

RECENT LITERATURE ON LEPIDOPTERA

(Under the supervision of PETER F. BELLINGER)

Under this heading are included abstracts of papers and books of interest to lepidopterists. The world's literature is searched systematically, and it is intended that every work on Lepidoptera published after 1946 will be noticed here; omissions of papers more than 3 or 4 years old should be called to DR. BELLINGER'S attention. New genera and higher categories are shown in CAPITALS, with types in parentheses; new species and subspecies are noted, with type localities if given in print. Larval foodplants are usually listed. Critical comments by abstractors may be made. Papers of only local interest and papers from *The Lepidopterists' News* are listed without abstract. Readers, particularly outside of North America, interested in assisting with this very large task, are invited to write Dr. BELLINGER (San Fernando Valley State College, Northridge, Calif., U.S.A.). Abstractors' initials are as follows: [P.B.] — P. F. BELLINGER; [I.C.] — I. F. B. COMMON; [W.C.] — W. C. COOK; [A.D.] — A. DIAKONOFF; [W.H.] — W. HACKMAN; [T.L.] — TARO IWASE; [J.M.] — J. MOUCHA; [E.M.] — E. G. MUNROE; [N.O.] — N. S. OBRAZTSOV; [C.R.] — C. L. REMINGTON; [J.T.] — J. W. TILDEN; [P.V.] — P. E. L. VIETTE.

B. SYSTEMATICS AND NOMENCLATURE

- Svensson, Ingvar, "Eine neue Art der Gattung *Tinea* Zeller (Lepidoptera)" [in German]. *Opusc. ent.*, vol. 18: pp. 225-227, 1 pl. 1953. Describes as new *T. bothniella* (Vasterbotten, Hällfors, Sweden); figures adults & genitalia of n. sp. & *T. columbariella*. [P. B.]
- Swezey, O. H., "A new species of leaf miner in *Straussia* (Lepidoptera: Gelechiidæ)." *Proc. Hawaiian ent. Soc.*, vol. 15: p. 23. 1953. Describes as new *Aristotelia strausiella* (Mt. Tantalus, Oahu); excessively brief description without figures or comparison. [P. B.]
- Tams, W. H. T., "Three new high mountain moths from East Africa (Lepidoptera: Heterocera)." *Ann. & Mag. nat. Hist.*, ser. 12, vol. 5: pp. 869-874, 17 figs. 1952. Describes as new: (Hepialidæ) *Gorgopsis salti* (Shira Plateau, 12,450 ft., Kilimanjaro, Tanganyika); (Noctuidæ) *SALTIA*, and type *S. acrophylax* (14,500 ft., Kilimanjaro, Tanganyika), *S. edwardsi* (11,000 ft., Mt. Elgon, Kenya). [P. B.]
- Tams, W. H. T., "A pest of coconut palms in Portuguese East Africa." *Bull. Brit. Mus. (nat. Hist.), Ent.*, vol. 3: pp. 69-73, 14 figs. 1953. Describes as new *TROGOCRADA* (monobasic; Limacodidæ), *T. deleter* (Micaure); figures larva & cocoon. [P. B.]
- Tams, W. H. T., "Two new representatives of the genus *Hypotrabala* (Lepidoptera: Lasiocampidæ) from the Belgian Congo." *Bull. Brit. Mus. (nat. Hist.), Ent.*, vol. 3: pp. 74-75, 2 pls., 8 figs. 1953. Describes as new *H. regalis* (Belgian Congo, Lulua, Kapanga), *H. guttata fontainei* (Belgian Congo, Lusambo). Figures also ♂ 8th sternum of 6 spp. of genus. Transfers *Pseudometa schultzei* to *Mallocalampa*. [P. B.]
- Thomann, H., "Die Gattung *Endrosa* in Graubünden (Lep. Arctiidæ)" [in German]. *Mitt. schweiz. ent. Ges.*, vol. 24: pp. 413-437, 1 pl., 8 figs. 1951. Describes as new *E. kuhlweini subalpina* (Münster), *E. aurita modesta* (Filisur), *E. a. tecticola* (Soglio). Describes the 4 Swiss spp. & their races & "forms" (many of the latter new here). Plate illustrates 44 specimens in color. [P. B.]
- Tindale, Norman B., "On a new genus of hepialid moths from Rarotonga in the Pacific islands." *Ann. & Mag. nat. Hist.*, ser. 12, vol. 7: pp. 13-15, 1 pl., 5 figs. 1954. Describes as new *TENGA* (monobasic), *T. oceanica*. [P. B.]
- Tindale, N. B., "Note on the eucosmid (olethreutid) moth *Cryptophlebia ombrodelta* (Lower)." *Trans. Roy. Soc. South Australia*, vol. 78: pp. 97-98, 1 fig. 1955. Selects & figures a lectotype labelled "Australia, Lower Coll." [I. C.]
- Tindale, N. B., "Revision of the Ghost Moths (Lepidoptera: Homoneura, Family Hepialidæ) Part VI." *Rec. South Australian Mus.*, vol. 11: pp. 307-344, 25 figs., 3 pls. 1955. Describes as new: *Oxycanus rileyi* (Nomnaghé, 25 miles S. of Wangaar, 2000 ft., New Guinea), *O. tamsi* (Mt. Goliath, 5000-7000 ft., New Guinea), *O. xoïs*

- (Dohunschik, Arfak Mts., 1400 m., New Guinea), *O. dives* (Mt. Kunupi, Menoo Valley, Weyland Mts., 6000 ft., New Guinea), *O. hecabe* (Hunsteinspitze, 1340 m., New Guinea), *O. serratus* (Wondiwei, Wandammen Mts., 1400 m., New Guinea), *O. thasus* (Fak Fak, 1700 ft., New Guinea), *O. thoe* (Wassior, Wandammen coast, New Guinea), *O. atrox* (Buntibasa district, Kratke Mts., 4000-5000 ft., New Guinea), *O. eos* (Cyclops Mts, New Guinea), *O. perplexus* (Ninay Valley, central Arfak Mts., 3500 ft., New Guinea), *O. mayri* (Mt. Siwi, Arfak Mts., 800 m., New Guinea), *O. discipennis* (Mt. Siwi, Arfak Mts., 800 m., New Guinea), *O. hebe* (Fak Fak, 1700 ft., New Guinea), *O. glauerti* (Western Australia), *O. kochi* (Australia), *O. armatus* (Western Australia). Figures types & ♂ genitalia; provides key to New Guinea spp. of *Oxycaenus*. [I. C.]
- Tite, G. E., "On the typical subspecies of *Lycæna phleas* L., and the Scandinavian distribution of the species (Lepidoptera, Lycænidae)." *Entomologist*, vol. 90: pp. 37-38, 1 map. 1957. Considers *L. p. phleas*, *L. p. polaris*, & *L. p. eleus* distinct. Map shows Scandinavian records. [P. B.]
- Toll, Sergiusz, "Additions to the butterfly-fauna of Poland" [in Polish; English summary]. *Documenta physiogr. poloniæ*, no. 6: pp. 1-37, 7 pls. 1947. This study has 3 parts as follows: Some new Nepticulidæ of Poland. In Poland are recorded 102 spp. of this family; the biology of 14 spp. is described (pp. 1-10, 12 figs.). *Lycia hano-viensis* Heym. and *Lycia hirtaria* Cl. a different species. The imagos and genitalia are figured. Describes as new *L. h. borealis* (Królowiec) (pp. 11-15, 27 figs.). On some Microlepidoptera new or rare of Poland. A number of spp. are described with their biology, without new taxa. (pp. 16-37, 26 figs.). [J. M.]
- Toll, Sergiusz, "Additions to the butterfly-fauna of Poland (Part II)" [in Polish; English summary]. *Documenta physiogr. poloniæ*, no. 9: pp. 1-26, 3 pls. 1948. 2 parts: *Nepticula geimontani* Klim. in Poland. Records the finds of the sp. in High Tatra Mts. (Valley of Kondratowa, 1800-2100 m.) and gives some remarks on biology (pp. 1-5, 1 fig.). Studies of some species of the group of *Argyroploce oblongana* Hw. and *A. cespitana* Hb. more difficult to ascertain and description of two new species. As new are described and figured (imagos & genitalia): *A. lewandowskii* (Ludwikow, near Poznań) & *A. (Celypa) kirinana* (Hsiaoling, Manchuria) (pp. 6-26, 39 figs.). [J. M.]
- Toll, Sergiusz, "Family Eupistidæ (Lepidoptera) of Poland" [in Polish; English & Russian summaries]. *Documenta physiogr. poloniæ*, no. 32: pp. 1-293, 38 pls. 1952. Very important monograph of this family. All spp. are described (imagos & larval cases), with remarks on biology. As new are recorded: *E. lewandowskii* n.sp. (Promno, district Poznań), *E. klemensiewiczzi* Toll (see *Bull. Soc. ent. Mulhouse* 1950: p. 83), & *E. vlachi* n.sp. (Litomeřice, northern Bohemia). [J. M.]
- Toll, S., "Studien über die Genitalien einiger Coleophoriden. IX" [in German]. *Zeitschr. wiener ent. Ges.*, vol. 37: pp. 99-101, 1 pl. 1952. Describes as new *Coleophora parenthella* (Losowaja, E. Ukraine), *C. gaviæpenella* (Albarricin, Aragon, & Granada, Spain); compares these spp. with *C. laripenella* in adult structure & genitalia. [P. B.]
- Toll, Sergiusz, "*Lozopera adelaide* sp. n. aus Polen (Lepidoptera, Tortricidæ)" [in German; Polish & Russian summaries]. *Ann. zool.*, Warsaw, vol. 16: pp. 61-64, 8 figs. 1955. Type locality Baligród, Kreis Lesko, Poland. [P. B.]
- Toll, Sergiusz, "Versuch einer natürlichen Gruppierung der europäischen Cœphoridæ auf Grund des Baues der Genitalapparate, samt Beschreibung von zwei neuen Arten (Lepidoptera)" [in German; Polish & Russian summaries]. *Ann. zool.*, Warsaw, vol. 16: pp. 171-193, 8 pls. 1956. Proposes new subfamilies HERRICHIINÆ (including only *Herrichia excelsella*), DEUTEROGONIINÆ (including only *Deuteronia pudorina*), & PLEUROTINÆ (including *Aplota*, *Pleurota*, *Macrochila*, *Topeutis*, & *Holoscolia*); gives key to subfamilies (including *Amphisbatiinæ*, *Chimabacchinæ*, *Cœphorinæ*, & *Depressariinæ*). Reviews spp. of *Borkhausenia*, which is divided into 10 subgenera: *Fabiola*, *Schiffermuelleria*, *Tichonia*, *Borkhausenia*, *TELECHRYISIS* (type *Recurvaria tripuncta*), *Decantha*, *METALAMPRA* (type *Cœphora cinnamomea*), *Batia*, *Lampros*, *BISIGNA* (type *Tinea procerella*); gives key to subgenera. Maintains distinctness of genera *Endrosis*, *Hofmannophila*, *Tubuliferola*, & *Holoscolia*. Describes as new *Topeutis adamczewskii* (Ukrainian S. S. R., Podolien, Zvenihorod); *Tubuliferola* (*TUBULIFERODES*), & type *T. josephina* (Poland, Kreis Cieszyn, Ustroń, Mt. Rownika, 750 m.). [P. B.]

