

## AIR-BORNE INSECTS FROM THE GALATHEA EXPEDITION<sup>1</sup>

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*Abstract:* During the 21-month round-the-world cruise (1950-52) of the Danish research vessel "Galathea" two traps above decks caught 937 insects. Of these, it is tentatively estimated that 67 flew actively to the ship over sea, 368 were carried to the ship by wind, and 502 may have come out of the ship or have been attracted aboard the ship while in ports. Of the total, 717 represent the order Diptera.

*Introduction:* The Danish vessel "Galathea" made a round-the-world oceanographic research cruise from October 1950 to June 1952. The cruise (fig. 1) started from Denmark and proceeded down the west coasts of Europe and Africa, around South Africa to Mozambique, to Madagascar, Mombasa, the Seychelles, Ceylon, Calcutta, Nicobar Is., Singapore, Bangkok, South China Sea, Manila, Cebu, Philippine Trench, Mindanao Sea, Celebes Sea, Macassar Straits, Balikpapan, Java Sea, Djakarta, Sunda Trench, Bali Sea, Bali, Macassar, Banda Sea, Arafura Sea, Torres Straits, Thursday Island, Port Moresby, Guadalcanal, New Britain Trench, Port Moresby again, East Australia to Adelaide, Wellington, Campbell Island, Auckland, Kermadec Trench, again Auckland and Kermadec Trench, Tonga Trench, Tonga, Samoa, Swains Island, Oahu, San Francisco, Los Angeles, Acapulco, Panama, Caribbean Sea, Sargasso Sea, Azores, England and back to Denmark.

About two-thirds of the 21-month period was spent at sea. This paper is a preliminary report on insects trapped aboard the ship while at sea.

*Methods:* Trapping for air-borne insects was carried on almost throughout the entire cruise, when not in port or extremely close to land. In the beginning two traps were used, but since the larger trap proved inefficient compared to the smaller one, it was not used during the last 2 months, and only used for short periods during the last 12 months.

The larger trap, A, (fig. 2) consisted of a conical metal net (of a mesh diameter of 1 mm) in a partial metal frame and terminating in a glass jar protected by a metal housing. The diameter of the opening was about 75 cm, and the length was about 200 cm (unfortunately precise measurements are no longer available). It was placed horizontally on the upper bridge in free surroundings, facing the sailing direction.

The smaller trap, B, consisted of a conical metal net on a light frame (figs. 3 and 4) which was fitted into an air intake (of the same diameter) on the main deck amidships. The diameter of the opening of the net was 40 cm and the length about 55 cm. At the bottom end a jar was held in position by a flange at the top of the jar and a metal plate

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- 2, 3. Bishop Museum, Honolulu 17, Hawaii.
4. Zoological Museum of the University, Copenhagen, Denmark.

