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*Bredin-Archbold-
Smithsonian Biological
Survey of Dominica:
The Mosquitoes
of Dominica
(Diptera: Culicidae)*

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ABSTRACT

Twenty-two species of mosquitoes are reported from the island of Dominica, seventeen for the first time. The synonymy of *Wyeomyia medioalbipes* (Lutz) is discussed and *W. adelpha* Dyar and Knab is resurrected, with *W. ablabes* Dyar and Knab and *W. rolonca* Dyar and Knab placed as synonyms of it. Notes on biology and distribution are given for all species.

The material on which this paper is based was collected mostly by Dale F. Bray, J. F. G. Clarke, R. E. Darsie, Jr., H. E. Evans, R. J. Gagné, A. B. Gurney, P. J. Spangler, G. E. Steyskal, and W. W. Wirth for the Bredin-Archbold-Smithsonian Biological Survey of Dominica. The only other material includes a small number of specimens collected by August Busck in 1905, one collection made prior to 1908 by F. E. Campbell, a few specimens taken in 1944 by an unknown collector, and a few collected by Clarke in 1956, and Darsie in 1959. The fauna consists of 22 species, 17 of which are reported from Dominica for the first time, but all previously described and none confined to Dominica. The following species are known from Dominica:

1. *Anopheles* (*Nyssorhynchus*) *aquasalis* Curry
2. *Anopheles* (*Nyssorhynchus*) *argyritarsis* Robineau-Desvoidy
3. *Toxorhynchites* (*Lynchiella*) *guadeloupensis* (Dyar and Knab)
4. *Trichoprosopon* (*Isostomyia*) *perturbans* (Williston)
5. *Wyeomyia* (*Wyeomyia*) *medioalbipes* Lutz
6. *Wyeomyia* (*Wyeomyia*) *pertinans* (Williston)
7. *Limatus* *durhami* Edwards
8. *Psorophora* (*Janthinosoma*) *ferox* (Humboldt)
9. *Aedes* (*Ochlerotatus*) *taeniorhynchus* (Wiedemann)
10. *Aedes* (*Ochlerotatus*) *tortilis* Theobald
11. *Aedes* (*Howardina*) *busckii* (Coquillett)
12. *Aedes* (*Stegomyia*) *aegypti* (Linnaeus)
13. *Culex* (*Culex*) *declarator* Dyar and Knab
14. *Culex* (*Culex*) *inflictus* Theobald
15. *Culex* (*Culex*) *nigripalpus* Theobald
16. *Culex* (*Culex*) *pipiens quinquefasciatus* Say
17. *Culex* (*Culex*) *secutor* Theobald
18. *Culex* (*Melanoconion*) *atratus* Theobald
19. *Culex* (*Melanoconion*) *elevator* Dyar and Knab
20. *Culex* (*Melanoconion*) *idottus* Dyar
21. *Culex* (*Aedinus*) *bisulcatus* (Coquillett)
22. *Deinocerites* *magnus* (Theobald)

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As the original citations and synonymy for all of the species can be found in Stone, Knight, and Starcke (1959), they are not repeated in this paper.

The mosquito fauna of Dominica may be divided into several zoogeographical categories. Three of the species, *Trichoprosopon perturbans*, *Wyeomyia pertinans*, and *Aedes busckii*, appear to be confined to the Lesser Antilles. All of these species probably breed in water held in plants or in artificial containers. Several other species are primarily Caribbean, some extending down eastern South America to southern Brazil. These are *Wyeomyia medioalbipes*, *Aedes tortilis*, *Culex secutor*, *C. atratus*, *C. bisulcatus*, and *Deinocerites magnus*. The majority of the species are more widely distributed in the neotropical region. In this group are the two *Anopheles*, the *Limatus*, and the *Toxorhynchites*, as well as *Culex declarator*, *C. inflictus*, *C. nigripalpus*, *C. elevator*, and *C. idottus*. With the exception of *C. nigripalpus*, which extends to the United States, and *T. guadeloupensis*, which reaches to Hispaniola, all of these species are primarily continental neotropical, the records from the Lesser Antilles being northward extensions from South America. Two other species, *Psorophora ferox* and *Aedes taeniorhynchus*, have an even wider distribution in the New World, the latter primarily coastal. Finally there are two highly domesticated tropicopolitan species, *Aedes aegypti* and *Culex pipiens quinquefasciatus*.

