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 ANNUAL SUMMARY IN THIS ISSUE...

This Summary is one of the best. All coordinators got their reports to me in good time (March 27, and most of them earlier) and they were well written, which I appreciate very much as I cannot be familiar with conditions all over the area. I was a bit disappointed at the small number of reports received from my own Zone, only 6. Except of course, for Zones VIII and IX, from 15 to 31 reports came to the Coordinators, with a maximum of 31 for Zone I. The total was 135. ---Editor.

## SUMMARY OF MIGRATION

There is more information than usual in this Summary about the migration of Vanessa cardui and Danaus plexippus, hence a summary of this migration is given here:

V. cardui. --Migrating towards the NW in mid-March in Sonora, Mexico, but curiously no reports of this species from Arizona, New Mexico or Nevada. Migrating north in California, starting in San Diego Co., March 2 and reaching San Francisco Bay area March 27. Appearing in Colo. (Denver and vicinity) in early June. None reported north of these states. In the East, appeared in Missouri March 30 to early May; Iowa, April 10, maximum May 2-5 (see Iowa report for details); reached S. Minn. by April; N. Illinois (Mercer Co.), May 5, flying NNE; abundant in Kentucky, Indiana and Ohio, but no migration reported; also abundant in New York and Ontario; some migration, N. Y., October.

D. plexippus. --Reached N. Minn. and S. Ontario (Sudbury); SW migration along N. shore Lake Ontario September; "thin" migration in Ohio, Sept. 21, going SW between Wellington and Akron. Further west, plentiful in Indiana, Illinois and Iowa; southern migration noted Sep. 25, Fort Wayne, Ind., late August and early Sept., Joliet, Ill.; and peak Sep. 22, Iowa. Then T. S. Dickel reported that, while travelling from Jackson, Miss. to and beyond Panacea (Wakulla Co.) Fla., Oct 27-28, he saw monarchs every 100 yards or so, wherever the highway was near the Gulf, but very few if it was not. Also, on Oct. 20, thousands in Walton Co., coming in from the Gulf, flying in a northerly direction, but only near the water. He suggests the use of a helicopter to find out where they are going (would the downdraft change their course? -Ed.); and maybe even a fall meeting of the Society at Fort Walton Beach with major objective of studying these flights.

## NOTICES....

Lepidopterists' Society members may use this section free of charge to advertise their offerings and needs in Lepidoptera. The Editors reserve the right to rewrite notices for clarity or to reject unsuitable notices. We cannot guarantee any notices but all are expected to be bona fide. Notices should be sent to the Editor and should reach him at least two weeks in advance of publication date for any particular issue of the NEWS.

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FOR SALE: Private collection including 20 prs. various Ornithoptera, approximately 500 specimens from Russia, Japan, New Guinea, Africa, Malaya, Australia, Solomon Ids., including many Charaxes and Papilios. Offers wanted for the lot ONLY. Mrs. R. H. Morgan, 108 Titirangi Rd., New Lynn, Auckland 7, NEW ZEALAND.

WANTED: Callosamia angulifera cocoons this winter. Will pay \$10 per dozen or can trade for Northwest material. Urgent that I get this species this winter. Mike Van Buskirk, 918 McMahon Hall, Univ. of Washington, Seattle, Wash., 98105.

FOR SALE: Praying mantis egg cases (Paratenodera sinensis) at 50¢ each, \$5 per dozen. Please add 20¢ extra for postage. Postage paid on volume orders of 100 or more. Calvin Hart Myers, Jr., 11 Ulysses St., Parsippany, N. J., 07054, USA.

FOR SALE: Papered Formosan butterfly specimens, moths specimens, beetle specimens and other insects; colored natural botanical ferns, seashells for collections, gift shops and decorations. Mrs. Chang Pi-Tzu, Box 873, Taipei, Taiwan, FORMOSA.

FOR SALE OR EXCHANGE: Ova of C. promethea fertilized by C. angulifera, \$1.25 per doz. (minimum 2 doz.) Will take ova of Citheronia regalis or any stage of C. sepulchralis; also papered material of H. columbia, Papaipema cerina, Parapemea buffaloensis, Graptolitha oriunda, Catocala meskei, C. semirelictata, C. junctura, C. illecta, C. miranda or Sphinx luscitiosa. Dale F. Schweitzer, 113 Deepdale Rd., Strafford, Wayne, Pa., 19087.

CORRESPONDENCE WANTED: with anyone who has seen wild hybrids of Callosamia angulifera and promethea or has reared them. Dale F. Schweitzer, 113 Deepdale Rd., Strafford, Wayne, Pa., 19087.

WANTED: North, Central and South American Lepidoptera in exchange for other Lepidoptera from the same regions. Main interests are Morphos, Papilios, Caligos, Pieridae and Saturnidae. Q. F. Hess, 11 Esgore Dr., Toronto 12, Ont., CANADA.

WILL IDENTIFY and return adult specimens of Olethreutidae collected in Michigan, Wisconsin and Minnesota; also will segregate olethreutids from your other micros. Preparing area guide to the family. Wm. E. Miller, North Central Forest Sxpt. Sta., Folwell Ave., St. Paul, Minn. 55101, USA.

WANTED: Wild collected live cocoons of H. cecropia and H. gloveri, from the U. S. or Canada. Will buy, trade other U. S. pupae. Jeffery C. Gilbert, 116 Augusta Court, York, Pa., 17404, U.S.A.

FOR EXCHANGE OR SALE: Over 900 different kinds of butterflies and larger moths from around the world, mostly from the tropics. Guaranteed perfect, with full data. Birdwings from \$2 (brookiana), most Morphos 75¢, Papilios from 15¢. Send 25¢ for list, refundable on first order, or send your own detailed list of material for exchange. David W. Bouton, Box 27, Ouaquaga, N. Y., 13826, USA.

WANTED FOR CASH OR GOOD EXCHANGE: (North American material): Papilios viceroys, lunas, prometheas, other Saturniidae (and living cocoons), Nymphalidae, etc. We offer first quality AI material, Brazilian Saturniidae, Sphingidae, also Papilio weiskei, Ornithoptera urvillianus, Poseidon victoriae, Brookeana albescens, Morphos and one fine pair of C. alexandrae for S. A., Australian, etc. Will accept 10 to 20 or more of each common of the following: Catagramma cynosoura, Pastazza, Heliconius transiens, xenocles, didamia, primularis, athis, cyrbia, Delias weiskei, harpolyce, eltis, nipelti, mysis, Dismorphia proximoe, Papilio trichopus, Athena peteeus, Euides surdus. Also others of the above families; but only first-quality material in triangular paper envelopes wanted, with data, for cash or EXCHANGE. Would like to hear from collectors in Indonesia, especially Sumatra, Celebes and the Philippines who collect or exchange. A. Glanz, 2903 Long Beach Rd., Oceanside, L. I., N. Y., 11572, USA

BOOKS FOR SALE: BUTTERFLIES AND MOTHS, Viking Press, 1955, 126 p., 40 color pl., mint, \$7; BUTTERFLIES OF SOUTH AFRICA, D.A. Swanepoel, 1953, 318 p., 17 color pl., mint, \$10; THE BUTTERFLIES AND MOTHS OF EUROPE, W.F. Kirby, 1903, 432 p., 18 color pl., used, \$15; BEAUTIFUL BUTTERFLIES, J. Moucha, 1964, 130 p., 56 color pl., mint \$4; THE FASCINATING WORLD OF BUTTERFLIES, Andover House, 1956, 92 p., 24 color pl., 48 B&W, good cond., \$3 BUTTERFLIES (Europe), Geo. Warnecke, 1964, 128 p., 42 pl., 31 color, mint, \$2; COMMON MALAYAN BUTTERFLIES, R. Morrell, 1960, 64 p., 20 color pl., mint, \$2; BUTTERFLIES OF JAPAN, T. Esaki, 1964, 152 p., 70 color pl., mint, \$5; BUTTERFLIES OF FORMOSA, M. Okano & J. Ohkura, 1959, 94 p., 64 color pl., mint, \$5; AUSTRALIAN BUTTERFLIES, I.F.B. Common, Pocket Guide, 1964, 131 p., 58 pl., 4 in color, good cond., \$1. R. L. Dunn, Box 468, Sedona, Ariz., 86336, USA.

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#### RESEARCH NOTICE

WANTED: Living material of Pap. troilus ilioneus (Florida) and P. palamedes for genetic research; ova or female imagines preferred; good prices paid. If interested, please write for shipping instructions. Dr. D. A. West, Department of Biology, Virginia Polytechnic Institute, Blacksburg, VA, 24061.

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#### NEW MEMBERS

LASTOCHKIN, D. S.	Poste Restante, Likachev's Blvd. 2, Flat 13, Kiev, Ukraine, U. S. S. R.
SELVATICO, Dr. Ing. Riccardo	San Lio 5613, Venezia, ITALY
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ZAUGG, Paul	Scharenmoos-Strasse 55, 8052 Zurich, SWITZERLAND

## NEW ADDRESSES

DELAFIELD, Hardin T.	Box 717, South Lake Tahoe, Cal., 95705, USA
DUNLOP, Dr. David J.	Lab. de Geomagnetisme, 4, Av. De Neptune, 94 - Saint-Maur-Des-Fosses, FRANCE
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STERNITZKY, Robert F.	Star Rt., Box 96, Hereford, Ariz., 85615, USA

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## NEWS NOTES

1969 ANNUAL MEETING - - An outstanding program, June 14-17, Michigan State University, East Lansing. Contributed papers and symposia on Microlepidoptera and on Sensory Mechanisms and Communication in the Lepidoptera. The University Entomology Museum, one of the largest collections in North America, will be open to members. Lepidoptera collection is world-wide, particularly strong in material from Upper Mid-West and northern Europe and Rhopalocera of the Orient, especially India.

Plan to attend this stimulating meeting; return the registration form (in the 15 January NEWS) soon to aid program committee in its plans. Registrants will receive maps and information on accommodations. A program will be mailed to all members in May. For more information write Julian P. Donahue, Dept. of Ent., Mich. State Univ., East Lansing, Mich., 48823, USA.

ONE DESIRABLE SPECIES-- W. L. Swisher and A. L. Morrison reported on Speyeria nokomis and its ssp. apacheana for the Summary, but the report covered localities in two Zones, and it can be understood better if given in one piece. At Mono Lake and Gull Lake, Calif., Aug. 15, they took 19 specimens, all typical apacheana. At Leeds, Washington Co., Utah, some 300 mi. E of Mono Lake, Aug. 16, they took 33 specimens, of which 24% were intermediates between apacheana and nokomis. At Glendale, Kane Co., Utah, 40 mi. E of Leeds, Aug. 17, they took 54 specimens, of which 17% were intermediates and 15% were nokomis. At Vernal, in NE Utah, some 275 mi. NE of Glendale, Aug. 19, they took 45 specimens, of which 20% were intermediates and 44% were nokomis. And in Montrose Co., Colo., about 140 mi. S and a bit E of Vernal, they took 5 specimens, all nokomis. (F. Martin Brown, in COLORADO BUTTERFLIES, says that nokomis is distinguished from apacheana by having a darker disc on the underside of the hind wings). The specimens classed as "intermediates" by Swisher were all males; 60% of the apacheana were males and 90% of the nokomis were males. Of course, the relative percentages of males and females is dependent on the time of year. While these numbers are not large enough statistically to prove anything, they do show a trend from apacheana in California to nokomis in Colorado.

MOTHS AND HOW TO REAR THEM:-- Paul Villiard, a member of the Society, reports that he has written a book on this subject which will be released in April. It is described as "a manual of rearing, giving a detailed discussion of the rearing requirements of more than 80 species, with a quick reference appendix of foodplants for each, and another appendix illustrating terminal winter twigs for indoor forcing in the spring." The author says "the book is the product of nearly 9 years of work." The "vital statistics" are: 224 pp., more than 300 photographs, index, size 7x10, published by Funk & Wagnalls, 380 Madison Ave., New York, NY, 10017, USA; price \$7.95. Obtainable through local bookstores or direct from the publisher. Sounds like a very useful book for the rearers of moths---Ed.

NORTH AMERICAN ANNUAL SUMMARY FOR 1969

ZONE I: ARIZONA, NEVADA, CALIFORNIA. Coordinator: Fred Thorne. Contributors: D. Bauer, R. Breedlove, R. Brown, T. Bunch, C. Callaghan, H. Delafield, J. Emmel, C. Ferris, R. Funk, R. Gardner, R. Garrison, R. Gattelle, W. Hedges, C. Henne, P. Herlan, K. Hughes, J. Lane, R. Langston, R. Leuschner, J. Mori, D. Murphy, P. Opler, J. Powell, P. Ritchie Jr., K. Roever, A. Rubbert, J. Scott, O. Shields, R. Stanford, K. Tidwell, and R. Wielgus.

MIGRATIONS: There was an enormous northerly migration of Vanessa cardui in California (curiously unreported from Ariz. or Nev.) which began in San Diego Co. 2 Mar., reached Tulare Co. by 16 Mar., and Contra Costa Co. by 27 Mar. Bunch reported a slight westerly migration in Siskiyou Co. 10-14 July. Numerous valuable reports are on file for use by interested persons.

ARIZONA: Winter precipitation was good followed by good spring collecting (Garrison). Summer and fall rains average, collecting normal.

MOTHS: Oak Cr. Canyon vic. Sedona 27 Apr., 170 moths incl. Acronicta edolata, Hydriomena n.sp. 40 spec., also H. catalinata and sperryi. Madera Can. poor, 28 Apr., but 5 Eupithecia biedermannata taken, Pena Blanca L., Sta. Cruz Co. 29 Apr., 27 Hemileuca sororius hualapai. Hualapai Mt. Park, Mojave Co., "fantastic", 22-23 June, 300 moths incl. several spp. Catocala. Greer, White Mts., 8000', 26-27 June, "great", 360 moths incl. Hyphantria aspersus and Sabulodes constans (all Leuschner). Dictyosoma elsa, Holbrook, 6 Aug.; Hyloicus dollii, Sedona, 4 Aug.; and Haemorrhagia senta, Flagstaff, 22 Mar. and 13 July (all Funk). Early June, Hualapai Mt. Park, Epinotia cercocarpana, (western extension); Oak Cr. C., Hystricophora vestaliana, prob. new Ariz. record; Mingus Mt., Anopina eleonora, (western extension) and Pine, Gila Co., Epinota nigralbana, new Ariz. and southern extension. (all Powell and Opler). Pena Blanca L., Automeris pamina enormous numbers, 26-27 July (Ritchie and Wielgus). Plataea calcaria, 19 Feb.-4 May, again Oct. 25, Phoenix (Wielgus). Adelocephala sinaloensis and Zeuzera nr. pyracmon, Pena Blanco L., late July (Roever).

LIFE HISTORIES: Himmacia huachucensis, Psilocorsis arguta and P. amydra reared on Quercus hypoleucoides; and Prodoxus ochrocarpus on Yucca schotti, all ex larvae Madera C. 6 June (Powell and Opler). Anthraerea poly. oculatea reared on Quercus gambeli Flagstaff (Funk). Doa ampla reared from Euphorbia lurida, Maricopa Co., emerged April, field captures Oct. indicate at least two broods; Agapema galbina larvae and cocoons on Sapium biloculare (Wielgus). Cith. splendens reared on Gossypium thurberi, and Roth. jorulla on Ligustrum vulgare by Ritchie.