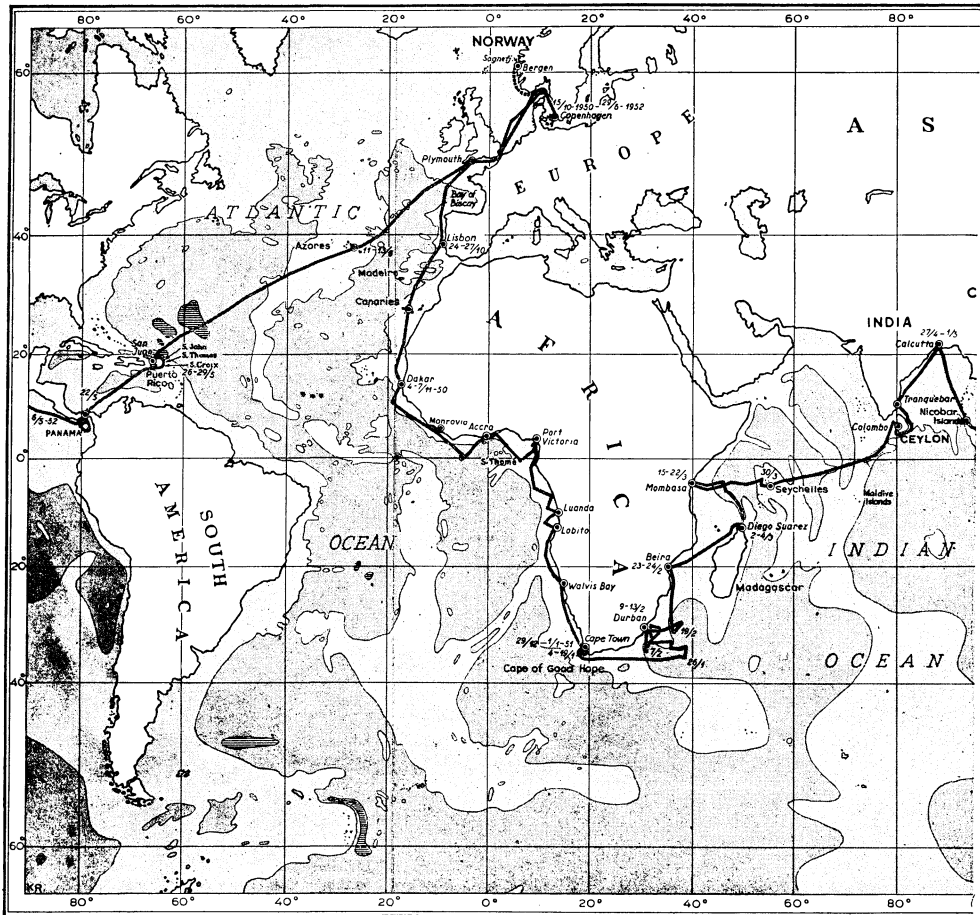


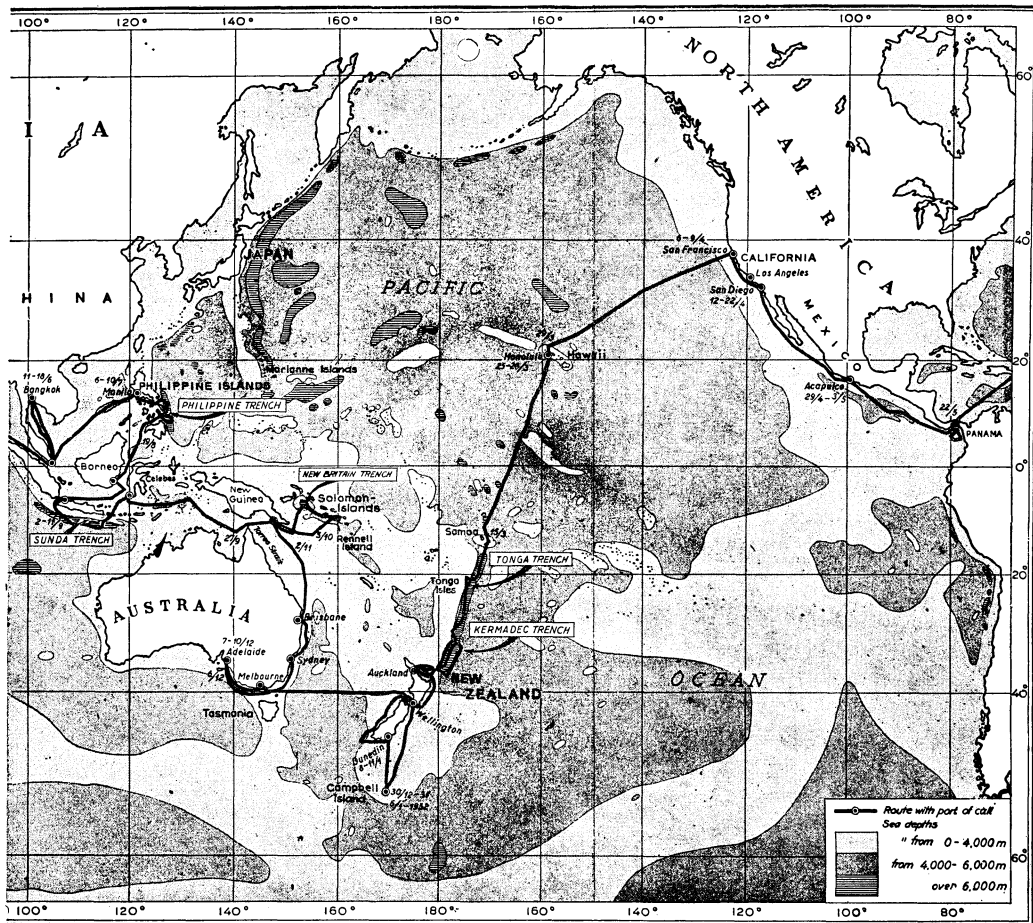
Fig. 1. Route of the "Galathea." (From "The Galathea Deep Sea Expedition 1950-1952")

at the bottom of the jar held in place with two wing nuts.

The two traps were checked twice daily while in operation, generally at 06:00 and 18:00. On several occasions, specimens were lost as a result of storm conditions. Trap A was checked 433 times, trap B was checked 808 times. In the latter, insects were caught in nearly 50% of the cases.

*Results:* A total of 935 insects were taken in the two traps. The data on catches is presented in tables 1-4.

The representation in the "Galathea" trappings are quite different from those in most of the Bishop Museum's trapping operations (Haw. Ent. Soc., Proc. 16: 363-65; 17: 150-55; Pac. Ins. 2: 239-50; 3: 549-62). A high percentage of insects in the "Galathea" trappings may be attributed to ship infestations, including insects living on the ship or those having found haven on the ship while in port. Probably many were attracted to the ship while it was near land. Four of the 45 specimens taken in trap A, and 498 of



Allen & Unwin, London.)

