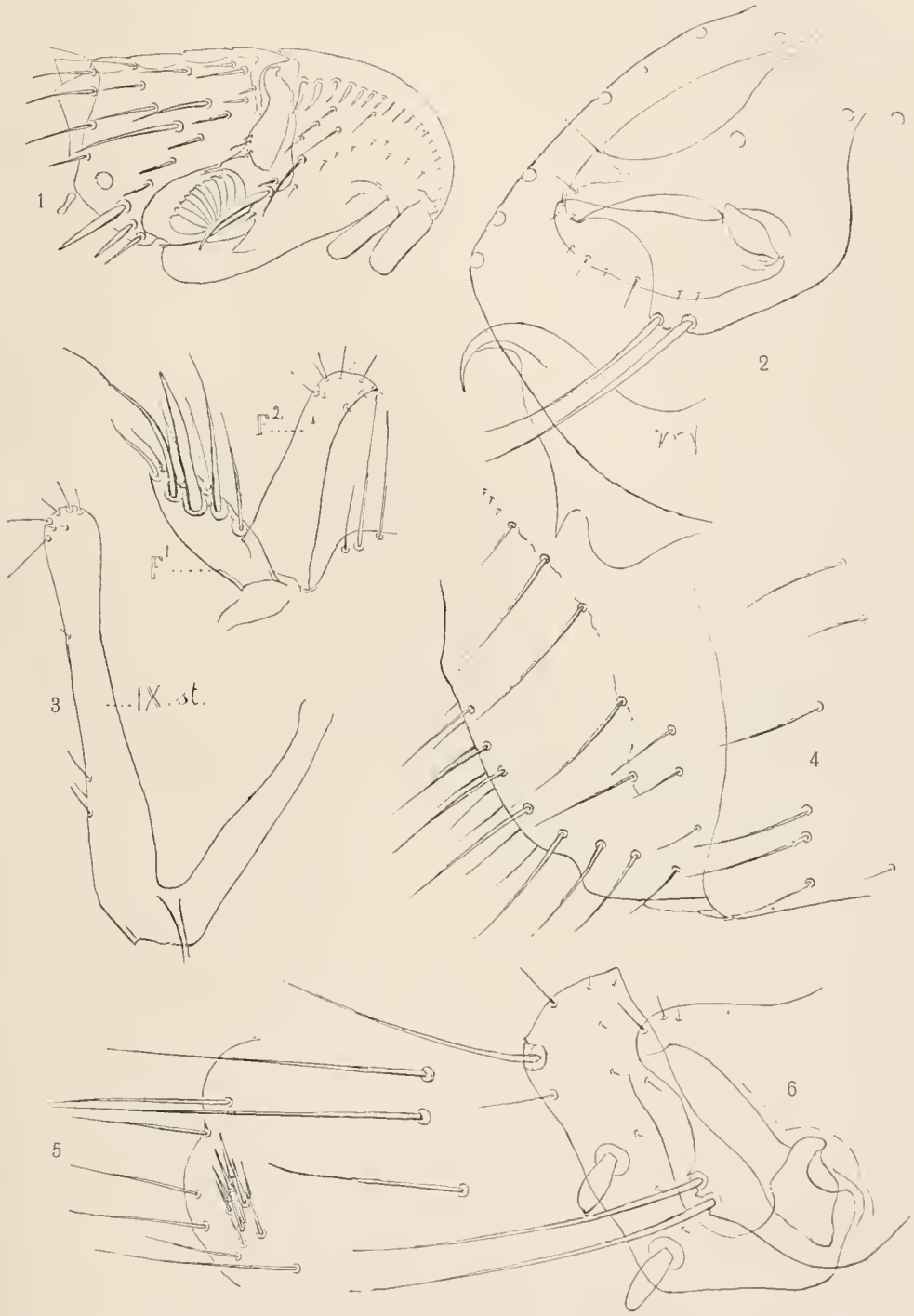
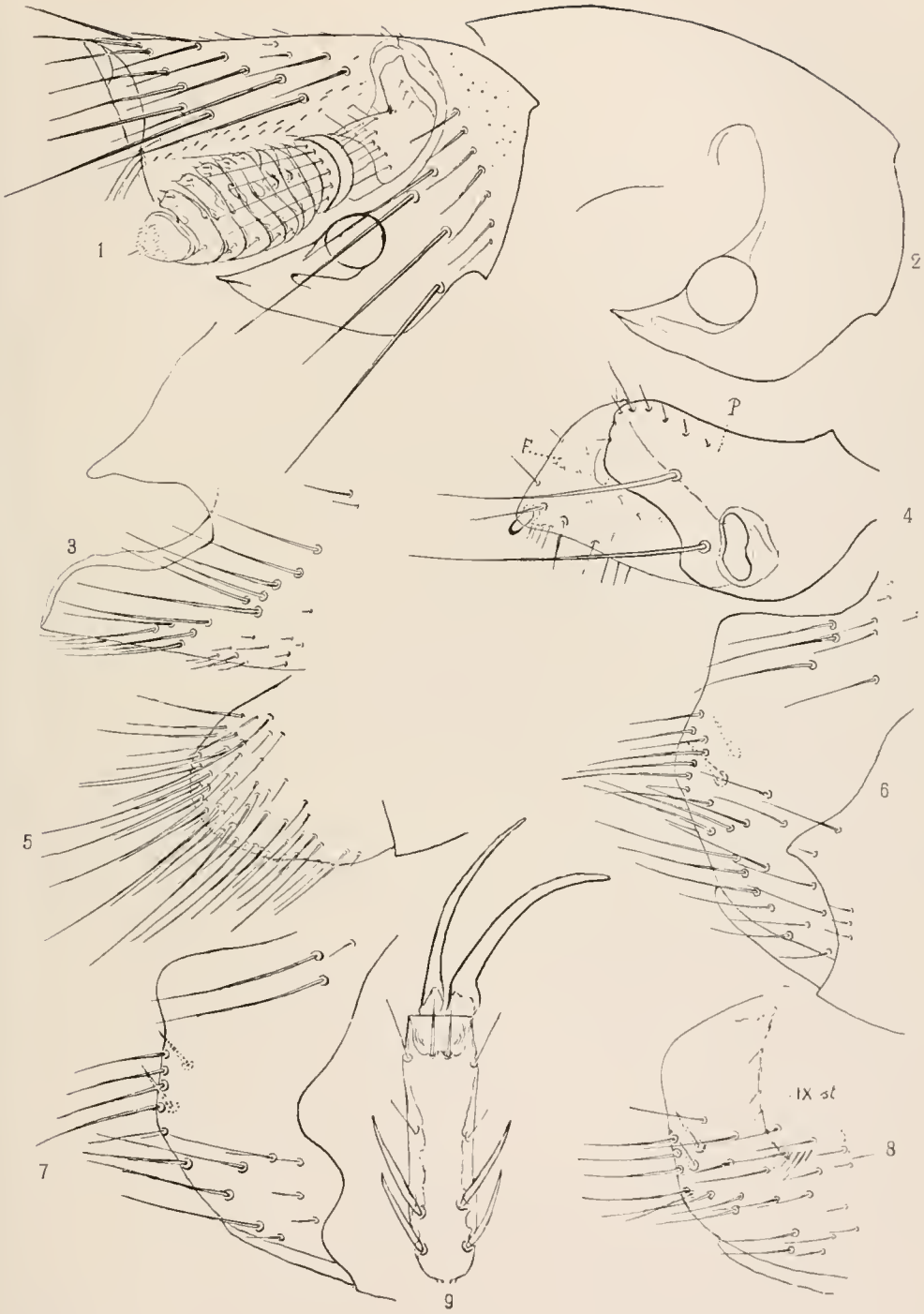
,, 5.	*Ceratophyllus ponerus* ,, ,,	viii. tergite of ♀	p. 54
,, 6.	,, *enoplus* ,, ,,	genitalia of ♂	p. 53



