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# TRANSACTIONS

OF THE

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## Entomological & Natural History Society

[20]

FOR THE YEAR 1910.



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CITY OF LONDON

# Entomological & Natural History

## SOCIETY,

Established 1858.

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MEETINGS HELD AT

# THE LONDON INSTITUTION

## FINSBURY CIRCUS, E.C.

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# TRANSACTIONS

OF THE

## City of London Entomological

AND

## Natural History Society.

PART XX.

(1910.)

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WITH LIST OF MEMBERS.

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FINSBURY CIRCUS, E.C.

APRIL, 1911.



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## REPORTS OF MEETINGS.

December 21st, 1909.—LUPERINA GUENÉEEL.—Rev. C. R. N. Burrows exhibited *Luperina nickerlii* from Prague, said to be part of the original captures by Nickerl, light form of *L. testacea*, called var. *guenéei* by Tutt, and specimens of another *Luperina* from St. Anne's-on-Sea, which the exhibitor identified as the true *guenéei*.

LEUCANIA FAVICOLOR FROM HACKNEY MARSHES.—Mr. H. M. Edelsten, a specimen labelled "Hackney Marshes, July 2nd, 1905," found in the series of *L. pallens* in Mr. J. A. Clark's collection.

CUCULLIA CHAMOMILLÆ FROM HORNSEY.—Mr. J. Riches, an imago taken at light at Hornsey Rise.

January 4th, 1910.—LYCÆNID ABS. AND VARS.—Dr. T. A. Chapman, *L. corydon* var. *syngrapha* ♀ and *L. bellargus* var. *celestis* ♀, both from Charente Inferieur, W. France. Mr. C. H. Williams, *L. corydon* var. *fowleri* ♂ from Swanage, and var. *suffusa* from Shanklin, Isle of Wight. Dr. G. G. C. Hodgson, *L. argiolus* with dark striæ in cilia, bred and captured ♀s of first brood with marked discoidal spots on superiors and broad black border, in one case almost and in another quite touching the discoidal, one imago with blue nervures running into the border, and another with black nervures running into the blue area.

NONAGRIA NEURICA, HB. (EDELSTEN, TUTT), AND NEW ABS.—Mr. H. M. Edelsten, a bred series from Sussex, including abs. *rufescens* and *fusca*, also ova and pupæ *in situ*.

VENUSIA CAMBRICA—MELANIC ABS.—Mr. L. B. Prout, ab. *bradyi*, with superiors and inferiors melanic, bred from Sheffield; and ab. *lofthousei*, with only superiors melanic, and these partly streaked with white, from Middlesboro.

CATOCALA FRAXINI—BRED.—Mr. H. R. Leach, an imago bred *ab ovo* laid by ♀ taken at Horsham, September 3rd, 1908, by Mr. A. James, of Tooting.

POLYOMMATUS PHLÆAS, VAR.—Mr. H. J. Turner, *P. phlaeas* var. *alba* from Brasted, Kent, August 28th, 1909.

DEPRESSARIA PUTRIDELLA, SCHIFF.—Mr. A. Sich, examples of this species first taken in the larval state at Whitstable, in 1906, by Mr. E. D. Green, and sent to the exhibitor for identification.

HYBRID AND GYNANDROMORPHIC SMERINTHIDS.—Mr. V. E. Shaw, three *Smerinthus hybridus* bred October, 1909, and a gynandrous *S. populi*, left side ♂, right side ♀, bred June 10th, 1909.

TAPINOSTOLA FULVA FROM RICHMOND.—Mr. P. H. Tautz, a series taken in the Park in September, 1909.

PIERID ABS.—Dr. G. G. C. Hodgson, *Pieris brassicae*, first brood, with dark inferiors and undersides; *P. rapae* with more or less marked spot of blackish scales in fourth interneural space near anal angle of inferiors; *P. napi* ♂, first brood form, but taken on July 26th, when second brood was prevalent.

EUCHLOË CARDAMINES, ABS.—Dr. G. G. C. Hodgson, five ♂s showing striæ of orange, or black, or orange and black at anal angle on

upperside of superiors, also ♂ with black tips very strongly marked and black tending to run along contiguous nervures.

HYDRÆCIA NICTITANS, H. LUCENS, H. PALUDIS, AND H. CRINANENSIS—POINTS OF DIFFERENCE.—Rev. C. R. N. Burrows exhibited lengthy series of all four species with a view of evoking opinions as to means of separation of the latter species from the other three by superficial examination. Suggested points of difference were (a) band on hindwings, (b) shape of reniform. The exhibitor pointed out that so far, *H. crinanensis* had only been found on river banks close to the water.

January 18th, 1910.—SATYRUS SEMELE, ABS.—Mr. T. H. L. Grosvenor, imagines from Westmoreland and Surrey, including one with two ocelli on underside of one superior, and only one on the other, and several specimens with four ocelli on underside of superiors. Dr. G. G. C. Hodgson also exhibited long series from Sussex, Surrey, Kent, and Westmoreland, showing parallel variation in undersides.

LYCÆNA ICARUS, AB.—Mr. A. F. Hemming, *L. icarus* ♀ from Redhill, September, 1909, having only four submedian spots on superiors clustered closely round the discoidal, with the exception of the lowest, which is confluent with second basal spot. Spots on inferiors partially obsolete, three remaining submedian clustered round discoidal.

HYBERNATION OF VANESSA ATALANTA.—Mr. L. W. Newman drew attention to a report in the *Daily Mail* of the receipt from Aldershot, on January 14th, of a living specimen of *V. atalanta*, the identity of the species being vouched for by a representative of the journal present at the meeting. Mr. Newman also stated that seven imagines bred by him in October, had been kept alive in a warm room up to date, and fed and flew frequently.

February 1st, 1910.—HESPERIA COMMA, VARIATION.—Dr. G. G. C. Hodgson, a long series selected from captures in 1909, including dark ♀s, ♀s with orange-brown markings, and others of same colour as *palaemon*: also ♂ with dull, yellow-brown underside and yellowish spots.

LYCÆNA ICARUS AND *L. SEMIARGUS*, EXTENSION OF ORANGE MARKINGS.—Dr. G. G. C. Hodgson, *L. icarus* with orange scaling running from large submarginal lunules, and *L. semiargus* with orange scales tending to streak the interneural spaces in all wings.

LEPIDOPTERA FROM FALKLAND ISLANDS.—Capt. H. Reid, a number of lepidoptera consisting of about sixteen species in all, but including only one butterfly, *viz.*, *Argynnis cipheros*. One of the species shown had been determined by Sir Geo. Hampson as new, and named by him *Episilia ochricraspia*.

HESPERIA ACTÆON FROM SWANAGE.—Mr. V. E. Shaw, a series taken in July, 1909.

February 15th, 1910.—DONATIONS.—The librarians announced the receipt of vol. 21 of *The Entomologists' Record* from Mr. A. W. Mera, while the curators exhibited a number of lepidoptera in excellent condition, and including many uncommon species, presented by Mr. Percy Bright. Votes of thanks were accorded to the donors.

MEMBERS ELECTED.—Mrs. Hemming and Mr. A. F. Hemming, of Cambridge Lodge, Horley, were elected members of the Society.

DIANTHÆCIAS were the subject of a special exhibit and discussion, opened by Mr. H. M. Edelsten. Mr. A. W. Mera exhibited a cabinet-drawer, including *D. carpophaga* from Watford and Wimbledon; also light forms of this species taken at rest on pebbles at Felixstowe. Mr. L. A. E. Sabine showed several *Dianthoecia barvettii* from Bude, and Mr. P. H. Tautz, *D. nana* and *D. albimacula* ex the collection of Mr. J. A. Clark. Mr. R. G. Todd exhibited *D. irregularis* bred in 1908 from larvæ taken at Tuddenham.

DIANTHÆCIAS AND "SUGAR."—One of the points raised in the discussion, was the very rare appearance of examples of the genus at sugar; in this connection, Dr. Hodgson stated that he had found that *D. cucubali* came to sugar about half an hour before sunset, and Rev. Burrows mentioned having seen both this species and *D. capsicola* at sugar.

March 1st, 1910.—POLYOMMATUS DISPAR, AB.—Mr. L. W. Newman, *P. dispar*, ♀, with spots on underside of superiors exceptionally large.

EUPITHECIA SUBNOTATA.—Mr. J. Riches, a series bred from larvæ taken on *chenopodium* in North London, in 1908.

PAPER.—Rev. C. R. N. Burrows read a paper on *Geometra veruaria*, intended for ultimate publication in the *Entomologist's Record*.

March 15th, 1910.—VANESSA ATALANTA AND HIGH TEMPERATURE.—Mr. H. M. Edelsten, specimens which had been subjected to high temperature in the pupal stage; the red band on forewings was very vivid and interrupted with black markings.

VANESSA ATALANTA AND HYBERNATION.—Mr. L. W. Newman exhibited living specimens that had been kept in a warm room throughout the winter and allowed to fly and feed.

ABRAXAS GROSSULARIATA HYBERNATING AS PUPA.—Mr. L. W. Newman, a living specimen bred the same morning ex a pupa that had passed through the winter.

ZYGÆNA FILIPENDULÆ, ABS.—Mr. L. W. Newman, a series taken near Bristol, including the yellow var. *chrysanthemi*, and also a pink form.

GYNANDROUS AGROTIS PUTA.—Mr. A. J. Willsdon, a specimen taken at Manor Park.

PAPER.—Mr. C. P. Pickett read some notes on his experiences in connection with the rearing of grass-feeding butterflies. (See end of this vol.)

April 5th, 1910.—NEMORIA PORRINATA AND N. VIRIDATA.—Rev. C. R. N. Burrows exhibited ♂ and ♀ of the former, together with a series of the latter for comparison, and expressed his inability to detect any superficial difference between the two species.

ANAL APPENDAGES OF TAPINOSTOLAS.—Mr. H. M. Edelsten exhibited photos of anal appendages (♀) of *T. hellmanni*, *T. fulva*, and *T. concolor*, which showed a close resemblance to one another.

EUCHLOË CARDAMINES, ABS.—Mrs. Hemming, 2 ♂s, the one with

orange blotches very pale, the other with only part of the orange blotch on right superior and ♀ discoidal streak, Surrey, 1909.

MELANIC ARGYNNIDS.—Mrs. Hemming, *A. euphrosyne*, with melanic tendency at base of wings, Sussex, 1909, and *A. paphia* and *A. adippe* with usual black markings much enlarged, New Forest, 1909.

TRIPHENA COMES FROM SCOTLAND.—Mr. G. H. Heath, a series bred from Findhorn, N.B., ♀, but not showing much variation.

COENONYMPHA PAMPHILUS.—Mr. C. P. Pickett, first, second, and third broods, showing variation in colour from straw to dark brown, and on the undersides from much enlarged ocelli to ocelli obsolete, from Kent, Sussex, Hants, Essex, and Devon.

PAPER.—Mr. H. M. Edelsten read some notes on his work with the "Wainscots."

April 19th, 1910.—MELANIC PHIGALIA PEDARIA.—Mr. A. W. Mera, a dark almost unicolorous grey example, Chingford, 1910.

"FORCING" FRITILLARIES.—Mr. L. W. Newman, pupæ of *Argynnis paphia* and *Melitæa athalia*, the larvæ having been fed up in a hot-house; also larvæ of *Argynnis adippe* and *Argynnis aglaia*, which, although similarly treated, were only about one-fourth grown.