As all of the species have been rather well described, keyed, and figured previously, I have confined the following remarks to brief statements on distribution and biology and to a listing of the collection data for Dominica.

1. *Anopheles* (*Nyssorhynchus*) *aquasalis* Curry

This species was described from Panama, and it is found from Nicaragua and the island of Antigua to

Ecuador and the State of São Paulo, Brazil. It is primarily a coastal species, breeding in brackish water, although it may be found in salt marshes, mangrove swamps, ditches, and the shallow margins of rivers breeding in the open sun. This may be an important malaria carrier and will feed on man both indoors and outside, but it is primarily a zoophilic species on domestic animals. It is most active at dusk and will bite all night. It has a flight range up to nearly 5 miles.

DOMINICA RECORDS.—Cabrits Swamp, light trap, 23 February 1965 (Wirth), 54 ♀ 5 ♂; Clarke Hall, 21–28 February, light trap (Wirth), 2 ♀; 21–31 March, light trap (Wirth), 1 ♀; Portsmouth, 2 March 1964, at light (Bray); 19–21 October 1966 (Gurney), 1 ♀.

2. *Anopheles (Nyssorhynchus) argyritarsis* Robineau-Desvoidy

This is a widespread neotropical species, ranging from Tamaulipas, Mexico, and Antigua, West Indies, to Argentina and Uruguay. It breeds in freshwater ground pools or swamps with little vegetation, partially shaded or exposed to sunlight, but may also be found in rock and tree holes and water-filled hoof-prints. It feeds primarily on domestic animals but will feed on man. It usually rests outdoors especially on grass but will rest in houses. It is probably of no importance as a malaria vector.

DOMINICA RECORDS.—Bath Estate, Roseau, May 1944, 1 ♀, 3 ♂; Clarke Hall, 21–31 March 1965, light trap (Wirth), 2 ♂; Grand Bay, 13 March 1964, at light (Bray), 1 ♀.

3. *Toxorhynchites (Lynchiella) guadeloupensis* (Dyar and Knab)

This is the only member of the genus found in the Lesser Antilles. It has been reported from Hispaniola to Colombia, Bolivia, and Argentina. The larvae are found in bromeliads and feed on the larvae of mosquitoes, including their own species. The adults are not capable of sucking blood.

DOMINICA RECORDS.—Layou Valley, Clarke Hall 20–28 February 1965 (Evans), 1 ♂; Cocoa Trail, Clarke Hall, 16 February 1965 (Wirth), 1 ♂; Clarke Hall, 20 February, 14 March 1964 (Bray), 2 ♂; 22 May 1966 (Steyskal), 1 ♂; Antrim, 1,000 feet, 11 March 1956 (Clarke), 1 ♀; Castle Bruce, 19 April, 1959, ex bromeliad (Darsie), 1 ♂; Manets Gutter, 21 March 1964 (Bray), 3 ♀.

4. *Trichoprosopon (Isostomyia) perturbans* (Williston)

Williston described this species from St. Vincent from eight specimens, although now only four are in the British Museum. Two of these four are males but the abdomens are missing and all of the specimens are in very poor condition. Although the species was re-described by Dyar (1928), including a description of the male terminalia, he did not have the species before him, and there are no other specimens under this name in the United States National Museum. Dyar's description was apparently drawn from that of Bonne-Wepster and Bonne (1921). They described the male from a topotype found among specimens of *Wyeomyia pertinans* Williston.