K J del

EXPLANATION OF PLATE IX.

Fig. 1.	Head of *Ceratophyllus frontalis* ♂	p. 58
,, 2.	The same of ,, ,, ♀	p. 58
,, 3.	Seventh abdominal sternite of *C. frontalis* ♀	p. 58
,, 4.	Genitalia of *C. frontalis* ♂	p. 58
,, 5.	Eighth abdominal sternite of *C. frontalis* ♂	p. 58
,, 6.	Seventh and eighth abdominal segments of *Ceratophyllus flaveolus* ♀	p. 57
,, 7.	The same of *Ceratophyllus turbidus* ♀	p. 59
,, 8.	Eighth abdominal segment of *Ceratophyllus phaulius*; ix. st. = ninth sternite	p. 58
,, 9.	Fifth hindtarsal segment of *Echidnophaga ambulans* . . .	p. 57



K. J. del.

EXPLANATION OF PLATES X AND XI.

Plate X.

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,,	2.	Ninth abdominal sternite of ♂ of the same	p. 62
,,	3.	Seventh and eighth abdominal segments of *Ceratophyllus graphis* ♀	p. 62
,,	4.	Genitalia of ♂ of the same	p. 62
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Plate XI.

,,	9.	Head and prothorax of *Caenopsylla mira* ♀	p. 65
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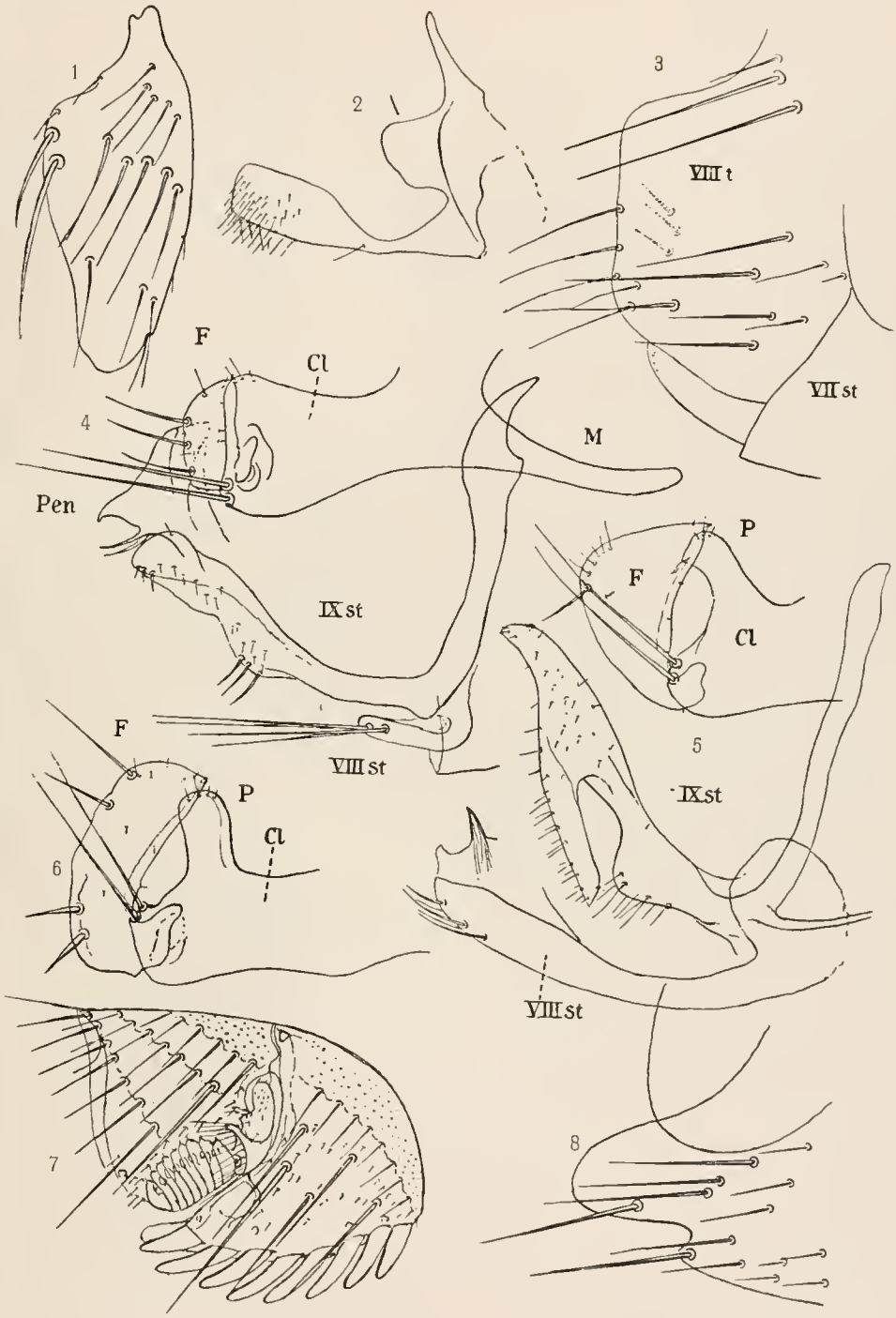
,,	14.	Seventh abdominal sternite of ♀ of the same	p. 68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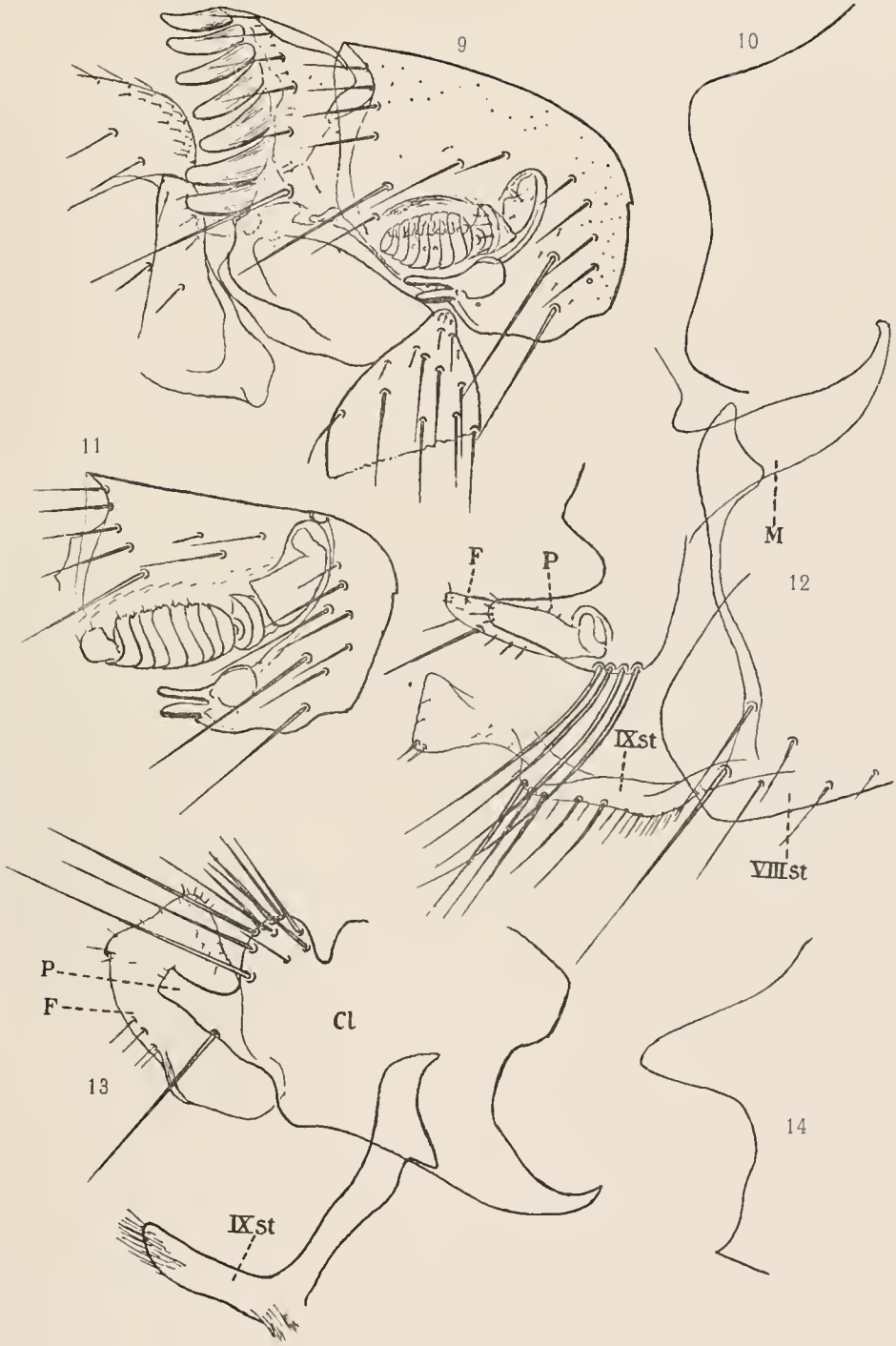