MELANIC ODONTOPERA BIDENTATA.—Mr. C. P. Pickett, a series bred *ab. ovo.* from pairing of melanic ♀ and typical ♂; about 40% were melanic and several others very thinly scaled.

DISCUSSION.—Mr. A. J. Willsdon, opened a discussion on the *Amphidasydæ*: some debatable remarks therein as to the evolution of *A. betularia* var. *doublelayaria* resulted in the ensuing discussion practically resolving into a debate on melanism and its causes.

May 3rd, 1910.—NEMORIA PULMENTARIA.—Rev. C. R. N. Burrows, larvæ ex ova sent by Dr. T. A. Chapman, from Central Europe; umbelliferous plants are the natural food, but the larvæ were found to feed freely on hawthorn and plum.

PLUSIA MONETA, VARIABLE FEEDING HABIT.—Mr. H. M. Edelsten, exhibited larvæ, and drew attention to the fact that when young the larva feeds in the terminal shoot when on monkshood, but on the leaf if on delphinium.

TEPHROSIA CREPUSCULARIA.—Mr. V. E. Shaw, a series bred from ova laid by ♀ taken near Newcastle on May 11th; the ova were sent to the exhibitor as *biundularia* with the information that no second brood occurs in the district. The bred insects emerged between April 18th and May 9th, 1908.

Mr. L. B. Prout read some notes on the *Acidaliidae*. (See end of this vol.)

May 17th, 1910.—LYCÆNA ARGIOLUS.—Dr. G. G. C. Hodgson, selected specimens bred from ova and larvæ obtained by searching ivy bloom in August and September, 1909, in mid-Surrey. One large ♀ emerged October, 1909, and was of the usual second brood form; six that emerged in April and May, 1910, were more blue than usual, while one specimen was apparently a blue-grey ♂ of dull *bellargus*

colour with very slender black marginal line on forewings, but with apparent ♀ abdomen.

June 7th, 1910.—*ARCTIA CAIA*, AB.—Mr. S. J. Bell, with apical chocolate blotch on forewings and basal black blotch on underwings, both obsolete.

*LYCÆNA ARGIOLUS*, GYNANDROMORPH.—Mr. Hemming, an example with right wings ♂ and left wings ♀, Surrey, May, 1910.

*ANGERONA PRUNARIA*, TWELVE YEARS INTERBRED.—Mr. C. P. Pickett, a number of freshly emerged specimens of more than average size, despite twelve years interbreeding.

VANESSID FROM TRISTAN D'ACUNHA.—Dr. J. S. Sequeira, a specimen evidently closely allied to *V. cardui*, but much smaller, and showing several distinct differences in marking.

*TÆNIOCAMPA MINIOSA*.—Mr. A. J. Willsdon, a series, bred from Brentwood larvæ, showing very pronounced central fascia.

*EUCHLOË CARDAMINES*, AB.—Mr. J. A. Wright, with wing tips of a shade between orange and yellow.

June 21st, 1910.—*ACIDALIA ENUTARIA*.—Mr. S. J. Bell, a series from Isle of Wight, July, 1910.

MELANIC *SMERINTHUS OCELLATUS*.—Mr. J. Riches, an example, bred ex pupa dug up in a Hornsey garden, with upper wings suffused, and under wings dark and almost devoid of usual red colouration.

September 6th, 1910.—SINGLE BROODED *PIERIS RAPÆ*.—Dr. T. A. Chapman, a series from Ursern Thal (Switzerland), where the species is single brooded. The specimens were of large size and varied considerably in extent of the black markings, some having only an indication of the apical spot, while others showed a second spot in the ♂, and two spots on hindwings in ♀.

MELANIC *EMATURGA ATOMARIA*.—Mr. L. W. Newman, a long series bred from ova ex wild melanic ♀; many of the ♂s showed no trace of light markings, while some ♀s only displayed the same on the cilia.

*ANGERONA PRUNARIA*.—prolonged larval period—Mr. C. P. Pickett, a larva of this species which hibernated from September 1909 to March 1910, stopped feeding again when about half grown, and did not resume feeding until August.

*EPINEPHELE HYPERANTHUS*, VARS.—A series from Folkestone, including var. *arete*, a ♂ with six ocelli on each wing, and two ♀s with elongated ocelli.

September 20th, 1910.—*EUPITHECIA SUBFULVATA*, VAR. *OXIDATA*.—Mr. G. H. Heath, a series bred from Torres, N.B., ♀; the exhibitor stated that he found this form bred true.

*HADENA DENTINA*, AB.—Mr. P. H. Tautz, a bred series ex ova, laid by ♀ taken *in cop.* at Wansford, N. Hants. The parent was thickly powdered with yellow scales, and many of the brood exhibited displayed the same peculiarity.

*SMERINTHUS TILIÆ*, AB.—Mr. A. J. Willsdon, a series including a specimen with central fascia reduced to a small spot.

October 4th 1910.—*CUCULLIA ABSINTHII*.—Mr. A. W. Mera, a series bred from larvæ taken at Tor Cross, Devonshire.

*CENONYMPHA PAMPHILUS*, AB.—Mr. C. P. Pickett a specimen with underside of primaries unicolorous straw colour, and of secondaries almost unicolorous grey.

*ASSYMETRICAL ZYGAENA FILIPENDULÆ*.—Mr. V. E. Shaw, an imago bred August 17th, 1910, ex Dover pupa, having spots confluent on left primary only.

*MELANIC NEMEOBIUS LUCINA*.—Dr. G. G. C. Hodgson, three examples with inferiors entirely black save for slight indication of orange lunules.

*HESPERIA THAUMAS*, LATE APPEARANCE.—Mr. L. W. Newman reported the capture of this species at the end of September.

October 18th, 1910.—NEW MEMBER.—Mr. A. Scollick of Merton Park, Wimbledon, was elected to membership of the Society.

*BOARMIA REPANDATA*.—Mr. J. E. Gardner, a long series bred from larvæ beaten on Exmoor in the spring; the specimens ranged from very light to very dark forms and included var. *conversaria*.

*LYCÆNA BELLARGUS*, AB.—Mr. L. W. Newman, a fine underside aberration displaying in whole or in part the characteristics peculiar to several of the named aberrations.

November 1st, 1910.—*ACRONYCTA TRIDENS*, GENITAL MALFORMATION.—Dr. T. A. Chapman, micro photographs and slides showing abnormal condition of genital organs first detected by Rev. C. R. N. Burrows; certain parts such as the clasps, œdagus, and sheath normally external, were shown to be internal in this specimen, while the exhibit also revealed the existence in the abdomen of two bodies apparently referable to the two male tubercles of the pupa case.

*ACRONYCTA MYRICÆ*, PUPÆ.—Mr. L. W. Newman, a number of pupæ in lichen covered cases collected at Aberdeen.

*VANESSA C-ALBUM*, AB.—An imago with yellow ground colour being one of several ex same brood, *Ibid*.

*NONAGRIA BREVILINEA* ♂ AND *LEUCANIA IMPURA* ♀, IN COP.—Mr. R. G. Todd, specimens taken *in cop.* in Norfolk Broads, 1910; ova were deposited but proved infertile.

November 15th, 1910.—*ABRAXAS GROSSULARIATA*, VAR.—Mr. L. W. Newman, specimens of var. *varleyata* with white rayed superiors and inferiors.

December 6th, 1910.—*LYCÆNA ÆGON*.—Mr. T. H. L. Grosvenor, specimens from Surrey and Lancashire including ♂s varying from bright *bellargus*-like blue to dull purple, ♂ and ♀ underside showing striation, obsolescence, or multiplication of spots, and ♀s with excessive or obsolescent orange markings.

DIVERGING AND CONVERGING VARIATION IN *DIURNI*.—Dr. G. G. C. Hodgson submitted an extensive exhibit illustrative of variation in butterflies in two directions, *vis.*:—

1. Extreme forms of divergence in each of a few species :—
  - (a) racial as in *Coenonympha typhon*, *Melitaea aurinia* and *Epinephele hyperanthus* from different localities.
  - (b) racial from same localities as in *Pieris napi* ♂ s and ♀ s from Surrey.
  - (c) aberrational as in *Argynnis selene*, *A. euphrosyne*, *Lycaena corydon*, etc.
  - (d) Seasonal as in *Lycaena bellargus*, 1906-7.

2. Extreme degrees of convergence of allied species e.g., *Pieris napi* ♂ and *P. rapae* ♂, with slight apical marking, *Argynnis euphrosyne* and *A. selene*, with brown-red markings on underside, lilac-blue *Lycaena icarus* and *L. bellargus*, violet blue ♂ *L. icarus* and *L. argiolus*, etc.

MELANIC EUGONIA AUTUMNARIA.—Mr. L. W. Newman, a long series including specimens with unicolorous deep brown superiors, and inferiors only slightly paler in colour, the nervures being orange, the original stock was twelve ova ex typical Dover ♀ s, this, the fourth brood, showing about 90% melanic forms.

The Council for the ensuing year were elected as follows:—

PRESIDENT.—Mr. A. W. Mera.

VICE-PRESIDENTS.—Rev. C. R. N. Burrows, Dr. T. A. Chapman, and MESSRS. F. J. Hanbury and L. B. Prout.

TREASURER.—Mr. P. H. Tautz.

CURATORS.—Dr. G. G. C Hodgson and Mr. A. J. Willsdon.

LIBRARIANS.—MESSRS. V. E. Shaw and F. B. Cross.

SECRETARIES.—MESSRS. S. J. Bell and T. H. L. Grosvenor.

NON-OFFICIAL MEMBERS.—MESSRS. H. M. Edelsten, J. E. Gardner, L. W. Newman, C. P. Pickett, and J. Riches.

#### SECRETARIES' REPORT, DECEMBER 6th, 1910.

It is to be regretted that once again it is hardly possible for the secretaries to fulfil the strict letter of the rule which calls upon them to furnish an annual report of the progress of the Society during the past year.

The customary twenty meetings have been held, but the average attendance of members thereat has been only 14·5 as compared with 14·45 in 1909, and 17·05 in 1908, an increase of ·05 after a decline of 2·6; to call this progress would surely be an exaggeration. The visitors make a rather better showing, viz., 1·3 against ·3 in 1909 and ·7 in 1908. This paucity of visitors is really rather extraordinary, and far from satisfactory, seeing that our visitors should surely be the chief source of supply of new recruits for our ranks.

The best attendances were registered for the two January meetings. The first was Pocket Box night, but the good assemblage on the second occasion was fortuitous, as no special attraction was offered. The Exchange meeting, which, when first instituted, proved very successful, was but poorly attended this year, and quite a failure from the point of view of exchange; this is not the first time that this meeting has been more or less of a fiasco, and it will apparently have to be abandoned.

In the matter of Membership, the Society remains in statu quo, as only three new members have been enrolled, while at least that



number of names figuring on the present list, will not be included in that for 1911. A noteworthy departure has, however, been made in one respect, *viz.*, the election for the first time of a lady member, to whom, it may be mentioned, the Society is already indebted for more than one interesting exhibit.