BUTTERFLIES: (C-Callaghan and Tidwell, F-Funk, Fe-Ferris, G-Garrison, H-Hughes, R-Ritchie, Ro-Roever, S-Scott, and W-Wielgus.)

Ag. freemani, Hillside, and in Agave deserti 24 mi. SE Wickieup, 8 Sept., Yavapai Co. (F). Meg. yuccae ssp., Camp Cr., Maricopa Co., 7 Aug. (G). Ambly. cassus and exoteria, Madera C. 24 June; fimbriata and cassus, Rustler Park 22 June; aenus, Catalina Mts. 24 June (all S), and aenus, Sycamore C., Yavapai Co. 31 July (F); and eos, Tumacacori 31 Aug. (H). Atryt. pittacus, Peppersauce C., Pima Co. 31 Mar. (W); python, Hualapai Mt. Park 26 June (S); and o. edwardsi, Tumacacori 31 Aug (H). Polites s. chusca, Somerton, Yuma Co., late Apr. (Ro); 31 Aug. (H). Hesp. uncus, 30 mi. NW Flagstaff 16 June (W); p. williamsi, Tumacacori. Yvretta carus, Sedona 16 Apr. (F); and rhesus, 30 mi. NW Flagstaff 16 June (W). Oarisma garita and Celotes nessus, Ajo Mts., Pima Co. Mar. (C), and nessus, Sedona 16 Apr. (F), and Madera C. 1 Sept. (H). Piruna polingi, White Mts. below 8000', Navajo Co. early July and early Aug. (F). Helio. domicella, Ajo Mts. Mar. (C). Pyrgus o. philetas, Tumacacori 31 Aug. (H). Eryn. j. meridianus, 30 mi. S Flagstaff 23 Mar. and Cogia c. mochus, Ruby, Sta. Cruz Co. 12 Apr. (F). Achalarus casica, Tumacacori 31 Aug. (H and Rustler Park 22 June (S)). Pyr. a. arizonae ovipositing on oak, Ramsey C., Huachuca Mts. 7 Aug. (Fe). P. p. asterius, 30 mi. S Flagstaff incl. melanic male 21-23 Mar. (F & G); bairdii, 5 mi. S Springville, Apache Co., 23 July, ovipositing on Artemisia dracunculus there and at Wupatki Nat. Mon., Coconino Co. 27 Aug. (Mori); common at Portal, Cochise Co. 21 Aug. (Fe). Neophasia terlootii abundant Ramsey C., Huachuca Mts. 27 Oct. (R), first brood Rustler Park 22 June (S). Pieris napi mogollon, Alpine, Apache Co. 13 Aug. (Fe), and White Mts. July and Aug. (F). Colias alexandra, Alpine 27 Aug. (Fe). Phoebus agarithe, Phoenix and Cordes, Yavapai Co. Apr. (Ro). Anth. pima, Hwy 67, 45 mi. N Phoenix 3 Mar. (F), also numerous desert records by several; s. sara Ajo Mts. Mar. (C), Kitt pk., Pima Co., second brood common 11 Apr. (F); s. inghami second brood common 7 Apr., Camp Cr., Maricopa Co. (G). Apod. m. mejicanus, Madera C. 1 Sept. (H). Eroria quaderna, White Mts. early July (F). Strymon critola, Patagonia mid-May (Ro); s. sarita late Apr., Somerton, Yuma Co. (Ro), and Phoenix 31 May (W); c. istapa, Yuma 14 Apr. (F and Ro); o. ilavia, Hualapai Mt. Park 22 June (Leuschner), also abundant 26 June (s). Lyc. r. sirius abundant White Mts., Apache Co. (several). Lim. hybrid wiedemeyerii x a. arizonensis, 3 mi. NE Pine 31 Aug. (Fe); obsoleta common 3 mi. S Patagonia 2 Sept. (Mori). Jun. c. nigrosuffusa, Chiricahua Mts. 21 June, Patagonia Mts. 23 June (S), Chiricahua Mts. 21 Aug. (Fe), and Tumacacori 31 Aug. (H). Pol. faunus and hylas, White Mts. July, Aug. (F & Fe). Anaea andria 6 mi. N Clarksdale 7 Apr. (G). Euph. a. alena, Walnut C., Lake Mary, Coconino Co. 19 May (F & Ro).

Spey. n. nitrocris 14-27 Aug., 2 mi. NW Alpine and 8 mi. E McNary, and 3 mi NE Pine 31 Aug. (Fe); m. luski and a. byblis 8 mi. E McNary 13-27 Aug. (Fe), and Ditch Camp 11 Aug. (W). Wielgus' search for coerulescens was negative in the Huachuca Mts. Sept. 1 & 2 altho suitable wet meadows with violets were found incl. Brown's (J. Lep. Soc. 19:114) in Sunnyside C. just below Copper Glance Mine, 6800'. Also negative was Mt. Lemmon 21 Sept. where Cascade Spr. 8900', and others have been tapped and wet meadows are gone.

LIFE HISTORIES: Mitoura spinetorum ex larvae on Arceuthobium campylopodum, S Grand C. June (G). Lyc. r. sirius ovipositing on Rumex, Maverick, White Mts. July (F). Lim. a. arizonensis larvae on Populus fremonti, Kitt Pk., Pima Co. 11 Apr. emgd. 24 Apr. -1 May (F).

NEVADA: (B-Bauer, C-Callaghan and Tidwell, E-Emmel and Shields, H-Herlan, P-Powell and Opler, S-Scott).

MOTHS: Oncocnemis tenuifascia, Mt. Rose 6500' plus over 100 spec. 26-29 Aug. (Leuschner). Eucosma spaldingana, Lida Summit, Esmeralda Co.; E. canariana, caniceps and morrisoni; Acleris robinsonana; Croesia albicomana; Pandemis pyrusana and Cerostoma delicatella, all Currant Cr., Nye Co. Argyrotaenia coloradana, Allononyma vicarialis, Kingston C., Toiyabe Mts., Lander Co.; Eana subargentana and Clepsis virescana, Big Cr., Toiyabe Mts., all 20-23 July (all P). Pseudohazis washingtonensis, Carson City 4 Sept.; Dysochemis belladonna, N side Reno 9 Apr.; and Behrensia bicolor, Glenbrook, Douglas Co. 4 May (all B).

LIFE HISTORIES: Cerostoma walsinghameiella reared from larvae on Purshia tridentata 30 May, Washoe Co.; Eucosma metariana r. f. larvae in roots of Viguiera multiflora nev., 20 July, Lida Summit; Synnoma lynosyrana r. f. larvae on Gutierrezia, Nye Co. 20 July and Allononyma vicarialis larvae, pupae, and adults abundant on Betula occidentalis July 22, Toiyabe Mts. (all P). Malacosma fragile larvae abundant on Desert Peach, chokecherry, and currant at type loc., Storey Co. 16 May (B).

BUTTERFLIES: Ochl. yuma 2 mi. N Caliente, Lincoln Co. 6 Sept. and Pyrg. scriptura 11000'. Mt. Charleston, Clark Co. 24 June (E). Inc. fotis and Call. comstocki, 5 mi. W Goodsprings, Clark Co. 23 Mar. (C), also Hwy. 3 nr. Cal. line, Esmeralda Co. 6 May (B); lemberti abundant N side Reno 9 Apr. (B). Lyc. arota "incredible abundance" Toiyabe Mts. 22 July (S and P). Hem. isola, Snake Mts., White Pine Co. 22 June (H). Phil. e. dammersi, 9 mi. S Caliente, Lincoln Co. 6 Sept. (E). Pap. indra, Humboldt Mts. Pershing Co. 15, 23 June (H). Col. a. edwardsi, 5 mi. N Virginia City 28 June (Mori). Anth. sara gynandromorph, Daggett Cr., Douglas Co. 28 Mar., s. inghami, Lida Summit 6 May (B). Euch. hyantis, Granite Pk., Washoe Co. 14 June (H). Lim. obsoleta, Overton, Clark Co. 1 Oct. (B). Adelpha b. eulalia, Lehman Cr., White Pine Co. late June (Doyen and Manion). Mel. pola, 9 mi. S Caliente, Lincoln Co. 6 Sept. (E). Euph. a. morandi, Mt. Charleston 24 June (E); nubigena, Rose Knob, Carson Mts., Washoe Co. 24 July (H); veazieae, Granite Mts, Washoe Co. 31 May (H), and 10 June (B). Spey. m. artonis, e. utahensis, z. cynna, and c. snyderi, all Angel L., Elko Co. 15 July (H), and cynna, Toiyabe Mts. Aug. (E and Hedges); n. apacheana, Sweetwater Mts., Lyon Co. 8 Aug. (H). Neo. r. stretchii, Buckhorn Mt., Esmeralda Co. 4 July (B). Eupt. dorothea, 9 mi. S. Caliente 6 Sept. (E) and Coen. ochracea, Toiyabe Mts. 21 June (H).

LIFE HISTORIES: Meg. yuccae ssp. larvae in Yucca baccata, Spring Mts., Clark Co. 30 Sept. (B), and in Y. brevifolia 3 mi. SE Lida, Esmeralda Co. 2 July (E). Apod. m. deserti larvae in Eriog. inflatum, Searchlight, Clark Co. 1 Oct., emgd. Oct.-Nov. (B). Hab. grunus r. f. Quercus chrysolepis x Q. vaccinifolia, Incline Village, Washoe Co. 30 June (P). Mel. alma larvae on Castilleja, Virginia foothills, Washoe Co. 9 Apr. and acastus larvae on Chrysothamnus viscidiflorus, Carson City 14 May (B).

CALIFORNIA: 1968 preceded by wet winter, spring dry and early, summer early, fall poor on deserts.

MOTHS: (B-Bauer, H-Henne, La-Langston, Le-Leuschner, P-Powell and Opler.) Fernaldella fimetaria and Heliosea cresina, Panoche Cr., Fresno Co. 4 Mar.; Nannobotys commortalis, 17 mi. S Paicines, San Benito Co.; Oncocnemis ragani, Paso Robles, S. L. Obispo Co. 25 Apr.; Cerostoma maculatella-angelicella abundant Valyermo, L. A. Co 1 May; Petrova sabiniana, Sonora Jct. (where no Pinus sabiniana), Mono Co. 8 July; Symmoca signatella, Bishop, Inyo Co. 9 July; Aphanis deceptana, new Cal. record, Mono L. 11 July; Eucosma palpana, Sonora Pass, Mono Co. and E. spaldingana, new Cal. record, Westgard Pass, Inyo Co. both 19 July; Argyrotaenia cockerellana, Cedar Pass, Modoc Co. 23 July. On 31 Mar., 1 Apr. some 90 spp. were found on Sta. Catalin I. incl. about 20 new for there. (all P). Autographa pasiphaena and Feralia deceptiva 20 Mar., and Platypolia contadina Oct. Nov., Angwin, Napa Co. (Delafield). Pterotaeta n. sp., Pearlblossom, L. A. Co. 29 May; Lasiestra benjamini, Tom's Place, Mono Co. 15 June; Oncocnemis wilsonensis second brood, Pinyon Crest, Riverside Co. 17 Aug.; O. mirificalis, hayesi, and pudorata, Mt. Pinos, Ventura Co. 8 Sept.; and many other good records (all Le). Proserpinus clarkiae and Annaphila spila, Walter Spr., Napa Co. 7 Apr. (La). A. lithosina, Diarisia vagans, Gnopacla latipennis, El Dorado Co. 20 May (B).

Catocala bengamani, N. Y. Mts., San Bern. Co. June (H). Calosaturia walterorum, 1 mi. W Sweetwater L., San Diego Co. 3 Mar. (Thorne). Powell and Opler spent 150 days in 51 counties, reared 240 spec. --surely a record!-- about 90% micros.

**LIFE HISTORIES:** Annaphila casta reared from Mimulus mochatius, Plantation, Sonoma Co.; A. lithosinia r. f. M. guttatus, Del Puerto C., Stanislaus Co. and A. miona r. f. M. mochatius, Mather, Tuol. Co. (all H). Powell and Opler supplied life hist. info. on about 20 spp., (on file).

**BUTTERFLIES:** B-Bauer, E-Emmel and Shields, He-Henne, Hu-Hughes, Ln-Lane, Lg-Langston, M-Murphy, P-Powell & Opler, S-Scott.

P. melane, Briceburg, Mariposa Co. 5 May (Ln), and nr. Kenwood, Sonoma Co. 18 May (E). Hesp. miriamae, common Mt. Star nr. Mono Pass 3 Aug. (S); lindseyi, 1 mi. E Mad R., Humboldt Co. 5 July (Hu); pahaska, N. Y. Mts, San Bern. Co. 23 June (E). Eryn. pernigra, nr. Hopland, Mend. Co. 13 Apr. (M), lilius, Gold L., Sierra Co. 30 June (S). U. proteus, San Diego 4 Apr. (Gatrelle). P.b.brucei, Onyx Pk. 9100' 15 June, and ex larva 26 July, both San Bern. Mts. (Breedlove, Mori); r. clarki nr. Banner, San Diego Co. 24 Feb. and multicaudata, Prov. Mts. 4 May (Breedlove); r. ammoni, Los Gatos, Sta. Clara Co. 2 May & 8 Aug. (Gardner); e. albanus enormous nos. nr. Kyburg, El Dorado Co. 22 June (M); cresphontes common Brawley, Imperial Co. 9 June (Mori). Neo. m. tau, Plantation, Sonoma Co. 29 June (Lg). Apod. m. tuolumnensis, Hetch-Hetchy, Yosemite II Aug. (S); m. nr. dialeuca, Sugarloaf 8000', San Bern. Mts. 26 May (Ln). Mit. johnsoni, Gold L., Sierra Co. 30 June (S); n. muiri, Del Puerto C., Stanislaus Co. (Lg). Inc. fotis, San Bruno hills, San Mateo Co. 15 Mar. (Stanford). Stry. a. auretteorum, Chowchilla Mts., Mariposa Co. 16 June (Ln). Call. lemberti common Kaiser Ridge 10000', Fresno Co. (Ln), and Camp Richardson 6200', Eldorado Co. 7 June (B). Pleb. emigdionis, Lower Haiwee Res., Inyo Co. 5 July, Multi-brooded----, also Ventura Co. 13 July (both E); a. lutzi, Prov. Mts. 30 May (Hu). Phil. b. bernardino NE record, Wyman Cr., White Mts., Inyo Co. 2 July (E); r. elvirae, Kingston Mts., San Bern. Co. 7 Sept. (E); sonorensis, Placerville, El Dorado Co. 26 Feb. (B), and sonorensis new ssp., Briceburg, Mariposa Co. 4 May (Hu & Ln); speciosa, Quatal C., NW Ventura Co. 29 Apr. (P). G. I. columbia nr. Auburn, Placer Co. 23 Mar. (Lg). C. a. cinerea and Lim. b. eulalia, Prov. Mts. 30 May (Hu). Chlos. neumoegenii N record 20 mi. N Bishop, Inyo Co. 26 Mar. (B). Mel. I. daviesi, Briceburg 4 May (Ln); alma, Gilbert Pass, Inyo Co. 25 Mar. (B). Euph. e. wrightii 1 mi. W Sweetwater L., San Diego Co. 25 Feb -27 Mar. (several). Spey. z. behrensi, Anchor Bay, Mend. Co. 4 July (Hu). Oen. ivallda, Mt. Tallac nr. L. Tahoe, a few spec. in an even numbered year(M).