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,,	2.	,, ,, *Stephanocircus simsoni*	p. 136
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,,	10.	,, ,, *Ceratophyllus columbae*	p. 138
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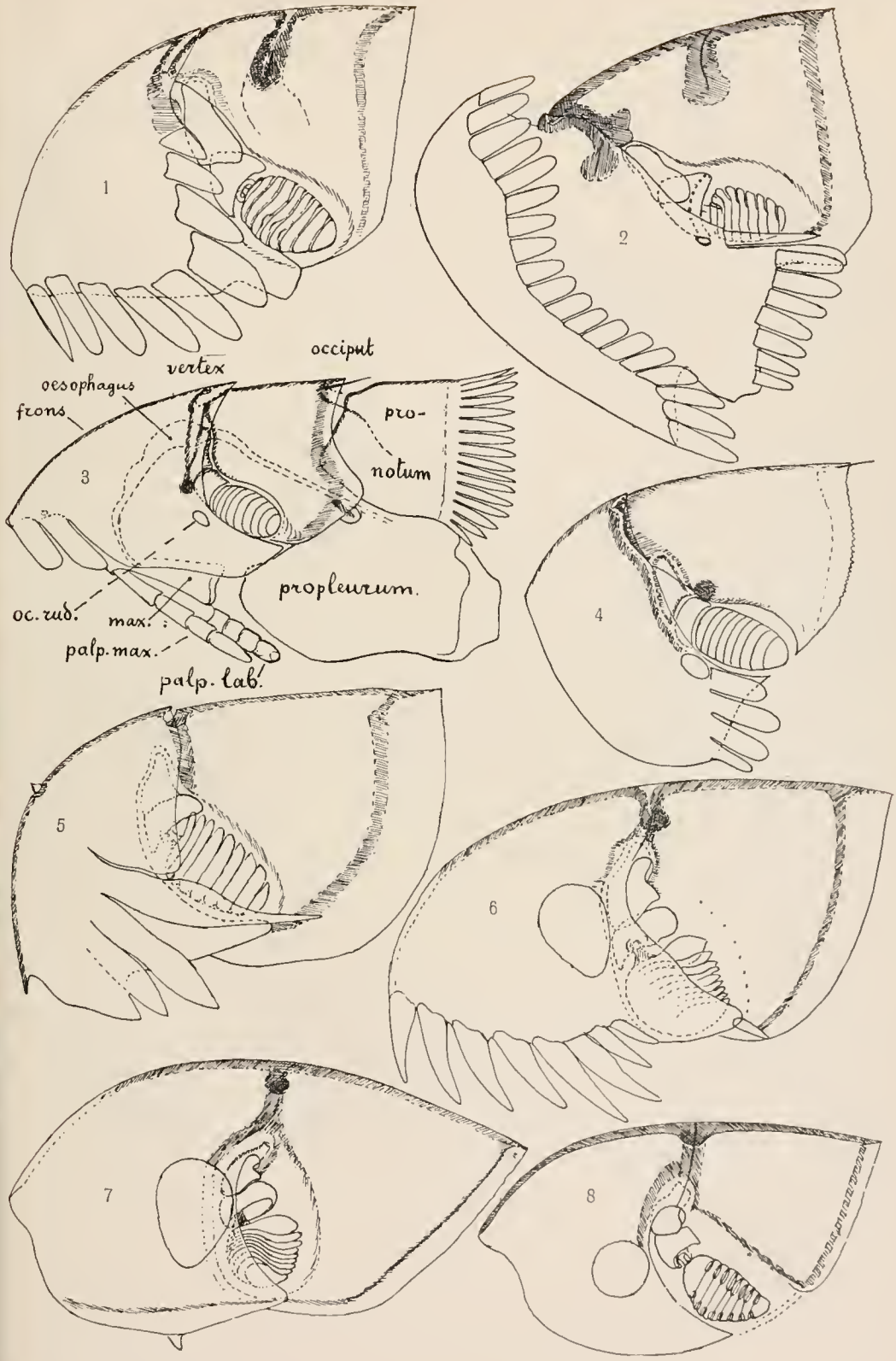

