

NOTES AND DISTRIBUTION RECORDS OF *ANOPHELES* AND *CHAGASIA* MOSQUITOES IN PANAMA BASED ON A THREE YEAR LIGHT TRAP SURVEY

FRANKLIN S. BLANTON¹ AND E. L. PEYTON²

This paper is the first of a series of small papers giving the distribution of Panama mosquitoes based on light trap operations. As pointed out by Blanton *et al.* (1955) a very comprehensive survey of the Republic of Panama was conducted during 1951 to 1953 inclusive, using light traps. This was done primarily for the purpose of establishing the distribution of *Anopheles* mosquitoes in the Republic of Panama. Both the New Jersey type light trap and the Shannon dawn trap were used in these operations; however, the Shannon trap was used less frequently. It is the purpose of this paper to record the distribution of *Anopheles* and *Chagasia* mosquitoes taken in these light trap operations. As pointed out in the paper cited, 240,573 mosquitoes, 425,141 *Culicoides*, and 39,023 *Phlebotomus* were taken. There were other biting Diptera such as Tabanidae and Simuliidae, which will be treated in other manuscripts.

There are many mosquitoes that are diurnal and are not attracted to light. The sabethines, represented by four genera in Panama (*Limatus*, *Trichoprosopon*, *Sabethes*, and *Wyeomyia*) are not especially attracted to lights. Most of the *Haemagogus* species are only slightly attracted to light and there are other genera in this category. It is planned to treat each genus in a series of short papers where the numbers of specimens taken will permit.

The present paper deals with the genus *Anopheles*, the species of which have caused more misery than any other group

of insects. *Chagasia bathanus* has also been included. A total of fifteen species of *Anopheles* have been taken in our surveys.

These are as follows: *albimanus*, *albitarsis*, *anomalophyllus*, *apicimacula*, *aquasalis*, *argyritarsis*, *eiseni*, *neivai*, *neomaculipalpis*, *oswaldoi*, *punctimacula*, *pseudopunctipennis*, *squamifemur*, *strodei* and *triannulatus*.

Other species of *Anopheles*, that the authors have taken in Panama by other methods include *kompfi*, *parapunctipennis*, *vestitipennis*, and *xelajuensis*. This makes a total of 19 species collected by the authors in Panama. Of these 19 species, *Anopheles albimanus* is thought to be the cause of most malaria cases in Panama; however, *Anopheles punctimacula* has no doubt been responsible for a number of cases.

The following species of *Anopheles* have been found infected in nature: *albimanus*, *albitarsis*, *aquasalis*, *argyritarsis*, *pseudopunctipennis*, *punctimacula*, *strodei*, and *vestitipennis*.

Komp (1942) has published an excellent treatise on the anophelines of Panama and Arnett (1947) published many new records of the distribution of Panama species. *Anopheles squamifemur* is not listed in either of these publications. It is easily distinguished from all other anophelines by having a very prominent tuft of long black scales on the hind femur.

We have listed the species alphabetically regardless of subgenera, and have also listed the provinces and localities alphabetically. We have treated the Canal Zone as a province of Panama although actually it is a part of the Colon and Panama Provinces. The dates have been listed by month. In some localities several surveys were made during a given month and the dates are given from the first to the last night's operation in that locality for that

¹ Lieutenant Colonel, MSC, formerly Entomologist, U. S. Army Caribbean, Fort Clayton, Canal Zone, now with Army Medical Service Graduate School, Walter Reed.

² Sergeant, First Class, Preventive Medicine Technician, formerly 25th Medical Detachment, Fort Clayton, Canal Zone, now with 6th Army Area Laboratory, Fort Baker, California.

month. For instance: Mojinga Swamp, 15-28 Aug., (7); Means that at least two and perhaps more surveys were made from 15-28 August and a total of seven (7) specimens were taken.

Anopheles albimanus and *Anopheles punctimacula* have the widest distribution. Some species are very rare. *Anopheles squamifemur* is very rare in the Canal Zone. Only one male has been taken and that was in the Mojinga Swamp.