- de Toulgoët, H., "Description de deux Arctiidæ nouveaux de Madagascar" [in French]. *Bull. Soc. ent. France*, vol. 61: pp. 231-234, 4 figs. "1956" [1957]. Description of *Spilarctia griveaudi* & *S. vieui*, 2 new spp. of Arctiidæ from East Madagascar. [P. V.]
- de Toulgoët, H., "Descriptions d'arctiides nouvelles de Madagascar (6^e note) (Lep.)" [in French]. *Ann. Soc. ent. France*, vol. 125: pp. 57-73, 1 pl., 13 figs. "1956" [1957]. Descriptions of new spp. of arctiids from Madagascar: *Eilema crassicosta*, *E. mari-omi*, *E. pseudofasciata*, *E. distinguenda*, *E. melanothorax*, *E. pseudosoror*, *E. margarita*, *E. comma*, *E. nonagrioides*, *E. chinchilla*, *E. homochroma*, *E. aspersoides*, *E. hybrida*, *E. oberthüri*; *Isorropus splendidus*, *I. lateritea*; *Fodinoidea staudingeri lata*. [P. V.]
- de Toulgoët, H., "Note pour servir à la révision systématique des Arctiidæ malgaches (Lep.)" [in French]. *Bull. Soc. ent. France*, vol. 61: pp. 178-183. "1956" [1957]. Note on the species of Arctiidæ from Madagascar described by the old authors. Established synonymies are rejected and other new ones made, after examination of the types. [P. V.]
- Toxopeus, L. J., "Over de Javaanse subspecies van *Delias crithoë* Boisdu." [in Dutch]. *Tijdschr. Ent.*, vol. 91: pp. cxvi-cxxiv, 1 map. 1949. Describes as new *D. c. cherima* (Tjerimai, S. of Cheribon), *D. c. centralis* (central Java, several localities), *D. c. radiata* (Lawoe). Describes distribution & variation of this montane sp. in Java. Describes pupa; foodplant *Loranthus*. [P. B.]

C. MORPHOLOGY

- Bungenberg de Jong, C. M., "Polyploidy in animals." *Bibl. Genetica*, vol. 27: pp. 111-228, 11 figs. 1957. Includes discussion of Seiler's work on the diploid & polyploid races of *Solenobia triquetrella*, & of experimental induction of polyploidy in *Bombyx*. [P.B.]
- Callahan, Philip S., "Serial morphology as a technique for determination of reproductive patterns in Lepidoptera." *Bull. ent. Soc. Amer.*, vol.2, no.3: p.14. 1956. Abstract.
- Colombo, Giuseppe, "Sulla struttura e funzione della cromatina delle cellule nutrici e degli oociti nella oogenesi del baco da seta (*Bombyx mori* L., Lepidoptera)" [in Italian]. *Rend. Accad. nac. Lincei*, ser.8, vol.22: pp.64-71, 1 fig. 1957. Describes & contrasts changes of chromatin & nuclear structure in oocyte & in nutritive cells. [P.B.]
- Denucé, J. M., & G. Vandermeerssche, "Etude au microscope électronique des trachées des glandes séricigènes de *Galleria mellonella*" [in French]. *Ann. Soc. Roy. zool. Belg.*, vol.83: pp.183-188, 3 figs. 1952. Terminal branches of tracheal system intracellular; spiral thickenings of tracheal walls extend to end of branches. [P.B.]
- Denucé, J. M., & G. Vandermeerssche, "Etude au microscope électronique des trachées des glandes séricigènes de *Galleria mellonella*" [in Flemish; French summary]. *Natuurwet. Tijdschr.*, vol.34: pp.187-190, 2 pls. 1953.
- Diakonoff, A., "Problemen der terminologie van de genitalia bij de Lepidoptera" [in Dutch; English summary]. *Ent. Berichten*, vol.15: pp.294-295. 1955.
- Dupuis, Claude, "Sur les principes d'une codification de la terminologie anatomique et morphologique relative aux insectes et quelques questions annexes de nomenclature" [in French; German & Russian summaries]. *Beitr. Ent.*, vol.7: pp.1-16. 1957. Proposes a code for morphological terms in entomology, comparable to the *International Rules of Zoological Nomenclature*. The author's principal recommendations are sensible, but their rigid application seems undesirable and their enforcement quite impossible. [P.B.]
- Fischer, Ch., "Peroneura" [in French]. *Bull. Soc. ent. Mulhouse*, 1948: p.17, 1 fig. 1948. Figures specimen of *Aporia crataegi* with abnormal venation. [P.B.]
- Frings, Hubert & Mable, "The loci of contact chemoreceptors involved in feeding reactions in certain Lepidoptera." *Biol. Bull.*, vol.110: pp.291-299, 4 figs. 1956. Receptors which respond to glucose solutions located on proboscis & on functional tarsi in insects studied (Satyridæ, Nymphalidæ, Amatidæ). [P.B.]
- Frizzi, Guido, "L'eteropicosi come indice di riconoscimento dei sessi in *Bombyx mori* L." [in Italian]. *Ricerca scient.*, vol.18: pp.119-123, 5 figs. 1948. Describes a cytological method of determining sex of larvæ. [P.B.]
- Gentil, Karl, "Glitterfarben und Dunntblattfarben bei Schillerfaltern" [in German]. *Natur und Volk*, vol.87: pp.138-141, 5 figs. 1957. Explains structure of iridescent scales of Lepidoptera. [P.B.]

- Haines, L. C., "An extraordinary bilateral gynandromorph butterfly." *Austral. Zool.*, vol.12: p.262, 1 pl. 1956. Figures a bilateral gynandromorph of *Heteronympha merope* (Satyridæ) from New South Wales. [I.C.]
- Hannemery, H. J., "Die männlichen Terminalia von *Micropteryx calthella* L. (Lep. Micropterygidae)" [in German]. *Deutsche ent. Zeitschr.*, N.F., vol.4: pp.209-222, 9 figs. 1957. Describes morphology of ♂ genitalia & associated structures, especially musculature. The genitalia are not retracted into the 8th abdominal segment as in other Lepidoptera, & most of the muscles are distinctive. [P.B.]
- Hanser, Gisela, "Über die Histogenese der Augenpigmentgranula bei verschiedenen Rassen von *Ephestia kühniella* Z. und *Ptychopoda seriata* Schrk." [in German]. *Zeitschr. indukt. Abstammungslehre*, vol.82: pp.74-97, 23 figs. 1948. Describes development & pigment content of pigment granules in eyes of normal moths & mutants with reduced eye color. [P.B.]
- Hosai, Sadao, "Wing-area of butterflies" [in Japanese]. *Shin Konchu*, vol.5, no.4: pp.32-34, 2 figs., 2 tables. 1952. Quotients (K) are calculated for 22 spp. by dividing wing-area (A) by the square of wing-length (L). [T.I.]
- Ikeuchi, Shingo, "A study on the proboscis and its sensory organ of Rhopalocera from phylogenical point of view" [in Japanese]. *New Entomologist*, vol.1, nos.3/4: pp.5-11, 20 figs. 1952. Results conform well with those of Dr. Yagi's study on the pseudopupil. [T.I.]
- Kettlewell, H. B. D., "A fertile gynandrous *Biston betularia* L." *Entomologist*, vol.88: p.68. 1955. Moth with ♂ antenna on right side only. [P.B.]
- Kettlewell, H. B. D., "A fertile somatic mosaic in *Biston betularia*." *Entomologist*, vol. 88: p.83. 1955. Melanic ♀ with patch of typical pigment on wing. [P.B.]
- Kiriakoff, S., "De gehoororganen en de systematiek der Lepidopteren" [in Dutch]. *Ent. Berichten*, vol.14: pp.246-250, 2 figs. 1953. General discussion of tympanic organs & their importance in classification of Lepidoptera. Figures organs of "notodontoid" & "phalænoid" types. [P.B.]
- Koyama, Nagao, & Shigemitsu Tanaka, "Morphological observation on the development of the compound eye in the Silkworm (*Bombyx mori* L.) (2)." *Journ. Fac. Textiles Sericult. Shinsu Univ., Ser.A, Biol.*, no.6: 14 pp., 4 pls. 1956. Gives detailed description of histology of eye development during pupal stage. [P.B.]
- Kroon, D. B., Th. A. Veerkamp, & W. A. Loeven, "X-ray analysis of the process of extension of the wing of the butterfly." *Proc. nederl. Akad. Wetensch., ser. C*, vol.55: pp.209-214, 3 pls. 1952. Study of histological & molecular changes in expanding wing of *Aglais urticae*. [P.B.]
- Krumins, Rolfs, "Die Borstenentwicklung bei der Wachsmotte *Galleria mellonella* L." [in German]. *Biol. Zentralbl.*, vol.71: pp.183-210, 13 figs. 1952. Describes apparatus (of 3 cells) which forms each larval seta; same cells persist through larval life and (some) into adult stage, producing setæ of different types; no new seta-forming cells appear between hatching & development of imaginal epidermis. [P.B.]
- Kühnel, Wilhelm, "Der Kopulationsapparat der Schmetterlinge und seine Bedeutung für die Systematik" [in German]. *Ent. Nachrichtenbl. österr. und schweizer Ent.*, vol.2: pp.46-48, 69-72, 4 figs. 1950. Brief description of basic plan of genitalia of Lepidoptera, with definitions of morphological terms. Description of method of preparation. [P.B.]
- Lane, Charles (greatly assisted by Miriam Rothschild), "Notes on the brush organs and cervical glands of the Ruby Tiger (*Phragmatobia fuliginosa* L.)." *Entomologist*, vol.90: pp.148-151, 3 figs. 1957. Describes & figures abdominal scent organ & discusses scent produced from cervical glands. [P.B.]
- de Lesse, Hubert, "Recherches cytologiques et biogéographiques sur quelques lépidoptères rhopalocères" [in French]. *Bull. Soc. zool. France*, vol.78: pp.287-291. April 1953. Survey of chromosome numbers in some Lycanidæ & *Erebia* (especially *E. tyn-darus* group); notes on distribution of latter. [P.B.]
- de Lesse, H., "Etude cytologique des *Lysandra* fixés par M. Beuret" [in French]. *Mitt. ent. Ges. Basel*, N.F., vol.6: pp.77-80. 1956. Study of the chromosomes of the lycanids *L. coridon* & *L. hispana*, collected, bred, & crossed by M. Beuret. [P.V.]
- Loibl, Hans, "(Lep. Bomb.) Ein Zwitter von *Aglia tau* L." [in German]. *Bombus*, no.80/81: p.337. 1954. Describes bilateral gynandromorph. [P.B.]
- Loritz, Jean, "Über Wirkung der Hornamputation bei Raupen von *Celerio euphorbiae* L. (Sphingidæ)" [in German]. *Roux' Archiv Entwicklungsmech.*, vol.149: pp.333-