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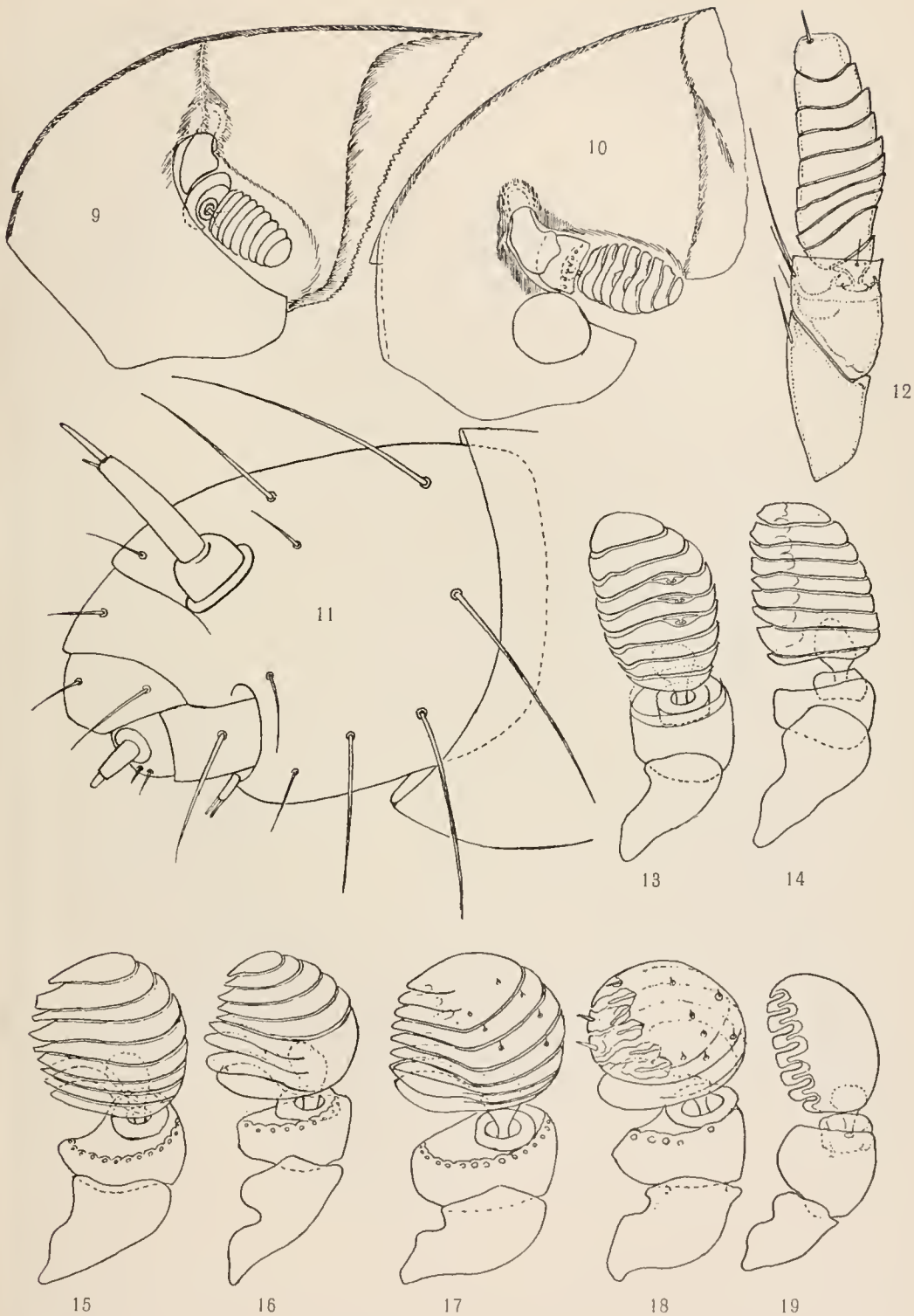