**LIFE HISTORIES:** Euph. e. bayensis on Collinsia heterophylla; Mel. pola on Solidaga; Apod. m. mormo and Phil. e. tildenii on Eriog. I. nudum, all Del Puerto C., Stanislaus Co. Apod. m. cytherea on Eriog. wrightii, San Gabriel Mts., L. A. Co. Lyc. heteronea on Eriog. latifolium, Bodega Bay, Sonoma Co. Call. viridis on E. I. auriculata and Inc. fotis ssp. on Dudleya, both San Bruno hills, San Mateo Co. (all He). 40 immatures Pap. i. martini, Gilroy C., Prov. Mts. 4 May (Hedges). Atl. halesus 420 pupae in 1 sq. ft. in litter under a cottonwood nr. Corona, Riverside Co. 10 Oct. (Mori). Poly. o. oreas larvae on Ribes divaricatum nr. Duncan Mills, Sonoma Co. and f. rusticus larvae on Rhododendron occidentale, several locs. Sonoma and San Mateo Cos. in Apr. and May (Emmel). Stry. a. auretteorum r. f. Quercus wislizenii 10 mi. E Redding, Shasta Co. 20 Apr.; Inc. iroides r. f. Chlorogalum pomeridianum, Nevada Co. 3 July '67 emgd. Apr. May; P. acmon r. f. pods of Astragalus lentiginosus, Kern Co. and E. amyntula in pods of A. douglasii, S. L. Obispo Co. C. echo r. f. Lotus scoparius dendroides, Catalina I. (all P).

**ZONE II: PACIFIC NORTHWEST, BRITISH COLUMBIA, WASHINGTON, OREGON, IDAHO, MONTANA.**

Coordinator: E. J. Newcomer. Contributors: P. Conway, Don Eff, S. Jewett, Jr., E. McMackin, E. Newcomer, R. Woodley.

**WEATHER:** Another dry season, vegetation drying early.

**WASHINGTON:** Woodley (July 22-30) Harts Pass & Slate Peak, Okanogan Co., took 18 Boloria astarte, 4 Oen. beani at over 7000 ft., and at lower elev. P. aquilo, E. vidleri, Sp. mormonia, E. anicia, etc. Newcomer, at same locations, August 2, noted most of the same spp., and also, below Harts Pass, 5 of the 6 spp. of Papilio occurring in Washington, all flying together along the road. These were rutulus, eurymedon, multicaudata, zelicaon and indra, the latter two rather worn. Only oregonius was missing, --its foodplant does not occur there.

**OREGON:** Newcomer, in Cascade Mts. (Linn Co.), July 24, found vegetation dry and very little flying. Conditions much better on Steens Mt. and in forest NW of Burns (both Harney Co.), July 26-28 and Aug. 10-11. Spey. cynna and artonis numerous both times on Steens Mt. at 7000 to 7500 ft. McMackin took or saw a dozen or more Nymph. vau-album, Mar. 2, Umatilla Co., 3 mi. S. of Kooskooskie (which is in Wash.), first time observed in 3 yrs.; Call. fotis, Apr. 9, S. Fork Walla Walla R., Umatilla Co.; also small numbers Dan. plexippus, same locality, late June. Pap. rutulus, eurymedon, multicaudata, zelicaon and indra all occur commonly along the S. Fork of Walla Walla R. Jewett reported

one worn spec. Erebus odora, Portland, July 25; and Malacosoma very abundant in Clatsop Co.

IDAHO: Conway noted dryness in Teton and Fremont Cos., July 24, but took about 25 spp., including Carterocephalus mandan, Mel. palla calydon and Bol. kriemhild in Teton Co. (7100 ft.); Lyc. h. klotsi L. n. breweri, L. e. montana, L. h. dorcas, Pl. i. lycea, Pl. g. rustica, L. weidemeyeri, Spey. m. eurynome, Coen. haydeni, all at 6500 ft.; and Polites draco, Spey. m. eurynome and S. z. nr. platina at 6150 ft. in Fremont Co. Eff reported Spey. a. tetonia and Mel. palla, July 11, 20 mi. N of Ashton, Fremont Co.

MONTANA: Conway reported, in alpine meadows on Beartooth Plateau, Carbon Co. (9600-10,000 ft.) Parn. phoebus sayii, Pieris occidentalis, Colias meadi, C. eriphyle, Lyc. melissa, Pl. saepiolus Pl. g. rustica, Nymph. milberti, Euph. editha ssp., Bol. t. ingens, Spey. h. sakuntala, Oen. melissa ssp., Erebia theano ethela, E. epipsodea, E. callias. And 2 mi. W of Cooke City, Park Co., same day, Bol. s. tollandensis and B. t. ingens. Eff reported in Little Mts., nr. Neihart, Judith Basin Co., July 10, Carterocephalus palaemon, Pieris n. mcdunnoughi and M. spinetorum.

ZONE III: ROCKY MOUNTAIN AREA: ALBERTA, WYOMING, UTAH, COLORADO, NEW MEXICO. Coordinator: Donald Eff. Contributors: P. Conway, S. Ellis, J. Emmel, C. Ferris, M. Fisher, D. Groothuis, R. Holland, M. Howard, J. Legge, J. Nordin, G. Scott & family, O. Shields, F. Slansky, Jr., R. Stanford, W. Swisher, K. Tidwell and D. Willis.

ALBERTA: Only information available is from John Legge and myself. John had no success with Pap. nitra early in the season. On July 4, on trunk road from Hinton to Goodwin, I took 15 spp. with only Boloria eunomia in any numbers; these in a willow bag at the junction of the road to Athabaska Lookout. July 6, Sheep R. area W of Turner Valley, in the Bow Forest Reserve, took 25 spp., but only 3 or 4 in any numbers, of which most interesting was Melitaea palla whitneyi. Many skippers at wet spots with Carterocephalus palaemon probably the choicest. July 8, at Plateau Mt., we were early for everything except Pieris occidentalis and euphydryas editha beani. At a lower elevation, along the Kananaskis Hwy. nr. Savanna Cr., we had excellent collecting in a small meadow, taking Euphydryas gillettei and watching them go to roost later in the day in the surrounding pines. Also Boloria eunomis, Euphydryas anicia, and, in the adjacent forest, Oeneis jutta. Near the junction of the Kananaskis Hwy. and the road to Nanton, Pyrgus centauraea loki swarmed, and several specimens of Anthocharis sara julia were taken. This is not a common butterfly in Alberta. Later in the season John had good luck with Lycaena phlaeas arethusa one day, but excessive moisture ruined later collecting.

New and Choice Collecting Spots: The road north from Hinton to Goodwin would seem to bear investigation. The headwaters of the Berland River, which the road crosses near Grand Cache, is reputed to harbor Boloria napaea, although Bowman did not record it in his list of Lepidoptera of Alberta.

WYOMING: A good number of collectors reported collecting in the state, with results from total failure by Emmel and Shields in the Yellowstone area in August when they met with foul weather (including 6" of snow), to excellent by others. Probably the most interesting undertaking was the effort by Conway and Groothuis to obtain Boloria napaea halli in the Wind River Mts. of Sublette County. As far as known, there has been no capture of this subspecies since Klots collected and named it in 1939. While they met with failure, many of the other species taken were of more than usual interest. Ferris, a new resident collector for the state, found a number of species still in fresh condition from mid-Sept. to mid-October, near Laramie.

#### Records, Choice Species, Extension of Range, Relative Abundance.

Nordin reports that he and Sorenson took Colias alexandra, Euphydryas bernadetta and Oeneis uhleri at Wyodak, Campbell County in NE Wyoming. Conway and Groothuis took Colias scudderii harroweri, Boloria titania ingens, Pyrgus ruralis and Satyrium fuliginosum, either in the Bridger Wilderness Area, or nearby in the Pinedale, Wyoming area. Other captures of interest were Boloria eunomia laddi in the Snowy Range of Albany County, Carterocephalus palaemon and Euphydryas gillettii from the junction of Muddy Creek and Hwy 212 in Park County. Callipsyche behrii, Strymon californica and others from LaBonte Canyon in Albany County. Willis found Papilio zelicaon very common in the vicinity of Huckleberry Springs, between Yellowstone and Teton Parks, west of the Hwy. All enjoyed good collecting for such things as Pieris napi mcdunnoughi, Euphydryas gillettii, Anthocharis sara julia, Coenonympha haydeni, Boloria kreimhild, Parnassius clodius, Melitaea palla, Lycaena editha and nivalis. Oeneis jutta reducta was missing from reports.

New and Choice Collecting Spots: Huckleberry Hot Springs, west of Hwy. 289, just south of the southern entrance to Yellowstone Park and LaBonte Canyon, produced well; also Togwotee Pass, Granite Creek, the Snowy Range and the Sierra Madres. Conway, Groothuis and Eff found collecting on Teton Pass very poor, but Willis had excellent collecting on the western side near the Idaho border.



UTAH: Reports were rather sketchy. Tidwell notes that for the second wet year in a row, moisture increased the food-plant growth, but also seemed to have the effect of scattering the butterflies, whereas in the drier years they congregate around flowers and water. Swisher reported an "explosion" of Spey. nokomis at Glendale, Aug. 17, also a couple of what appear to be Pieris virginiensis, and, at Leeds, Aug. 16, one Pap. bairdi. Probably the biggest news was the discovery by Emmel and Shields in Sept. of what must be a third (fall) brood of Chlosyne acastus on the road to Natural Bridges National Monument in San Juan Co. From personal captures and known records, acastus flies in May, and, as noted in the Summary for 1967, Davies and I found a fresh flight near Jensen in early July. Now this report of a third brood in September.

Records, Choice Species, Extensions of Range, Relative Abundance:

Emmel and Shields, collecting in the Pine Valley Mts. of Washington Co. on June 27, took a number of interesting species, including Mitoura spinetorum, Atlides halesus and Adelpha bredowii. They also found Philotes battoides nr. centralis on Eriogonum corymbosum in the San Juan locality mentioned above, and nr. Mexican Flat; Spey. coronis and Euptychia dorothea 3 mi. E of the east entrance to Zion National Park in Kane Co. Other good records from the same county included Speyeria nokomis, Ochlodes yuma and Spey. atl. chitone, all from north of Glendale. Sorenson and Nordin took a number of specimens of one of Utah's puzzling Colias, generally referred to as astraea, in Summit Co. in early July. Probably the most interesting specimen taken this year in Utah was a female Papilio indra nr. kaibabensis taken in Allens Canyon in the Abajo Mts. of San Juan County on August 4th by Scott Ellis. Ellis also found Callophrys affinis extremely common on Blue Mt. Plateau in Dinosaur Monument, Uintah County. It was on an as yet undermined Eriogonum in this area, although in Colorado it was frequenting Eriogonum umbellatum.

COLORADO: This state, with its greatly varied topography, exhibits not only a great variety of collecting terrain, but weather as well, and this has a great effect on the abundance of species and the conditions for collecting them. Therefore while Ellis had a wet August and poor weather on the Western Slope, the Eastern Slope collectors had bone-dry conditions. For instance, Fisher found Oeneis taygete edwardsii common at Cottonwood Pass and Cumberland Pass on July 7 and 8, but Stanford on July 13 found only one specimen and Eff on July 18 and 19, also found it extremely scarce. This year the large number of collectors reporting their findings from the state show so many contradictions that it becomes almost impossible to determine any general trend or condition. However, generally speaking it appears that collecting was good and probably above average, with a very large number of new and good records being taken. Stanford, who sent a very comprehensive report notes comparative single day, period, and yearly records for the number of species taken. For example, he notes that collecting one spot on the South Platte River southwest of Denver produced 22 species on April 15th, 27 species on April 30th, and 33 species on May 12th, and finally 42 on May 14th. This increased to 67 on June 5th and 83 on June 20th. The last two recordings were not, however, all from one spot. His best 10-day period was from June 20-30 when he captured 103 species in the Denver foothills area compared with last year when his best 10-day effort from August 1-10 produced only 84. For the entire state he recorded some 189 species compared with 174 last year.

Records, Choice Species, Extensions of Range, Relative Abundance.

Probably the most interesting single record was a capture of Papilio cresphontes taken in Boulder by D. Willis of Wilmington, Del. on June 28th. Not far behind would be Nordin's capture of Adelpha bredowi on Cottonwood Creek in Dolores County (8900 ft) on June 26th, and a new state record confirmation for Poanes hobomok. In 1967 this was recorded from near Rye and this season Glenn and Juanita Scott captured examples on North Hardscrabble and Middle Hardscrabble creeks in Fremont County. The Scotts also supplied several other records of note; Yvretta rhesus (May 2-12) common on Fountain Cr. in El Paso County and the St. Charles River in Pueblo County, Amblyscirtes simius (June 10) on loco weed in Boggs Creek west of Pueblo, Stinga morrisoni (June 20) Devil's Hole in Huerfano County, Lycaena thoe (July 21) and Satyrium sylvinus (July 28) from near Hillside School in Fremont County. Last record of special note since it is the first eastern slope record. On July 20th Glenn Scott and I accompanied Maurice Howard to Hermit Pass in the Sangre de Cristo Mts. on the border of Custer and Saguache Counties where, in spite of new snow the night before we took Melitaea damoetas, Oeneis m. lucilla, Erebia magdalena, Lycaena, cupreus snowi and Colias meadii. This range has not been collected to any great extent and is the one from which Howard has taken Oeneis taygete edwardsii in July, 1967. An especially noteworthy abundance of Atlides halesus and Mitoura spinetorum was recorded on the Western Slope near Nucla in Montrose County, where they were "nearly swarming". This occurrence of two species, which are normally rare on the Western Slope, in such numbers is so unusual that Ellis may continue his observations and present a paper on the subject. Ellis and Stanford both took Callophrys affinis near Aspen in Pitkin County in early June. There, as mentioned earlier, Ellis found the food plant to be Eriogonum umbellatum, which is interesting in that the same plant is the foodplant for Callophrys sheridani here in Boulder. Probably the most important extension of range was the discovery of Oeneis daura oslari flying by "the thousands" near Chimney Rock in Saguache Park of the San Luis Valley by Maurice Howard. The San Luis Valley was also one of the areas from which Ellis recorded Papilio bairdi, and brucei and hollandi. He also took it several places in Moffat County in mid-June, most commonly in the Dinosaur Mon. area, but took it also at Basalt in Eagle County, and both he and Stanford took it in the Glenwood Springs area. Meanwhile Glenn Scott and