the 892 specimens trapped in trap B are attributed to these types of insects. Thus a much smaller percentage ( $39\% \pm$ ) of the total taken may be attributed to natural wind dispersal than is undoubtedly the case in the previous trappings reported. The main reasons for this high number of ship-infestation insect catches are assumed to be the wind and ship's speed during the course of trawling operations, the route of the ship's cruise, and situation of the traps. For example, a large number of phorid flies were trapped throughout the entire expedition in trap B. The higher number of these catches ranged from 8 (F 364) to 52 (F 395) per catching period. The ship travelled at an average of 180–220 (randomized figures taken from the log) nautical miles per day as the ship was either cruising at a slow speed or making several stops during trawling operations. The air speed at the times of these various high catches show that the winds were predominantly under gentle breeze conditions. Good flyers, such as Diptera would be able to get around the entire ship under these circumstances. On the Galathea trap A was on the aft portion of the ship's bridge while trap B was on the main deck, behind the life-boats, and thus

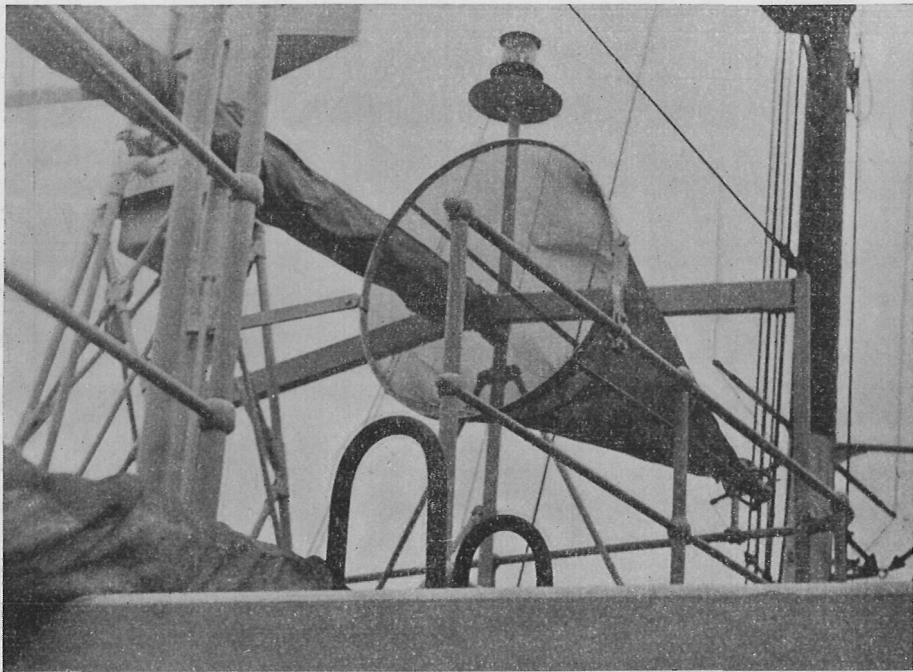


Fig. 2. Trap A on the upper deck of the "Galathea." (H. Lemche phot.).

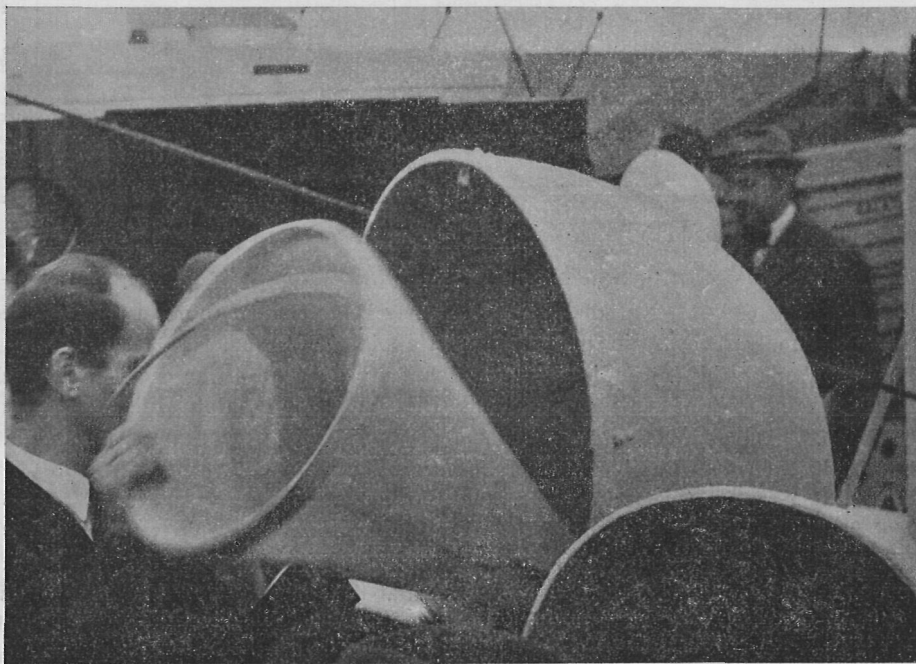


Fig. 3. Trap B being lifted out of the air intake on the main deck. (H. Lemche phot.).

caught more insects blown from the decks, or escaping from inside the ship. However, most of Bishop Museum ship nets have been in operation while the ships were uninterruptedly cruising at an average speed of 18 to 22 knots or about 480 nautical miles per day. The nylon nets were flown on lines and cables from the forward mast, nearly 30 m above sea level and rarely leeward of openings in the ship. Furthermore, a much higher percentage of trapping time on the museum's operations has been well away from continents, whereas a big part of the Galathea's cruise consisted of skirting much of the coasts of Africa, and parts of South Asia, and North America. Approximately 67 specimens of the "Galathea" catch may be attributed to insects actively flying aboard generally while the ship was less than 50 km away from land.