DISTRIBUTION RECORDS

Chagasia (Anopheles) bathanus Dyar, Carnegie Ins. Wash., Pub. 387, 433, 1928. (Type Loc.: Gatun, C. Z.) **Bocas del Toro:** Almirante, 10-26 Nov. (38); 1-16 Dec. (51); 6-13 Jan. (11); 17-29 Apr. (20). **Canal Zone:** Madden Dam, 21 Sept. (5), Loma Boracho, 26 June (3); 2 July (2); Loma Boracho, Position 9, 12 May (2); Mojinga Swamp, 8-30 Jan. (6); 29 Apr. (1); 7-21 May (21); 21-23 July (6); 15 Aug. (1); 24-29 Oct. (26); 8-26 Nov. (17); 4-5 Dec. (4). **Cocle:** Rio Hato, 27 June (4). **Los Santos:** Pena Blanca, 27 Oct. (1). **Panama:** Cerro Azul, "Sta C", 4 June (1); Cerro Campana, 23 Apr. (1); Nuevo Emperador (Paja), 13 Oct. (1); Pacora, 17 Feb. (2).

Anopheles albimanus Wiedemann, Dipt. Exot., 1:10, 1821. (Type Loc.: Ins. St. Domingo, [Hispaniola].) **Bocas del Toro:** Almirante, 15-30 Apr. (17); 1 May (48). **Canal Zone:** Fort Davis, 11 May (1); Fort Sherman, 29 Apr. (1); France Field, 22 Apr. (3); Galeta Island, 31 Oct. (1); Gatun Lake (Atlantic Side) 2 May (1); Las Cruces, 25 Jan. (1); Loma Boracho, 8 July (1); Loma Boracho, Position 9, 8 May (1); 23 June (1); 17 July (1); Madden Dam, 28 Apr. (4); 21 Sept. (3); Mandinga River, 17 Jan. (29); 28 Mar. (19); 25 Apr. (8); 13 May (15); 15 May (64); Mindi Dairy, 12 June (12); 3 Dec. (16); Mojinga Swamp, 3-30 Jan. (14); 13-15 May (5); 7 Feb. (1); 29 Apr. (3); 6-14 May (96); 10 July (1); Mojinga Swamp, Station 1, 15-28 Aug. (7); Mojinga Swamp, Station 2, 29 Oct. (12);

8-28 Nov. (17); 5-10 Dec. (8); Mojinga Swamp, Station 4, 28 Aug. (1); Tarpon Club, 16 Oct. (1). **Chiriqui:** Boca Chica, 18 Dec. (1); David, 15 Dec. (1); Tortugas, 16 Dec. (4). **Cocle:** Agua-dulce, 25 Sept. (18); Anton, 11 Nov. (3); Chiru, 10 Nov. (2); El Barrero, 12 Nov. (2); El Cristo, 22 Nov. (2); Penonome, 23 Nov. (3); Port of Farallon, 9 Nov. (5); Rio Hato, 27 June (1); 24-26 Sept. (26). **Colon:** Cativa, 27 Aug. (11); Piña, 18 Aug. (2). **Darien:** El Real, 19 Mar. (7); 20-21 July (145); 8 Aug. (215); Garachine, 16-23 Feb. (14); Jaque, 24-28 July, (14); 10-12 Aug. (56); Patino Point, 12-26 July (34); 6-28 Aug. (60); 1-27 Sept. (6). **Herrera:** Ocu, 25 Nov. (11); Los Pozos, 22 Oct. (1); Paris 23 Oct. (4); Pese, 22 Oct. (1). **Los Santos:** Las Lajas, 26 Oct. (1); Port Mensabe, 22 Oct. (1); Santo Domingo, 26 Oct. (1). **Panama:** Arraijan, 22 Jan. (3); 26 Mar. (2); 7 Apr. (2); 24 June (10); 2-14 Aug. (10); 14 Sept. (1); 7 Oct. (1); Camaron, 23 June (1); 17 July (2); 17 Oct. (4); Capitana, 25 Sept. (44); Chepo, 25 Sept. (11); El Coco, 10 Sept. (1); Juan Diaz, 24 Sept. (2); La Chorrera, 8 Sept. (1); La Jolla, 6-20 Mar. (9); 26 June (1); 31 Aug. (13); 7-23 Sept. (7); Naranjal, 1 Oct. (1); Nuevo Emperador, (Paja), 13 Oct. (1); Old Panama, 26 Sept. (20); Pacora, 27 Jan. (10); 29 Sept. (3); Palm Beach, 17 Sept. (1); Pan de Azucar, 10 Oct. (1); Pena Blanca, 9 Sept. (3); Port of Chorrera, 9 Sept. (3); Rio Las Lajas, 17 Sept. (1); Tocumen, 5-29 Jan. (154); 4-10 Feb. (205); 14 Apr. (1); 2-29 Sept. (21); 17 Nov. (3); 4-21 Dec. (85); Venado Beach, 28 July (1); Vique Cove, 7 Oct. (125). **Perlas Islands:** Rey Island, 27 Jan. (3); **Veraguas:** Divisa, 25 Nov. (4); Las Palmas, 16 July (1); Santiago, 24 Nov. (1); Sapatillo, 14 July (2).