- 338, 5 figs. 1957. Amputation of larval abdominal horn did not affect metamorphosis, but many adults had reduced vitality, & abnormalities in genitalia & other structures were found. In F_1 generation some larvæ had horn reduced or absent. [P.B.]
- Lower, Harry F., "The development of the integument during the life cycle of *Persec-tania ewingi* (Wwd.) (Lepidoptera: Agrotidæ)." *Zool. Jahrb., Abt. Anat.*, vol.76: pp.165-198, 7 pls., 31 figs. 1957. Describes structure of epidermis, basement membrane & all cuticular layers of larva, prepupa, pupa, & adult, & changes occurring between stages. [P.B.]
- Maeki, Kodo, "A cytological study on 16 species of the Japanese Papilionidæ (Lepidoptera - Rhopalocera)" [in Japanese; English summary]. *Kromosomo*, vol.32: pp. 1115-1122, 29 figs. 1957. Gives haploid chromosome number & testis color of spp. of *Parnassius*, *Lüdorfia*, *Graphium*, *Byasa*, & *Papilio*. All haploid numbers are 30-31, except *G. sarpedon* ($n=20$) & *Parnassius evermanni* ($n=62$). [P.B.]
- Mukerji, D., & S. N. Banerjee, "The early embryonic stages of the Silkworm, *Bombyx mori*, nistid yellow variety." *Proc. zool. Soc. Bengal*, vol.5: pp.19-26, 1 pl. 1952. Describes development through 30th hour. [P.B.]
- Narbel-Hofstetter, Marguerite, "La pseudogamie chez *Luffia lapidella* Goeze (Lépid. Psychide)" [in French]. *Revue suisse Zool.*, vol.62: pp.224-229, 1 fig. 1955. Preliminary account of hereditary form of parthenogenetic development in this sp. [P.B.]
- Nüesch, H., "Ueber den Einfluss der Nerven auf die Muskelentwicklung bei *Telea polyphemus* (Lepid.)" [in German]. *Revue suisse Zool.*, vol.59: pp.294-301, 2 figs. 1952. Innervation is necessary for development of adult muscles, which are absent if nerves supplying them are cut in pupal stage. [P.B.]
- Nüesch, H., "Das thorakale Nervenmuskelssystem der Puppe von *Telea polyphemus* (Lep.)" [in German]. *Revue suisse Zool.*, vol.62: pp.211-218, 4 figs. 1955. Detailed description of muscle rudiments & nerves in head & thorax of diapausing pupa. [P.B.]
- Okano, Masao, "Morphology on the pupæ of Japanese Lepidoptera (1)." *Ann. Rep. Gakugei Faculty, Iwate Univ.*, vol.3: pp.52-56, 18 figs. "1951" [1952]. *Oberthürria falcigera* (Bombycidæ); *Agathia carissima*, *Hipparchus dieckmanni*, *Ophthalmodes albosignaria*, *Angerona nigrisparsa* (Geometridæ); *Phytometra mandarina*, *Cucullia fraterna* (Noctuidæ). [T.I.]
- Pagden, H. T., "The presence of coremata in *Creatonotus gangis* (L.) (Lepidoptera: Arctiidæ)." *Proc. R. ent. Soc. London (A)*, vol.32: pp.90-94, 1 pl. 1957. Photos of living adult ♂ with paired forked vesicles, longer than body, everted from end of abdomen; function unknown. Review of previous observations on similar structures. [P.B.]
- Palm, Nils-Bertil, "Sexual differences in size and structure of the corpora allata in some insects." *K. Svenska Vetenskapskad. Handl.*, ser.4, vol.1, no.6: 24 pp., 17 figs. 1949. Describes & figures glands in *Pieris napi* & *Ephestia künniella*. Notes on glands of some saturniids. [P.B.]
- Palm, Nils-Bertil, "The rectal papillæ in insects." *Lunds Univ. Årsskr.*, N.F., Avd.2, vol.45, no.8: 36 pp., 8 figs. 1949. Survey of structures in 22 orders of insects; function uncertain, perhaps reabsorption of water. [P.B.]
- Panov, A. A., "Bau des Insektengehirn[s] während der postembryonalen Entwicklung" [in Russian; German summary]. *Rev. Ent. URSS*, vol.36: pp.269-284, 3 figs., 2 pls. 1957. Comparative studies & bibliography on brain of new-born insect larvæ; development of the brain during the postembryonal period in various insect groups, including some Lepidoptera. [N.O.]
- Piepho, Hans, "Über die polare Orientierung der Bälge und Schuppen auf dem Schmetterlingsrumpf" [in German]. *Biol. Zentralbl.*, vol.74: pp.467-474, 5 figs. 1955. Study of polarity in epidermis of *Galleria mellonella*, carried out by transplanting pieces of abdominal epidermis in last larval stage & noting resulting distortions of scale orientation on adult abdomen. [P.B.]
- Piepho, Hans, & Wolfgang Marcus, "Wirkungen richtender Faktoren bei der Bildung der Schuppen und Bälge des Schmetterlingsrumpfes" [in German]. *Biol. Zentralbl.*, vol.76: pp.23-27, 4 figs. 1957. Scale orientation on abdomen of *G. mellonella* determined by orientation of dividing cells during metamorphosis. [P.B.]
- Puchta, O. & J. Seiler, "Die Entwicklung des Genitalapparates bei triploiden Intersexen von *Solenobia triquetrella* (Lepid. Psychidæ)" [in German]. *Revue suisse Zool.*, vol.62: pp.334-337. 1955. Summary of development of reproductive system in inter-

- sexes, presented as supporting evidence for Seiler's theory of the mechanism of inter-sex formation. [P.B.]
- Puri, V. D., "Studies on the anatomy of sugarcane moth borers. I. Comparative anatomy of the antennæ." *Proc. Indian Acad. Sci. B.*, vol.45: pp 32-42, 4 pls. 1957. Describes antennal anatomy in *Sesamia inferens* & 7 Pyralidæ. Sexual dimorphism is pronounced in *Emmelocera depressella*, *Bissetia steniellus*, & *S. inferens*. [P.B.]
- Puri, V. D., "Studies on the anatomy of the sugarcane moth borers. III. Comparative study of the head and its appendages." *Proc. Indian Acad. Sci. B.*, vol.46: pp.96-108, 5 pls. 1957. Comparative study of exoskeleton, tentorium, & mouthparts of adults. [P.B.]
- de Puysegur, K., "Un cas de gynandromorphisme chez *Heodes virgaureæ* L." [in French]. *Rev. franç. Lépid.*, vol.14: p.122, 1 fig. "1953" [1954]. Figures bilateral gynandromorph. [P.B.]
- Ratzendorfer, Carla, "Volumetric indices for the parts of the insect brain. A comparative study in cerebralization of insects." *Journ. N. Y. ent. Soc.*, vol.60: pp.129-152, 1 fig., 2 tables. 1952. Includes *Ephesia kühniella* adults & 7 other unrelated insects. [P.B.]
- Ris, Hans, & Ruth Kleinfeld, "Cytochemical studies on the chromatin elimination in *Solenobia* (Lepidoptera)." *Chromosoma*, vol.5: pp.363-371, 9 figs. 1952. Material shed by chromosomes in 1st maturation division of eggs is ribonucleoprotein. [P.B.]
- Schneider, Dietrich, & Karl-Ernst Kaissling, "Der Bau der Antenne des Seidenspinners *Bombyx mori* L. II. Sensillen, cuticulare Bildungen und innerer Bau" [in German]. *Zool. Jahrb., Abt. Anat.*, vol.76: pp 223-250, 26 figs. 1957. Very detailed description of internal anatomy & sense organs of antennæ; sense organs number about 20,000 per antenna & include all known types of insect sensillæ except photoreceptors. [P.B.]
- Schwanwitsch, B. N., "O risunke kryla Palearkticheskikh Hesperiidæ i nekotorykh *Argynnis* (Lepidoptera)" [in Russian; On the wing pattern in the Palearctic Hesperiidæ and some *Argynnis*]. *Ent. Obozrenie*, vol.32: pp.137-147, 36 figs. 1952. Analyzes wing pattern of Hesperiidæ, ascertains regularities, & establishes a prototype pattern for this family. Compares the hind wing pattern with that in *Argynnis*. [N.O.]
- Shirozu, Takashi, & Hideho Yamamoto, "Morphology of the male genital organ of *Argyrogonome laodice japonica* Ménétrièrs (Nymphalidæ)." *Sieboldia*, vol.2: pp.161-168, 4 pls. 1953. The skeletal and membranous parts and muscles are described and illustrated minutely. [T.I.]
- Stumm-Zollinger, Elisabeth, "Histological study of regenerative processes after transection of the *nerve corporis cardiaci* in transplanted brains of the Cecropia silkworm (*Platysamia cecropia* L.)." *Journ. exper. Zool.*, vol.134: pp.315-326, 4 figs. 1957. Medial & lateral groups of neurosecretory cells in brain normally connect with each other through the nerves to the corpora cardiaca; if these nerves are cut, the 2 groups of cells become connected by a secondary nerve network. This connection is essential for the production of the brain hormone. It is suggested that the corpora cardiaca function as a site for combination of substances produced by the 2 groups of neurosecretory cells to form this hormone. [P.B.]
- Takahashi, Yasuo, "Studies on the cuticle of the silkworm, *Bombyx mori* L. VIII. Sublayers of epicuticle." *Annot. zool. japon.*, vol.29: pp.186-195. 1956.
- Taylor, J. Sneyd, "Note on the proboscis in the Saturniidæ." *Ent. Rec. & Journ. Var.*, vol.69: pp.151-153. 1957. Describes functional proboscis in spp. of *Epiphora* (seen drinking at puddles) & similar organ in *Samia cynthia*. [P.B.]
- Treat, Asher E., "The ctenoid form of the noctuid epaulette." *Amer. Mus. Novit.*, no. 1766: 10 pp., 14 figs. 1956. Describes form of ridge overlapping tympanic membrane in various noctuids; when this ridge is provided with branched, spiny teeth it may serve to protect the membrane against parasitic mites. [P.B.]