In Table 4, the first column represents the "station", and corresponds to each twice-daily checking of the traps. An "A" following the number indicates catch was from trap A. The third column indicates average wind direction during the period, and the number indicates the average wind speed during the period in the Beaufort scale. The next four columns indicate latitude and longitude (or port terminating segment of cruise for period of that day), for commencement and termination of the particular trapping period (generally 12 hours). The next column indicates distance from nearest land, in kilometers, with indication of nearest coast or island. Below this in parentheses is generally the indication of extent of the respective leg of the cruise. This latter, and the number in first column, are the data in the specimen vials. The remaining columns indicate the number of specimens and groups represented by the catches.

In Table 4, an asterisk after the number of specimens trapped is to indicate that these probably were active fliers to the ship. An asterisk after the family name indicates that the insects were probably breeding on the ship or were attracted into the ship in or near port. Among those which actively flew to the ship were the 13 dragon-flies of F3. These were a very small part of a very large swarm which landed on the ship at that time.

*Acknowledgements:* We are indebted to Svend Aage Horsted, B. Sc., and Harry Knudsen, B. Sc., of the "Galathea" for the careful tending of the traps aboard the ship, and for keeping a detailed log of times the traps were emptied together with all pertinent informa-

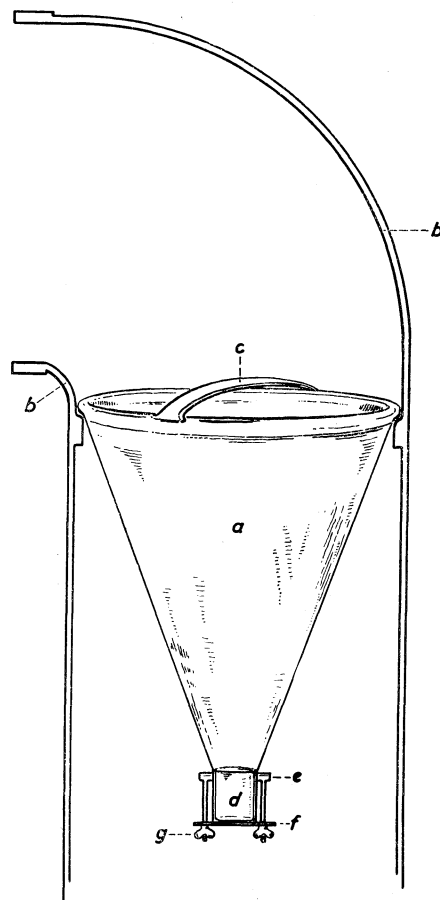


Fig. 4. Trap B *in situ*. a, trap; b, section through air intake to engine room; c, handle; d, collecting jar; e, flange; f, metal plate; g, wing nut. (Poul H. Winther del.)

tion regarding location and movement of the ship, and of weather conditions. For assistance in the identification of the trapped specimens to family, we are indebted to Setsuko Nakata, Laura Lofgren, Yorio Miyatake and Philip Miles. Clara Nishimura and Diana Cano have also assisted.

Table 1. Trapped material arranged by families.

	No. specimens		No. specimens
Araneida	2	Phycitinae	1
Odonata (15)		Notodontidae	1
Libellulidae	13	Coleoptera (77)	
Coenagrionidae	2	Carabidae	4
Blattaria		Staphylinidae	7
Blattidae	1	Corynetidae	21
Orthoptera		Nitidulidae	32
Gryllidae	1	Anobiidae	1
Psocoptera	7	Coccinellidae	3
Psocidae (2)		Tenebrionidae	1
Thysanoptera		Chrysomelidae	3
Thripidae	1	Curculionidae	5
Homoptera (25)		Diptera (717)	
Araeopidae	10	Tipulidae	1
Jassidae	12	Culicidae	3
Psyllidae	2	Chironomidae	11
Aphididae	1	Ceratopogonidae	19
Heteroptera (20)		Scatopsidae	42
Coreidae	1	Sciaridae	7
Alydidae	1	Cecidomyiidae	5
Lygaeidae	6	Empididae	1
Tingidae	2	Dolichopodidae	1
Ploiariidae	1	Phoridae	437
Nabidae	8	Syrphidae	1
Anthocoridae	1	Calliphoridae	4
Anoplura	1	Sarcophagidae	4
Neuroptera (4)		Muscidae	12
Chrysopidae	3	Anthomyiidae	5
Sisyridae	1	Trypetidae	16
Lepidoptera (37)		Anthomyzidae	4
Lyonetiidae	2	Opomyzidae	4
Epermeniidae	2	Drosophilidae	51
Coleophoridae	1	Ephydriidae	4
Blastobasidae	2	Sphaeroceridae	2
Gelechiidae	7	Chloropidae	18
Tortricidae	1	Agromyzidae	7
Pyromorphidae	1	Milichiidae	58
Pterophoridae	1	Hymenoptera (30)	
Pyrilidae	16	Braconidae	5
Sphingidae	1	Perilampidae	2
Noctuidae	1	Formicidae	22
		Vespidae	1
		Total	937

Table 2. Insects trapped at more than 200 kilometers from land.