The mention of exhibits calls to mind the fact that this year these have, with a few notable exceptions, been on the whole so few and so lacking in scientific interest, that the reporting secretary has thought it wiser to discontinue the reports to the magazines rather than to reveal by their continuance the nakedness of the land. Far be it from us to decry the "mere collector's" exhibit, which must always be of interest in many ways, and is often provocative of discussion and reminiscences, but such exhibits, it must be admitted, do not afford good material for magazine reports, or interesting reading for the *Transactions*. Perhaps this lack of scientific interest may at least in part be more apparent than real, owing to the fact that members still seem to think that it is quite unnecessary to furnish the secretaries with more than the bare names and origin of their exhibits; once more be it urged that members should not fail to indicate in their note the facts, if there be any, which make the exhibit of special interest.

The falling off in the exhibits is perhaps best demonstrated by the following details of the number of pages in the *Transactions* dealing with same:—1905, 12 pp.; 1906, 9 pp.; 1907, 9 pp.; 1908, 8 pp.; 1909, 5 pp.; while 1910 certainly will not exceed the latter figure.

The heading "Donations" appears but once in the minutes for 1910, *viz.*, on February 15th, when our president once more presented the volume of the "Record" for the past year, and Mr. Percy Bright added a number of excellent lepidoptera to the Society's collection.

The *Transactions* from some points of view, and particularly from that of the Reporting Secretary, are involved in the least satisfactory and progressive feature of the Society's year. It was agreed, for sundry reasons, that the aforesaid official should be relieved of the task of editing the 1909 volume, which task was entrusted to another member, who, be it said, undertook the work far from willingly. The upshot was that in October the *Transactions* were found to be still in the most rudimentary embryonic condition, and having been then undertaken by the supposedly exonerated secretary aforesaid, are not yet quite ready for publication. It would be as well for members to bear this little incident in mind when they are disposed to grumble, as they have done in the past, when under the secretarial ægis the volume does not appear perhaps until April.

While on this subject of *Transactions*, it must be put on record that the Society is indebted to the Rev. C. R. N. Burrows for the compilation of the index to the 1899-1907 numbers which was issued with the 1908 volume; an apology is due to Mr. Burrows for the omission of mention of the fact in that number.

This report will doubtless seem a sorry tale of woe, but it really appears to be time that it were impressed on members that a more active interest in the doings and welfare of the Society is needed to dispel the state of apathy that seems to have overtaken us as a whole. The winter syllabus for 1910-11 may be quoted as another case in

point; there are far fewer names therein than usual, and these were only obtained with considerable difficulty. It is possible that in this matter a mistaken modesty is partly responsible for the lack of response to secretarial requests for assistance. Members seem unable to appreciate the fact that while it is only given to the few to indite papers of deep scientific interest, almost anyone can contribute notes of holiday or seasonal collecting, of breeding experiences, etc., which cannot fail to interest members.

Particulars of the programme of the past session are appended as usual.

- 1909, Dec. 21. Exhibition and Discussion. "Genus  
*Cucullia*" ... Opened by Mr. A. W. Mera.
- 1910, Jan. 4. "Pocket Box" Exhibition.
- „ 18. Exhibition and Discussion. "*The  
Hydroecias*" ... Opened by Rev. C. R. N.  
Burrows.
- Feb. 15. Exhibition and Discussion. "Genus  
*Dianthoecia*" ... Opened by Mr. H. M. Edel-  
sten.
- Mar. 1. "*Geometra vernaria*" ... .. Rev. C. R. N.  
Burrows.
- „ 15. Rearing grass feeding butterflies ... Mr. C. P. Pickett.
- April 5. Notes on the "Wainscots" ... Mr. H. M. Edel-  
sten.
- „ 19. Exhibition and Discussion "*Amphi-  
dasydae*" ... Opened by Mr. A. J. Wills-  
don.
- May 3. Notes on the "*Acidaliidae*" ... Mr. L. B. Prout.
- Nov. 1. Exhibition of Duplicates with a view  
to exchange.
- „ 15. Nomination of Council for 1911.  
Appointment of auditors. Special  
Exhibit "*Satyridae*."
- Dec. 6. Annual Meeting. Election of  
Council for 1911. Presidential  
Address ... .. Mr. A. W. Mera.
- „ „ "Reminiscences of Wicken" ... Dr. J. S.  
Sequeira.

S. J. BELL.  
T. H. L. GROSVENOR. } *Hon. Secs.*

## TREASURER'S ACCOUNT, DECEMBER, 1909, TO DECEMBER, 1910.

<i>Dr.</i>	£ s. d.	<i>Cr.</i>	£ s. d.
To Balance in hand from 1909 .. .. .	9 5 5	By Rent July 31st, 1909, to July 31st, 1910 .. ..	12 12 0
„ 2 Subscriptions, for 1909, 7s. 6d. .. .. .	0 15 0	„ Attendance .. .. .	0 10 0
„ 1 Subscription, for 1909, 5s. .. .. .	0 5 0	„ Insurance .. .. .	0 6 3
„ 2 Subscriptions, for 1910, 5s. .. .. .	0 10 0	„ Subscriptions for Magazines .. .. .	0 12 0
„ 57 Subscriptions, for 1910, 7s. 6d. .. .. .	21 7 6	„ Books purchased for Library .. .. .	1 5 0
„ 5 Subscriptions, for 1911, 7s. 6d. .. .. .	1 17 6	„ Printing .. .. .	1 19 6
„ 4 Subscriptions, for 1910, 2s. 6d. .. .. .	0 10 0	„ Bookbinding .. .. .	1 3 0
„ Interest on Life Membership Fund for 1908 and 1900 .. .. .	0 10 0	„ Stationery, Postages, etc. .. .. .	3 1 8
„ Transfer from Membership Fund (J. W. Clark, deceased) ..	5 0 0	„ Transfer to Publication Fund .. .. .	10 0 0
	<u>£40 0 5</u>	„ Balance in hand .. .. .	8 11 0
			<u>£40 0 5</u>

## PUBLICATION FUND.

	£ s. d.		£ s. d.
To donations .. .. .	2 5 0	By Balance in hand (reserve against cost of printing Transactions for 1909)*	13 4 6
„ Sale of "Transactions" ..	0 19 6		
„ Transfer from General Fund .. .. .	10 0 0		
	<u>£13 4 6</u>		<u>£13 4 6</u>

\* Printer's a/c since received for £11 2s. 3d.

## LIFE MEMBERSHIP FUND.

	£ s. d.		£ s. d.
To 3 subscriptions (Messrs. J. A. Clark, A. E. Gibbs, and W. J. Kaye) ..	15 0 0	By Balance at Bank .. ..	10 0 0
„ Interest, 1908 and 1909 ..	0 10 0	„ Interest, 1908 and 1909 (transferred to General Fund) .. .. .	0 10 0
	<u>£15 10 0</u>	„ Transfer to General Fund of subscription of J. A. Clark, deceased .. .. .	5 0 0
			<u>£15 10 0</u>

Examined and found correct.

C. P. PICKETT,  
ALFRED J. WILSDON, } *Auditors.*

P. H. TAUTZ (*Hon. Treas.*)

## PRESIDENTIAL ADDRESS.

As most of you already know, our vice-President Mr. Burrows had arranged to provide the annual address, in the shape of an account of his recent researches concerning the Genitalia of many of our British Lepidoptera. This was to have been undertaken jointly with Mr. Peirce, of Liverpool, who was going to produce the various specimens by lantern slides. This, unfortunately, has had to be abandoned, at any rate for a time, owing to the serious illness of our friend Mr. Burrows, who, I am sure, has the sympathy of the whole Society. Nevertheless it has placed us in a somewhat awkward position as it has been impossible to obtain a substitute, and at such short notice it has been quite impossible for me to prepare anything worthy of the name of an address even if I had already possessed the necessary material.

Therefore I only propose to give a short sketch of the season's collecting and to mark some of the peculiarities noticed in the time of appearance of some of our most common species. And afterwards, with your permission, I propose reading a few notes by Dr. Sequeira on "Reminiscences of Wicken."\*

I think it will be conceded by most of us that we have arrived at the conclusion of another very poor season.

I know that some of our members have been exceptionally fortunate in one or two directions. For instance, *Tapinostola concolor* has been taken in some abundance, and I hope and expect to see the full life-history published before very long. Until recent years this was one of the most difficult species to obtain, although its habitat was known, and it was never parted with unless in exchange for some one or other of our greatest rarities. In the year 1891 I took a solitary insect at Felixstowe, which Mr. Tutt then considered to be *T. concolor*, and he remarked in the *Entomologist's Record* that we might now expect to see *concolor* more generally represented in our cabinets. But the privilege of distributing this insect never fell to my lot, as I never saw another in the same locality, and I am now indebted to our friend Mr. Tautz for possessing true *concolor*. I always had grave doubts as to the identity of my Felixstowe specimen, and the recent addition to my series rather increases those doubts than otherwise.

One of the chief features of the season has been the very late appearance of many insects. To begin with, one of our early species, *Nyssia hispidaria*, was bred this year in the open, on April 10th, by Mr. Willson. This appears to be very late, as the earliest date I have bred it was January 14th, 1882, and the earliest date taken wild was February 7th, 1883, in Richmond Park. *Spilosoma lubricipeda* was extremely late, occurring on July 16th, 17th, 19th, and August 5th, all just emerged, these, as far as my collecting goes, are record dates, the nearest approach being July 15th, 1898, all at Forest Gate. I know that this species in confinement is sometimes double brooded, but this year they did not commence to appear until late, and they kept on

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\* Printed at end of this volume.

without a break until August 5th. *S. menthastri* was also very late, the last being taken on July 26th. In my early days of collecting, in the sixties, these two species were generally completely over by the early part of June in the London district, but I remember sometimes seeing them after June 20th at Ipswich, which often surprised me, as I used to consider them to be quite over by then on the west side of London. *Lycaena aegon* was almost a month late, as I took one at Snodland on August 15th, and another at Ashdown Forest on August 19th.

In support of my opinion that the season has been a remarkably poor one, I find that, on going through the journals, very few notices of unusual captures are to be found. Whether it is that the "mere collector" is getting more scarce or not, I cannot say, but it is certain that I never knew a time when less has been recorded in this way. There is a record of *Vanessa antiopa* in March, in Surrey, and perhaps under more favourable climatic conditions we might have looked for an autumnal emergence, but there is nothing to say that this "grand surprise" has been seen again. There is another notice of *Argynnis lathonia* having been taken in June at Folkestone. This seems an unusual date for the insect to appear in Britain, as nearly all our records are in September, but, after all, it seems probable that the September specimens are the offspring of some immigrant arriving here in the early summer. A very interesting record is that of *Synia musculosa* in Wiltshire, last August. Judging from the inland locality, this would appear to be no immigrant, but to be one of the few insects that may be still called rare, although probably indigenous.

Mr. J. P. Barrett notes that he took *hispidaria* in Richmond Park, in the same spot where he took it forty years ago. This strikes a chord of some interest to the field naturalist, as to the length of time a local species remains in precisely the same place. With *hispidaria* the necessity of remaining in one place is doubtless due to the females being apterous, and the operation of shifting quarters being in consequence almost impossible. But there are other insects which are extremely local, where there appears to be no obvious reason why they should occur year after year in the same spot. Many of the older collectors have ample evidence of species that were once abundant locally, having departed and gone; but I should think there are few of us who are able to say that a certain local species is taken in the same place that it was taken in some 40 or 50 years ago, and in the same abundance. In many cases where the insects have gone, the reason is plain, as the contaminating influence of smoke, owing to the increase in the population of neighbouring towns, is enough to account for it.