I searched in vain in the Salida area, where only a couple were seen. Euptychia dorothea was taken in Devils Gorge between Glen Haven and Drake in Larimer County by Willis, in Clear Creek Canyon west of Golden by Stanford and 20 miles SW of Uravan in Montrose County by Fisher. Limenitis archippus (July 2) was found along the Colorado River near the border of Garfield and Mesa Counties by Willis, as well as Neominois ridingsii near Glenwood Springs. Colias scudderii, with records of yellow females (flavotincta Ckll) were taken by Slansky in the Gothic-Crested Butte area of Gunnison County and by Fisher in Hall Valley of Park County. This form of the female is always rare. Slansky also found a colony of Erebia callias near Pittsburg (ghost town) while Fisher found it common in Hall Valley on Bullion Mt. But the best place for this species is Guanella Pass, south of Georgetown, where Ferris found it swarming as did Davies and I in earlier years. Slansky also took a noteworthy aberrant of Agriades aquilo rustica wherein the black markings of the underside were elongated. Fisher, collecting a great deal at the Sandstrom Ranch, (approximately 20 miles SE of Denver in Elbert County), notes an extension of many foothill species such as Speyeria coronis halcyone, Colias alexandra, Papilio multicaudata (common), Callophrys apama homoperplexa, Scolantides pius daunia, Hesperia viridis and Amblyscirtes phylace. Among other records of note he reported Hypaurotis crysalus fm. citima and Cercyonis behrii masoni from Unaweep Canyon in Mesa County; also Ochlodes yuma there as did Emmel, Shields and Ellis who in addition took Philotes rita, Pyrgus ericetorum and Satyrion sylvinus. The small colony of Speyeria nokomis found in this area was down in numbers and needs protection. There were more than usual records this year for those out-of-staters, Zerene caesonia, Eurema nicippe and mexicana (Stanford and Fisher). Stanford reported what is only the second record of Lycaena nivalis browni from the Eastern Slope, this being taken at East Portal in Gilpin County, where he also took Polites sonora. He found Atrytone arogos common along the foothill streams of Jefferson County as well as Atrytone logan, and noted two broods of Atalopetes campestris in the Denver area. He also recorded Epargyreus clarus which is not common on the eastern slope. Scott, Stanford and Fisher all make note of the difference in flight times of Hesperia ottoe and pawnee (?). Hopefully this is a start at unraveling the confusion that exists. Nymphalis californica, always scarce, was much more common this year, and there was a decided abundance of Vanessa cardui and atalanta, with Stanford recording migrations in early June with swarms of specimens, not only in Denver and the foothills but as high as 10,000 ft. elevation. It was a good season for many skippers, especially Hesperia juba and manitoba, Amblyscirtes oslari, Erynnis horatius, telemachus and burgessi in addition to those mentioned previously, and for various Speyeria (esp. callippe meadii), Lycaena arota, Cercyonis meadii, Euphydryas, Callophrys and Incisalius (esp. schryverii), but below par for most of the Bolorias, Oeneis brucei, Hesperia viridis, Erynnis icelus, Melitaea fulvia, Colias meadii and Callipsyche behrii crossi.

#### New and Choice Collecting Spots.

These are many: South Platte Canyon, SW of Denver, the foothills west of Denver and Golden, Hermit Pass west of Westcliffe, Unaweep Canyon in Mesa County, San Luis Valley, Cottonwood Pass, Fall River road, west of Idaho Springs, and Douglas Pass, north of Loma, Colo. in Garfield County.

NEW MEXICO: No weather report.

#### Records, Choice Species, Extensions of Range, Relative Abundance.

Holland recorded several additional species from various mountain ranges. Taking a total of 87 species in the Manzano Mts. SE of Albuquerque. New additions for '68 included Erora quaderna, Philotes spaldingi, Amblyscirtes cassus and Pyrgus scriptura. In the Ladron Mts. of Socorro County, an apparently heretofore uncollected desert range SW of Belen, he found 56 species, including 2 species of Satyridae, 4 of Theclinae, 5 Plebeinae, 2 Riodinidae, 13 Nymphalidae, 2 Danaidae, 10 Pieridae, 3 Papilionidae and 8 Pyrginae. The more notable would be Sandia mcfarlandi, a county record and probably the first from west of the Rio Grande; Apodemia palmeri, a possible state record (?); Melitaea leanira, a possible northern extension of range; as well as Celotes nesusus, another possible range extension(?). G. Scott, R. Holland and M. Fisher all remarked on the abundance of Sandia mcfarlandi as well as its early appearance. It was also noted that Amblyscirtes oslari was abundant, and that here, as in Colo., Vanessa atalanta experienced a banner year. Ferris reported that Phyciodes texana and Melitaea dymas were plentiful in May in Grant County. Also of note is his record of Speyeria nokomis (nitocris?) from the vicinity of Willow Creek in Catron County in late August.

New and Choice Collecting Spots. The Ladron Mts. of Socorro Co., mentioned above, would seem to be the most interesting new area. Good collecting was evident on Mt. Taylor in the San Mateo Mts. west of Albuquerque, in the Manzano Mts., the Sandias, and in Union Co. at Capulin Nat'l. Monument, as well as north of Folsom.

ZONE IV: GREAT PLAINS, CANADA TO TEXAS IN THE PLAINS REGION, Coordinator: H. A. Freeman. Contributors: J. Conway, Durden, Don Eff, Freeman, Hafernik, Hord, Kendall, Kinch, Ed Reid, Rickard, Rosche, Scott, J. Sullivan, Best coverage for this report in many years.

GENERAL CONDITIONS: Perhaps the best collecting season in many years. In some areas reports were variable, however in Texas all reports indicated a very fine number of unusual catches.

MANITOBA: Conway reported that collecting was good in Manitoba during the last of June and the first of July. June 29, five miles east of Rennie, along Rt. 44 in Whiteshell Provincial Park the following were collected: Hesperia sassacus manitoboides, Phyciodes tharos, P. batesii, Pieris napi oleracea, Boloria selene atrocotalis, and B. eunomia dawsoni. July 1, vicinity of The Pas, the following were found: Poanes hobomok, Polites mystic, Erynnis icelus, Thorybes Thorybes pylades, Papilio machaon, Pieris napi olracea, Colias eurytheme, Lycaena helloides, Plebejus saepiolus, Everes comyntas albrighti, Glaucopsyche lygdamus couperi, Phyciodes tharos, P. batesii, Boloria bellona, B. selene atrocotalis, B. eunomia dawsoni, Speyeria atlantis, Oeneis jutta ridingiana, and Erebia disa mancinus. July 2, "The Bog" north of Overflowing River, the following were collected: Polites mystic, Colias eurytheme, Plebejus saepiolus, Phyciodes tharos, P. batesii, Limenitis arthemis rubrofasciata, L. archippus, Boloria selene atrocotalis, B. eunomia dawsoni, and Caenonympha tullia benjamini. July 2, July 6, Porcupine Forest Reserve, the following were obtained: Carterocephalus palaemon mesapano, Erynnis icelus, Papilio glaucus canadensis, Pieris napi oleracea, Colias eurytheme, Euchloe ausonides mayi, Plebejus saepiolus, Everes comyntas albrighti, Glaucopsyche lygdamus couperi, Phyciodes tharos, P. batesii, Boloria bellona, B. freija, Speyeria atlantis, Coenonympha tullia benjamini, Erebia disa mancinus, E. epipsodea freemani, Pyrgus centaureae freija, Papilio machaon, Limenitis arthemis rubrofasciata, Boloria eunomia dawsoni, and Oeneis jutta ridingiana. July 3, July 5. Duck Mountain Reserve and Duck Mountain Provincial Park, the following were found: Poanes hobomok, Erynnis icelus, Papilio kahli, P. machaon, P. glaucus canadensis, Pieris napi oleracea, Colias eurytheme, C. interior, C. scudderii gigante, Euchloe ausonides mayi, Plebejus saepiolus, Everes comyntas albrighti, Glaucopsyche lygdamus couperi, Phyciodes tharos, P. batesii, Boloria selene atrocotalis, B. bellona, B. frigga, B. eunomia dawsoni, Oeneis jutta ridingiana, Erebia disa mancinus, and E. opipsodea freemani. July 4, Riding Mountain National Park, the following were collected: Poanes hobomok, Polites themistocles, Oarisma garita, Carterocephalus palaemon mesapano, Erynnis icelus, Papilio glaucus canadensis, Colias interior, C. eurytheme, C. alexandr christina, Eurema mexicana, Euchloe ausonides mayi, Lycaena helloides, Plebejus saepiolus, Everes comyntas albrighti, Plebejus aquilo ssp., Glaucopsyche lygdamus couperi, Celastrina argiolus, Phyciodes tharos, P. batesii, Melitaea nycteis reversa, Boloria selene atrocotalis, B. bellona, Speyeria atlantis ssp., Oeneis jutta ridingiana, Coenonympha tullia benjamini, and Erebia epipsodea freemani.

SASKATCHEWAN: Eff reported that on June 25, East Block of the Cypress Hills, Alberta, few specimens were collected due to heavy rains, Boloria toddi jenistai was common as also were specimens of Papilio glaucus canadensis. At Prince Albert, rains were heavy and when it was possible to collect at the Narrow Hills in the Nipawin Prov. Park only one specimen of Papilio machaon hudsonianus was collected. It was more abundant earlier in the year according to local reports.

SOUTH DAKOTA: Conway reported that on June 8, five miles north of Webster, Day Co., the weather was bad; however the following species were collected: Pholisora catullus, Pyrgus communis, Lycaena helloides, Hemiargus isola, Lycaeides melissa, Everes comyntas, Vanessa atalanta, V. cardui, Phyciodes tharos, Euptoieta claudia, Danaus plexippus, and Coenonympha tullia. Rosche reported that on July 3, in Little Spearfish Canyon, Lawrence Co. Speyeria edwardsi was common, Everes comyntas rare, Papilio glaucus canadensis was common as was Phyciodes tharos, Vanessa cardui and Nymphalis milberti. One specimen of Speyeria mormonia was collected. The moth Rheumoptera hastata was very common.

TEXAS: Redman stated that he caught Heliconius charitonius at Kaufman, Oct. 19, and Dryas julia at Denton, Oct. 26. Kinch reported Limenitis astyanax from Ft. Worth during June. On June 30 a male Phoebis argante was collected at Aledo. During September a specimen of Erebus odora was found. On Oct. 24 a specimen of Dryas julia was caught. Reid reported the following species from near McKinney, Sept. 18: Dynamine dyonis, Heliconius charitonius, Achylodes thraso, Papilio glaucus, Asterocampa celtis, and Euptoieta claudia. On Sept. 19, at Marshall, the following were found: Eurema दौरa, and E. दौरa palmira (?). Scott reported for the following areas: Mt. Locke, June 18-19, E. polingi, Erynnis meridianus. Davis Mts., June 19-2-, Limenitis astyanax, Euptychia rubricata, and E. dorothea. Near Alpine, June 19-20, Atrytonopsis edwardsii, Amblyscirtes aenus, A. texanae, A. nereus, A. oslari, A. nysa, A. eos, Achalarus casica, Thorybes pylades albosuffusa, and Zizula cyna. 20 miles south of Kent, June 20, E. dorothea, E. rubricata, Oarisma edwardsii, Copaoides aurantiaca, and Atalopedes campestris were collected. Hafernik reported some very unusual catches primarily from the Big Bend section of the State. Presidio, June--Phyciodes picta, Brephidium exilis, Asterocampa leilia, Apodemia palmerii, Limenitis archippus obsoleta, Nastra julia, Pyrgus scriptura, Pholisora alpheus, and Kricogonia lyside. On July 12, one specimen of Metamorphia stelenes was collected. Shafter, June--Limenitis archippus obsoleta, Asterocampa Leilia, Nymphalis antiopa, Apodemia palmerii, Calephelis rawsoni, Staphylus ceos, Erynnis meridianus, Pholisora alpheus, Hesperia woodgatei, Cogia hippalus, Atrytonopsis edwardsi, Systasea pulverulenta, Amblyscirtes eos, A. aenus, A. texanae, and Plebejus acmon. July--Melitaea chinatiensis, M. definita, Pyrgus scriptura, P. philetas. August--Melitaea fulvia, M. dymas, and Zizula cyna. Davis Mts., July--Cercyonis meadii, Euptychia dorothea, Plebejus acmon, Autochton cellus, Staphylus ceos, Erynnis tristis tatus, Oarisma edwardsii, Amblyscirtes cassus, A. aenus, A. texanae, and A. oslari. August--Limenitis astyanax arizonensis, Atrytone delaware lagus, and Amblyscirtes erna. Chisos Mts., July--Ancyloxypha arene, Erynnis tristis tatus, Pyrgus philetas, Amblyscirtes nereus, Papilio multicaudata,