	No. specimens		No. specimens
Odonata		Diptera	
Libellulidae	13	Culicidae	1
Blattaria		Chironomidae	3
Blattidae	1	Ceratopogonidae	2
Psocoptera	2	Scatopsidae	40
Homoptera		Phoridae	165
Araeopidae	1	Syrphidae	1
Jassidae	4	Calliphoridae	2
Lepidoptera		Muscidae	3
Noctuidae	1	Anthomyiidae	2
Gelechiidae	3	Opomyzidae	1
Blastobasidae	1	Drosophilidae	11
Pyrallidae	1	Ephydriidae	2
Epermeniidae	1	Chloropidae	8
Coleoptera		Agromyzidae	3
Staphylinidae	2	Milichiidae	17
Corynetidae	3	Hymenoptera	
Nitidulidae	12	Formicidae	1
Anobiidae	1		
Curculionidae	1	Total	309

Table 3. Insects trapped most distant from land.

No.	Area	Distance from near- est land in km	Family
F 30	Takoradi, SW Africa	900	Nabidae
F 149	South Africa	960	Noctuidae
F 272	Mombasa, E. Africa	900	Jassidae
F 302	Seychelles	825	Syrphidae
F 338	Ceylon	900	Tingidae
F 636	New Zealand	825	Calliphoridae
F 642	"	775	"

Table 4. Preliminary determination of insects, Galathea Expedition.

No.	Date	Wind direction, velocity	Starting Lat. Long.	Ending Lat. Long.	Approx. dist., nearest land, in km	No. Specimens	Order	Family
F 2	8.XI.50	SW 2	12°04'N 19°03'W	11°35'N 19°34'W	257, W. Africa (Dakar-Monrovia)	1	Coleopt.	Staphylinidae
F 3	9.XI.50	SE 3	11°35'N 19°34'W	09°56'N 17°32'W	209-257, W. Africa (Dakar-Monrovia)	13*	Odonata Homopt.	Libellulidae Araeopidae (Delphacidae)
F 4	"	E 3	09°56'N 17°32'W	09°29'N 16°11'W	209, W. Africa (Dakar-Monrovia)	1	"	Jassidae Araeopidae
F 5	10.XI.50	NE 2	09°23'N 16°11'W	07°58'N 14°25'W	128-144, W. Africa (Dakar-Monrovia)	1	Dipt.	Culicidae
F 6	"	ESW 1-2	07°58'N 14°25'W	07°10'N 13°10'W	80, Sierra Leone (Dakar-Monrovia)	1	"	Ephydriidae
F 7	11.XI.50	SSW 1-2	07°10'N 13°10'W	06°10'N 10°53'W	Few Km off Monrovia (Dakar-Monrovia)	1*	Coleopt.	Staphylinidae
F 8	"		06°10'N 10°53'W	Monrovia	2, Monrovia	1	Odonata	Coenagrionida
F10	15.XI.50	SE 2-4	05°20'N 10°25'W	04°03'N 08°33'W	40, Liberia (Monrovia-Takoradi)	1	Heteropt.	Nabidae
F11	"	SE SSE 4-2	04°03'N 08°33'W	04°00'N 08°30'W	"	2	Coleopt.	Nitidulidae
F14	16.XI.50	SSE 2	02°33'N 06°30'W	02°20'N 05°50'W	"	1	Dipt.	Trypetidae
F16	17.XI.50	SSE 2	02°20'N 05°50'W	02°20'N 06°00'W	210, E. Africa (Monrovia-Takoradi)	1	Psocopt.	Nabidae
F18	"	SSE 2	02°20'N 06°00'W	01°43'N 05°45'W	320, Liberia (Monrovia-Takoradi)	2	Coleopt.	Nitidulidae*
F20	18.XI.50	S 3	01°43'N 05°45'W	00°53'N 05°49'W	520, Abidjan, W. Africa (Monrovia-Takoradi)	1	"	"*
F22	"	S 3	00°53'N 05°49'W	00°46'N 06°02'W	560, Abidjan (Monrovia-Takoradi)	1	Dipt.	Milichidae
F26	19.XI.50	SSE 3	01°22'N 04°46'W	02°13'N 04°18'W	640, Takoradi, W. Africa (Monrovia-Takoradi)	1	"	Drosophilidae
F29A	20.XI.50	SSE 1	04°04'N 02°34'W	04°15'N 01°55'W	560, Takoradi (Monrovia-Takoradi)	1	"	"
F30	"	SSE 1	"	"	"	6	Coleopt.	Nitidulidae*
F32	21.XI.50	0	04°15'N 01°55'W	Takoradi	2, Takoradi	1	Heteropt.	Nabidae
F33A	26.XI.50	S 1	05°39'N 00°37'W	04°07'N 02°49'E	80, Accra, W. Africa (Accra-Sao Thomé)	1	Neuropt.	Chrysopidae
F34	"	S 1	"	"	"	1*	Dipt.	Calliphoridae