My own collecting during the past season has been greatly curtailed owing to business pressure, and the few times I had the opportunity of sugaring were unproductive in the extreme. Larva beating in Epping Forest in the late autumn was not quite so bad, although not quite up to an average season; and in Sussex, autumn larvæ were also scarce, and it required a lot of hard beating to produce only very small results. The best larva falling to my lot was that of *Acronycta alni*.

It now only remains for me to thank those gentlemen who

have completed another year as Officers of this Society, and also to thank you gentlemen for your continued confidence as expressed in your re-election of me once more as your President, and I trust that the coming season will result in renewed prosperity to our Society.

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### REPORTS OF FIELD MEETINGS.

MAY 28th, 1910, to Clandon. Leader C. P. PICKETT. No report received, but we understand that very few members put in an appearance and that no notable captures were made.—(E.D.)

JUNE 18th, 1910, to Leith Hill. Leader V. E. SHAW. The prospects of success for this excursion were unfortunately marred by an oversight on the part of the corresponding secretary, the notices *re* same only reaching members on the day before the excursion; the result was that many members had contracted prior engagements.

Four members and one visitor comprised the party. The afternoon being somewhat dull, few butterflies were seen. On the heath *atomaria*, *belgiaria* and *russula* were walked up. Among the trees *piniaria*, *pectinitaria*, *sociata*, *variata*, *firmata*, *liturata*, *lariciata*, *unangulata*, *montanata*, *bilineata* and *unidentaria* were netted, and out of the bilberry some numbers of *advenaria* were beaten. In the marshy portion amongst the alders a few *heparata* and *luteata* were taken.

Owing to the distance from the station, and the poor train service to Holmwood, and also to tea having to be allowed for, the total time on the collecting ground was under two hours, but the three new visitors to the ground were well pleased with the introduction. (V.E.S.)

JULY 9th, 1910, to Darent Wood. Leader V. E. SHAW. Only two members and one visitor put in an appearance for this field meeting, most probably owing to the fact that the previous few days had been wet, and that on the morning of the ninth it was raining. The afternoon, however, turned out fine but for absence of sun. The foliage being wet not much beating was done and captures were few, comprising *didymata*, *bilineata*, *rusticata*, *umbratica* and a single *dodonea*. However, large broods of *V. urticae* and *io* were met with, and from some larvæ of the latter the leader bred a few *V. cyanosticta* during August. (V.E.S.)

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## PAPERS READ BEFORE THE SOCIETY.

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### NOTES ON BREEDING OUR GRASS-FEEDING BUTTERFLIES.

(Read March 15th, 1910, by C. P. PICKETT, F.E.S.)

For the past nine years I have been much interested in the life-histories of most of our grass-feeding butterflies. Many entomologists are satisfied to catch them, but there is a still greater fascination in breeding them from the egg. When I first started I was told I should find it a difficult task, but I think by the time I finish these notes you will say I found it comparatively easy. Where do our butterflies lay their eggs in nature? It is easy to see them flying about amongst the herbage, looking for a suitable place to lay, but try and find the ova afterwards, and even if you have carefully marked them down, you will find it is by no means easy, and only by long and patient searching are they discoverable; so wonderfully does nature play her part in concealment that many an entomologist has given it up for the easier method of catching the imagines. But the next best thing is to try and get them to lay in confinement, for which purpose three things are essential—1st, and most important, the sun; 2nd, plenty of room and air; and 3rd, growing foodplant. I started with these three points in view. The first was easily got over; the second was secured by the use of large roomy cages about three feet square, covered with white tiffany or muslin (using white helps to keep the foodplant fresh), and glass fronts; as for the third, I planted some ordinary grass seed in about 30 flower-pots of all sizes, from thumbs to four inches, and gently watered them and placed them in my greenhouse covered with glass. Within a fortnight the grass was up, and after three weeks was an inch in height, and of a delicate green, and ready for my experiments. I placed two or three pots in each breeding cage ready for ova.

My first experiment was with *Pararge egeria*, so a day was spent at Chalfont Road, Bucks, in one of the delightful woods that abound there, where *egeria* can be got in numbers. I captured seven females, which were placed in my cages in the garden facing the sun and well fed on sugar. They all laid without any trouble, usually two or three eggs on a blade on the underside; when hatched the young larvæ ate the eggshell for their first meal, and were of a delicate green with a black head. The eggs, as placed in nature, are usually found on the flowers of grass, and sometimes on the stem just below the flowers, and are easily passed over, being so much like the flowers themselves. The larvæ usually hide during the day, well down amongst the roots. I found that when the grass has grown about six inches high it is advisable to cut the tops off, which strengthens it greatly, otherwise it grows weak and turns yellow. A slight syringing every other day also gives the moisture which the larvæ usually get at night when feeding in nature.

With a little careful attention you will find *egeria* easy to feed up in this manner, but never disturb them whilst they are changing their coats. If you start with the first brood you can get three or even four broods through by the end of the season. It is the last brood where the trouble comes in, some larvæ hanging on all through the winter, but if brought indoors, they will feed up slowly, and you can produce your imagines at Christmas, or January and February of the following year. Those that go over in pupæ emerge about same time as those that feed up rapidly early in the year.

The imagines produced from the first broods are certainly the most variable and the finest bred; the subsequent broods are as if all stamped with one pattern, so if a good variable series is required, pay strict attention to those going over the winter. I have received wild parents from kind entomologists, or taken *egeria* from New Forest (Hants), Isle of Wight (Hants), Chalfont (Bucks), Clandon (Surrey), and Dawlish (Devon), and by far the finest for size and colour were bred from Dawlish ♀s, the richness of colour easily making them recognisable as Devon specimens. Those bred from New Forest and Isle of Wight are somewhat dull in colour and a smaller form, while those from Clandon and Chalfont are a dingy race. The pupæ of *egeria* are of varying colours, but mostly green, those hanging amongst the green fresh grass were of an apple-green shade; a few preferred the outer ridge of the flower pots, and were reddish-grey; some pupated amongst the dryer grass stems, and were greyish in colour; some hung from top of muslin, and were whitish-green; all these forms occurred in each cage, the coloration in each case being beautifully protective, and the adaptation to their surroundings strongly evident.

*Epinephele hyperanthus*.—I obtained ova from both wild Dawlish and Folkestone ♀s; they were laid loosely, and were yellowish-white at first, turning darker later. Hatching in about three weeks, the larvæ are somewhat stumpy, tapering towards the tail, and have a large head; the colour varies from drab to warm-brown, and the surface is somewhat bristly, giving it a rough appearance. The pupa is of a dirty whitish-brown marked with black spots, and the attempt at making a puparium is very poor, the larva simply crawling into the matted grass and pupating at the roots. Only two succeeded in attaching themselves to the blades, and it required little effort to move them. The feeding up of *hyperanthus* is a somewhat tedious job, as the larvæ hibernate when very small, usually about end of October. I kept them on the growing grass all through the winter, and occasionally moved them to fresh pots of grass to ensure healthy conditions. I kept them indoors under observation all through the winter, and rarely passed a day without giving them a look. They started feeding (indoors) beginning of March, fed up very slowly, and started pupating beginning of June. The pupæ require a certain amount of moisture as well as sunlight, and will well repay the time spent by the lovely specimens bred, with that richness of colour (velvety-black) and white cilia, which you rarely get in captured specimens. I tried my experiments with Dawlish ♀s because of their huge size and markings, the ringlets being very large—so different from those I took at Folkestone, which are a smaller race, with the form *arete* fairly common, and all tending to small spots, although you may get an occasional one with elongated



ocelli; the Dawlish specimens all tend to extra large spots, and the form *arete* is absent.

*Pararge megera*.—This I have fed up from the egg. It is easy to obtain females of the first brood, and placed under the same conditions as *egeria*, the larvæ are no trouble to rear. The eggs are fixed to a blade of grass, and hatch into a yellowish-white larva with a somewhat large head; they are much smoother in appearance than *egeria*, and much less marked. The larva as it gets older becomes a bright apple-green. The pupæ, also, are nearly always delicate apple-green, although you get a darker form as in *egeria*. It is easy to distinguish between the pupæ of *egeria* and *megera*, the former being shorter and stouter than *megera*. The larvæ from the first brood feed up quickly, and produce a nice series during August. I have not carried *megera* on through the winter yet, but hope to do so later.

*Satyrus semele*.—This insect I have only bred through from the larva at present; these are easily obtainable any mild evening. My larvæ were taken at Folkestone on the cliffs just above the warren, where the rough grass grows in patches. June is a good time to look for them, and a quiet walk after dark with a lantern will reveal many grass feeders. The larvæ are of a brownish colour, and very plump when fullfed, and tapering towards the ends. Their movements are very slow, quite snail-like; they hide away during the day right down amongst the grass. The pupæ are unlike any other of the grass feeders; in fact, one not knowing would take it for a *Noctua*, being a shiny reddish-brown. Some pupated on the ground amongst the rough grass, and others went into the earth and made slight cocoons. These required to be kept somewhat moist; I lost several through drying up.

*Melanargia galatea*.—I have taken the larvæ at Folkestone at the same time as *semele*, in many hollows on the cliffs above the warren, where they are very common. Being yellowish-green they are easily recognisable amongst the grass culms. They pupate amongst the roots of the grass, a dirty yellowish pupa, turning to a dirty brown just before emergence. The beauty of breeding *galatea* is in getting such a rich yellow coloration, especially in the males.

*Epinephle ianira*.—This I have also picked up as larvæ, usually at the foot of hollows from which run grassy banks. Those I have bred come from Dover and Folkestone. The larvæ are very pretty, varying in colour from apple-green (the usual form) to a dingy brown. One can understand these different coloured forms when one is on the feeding ground, even by night where the larvæ are abundant (I am speaking here of the fullfed larvæ) on the rough pasture land fringing these hollows, the grass is so much more rank, and grows together with such a lot of other plants, mostly of a darker nature, that there need be some sort of protection by day to safeguard against enemies. When I have searched by day for these larvæ, I have found this brown form right down amongst the dried roots, while the green forms were nearly always hidden away amongst lady's bedstraw and thick green plants of that description. I do not, however, advise searching by day. I simply wanted to find out where all the larvæ got to during the day, as so very few are found on the same spot as that on which they simply swarm after dark. The pupa hangs amongst

any herbage, and is greenish-yellow with blackish markings, turning to a dirty brown before emergence. The pupæ require to be kept in a moist atmosphere, otherwise they will dry up.

*Epinephele tithonus*.—This I fed up from larvæ taken at Orpington during June, 1907. They were nearly all fullfed, and were of a greenish-grey, and some, in fact, were quite green. *Tithonus* larvæ love a nice bank running along a wood or hedge. The pupæ are very hardy; some were suspended, whilst others seemed content to pupate amongst the roots of grass. Those that did hang seemed to do it in a half-hearted sort of way, just a slight touch, and they were disconnected. The pupa varies greatly in colour, from drab to dark brown, interrupted with pale stripes; it is very stumpy in appearance. I found this very easy to rear. The imagines I bred were very dingy, however, as compared with those I bred from Dawlish larvæ, which were a much richer race. The undersides, also, were much redder, more in harmony with the red sand-shore of Devonshire.

In all these cases the larvæ were fed on this potted grass arrangement, and thrived very well indeed.