G. PHYSIOLOGY

- Fukuda, T., "Conversion of pyruvic acid to alanine in the silkworm larva." *Nature*, vol.180: p.245, 1 fig. 1957. *Bombyx mori*.
- Garcia, Isabelle, Marie Tixier, & Jean Roche, "Dégradation L-aminoacidexoxydasique de la L-arginine chez les insectes aux divers stades de leurs métamorphoses" [in French]. *C. R. Soc. Biol.*, vol.150: pp.468-470, 2 figs. 1956. Study of enzyme mediating arginine degradation in *Bombyx mori* etc. [P.B.]

- Garcia, Isabelle, Marie Tixier, & Jean Roche, "Sur les dérivés guanidiques présents chez les insectes aux différents stades de leur développement" [in French]. *C. R. Soc. Biol.*, vol.150: pp.321-324. 1956. Study of arginine degradation products in *Bombyx mori* and other insects. [P.B.]
- Gilbert, Lawrence I., & Howard A. Schneiderman, "The quantitative assay of the juvenile hormone of insects." *Anat. Rec.*, vol.128: p.555. 1957. Abstract; *Galleria* and Saturniidae.
- Glick, P. A., J. P. Hollingsworth, & W. J. Eitel, "Further studies on the attraction of Pink Bollworm moths to ultraviolet and visible radiation." *Journ. econ. Ent.*, vol. 49: pp.158-161. 1956.
- Grison, P., & R. Silvestre de Sacy, "Déplacement orienté de la femelle de *Cheimatobia Operophtera brumata* L. (Lep. Geometridæ)" [in French]. *Bull. Soc. ent. France*, vol.59: pp.151-154. "1954" [1955]. Wingless ♀♀, active at dusk, move toward vertical dark objects subtending a horizontal angle of at least 3°; normal reaction is to tree trunks, but vertical painted stripes serve as stimuli under proper conditions. [P.B.]
- Grossbach, Ulrich, "Zur papierchromatographischen Untersuchung von Lepidopteren-Augen" [in German]. *Zeitschr. Naturforsch.*, vol.12b: pp.462-465, 3 figs. 1957. Study of fluorescent substances in eyes of 30 spp. (8 families) of Lepidoptera; types of substances present show some correlation with systematic position. [P.B.]
- Hanec, William, & Stanley D. Beck, "Diapause in the European Corn Borer." *Bull. ent. Soc. Amer.*, vol.3: p.24. 1957. Abstract; *Pyrausta nubilalis*.
- Hanser, Gisela, "Das erste Insekten-Hormon in kristallisierter Form" [in German]. *Umschau*, vol.56: pp.167-170, 7 figs. 1956. Report of purification of ecdyson & review of hormonal control of metamorphosis in Lepidoptera etc. [P.B.]
- Hanser, Gisela, "Wirkung eines Metamorphose-Hormons bei *Ephestia kühniella* (Epidermisveränderungen bei der induzierten Puppenhäutung)" [in German]. *Zool. Anz.*, Suppl. no.20 (*Verhandl. deutschen Zool. in Hamburg*): pp.209-215, 2 figs. 1957. Injection of ecdyson produces metamorphic changes in isolated abdomen of *Ephestia* or *Galleria* larva. [P.B.]
- Hasegawa, Kinsaku, "Studies on the voltinism in the Silkworm, *Bombyx mori* L., with special reference to the organs concerning determination of voltinism (a preliminary note)." *Proc. Japan Acad.*, vol.27: pp.667-671. 1951. Evidence from transplantation experiments that hormone produced by subesophageal ganglion stimulates eggs to enter diapause in *B. mori* & other moths. [P.B.]
- Heimpel, A. M., "Further observations on the pH in the gut and the blood of Canadian forest insects." *Canad. Journ. Zool.*, vol.34: pp.210-212. 1957. Data for a variety of Lepidoptera (Tortricidae, Notodontidae, Arctiidae, Saturniidae, Nymphalidae). [P.B.]
- Heller, J., & T. Chojnacki, "Pyrophosphates in the hawkmoth, *Cellerio* [sic!] *euphorbiae*. III. Tracer studies with P.³²" *Bull. Acad. polon. Sci., Ser. Sci. biol.*, vol.5: pp.277-279. 1957.
- Heller, J., & L. Szarkowska, "Does the h molymp of insects contain uric acid?" *Bull. Acad. polon. Sci., Ser. Sci. biol.*, vol.5: pp.111-113, 3 figs. 1957. Affirms presence of uric acid in pupal sphingids. [P.B.]
- Heslop, I. R. P., "Times of flight of *Apatura iris* (L.) (Lep: Nymphalidae)." *Ent. Gazette*, vol.8: pp.226-231. 1957. Notes on flight habits as affected by time of day, weather, etc. [P.B.]
- Hidaka, Toshitaka, "Recherches sur le d terminisme hormonal de la coloration pupale chez l pidopt res I. Les effets de la ligature, de l'ablation des ganglions et de l'incision des nerfs chez pr pupes et larves  g es de quelques papilionides" [in French]. *Annot. zool. japon.*, vol.24: pp.69-74. 1956. Hormone produced in central nervous system controls pupal coloration in *Papilio xuthus* & *P. protenor*. [P.B.]
- Hinton, H. E., "Some aspects of diapause." *Science Progr.*, vol.45: pp.307-320. 1957. Calls attention to distinctions, frequently neglected, between factors determining & those initiating diapause; and between factors terminating diapause & those permitting resumption of development. Reviews evidence for hormone-controlled synchrony of development in host & parasite. Describes effect of "diapause hormone" on permeability of ovaries and resulting penetration of tryptophane derivatives into egg. [P.B.]
- Hodgson, Edward S., "A comparative electrophysiological analysis of chemoreceptors in arthropods." *Anat. Rec.*, vol.128: pp.565-566. 1957. Abstract; including *Epargyreus* & *Limenitis*.

- Huard, G., & R. P. Corbe, "Recherches photométriques sur *Parnassius apollo* L. (lépidoptères)" [in French]. *Bull. Soc. zool. France*, vol.76: pp.18-21. 1951. Records light-absorbing power of different pattern elements on wings. [P.B.]
- Ito, Toshio, "Blood phenoloxidase in *Bombyx mori* II. Change of activity during development and a certain characteristic of the enzyme." *Jap. Journ. Zool.*, vol.11: pp. 253-260, 6 figs. 1954.
- Jacobson, L. A., & P. E. Bakeley, "Effects of moisture during starvation of larvæ of the Pale Western Cutworm, *Agrotis orthogonia* Morr. (Lepidoptera: Phalænidae)." *Canad. Ent.*, vol.89: pp.465-469, 1 fig. 1957. Mortality lowest at medium (53%) relative humidity. [P.B.]
- Jarvis, F. V. L., "Further observations on hibernation." *Proc. Trans. south London ent. nat. Hist. Soc.*, 1950-51: pp.96-106. 1951. Distinguishes spp. which may be induced to emerge from hibernation by application of heat, and those ("true hibernators") which cannot. Discusses the nature of diapause in the latter, with examples from some Lepidoptera; speculates on causes of diapause. [P.B.]
- Karlson, Peter, "Über die Häutungshormone der Arthropoden" [in German]. *Zool. Anz.*, Suppl. no.20 (*Verhandl. deutschen Zool. in Hamburg*): pp.203-208, 1 fig. 1957. Review of properties and activity in various arthropods of hormone ecdyson, extracted from *Bombyx mori*. [P.B.]
- Kato, Akira, "Some examples of flying formation among paired butterflies" [in Japanese]. *Shin Konchu*, vol.5, no.3: pp.22-23. 1952. 11 instances. [T.I.]
- Kettlewell, H. B. D., "Unusual behavior of a sound sensitive larva." *Entomologist*, vol.88: pp.97-98. 1955. Larvæ of *Mesocelis montana* react to ♂ (but not ♀) human voice by shaking violently; sensitive to low-frequency sounds only. [P.B.]
- Kikkawa, Hideo, Zenichi Ogita, & Shozo Fujito, "Studies on the pigments derived from tryptophan in insects." *Proc. Japan Acad.*, vol.30: pp.30-35, 2 figs. 1954. Demonstrates metals in pigments from eggs of certain *Bombyx mori* mutants. [P.B.]
- Kleinhout, J., "Spinvermogen, stamoriëntatie en gezichtsvermogen bij de rupsen van de dennespanner, *Bupalus piniarius* L." [in Dutch; English summary]. *Ent. Berichten*, vol.17: pp.101-113, 1 fig. 1957. Describes tendency of *B. piniarius* & *Semiothisa liturata* to move toward tall vertical objects after being blown out of trees; shows that orientation is visual. [P.B.]
- van der Kloot, William G., & Carroll M. Williams, "Cocoon construction by the Cecropia Silkworm. I. The role of the external environment" [in English; German summary]. *Behaviour*, vol.5: pp.141-156, 1 pl., 7 figs. 1953. Describes cocoon and analyzes pattern of movement of larva in spinning it. Prevention of certain movements by crowding, unsuitable locations, etc., results in formation of abnormal cocoons. [P.B.]
- van der Kloot, William G., & Carroll M. Williams, "Cocoon formation by the Cecropia Silkworm. II. The role of the internal environment" [in English; German summary]. *Behaviour*, vol.5: pp.157-174, 3 pls., 7 figs. 1953. Amount of silk present in silk glands determines spinning behaviour in part, as well as part of cocoon (inner or outer envelope) which is being spun. [P.B.]
- van der Kloot, William G., & Carroll M. Williams, "Cocoon construction by the Cecropia Silkworm. III. The alteration of spinning behaviour by chemical and surgical techniques" [in English; German summary]. *Behaviour*, vol.6: pp.233-255, 5 figs. 1954. Spinning behaviour is controlled by brain centers in or near corpora pedunculata. Spinning behaviour may be deranged by CO₂ (permanently), CO (temporarily), low O₂ tensions, or injection of atropine or malononitrile; these agents presumably affect the above centers specifically, since behaviour other than spinning was not affected. [P.B.]
- Kozhantshikov, I. V. "K voprosu o zhiznennom termicheskom optimume. IX. Amplituda temperatury kak faktor v razvitiu neparnogo i dubovogo shelkopyradov" [in Russian; To the problem of vital thermic optimum. IX. Temperature amplitude as a factor in development of *Ocneria dispar* L. and *Antheræa pernyi* Guer.]. *Ent. Obozrenie*, vol.32: pp.27-42. 1952. A comparative analysis of adaptation to temperature changes. [N.O.]
- Kubo, Moritada, "Peculiar actions of butterflies before egg laying" [in Japanese]. *New Entomologist*, vol.1, nos.3/4: p.32. 1952. Tappings by forelegs on foodplants prior to oviposition are observed in *Polygonia c-aureum*, *Araschnia burejana*, *Argynnis anadyomene* (Nymphalidæ), and *Papilio machaon hippocrates*. [T.I.]