F36	27.XI.50	S 3	04°07'N 02°49'E	02°33'N 04°15'E	200, Nr. Port Harcourt, Nigeria (Accra-Sao Thomé)	1 1	" Araneida	Drosophilidae
F38	28.XI.50	S 4	02°33'N 04°15'E	00°58'N 05°45'E	200, St. Thomas I. W. Africa (Accra-Sao Thomé)	1	Hymenopt.	Formicidae
F40	"	SE 2	00°58'N 05°45'E	00°22'N 06°46'E	2-100, St. Thomas I. (Sao Thomé)	1 1	Dipt. "	Sphaeroceridae Cecidomyiidae
F42	29.XI.50	W 2	00°22'N 06°46'E	00°00'N 06°32'E	2, St. Thomas I. (Sao Thomé)	1	Homopt.	Araeopidae
F45A	30.XI.50	SE 1	00°00'N 06°32'E	01°13'N 07°36'E	16, St. Thomas I. (Sao Thomé-P. Victoria)	1	Heteropt.	Lygaeidae
F48	"	SEW 2	01°13'N 07°36'E	01°47'N 08°00'E	40, Equatorial Africa (Sao Thomé-P. Victoria)	1	Lepidopt.	Pyromorphidae
F50	1.XII.50	WNW 2	01°47'N 08°00'E	04°00'N 09°11'E	40, Nigeria (Sao Thomé-P. Victoria)	2	Dipt.	Sciaridae
F51A	2.XII.50	WSW 3	03°52'N 09°65'E	02°37'N 08°55'E	80, Equatorial Africa (P. Victoria-Augo Fogo)	1	Lepidopt.	Pterophoridae
F52	"	WSW 3	" "	" "	"	1* 1 1 2 2*	" Neuropt. Heteropt. Dipt. "	Notodontidae Chrysopidae Coreidae Ceratopogonidae Trypetidae
F54	"	SSE 2	01°52'N 09°15'E	01°57'N 09°19'E	30, Equatorial Africa (Victoria-Luanda)	1 2*	" "	Phoridae* Trypetidae
F56	3.XII.50	SSE 2	00°56'N 08°49'E	00°00'N 08°13'E	85, Equatorial Africa (Victoria-Luanda)	6	"	Drosophilidae*
F59A	4.XII.50	SW 2	01°45'S 08°65'E	01°52'S 08°07'E	80, Equatorial Africa (P. Victoria-Luanda)	1	Homopt.	Araeopidae
F60	"	SW 2	01°04'S 08°04'E	01°52'S 08°07'E	"	1 2	Heteropt. Homopt.	Nabidae Jassidae
F62	"	WNW 2	02°65'S 08°14'E	02°24'S 08°16'E	120, Equatorial Africa (P. Victoria-Luanda)	1 1	Heteropt. Dipt.	Nabidae
F64	5.XII.50	S 3	03°10'S 08°24'E	03°54'S 08°31'E	160, Equatorial Africa (P. Victoria-Luanda)	1	Homopt.	Jassidae
F66	"	SSW 3	04°15'S 08°26'E	04°17'S 08°31'E	281, Equatorial Africa (P. Victoria-Luanda)	1	Dipt.	Phoridae
F67A	6.XII.50	SE 3	04°28'S 09°05'E	04°53'S 08°50'E	140, Equatorial Africa	1	Neuropt.	Chrysopidae
F68	"	SE 3	" "	" "	"	1	"	"
F70	"	SExE 3	05°08'S 10°37'E	05°25'S 11°02'E	160, Equatorial Africa (P. Victoria-Luanda)	1 1	Dipt. "	Phoridae Drosophilidae
F71A	7.XII.50	SxW 2	05°17'S 11°08'E	05°17'S 11°08'E	80, Africa (P. Victoria-Luanda)	1 1	" "	Agromyzidae Milichiidae