Whilst on the subject of breeding, perhaps it would not be out of place to mention another of our butterflies that is easy to rear, and worth a trial by all who have docks growing in their gardens, *viz.*, the small copper. I captured five ♀s of the second brood at Dover, end of July, 1906, and brought them home to try for eggs. I had in my garden some very large roots of dock all in flower, about five feet high and covering about a six foot square patch; this I covered in with white tiffany, and therein placed *phlaeas*, and left them without attention during August, being on my holidays. I did not look at them till beginning of September, when, to my surprise, I found both pupæ and full-fed larvæ; the larvæ were exceeding pretty, some were bright apple-green, others green with a red lateral line, some of a greyish tint, and others of a reddish hue, and all were about pupating. I again noticed the wonderful protective colouring of the larvæ. The red lined larvæ were very fond of resting on the stems of the dock, which had red lines running down, the green form preferred the green stems, and those of mixed colouration preferred the small leaflets amongst the flowers. Nearly all the small dumpy brownish pupæ were amongst the dried brownish leaves at the bottom of the plant. They started emerging about mid September, about 70 in all, and it seems remarkable how such a frail insect can emerge from such an apparently hard pupa case. The wings were plainly visible two days before emerging, and looked as if they were enveloped in a glass shroud. The development of the wings is very rapid, which unfold at once to their proper size.

I was not able to get pairings of these in confinement, so I obtained seven ♀s of the first brood in June, 1907, and placed them under the same conditions. I found that the ova were white and were laid mostly amongst the leaflets between the flowers, while a few were attached to the stems just below the flowers and under the small leaflets. This brood was kept under closer observation, but the weather was so bad that they dragged on double the time, and produced the second brood during August and September. I was not able to get any pairings, so how a third brood fared in nature I do not know, I should think it

was almost absent. The ease with which *phlaeas* can be bred this way is remarkable, and some very nice forms can be got.

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## NOTES ON THE ACIDALIINÆ.\*

(Read May 3rd, 1910, by LOUIS B. PROUT, F.E.S.)

Classification is a dry subject, and, I dare say, most of my audience would tell me that what they already know of it—even if that be almost nil—is about co-extensive with what they would wish to know. My chief excuse for inflicting upon you a few notes which deal mainly with classificatory questions is that I was pressed to do *something* for the Society during the present session, and am so nearly tied down to matters of that kind by the scope of my present work, that I saw no prospect of my making excursions into more entertaining fields—I say that that was “my *chief* excuse,” but I must plead guilty also to some feelings of anxiety that entomologists so enlightened and wide-awake in most ways as the members of our Society shall know *something* of the significance of such a well-known classificatory term as *Acidaliinæ* and escape from the meshes of Guenée and “South’s List,” or the deceptiveness of the popular name of “Wave Moth.” I do not think it will do us any harm to recognize, for instance, what Herrich-Schaeffer recognized 60 or 70 years ago, that the “Little White Wave” (*Asthenia albulata*, Hufn. = *candidata*, Schiff.) the “Welsh Wave” (*Venusia cambrica*), etc., are not Acidaliids but Larentiids—or, in the vernacular, not “waves” but “carpets,” while the “mocha” genus (*Zonosoma* in South’s List), which Guenée places as a separate family *Ephyridæ*, has really a tolerably close relationship with the true “waves.” I do not pretend that the time is ripe for an ideal re-classification, but I do contend that when we are offered the choice between a comparatively natural system which was worked out almost completely by 1853 (when Lederer’s “Dic Spanner” appeared and a comparatively *unnatural* one which followed it in 1858 (Guenée’s), we can hardly be accused of being ultra-Radical if we lean towards the former, or at least try to know something about it.

Lederer divided the *Geometridæ*—or as Tutt would have us say, *Geometrides*—into four main groups, three of which seem eminently natural, while the fourth, though much more heterogeneous, is still natural in the sense that all its components have a character in common—the obsolescence of a particular vein of the hindwing—which is not shared by representatives of any of the other three, so that one may perhaps venture to assume a phylogenetic connection. In any case, it is only just to Lederer to point out that we have not yet learned to classify this great fourth group on any really good structural characters, so that we cannot cast any stones at him even if we feel it is a much less satisfactory assemblage than either of the

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\* The author alone is responsible for the nomenclature employed in this paper.—Ed.

others. Regarding the *Geometrides* (which, by the way, ought to be called *Phalaenides*, as in Fabricius, the early French authors and Packard) as a superfamily, one may follow Meyrick in calling these four divisions families. Lederer did not himself supply them with names, but these have been provided by subsequent authors. I believe the *correct* names to be:—

(1) *Hemitheidae* or “Emeralds” (*Geometridae* or *Geometrinae* of authors).

(2) *Acidaliidae* or “Waves” (*Sterrhidae* of Meyrick).

(3) *Larentiidae* or “Carpets” (*Hydriomenidae* of Meyrick).

(4) *Phalaenidae* or the great unclassified residue, including “Thorns,” “Heaths,” “Beauties,” “Belles,” “Peacocks,” and what not (*Boarmiinae* of Hampson, *Solidosemidæ* of Meyrick, *Eunomidae* of Hulst).

Meyrick and Hampson added two other groups to Lederer’s four, but I have had to merge the two into one under the name of *Oenochromidae*, and even then I look upon them as roughly the “place where rubbish may be shot”—an omnium gatherum of presumably ancestral forms which do not specialise along the lines of either of Lederer’s four groups. Therefore I repeat we have not advanced much in our primary groupings since he wrote, and I think, for the present, we must be content with this broad basis. Of course, I do not minimise the value of the work which has been done by Meyrick, Hampson, and others, in the matter of logical *subdividing* and in the accurate definition of genera; but, as I shall show you presently, a good deal that we regard as Meyrickian—simple because we happen to possess no other book containing it—was really “cut and dried” long before most of us were born.

It would be outside the scope of this paper, and would add even more of the “dry” element than I have promised myself to inflict upon you, if I stayed to define the four (or five) families in any scientific way. But before quitting my introductory section, I may just point out a few of the more comparatively *superficial* features which accompany the family characters with more or less persistency, and help the non-specialist to accept and apply our scheme, though naturally tripping him up—as they tripped up Guenée—in individual cases. The *Hemitheinae* (Emeralds) are, of course, noteworthy for the remarkable prevalence of green coloration, which is on the whole so rare in the Lepidoptera. We have no British Emerald which is *not* green, when in its correct condition (would that *Iodis lactearia* were a little more dutiful in this particular!), and we have only one emerald-green Geometrid which is not Hemitheid, namely, *Campaea* (*Metrocampa*) *margaritata*; I do not think green-mingled species like *Cidaria miata*, *Chloroclystis coronata*, or other Larentiids could confuse even the veriest tyro. On the continent there are one or two grey emeralds, and in India and Australia many, but the common shades of brown, ochreous, fulvous, and white are here so rare as to be practically negligible, while as to light or bright yellows (by no means infrequent in the other three families), I do not know of a single Hemitheid example in the whole world. The *Larentiidae* (Carpets) are very generally recognisable by their special scheme of markings, especially by the dark median band of the forewing, not repeated on

the hindwing—which is generally more weakly marked. The *Phalaenidae* (Boarmids, etc.) contain most of the large species, most of the most densely scaled and clothed, the great majority of those with angled and irregular wing-margins, etc.

The *Acidaliidae* show a great predilection for the wave-like markings, and these are generally reproduced with equal distinctness in the hindwing; in some, at least, of the wave-marked Larentiids, such as *Eupisteria obliterata*, *Venusia cambrica*, the hindwings are much more faintly marked. It is interesting in this connection to remark that in the extremely rare cases in which the Acidaliids take on a median band after the manner of the *Larentiidae*, they reproduce that also on the hindwing; the typical form of *Ptychopoda aversata* will occur to you as an example. The Wave Moths, too, are usually of small size, of slender build, and if not “wasp-waisted,” at least somewhat feeble at the junction of thorax with abdomen; who has not moved a row of dry specimens of *Acidalia* in fear and trembling, knowing from past experience that the least jerk will assuredly send the abdomen flying? A prominent feature in their structure, and one which should have thrust itself upon the notice of every careful setter, is the very frequent abortion of the ♂ hindleg, the tibia sometimes seeming little more than a brush or fan of hairs, while the tarsus is greatly abbreviated or almost lost. This peculiarity has been used in classification, and I shall have occasion to return to it.

The early stages of the family deserve close attention. The eggs are comparatively seldom of the simple ovate form of the Larentiids, but are often bricked, or at least a good ideal elongate, and in some instances elaborately ribbed. The majority that have come under my notice are of a fleshy shade, mottled with darker. The larvæ show great diversity, and will also be returned to later. In the typical section (*Acidaliinae*) the larval seems to be *invariably* the hibernating stage, and the predilection of most of the species for withering or decaying food—in a few cases, like *herbariata*, for thoroughly dry plants—is almost proverbial. The pupa is seldom of quite the prevalent Geometrid—or shall I say “Heterocerid?”—texture, its case being thin and fragile, the thorax nearly always completely split down on dehiscence, sometimes altogether much broken. In some of the species of so-called *Acidalia*, there seems to be also a resemblance to the somewhat flattened, anteriorly broadened form that is characteristic of *Cosymbia* (*Zonosoma*) and of *Anisodes*, etc.

I may here remark that, regarding the *Acidaliidae* as a family, I am inclined to recognize three subfamilies (1) *Acidaliinae*, which are our study this evening, (2) *Cosymbiinae* (= *Ephyridae* of Guenée) which are certainly related to the preceding, though differing in some points in larva, pupa, and imago. We have in Britain only one genus, *Cosymbia* (*porata*, *pendularia*, etc.), but the Oriental and Neotropical *Anisodes*, *Heterophyra*, and others belong to the same subfamily, (3) *Cyllopodinae*, which are *perhaps* only connected with the *Acidaliinae* by convergence. They are comparatively large and strong, bright yellow species, presenting a very distinct aspect; but they have so many structural characters in common with true Acidaliids that if there be no direct phylogenetic connection it is a very remarkable coincidence. The great African *Aletis* and its allies—which enter into mimetic associa-

tion with some of the distasteful African butterflies—may have to be regarded as a fourth subfamily. I am exhibiting *Aletis helcita* because Mr. Burrows considers its genitalia those of true *Acidalia* (*Leptomeris*); a very interesting finding, as he arrived at it quite independently, not knowing that the neuration was also favourable in some particulars to this association. It would really be no more strange to learn that some of these big fellows were true Acidaliids than—what we are now getting familiar with—that *Cossus* is a true Tortricid.

The *Acidaliinae* proper, comprises slightly over thirty British species. The precise number recognised will depend upon the view one takes of such aliens as *perochvaria*, *strigaria*, *herbariata*, or such weak claimants of specific right as *circellata* and *manconiata*. On the Guenée system, which I have already been abusing, these fall into only three genera: *Hyria* (a preoccupied name, by the way) and *Timandra* (a synonym of *Calothysanis*\*), each with one species, and *Acidalia* with all the rest. Herrich-Schaeffer, Speyer, and Lederer, before Guenée wrote, had sorted out the last-named into sections, by good structural characters; and Herrich-Schaeffer (followed by von Heinemann in 1859) had even made them into full genera; Lederer, whom Staudinger blindly followed, was unfortunately content to regard the sections as less than generic, hence it is that the continental books (like the British, with the sole exception of Meyrick) are still merging genera which are *far* easier to separate by valid characters than, say, *Boarmia* and *Gnophos*.