Plebejus acmon, Mestra amymone, Limenitis bredowii, and Biblis hyperia. August--Limenitis astyanax arizonensis, Cercyonis meadii, Anaea morrisoni, Apodemia palmerii, Zizula cyna, Callophrys xami, Autochthon cellus, A. cincta, (new U. S. record), Codatractus arizonensis, Amblyscirtes eos, A. oslari, and A. aenus. Near Ruidosa, Presidio Co., Aug. II--Ministrymon leda. College Station, October--Dynamine dyonis (fairly common), Dryas julia (abundant), Heliconius charitonius (fairly common), Achlyodes thraso (abundant), Mestra amymone (abundant), and Panthiades m-album, only one. Durden collected the Austin region 27 July to years end, 94 spp., 1374 specimens, on 43 collecting days--weather limits in 1968, 7 January low of 22 degrees, 23 August high of 98 degrees, excess rainfall 18.5 % above average. Number of species per 10-day interval is directly proportional to the average monthly precipitation till first sub-42 degree night on 10 November. Specials--TRAVIS CO., at Bull Cr. 9 mi. NW Austin--D. dyonis August & October broods, E. nise October, Celastrina gozora late July, M. g. smilacis & M. castalis sympatric in mid August and early October, Calephelis rawsoni & C. nemesis australis July to late November, C. perditalis September and October, C. sp. B late August and early September, C. sp. C late October and early November, Copaeodes sp. A (aff. but not C. minima nor C. aurantiaca with which sympatric) late October and November; at Northwest Hills in Austin all same spp. plus K. castalia early September, L. marina early September and October, H. laviana early October; black prairie in N. Austin E. दौरa seen early August; BASTROP CO, at Bastrop State Park Amblyscirtes alternata early September; at Utley Gesta gesta mid August. LAST CAPTURES OF SEASON: H. charitonius 14 December in Travis Co., C. eurytheme 15 December, and P. sennae 28 December, both in Blanco Co. (Detailed records & notes filed with Zone IV coordinator). Rickard recorded an unbelievable year in which many U. S., state, and county records were made and several confirmations of old records. Bee County--Skidmore: 20 April, Heliconius cleobaea (U. S. record), Ascia josephina. Bandera co.--FM 470, 5 May, Hesperia viridis. Bexar Co.--San Antonio: D. dyonis, July--November, common; Biblis h. aganisa, 7 Aug.; Gesta gesta, 1 Sept. Gonzales Co. --Palmetto State Park: D. dyonis, 28 July; Celastrina argiolus, 5 June. Harris Co.--Houston: C. argiolus, 24 April; Oligora maculata, 16, 18, 20, 26 May, 28 Sept.; Kinney Co.--Spofford: Satyrrium falacer, Strymon alcestis, Amblyscirtes eos, 4 May. Live Oak Co.--George West: Strymon bazochii, 18 Sept., 18 Oct.; Chlorostymon s. sarita, 17 Nov. Montgomery co.--Spring (Ashe Lake): Lethe portlandia, Mar.--May, Aug.--Sept.; Amblyscirtes aesculapius, 24, 29 Mar., 8 Aug. Polk Co.--Livingston: Nymphalis antiopa, 23 Mar. Hidalgo Co. --Santa Ana Refuge: The following nice species were usually common and taken regularly from July to November--Metamorpha stelenes, Eurema nise, E. proterpia (Sept.-Nov.), Cabares potrillo, Astraptus fulgerator azul, Synapte malitiosa, Monca tyrtaeus, Thespieus macareus, Urbanus dorantes. Other choice species: Anartia fatima, 30 May, 13, 14, 22 July, 10, 16, Nov.; Mycelia ethusa, 30 May, 13 July, 12, 19 Oct.; Euptoieta hegesia, 7 Sept., 14 Dec.; Phyciodes frisia, 13, 14, 22 July, 16 Nov.; Apatura laure (New U. S. record), 13, 22 July, 7 Sept., 5, 12, 13 Oct.; A. pavon, 21 Sept., 16 Nov., 14 Dec.; Anaea pithyusa, 24 Nov.; Marpesia petreus, 7 Sept.; Dione moneta poeyi, 24 Nov., 1 Dec., 14 Dec. (7 specimens); Papilio a. idaeus, 19 Oct.; Nymphalis antiopa, 28 Dec.; Ascia josephina, 14 Dec.; Eurema diara, 10 Nov., 28 Dec.; E. boisduvaliana, 24 Nov., 28 Dec.; Xamia xami, 24 Nov.; Callophrys goodsoni, 19 Oct., 10, 16, 24 Nov. (8 specimens); Tmolus azia, 6, 31 Aug., 7 Sept.; Strymon buchholzi, 15 Sept., 24 Nov., 1, 14 Dec.; Strymon rufusca, 14 Dec.; Strymon yojoa, 9, 24 Nov., 14 Dec.; Xenophanes tryxus, 31 Aug., 6, 11 Oct., 9, 10 Nov. (9 specimens); Pellicia angra, 12 Oct., 16 Nov., Strymon bazochii, common in Dec. Species of record overabundance: D. julia--San Antonio to Houston, June--August; H. charitonius--San Antonio, June--October; C. s. sarita--Lower Rio Grande Valley, September--December; E. o. autolytus and S. falacer--Houston, April 14--30. Roy & Connie Kendall report: General collecting was good throughout the season over most of the state. Few species were found in abundance. It was a good year for the unusual species. LEGEND USED IN FOLLOWING REPORT: nlh--new life history for Texas; nlf--new larval food plant; mf--migratory flight; gc--good catch; re--range extension; uc--unusually common. Panoquina hecebolus (gc); Panoquina sylvicola (gc); Euphyes metacomet (nlh); Ancyloxypha arene (nlh); Pholisora alpheus (nlh); Systasea evansi (nlh); Staphylus mazans (nlf); Cabares potrillo (nlh); Astraptus fulgerator azul (re); Papilio ornythion (gc); Zerene cesonia (mf); Eurema boisduvaliana (gc); Eurema nise (gc); Strymon beon (nlh); Callophrys macfarlandi (re, gc); Callophrys goodsoni (gc); Feniseca Tarquinius (gc); Celastrina argiolus (gc, uc, nlh); Dynamine dyonis (re, nlh); Metamorpha stelenes (gc); Vanessa cardui (mf); Melitaea fulvia (gc); Danaus eresimus (nlh); Lagoa laceyi (29 larvae all parasitized); Pseudohazis chinatiensis (nlf, many larvae crossing 10 miles of road searching for food). Hord records: all except one, as noted, taken near Austin. Urbanus dorantes (gc); Eupsyche m-album (re); Eunica monima (gc, re); Dynamine dyonis (gc, re); Chlosyne janais (gc, re); Dione poeyii (2nd. U. S. record); Cercyonis meadii (gc) Davis Mts. Sullivan records: Collected from 2-8 May mostly in extreme south Texas, General collecting good. Very fine unusual records. Some inclement weather. Ascia josephina josepha (gc); Eurema boisduvaliana (gc, 21 examples); Eurema nise (gc); Strymon bazochii (gc); Strymon clytie (gc, re); Anartia fatima (gc); Phyciodes frisia (gc); Melitaea t. bollii (gc); Heliconius c. vazquezae (gc); and Heliconius cleobaea (one of four collectors taking it for first time in U.S.; 3 examples). Freeman reported: Heliconius c. vazquezae in the Dallas area during October. The usual species were observed in north-central Texas during the season in normal numbers. In the Brownsville area during the first of June and first of July the usual species were abundant with several specimens of Phocides lilea and Urbanus tanna being collected.

ZONE V: CENTRAL REGION, MISSOURI TO WEST VIRGINIA, NORTH TO ONTARIO. Coordinator: J. R. Hoitzma  
Contributors: R. Arnold, G. Black, R. Bracher, R. Conway, C. Covell, J. Donahue, W. Edmonds, J. Heitzman, R. Huber, L. Martin, J. Masters, M. Nielsen, J. Nordin, D. Schweitzer, W. Sieker, E. Shull, J. & L. Wood, T. McCabe,

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**GENERAL CONDITIONS:** Collecting near urban areas continues to decline but reports from other areas reflect a general improvement in collecting. The population levels soared for D. plexippus and V. cardui in 1968 with numerous mass movement observations.

**MISSOURI:** Season about normal with one period of drought during midsummer. The area in and around Kansas City extremely poor for butterflies and only slightly better for moths. The Ozark region better, especially in spring, when C. henrici and C. gryneus were abundant. A. midae and E. o. rosa present but uncommon. June Strymon again very rare. The spring influx of V. cardui was the greatest ever seen in the region. The first specimens appeared 30 March with numbers gradually increasing until early May when dozens could be seen in city yards. No mass directional movement noted but all specimens worn or ragged. No later larval damage noticed on local thistle plants. Sphingidae and Saturnidae scarce with few exceptions. D. choerilis numerous in April and C. undulosa rather common in late summer. A male S. canadensis collected near Warsaw in Benton Co. 6 June (a county record and second state capture). Some of the better moth species collected were Nemoria bistriaria (abundant in April), Hydriomena mississippiensis, H. transfigurata, Heterophleps refusata, Plagodis phlogosaria, Euchlaena amoenaria, and Microcrambus kimballi. Epimecis hortaria fairly swarmed in early May and the Lambdina athasaria population exploded in July. Masters collecting in Camden Co., 12-13 April took C. henrici, C. gryneus, A. midae, M. i. carlota, C. cesonia form rosa (apparently hibernators from the previous fall) and Hesperia metea.

**KENTUCKY:** Covell collected in 16 counties in his lepidoptera survey but took no unusual butterfly records. V. cardui common all season. A. cellus, C. henrici, C. cecrops, E. gemma and a good series of L. thoe were high points for butterflies. One exciting moth taken was the western Scopula plantagenaria. Five specimens collected in Oldham Co. in Aug. J. B. Wood and his daughter Lark Lynne turned in a fine report containing many valuable records and observations for western Kentucky. Species listed as plentiful to abundant included V. atalanta, V. virginiensis, A. celtis, A. clyton, S. cybole, P. comma, L. astyamax, L. archippus, P. protodice, P. troilus, B. philenor, L. bachmanii, H. phyleus and A. numitor. Two scarce species in 1967, J. coenia and V. cardui were common this year. Scarce or missing species were G. marcellus, S. melinus, L. p. americana, P. s. eubule, A. andria, E. claudia and N. antiopa. A very unusual September capture was a male E. funeralis. Many sphingidae species common to abundant at lights including C. catalpe, C. undulosa, C. amyntor, I. hageni, C. lineata, M. sexta, A. plebeius, P. s. pandorus, P. myops, S. geminatus, C. juglandis and D. choerilis. Scarce species were M. quinque maculata, P. modesta, X. tersa, D. myron, H. cingulata. A single D. hylaeus collected visiting Asclepias flowers. A. luna, A. polyphemus, E. imperialis, C. promethea, C. angulifera taken in good numbers. C. regalis, A. stigma and A. io scarce and H. cecropia absent. H. militaris, H. vestalis, H. clymene and E. scribonia plentiful in season. Heliomata cycladata, Pheosia dimitiada and D. abortivaria common for one week in July. A thin migration of E. lisa (about 100 a day) noted in late Sept., flight direction due south. Migrating D. plexippus observed 25-28 Oct. flying WSW. Several local swarms observed, one, including several hundred specimens, on a large bald cypress tree.

**WEST VIRGINIA:** Schweitzer found excellent collecting near Bartow, Pocahontas Co., Monongahela National Forest at about 3000' elevation from 23 June to 14 July. Speyeria spp. numerous. A. samoset taken along woodland trails. Sphingidae numerous but Saturnidae quite scarce. Series of several Lygris and Dysstroma spp. taken. Outstanding captures included Hyppa contrasta, Noctua intermedia, Phogophora iris (abundant), Apatela inotata (abundant after 5 July) Plusia ampla and Pyrrhia exprimens.

**IOWA:** Mrs. Black sent in an excellent summary on V. cardui and D. plexippus populations and movements in the state during 1968, particularly the Pleasantville area. A mass migration of V. cardui began 10 April, peaking 2-5 May and continuing until 11 May. Many observations were made during the period. In most cases the flight was fast, 4 to 7 feet above the ground and due north. On 2 May for 40 miles along highway 92 between 6:15 and 7:30 p.m. the migration was constant. On 5 May a two hour count, made on a 30-foot front, showed average of 5 to 10 cardui passing per minute. Most specimens extremely ragged and faded. Every thistle plant covered by dozens of larvae with the first fresh adults out by 9 June. Soy beans utilized as a secondary host, causing concern for this crop throughout the state. The number of larvae began to decline in July and August with a great upsurge in hymenopterous and dipterous parasites and the fall migration was down to normal numbers. D. plexippus populations continued at a high level over the state with the peak of the southward movement on 22 September. Nearly 1600 specimens tagged and released. There was a marked increase in dipterous parasites in Sept., 1968 compared to Sept., 1967.

**INDIANA:** Reports indicate an improvement in collecting conditions and population density of some species. In spite of chemical spraying and urban expansion in the Granger area Bracher reports an increase in the butterfly population. N. antiopa and L. archippus present in large numbers and N. milberti reappeared in the region. D. plexippus observed from early June until late October, peaking 9-10 September. No mass movements observed. Speyeria species and P. cresphontes scarce and P. p. asterias usually a common species was absent. Shull turned in an excellent detailed report of species collected, recording 79 species of butterflies and nearly 100 moth species. Collecting conditions reported as excellent, mid-March to Nov.

STATE RECORD: Satyrium caryaevorus, pair collected 22 June, Kosciusko Co., and several others in July in Wabash and Kosciusko counties. S. idalia, J. coenia and L. bachmanii absent in 1967, were found sparingly. V. atalanta, V. cardui, V. virginianensis, N. antiopa, and E. lisa present in above normal numbers. Late June and early July was good for Satyrium species in Wabash Co. O. titus, S. I. strigosus, S. melinus, E. ontario, S. acadica, S. c. falacer and S. edwardsii were collected. Other noteworthy captures included T. lineola (June and July), E. bimacula (June and Sept.), Wabash and Kosciusko Counties, E. dion (30 June and July), H. phyleus (18 Aug. to 21 Sept.), H. leonardus (July - Sept.), H. sassacus (24 Aug.), E. nicippe (14 Aug.), L. m. samuelis and G. lygdamus (June - Aug.) all from Wabash Co., and N. iole (24 Aug.) Camp Mack, Milford, and L. helloides, (24 Aug.) Wabash Co. Some late captures included B. philenor, P. troilus, L. helloides and B. toddi, (13 October) in Kosciusko Co. A mass movement of D. plexippus observed 25 September flying due south 2:20 to 5:00 p.m. in Fort Wayne, numbers fluctuating, at times hundreds visible. Sphingidae and Saturnidae scarce or absent. Some of the choice Noctuids taken were C. nebulosa (14 Sept.), C. grynea (16 July), Mamestra lorea (15 Sept.), all in North Manchester and Mamestra trifolii collected 3 September in Peru.

ILLINOIS: Arnold found very poor collecting in the northeastern area. Spring broods scarce, P. rapae, C. eurytheme, C. philodice, with many species absent, E. comyntas, L.p. americana, L. helloides, and later broods below average. Strymon species scarce. C. titus, normally abundant was absent. S. cybele and S. aphrodite numbers continue to decline. One bright spot was increase in numbers of S. idalia which had been very scarce for three years. The best collecting day was 14 July near Joliet, P. catullus, D. plexippus, S. idalia, B. selene and E. lisa all abundant. There was a vast increase in numbers of migrating D. plexippus in late Aug. and early Sept. Across the state, in Mercer Co., Conway found the season about normal. A migration of V. cardui observed 5 May moving in a NNE direction, flying rapidly, just above the ground. Several counts between 1 and 4 p.m. indicated an average of 2 specimens per minute passing on a 50-foot front. There was a slight NW wind with the temp. in the low 70's. Good captures were P. progne (21 April), H. phyleus (22 Sept.), P. byssus, E. conspicua and E. bimacula (all July). A choice collecting locality was a 1000-acre virgin prairie in Grundy Co. Many fine species collected here 23 June including E. bimacula, P. mystic, T. lineola, C. titus, S. acadica, L. thoe, L.x. dione, L. helloides, B. selene, and S. aphrodite.

OHIO: The main report for Ohio comes from Martin and concerns the Northeastern and Northcentral region. 1968 was a far better year than 1967, probably the best in the last 10 years. Spring broods about 10 days early. Cool, wet weather in May hindered collecting but by early June warm weather arrived and summer and fall flight periods about normal. An early cold spell ended all collecting 5 November. Most species up in numbers. Papilios were the exception, B. philenor, P. cresphontes absent, G. marcellus (1 only), P. troilus and P. glaucus uncommon. P.p. asterias was the only species near normal. Satyridae and Lycaenidae normal (C. titus increased), Hesperidae and Pieridae numbers were up. 35 specimens of E. lisa collected, the previous high for one season being four. V. cardui, V. atalanta, and D. plexippus abundant; a thin migration of D. plexippus noted 21 Sept. along route 18 between Wellington and Akron flying to the southwest. County Records: E. icelus (22 June, Loraine Co.), E. brizo (4 May, Ashland Co.), L. eurydice (13 July, Loraine Co.). Schweitzer took Epiglaea decliva (1 Nov.) and Lithophane bethunei (2 Nov.) at New Concord.

MICHIGAN: Nielsen reports a mild winter with less snow than 1967, spring emergence normal but above average rainfall appeared to affect summer and fall species. V. cardui present in fair numbers over the state and there was a definite increase in D. plexippus numbers.