- Kuchlein, J. H., "Insecten in hun overwinteringskwartieren" [in Dutch; English summary]. *Ent. Berichten*, vol.17: pp.141-142. 1957. Note on hibernation of *Acrolepia* & *Agonopteryx* spp. in caves in Limburg. [P.B.]
- Kuzuya, Takeshi, "Oviposition of *Leptidea amurensis* (Pieridæ)" [in Japanese]. *Shin Konchu*, vol.5, no.2: pp.10-11, 1 fig. 1952. Chemical sense of foretarsi is suggested. [T.I.]
- Legay, J.-M., "Chimiotactisme et apprentissage chez le ver à soie" [in French]. *Bull. Soc. Hist. nat. Toulouse*, vol.86: pp.172-175, 1 fig. 1951. *Bombyx mori* larvæ show learning ability in search for food over fixed path. Changes in behaviour in course of development are noted. [P.B.]
- Levy, Robert I., & Howard A. Schneiderman, "The direct measurement and significance of changes in intratracheal gas composition during the respiratory cycle of the *Cecropia* moth." *Anat. Rec.*, vol.128: p.583. 1957. Abstract.

H. MIGRATION

- Abbott, Charles H., "A quantitative study of the migration of the Painted Lady Butterfly, *Vanessa cardui*." *Bull. ecol. Soc. Amer.*, vol. 30: p. 27. 1949. Abstract.
- Amanshauser, Hermann, "Was ist ein Wanderfalter?" [in German]. *Zeitschr. wiener ent. Ges.*, vol. 40: pp. 273-276. 1955. Distinguishes between "true" migration, which is followed by return flight or by breeding in new territory; "catastrophic migration", ending in death of migrants; and other natural movements (airstream transport, permanent range extension, etc.). [P.B.]
- Baynes, E. S. A., "Range on migrant insects in Ireland for 1950." *Irish Nat. Journ.*, vol. 10: pp. 134-135. 1951. Records of 9 Lepidoptera. [P.B.]
- Baynes, E. S. A., "Report on migrant insects in Ireland for 1951." *Irish Nat. Journ.*, vol. 10: pp. 247-248. 1952. 9 spp.
- Baynes, E. S. A., "Report on migrant insects in Ireland for 1952." *Irish Nat. Journ.*, vol. 11: pp. 45-46. 1953. 12 spp.
- Baynes, E. S. A., "Report on migrant insects in Ireland for 1953." *Irish Nat. Journ.*, vol. 11: 195-197. 1954. 10 spp.
- Baynes, E. S. A., "Report on migrant insects in Ireland for 1954." *Irish Nat. Journ.*, vol. 11: pp. 286-287. 1955. 10 spp.
- Baynes, E. S. A., "Report on migrant insects in Ireland for 1955." *Irish Nat. Journ.*, vol. 12: pp. 25-28. 1956. Including 4 butterflies, 4 sphingids, 1 noctuid, 3 pyralids. [P.B.]
- Baynes, E. S. A., "Report on migrant insects in Ireland for 1956." *Irish Nat. Journ.*, vol. 12: pp. 145-146. 1957. Records of 11 Lepidoptera; comparative numbers, 1950-56, recorded for 16 spp. [P.B.]
- Biezanko, C. M., "Migrações de lepidopteros no Rio Grande do Sul e Uruguai" [in Portuguese]. *Chacaras e Quintaes*, vol. 92: pp. 485-486, 1 fig. 1955. Migration of *Metamorphia stelenes*. Foodplants *Calliandra*, *Pithecolobium*. [P.B.]
- Broekhuysen, G. L., "Butterfly migration at Ottenby Bird Observatory." *Opusc. ent.*, vol. 18: p. 244. 1953. *Pieris brassicae* & *P. napi*; S. Sweden. [P.B.]
- Broquet, M., "Observations sur la migration de la *Vanessa cardui* L." [in French]. *Bull. Soc. Sci. nat. Ouest France*, ser. 6, vol. 1: pp. 33-34. 1952. Observations on northward migration in W. France. [P.B.]
- Burmman, Karl, "Wanderfalter auf Gletschern" [in German]. *Zeitschr. wiener ent. Ges.*, vol. 37: pp. 101-103. 1952. Numerous Lepidoptera found freshly dead on snow in E. Alps, evidently killed while flying over mountains; some migrants, and lowland spp. apparently carried up in air currents. [P.B.]
- Burmman, Karl, "Pyrameis cardui L. in Nordtirol" [in German]. *Zeitschr. wiener ent. Ges.*, vol. 39: pp. 3-5. 1954. Migration records, 1951 & 1952. [P.B.]
- Burmman, Karl, "Einige Wanderfalterbeobachtungen aus Nordtirol 1953" [in German]. *Zeitschr. wiener ent. Ges.*, vol. 39: pp. 267-269. 1954. Notes on 21 migrant spp. [P.B.]
- Burmman, Karl, "Nordtiroler Wanderfalterbeobachtungen 1954" [in German]. *Zeitschr. wiener ent. Ges.*, vol. 40: pp. 241-244. 1955. Notes on 20 migrants. [P.B.]
- Burton, J. F., & D. F. Owen, "Insect migration in S. W. France." *Ent. mo. Mag.*, vol. 90: pp. 66-69. 1954. Southward movement of various insects in October, including 7 Lepidoptera. [P.B.]

- Callahan, Philip S., "A possible correlation between the fat content and the reproductive patterns of *Pseudaletia unipuncta* and migration." *Bull. ent. Soc. Amer.*, vol. 3: p. 32. 1957. Abstract.
- Chnéour A., "Migrations des papillons dans le zone méditerranéenne, principalement en ce qui concerne la Tunisie" [in French]. *Bull. Soc. Sci. nat. Tunisie*, vol. 6: pp. 67-70, 3 pls. 1953. Notes on migration and migrant spp. in North Africa; figures of 20 spp. [P. B.]
- Cretschmar, Max, "Funde von *Laphygma exigua* Hb. (Noctuidæ) im Jahre 1952" [in German]. *Zeitschr. Lepid.*, vol. 3: pp. 161-162. 1955. European records of this southern migrant. [P. B.]
- Crozes, J., "Observations et notes de chasse" [in French]. *Rev. franç. Lépid.*, vol. 14: p. 146. 1954. Reports migration of *Vanessa cardui* at Monte Carlo; records of *Papilio festhameli* (Aude) & *Charaxes jasius* (Ariège). [P. B.]
- Daniel, Franz, "Oekologische und physiologische Probleme bei wandernden SpHINGIDEN" [in German]. *Zeitschr. Lepid.*, vol. 3: pp. 91-100. 1955. Distinguishes between "true migrants", which invade Europe each year and have a wide range without local variants, and "roamers", whose migrations are less regular and apparently more subject to weather, and which have distinct local races. Various aspects of biology related to migration are considered. [P. B.]
- Eliot, N., "*Nymphalis antiopa* on the Cote d'Azur." *Entomologist*, vol. 88: pp. 84-88. 1955. Suggests that species migrates from coastal strip to higher country shortly after emergence and hibernates there, returning in spring. [P. B.]
- Fassnacht, Joseph, "A propos de *Pyrameis atalanta* L. et des migrations" [in French]. *Bull. Soc. ent. Mulhouse*, 1948: pp. 37-38. 1948. Report of annual southward movement; comments by Loeliger. [P. B.]
- French, R. A., "Migration records, 1954." *Entomologist*, vol. 88: pp. 125-130. 1955. Notes on 35 British immigrants, and records of Lepidoptera seen at lighthouses & lightships. [P. B.]
- French, R. A., "Migration records, 1956." *Entomologist*, vol. 90: pp. 227-238. 1957. Records of 48 British immigrant spp. [P. B.]
- French, R. A., "The Death's Head Hawk Moth in Great Britain in 1956." *Bull. south-eastern Union sci. Soc.*, no. 112: 3 pp. 1957. Report on record invasion of the migrant *Acherontia atropos*. [P. B.]
- Harbottle, A. H. H., "The occurrence of *Pontia daplidice* Linn. in North Cornwall in 1945." *Ent. Gaz.*, vol. 1: pp. 49-50. 1950. This migrant was common and bred locally. Notes on larvae reared on *Raphanus maritimus*. [P. B.]
- Hawward, Kenneth J., "Migration of butterflies in Argentina, 1953-54." *Proc. Roy. ent. Soc. London (A)*, vol. 30: pp. 59-62. 1955. *Ascia monusta*, *Libytheana carinenta*.
- Iwase, Taro, "Migration of *Parnara guttata* (Hesperiidae)" [in Japanese]. *Trans. Minamiyusa ent. Soc.*, vol. 2: pp. 7-8. 1953. Migration in Shikoku suggested. [T. I.]
- Jarvis, F. V. L., "The meteorological approach to entomology." *Ent. Gaz.*, vol. 1: pp. 201-216, 7 figs. 1950. Simple meteorology with special reference to Great Britain; the influence of weather on migration and other phenomena is discussed. [P. B.]
- Kawashima, Kenjiro, "Large mass of *Parnara guttata* Bremer et Gray (Hesperiidae) passed through Tokyo" [in Japanese]. *Shin Konchu*, vol. 6, no. 11: p. 14. 1953. South or southwest flight was observed on Sept 12 ("13" in error) 1953 (cloudy, windless), in a belt of about 2 km. in width. [T. I.]
- Kummerer, H., "Migrations" [in French]. *Bull. Soc. ent. Mulhouse*, 1948: pp. 69-71. 1948. Reports migrations of *Vanessa cardui* in Alsace; notes by Loeliger. [P. B.]
- Kurosawa, Yoshihiko, "*Parnara guttata* Bremer et Grey (Hesperiidae) migrate over Ueno Park (Tokyo)" [in Japanese]. *Shin Konchu*, vol. 6, no. 13: p. 14. Sept. 13 (Sunday) 1953; mass flight in southward direction following light wind. [T. I.]
- Lempke, B. J., "Trekvlinders in 1951 (twaalfde jaarverslag)" [in Dutch; English summary]. *Ent. Berichten*, vol. 14: pp. 150-157, 2 figs. 1952. Report on 23 spp. of migrants in Holland. [P. B.]
- Lempke, B. J., "Trekvlinders in 1952 (dertiede jaarverslag)" [in Dutch; English summary]. *Ent. Berichten*, vol. 14: pp. 316-321, 339-345, 4 figs. 1953. 29 spp. [P. B.]
- Lempke, B. J., "Trekvlinders in 1953 (veertiende jaarverslag)" [in Dutch; English summary]. *Ent. Berichten*, vol. 15: pp. 201-206, 213-220, 2 figs. 1954. 26 spp. [P. B.]
- Lempke, B. J., "Trekvlinders in 1954 (vijftiende jaarverslag)" [in Dutch; English summary]. *Ent. Berichten*, vol. 15: pp. 460-467, 2 figs. 1955. 25 spp. [P. B.]