A. C. Oudemans del.

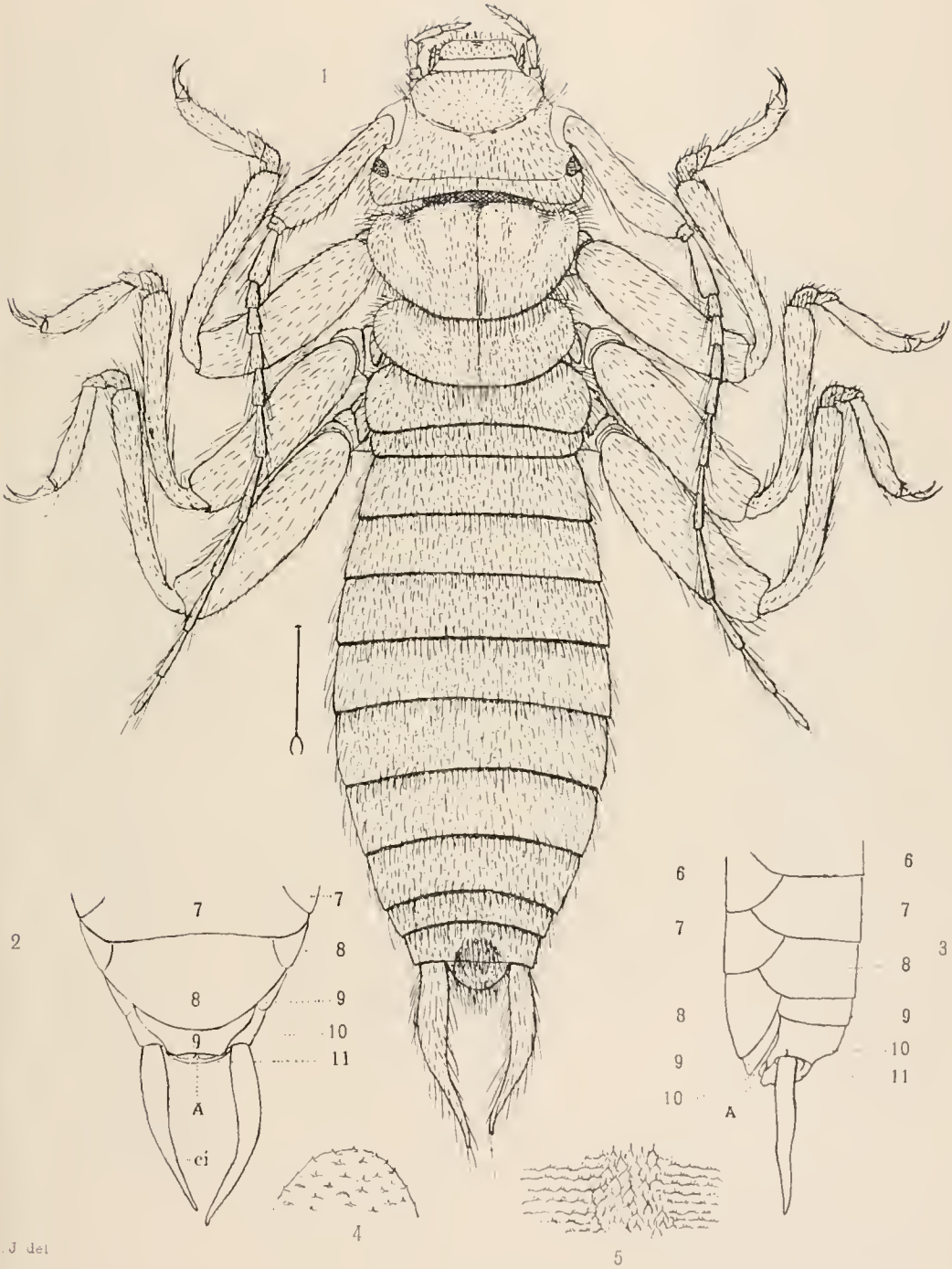
J.G Keulemans del et lith West, Newman imp