Anopheles albitarsis Arribalzaga, El Nat. Arg., 1:151, 1878. (Type Loc.: El Baradero, Argentina). **Cocle:** Chiru, 10 Nov. (10).

Anopheles anomalophyllus Komp, Proc. Ent. Soc. Wash. 38:160, 1926. (Type

Loc.: Almirante, Panama.) **Chiriqui:** David, 13 Dec. (1); Pedregal, 13 Dec. (1). **Cocle:** Chiru, 10 Nov. (11). **Veraguas:** El Maria, 14 July (1).

Anopheles apicimacula Dyar and Knab, Proc. Biol. Soc. Wash. 19:136. (Type Loc.: Livingston, Guatemala.) **Bocas del Toro:** Almirante, 12-27 Jan. (23); 15-28 Apr. (6); 11 Nov. (1); 11 Dec. (2). **Canal Zone:** Albrook Field, 19 June (4); Fort Clayton, 1 July (8); Fort Davis, 28 Aug. (2); 6 Nov. (4); Fort Kobbe, 17 Oct. (3); Fort San Lorenzo, 15 Aug. (1); Fort Sherman, 7 June (1); Galeta Island, 31 Oct. (2); 5 Nov. (1); Huile Sia Clara, 13 Oct. (1); Las Cruces, 25 Jan. (8); Loma Boracho, 18-26 June (155); 2-22 July (180); 29 Oct. (1); Loma Boracho, Position 9, 19-23 June (12); 7-24 July (18); Madden Air Strip, 25 Feb. (14); 9 Oct. (3); Mandinga River, 17 Jan. (5); 13-15 May (15); Mindi Dairy, 15 Aug. (3); Mojinga Swamp, 2-31 Jan. (28); 6-27 Feb. (3); 28-29 Apr. (3); 5-21 May (122); 17-30 June (123); 1-28 July (457); 15 Aug. (18); Mojinga Swamp, Station 1, 4 Oct. (1); 15-27 Nov. (28); 11-18 Dec. (6); Mojinga Swamp, Station 2, 21 Aug. (1); 29 Oct. (67); 8-28 Nov. (97); 5-10 Dec. (10); Mojinga Swamp, Station 4, 5 Sept. (2); 7-26 Nov. (3); 4 Dec. (1); Tarpon Club (Atlantic Side), 16 Oct. (3). **Chiriqui:** David, 17-18 Dec. (2); El Volcan, 6 Dec. (2); Horconcitos, 18 Dec. (3); Tortugas, 16 Dec. (1). **Cocle:** El Valle, 23 Jan. (2); 4 Aug. (1); Chiru, 10 Nov. (1); Penonome, 23 Nov. (1). **Colon:** Cativa, 27 Aug. (23); New Chagres, 19 Aug. (2). **Darien:** Patino Point, 16-18 July (15); 13-17 Aug. (2). **Los Santos:** Port Mensabe, 22 Oct. (1). **Panama:** Cameron, 23 June (1); Cermeno, 11 Sept. (9); La Jolla, 7-27 Mar. (10); Pan de Azucar, 10 Nov. (8); Potrero, 11 Sept. (2); Tapagra, 1 Oct. (1); Tocumen, 6-7 Jan. (3); 4-13 Feb. (4); 29 Sept. (1). **Veraguas:** El Maria, 14 July (1); Las Palmas, 10 July (1); Santiago, 24 Nov. (1) Sapotillo, 14 July (21).

Anopheles aquasalis Curry, Am. Jour.

Hyg. 15:566, 1932. (Type Loc.: Panama.) **Canal Zone:** Fort Sherman, 7 June (1); For San Lorenzo, 15 Aug. (1); France Field, 22 Apr. (1); Galeta Island, 31 Oct. (3); 5 Nov. (1); Loma Boracho, 22 July (1); Mandinga River, 17 Jan. (1); Mindi Dairy, 15 Aug. (1); Mojinga Swamp, 7 Jan. (3); 5 Feb. (1); 13 May (1); 17 June (1); 14 July (1); 21-22 Aug. (3); 29 Oct. (4); 8 Nov. (2); 12 Dec. (1).