- Lempke, B. J., "Vlindertrek" [in Dutch; English summary]. *Ent. Berichten*, vol. 16: pp. 71-72. 1956. Request for information on migrants; suggests that *Agrotis ypsilon* is an immigrant in Holland. [P. B.]
- Lempke, B. J., "Trekvlinders in 1956" [in Dutch; English summary]. *Ent. Berichten*, vol. 17: pp. 189-196, 217-224, 4 figs. 1957. Report on 26 spp. of migrant Lepidoptera in Holland. [P. B.]
- Lipscomb, C. G., "Continental migrant butterflies in 1957." *Ent. Rec. & Journ. Var.*, vol. 69: pp. 232-233. 1957. Notes from Germany. [P. B.]
- Lœliger, R., "Les premières expériences de notre centre d'observation de Zurich (Suisse) au sujet des migrations de papillons en 1946" [in French]. *Bull. Soc. ent. Mulhouse*, 1948: pp. 27-29, 44-46. Notes on migrations of *Plusia gamma*, *Vanessa* spp., pierids, & sphingids. [P. B.]
- Losada S., Belisario, "Nuevas especies para Colombia localizadas por primera vez por la Sección de Entomología" [in Spanish]. *Rev. Facult. nac. Agron.*, Medellín, vol. 7: pp. 325-332, 3 figs. 1947. Includes record of *Historis acheronta* migrating. [P. B.]
- Mazzucco, Karl, "Österreichische Forschungszentrale für Schmetterlings-wanderungen. Rundschreiben Nr. 5" [in German]. *Zeitschr. wiener ent. Ges.*, vol. 39: pp. 93-96. 1954. Notes on migrations of *Heliothis scutosa*, sphingids, *Pieris daplidice*, & *Vanessa* spp. in Austria in 1953. [P. B.]
- Mazzucco, Karl, "Österreichische Forschungszentrale für Schmetterlings-wanderungen. Rundschreiben Nr. 6" [in German]. *Zeitschr. wiener ent. Ges.*, vol. 40: pp. 140-143. 1955. List of migrants recorded in Salzburg; notes on migrants observed in 1954. [P. B.]
- Mazzucco, Karl, "Österreichische Forschungszentrale für Schmetterlings-wanderungen. Rundschreiben Nr. 7" [in German]. *Zeitschr. wiener ent. Ges.*, vol. 21: pp. 89-95. 1956. Gives numerous records of mass movements of *Pieris* spp. in 1955 in Austria & Bavaria; notes on *Vanessa* spp.; comments on Amanshauser's definition of "migrant." [P. B.]
- Mazzucco, Karl, "Österreichische Forschungszentrale für Schmetterlings-wanderungen. Haus der Natur, Salzburg. Rundschreiben Nr. 8" [in German]. *Zeitschr. wiener ent. Ges.*, vol. 42: pp. 43-45. 1957. Notes on some migrants, especially *Acherontia atropos*, in Austria. [P. B.]
- Miles, Philip M., "Immigrant Lepidoptera observed in Wales during 1953." *Ent. mo. Mag.*, vol. 90: pp. 248-250. 1954. Notes on 9 immigrants, *Phlogophora meticulosa* included, and on phenology of 2 hibernating nymphalids. [P. B.]
- Miles, Philip M., "Immigrant Lepidoptera observed in Wales during 1954 and 1955." *Ent. mo. Mag.*, vol. 93: pp. 184-187. 1957. Includes records of 10 spp. (butterflies, sphingids, noctuids, pyralids). [P. B.]
- Muspratt, Vera M., "Migrations de *Pyrameis atalanta* L." [in French]. *Bull. Soc. ent. Mulhouse*, 1949: pp. 34-40, 44, 61-62. 1949.
- Newman, L. Hugh, "*Nymphalis antiopa*: migrant or stowaway?" *Entomologist*, vol. 88: pp. 25-27. 1955. Indirect evidence for importation of this butterfly into Britain on timber ships from Scandinavia. [P. B.]
- Nordman, A., "The geographical distribution in Europe of the migrations of the Large White, *Pieris brassicae*, and some remarks on their climatological causes." *Notul. ent.*, vol. 34: pp. 99-106, 4 maps. 1954. Introduces some new points of view on the migrations of *P. brassicae* in central Europe and shows in which areas of the Palearctic region extreme climate conditions exclude the occurrence of the species or at least prevent a higher frequency. [W. H.]
- Nordström, Frithiof, "Fjärilvandring" [in Swedish]. *Ent. Tidskr.*, vol. 74: pp. 102-103. 1953. *Gonepteryx rhamnii*; *Celerio lineata livornica*.
- Owen, D. F., "Additional records of insect migration in S. W. France." *Ent. mo. Mag.*, vol. 90: pp. 112. 1954. *Pieris* & *Colias* seen flying south in September. [P. B.]
- Parsons, R. E., "Migration of the butterfly *Appias albina danada*." *Journ. Bombay nat. Hist. Soc.*, vol. 47: pp. 394-396. 1947.
- Penn, George Henry, "Mass flight of *ocola* skippers." *Lepid. News*, vol 9: p. 79. 1955.
- Rauch, Richard H., "Pennsylvania's super-flyway." *Penn. Forests & Waters*, vol. 3: pp. 116-177, 6 figs. 1957. Includes note on *Danaus plexippus* migrating. [P. B.]
- Rothschild, Miriam, "Notes on insect migration on the north coast of France." *Ent. mo. Mag.*, vol. 93: pp. 375-276. 1956. Reports of minor movements of nymphalids & pierids. [P. B.]

- Rudebeck, Gustav, "Some observations concerning migratory movements in *Pyrameis atalanta* L together with some general considerations" [in Swedish; English summary]. *Opusc. ent.*, vol. 16: pp. 49-54, 1 map. 1951. Report on northward migration over SW extremity of Sweden. Notes on significance of insect migration. [P.B.]
- Rzedowski, J., "Nota sobre un vuelo migratorio de la mariposa *Danaus plexippus* L. observado en la region de Ciudad del Maiz, S. L. P." [in Spanish; English summary]. *Acta zool. mexicana*, vol. 2, no. 2: pp. 1-4, 1 map. 1957. Notes on 2 southward flights in San Luis Potosi, in October & December. [P.B.]
- Sevastopulo, D. G., "Field notes from East Africa — VIII." *Entomologist*, vol. 88: pp. 37-40. 1955. Notes on migrations of *Glycesthia creona infida*, *Achea thermopera*, *Libythea labdaca*, *Achea catocaloides*, *Catopsilia florella*. Larvae of *Alenophalera variegata* attacked by termites. List of butterflies at light. Brown form of *Acherontia atropos* larva, unlike other forms, does not feed or egest during daytime. [P.B.]
- Stafford, C. W., "A small migration in Virginia." *Lepid. News*, vol. 10: p. 44. 1956.
- Tanner, Vasco M., "Tortoise-shell butterfly in migration." *Great Basin Nat.*, vol. 13: p. 8. 1953. *Nymphalis californica*, in Utah. [P.B.]
- Teale, Edwin Way, "An apparent migration of the Mourning Cloak." *Lepid. News*, vol. 9: p. 143. 1955.
- Warnecke, Georg, "Wanderfalter in Europa" [in German]. *Zeitschr. wiener ent. Ges.*, vol. 35: pp. 100-106. 1950. General discussion of butterfly migration and of migrant spp. in Europe; notes on information needed. [P.B.]
- Warnecke, Georg, "Besonderheiten der Wanderfalter-Einflüge 1952" [in German]. In Titschack, E., ed., *Deutscher Entomologentag in Hamburg*, 1953: pp. 200-203. Jena: Fischer. 1954. Report on notable flight of *Vanessa cardui* in Germany. [P.B.]
- Warnecke, Georg, "Wanderfalter 1948 in Deutschland" [in German]. *Zeitschr. Lepid.*, vol. 3: pp. 65-71. 1955. Notes on 17 spp. of migrants in Germany. [P.B.]
- Wittstadt, H., "Bericht über den Wanderzug von Weisslingen (Pieriden) in den bayerischen Gebieten im Sommer 1955" [in German]. *Nachrichtenbl. bayer. Ent.*, vol. 5: pp. 12-15, 28-31. 1956. Describes migration of *Pieris brassicae* & *P. rapae* in Donau region, and resulting plague of larvæ in southern Germany. [P.B.]
- Yagi, Nobumasa, "On the emigration of butterflies" [in Japanese]. *New Entomologist*, vol. 1, nos. 3/4: pp. 3-4. 1952.

I. TECHNIQUES

- Harvey, J. K., Improved technique for inflating and mounting insect larvæ." *Canad. Ent.*, vol.89: pp.280-283, 5 figs. 1957. Recommends drying inflated larva over infrared lamp. Describes procedure in removing gut, etc., inflating, and mounting; describes apparatus for making elbow pins on which to mount larvæ. [P.B.]
- Hawkins, John, & J. J. Devitt, "Forecasting hatching levels of the European Corn Borer." *Journ. econ. Ent.*, vol.45: pp.203-209, 2 figs. 1952. Three methods observed, using regression lines, which will forecast the peak of larval hatching with considerable accuracy. [W.C.]
- Hayano, Ikuo, "Reports on the Richard technique" [in Japanese]. *Shin Konchu*, vol. 5, no.4: pp.5-7, 2 figs. 1952. Reaction of female's foretarsi to the stimuli of food-plants is discussed, among others. [T.I.]
- Henson, W. R., "A temperature gradient apparatus for small insects." *Canad. Ent.*, vol.90: pp. 54-59, 3 figs. 1958.
- Hohl, F., "Sujet à traiter: Préparation des chenilles. Croquis de l'appareil à souffler" [in French]. *Bull. Soc. ent. Mulhouse*, 1950: pp. 3-5, 1 fig. Describes technique for inflating larvæ. [P.B.]
- Houyez, P., "Technique: flacons à cyanure" [in French]. *Lambillionea*, vol.55: p.36. 1955. Describes method of making cyanide bottle, using plaster bandage. [P.B.]
- Houyez, P., "Techniques d'élevages" [in French]. *Lambillionea*, vol.55: pp.77-79. 1955. Recommends pierced, used X-ray sheets for walls of rearing cages; nutrient solution for foodplants. Notes on special provisions for pupation, eclosion, etc. [P.B.]
- Iwase, Taro, "Shephard technique for mating butterflies in captivity" [in Japanese]. *Shin Konchu*, vol.5, no.4: pp. 2-4. 1952. Japanese version of Dr. Ford's explanation in his *Butterflies* (1945), with Swynnerton's simpler method. [T.I.]
- Janmouille, E., "Technique: Utilization de pièges lumineux" [in French]. *Lambillionea*, vol.57: pp.28-30. 1957. Note on some light-traps: Rothamsted, Wageningen, & Robinson models. [P.V.]