STATE RECORDS: Erebia discoidalis, 31 May, Baraga Co. (Masters). Semioscopis aureorella and S. merricella, 12-13 April, Otsego Co. (Nielsen). Several new county records reported by Nielsen, Barry Co. Allotria elonympha (31 May), Ethmia fuscipedula (several immaculate specimens at U V), Erynnis persius (29 May-2 June). Sanilac Co., H. phyleus (16 Oct.). Otsego Co. Feralia major and Brachionycha borealis (13 April) and Anomis erosa (11 Oct.). Monroe 60. Hemileuca maia 23 Sept.). H. columbia cocoons found in Clare, Livingston and Mecosta Counties, all new records. Taft and Donahue took C. niphon clarki for a new Barry Co. record. Conway visited famous Wakelee bog in May, June and August and a number of good species were collected. Noticeably missing was E. mitchellii. One of the best catches was B. eunomia dawsoni, collected north of Cedarville, Mackinac Co. The brood was just starting to emerge and all specimens were very fresh.

WISCONSIN: Sieker was able to report the micros, Noctuidae, Notodontidae, Geometridae and Arctiidae average to common in abundance while paradoxically the Sphingidae were the rarest in 40 years of collecting! Only 15 specimens collected the entire season and most of these were C. lineata. A single X. tersa was taken which is a rare catch this far north. Several rare Catocala species, C. abbreviatella, C. amestris, C. breisis, and C. meskei found at Ferry Bluff in Sauk County. Butterflies scarce most of the season but in the fall great clouds of Colias observed over alfalfa fields and collections indicated C. philodice was the primary species present.

Masters recorded several good captures for the state including the following:

STATE RECORD: Boloria eunomia dawsoni, taken 23 June in Rusk County. Other species taken included E. olympia, C. henrici, C. niphon clarki, C. augustinus and H. metea all taken 12 May in Burnett Co. and Erebia discoidalis collected 31 May in Sawyer Co.

MINNESOTA: Huber summarized the data of 25 regular collectors and numerous 4-H students, amassing a wealth of information. Included are 116 species of butterflies, 23 Sphingidae and 14 Catocalas. The season was extremely early with

*E. juvenalis* and *E. olympia* recorded a full month earlier than previous records. 245 new county records were added and T STATE RECORD: *Oarisma garita*, 19 and 23 June, Clay Co. by T. McCabe and D. Auger. *V. atalanta* and *V. cardui* made a very early arrival in S. Minnesota. *D. plexippus* made it to the northernmost counties and the later migrants, *A. campestris*, *E. mexicana*, *E. lisa* and *N. iole* enjoyed a good year with some reaching new northern limits. Significant range extensions were also noted for *C. interior*, *C. gryneus*, *O. uhleri* and *O. macounii*. A few of the outstanding records were *A. campestris*, 13 counties (6 new), an exceptional year compared to only one record for 1967. *H. uncas*, 22 June, Sherburne, Co., 3 miles NNW Elk River by Huber (a new locality). *H. dacotae*, from 3 counties, *C. interior*, 13 July, Mendota/Nichols, Dakota Co., (southernmost state record). *E. mexicana*, McCarver took this species near Dilworth, Clay Co., 2, 17, 19, 25 and 28 July (there were less than 6 previous records). *N. iole*, a very noticeable northward extension this year to Aitkin and Clay Counties. *C. gryneus*, Masters took fresh specimens 3 May near Fairmont, Martin Co. *S. melinus*, 5 new county records and the best year on record for this species. *E. amyntula*, late May - mid-June, Roseau Co., *Vanessa virginiensis*, many records from about a dozen counties. There were only two 1967 records. *V. cardui* taken from 12 April to 28 September with records from 21 counties. Masters took *O. uhleri*, 14 June near Blue Mound in Rock Co. which is about 200 miles south of previous Minnesota records. *O. macounii*, taken in 5 counties (obviously more widespread than previously believed). *Sphinx luscitiosa*, 10 July, Crow Wing Co.

ONTARIO: Edmonds found *V. cardui*, *V. virginiensis* and *D. plexippus* abundant during the summer and fall. One mass movement of *D. plexippus* noted flying SW along the shore of Lake Ontario in Sept. In northern Ontario 23 July, Westree, Sudbury District, 14 species taken. The best catch was *E. lisa* (a far northern record). Other species present were *D. plexippus*, *S. atlantis*, *S. cybele*, *B. selene*, *A. numitor* and *P. napi*. 17 species taken 26 July at Hornepayne, Algoma District. *S. atlantis*, *P. tharos*, *V. cardui*, *T. lineola* common. Other species here included *P. saepiolus*, *C. eurytheme*, *C. interior*, *P. themistocles*, *P. mystic*, and *E. vestris*. The day flying *Plusia rectangularis* collected on roadside flowers. Kenora District, 29 June, bog and sandridge localities here were collected by Conway and Masters. Captures included *P. hobomok*, *H. sassacus*, *P. g. canadensis*, *P. tharos*, *O. macounii*, *E. disa mancinus*, (all common), *B. selene*, *P. batesii* (uncommon) and *T. pylades*, *P. faunus*, *O. j. ascerta*, only one each.

#### ZONE VI: SOUTHEAST: ARKANSAS, LOUISIANA, TENNESSEE, MISSISSIPPI, ALABAMA, FLORIDA, GEORGIA, SOUTH CAROLINA, NORTH CAROLINA, VIRGINIA.

Coordinator: Bryn Mather. Contributors: Bryson, Concello, Jr., Covell, Jr., (including data from Bob Butler), Ferris, H. Freeman, Wm. Howe (including data from Michael Smith), Kimball, Paulissen, Heitzman, Board, Redman, Fuller, Ed. Reid, M. and E. Roshore, Straley, Strickland, Zeiger.

ARKANSAS: Wm. Howe and Lt. Michael Smith, of Chanute AFB, Ill., collected in the NW Arkansas region in mid-July specifically in Carroll and Madison Cos. Weather fine but butterflies not particularly plentiful. At gravel bar 2 mi. N of Eureka Springs, *Papilio cresphontes*, *P. marcellus* and *P. polyxenes* observed puddling but few seen elsewhere. Several *P. philenor* taken on teasels. One male *glaucus* taken by Smith; others were *Anaea andria*, *Lim. astyanax*, *Eurema nicippe*, *Zerene caesonia*, *Agraulis vanillae* (ovipositing on native *Passiflora*), *Everes comyntas* and *Precis coenia*. *Pap. troilus*, usually common in the Ozarks, was nearly absent; one female taken on blue vervain. No *Van cardui* seen.

Moth collecting distressingly poor. Along gravel bars near White River, where acres and acres of bouncing Bet was in bloom, which would normally be swarming with *Sphinx* moths, scores of *Celerio lineata* visited the blooms, but no other species seen. Freeman took *Amblyscirtes hegon* (Scud) (*Samoset Scud*) for the first time in Arkansas at Hope Hill Farm, Faulkner Co., 13 April.

In northwest Arkansas Paulissen reports wet spring, hot summer, and generally cool, grey, damp fall which fizzled and ended early. Butterfly appearance in spring was good, but barely average for summer and fall. Highlights in spring included good numbers of *P. m-album*, *C. niphon*, *A. hianna*, *V. cardui* (no migration evident) *V. atalanta* and *E. icelus*. *C. hanrici* scarce and *E. z. funeralis* absent for entire year. In summer, Heitzman and Paulissen found *E. mericapa* early in July in fresh condition, perhaps overwintering. Lycaenids down in numbers, e.g. no *A. halesus*. Good numbers of *L. p. portlandia*, *L. p. anhedon* and *L. creola* present. In fall, more than usual *L. astyanax* and *L. archippus* found but very few *H. leonardus* seen and *A. andria* down. *E. h. sosybia*, usually scarce in NW Ark., found in good numbers by Heitzman and Paulissen. Elsewhere in the state John Fuller caught a *Colaenis julia* at Little Rock for a new state record. Also at Little Rock, Dr. John Redman sighted a male *A. monusta*, only once before recorded for the state. Redman also reported *L. creola*, *E. mexicana* and good numbers of *L. astyanax* and *L. archippus* for Pulaski County. Veryl Board records *C. gryneus*, *C. niphon*, *P. m-album*, *C. cecrops*, *A. halesus*, *F. tarquinius*, *A. genutia* and *S. cybele* for Independence County with *E. phaeton* as usual there. He also reports *E. olympia* in Montgomery County. Fay Karpoleon in spring found *G. lygdamus* and *C. hadros* and others as usual in Miller County with *C. henrici* as a new county record. Paulissen found *C. niphon* in Clark County for a new county record. Unusual specimens collected by Paulissen in NW Ark. included a male *A. celtis* with elongated black spots on the HWs, an *L. phlaeas* with tear-shaped spots and an *E. lisa* female with 1 whitish and 3 yellowish wings. He and the Heitzmans each collected a pale fawn-colored *C. niphon*, one male and one female. Mothwise in NW Ark., Heitzman reports very remarkable catch of *Microcrambus kimballi* Klots (dat. Klots) at Blue Springs, Washington Co., the first collected inland away from the Atlantic States. He also reports *S. abbotti*, *Selenia kentaria*, *Scopula plantegenaria*, *Heterophleps refusata* and *Venusia comptaria* in Washington Co. but moth collecting poorer than normal. Paulissen, also in NW Ark. records 1M2F *E. odora* at lights in July but no other tropical migrants. Catocala numbers were somewhat better than last year at lights but arctiids, saturniids and sphingids still down. Two scarce *A. nessus* reported and five larvae of *P. juanita* collected and brought to pupation.

LOUISIANA: Strickland, summarizing butterflies taken in 1967, found what appear to be 14 new state records (indicated below by \* and 247 new parish records. H. K. Clench commented on color slides of some of these specimens as follows: Satyrus calanus (not subsp. falacer), \*Leptotes cassius striata, \*Brephidium pseudofea or exilis (the spec. has half the diagnostic features of each). J. A. Freeman determined the following, also from color slides: \*Euphyes dion alabamiae, E. vestris metacomet, \*Panoquina sylvicola, \*P. panoquinoides, \*Atrytone delaware. Kilian Roever tentatively confirmed: \*Pyrgus oileus, \*Atrytonopsis hianna loammi, \*Amblys cirtes alternata, \*A. celia. Other apparent new state records include \*P. zabulon, \*P. verna, \*E. z. funeralis and \*E. martialia. Reid took L. archippus at LeCompte on 21 Sept.

MISSISSIPPI: Reid collected from south to north on 26-27 September recording near Hattiesburg, Forrest Co., P. troilus, P. sennae eubule, N. jole, E. lisa, E. daira, E. claudia, J. coenia, V. cardui, V. virginienis, E. hisosybis, E. clarus, P. communis, H. phyleus, Lacius; in Holmes Co. at Pickens and Durant: B. philenor, L. astyanax, L. archippus, J. coenia, P. comma, E. hisosybia, P. interrogationis, A. clyton, E. comyntas, A. humitor, L. accius.

Luke took C. p. pegala near Roberts, Newton Co. on 28 Sept. which represents a northward extension of the known range from southern to central Mississippi.

Among the moths added to the list of those known from Mississippi in 1968 were the following: 846 Anisota (A) virginienis Drury (topelo, Bryson), 897a Sarbenia phylla Dyar (?) (Handsboro, Taylor), 1023 Holomelina ferruginosa Wlk (State College, Bryson), 1100 Utetheisa ornatrix L (Tupelo, Bryson), 1890 Orthodes furfurata Grt (Topelo, Bryson), 2635 Neperigea tapeta Sm (Handsboro, Taylor), 2680 Prodenia latifascia Wlk (Biloxi, Taylor), 2963 Schinia chrysellia Grt (Handsboro, Taylor), 3063 Euglemma obliquale (Hattiesburg, Taylor) 3167 Tarachidia parvula (Biloxi Taylor), 3387 Catocala andromedae tristis (Yocona, Bryson) 3830 Datana angusii (Vicksburg, Mather) 3656. I Metalectra albinea (Vicksburg, Mather) 3661. I Arugisa watsoni (Vicksburg, Mather) 4756 Itame coartaria (Tupelo, Bryson) 4003 Apatelodes angelica (State College, Bryson) 5009 Xanthotype rufaria (Handsboro, Taylor) 5050 Metarranthis duaria (Tupelo, Bryson) 5146 Lambdina fiscellaria (Clinton, Mather) 5293 Malthaca dimidiata (Tupelo, Bryson) 6786 Phaneta raracana (Jackson, Bryson) 6894 Eucosma pergandeana (Jackson, Mather) 6957 Eucosma giganteana (Tupelo, Bryson) 7030 Epiblema obfuscana (Handsboro, Taylor) 7319 Sparganothis niveana (Clinton, Mather), 7454. I Argyrotaenia floridana (Tupelo, Bryson) 8732 Carmenta ithacae (Jackson, Luke; Tupelo, Bryson) 8778 Melittia snowi (Tupelo, Bryson)

FLORIDA: Concello collected from June 15 to July 13 in Putnam Co., northcentral Florida, where not much collecting has been done and took about 2200 specimens. Due to a prolonged dry period in early June, many species were later in emergence than in previous years. Collecting in the Ocala National Forest was very poor. Rare or choice spp. taken were: Pieris rapae, 1 male, 2 females; P. p. protodice, 2 males, 1 female; Col. eurytheme, 1 female; Polyg. interrogationis, 1 female; Euristrymon favonius, 1 female; all taken near Satsuma and Pomona Park. (the favonius might represent a second brood). Also taken were Cal. virginienis, Atlides halesus, Nathalis iole, Noropsis hieroglyphica and Prionoxistius robiniae. Unusually abundant were Strymon melinus, Calycopis cecrops, Phyciodes tharos and P. thaon. (A. C. cecrops was taken at black light, 25 June, nr. Satsuma). Scarce were Pap. cresphontes, P. g. australis, P. philenor, P. troilus, ilioneus, P. marcellus floridensis, Heliconius c. tuckeri, Panhiades m-album, Artace punctistriga, Apanthesis phalerata.

GEORGIA: At Sylvania on 25 May, Mather took P. myops, N. hieroglyphica, R. larvalis, N. gibbosa, M. americanum, M. disstria, D. abortivaria, S. bicolorata, A. pampinaria, N. semiclusaria, L. fiscellaria pultaria, A. confusaria; at Millhaven on 25 May, Mather took C. chloropha, S. limboundata, B. vestaliata, E. hortaria, Lychnosea n. sp. and 24 May, S. limboundata, A. humaria, P. transversata.

NORTH CAROLINA: At Elizabeth City on 12 August, the Rohshores took: P. excaecata, H. manteo, H. guttivate, A. vellivolata. Covell took G. marcellus at Lake Lure.

VIRGINIA: Straley collected in Giles County in the spring and fall: first record was March 29, Pieris rapae, male; and last Oct. 6. Speyeria cybele, female (not too badly worn). Nothing new taken except 2 fresh males of Thymelicus lineola, near Eggleston. (The first record for the state). No unusual noth records.