Indeed, the sorting out of the *Acidaliinae* when one begins to take an interest in structure, is really not a formidable matter. Those who are of opinion that an Emersonian law of "Compensation" pervades almost everything in the realm of Nature, may like to think that the Wave Moths make up to the student in differences of venation and leg-structure what they withhold from him in diversity of colour or pattern. If one had to say whether a scaleless specimen of a Carpet Moth belonged to *Cidaria* or *Anticlea* or *Hydriomena*, etc., I am afraid one would find it no easy task; but a scaleless Wave could be assigned quite readily to its own genus. To avoid unnecessary technicalities, I will not discuss the venation question; it is rather a special subject, and moreover Meyrick and Turner have not found it needful to take very prominent notice of it in dealing with the genera now before us. A great deal can be done with leg-structure alone, and this can be seen with the naked eye, or at any rate with such pocket lenses as are often in evidence in this room, though perhaps they have oftener been used for looking at an egg than at a leg.

The "Blood-vein" (*Calothysanis*) is sufficiently distinct from the rest in form and general facies; but the pectinated ♂ antenna, and the four-spurred hindleg in both sexes, give additional distinctions. "*Hyria*" *muricata* (which is probably the type of Hübner's genus *Eois*) differs little, if at all, in structure from *Ptychopoda*; but its different coloration and facies suggest that it would be rash to sink it

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\* *Calothysanis*, Hübner, *Verz.*, 301, ?1826 (Packard restr., 1876), type, *amata*, Linn.; *Timandra*, Duponchel, *Hist. Nat. Lép.*, viii. (2), 105, 224, 1829, type *amata*, Linn.; *Bradyepetes*, Stephens, *Ill. Haust.*, iii., 201, 1831, type, *amata*, Linn. *Erastria*, Hübner, *Tent.*, 1806 (ined.?), is now considered invalid.

(as Staudinger and Meyrick have done) until it has been more closely studied. In our British representatives of "*Acidalia*" there occur four varieties of hindleg structure :—

- (a) Both sexes with two spurs.
- (b) Male spurless, female two-spurred.
- (c) Male spurless, female four-spurred.
- (d) Male two-spurred, female four-spurred.

More neatly analysed, this shows that the *female* may have either two spurs or four, and that with either of these types of female, there may belong a male which is spurless, or one which is two-spurred. Herrich-Schäffer, whom Meyrick has followed, though he employs different names, recognised all these four as genera. Group *a*, is *Acidalia*, H.-S. = *Sterrha*, Meyr.; *b*, is *Ptychopoda*, H.-S. = *Eois*, Meyr.; *c*, is *Arrhostia*, H.-S. = *Leptomeris*, Meyr.; and *d*, is *Pylarge*, H.-S., Meyr.

But the evidence which is derivable from other sources, such as larva, venation, genitalia, geographical variation, and even superficial suggestions of affinity, shows that it is here the *female* armature which is chiefly significant, and it is a question whether we are yet in a position to affirm more than *two* genera. One of them will probably require breaking up, but it may be on other characters; the other is remarkably homogeneous. In order to show the present state of our knowledge, and the difficulty of accepting too implicitly the genera founded on the ♂ armature, it will be necessary to go into a little detail.

I shall call the two main groups, which are *undoubted* genera, by the names *Ptychopoda* and *Acidalia*. There are probably older names than both these, but they happen to apply to outlying species which might conceivably form separate genera—and which, indeed, do form such in the estimation of some systematists—it would seem a little too previous to substitute them for better-known group names. To be sure, *Ptychopoda* may not be very familiar to most of my hearers, though it is the creation of one of our British pioneers, Stephens, and is maintained in his British Museum List in 1850; but it is also used by Herrich-Schäffer and von Heinemann, and by Warren in the mass of descriptive work which he published in the *Novitates Zoologicae*. In order to facilitate future reference, and the adoption of the right names when the extent of the genera has been decided upon, I quote, with their type species, all the older names concerned.

1802.—*Scopula*, Schrank, *Fauna Boica*, ii. (2), 162. Type, *ornata*, Scop. (vide *Entom.*, xxxix., 266).

1825.—*Acidalia*, Treitschke, *Schmett. Eur.*, v. (2), 438. Type, *virgulata*, Schiff. = *strigaria*, Hüb. (vide *Entom.*, xlii., 3).

1825.—*Idea*, Treitschke, *Schmett. Eur.* v. (2), 446. Type, *lineata*, Scop. = *dealbata*, Linn. (vide Stephens, *Cat. Brit. Ins.*, ii., 136, 1829).\*

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\* Mentioned here because it obtained some currency as an Acidaliid genus, and was resuscitated in that state by Moore (*Lep. Ceyl.*, iii., 452, with type, *aversata*, Linn.), and one or two others who considered *Acidalia* preoccupied.



- ? 1826.—*Eois*, Hubner, *Verz.*, 308. Type, *muricata*, Hufn. (vide *Tr. Amer. Ent. Soc.*, xxiii., 304).\*
- ? 1826.—*Emmiltis*, Hübner, *Verz.*, 309. Type, *pygmaearia*, Hüb. (vide Herrich-Schäffer, *Syst. Bearb.*, iii., 32, 1847, id., *Samml. Aussereur. Schmett.*, i., 36, 1856, and Meyrick, *Tr. Ent. Soc. Lond.*, 1892, 86, for the historical sequence; Stephens, *List Brit. Anim.*, v., 220, 1850, and Warren, *Nov. Zool.*, viii., 23, were therefore too late).
- ? 1826.—*Sterrha*, Hübner, *Verz.*, 309. Type, *sericeata*, Hüb. (sole species).
- ? 1826.—*Pyctis*, Hübner, *Verz.*, 310. Type, *umbellaria*, Hüb. (Hulst sel., 1896, ex restr., Meyr., 1892; Hampson, *Faun. Ind. Moths*, iii., 216, 1895, was too late in sinking the name to *Deilinia*).
- ? 1826.—*Arrhostia*, Hübner, *Verz.*, 311. Type, *marginepunctata*, Goeze=*immutaria*, Hüb. (vide Herrich-Schäffer, *Samml. Aussereur. Schmett.*, i., 25, 36, 1856†; Hulst's selection of *aversata*, Linn., in 1896, was therefore too late).
- ? 1826.—*Craspedia*, Hübner, *Verz.*, 312. Type, *ornata*, Scop. (Moore sel., *Lep. Ceyl.*, iii., 451, 1886).
- ? 1826.—*Cosmorhoë*, Hübner, *Verz.*, 326. Type, *rusticata*, Schiff. (vide Stephens, *List Brit. Anim.*, v., 217, 1850).
- 1826.—*Ptychopoda*, Stephens, *Curtis' Brit. Ent.*, iii., 132. Type, *bisetata*, Hufn.=*dilutata*, Curt.
- 1829.—*Dosithea*, Duponchel, *Hist. Nat. Lép.*, vii. (2), 108. Type, *oruata*, Scop.
- 1831.—*Ania*, Stephens, *Ill. Haust.*, iii., 321. Type, *emarginata*, (vide *List Brit. Anim.*, v., 227; Hulst., *Tr. Amer. Ent. Soc.*, xxiii., 337, overlooks this and misapplies the name).
- 1837.—*Cymatida*, Sodoffsky, *Bull. Mosc.*, x. (6), 91. Type, *virgulata*, Schiff.=*strigaria*, Hüb. (nov. nom., vice *Acidalia*).
- 1845.—*Cleta*, Duponchel, *Cat. Méth.*, 271. Type, *vittaria*, Hüb., (vide Guenée, *Spec. Gén. Lép.*, ix., 442).
- 1856.—*Pylarge*, Herrich-Schäffer, *Samml. Aussereur. Schmett.*, i., 25. Type, *ternata*, Schrank†=*fumata*, Steph.

The British and reputed British species in which the ♀ hind tibia has only two spurs, and which, therefore, come under *Ptychopoda* in the comprehensive sense, are the following: *muricata*, Hufn., *serpentata*, Hufn. (= *similata*, Thunb.=*perochraria*, F. v. R.), *ochrata*, Scop., *dimidiata*, Hufn., *bisetata*, Hufn., *trigeminata*, Haw., *contiguaria*, Hüb., *herbariata*, Fab., *rusticata*, Schiff., *dilutaria*, Hüb. (= *holosericata*, Dup.), *humiliata*, Hufn., *fuscovillosa*, Goeze (= *interjectaria*, Boisd.), *seriata*,

\* Hulst's selection of a type for this genus seems to be the earliest, and is, moreover, consistent with Packard's use of the name in his Monograph of 1876. Warren (*Nov. Zool.*, passim), assuming the undescribed *Eois* of the Zuträge (i., 27) to be valid, employs it for an Asthenine (Larentiid) genus, and in 1900 (vii., 146) proposes an unnecessary new name, *unteois*, with type *muricata*.

† Herrich-Schäffer retains only two of Hübner's species, *marginepunctata* and *contiguaria*, the latter evidently by an oversight, as it contradicts his generic characters.

‡ *Phalaena ternata*, Schrank, *Fauna Boica*, ii., (2), 57, 1802, is somewhat defectively described, and I doubt whether it can be proved that the determination in Panzer's *Deutsch. Ins.*, Heft. 111, 21, is correct. But as at least it cannot be proved erroneous, it ought to be accepted.



Schrank (= *virgularia*, Hüb.), *straminata*, Tr. (= *circellata*, Guen.), *subsericeata*, Haw. (= *mancuniata*, Knaggs), *aversata*, Linn., *ornata*, Haw., *degeneraria*, Hüb., and *emarginata*, Linn. Those with four-spurred ♀ hind tibia (*Acidalia*) are: *rubiginata*, Hufn., *ornata*, Scop., *marginepuncta*, Goeze, *virgulata*, Schiff. (= *strigaria*, Hüb.), *floslactata*, Haw. (= *remutaria*, Hüb.), *ternata*, Schrank (= *fumata*, Steph.), *strigilaria*, Hüb., *imitaria*, Hüb., *emutaria*, Hüb., and *immorata*, Linn. Although, as I have already said, this latter forms a very natural "genus" (or group), and this fact had already been recognised before Guenée wrote, the naturalness so little appealed to him that we find them scattered among the other section in a somewhat embarrassing manner. Taking the body of the "*Acidalia*" genus as it appears on p. 13 of the *Entomologist Synonymic List* (i.e., without appendix or subsequent additions), we find Nos. 3, 13, 14, and 17-23 belong here, Nos. 1-2, 4-12, 15, 16, and 24-27 to the other group. *Immorata*, in Guenée, did not appear in the Acidaliids at all, but far away among his Fidoniids; Mr. Burrows, in one of his letters, expresses his doubt as to the closeness of the relationship of this species to the rest, but at any rate, it belongs more or less in the company with which it is here placed. *Calothyssanis* (= *Timandra*), Mr. Burrows informs me, "is quite out of it" as regards the structure of the genitalia; on other grounds, also, it is very usually accorded generic value, though one or two second-rate classifications have united it with *imitaria*, etc., because in both cases there is an angle in the margin of the hind wing.