- Janse, A. J. T., "On the scientific value of type material and its care." *Journ. ent. Soc. southern Africa*, vol.10: pp.175-178. 1948. Recommendations on labelling, deposition, and storage, to keep types both safe and available. [P.B.]
- Kaelin, A., & C. Auer, "Statistische Methoden zur Untersuchung von Insektenpopulationen dargestellt am Beispiel des Grauen Lärchenwicklers (*Eucosma griseana* Hb. = *Semasia diniana* Gn.)" [in German]. *Zeitschr. angew. Ent.*, vol.36; pp.241-283, 423-461, 4 figs. 1954. A study of a population of *E. griseana* used to illustrate sampling methods and analysis of data by modern statistical techniques. [P.B.]
- Koch, Manfred, "Die Tötungsspritze" [in German]. *Ent. Zeitschr.*, vol.59: pp.5-9. 1949. Describes method of killing insects with ammonia-filled syringe. [P.B.]
- Kondo, Shigeki, "Reports on Richard technique" [in Japanese]. *Shin Konchu*, vol.5, no.4: pp.8-10. 1952. Papilionidæ 1, Pieridæ 2, Nymphalidæ 9, Satyridæ 2, Lycenidæ 4, Hesperiidæ 1 succeeded. Nymphalidæ 3, Satyridæ 1, Pieridæ 2 failed. [T.I.]
- de Lesse, H., "Pour des méthodes de récoltes entomologiques pratiques et modernes" [in French]. *Entomologiste* 11: pp.120-123. "1955" [1956]. Indications for practical and modern methods to collect Rhopalocera. [P.V.]
- Leston, Dennis, "The stethoscopic cage: a device for hearing the sounds produced by small arthropods." *Entomologist*, vol.88: pp.188-189, 1 fig. 1955. Describes cage made of celluloid between 2 funnels, connected by rubber tubing to ear pieces. [P.B.]
- Lughofer, Franz, "Köderfang der *Brephos*-Arten" [in German]. *Zeitschr. wiener ent. Ges.*, vol.39: p.181. 1954. Reports taking 2 spp. in daylight at liquid manure. [P.B.]
- Miles, Philip M., "A trap designed to collect insects attracted by 'sugar'." *Ent. mo. Mag.*, vol.90: pp. 86-87, 1 fig. 1954. Trap consists of section of tree trunk surmounted by a plastic canopy and resting in a plastic cone, beneath which is a killing bottle. [P.B.]
- Miller, C. A., "A technique for assessing Spruce Budworm larval mortality caused by parasites." *Canad. Journ. Zool.*, vol.33: pp.5-17, 3 figs. 1955. Describes method: proportion of larvæ parasitized is estimated from samples, and mortality at time of parasite emergence is calculated (to eliminate mortality of parasitized larvæ caused by other factors). [P.B.]
- Miller, L. W., & E. J. Martyn, "A sampling technique for underground grass grubs." *Journ. Austral. Inst. agric. Sci.*, vol.18: pp.110-111, 2 figs. 1952. Technique described for estimating larval populations of the pasture pest, *Oncopera intricata* (Hepialidæ). [I.C.]
- Morris, R. F., "A sequential sampling technique for Spruce Budworm egg surveys." *Canad. Journ. Zool.*, vol.32: pp.302-313, 4 figs. 1954. Describes sampling technique permitting prediction of level of infestation. [P.B.]
- Morris, R. F., "The development of sampling techniques for forest insect defoliators, with particular reference to the Spruce Budworm." *Canad. Journ. Zool.*, vol.33: pp. 225-294, 16 figs. 1955. Deals with objectives, all aspects of planning, sampling, & data evaluation. The methods, designed to give as complete a picture as possible of *Choristoneura fumiferana* populations, deserve application to other insects. [P.B.]
- Morris, R. F., & C. A. Miller, "The development of life tables for the Spruce Budworm." *Canad. Journ. Zool.*, vol.32: pp.283-301, 1 fig. 1954. Describes methods of sampling and analysis permitting development of tables which show mortality and survivorship in all stages, and factors responsible for mortality; methods developed for *Choristoneura fumiferana*. [P.B.]
- Morris, R. F., F. E. Webb, & C. W. Bennett, "A method of phenological survey for use in forest insect studies." *Canad. Journ. Zool.*, vol.34: pp.533-540, 2 maps. "1956" [1957]. Measurement of shoot growth of host plant in different areas gives an indication of phenological differences between these areas, and permits more accurate timing of samples of insect populations. Technique developed in studies on *Choristoneura fumiferana*. [P.B.]
- Ono, Sachio, "My experiments in Richard technique" [in Japanese]. *Shin Konchu*, vol.5, no.4: pp.11-12. 1952. 3 examples of success & equal number of failures. [T.I.]
- Pitman, C. M. B., "Fruit as a bait for moths." *Ent. Rec. & Journ. Var.*, vol.69: pp.6-8. 1957. Notes on effectiveness of rotten pears, in comparison with "sugar". [P.B.]
- Riley, N. D., "A fungicide of entomological interest." *Ent. Gaz.*, vol.5: p.62. 1954. Reports successful mailing of butterflies papered in envelopes dampened with merthiolate; immediate setting was possible after two months in shipment. [P.B.]

- Robinson, H. S., "Prophylactic methods in the rearing of lepidopterous larvæ." *Ent. Gaz.*, vol.1: pp.139-141. 1950. Describes methods of sterile rearing; reports that one commercial disinfectant eliminates losses from disease introduced on foodplant. [P.B.]
- Robinson, H. S., "A new larval detergent." *Ent. Rec. & Journ. Var.*, vol.63: pp.218-219. 1951. Reports successful treatment of diseased larvæ with "T.C.P." disinfectant. [P.B.]
- Robinson, H. S., "The effects of light on night-flying insects." *Proc. Trans. south London ent. nat. Hist. Soc.*, 1950-51: pp.112-113, 1 pl., 6 figs. 1951. Discusses properties of various light sources as they affect insects, especially different spectral ranges visible to humans and to insects; and behavior of night-flying insects under artificial illumination. Mercury vapor lamps are best light sources for attracting moths; a trap with such a lamp set over a funnel divided by vertical vanes is very efficient. [P.B.]
- Robinson, H. S., "The optimum conditions for the occurrence and observation of rare insects." *Proc. Trans. south London ent. nat. Hist. Soc.*, 1951-52: pp 118-125, 2 figs. 1952. Introduces methods of calculating the probability of occurrence of an insect of known rarity in a sample of a given size. Capture of rarities is favored by proper selection of time and place and by technique permitting collection of maximum number of insects; for night-flying Lepidoptera, these conditions are met by use of light traps, especially on warm, moonless nights with high humidity. [P.B.]
- Robinson, H. S., "Mercury-vapour lamp technicalities." *Ent. Gaz.*, vol.4: pp.280-281. 1953. On connecting these lamps, which cannot be used directly on ordinary electric circuits. [P.B.]
- Robinson, H. S., "Mercury-vapour lamp technicalities. No.2—power factor correction condensers." *Ent. Gaz.*, vol.5: pp.111-112. 1954. Method of restoring power lost by necessary use of an impedance. [P.B.]
- Robinson, H. S., & P. J. M. Robinson, "Some notes on the observed behaviour of Lepidoptera in flight in the vicinity of light-sources together with a description of a light-trap designed to take entomological samples." *Ent. Gaz.*, vol.1: pp.3-15, 12 figs. 1950. Considers the most effective light source to be that with the maximum surface brightness (therefore, the minimum surface). Describes a light trap, suitable for collecting living specimens, based on this principle. Noctuidæ and Spingidæ taken in this trap in one summer's collecting are listed by abundance classes. [P.B.]
- Rohlf, F. James, "A new technique in the preserving of soft-bodied insects and spiders." *Turtax News*, vol.35: pp. 226-228, 4 figs. 1957. Larvæ are dehydrated in alcohol or dioxane and left in anhydrous ether for a day or more; they are then heated near a lamp until all ether has evaporated. The vaporising ether expands the specimen. [P.B.]
- Ross, Edward S., *Insects close up*. 81 pp. Berkeley: Univ. Calif. Press. 1953. See review in *Lepid. News*, vol.10: p.57.
- Rozman, Robert, "Notes on techniques." *Lepid. News*, vol.11: p.53. 1958,
- Salt, R. W., "Extent of ice formation in frozen tissues, and a new method for its measurement." *Canad. Journ. Zool.*, vol.33: pp.391-403, 6 figs. 1955. Technique applies to larvæ of *Loxostege sticticalis*, and other insects. [P.B.]
- Schams, Ewald, "Über das Konservieren von Puppen" [in German]. *Zeitschr. wiener ent. Ges.*, vol.42: pp.72-74. 1957. Recommends packing pupal shell with cotton wool and gluing parts back in natural position; method said to be superior to preservation of whole pupæ, though more laborious. [P.B.]
- Singh, M. P., "A note on cutworms and their rearing." In D. K. McE. Kevan, ed., *Soil Zoology*: pp.281-283. London: Butterworth. 1955. Rearing precautions and general biology of these noctuid larvæ. [P.B.]
- Stahl, C. F., "Trapping hornworm moths." *Journ. econ. Ent.*, vol.47: pp.879-882, 4 figs. 1954. Large numbers of adults of the Tobacco Hornworm, *Protoparce sexta*, and of the Tomato Hornworm, *P. quinquemaculata*, were captured in both bait and light traps, but the use of such traps had little or no effect on the general hornworm population. [W.C.]
- Straatman, Raymond, "Notes on methods of collecting Indo-Australian Lepidoptera." *Lepid. News*, vol.9: pp.74-76. 1955.
- Surany, Paul, "Continuous mass rearing of the European Corn Borer in the laboratory." *Biol. Notes Ill. nat. Hist. Survey*, no.37: 11 pp., 7 figs. 1957. Describes various types of containers used, and techniques used for mass rearing of *Pyrausta nubilalis*. Larvæ fed on string beans. [P.B.]