Mitchell provided a list of 42 species collected and the first dates on which he saw each in Montgomery Co. in 1968 as follows: 27 Mar, P. faunus, C. a. pseudargiolus; 30 Mar. N. antiopa; 9 April C. philodice, 11 April P. glaucus, P. rapae; 13 April ) henrici, G. lygdamus; 18 April J. augustinus, 19 April P. froilus, I. nippon, E. comynatas; 20 April P. p. asterias, 21 April F. targuinius, 16 May A. genutia; 22 May L. astyanax; 29 May B. philenor, V. atalanta, P. interrogationis, V. cardui; 31 May C. eurytheme, D. plexippus, 3 June S. cybele; 20 June S. falacer; 21 June B. toddi, S. idalia, A. celtis, L. p. americana, P. comma; 25 June E. gemma, C. p. alope; 29 June S. diania; 1 July E. phaeton; 4 July L. p. anthedon; 6 July V. virginienis, L. borealis; 7 July L. archippus; 15 July S. aphrodite; 21 July E. lisa; 21 Aug. S. m. humuli, 22 Aug. E. nicippe; P. tharos. Covell recorded P. glaucus, C. eurytheme, C. philodice and P. rapae from Lee County, Virginia on June 10. Ferris reported that in the vicinity of Amisville, Rapahannock Co., the first part of April was warm with rain. The early flowering trees attracted numerous butterflies. At the end of April there was a chill, May rainy, June average, July hot and dry; the fields dried up. Species not reported from this co. by Clark and Clark (1951) were: E. m. album, fresh and taken 12-IV, not seen in previous years. M. gryneus, 1st brood 12-IV to 25-V, 2nd brood 24-VII. S. cecrops, 28-IV to 6-VI, a good brood, first time taken here. S. titus, taken 1966, not 1968. I henrici, taken 1967, not 1968. E. p. phaeton, fresh and 1-VI, first time taken here. A. atlantis, male, 20-VI, first time taken here, appears midway between S. aphrodite and S. atlantis, small markings tend to atlantis. A. c. celtis, taken 20-VI-67, common, but not 1968. M. n. nycteis, taken 1967, not 1968. A. hianna, 25-V, also 1967. H. metea, 28-IV to 7 V, also 1967. Forty nine species were taken. Eight others taken in previous years, were not seen in 1968.



ZONE VII: NORTHEAST: PENNSYLVANIA to LABRADOR. Coordinator: L. P. Grey. Contributors: A. Brower, G. Ehle, C. Ferris, K. Gardner, J. Gilbert, H. Hensel, J. Holmes, D. Lennox, J. Keji, D. Horn, R. May, C. Majka, J. Muller, J. Prescott, D. Schweitzer, A. Shapiro plus a large "crew" of observers whose work he coordinated, G. Straley, P. Ward and D. Willis.

LABRADOR: From Dr. Brower, who spent most of the summer at Schefferville, some unpleasant facts were gathered by your coordinator. His catch was not worked up when seen, but was dismayingly small. Fact 1 is that Hensel's glorious luck in 1964 (Inl. Lep. Soc., 19:242:1965) was likely due to an unusually favorable season. Anyone going here in a year like 1968 could be bitterly disappointed to find all Lepidoptera scarce and hard to get to, and the trip a very expensive one. Fact 2 is that some "in" with local people, or else institutional backing, would be almost essential, both to mitigate expense and to insure necessary mobility. Fact 3 is that the whole place is controlled by the mining company, trespassers are something less than welcome, the regional ecology is rapidly being torn to shreds, necessitating getting to outposts over roads often barely passable to trucks. Heard enough, gang? Don't take the train to Schefferville on the spur of the moment! A pox on "civilization"; another frontier going down the drain. Seriously, we badly need some new exploring. The Manicougan River basin is suggested as a place where roads are expanding and soon ought to allow access to subarctic ecology comparable to that at Schefferville. Who will find us a wilderness we can have to ourselves, sleeping "in the wagon", gnawing canned rations, expenses at a minimum, northern Bolorians swarming?

QUEBEC: One more scrap of data on Mt. Albert flight periods: July 11 evidently is too early since despite hot, dry weather in the Gaspé this summer, Ferris and Grey on this date saw only a few Oe. taygete and H. centaureae, obviously of the earliest hatch and only on ridges where rocks "draw the sun". The day was unusually favorable, snow all gone, butterflies simply not there. Late July (26-28) dates in other years have produced relatively few specimens, worn and definitely nearly gone by, even with snow fields not all melted away. So, the 18th is suggested as a tentative optimum for most years. Not enough data to decide if Oeneis here may be strongly biennial but plenty to suggest flight spans in any year are a brief outburst which if hit "on the nose" could result in really fabulous collecting. Ward reports the northernmost E. lisa migrant of this year's flight, from Eardley, Que., July 20.

NEW BRUNSWICK: Majka, for the Moncton region, reports "high" species were I. augustinus, L. arthemis, N. antiopa, P. polyxenes, with V. cardui and P. progne also fairly abundant. Saturnians, underwings, sphingids and larger moths in general also had a good year. Now, what to say of Hensel's Erora laeta colony which yielded royally again this year? Is this species having a population explosion, or are collectors getting smarter or luckier? At least, from the growing observations of colonies (as versus earlier reports of singletons) a suspicion grows that laeta might well be a relatively common butterfly with a fearsome "rarity" entirely due to weird biology and behavior. The factor of a woods-dwelling hardwood-hill ecology where collectors almost never deliberately explore, enters into most of the records. Even more to the point may be a treetop dwelling with only a small portion of the flight span spent at ground level on certain favorable days. Hensel's '68 mid-May data of the Edmundston colony suggest this as the most plausible theory, viz, the species, if a treetop resident, could be of long flight span and yet rarely seen. It is fairly definite that its convocations along forest paths and roads are mysteriously brief and unpredictable. These ground level excursions on this "day" in the adult life cycle are all that we get a chance to observe. Who, in a wilderness of hundreds of suitable hills, can be on the right one, in the right path, on the right day?

NOVA SCOTIA: Ward, speaking for the Halifax region, notes a hibernate of P. satyrus taken in June. He states that the lineola skipper still is holding common, late July. Moth records include Phobolusia brimleyana, Sep. 17. Endothenia daekeana was reared from seeds of the (purpurea) pitcher plant, and Exyra rolandiana found and reared on this same plant. A Monarch migration was observed here Oct. 5-6.

MAINE: Schweitzer found poor collecting in Waldo Co. through August; Catocala and most butterflies very scarce. One good record: S. falacer at Lincolnville Aug. 18. Ward reported taking Oe. katahdin commonly on July 3, while Holmes and Gardner, who were on the mountain on the 9th, found it still common but going by; specimens taken were mostly females. Ward also took P. saepiolus and Oe. jutta in the Park area. E. cymela was observed in a catch taken by Anthony J. W. Owston, who unfortunately could not cite locality other than somewhere along the coast of Maine. With so much to deal with in the way of usual and not-so-usual records made this year it seems advisable to concentrate attention on four diurnals which really made "news". These were, (1) the Monarch, by its absence despite massive reports from elsewhere. The same could be said for V. cardui: central Maine got by-passed, somehow. And (2) E. lisa migrated heavily again after an eight-year lapse. Ward took 4 examples in the Millinocket-Baxter Park area; Gardner also has a Millinocket record, July 12. Grey took 3 vic. Lincoln; reports are peppered throughout the records from other states. For (3) Euphyes bimacula it is true that our reports have shown a build-up; this apparently was a scarce species in Maine and elsewhere. But this year there have been veritable outbreaks in places as far apart as Maine and Pennsylvania. For exhibit A, a hundred specimens taken roadside at Passadumkeag, early July, by Ferris and Grey, in a couple hours! Unheard of. And raising interesting questions: we expect our Summary program to show up the migrant things and the highs and lows of widespread species. But what when we deal with these very "localized habitat" species like bimacula, laeta, etc, and

find these assumed "isolates" in rhythm over much of the whole Northeast? The '67 I. nippon explosion, for example? A final example (4) is reluctantly mentioned: Reports indicate C. tullia high and expanding in '68. So Ferris nabs a specimen (early July) in a Passadumkeag spot where tullia was unknown to Grey after forty years of intensive collecting. Hence, opportunity must be taken to send commiserations re a "new record" reported last year as from "Don Eff's lawn". Why will visitors do things like this?

NEW HAMPSHIRE: Numerous A. j-album encountered by Ferris on the Mt. Washington carriage road, July 18; semidea was fogged in. Gardner had better luck July 3, and at Passaconaway took an E. lisa the same day. Lennox reported E. laeta in Coos Co. this year.

VERMONT: A report from Okemo Mt., nr. Ludlow, Windsor Co., July 16-17, by Ferris: S. atlantis abundant toward the summit and aphrodite plentiful in lowland meadow, females just coming on; a few cybele seen. N. j-album literally swarming on dirt road, good series taken. On the Guildhall-Granby road, Lennox hit a flight of E. laeta. Another hillside-hardwood forest spot ecology. So we know where to look. Several places in New England seem to qualify. Horn recorded E. lisa at Greensboro, Orleans Co., vii. 19.

MASSACHUSETTS: Holmes saw cardui abundant all summer in the Rockport area and reared a brood on Artemisia biennis (biennial wormwood). Among other species listed were Cat. parta Sep. 2, and praeclara Aug. 3.

NEW YORK: Keji tabulates a Monarch migration at Ray Brook, peaking Oct. 1 with 191 individuals passing in an hour and a half. His area also is one from which significant increase in C. tullia is reported. Shapiro's report, as usual, is a coordinator's nightmare, with excess of riches "worse" than usual this year since he seems to have had most of the faculty, staff and students of Cornell working with him! Space therefore will have to be given to many new and unusual records and observations, although the names of the large number of people contributing are regretfully omitted. One of his long summaries which can be condensed here is a list of 57 species (!) of diurnals with 1967 versus 1968 "first capture" dates given. This was presented as data to prove how exceptionally favorable the 1968 season was, around Ithaca, both for good weather and for abundance of butterflies. One can see at a glance that an impressive number of species were two weeks or more earlier in '68; some were forty days or more ahead of the 1967 emergences! A favorable season also reflects in the "late" records of autumn.

MIGRANTS: A full page of data on these species: plexippus, cardui, atalanta, virginiensis, and lisa. Of the latter, 22 were taken or seen in central N. Y. between June 30 and July 25; Shapiro took 5 at Ithaca July 4 in a couple hours, one being the rare, pure white female. New county records were Cortland and Schuyler. He could not get oviposition on clover but has seen free oviposition on Cassia nictitans. (No Cassia in this area). The cardui swarmed in mid-summer, larvae collected by hundreds. Spring migrants were worn, then there were three summer generations of the bright sedentary phase, and evidence of a (thin) southern migration through the latter part of October. Omitted data on atalanta and virginiensis also suggest, as was Shapiro's opinion, a migratory influx. Both were very common in midsummer; the autumn disappearance of atalanta was perhaps due to the heavy parasitism noted. Monarch were, in Shapiro's words, "the best since my childhood". Peak southing, after a season of abundance, came in the latter part of Sept., S and SE directions. Some parasitism (Tachinid sp.) but no virus. STRAYS: Singletons of G. marcellus (western N. Y., perhaps resident?), E. nicippe, P. coenia, E. claudia, P. protodice. No B. philenor nor H. phylaeus this year.

POPULATION TRENDS: Most hairstreaks crashed disastrously; the black swallowtail also was very low. Weird happenings in C. eurytheme --- interested students are advised that Colias population structure is one of Shapiro's major interests. Up, were L. argiolus, P. glaucus, Limnitis, P. progne, N. j-album (in spring, but scarce in autumn).

UNUSUALS: The lineola skipper widespread, not very common but apparently well established. New colonies of L. melissa and P. viator and new theories of their distribution, which will be published. A unique, oddly subspeciated isolate colony of P. massasoit. And he maintains that his singleton E. laeta (from Tompkins Co., Aug. 11) is as unique as everybody else's! Certainly the date must be one of the latest known.

NEW COUNTY RECORDS: (These are listed raw; interested parties may write to Shapiro or borrow his report to get dates and locality data). CHEMUNG: A. vialis, C. palaemon. CHENAGO: B. selene, S. atlantis, P. origenes. CORTLAND: I. polios, augustinus & henrici (?) the latter aberrant, G. lygdamus, P. centaureae, E. lucillius & persius, E. bimacula, E. lisa, C. harrisii, P. progne, P. massasoit. GENESEE: E. dion, L. melissa, T. lineola. JEFFERSON: L. eurydice. ORLEANS: P. viator, E. dion. SCHUYLER: I. augustinus, C. harrisii, P. interrogationis, P. progne, E. lisa, V. cardui, E. dion, P. viator, P. coenia, E. martialis. SENECA: P. viator, T. lineola. TIOGA: H. metea. TOMPKINS: I. polios, T. lineola, P. massasoit, A. logan, G. marcellus. The above with commentaries on local conditions, etc.; enough valuable data to start a book! Three gems saved for special mention: 2 fresh male tullia taken from a new St. Lawrence island, viz, Wellesley I., Aug. 3. A ghost moth, S. auratus, kicked up in daytime at McLean Bogs Reserve, July 21. And from Harford, Cortland Co., June 30, I suppose we can believe 40 male E. bimacula with nary a female to

be located. It is the location of the males which sounds sticky. ". . . swarming on a dead fox . . ." Ah, well.

FOODPLANTS, LIFE HISTORIES: Euchaetias egle, normally on Asclepiadaceae, found commonly on Apocynum androsaemifolium, Schuyler Co., Aug. 29. L. arthemis was reared from Quercus velutina (Cornell campus, early June) and on Carponus caroliniana (mid-June, Ludlowville); these are both new foodplants. P. viator was reared partially on Carex riparia var. lacustra; this appears to be the normal N. Y. foodplant. V. cardui larvae were found on Cirsium vulgare & arvense, and Carduus nutans. Added to these composites were new records from Boraginaceae, viz, Symphytum officinale and from Leguminosae, viz, Lupinus perennis, the latter a new family record. V. atalanta larvae were taken from three Urticaceae, viz, U. gracilis & dioca, and Parietaria pennsylvanica. Also on the U. doica was N. milberti. V. virginensis was taken off the composite, Anaphalis margaritacea. Pieris virginensis was found on Dentaria diphylla (Pennsylvania ova) and reared at Ithaca, N. Y. on this plant and on D. laciniata.