F72	"	SxW 2	"	"	"	"	"	1	Heteropt.	Tingidae
								1*	Dipt.	Trypetidae
F74	8.XII.50	O	05°41'S	11°26'E	05°36'S	11°01'E	30, Congo (P. Victoria-Luanda)	2	Dipt.	Drosophilidae
								1	"	Phoridae
								1*	"	Trypetidae
F75A	"	SxE 1	05°56'S	12°05'E	06°14'S	12°17'E	30, Congo, (P. Victoria-Luanda)	1*	Coleopt.	Staphylinidae
								1	Thysanopt.	Thripidae
								1	Homopt.	Jassidae
F76	"	SxE 1	"	"	"	"	"	1*	Dipt.	Trypetidae
								2	"	Drosophilidae
								5*	"	Trypetidae
								1	Heteropt.	Ploiariidae
								1	Homopt.	Araeopidae
								1	Neuropt.	Sisyridae
								1	Coleopt.	Staphylinidae
								1	Dipt.	Phoridae
								1	"	Ceratopogonidae
F77A	9.XII.50	SW 3	06°25'S	11°56'E	06°35'S	11°42'E	100, Congo	1	"	"
								1	Homopt.	Araeopidae
F78	"	SW 3	"	"	"	"	"	1	Lepidopt.	Tortricidae
F79A	"	SSW 2	06°46'S	11°28'E	06°51'S	11°15'E	120, Angola (P. Victoria-Luanda)	1	Heteropt.	Nabidae
								1	Homopt.	Psyllidae
F82	10.XII.50	SxW 2	07°15'S	11°10'E	08°17'S	11°11'E	190, Angola (P. Victoria-Lunda)	1	Coleopt.	Nitidulidae
F84	"	SW 1	08°34'S	11°11'E	08°52'S	11°09'E	170, Angola	1	"	"
F86	11.XII.50	SW 1	08°53'S	11°09'E	"	"	"	1	Dipt.	Chloropidae
F88	"	SW 2	08°39'S	11°10'E	08°45'S	11°19'E	160, Angola	1	"	Phoridae*
								1	"	Chloropidae
F90	12.XII.50	W 1	08°46'S	11°23'E	08°49'S	12°16'E	80-120, Angola (P. Victoria-Luanda)	1	"	Phoridae*
								2	Homopt.	Jassidae
F92	"	SW 2	08°45'S	12°31'E	08°41'S	12°40'E	100, Angola (P. Victoria Luanda)	2	Dipt.	Drosophilidae
F96	17.XII.50	SW 1	10°18'S	11°38'E	11°35'S	10°45'E	300, Angola (Luanda-Lobito)	1	"	Phoridae
								1	Coleopt.	Nitidulidae
F98	18.XII.50	S 1	11°10'S	10°48'E	11°15'S	10°49'E	300, Angola (Luanda-Lobito)	1	Homopt.	Jassidae
F100	"	SW 2	11°12'S	10°56'E	11°23'S	11°14'E	160, Angola (Luanda-Lobito)	4	Dipt.	Phoridae*
								1	Coleopt.	Nitidulidae
F101A	"						48-80, Angola (Luanda-Lobito)	1	Homopt.	Jassidae
F102	"	WSW 3	11°50'S	12°28'E	12°05'S	13°08'E	50, SW Africa	1	Lepidopt.	Pyalidae
								3	Dipt.	Phoridae*
								1	Coleopt.	Nitidulidae*

F104	22.XII.50	S 7	15°35'S 11°31'E	17°23'S 11°12'E	54, " (Lobito Walfish Bay)	1	Dipt.	Muscidae
F122	21.I.51	W 1 WSW 3	35°05'S 25°42'E	35°09'S 27°26'E	130, U. of S. Africa (Cape Durban)	1	"	Drosophilidae
F129A	23.I.51	WxN 3 W 6	35°14'S 28°26'E	35°09'S 29°49'E	190, "	1	"	"
F138	25.I.51	WxS 2 SxW 1	35°39'S 35°05'E	35°00'S 36°09'E	500, "	1	"	"
F140	"	SW 1	34°52'S 36°51'E	34°50'S 37°02'E	550, "	1	"	Phoridae*
F142	26.I.51	ENE 2 NE 3	34°53'S 37°32'E	34°53'S 37°48'E	680, "	1	Coleopt.	Nitidulidae*
F149	27.I.51	NE 4 N 4	33°38'S 38°31'E	33°29'S 37°39'E	600, "	1	Lepidopt.	Phycitinae
F152	28.I.51	SW 5 SW 6	33°25'S 37°20'E	33°13'S 37°28'E	550, "	1	Dipt.	Agromyzidae
F161A	31.I.51	ENE 3 SE 4	32°36'S 32°02'E	32°40'S 32°11'E	230, "	1	"	?
F184	7.II.51	ENE 4	34°05'S 30°55'E	34°07'S 30°51'E	260, U. of S. Africa (Off Durban)	1	"	Opomyzidae
F190	9.II.51	ESE 2 WSW 4	30°50'S 31°17'E	29°52'S 31°10'E	10, Off Durban	2	Heteropt. Lepidopt.	Nabidae Lyonetiidae
F193	14.II.51	NE 3 NNE 6	29°51'S 31°22'E	30°20'S 31°47'E	80, Off Durban	1	Dipt.	Phoridae*
F198	17.II.51	NExE 5 NE 3	29°48'S 36°43'E	29°41'S 36°58'E	434, "	1	"	Drosophilidae*
F199	"	NE 2 ExN 2	29°52'S 37°00'E	29°36'S 37°15'E	450, "	1	"	Milichiidae
F200	18.II.51		29°49'S 37°04'E	29°52'S 37°03'E	460, "	1	"	Phoridae*
F202	19.II.51	E 1 ExN 2	29°51'S 37°05'E	30°06'S 36°35'E	380, "	1	"	Drosophilidae*
F203	"	NxE 3	30°40'S 35°54'E	30°51'S 35°17'E	250, S. Africa (Durban-Beira)	2	"	"
F205	20.II.51	NExE 4 NE 1	30°05'S 35°40'E	29°07'S 35°41'E	220, "	1	"	Drosophilidae*
F207	"	NE 2-3	28°04'S 35°25'E	27°35'S 35°26'E	"	2	"	Phoridae*
F208A	21.II.51	ExS 3 NE 3	26°24'S 35°44'E	25°42'S 35°17'E	95, Mozambique (Durbane-Beira)	1	"	"
F209	"	ExS 3 ExN 1	26°24'S 35°44'E	25°42'S 35°17'E	"	1	"	"
F211	"	S 1 N 2	25°22'S 35°15'E	25°17'S 35°11'E	"	1	Psocopt.	"
						4	Dipt.	Phoridae*