Anopheles argyritarsis Robineaux-Desvoidy, Mem. Soc. Hist Nat., Paris, 3:411, 1827 (Type Loc.: Brazil.) **Chiriqui:** Tortugas, 16 Dec. (1). **Cocle:** Chiru, 10 Nov. (9); Port of Farallon, 9 Nov. (1). **Herrera:** Ocu, 25 Nov. (1).

Anopheles eiseni Coquillett, Jour. N. Y. Ent. Soc., 10:192, 1902. (Type Loc.: Aguna, Guatemala.) **Bocas del Toro:** Almirante, 7-19 Jan. (3); 24 Nov. (1). **Canal Zone:** Fort Sherman, 7-24 June (2); Huile Sia Clara, 10 Oct. (1); Loma Boracho, 26 June (1); 8-22 July (7); 29 Oct. (2); Loma Boracho, Position 9, 23 June (1); Madden Dam, 27 June (1); Mojinga Swamp, 3-19 Jan. (3); 28 Apr. (1); 24 June (1); 9-21 July (4); Mojinga Swamp, Station 1, 15-27 Nov. 10-18 Dec. (1); Mojinga Swamp, Station 2, 21 Aug. (1); 29 Oct. (1); 14-28 Nov. (11); 5-10 Dec. (3); Mojinga Swamp, Station 4, 5 Sept. (5); 24 Oct. (3); 7 Nov. (2); 4-12 Dec. (4). **Panama:** Bayano, 8 Apr. (1); La Jolla, 31 Aug. (1). **Los Santos:** Pedregoso, 28 Oct. (1).

Anopheles neivai Howard, Dyar & Knab, Mosquitoes of N. and C. Amer. and W.I. (Type Loc.: Panama.) **Bocas del Toro:** Almirante, 7-21 Jan. (8); 10-26 Nov. (4); 11-14 Dec. (2). **Canal Zone:** Fort Davis, 28 Aug. (1); Fort Sherman, 7 June (1); Loma Boracho, 26 June (1); Mojinga Swamp, 2-31 Jan. (15); 7 Feb. (1); 7-21 May (44); 17-30 June (5); 9-23 July (31); 4-21 Aug. (4); 5 Sept. (1); 24-29 Oct. (23); 8-28 Nov. (43); 4-12 Dec. (26).

Anopheles neomaculipalpus Curry, Am. Jour. Hyg., 13:643, 1931. (Type Loc.: Panama, R. de P.) **Canal Zone:** Fort Davis, 6 Nov. (1); Fort Kobbe, 17 Oct.

(3); Loma Boracho, 8 July (2); Mandinga River, 17 Jan. (1); Mindi Dairy, 15 Aug. (15); 3-17 Dec. (217); Mojinga Swamp, 8-19 Jan. (11); 10 July (1); 20 Nov. (4); 4-11 Dec. (2). **Chiriqui:** Boca Chica, 18 Dec. (11); David, 17 Dec. (1); Horconcitos, 18 Dec. (1). **Cocle:** Aguadulce, 25 Sept. (4); Anton, 11 Nov. (53); Chiru, 22 Nov. (1); El Cristo, 22 Nov. (1); La Venta, 8 Nov. (1); Nata, 20 Nov. (1); Pocri, 21 Nov. (3); Port Farallon, 8-9 Nov. (32); Port Obaldia, 11 Nov. (207); Rio Hato, 8-9 Nov. (4); Villa Real, 12 Sept. (4). **Darien:** El Real, 20 July (2); 8-21 Aug. (14); Patino Point, 12-14 July (2); 17 Aug. (17). **Herrera:** Ocu, 25 Nov. (4); Paris, 23 Oct. (15); Parita, 23 Oct. (4); Pese, 22 Oct. (2). **Los Santos:** Pedregoso, 28 Oct. (1); Santo Domingo, 26 Oct. (2). **Panama:** Arraijan, 7 Oct. (1); Camaron, 17 July (1); 17 Oct. (2); Capitana, 25 Sept. (121); Chepo, 25 Sept. (8); Juan Diaz, 24 Sept. (28); La Chorrera, 8 Sept. (1); La Jolla, 31 Aug. (4); Naranjal, 1 Oct. (1); Nueva Gorgona, 16-29 Sept. (84); Pacora, 27 Jan. (7); Pan de Azucar, 10 Oct. (9); Rio Las Lajas, 17 Sept. (3); Tapagra, 1 Oct. (2); Tocumen, 5-29 Jan. (225); 4-6 Feb. (217); 2-29 Sept. (142); 17 Nov. (307); 4-21 Dec. (351).