I have identified the specimens listed below as this species for several reasons. *Trichoprosopon perturbans* is the only member of the genus reported from the Lesser Antilles; these specimens do not agree with any other described member of the subgenus; the male terminalia agree very well with Dyar's description except that the number of spines on tergum IX instead of being 7/7 are 6/7 and 5/5 in the two terminalia mounted; externally the specimens fit the original and subsequent descriptions of *perturbans*, except that the line separating the dark and light scales of the abdomen is somewhat sinuous rather than being a "nearly straight line." Collection of good material from St. Vincent might show that the species on Dominica is undescribed, but at present it would seem unwise to assume this. Although the species has been reported from Honduras, Guatemala, and Venezuela, none of these records has been confirmed. Nothing is known of the biology of this species.

DOMINICA RECORDS.—Clarke Hall, 11, 31 January 1965, malaise trap (Wirth), 2 ♀; Clarke Hall Estate, 28 March 1966 (Gagné), 1 ♀; Manets Gutter, 1 March 1965 (Wirth), 1 ♂; Fond Figue River, 400 feet, 12, 29 April 1966 (Gagné), 2 ♂.

5. *Wyeomyia (Wyeomyia) medioalbipes* Lutz

This species was not rediscovered on Dominica by this survey, but the name is included here because Dominica is the type locality of *Wyeomyia abia* Dyar and Knab, which supposedly is a synonym of *medioalbipes*. The type series of *abia* consists of the lectotype female and a male with terminalia missing. *Wyeomyia abia* was first synonymized with *W. quasiluteoventralis*

(Theobald) by Dyar (1928). Later Lane (1953) decided to reject the name *quasiluteoventralis* on the grounds that no type could be found and the species could not be recognized from the original description. For *quasiluteoventralis* of later authors he accepted *medioalbipes* after removing *W. teletica* Dyar and Knab from the synonymy. Bruijning (1959) gave excellent illustrations of the male terminalia, larva, and pupa of *medioalbipes*, resynonymized *teletica*, and placed *W. mitchellii* (Theobald) and all of its supposed synonyms except *W. labesba* Howard, Dyar, and Knab in synonymy. Bruijning also included *W. homothe* Dyar and Knab, transferring it from synonymy under *W. scotinomus* (Dyar and Knab), and *W. fallax* Bonne-Wepster and Bonne, transferring it from synonymy under *W. oblita* (Lutz). He also suggested that *W. charmion* Dyar might be synonymous.

I favor considering *quasiluteoventralis* as being unidentifiable and accepting the name *medioalbipes* based on the male syntype in the British Museum. As junior synonyms of *W. medioalbipes* Lutz, 1904, I accept the following: *Dendromyia mitchellii* Theobald, 1905, *D. jamaicensis* Theobald, 1905, *Wyeomyia ochrura* Dyar and Knab, 1906, *W. teletica* Dyar and Knab, 1906, *W. antoinetta* Dyar and Knab, 1909, and *W. quasiluteoventralis* var. *colsoni* Senevet and Quiévreux, 1941.

The following species either were based on females or larvae or on males for which no terminalia are available and therefore the identity cannot be certain. As these species fall within the known range of *medioalbipes* and as a synonymy with one of the above-mentioned synonyms has already been made, there seems to be no reason for not accepting the synonymy under *medioalbipes*. These species are: *Wyeomyia virescens* Dyar and Knab, 1906, *W. glaucocephala* Dyar and Knab, 1906, *W. abascanta* Dyar and Knab, 1908, *W. abia* Dyar and Knab, 1908, and *W. fallax* Bonne-Wepster and Bonne, 1919. This last species was described from the female and larva only, but a male determined as *fallax* by Bonne-Wepster labeled, "Surinam 1918" in the United States National Museum agrees well with *medioalbipes*.

For reasons given below, I do not accept the following species as synonyms of *medioalbipes*.