NEW JERSEY: Schweitzer, at Atco, Camden Co. took Stenospilates antidiscaria, May 25 & Ju. 15. Metarrhantis pilosaria Jun. 15. He ran bait traps at Batsto, Burlington Co., latter Nov., took 8 sp. and two varieties of Graptolitha, about 80 specimens of Eupsilia including one morrisoni. He reared Harpaglaea tremula from Lakehurst, ova on ornamental Prunus, larva very similar to Chaetoglaea sericea but has a faint bluish tint dorsally. A Staphylus hayhursti from Cape May Aug. 28 sounds very much like a new State record! Willis took L. nipon rarely and augustinus commonly in the Burlington Co. pine barrens during April. P. troilus common throughout the season and L. epixanthe common in the cranberry bogs during July. Muller, for the Lebanon, Hunterdon Co. region, says aerial spraying can be blamed for the poorest local collecting in recent years. He found hairstreaks, sphingids, saturnids and most noctuids unreasonably low. Remaining abundant were Colias, Polygonia, and the species antiopa and atalanta. The lineola skipper also plentiful and a nice series of the pallida form collected. May, for Essex Co., mentions several Monarchs observed vic. Caldwell, but no large flights. He saw E. lisa for the first time since 1961 and took 5 examples. A. lineola remained abundant and yet down from '67 as was P. rapae. Up, were E. cymela and A. numitor. Gypsy moth egg masses were seen. His best diurnal records: A. lyciades and S. acadica, both at Hatfield Swamp. Moths seemed generally low; best records were Synathedon scutilla and Udea rubigalis. Ferris sampled Lakehurst Jul. 18-19 and says the bog area (apparently the one described by Klots, near the railroad station) is now greatly reduced. Six S. caryaevorus were taken by beating shrubbery; liparops plentiful. Other species here: E. areolata, L. eurydice, C. pergala, P. massasoit. Shapiro saw P. protodice & rapae vic. Camden in late March.

PENNSYLVANIA: Schweitzer has considerable data of moth captures in SE Penna. Fall species, e.g., Papaipema, Eupsilia, Graptolitha, remarkably good. At French Creek Park a great concentration of V. cardui, May 6, visiting dandelions. His rearings include Cat. obscura on Juglandis and Carya and he notes that C. parta will take Betula populifolia, Salix nigra and aspen readily and pussy willow reluctantly. Straley had no unusual moth records but found a good marshy meadow, Longwood Gardens, Chester Co., where he took A. conspicua, P. massasoit, L. eurydice, C. pergala and other diurnals. Prescott, at Ludlow (Alleghany Mtns.), saw Monarchs after a 3-year low. He noted great numbers of C. harrisii and remarks on L. portlandia being very high. Near Erie, in Presque Isle State Park, he saw Monarchs massed, covering vegetation along the lake shore, lasting into Oct. Gardner also mentions Monarchs common vic. Blandon and notes A. j-album taken as a hibernant at Hamburg, Berks Co., and on Sep. 14 near Pottsville, Schuylkill Co. Ehle, for Lancaster Co., is happy again, with expanding populations and good collecting after some disastrously lean years in the earlier sixties. Interestingly, he found E. bimacula as high as it was in Maine. Flying with it were P. massasoit and A. delaware. From a dry hillside, H. leonardus, a fine record. E. baptisiae swarmed in open areas and P. verna was not uncommon. A specimen of the locally rare liparops was taken and it was gratifying to see B. selene and S. aphrodite again after a long absence. The j-album expansion did not get here but Ehle notes it as big in nearby Berks and Schuylkill Counties. An intriguing thing was C. pergala, again plentiful after near extinction: 10 to 15 per cent this year were of the dark nephele form which was unknown in extensive samples taken in the fifties. This seems analogous to Ford's accounts of how subspeciation may take place during violent population fluctuations. Ehle's reports, like some others accumulating in these summaries, show relatively huge short-term swings, of "good" and "bad" seasons for various species. Shapiro has extensive data from this state as well as from N. Y. He includes a record of C. eurytheme ariadne, May 7, Millertown, which he thinks is the first definite overwintered eurytheme taken in the northern Penna. Canadian Zone belt. His new records for Tioga Co. include P. virginensis and P. progne from Covington Twp., May 7, and A. hegon, L. epixanthe and C. interior from Tioga State Forest, Elk Twp., Jul. 11. The interior record is NEW TO PENNSYLVANIA, will be published elsewhere. Other vital mentions are of an L. arthemis/astyanax community in Tioga Co., freely mixing, which is another definite record for a map of the "proserpina" hybrid belt. He speaks of 52 L. portlandia taken in Elk Twp. July 20, and "several hundred" seen, pretty surely the greatest concentration ever reported of this butterfly. It was observed to oviposit on Brachyelytrum erectum, a grass on which larvae later were found in the autumn Sep. 4 at McLean, N. Y. Shapiro witnessed spring mating of N. antiopa in Philadelphia Co., March. He adds a pointed warning that Tioga State Forest was found to be mostly unusually badly infested with rattlesnakes; anyone collecting there should be prepared for this. Finally, Gilbert, collecting vic. York, sends a page of notes detailing ups and downs of various species in that area during '67 and '68. P. cresphontes, common last year, was scarce this year. L. astyanax was high, also L. portlandia. A few L. bachmanni were taken. Anisota rubicunda had an outbreak, about

30 stigma were taken, and several hundred larvae of senatoria. C. angulifera, which in most years is the most common silk moth here, was scarce again, also Catocala. Gilbert saw Abbotana clemitaria and he thinks Pherne placearia flying in the woods in mid-December.

ZONE VIII -- THE FAR NORTH. Coordinator: Lee D. Miller. Contributors: Kenelm W. and Betty Anne Philip (also reporting for G. S. Anthony, R. Barclay, J. Baust, E. Berry, J. Davies, J. Edwards, K. Goeden, L. Hume, S. G. Jewett, J. T. McBurney, K. and E. Pyne, G. Tarnstrom and L. Vierek).

ALASKA:- Specimens taken in 10 localities are noted in the report as follows: Tanana valley near Fairbanks (T), 450-1300 ft., 21 April to 8 August; Yukon valley near Central, Circle City and Circle Hot Springs, and including records from some upper tributaries of Birch Creek (Y), 600-2000 ft., 15-16, 23 June and 2-5, 13-15 July; McKinley Park and vicinity (Mc-1: below timberline; Mc-2: above timberline), 2000-4000ft., 10 June to 16 July; Egegik and Becharof Lake (B1), 0-300 ft., 23 June to 12 July; George Lake, about 120 mi. E Fairbanks in upper Tanana valley (G), 1275 ft., 17 July; Eagle and Twelve Mile Summits (E), 3100-4000 ft., 15, 23 June and 4-6, 14 July; Murphy Dome, about 20 mi. NW Fairbanks (M), 2700-2800 ft., 8, 12, 17 June and 7 July; Ester Dome, about 12 mi. W Fairbanks (Es), 2200-2300 ft., 9-27 June and 3-29 July; Anaktuvuk Pass, Brooks Range (A), 2200-4000 ft., 13-16 July; Juneau (J), 0-600 ft., 23 June and 20 July. Localities (T, Y, G, Mc1) are at or below treeline, Canadian and Hudsonian zones. Localities (E, M, Es, A, Mc-2) are above timberline and primarily dry tundra (lower ground in A is wet tundra). Locality B1 is low tundra, like that in the Aleutians.

The species recorded are: Carterocephalus palaemon (T, Mc-1, M), Erynnis persius (T, Y), Parnassius evermanni (E), Papilio machaon (T, Mc-1, E, M, Es, Mc-2), P. glaucus (T, Y, G, Mc-1, M, Es), Pieris protodice (T), P. napi (T, Y, Mc-1, E, M, Mc-2, B1, J), Colias hecla (Y, A, E), C. philodice (Mc-1, Es), C. gigantea (T), C. palaeno (T, Y, Mc-1, A, E, M, Es), C. nastes (A, E) Euchloe ausonides (T, Y), Incisalia augustinus (T, M, Es), I. polios (T), Lycaena dorcas (T, Es), Lycaeides argyrognomon (Es), Plebejus saepiolus (T), P. optilete (T, Y, G, Mc-1, M, Es), P. aquilo (E), Everes amyntula (T), Glaucopsyche lygdamus (T, Y, Es), Celastrina argiolus (T, Y, Mc-1, M, Es), Limenitis arthemis (T, G), Nymphalis milberti (J), N. antiopa (T), Polygonia faunus (T, Mc-1, Es), P. gracilis (T, M), Phyciodes campestris (T), Boloria napaea (A, E, Mc-2), B. selene (T), B. frigga (T, Y), B. improba (A, E), B. polaris (A), B. freija (T, Y, Mc-1, M, Es), B. titania (T, G, Es), B. chariclea (A, Mc-1), B. eunomia (E), Coenonympha mixturata (Y, Mc-1), Oeneis taygete (Y, Mc-1, A, E), O. bore (E) o. melissa (E, Mc-2), O. polixenes (E), Erebia rossii (A, Mc-2) E. disa (Mc-1, A), E. magdalena (E), E. fasciata (Mc-1, E, M), E. discoidalis (T, Y), E. theano (Mc-1, Mc-2), E. Youngi (E, Mc-2), E. epipsodea (T). Hesperia manitoba, Boloria chariclea, Oeneis jutta, o. polixenes and Erebia disa appear to be "odd-year" species in the Fairbanks area. Philip finding them absent in both 1966 and 1968, but present in 1967. (The Coordinator found all of these species rather common near Fairbanks in 1957, tending to support the "odd-year" theory). Boloria polaris and chariclea are also "odd-year" species at Eagle Summit, Murphy Dome and Ester Dome, but both these species were present in 1968 at Anaktuvuk Pass and McKinley Park. The Philip report was again this year a fine one and a model for other contributors to follow.

ZONE IX: THE NORTHERN NEOTROPICS. Coordinator: Eduardo C. Welling M. Contributors: E. C. Welling M., Curtis Callaghan, Mrs. Dorothy Beals.

GENERAL WEATHER CONDITIONS: Peninsula of Yucatan: In January and early February frequent northers, bringing very slight rainfall, blew into the peninsula and supposedly the whole southern coast of the Gulf of Mexico. By March the hot dry southeasterly winds dominated, and the rainy season began a whole month earlier than normal in late April in Quintana Roo and the beginning of May in Yucatan. These rains petered out by late August. Rain was spotty until late September when the season came to an abrupt end. Mild weather continued, and Nov. 1st brought the first hard norther dropping the temperature to 11° C. (52° F) the lowest temperature for the whole year. During the rest of November and December mild northers were rather continuous but dry, bringing no rain. In interior and southern Chiapas rainfall was extremely heavy and near Santa Rosa Comitan almost nothing could be collected before July. Near the Tacana volcano at the Guatemala border collectors had to seek out the lower hotter areas where rain falls hardest but lasts less time; at higher elevations no collecting at all was possible; in 6 months three sunsets were observed without rain. During September rains began at 11:00 a.m. and ceased at 6:00 a.m. the next morning, leaving 5 hours a day for collecting insects. Welling made a trip to California in early January, 1968, and returned home during mid-March. On the return trip he wanted to collect near Ensenada, Rosarito, and Tecate, Baja California Norte, but was literally driven out by tremendous storms.

MEXICO: BAJA CALIFORNIA NORTE AND BAJA CALIFORNIA SUR: Callaghan spent two weeks driving down the peninsula beginning his trip on Sept. 1st. The northern third of the peninsula was dry with hardly anything flying. Near San Vicente, Apodemia mormo and Danaus gillippus were out. South of Rosarito near the B. C. S. border, Zerene cesonia, Pieris beckerii and protodice, and Eurema nicippe were caught. Near Guerrero Negro collecting was better, Apodemia sp. and mormo, Ministrymon leda, Ascia monuste were common. At El Arco, B. C. S., Calephelis wrighti Pyrgus albescens and Z. cesonia were taken. Unidentified large skippers were taken, and at La Paz, B. C. S., collecting bettered considerably, where

Chlorostromon simaethis, M. leda, Myscelia sp., Anaea aidea, Euptoieta hegesia, Phoebis sennae, statira, and argante, Eurema nise and proterpia, Microtia dymas, Chiomara asychis, Lerodia sp., Anteos clorinde, Urbanus dorantes, and others were collected. At Cabo San Lucas, Battus philenor was taken. Welling saw only one or two Eurema (probably nicippe) and a Pieris sp. near Rosarito (south of Tijuana) before rainstorms drove him out of the area in early March.

SONORA: Welling, being followed by rainstorms, caught a Vanessa carye near Los Vidrios in the Altar Desert, and noticed some moths in the greenish vegetation, with a few scattered V. cardui. These latter increased the further south he went until in central and southern Sonora they formed a perfect migration, with a flight direction from southeast to northwest. While Welling was in San Bernadino County, California, he noticed many V. cardui on certain hot days, seemingly going north . . . probably all constituting the same migration, all this during early March. Near Benjamin Hill and other points further south, he found Pyrgus sp., Z. cesonia, E. nicippe, D. berenice (or gillippus), P. protodice, M. dymas, and other things.

SINALOA: Callaghan crossed by ferry from La Paz, Baja California Sur, to Los Mochis, Sinaloa, and found collecting near the latter locality very good, with continued good but diminished results going northward toward Nogales, Sonora. Material from Sinaloa, in September, was slightly worn but in better condition than material from Baja California Norte and Baja California Sur.

OAXACA: Collecting was better in some genera during 1968, especially in the Sierra Chinantla. Lower down, Caligo were more numerous during this year than in 1967, and Morpho peleides were plentiful. All in all, collecting was better than in 1967.

CHIAPAS: No comparative information can be given as the yearly expedition to the region of the Tacana volcano was the first. The collectors had to stay at a lower elevation due to terrible weather conditions higher up, yet came back with 63,000 specimens in 5 months collecting. Many interesting species were taken but Welling was disappointed that collecting higher up could not be done. Local people said the rains were above normal.

YUCATAN: In spite of the earlyness of the rainy season, many species were found in lesser numbers than in 1967, with some exceptions. Anaea sps. seemed to swarm whereas in 1967 they were scarcer, otherwise collecting was down from 1967. The appearance of Anaea glycerium in Yucatan is worth noting, about 7 specimens being taken.

QUINTANA ROO: Collecting was poor as many of the Graphium made a poor showing. As far as other species are concerned, either collecting was at a new low or nomadic twentieth century pirates were picking out all the good material from collections being made, therefore no real comparison can be made with certainty. A detriment to systematic scientific investigation!

GUATEMALA: SACATEPEQUEZ: Mrs. Beals reports collecting in this department on May 23, finding Eurema nise, Phyciodes texana, Vanessa atalanta, Strymon jada, Leptotes cassius and marina and a few skippers.

HUEHUETENANGO: Mrs. Beals collecting here in late May found the same as above plus Appias drusilla, Pieris protodice, Leptophobia aripa, Nathalis iole, Eurema दौरa, mexicana, boisduvaliana, Danuas plexippus, gilippus, Agraulis vanillae, Vanessa carye, Calephelis borealis and Hemiargus ceraunus.

SOLOLA: Again Mrs. Beals reporting from the village of Panajachel, finding most of the above during late May and early June, along with Phoebis sennae, Zerene cesonia, Kricogonia lyside, Heliconius charitonius, Dircenna klugi, Chlosyne theona, Dynamine mylitta, Strymon simaethis, azia, cestri, Zizula cyna, Hemiargus isola and Celastrina argiolus plus unidentified skippers.

CHIMALTENANGO: Welling received a few specimens from the Acatenango volcano at 1750 meters above sea level, but nothing special was noticed, except for a heavy July flight of Lycaena pyrithias where normally they fly in November and December in such numbers. Catasticta teutila was also way up in numbers compared to previous years.

Memoirs of the Lepidopterists' Society, Number 1 (Feb. 1964)  
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