1. XENOCOPSYCHUS ANSORGEI *Hart*
2. GRAUERIA VITTATA *Hart*

J.G. Keulemans del et lith. West, Newman imp

1. DIAPHOROPHYIA GRAUERI ♀. 2. ditto ♂
3. LIOPTILUS RUFOCINCTUS *Rothsch*

For Explanation of Plates XVI.—XVII., see pp. 324–326.



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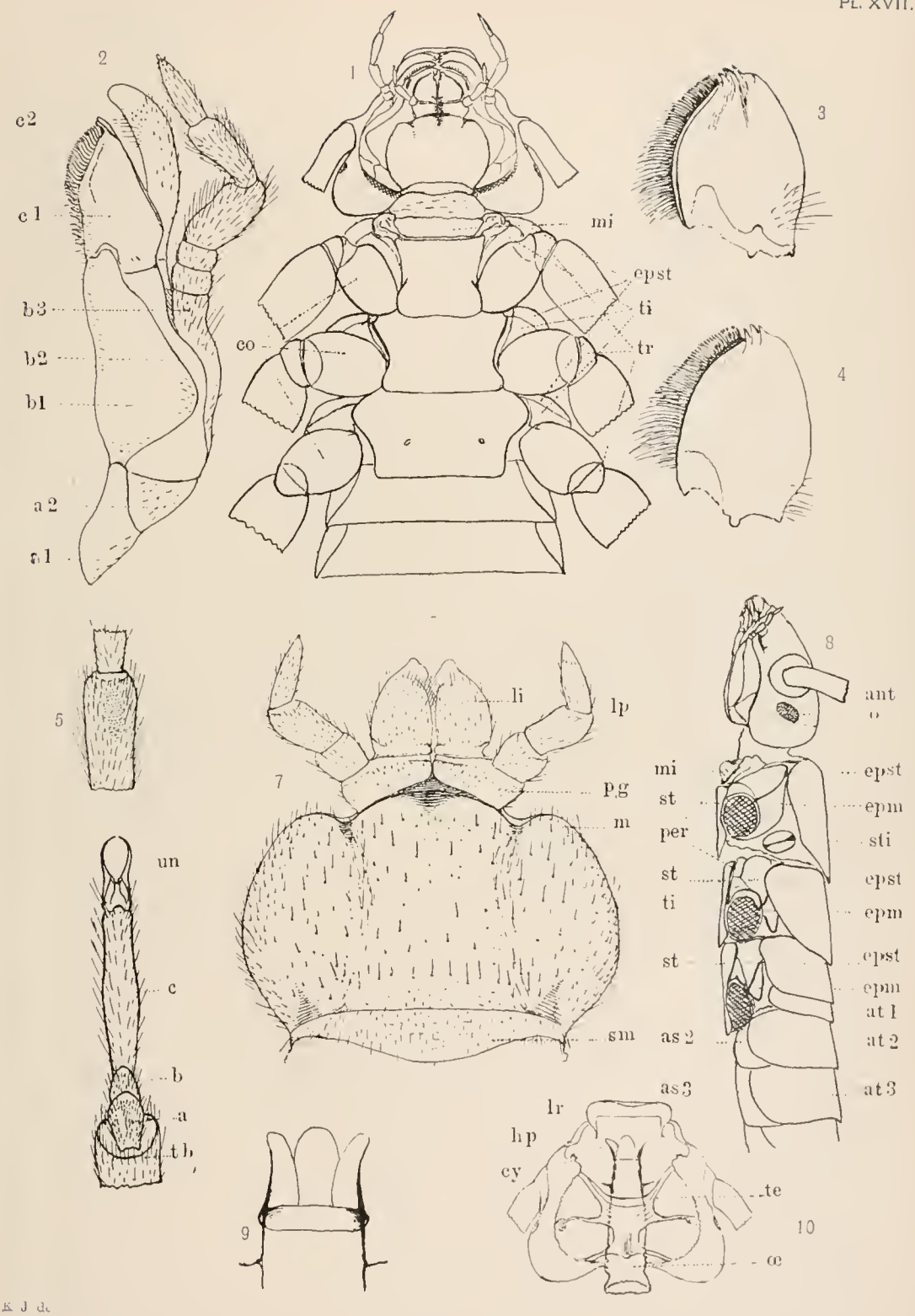
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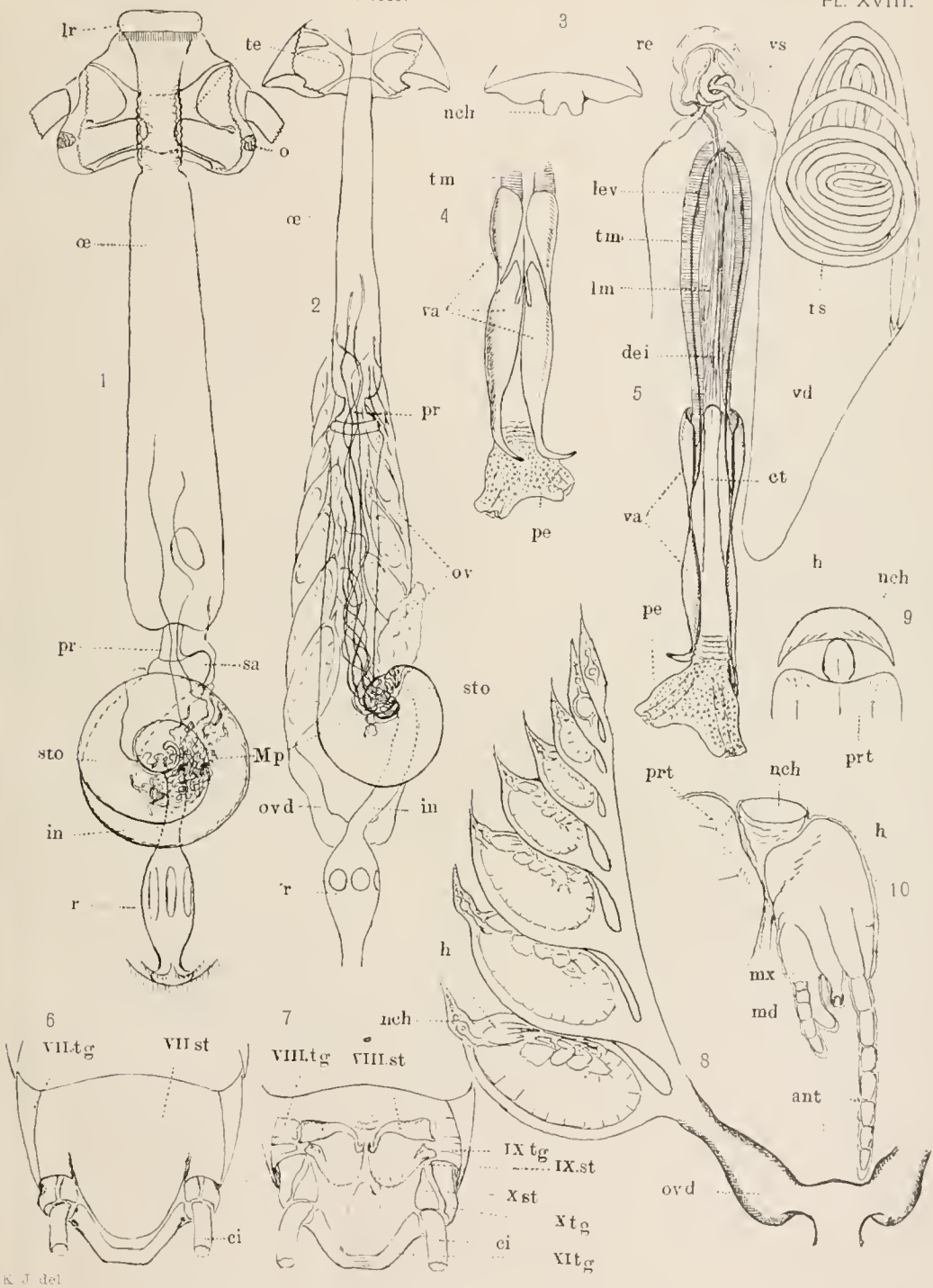
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K. J. del.

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