Wyeomyia adelpha Dyar and Knab, 1906: This species was described from females only—the ten known specimens of the type series are all females—but because it was described from Costa Rica and be-

cause a male from Costa Rica determined by Dyar as *adelpha* shows a distinct difference in the terminalia, it cannot be considered synonymous with *medioalbipes*. No chronologically prior name appears to be available for this species. If we accept Dyar's determination of the male as correct, it appears necessary to resurrect the name *adelpha*. It is possible that *guatemala* is synonymous, but if this becomes evident from further study I would favor retaining the name *adelpha* for the species. Two other names appear to be junior synonyms of *adelpha*, namely *W. ablakes* Dyar and Knab and *W. rOLONCA* Dyar and Knab (new synonymy). Probably most specimens from Central America that have been determined as *mitchellii* are actually *adelpha*, and some of the synonyms of *W. scotinomus* Dyar and Knab may also be *adelpha*. Fortunately *adelpha* has priority over all of these. The need remains for a thorough revision of all the members of the subgenus *Wyeomyia*.

Wyeomyia guatemala Dyar and Knab, 1906: This is based on females only, but as it comes from Guatemala identity with *medioalbipes* is very doubtful. As stated above, it is quite possible that this is a synonym of *adelpha*.

Wyeomyia homothe Dyar and Knab, 1907: This species also was described from a female from Panama. In the absence of evidence to the contrary it should remain as a synonym of *W. scotinomus*.

Wyeomyia ablakes Dyar and Knab, 1908: The lectotype male of this species agrees very well with the species that I have considered above as *adelpha*, and I have therefore placed *ablakes* in synonymy.

Wyeomyia ablechra Dyar and Knab, 1908: This species was described from the female only, but because the type locality is El Salvador identity with *medioalbipes* is very doubtful. It will have to remain as an unidentified species for the present.

Wyeomyia rOLONCA Dyar and Knab, 1910: The type male of this species also agrees well with *adelpha* and I have therefore synonymized it above.

Wyeomyia labesba Dyar and Knab, 1913: The lectotype of this species is a larval skin with associated female. Because its type locality is Panama it is doubtful that this is *medioalbipes*. A male from Majagual, Canal Zone, has been determined as *labesba* but identification is uncertain. This male is more like the lectotype of *scotinomus* than anything else, but the identity is not certain. Although I have seen many males determined as *scotinomus* or as some of the current synonyms of

that species, none agree well with the lectotype of *scotinomus*.

Wyeomyia charmion Dyar, 1928: The terminalia of the type male of this species is distinctly different from that of *medialbipes* and apparently from any other known species, so Bruijning's suggestion that it might be a synonym of *medialbipes* is not supported.

I have identified *Wyeomyia medialbipes* from Florida, Cuba, Jamaica, Hispaniola, Dominica (if *abia* is properly synonymized), Trinidad, Venezuela, Surinam, British Guiana, and Brazil as far south as the States of Bahia and Goias. I have seen no specimens from west of Venezuela in South America or from Mexico or Central America. The larvae are found normally in water in Bromeliaceae, but they may also be found in tree holes and bamboo stumps. The females may feed on man.

DOMINICA RECORD.—No data (F. E. Campbell), 1 ♀, 1 ♂ (type series of *abia*).

6. *Wyeomyia (Wyeomyia) pertinans* (Williston)

This species was described from St. Vincent, and the only specimen in the United States National Museum is a syntype female. It has been reported also from Barbados, Grenada, and St. Lucia, and with some degree of certainty from Jamaica, Trinidad, Tobago, Central America, and Mexico with varying degrees of doubt. Until males can be studied from all of the areas these doubts will remain. As all the specimens listed below are females, identification cannot be certain either, but the geographical distribution and agreement with the original specimen makes the determination probably correct. Nothing is known of the biology of this species.