The addition of the *male* hindtibial armature as an element in classification, gives some very curious results. Of our British species, *ternata* (= *fumata*) comes out of *Acidalia* to form the genus *Pylarge*, its ♂ being furnished with terminal spurs; whereas its apparent neighbour (*floslactata* = *remutaria*) is wholly spurless. But a non-British relative of *marginepunctata*, namely *luridata*, Zell., is still more remarkable; the ♂ of the typical form (from Asia Minor, etc.), is an orthodox "*Acidalia*" in being without spurs, but that of "var. *confinaria*" (from S.E. Europe), has a single terminal spur (not a *pair*, as Herrich-Schäffer erroneously gives). The genus *Sterrha*, formed for the reception of species of *Ptychopoda*, in which the ♂ terminal spurs are present, seems equally unsatisfactory; *ochrata* has spurs, *serpentata* (= *perochraria*) none; *trilineata*, Scop., has spurs, *flaveolaria*, Hüb. (which is so close to it, that Dr. Chapman thought he was taking two forms of the same species), has none; while our pretty little friend *rusticata* was the cause of some bitterness and recriminations among the Herrich-Schäffer group of systematists—the truth being that one race (including our British form), has the spurs, and another is without them, so that one would be a *Sterrha* and the other a *Ptychopoda*! My friend Herr R. Püngeler has called my attention to one or two other cases of variation in armature between eastern and western forms, of what seem in every other respect the same species. On the other hand, I do not at present know of any example of individual, as opposed to racial, variation; as, for instance, of any British aberration of *rusticata* with the spurs undeveloped.

The satisfactory character of the genus *Acidalia*, as here understood (= *Leptomeris* + *Pylarge*), is brought out, apart from the ♀ hind-

leg, by the characteristic larvæ, by the hindwing venation, and last, but not least, by the researches of my indefatigable friend, the Rev. C. R. N. Burrows, on the genital armature. I have referred to the larvæ in some notes which I read before the North London Natural History Society a few years ago, and which are published in *The Entomologist*, xxxviii., pp. 6-11, 43-48; but the point which I brought out as to the characterisation of the whole of *Acidalia* = *Leptomeris* by its extremely long, thin, comparatively smooth, larvæ, was not, I find, by any means original, having been noted by Meyrick in his *Handbook*, p. 240, under the generic description, and by a writer in the *Guben Entomologische Zeitschrift*, xiv., p. 13. The latter remarks that the larvæ of this group show a less marked predilection for dry or withered food than those of *Ptychopoda*. By the way, while on the subject of the larvæ I may remark that my paper in *The Entomologist* contained a reference (p. 8) to Buckler's weird italicised statement that the larva of *ochrata* had its central pair of prolegs on the 7th abdominal segment, and I was naturally very curious to see the creature. Shortly afterwards, thanks to the kindness of my friend, Mr. V. E. Shaw, this desire was granted me. Mr. Bacot, to whom was entrusted a critical examination, of course found the legs in question on the correct segment, but he admitted that the compacting of the segments and the backward direction of the prolegs, gave a very deceptive appearance, which in some measure excused Buckler's error. The larva seems, for all practical purposes, to be a *Ptychopoda*, the genus to which, but for the ♂ hindleg, the marginal structure would refer the species.

Mr. Burrows has found—or perhaps I ought to say Messrs. Burrows and Pierce—very satisfactory genitalic characters for defining this genus, which (after Meyrick) he has been calling *Leptomeris*. He will himself be able to give you an account of them when he has evolved the necessary nomenclature for the “apron” and characteristic prongs; but a glance through the fine and complete series of Acidaliine drawings which he has kindly lent me, shows, without any specialistic knowledge, what a general uniformity of scheme there is, and how vastly they differ from the *Ptychopoda* section. I have arranged the drawings in the mixed order of South's List, and it will be noticed how readily the eye can “spot” each *Acidalia* (*Leptomeris*) as it lights upon it.

The genus is nearly cosmopolitan, and equally well-defined wherever it occurs, whether one works from the venation, the ♀ hindleg, the genitalia, or the larva. The last two statements are probably safe, though they sound very rash in view of the extremely limited information on which they are based. But I have submitted to Mr. Burrows a few representatives from very remote localities—*A. napariata*, Guen., from Paraguay, *A. imbella*, Warr., from Japan, *A. optivata*, Walk., from Brisbane, *A. minorata*, Boisd., from Cape Colony—and as they have stood the test, it is not likely that the North American or Indian representatives will fail. As regards the larvæ, there are a few good descriptions by Dyar in the American periodicals, which seem to work out all right, and my friend, Mr. Frank Littler, of Launceston, Tasmania, reared one of his species (*A. perlata*, Walk.) from the egg, and kindly sent me some notes which satisfy me that it, too, is in its right place in this genus.

I had a suspicion that there might be in one of our European species, *Acidalia nemoraria*, Hüb., an exceptional or doubtful case. In this insect the venation shows a slight variation in the direction of that of *Ptychopoda*, though it does not amount to much; but what had more weight was a statement made in conversation by my friend Mr. E. M. Dadd, of Berlin, who has bred the species, to the effect that its larva was more of the stumpy *Ptychopoda* type than of the typical *Acidalia*. The genitalia, however, establish the evidence of the leg-structure, and until the larvæ are investigated in more detail I shall be quite satisfied with the present position of the species. There is a very similar species in the extreme east of the Palæarctic Region (Japan, Shanghai, etc.)—so similar, indeed, that I rather suspect it is the one which even the great Staudinger recorded from eastern Siberia (*Iris* x, 19), as *nemoraria*—in which my interest has been aroused through the work of my friend Dr. Culpin, of Shanghai, who has kindly sent me a very fine series. Its correct name is clearly *superior*, Butl., *Ann. Mag. Nat. Hist.* (5) i. 400, which was described from Japan; but it is by no means certain that another supposed Japanese species of Butler's (*A. sancta*, Butl., *Tr. Ent. Soc. Lond.*, 1881, 413) does not represent the first brood of it. Unfortunately I have not yet any material agreeing accurately enough with this type of Butler's to allow of my getting this latter question investigated; but in regard to that of the specific difference between *nemoraria* and *superior*, I am able to state—and to show you from the drawings which Mr. Burrows has kindly prepared—that the genitalia show very great differences, though both are true *Acidalia*. *Superior*, at least in its typical form, is quite a small moth, but you must not regard that as giving a reliable differentiation from *nemoraria*. In Europe, where very few of the group are double brooded at all, seasonal dimorphism hardly has to be taken into account, and there is generally so little variation in size that we (or at any rate I) get into the habit of grouping our species into the large, the medium-sized, and the small, and perhaps even using that as a preliminary guide to determination; but from what Dr. Culpin has already learned of Shanghai, *e.g.*, with respect to the species of *Abraxas*, I shall not be in the least surprised to find that a moderately large species (*sancta*) and a small one (*superior*) are two generations of the same thing; and there is not much to choose between the size of *sancta* and that of *nemoraria*.

The British Museum material in this white group of *Acidalia* I found to be in the direst confusion. *A. sancta* was sunk to the European *punctata*, Scop.; whereas *superior* was united with *nupta*, Butl. (*Ann. Mag. Nat. Hist.* (5), i., 401), another Japanese form, to make up a second supposed species. But (a very big BUT) *punctata* has a dark fuscous face, *sancta* a white one; *superior* a white face, *nupta* a dark one. The two white-faced forms may, as I have already said, have to be united; the two dark-faced ones (*punctata* and *nupta*) will certainly not. I have only mentioned the matter here because I want to point out that another of the "compensations" that Nature gives us for similarity of wing-markings in *Acidalia* (as also in one or two difficult "Emerald" genera) is often found in some widely different frontal coloration; and no careful entomologist can afford to ignore the face merely because it is not conspicuous when the insect

is pinned in a normal position in his cabinet or exhibition box. In the genus at present under notice, there is another set of species in South America, of small size and superficially similar appearance, in which the distinction between the dark-faced and the pale-faced is again of the greatest value.

On the whole, indeed, *Acidalia* has a remarkably constant general facies. If we turn our attention for the moment to my other main genus, *Ptychopoda*, we find considerably more diversity of scheme. Even if we do not agree with Meyrick and Standinger in including in the same genus the gaily-coloured *Eois* (typified by *E. univirata*, Hüfn.), or the prettily banded *Cosmorhoë* (*rusicata*, Schiff.), we have still a good number of banded, blotched, or strongly speckled forms (such as *aversata*, *degeneraria*, *dimidiata*, *trigeminata*, *contiguararia*, *seriata* = *virgularia*, to mention some of the British), and comparatively few (e.g., *inornata*, *dilutaria* = *holosericata*), with nothing but plain "wave" markings on a plain ground; even *humiliata* is redeemed from this monotony by its bright red costa. But with *Acidalia* the case is very different. There are only, so far as I can discover, four types of markings known in this genus, not merely in Britain, but throughout the world; and three of these belong to compact groups, which there are some ground for believing may prove to have separate generic value. One of these consists only of *immovata*, Linn., and *tessellaria*, Boisd., which Mr. Burrows wants to remove on the genitalia. Another is the ornamentally bordered group typified by *ornata* (containing also *decorata* and several others); but they all have an excision in the middle of the termen of the hindwing, and can form the genus *Scopula*, Schrank = *Craspedia*, Hübn., Warr. A third is the heavily and irregularly dusted (and often more or less spotted) group of which *marginepunctata* is the British representative; this, too, may make the foundation of a future genus, as the leg structure, at least, is less stable than in the typical group. Removing these three groups, then, what have we left? A mass of species with an antemedian and a few postmedian waved lines, usually a dark discal dot, and a more or less diffuse "median shade," which may be either about parallel with the termen, or more or less oblique. A few examples will suffice: *floslactata* (= *remutaria*), *strigilaria*, *emutaria*, and the *nemoraria* group, on which I have already been holding forth. A little variety is obtained in the shape of the termen of the hindwing, which may be either rounded (as in *immutata*, etc.) or subangled (as in *strigilaria*). Species very closely resembling the last-named can be shown from almost all parts of the world—e.g., *perlata*, Walk., from Australia, certain forms of *enucleata*, Guen., from N. America, *napariata*, Guen., from S. America, etc.; similarly, counterparts, or nearly so, of the little *ochroleucata*, H.-S., of Southern Europe, may be found in *remotata*, Guen., from India, *minovata*, Boisd., from S. Africa, and many others, including some from S. America, one of which I am describing from Buenos Aires. The only parts of the world where the genus does not seem to be at home, are Chili, Patagonia, the Sandwich Islands and New Zealand.

The facies which I have discussed as typical of *Acidalia*, recurs in another nearly related genus which has been interesting me. This is the *Lycauges* of Butler, founded on a Japanese type, but now known to occur across China into India and right away to S. Africa, and in

another direction to Australia. Except that the wings are longer and narrower than in *Acidalia*, and that the hindtibia of the ♂ is armed with two spurs (in *this* resembling *Pylarge* H.-S.), it does not show much to distinguish it from *Acidalia*. I was therefore greatly interested in submitting an example of an Indian representative, *Lycauges defamataria*, Walker, to Mr. Burrows. He replies that its case—like that of many problems which the serious student tackles—“is one of those which invite questions.” “The formation is entirely Leptomerid [Acidaliid. in sensu L.B.P.], but the prongs are not here upon the angles of the base of the apron, but are placed upon the extremity thereof.” This, if it proved regularly to accompany the wing and leg differences, should help to establish the generic validity of *Lycauges*, while at the same time it certainly helps to indicate the affinity. Of course when I have the material, the time, and the hardihood, I shall worry Mr. Burrows with further species of *Lycauges*. Meanwhile, Dr. Culpin has “set the ball rolling” in another direction. On September 26th last, he obtained eggs from a ♀ of *Lycauges lactea*, Butt., the type of the genus, and he was considerate enough to prepare one skin of a larva in its last instar, and send it to me through the post. This has been placed in Mr. Bacot’s hands, and he reports as follows:—

LARVA OF AN ACIDALIID FROM SHANGHAI (*Lycauges lactea*, Butl.).—A skin pressed as for blowing, and left in the flat, in good preservation. It gives a good idea of the general coloration and pattern, although the former has probably faded somewhat. It also shows conspicuously the subsegmental folds of skin which, together with the slenderness, suggest a form similar to the group to which *incanata* belongs [*i.e.*, *Acidalia*, sens. str.—L.B.P.]. Length 17mm., width a shade under 2mm., narrowing towards head. These measurements suggest a less slender larva than it in all probability was, as the skin has not, apparently, been stretched in length but in width by the rolling process of squeezing out the body contents. I should estimate that the larva was probably 20mm. in length at least, and not more than 1.25mm. in diameter.