- Swain, H. D., "On stripping and papering insect cabinets." *Ent. Gaz.*, vol.2: pp.183-185, 2 figs. 1951. Useful information on procedure in reconditioning old drawers. [P.B.]
- Symes, H., "Notes on the treatment of hibernating larvæ." *Ent. Rec. & Journ. Var.*, vol.69: pp.208-211. 1957.
- Travassos Filho, Lauro, "Líquido para preservação das estruturas internas de lepidópteros e demais insetos que habitualmente se montam em alfinetes" [in Portuguese; English summary]. *Arq. Zool. Est. São Paulo*, vol.7: pp.439-444, 1 pl. 1950. Recommends killing Lepidoptera by injecting fluid which fixes and preserves internal organs. [P.B.]
- Uhler, Lowell D., "How to make a cyanide killing jar." *Turtlox News*, vol.31: p.30. 1953. Recommends putting plaster in dry and moistening with atomizer. [P.B.]
- Vago, C., "Action du permanganate de potassium comme désinfectant des œufs d'insectes vis-à-vis des viroses" [in French]. *Bull. Soc. zool. France*, vol.79: pp.138-141. 1954. Treatment of eggs with 1% KMnO₄ virtually eliminates virus disease in larvæ. [P.B.]
- Vanderzant, E. S., "Growth and reproduction of the Pink Bollworm on an amino acid medium." *Journ. econ. Ent.*, vol.50: pp.219-221. 1957. Describes artificial diet used. [W.C.]
- Vanderzant, E. S., & R. Reiser, "Aseptic rearing of the Pink Bollworm on synthetic media." *Journ. econ. Ent.*, vol.49: pp.7-10. 1956. *Pectinophora gossypiella* reared for 3 generations. [W.C.]
- Vanderzant, E. S. & R. Reiser, "Studies of the nutrition of the Pink Bollworm using purified casein media." *Journ. econ. Ent.*, vol.49: pp.454-458. 1956. Media with synthetic base successfully used to rear *Pectinophora gossypiella*. Data on requirements given. [P.B.]
- Vestjens, W., "Breeding *Nymphalis io* L. and *Aglais urticae* L. with artificial light" [in English; Dutch summary]. *Ent. Berichten*, vol.15: pp.505-509, 3 figs. 1955. Mating and oviposition took place readily in box lit by fluorescent tubes; 4 successive generations of *N. io* reared in 3 months. [P.B.]
- Wagstaffe, Reginald, & J. Havelock Fiedler, eds., *The preservation of natural history specimens. Volume One. Invertebrates*. xiii + 205 pp. 139 figs. New York: Philosophical Library. 1955. Includes section on Lepidoptera: killing, setting adults, mounting genitalia, and preservation of other stages. [P.B.]
- Waldbauer, Gilbert B., "Freezing: a method for the preservation of insects." *Turtlox News*, vol.33: p.186. 1955. Recommended for specimens to be dissected. [P.B.]
- Weaver, Nevin, & Russell C. Thomas, Jr., "A fixative for use in dissecting insects." *Stain Technol.*, vol.31: pp.25-26. 1956. 5 ml. 40% formaldehyde, 2½ ml. glacial acetic acid, 20 gm. chloral hydrate, diluted to 100 ml. with distilled water; said to harden soft parts, soften cuticular structures, and preserve tissue undistorted. [P.B.]
- Williams, C. B., R. A. French, & M. M. Hosni, "A second experiment on testing the relative efficiency of insect traps." *Bull. ent. Res.*, vol.46: pp.193-204, 2 figs. 1955. Ultraviolet light more efficient than ordinary light, and Robinson light trap superior to Rothamsted model for Macrolepidoptera. [P.B.]
- Wyatt, S. Silver, "Culture *in vitro* of tissue from the Silkworm, *Bombyx mori* L." *Journ. gen. Physiol.*, vol.39: pp.841-852, 3 pls. 1956.
- Wykes, N. G., "The techniques of entomological drawing in water-colours." *Proc. Trans. south London ent. nat. Hist. Soc.*, 1953-54; pp.98-103. 1955. Describes method of painting Lepidoptera. [P.B.]

J. MISCELLANY

- Munroe, Eugene, "Karl Jordan the lepidopterist." *Trans. Roy. ent. Soc. London*, vol. 107: pp. 69-75. 1955.
- Paclt, J., "Obituary. Felix Bryk. 1882-1957." *Entomologist*, vol. 90: p. 192. 1957.
- Patočka, Jan, "Za RNDr. Vladislavem Paškem" [in Czech]. *Acta Soc. zool. Bohemoslov.*, vol. 19: pp. 97-98, 1 fig. 1955. Obituary note with a review of published studies. [J.M.]
- Pfeffer, Antonín, "†Clen korespondent CSAV Julius Miloš Komárek" [in Czech]. *Acta Soc. zool. Bohemoslov.*, vol. 19: pp. 297-305, 1 fig. 1955. Obituary note with a review of published studies. Prof. Dr. Komárek studied problems about harmful Lepidoptera, namely *Lymantria*. [J.M.]

- Rautenberg, L. E., "Beiträge zur Kenntnis alter naturwissenschaftlicher Werke. Beitrag 6" [in German]. *Beitr. Ent.*, vol.5: pp.60-69, 5 figs. 1955. Describes work by Drümpelmann & Friebe, 1806-1814, on fauna of NE Russia; records animals described & figured (including Lepidoptera); reproduces 3 of the fine plates (2 show Lepidoptera). [P.B.]
- Rautenberg, L. E., "Beiträge zur Kenntnis alter naturwissenschaftlicher Werke. Beitrag 9. Karl August Friedrich Harzer als Autor und Illustrator" [in German]. *Beitr. Ent.*, vol.6: pp.180-190, 5 figs. 1956. Information on the rare *Der Kleine Schmetterlingsjäger*, by Harzer (1829) and on the books which he illustrated. [P.B.]
- Rautenberg, L. E., "Beiträge zur Kenntnis alter naturwissenschaftlicher Werke. Beitrag 11" [in German; English & Russian summaries]. *Beitr. Ent.*, vol.7: pp.429-444, 4 figs. 1957. Describes the very rare *Beschreibung und Abbildung schlesischer Insekten, Schmetterlinge*, shown here to be by Carl Richter; lists parts, & Lepidoptera treated & figured. [P.B.]
- Rautenberg, L. E., "Beiträge zur Kenntnis alter naturwissenschaftlicher Werke. Beitrag 12" [in German; English & Russian summaries]. *Beitr. Ent.*, vol.7: pp.609-631, 4 figs. 1957. Describes the *Fauna insectorum Europæ* (1812-1847) published in 24 parts by Ahrens, Kaulfuss, & Germar, and gives an index to it. [P.B.]
- Reiss, Hugo, "Direktor Dr. H. Thomann in Landquart (GB) 80 Jahre alt" [in German]. *Zeitschr. wiener ent. Ges.*, vol.40: pp.212-214, 1 fig. 1955. Biographical note on Austrian lepidopterist, with list of publications and of new species discovered by him. [P.B.]
- Reisser, Hans, "Dipl.-Ing. Hans Kautz†. Ehrenmitglied der Wiener ent. Gesellschaft" [in German]. *Zeitschr. wiener ent. Ges.*, vol.41: pp.241-245, 1 pl. 1956. Obituary of Austrian lepidopterist who specialized in variation of *Pieris napi* & *P. bryoniae*. [P.B.]
- Reisser, [H.], "Dr. Hermann Ronniger†" [in German]. *Zeitschr. wiener ent. Ges.*, vol. 41: pp.210-212, 1 fig. 1956. Obituary & list of publications of Austrian lepidopterist. [P.B.]
- Reisser, [H.], Leo Schwingenschuss†. Ehrenmitglied der Wiener ent. Gesellschaft" [in German]. *Zeitschr. wiener ent. Ges.*, vol.41: pp.270-272, 1 pl. 1956. Obituary of Austrian entomologist. [P.B.]
- Reisser, [H.], "Ludwig Osthelder†. Korrespondierendes Mitglied der Wiener ent. Gesellschaft" [in German]. *Zeitschr. wiener ent. Ges.*, vol.41: pp.212-213. 1956. Obituary of German lepidopterist. [P.B.]
- R[eisser, H.], "Robert Spitz†. Ehrenmitglied der Wiener ent. Gesellschaft" [in German]. *Zeitschr. wiener ent. Ges.*, vol.41: pp.245-246, 1 pl. 1956. Obituary of Austrian lepidopterist. [P.B.]
- Reisser, [H.], "Dr. Egon Galvagni†, Ehrenmitglied der Wiener ent. Gesellschaft" [in German]. *Zeitschr. wiener ent. Ges.*, vol.42: pp.129-131, 1 pl. 1957. Obituary of Austrian lepidopterist. [P.B.]
- Remington, C. L., "How many butterfly species in a day?" *Lepid. News*, vol.9: pp.77-78. 1955.
- Robinson, H. S., "Some suggestions on the examination of an ethical and a practical problem." *Ent. Gaz.*, vol.3: pp.45-51. 1952. Considers ethics of killing insects. Denies that light-trap collecting seriously reduces moth population. [P.B.]
- Roepke, W., "Enkele aantekeningen over het werk vaon Pieter Cramer en over zijn persoon" [in Dutch; English summary]. *Ent. Berichten*, vol.16: pp.22-25. 1956. Bibliographical notes. Gives dates of publication of parts of Cramer's *Papillons exotiques*. [P.B.]
- Ronniger, H., "Ing. Anton Ortner†" [in German]. *Zeitschr. wiener ent. Ges.*, vol.39: pp.178-179, 1 fig. 1954. Obituary of Austrian microlepidopterist. [P.B.]
- Rothschild, Miriam, "Karl Jordan: a biography." *Trans. Roy. ent. Soc. London*, vol. 107: pp.1-9. 1955.
- Schaefer, L., M. Teyreaux, & M. Coquillet, "Henri Testout, entomologiste" [in French]. *Bull. mens. Soc. linn. Lyon*, vol.20: pp.73-78. 1951. Obituary of French lepidopterist; list of his publications and of new entities he described. [P.B.]
- Seitz, Adalbert, & Elli Franz, *Als Naturforscher durch alle Erdteile*. 315 pp., 78 figs. Frankfurt am Main: Kramer. 1951. Collected accounts of Seitz's collecting trips; many Lepidoptera mentioned. [P.B.]