DOMINICA RECORDS.—Pont Casse, 23 November 1964 (Spangler), 1 ♀; 1.5 miles north, 12 February 1965 (Wirth), 6 ♀; 2 miles east, 5 May 1966 (Gagné), 1 ♀; 5 miles east, 11 April 1966 (Gagné), 1 ♀; D'lean Gommier, 13 May 1966 (Steyskal), 1 ♀; Fresh Water Lake, 13 May 1966 (Steyskal), 1 ♀; 2,500 feet, 5 April 1966 (Gagné), 1 ♀; 5–8 November (Gurney), 1 ♀; 21, 23 February 1964 (Bray), 5 ♀; 1 mile north of junction of roads to Rosalie and Castle Bruce, 300 feet, 29 March 1966 (Gagné), 1 ♀; Trafalgar Falls, 15 March 1964 (Bray), 1 ♀; Boeri Lake, 22 February 1964 (Bray), 1 ♀; Sylvania, 9, 10 February 1964 (Bray), 2 ♀; S. Chiltern, 6, 7 February 1964 (Bray), 4 ♀; Clarke Hall, 13 February 1964 (Bray), 1 ♀.

Wyeomyia species

Three larvae were collected from bromeliads, but these were not associated with adults and cannot be determined.

7. *Limatus durhami* Edwards

MacDonald (1917) found this species to be very abundant on Grenada, the northernmost record in the Lesser Antilles until this survey. It is a widespread continental species from Mexico to Argentina. It is fortunate that a single male was collected, as *L. durhami* and *L. hoffmani* Root from Haiti cannot be distinguished in the female.

DOMINICA RECORDS.—Fond Figes River, 9 February 1965, rain forest (Wirth), 1 ♀; Clarke Hall, 28 March, 15, 24 April, 8 May 1966 (Gagné), 5 ♀, 1 ♂; 11, 14, 19, 20, 21, 24 May, 3, 11 June (Steyskal), 11 ♀; 13 February 1964 (Bray), 5 ♀.

8. *Psorophora (Janthinosoma) ferox* (Humboldt)

Psorophora ferox is a widespread species with many synonyms and is found from northern United States to Argentina. It is probably present through most of the Lesser Antilles in small numbers, but the only published record is that of the type-series of *Janthinosoma terminalis* Coquillett from St. Lucia Island. The larvae are found in transient rain pools where they develop rapidly. The adults are conspicuous day flyers, particularly in the forest, and they bite severely.

DOMINICA RECORDS.—Clarke Hall Estate, 4, 6, 11, 12 June 1966 (Steyskal), 4 ♀; Mt. Espagnol, 18 March 1964 (Bray), 1 ♀.

9. *Aedes (Ochlerotatus) taeniorhynchus* (Wiedemann)

This is a widely distributed species, occurring from Massachusetts to Brazil and California to Peru, and throughout the Antilles and Galapagos Islands. The larvae are usually found in salt marshes although they may occur in adjacent freshwater pools, and they may be found far inland where there are brackish pools. Very large populations may build up on the seacoast under conditions of high tide and heavy rains and the adults fly considerable distances from their breeding places. They are persistent biters, feeding at any time of the day out of doors. *Aedes taeniorhynchus* is one of the major pest species in coastal areas.

DOMINICA RECORD.—Cabrits Swamp, 23 February 1965, light trap (Wirth) 8 ♀.

10. *Aedes (Ochlerotatus) tortilis* Theobald

This species has been reported from southern Florida, Bahamas, Mexico, Guatemala, the Greater Antilles, and the Virgin Islands. The records from Mexico and Guatemala (Martini, 1935) have not been confirmed and are somewhat suspect. The single specimen reported here represents a considerable southward extension of the range of the species. *Aedes tortilis* is a ground-pool breeder and has been found from sea level up to 3,000 feet. It will attack man, and the bite is said to be irritating.

DOMINICA RECORD.—Clarke Hall, 7 June 1966 (Steyskal), 1 ♀.

11. *Aedes (Howardina) busckii* (Coquillett)

The type-locality for this species was originally given as Santo Domingo, but this was later corrected to Dominica. It is apparently confined to the Lesser Antilles and has been collected on St. Eustatius, Guadeloupe, Dominica, Martinique, and Grenada. A report of the species from Jamaica has not been verified and is quite probably erroneous. The larvae are found in tree holes, bamboo nodes, cacao shells, and water held in leaf axils. There are no reports of it biting man.