Cellia oswaldoi Peryassú, 1922, A Folha Med., III, p. 179. (Type Loc.: Espirito Santo, Rio de Janeiro, Minas Gerais, Brazil.) **Canal Zone:** Fort Sherman, 7 June (10); Loma Boracho, 18-26 June (250); 2-22 July (199); 17-29 Oct. (16); Loma Boracho, Position 9, 2-12 May (7); 19-23 June (14); 7-24 July (12); Mindi Dairy, 3 Dec. (2); Mojinga Swamp, 3-30 Jan. (463); 5-7 Feb. (41); 16-29 Apr. (14); 7-20 May (151); 17-30 June (218); 1-28 July (873); 15 Aug. (9); Mojinga Swamp, Station 1, 15-28 Aug. (136); 4 Oct. (57); 15-27 Nov. (171); 11-18 Dec. (86); Mojinga Swamp, Station 2, 21 Aug. (229); 29 Oct. (1905); 8-28 Nov. (2250); 5-10 Dec. (306); Mojinga Swamp, Station 3, 22 Aug. (1); Mojinga Swamp, Station 4, 28 Aug. (62); 4-5 Sept. (178); 24 Oct. (72); 7-26 Nov. (80); 4-12 Dec.

(117). **Colon:** Piña, 18 Aug. (1). **Panama:** La Jolla, 25 June (2); 7 Sept. (2). **Veraguas:** Sapotilla, 14 July (3). *Anopheles punctimacula* Dyar and Knab, Proc. Biol. Soc. Wash., 19:136, 1906. (Type Loc.: Colon, Panama.) **Bocas del Toro:** Almirante, 12-26 Jan. (2); 20-29 Apr. (24). **Canal Zone:** Fort Sherman, 7 June (2); Loma Boracho, 18-26 June (182); 2-22 July (133); 23-29 Oct. (36); Loma Boracho, Position 9, 8 May (1); 19-23 June (7); 7-24 July (9); Madden Dam, 27 June (1); 21 Sept. (1); Mandinga River, 17 Jan. (16); 25 Apr. (1); 13-15 May (6); Mindi Dairy, 3-17 Dec. (12); 12 June (9); 15 Aug. (1); Mojinga Swamp, 2-31 Jan. (276); 5-26 Feb. (11); 16-29 Apr. (7); 2-21 May (130); 17-30 June (53); 9-28 July (359); 15 Aug. (12); Mojinga Swamp, Station 1, 15-28 Aug. (23); 4 Oct. (5); 15-27 Nov. (38); 11-18 Dec. (11); Mojinga Swamp, Station 2, 21 Aug. (56); 29 Oct. (328); 8-28 Nov. (900); 5-10 Dec. (116); Mojinga Swamp, Station 4, 28 Aug. (4); 24 Oct. (6); 7-26 Nov. (10); 4-12 Dec. (18); Tarpon Club (Atlantic Side), 16 Oct. (1). **Chiriqui:** David, 15-16 Dec. (3). **Cocle:** Aguadulce, 7 Aug. (7); 25 Sept. (196); Anton, 11 Nov. (1); Rio Hato, 24-26 Sept. (3); **Colon:** Cativa, 27 Aug. (10); Salud, 20 Aug. (1). **Darien:** Patino Point, 16-18 July (15); 14-17 Aug. (21). **Herrera:** Paris, 23 Oct. (7); Pese, 22 Oct. (2). **Los Santos:** Pena Blanca, 9 Sept. (3). **Panama:** Arraijan, 22 Jan. (2); 2-14 Aug. (19); 14 Sept. (14); Camaron, 23 June (3); Capitana, 25 Sept. (9); Chepo, 25 Sept. (17); Juan Diaz, 24 Sept. (34); La Chorrera, 8 Sept. (4); La Jolla, 6-27 March (9); 31 Aug. (15); 7-22 Sept. (10); Old Panama, 26 Sept. (3); Pacora, 27 Jan. (11); 5 Feb. (5); 18 May (1); 29 Sept. (2); Palma Beach, 17 Sept. (1); Tocumen, 5-29 Jan. (207); 4-10 Feb. (76); 23-29 Sept. (29); 17 Nov. (32); 4-20 Dec. (26); Vique Cove, 7 Oct. (5). **Veraguas:** Sapotilla, 14 July (1).