“The coloration is *now* pale umber with darker mottlings and specklings; these are massed so as to form a dark band down the dorsal area leaving an irregular and narrow, pale, medio-dorsal streak; the lateral areas are more or less free, producing a broad pale-coloured spiracular band; the ventral area again darker.

“The head has suffered considerably by the flattening process,\* but there is nothing to suggest that it might not have been of the *incanata* type. Its colour must have been paler than the general body surface, and the dark markings are apparently raised rugosities of surface producing a dark and rather sparse speckling; this also applies to the scutellar plate.

“The spiracles are dark and conspicuous, that on the prothorax being very large in comparison with the enlargement of those on the 7th and 8th abdominal segments.

“The skin surface is not rugose so far as I can detect without mounting; the subsegmental wrinkling very marked. The few hairs

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\* It is too firmly attached to the paper to be safely detached and turned.

I can get a look at under a sufficiently high power, are stiff and short, but tapering, not clubbed or swollen into processes. The tubercles are medium-sized brown cones. I cannot place them accurately without mounting. True legs short and strong in appearance.

"I cannot count the subsegments accurately, as the segmental incisions are somewhat obscure, and the dark mottlings, which tend to be arranged in a series of rings, probably suggest that subsegments are more numerous than is actually the case. At any rate, they are small and closely set; on one of the shorter abdominal segments, probably the 6th, I can count at least 20."

There is another little Oriental and Australian group with similar leg structure to *Lycanges*, but differently shaped wings, which includes "*Acidalia*" *impersonata*, Walk. (? = *accurataria*, Christ.) and *muscularia*, Stdgr., of the Palaearctic Region, probably *orthoscia*, Meyr., and others from Australia, etc., and which will also need to be referred to Mr. Burrows. This I am sinking provisionally, and against my better judgment, to *Pylarge*.

I have not much to add on the two-spurred genus *Ptychopoda*, which has not yet revealed any special homogeneity in the genitalia, and therefore offered a less promising field on which to invite the collaboration of the friend whose help I have been so constantly acknowledging this evening. I may point out that a good many species which have been referred to the genus—especially in South America—pretty certainly have nothing to do with it. A venational difference which Warren has often overlooked in his work is that many of them have the so-called "double areole," which never occurs in our European forms of the "genus." Coming nearer home, I conclude by putting one or two questions, again suggested by Mr. Burrows' valuable work, and on which he may have a word or two to contribute, in connection with the fine exhibit of drawings which is before us. Is there a possibility of reviving, on the strength of his researches, the old claim of *Ptychopoda mancuiniata*, Knaggs, to specific rank? And what is the relation of *circellata*, Guen., to normal *straminata*? Personally, I believed both questions to be settled long ago in favour of absolute specific identity, but I desire always to keep an open mind for any new truth which may be brought within our reach. Finally, is it not possible to indicate some tentative grouping by the genitalia in *Ptychopoda*, which would bring into prominence such resemblances or divergences as have been noticed, and perhaps stimulate further research? I am aware that there is need for caution, and that nothing could be more undesirable than dogmatism on the subject, but I sometimes think that some of our friends are in danger of undue extremes in caution, and that if a little more constructive work were essayed—even though only to be *re-constructed* later on—the net result of the proceedings might be a gain to science. For instance, if Mr. Burrows will tell us definitely—and to the lay mind it certainly appears that such is the case—that *dimidiata*, according to the genitalia, has to come out of the *bisetata-trigeminata* group, with which its blotched outer area has associated it, he will make us anxious to see whether we can confirm or refute his statement from a study of the egg or larva, etc., and will thereby accelerate the work of classification in which so much yet remains to be done.

## REMINISCENCES OF WICKEN.

(Read December 6th, 1910.—DR. J. S. SEQUEIRA.)

A good night at Wicken Fen, what pleasant memories does it recall!

There are only two or three really good nights during the season, so say the local entomological oracles, Morley Houghton and his late respected father, and poor old Solomon Bailey, but there are plenty of fairly good nights which give a substantial reward to the entomologist.

I should like to preface my remarks with a few observations which I trust will be found useful to those of our members who have not yet paid a visit to Wicken.

Wicken Fen, or as it is described in the local land registry, "Sedge Fen," is reached by the Great Eastern Railway to Soham, changing trains at Ely. From Soham is a two mile walk or a four mile drive to the village of Wicken.

Now with regard to accommodation, there are many of the villagers who lay themselves out to provide accommodation for entomologists. I can, however, only mention a few, with whom I am personally acquainted, and whom I can recommend.

First and foremost, Mr. and Mrs. John Bailey, at the Vicarage Farm, who, with their charming daughter, Hattie, have done everything in their power to make Mr. Turner and myself happy and comfortable on each of the eight occasions on which we have stayed at their Farm.

There is also good accommodation to be had with Mr. and Mrs. Olley Bullman, where our late lamented friend, Mr. J. A. Clark, and I, have stayed many times. We first went about twenty years ago, and I believe our names are remembered principally by three little incidents which may serve to amuse my hearers.

The first occurred at the Village Fête, where Mr. Clark and I purchased a quantity of apples and oranges, which we threw about the Green for the boys and girls to scramble after, which they did with a hearty good will, and concluded by cheering us vociferously.

The next incident was a visit to the Alms Houses, where we gave a shilling to each of the inmates, and were rewarded by a multitude of thanks and blessings.

The third incident occurred when Clark and I were walking down Chapel Lane, and saw a woman wildly gesticulating and beckoning to us. When we arrived at her cottage we found her husband lying on the ground. He had fallen from a ladder and fractured the upper part of his thighbone. We carried him into the cottage, and with Clark's assistance I set it with the best appliances we could find, and told his wife to send to Soham for a Surgeon, who, by the way, did not arrive until next day.

On one occasion I remember, we paid a visit to old Houghton, the Entomological shoemaker in the village, and found him seated in his room with a number of Swallow-tail Butterflies flying about the room. He said "I like to see them and I can always get more," but he examined every specimen and if there was no notable variation he let it loose. But all this is a digression so "Revenous à nos moutons."



Good and suitable accomodation is also to be found with Mr. and Mrs. Norman at the "Maid's Head Inn," there is Mrs. Marshall a relation of the Baileys, also Mrs. Simkin of the "Limes," on the village green; all these I know personally and they all know the "little Doctor"—that's me!

Now with regard to the paraphernalia, a large sheet supported by three poles with guys to keep it taut, attached to pegs driven into the ground, is the chief item. Equally important is an acetylene lamp—this has quite superseded the old oil and paraffin lamps—and by the way I might mention, that I consider the best lamp now in existence is that made by Mr. Rose, the Wicken Blacksmith. The lamp is made from the design suggested by my friend Mr. Turner and called the "Turner Lamp." Its chief advantages are its extreme portability; it can be carried in one hand with all its appurtenances, and is furnished with shelves which can be let down to put boxes and bottles on when required. Calcium Carbide can be obtained in any quantity in Soham, and those Entomologists who go unprepared with the requisite paraphernalia, may hire lamps and sheet from the local Entomologists, Messrs. Houghton and Bailey.

The commencement of the Fen is about two miles from the Vicarage Farm, and the main path through the Fen is about a mile in length. It is called The Drove, and it is in The Drove that the lamps and sheets are placed. It is a most picturesque sight in the height of the collecting season to see a dozen of these lamps and sheets with the shadows of the men fitting across the sheets, and numbers of little bright stars of light advancing and retreating up and down the intervening spaces, and indicating collectors examining sugared posts, etc., which are set up at convenient distances along The Drove. These posts, etc., belong to the local collectors, Messrs. Bailey and Houghton, and consist of a rough piece of board stuck in the ground with a bit of virgin cork nailed to it near the top. I may also add that thistle heads with a dab of sugar are most attractive.

The earlier hours of the day—if the exigencies of pinning and setting previous captures will permit—may be profitably employed searching for larvæ, pupæ, or day-flying Lepidoptera; and I think it advisable to be on the ground half-an-hour before sunset, to select your pitch and rig up your sheet and lamp, and then do a little dusking. You will probably get the prettily marked little *Anesychia funerella* and other decent Micros, and two or three varieties of Swifts. *Banksia argentula* and *Hydrelia uncula* can be obtained in fair quantities in the Fen at the further end of The Drove on the left-hand side.

The next performance is to put the sugar on, and on favourable nights you will often find early comers on the old sugar. You light up when it is fairly dark, and you may be pretty certain of a very successful evening if your face and hands are tormented by the myriads of gnats and midges, etc., which haunt the Fen.

One particularly good night followed a day which had been sultry with heavy banks of cloud auguring a tempestuous night, which was not altogether realised, although we had some rain accompanied by distant thunder.



The gnats and midges were particularly vicious; *Choerocampa elpenor* was taken hovering near but not on the sugar, and every patch of sugar produced its quota, including *Arsilonche albovenosa* and *Plusia festucae*.

But it was at the sheet that the excitement was greatest; there the fun waxed fast and furious! We were surrounded by a flying host, and much puzzled as to which to go for first.

The artful *Meliana flammæa* generally tried to hide itself at the bottom of the sheet, and we found it a good plan to have the sheet sufficiently long to form a little curtain on the ground. Now, a word of caution—don't box *flammæa*: clap it into the Cyanide bottle, as it flies about so much. Then *Nonagria arundinis* came along, and then a prize, a female *Arundinis*. Next, a lot of big things, *Smerinthus ocellatus*, *Sphinx ligustri*, *Smerinthus populi*, *Lasiocampa quercifolia*, *Dicranura vinula*, and swarms of *Odonestis potatoria*, which soon became a perfect nuisance.

When there was a lull we took a turn round the sugar, and found many of the genus *Leucania*, more *P. festucae*, and *Spilosoma urticae* with other decent things, and many specimens were boxed.

We found a good plan was to take a plentiful supply of bottles, at least ten, including two extra large ones, which we called "stockpots," and into which we emptied the smaller bottles from time to time. We kept the specimens in the "stockpots" for not less than 24 hours, when they became again relaxed and ready for pinning out.

From the sugar "round" we returned again to the sheet, and filled every bottle and box we possessed.

Satisfied at last, we returned to the Farm, and put all our boxes into the ammonia tins, had our supper, and retired to bed, there to dream of the *Hydrilla palustris* which we did not get.

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PRESENTED

27 JAN 1911