DOMINICA RECORD.—Coconut plantation, 28 July, 1905 (Busck), 1 ♀, 2 ♂ (type series); Clarke Hall, 21–31 January 1965, malaise trap (Wirth), 3 ♀; 24 January 1965, ex *Colocasia* and tree hole (Wirth), 2 ♀; 11, 19, 24 May, 1, 3, 10, 11, 12 June, 1966 (Steyskal), 15 ♀, 1 ♂; 3 May 1966 (Gagné), 1 ♀; 10 October 1966 (Gurney), 1 ♀; 12–17, 23 November 1964 (Spangler), 2 ♀; 11 March 1964 (Bray), 1 ♀, 1 ♂; near Castle Bruce, 19 April 1959, ex bamboo (Darsie), 5 ♀, 6 ♂, 16 larvae, 3 pupae.

12. *Aedes (Stegomyia) aegypti* (Linnaeus)

The only specimens of the yellow-fever mosquito that I have seen from Dominica were collected by August Busck in 1905. The Bredin-Archbold-Smithsonian Survey failed to find this species, which undoubtedly was one of the commonest pest species on the island at one time. Soper (1965) lists Dominica as one of the islands still with *Aedes aegypti* in 1961. This

failure to find it may be due either to an eradication campaign or to not searching in buildings for adults or in artificial containers for larvae.

This domesticated mosquito, important as the vector of urban yellow fever and dengue, has been so publicized that further remarks on its biology are superfluous.

DOMINICA RECORD.—Reared from larvae in water barrel on sugar estate out in country, 28 July 1905 (Busck), 2 ♀.

13. *Culex (Culex) declarator* Dyar and Knab

Culex declarator is a very widely distributed neotropical species with seven currently recognized synonyms (Bram, 1967). Originally described from Trinidad, it is known from Texas to Peru and Brazil but records south of this probably refer to *C. bidens* Dyar. It has been collected as far north as St. Thomas in the Lesser Antilles, but it is not known from the Greater Antilles. Two of the synonyms, *dictator* Dyar and Knab and *vindicator* Dyar and Knab, came from Dominica.

This species breeds in small accumulations of water usually having a rather high vegetative organic content. These may be tree holes, artificial containers, and ground pools of all sorts, in either sunshine or shade. The adults appear to prefer animals other than man, although they will feed on man and invade his habitations under jungle conditions. It has been found infected with St. Louis Encephalitis virus in Trinidad.

DOMINICA RECORDS.—In cocoa pods, rotten, stinking, half solid water, 28 July 1905 (Busck) 4 ♂, 1 ♀ (type series of *vindicator*); at bottom of rather deep (30 feet) cave in mountain side, clear sulphurous water, 28 July 1905 (Busck), 5 ♂, 1 ♀ (type series of *dictator*); Batali River near Colihaut, 5 May 1966 (Gagné), 1 ♂.

14. *Culex (Culex) inflictus* Theobald

This species is known from Mexico to Colombia and Venezuela and in the Lesser Antilles at least as far north as Guadeloupe. Records from Cuba, the Virgin Islands, and Grenada have not been verified. This is the first report of its occurrence on Dominica. The larvae are found in crabholes and similar ground pools near the coast. Nothing is known of the biology of the adult.

DOMINICA RECORD.—Clarke Hall, 15 May 1966 (Steyskal), 1 ♂.

15. *Culex (Culex) nigripalpus* Theobald

This is a widely distributed species, occurring from Texas, Tennessee, North Carolina, and the Bahamas south to Ecuador and Brazil as far south as São Paulo. It probably occurs throughout the Antilles, although this survey provided the first known records from Dominica. The larvae are found in a wide variety of freshwater habitats, either permanent or semipermanent, and they may be found in leaf axils, artificial containers and temporary ground pools. It is primarily a zoophilic, outdoor species, although it will bite man and occasionally has been taken in houses. Eastern Equine Encephalitis has been isolated from *C. nigripalpus* in Trinidad and St. Louis Encephalitis virus from it in Jamaica.