Anopheles pseudopunctipennis Theobald, Mon. Cul., 2:305, 1901. (Type

Loc.: Grenada, B.W.I.) **Bocas del Toro:** Almirante, 30 Apr. (1); 1 May (2). **Canal Zone:** Loma Boracho, 16 July (2); Loma Boracho, Position 9, 12 May (4); Mojinga Swamp, 29 Apr. (2); 7-21 May (14); 25-30 June (5); 28 Aug. (22). **Cocle:** Rio Hato, 25 June (1); 3 Aug. (1). **Herrera:** Los Pozos, 22 Oct. (3); Ocu, 21 March (2); Pese, 22 Oct. (5). **Los Santos:** Guarare, 23 Oct. (1); La Yeguada, 21 Oct. (2); Las Lajas, 26 Oct. (1); Las Palmas, 26 Oct. (1); Los Santos, 24 Oct. (3); Pena Blanca, 27 Oct. (4); Santo Domingo, 26 Oct. (1). **Panama:** Arraijan, 26 March (1); 24 June (3); Cabuya, 16 Sept. (1); Camaron, 23 June (1); 17 July (2); La Jolla, 29 Apr. (1); Pacora, 18 March (3); Potrero, 11 Sept. (1); Tocumen, 14 Apr. (1). **Verguinas:** El Maria, 14 July (2); Santiago, 24 Nov. (1); Sapotilla, 14 July (2).

Anopheles squamifemur Antunes, Bull. Ent. Res. 28:69, 1937. (Type Loc.: Restrepa, Meta, Columbia.) **Bocas del Toro:** Almirante, 14-21 Jan. (3); 2 Feb. (2); 17-26 Nov. (15); 1-11 Dec. (6). **Canal Zone:** Mojinga Swamp, 30 Jan. (1); 5 Feb. (1); 14-29 Apr. (53); 7-20 May (38); 25-30 June (26); 1-23 July (24); 15-17 Nov. (5); 24-29 Oct. (6); 4-12 Dec. (4).

Anopheles strodei Root, Amer. Jour. Hyg. 6:711, 1926. (Type Loc.: Juiz de Fora, Minas Gerais, Brazil.) **Cocle:** Anton, 11 Nov. (2). **Panama:** Pacora, 29 Sept. (2); Tocumen, 21 Jan. (11); 4-10 Feb. (209); 29 Sept. (14); 17 Nov. (126); 4 Dec. (4).

Cellia triannulata Neiva and Pinto, 1922, Brazil-Medico, 36:356. (Type Loc.: Matto Grosso, Brazil.) **Canal Zone:** Loma Boracho, 26 June (1); Madden

Dam, 8 Oct. (1); Mandinga River, 25 Apr. (77); 13-15 May (283); Mojinga Swamp, 20 May (1); 17 June (1); 29 Oct. (2). **Chiriqui:** Boca Chica, 18 Dec. (1). **Cocle:** Aguadulce, 25 Sept. (6); Villa Real, 12 Sept. (3). **Colon:** Cativa, 27 Aug. (2). **Herrera:** Parita, 23 Oct. (5); Pese, 22 Oct. (1). **Los Santos:** Pena Blanca, 9 Sept. (1); Las Tablas, 24 Oct. (1). **Panama:** Arraijan, 24 June (1); Camaron, 17 July (2); Capitanana, 25 Sept. (5); La Chorrera, 8 Sept. (2); Pacora, 27 Jan. (5); Tocumen, 20-29 Jan. (154); 4-6 Feb. (319); 29 Sept. (9); 17 Nov. (2); 4 Dec. (1).

SUMMARY

This paper represents the first in a series of short papers dealing with the distribution of Panama mosquitoes based on the light trap studies conducted in Panama by the 25th Medical Detachment of Fort Clayton, Canal Zone.

The present paper presents the distribution of 15 of the 19 species of *Anopheles* mosquitoes collected by the authors in Panama, and of *Chagasia bathanus*, the only species of this genus known to occur in Panama.

Other small papers will follow giving results of light trap operations in Panama for other genera of mosquitoes.

Literature Cited

ARNETT, ROSS H., Jr. 1947. Notes on the distribution, habits and habitats of some Panama mosquitoes (Diptera, Culicidae). Jour. N. Y. Ent. Soc. 55:185-200.

BLANTON, FRANKLIN S., GALINDO, PEDRO and PEYTON, E. L. 1955. Report of a three year light trap survey for biting diptera in Panama. Mosquito News 15:90-93.

KOMP, W. H. W. 1942. The Anopheline mosquitoes of the Caribbean region. Nat. Ins. Health Bull., No. 179, U. S. Pub. Health Serv.