DOMINICA RECORDS.—Manets Gutter, 7 March 1965, rock pool (Wirth), 1 ♂, 3 larvae; Clarke Hall, 21–28 February, 21–31 March 1965, at light (Wirth), 2 ♂, 5 ♀; Grande Savane, 22 March 1964, stagnant water (Bray), 1 ♂; Batali River near Colihaut, 5 May 1966 (Gagné), 2 ♂.

16. *Culex (Culex) pipiens quinquefasciatus* Say

The southern house mosquito is one of the most ubiquitous species, being found throughout the tropics and subtropics wherever man dwells. As with *Aedes aegypti* so much has been written about the species there is no need to repeat it here. This is a domesticated species, commonly found in homes and biting at night, and the larvae are found in ground pools and artificial containers. It is a vector of *Wuchereria bancrofti*, several strains of encephalitis, and bird malaria.

DOMINICA RECORDS.—In old sugar-water boiler, 28 July 1905 (Busck), 6 ♂, 3 ♀; Clarke Hall, 21–31 February 1965 (Wirth), 2 ♂.

17. *Culex (Culex) secutor* Theobald

Culex secutor is probably restricted to the West Indies. It was described from Jamaica and is abundant there and on Hispaniola and Puerto Rico. Dominica is probably the most southern verified occurrence of the species. The larvae are found in the cooler waters of permanent pools at high altitudes, in deeply shaded pools of the lowlands, or in containers such as tree holes and bamboo. The females bite during the day in the shade.

DOMINICA RECORDS.—28 July, 1905 (Busck), 1 ♀; Clarke Hall, 21–31 February, 1965 (Wirth), 1 ♀; Pont Casse-Castle Bruce Road, 19 April, 1959, ex bamboo (Darsie), 3 ♂, 1 larva, 2 pupae.

18. *Culex (Melanoconion) atratus* Theobald

Culex atratus is found from the Florida Keys and the Bahamas through the Antilles at least as far as Dominica from which it is here reported for the first time. It was described from Jamaica and Trinidad, and no lectotype has been selected. Records from northern South America, Brazil, and Panama have not been verified and they are open to suspicion, and it is possible that the original Trinidad material will prove to be another species. Very little is known of its biology. It is a ground-pool breeder, but there are no verified reports on the feeding habits of the adults.

DOMINICA RECORDS.—Layou River mouth, 15 January 1965 (Wirth), 1 ♂; Cabrits Swamp, 23 February 1965 (Wirth), 17 ♂; Portsmouth, 2 March 1965, at light (Bray), 1 ♂, 1 ♀.

19. *Culex (Melanoconion) elevator* Dyar and Knab

This is a widely distributed neotropical species, found from Mexico to Peru and Argentina. A record from Puerto Rico is rather doubtful, but it has been found in the Lesser Antilles on Grenada and Guadeloupe and now on Dominica. The larvae have been found in ground and rock pools usually in or near stream beds. Nothing is known of the feeding habits of the adults.

DOMINICA RECORDS (all Wirth).—Manets Gutter, 5, 7, 10 March 1965, light trap and reared from rock pool in stream bed, 14 ♂, 5 ♀, 13 larvae; Clarke Hall, 8–10 January 1965, 2 ♂; 11–12 January 1965, 1 ♂, 4 ♀; 1–10 March 1965, 2 ♂; 21–31 March 1965, 2 ♂, 4 ♀.

20. *Culex (Melanoconion) idottus* Dyar

This species has been collected from Trinidad to Argentina, but this survey discovered it in the Lesser Antilles for the first time. The larva has not been identified, and nothing is known of the biology of the adults.

DOMINICA RECORDS.—Cabrits Swamp, 23 February, 1965 (Wirth), 13 ♂; Clarke Hall, 4 June 1966 (Steyskal), 5 ♂.

21. *Culex (Aedius) bisulcatus* (Coquillett)

In the mosquito catalog of Stone, Knight, and Starcke (1959) this species was listed as *Aedes americanus* (Neveu-Lemaire), but Fauran (1961) questioned the synonymy and treated *americanus* as a nomen dubium. This is quite probably correct and *bisulcatus* is the next available name with *antillumagnorum* Dyar as a synonym. I have seen specimens from Cuba, Hispaniola, Puerto Rico, Mona Island, St. Croix, St. Martin, St. Eustatius, Guadeloupe, and Dominica. It has also been reported from Saba and Jamaica. The occurrence of this species in Trinidad and French Guiana, as listed in the mosquito catalog, is very doubtful so that, as in the case of *Culex secutor*, Dominica is the southernmost verified locality.

The larvae are usually found in bromeliads, but they have also been collected from water at the base of Spanish bayonet and in artificial containers. The adults fly and bite during the daytime and are abundant and widespread particularly after rains.

DOMINICA RECORDS.—1 mile north of Castle Bruce at junction of road to Rosalie, 1,300 feet, 29 March 1966 (Gagné), 1 ♀, 1 ♂; 23 April 1966 (Gagné), 2 ♀, 1 ♂; 1.5 miles from Castle Bruce, ex bromeliads, 19 April 1959 (Darsie), 15 larvae, 3 pupae; Clarke Hall, 20 February 1964 (Bray), 1 ♂; Fond Figue River, 30 January 1965 (Wirth), 1 ♂; 9 February 1965 (Wirth), 2 ♂, 1 ♀; 400 feet, 12, 29 April 1966 (Gagné), 1 ♀, 1 ♂; Layou Valley Road, ex bromeliad, 18 April 1959 (Darsie), 2 ♂, 1 ♀, 2 larvae, 1 pupa; Manets Gutter, 10 March 1965 (Wirth), 1 ♀; Pont Casse, 1.5 miles north, 12 February 1965 (Wirth), 1 ♂; 2 miles east, 10 April, 5 May 1966 (Gagné), 2 ♀; 2.3 miles east, ex bromeliad, 19 April 1959 (Darsie), 14 larvae, 1 pupa, 2 ♂; 3.5 miles east, 25, 27 February 1965 (Wirth), 1 ♂, 1 larva; 5 miles east, 11 April 1966 (Gagné), 1 ♂.

22. *Deinocerites magnus* (Theobald)

This is the only member of the genus *Deinocerites* known from the Lesser Antilles, and it has been collected on many of the islands, although these are the first records from Dominica. It ranges from Mona Island west of Puerto Rico to British Guiana, Surinam, and northern Brazil. The larvae breed in crabholes along the coast. Adults have been reported as entering houses and feeding on man in Surinam and as being attracted to horses in Brazil.

DOMINICA RECORDS.—Layou River Mouth, 15, 20 January 1965 (Wirth), 16 ♀; 11 February 1964 (Bray), 1 ♀; Macoucheri, 14 January, 5 March 1965 (Wirth), 3 ♀; Cabrits Swamp, 23 February 1965, light trap (Wirth), 45 ♀; 10–13 May 1965 (Davis), 7 ♀; Postsmouth, 2 March 1964 (Bray), 3 ♀, 1–2 April 1966 (Gagné), 2 ♀.

Dubious Record

Anopheles vestitipennis Dyar and Knab: Dyar (1928) listed Dominica in the distribution of this species, but this locality is not mentioned in any of the references that Dyar listed, and there have been no records of it from the island. No specimens have been found in the U.S. National Museum and it is possible that Dyar's record was an error for two specimens from the Dominican Republic. The species is known from Mexico to Colombia and in the Greater Antilles from Cuba and Jamaica to Puerto Rico, but there is no verified record from the Lesser Antilles.

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