F213	22.II.51	NExE 1 ENE 4	25°24'S 35°17'E	24°36'S 35°25'E	8, Mozambique (Durban-Beira)	4	"	" *
F215	"	SExS 2 SE 3	23°43'S 35°48'E	22°30'S 35°42'E	6, "	2	"	Scatopsidae
F217	23.II.51	ESE 3 ENE 1	21°36'S 35°39'E	20°25'S 35°17'E	10, Beira, Mozambique (Durban-Beira)	1	"	Phoridae*
F219	"	WxN 1	20°05'S 35°15'E	Beira	2-10, Beira	4*	"	Opomyzidae
F220A	24.II.51	SExS 1 ESE 1	20°08'S 35°33'E	20°15'S 36°30'E	Nr. port of Beira (Mozambique Ch.)	1	"	Phoridae
F221	"	ESE 1	"	"	"	5	"	Ceratopogonidae
F223	25.II.51	S 4 ENE 3	20°06'S 36°29'E	19°30'S 37°27'E	16, Mozambique (Mozambique Channel)	1	"	Scatopsidae
F227	26.II.51	NW 3	17°57'S 39°58'E	17°27'S 40°50'E	3, Mozambique (Mozambique Channel)	1	Lepidopt.	Trypetidae
F229	"	NWxN 3 NWxW 4	16°24'S 41°58'E	15°51'S 42°50'E	Nr. Mozambique (Mozambique Channel)	5	Dipt.	Phoridae*
F231	27.II.51	N 3 NxW 2	15°20'S 43°42'E	14°20'S 44°51'E	320, port of Mozambique (Mozambique Channel)	2	"	Sphaeroceridae
F233	"	NExN 3 SW 2	14°17'S 45°08'E	14°25'S 45°18'E	360, "	1	"	Gelechiidae
F235	28.II.51	NNW 1 O	14°30'S 45°26'E	14°12'S 45°55'E	"	1	Lepidopt.	Scatopsidae
F237	"	O	13°41'S 46°40'E	13°29'S 47°00'E	120, NW coast of Mada- gascar (Mozambique Ch.)	24	"	Ceratopogonidae
F239	1.III.51	O	13°24'S 47°00'E	13°22'S 48°09'E	" (Off Cape Humber)	1	"	Milichiidae
F241	"	O	12°05'S 48°46'E	11°46'S 49°15'E	" (Mozambique Channel)	1	"	Jassidae
F243	2.III.51	O	11°48'S 49°02'E	12°03'E 49°05'E	" (Off Diego Suarez)	1	Lepidopt.	Scatopsidae*
F244A	5.III.51	NWxW 4 WNW 2	11°26'S 49°43'E	10°12'S 49°49'E	80, Cosmoledo Is., Afr. (Diego Suarez-Mombasa)	1	Coleopt.	Milichiidae*
F245	"	WNW 2	"	"	"	1	Dipt.	Phoridae*



F304	27.III.51	ExN 1 NE 1	03°13'S 52°40'E	03°13'S 52°40'E	360, " (Seychells)	1 3	" "	Phoridae* Chloropidae
F312	29.III.51	NWxW 3 N 2	03°45'S 55°34'E	Port Victoria	Port Victoria (Seychelles)	1	"	Phoridae*
F314	2.IV.51	NW 2	Port Victoria	03°31'S 56°11'E	"	1	"	Milichiidae
F316	"	NNW 1 NW 1	03°20'S 57°16'E	03°20'S 58°05'E	200, Seychelles Is. (Seychells)	1	"	Muscidae
F318	3.IV.51	NE 1 NNW 2	03°07'S 58°50'E	03°07'S 58°39'E	" (Seychelles-Ceylon)	1	Lepidopt.	Pyralidae
F320	"	NWxN 1 NW	02°54'S 60°26'E	02°46'S 60°57'E	480, "	1	Dipt.	Agromyzidae
F322	4.IV.51	NW 2 WNW 2	02°26'S 61°48'E	02°25'S 62°39'E	650, "	1	Coleopt.	Curculionidae
F328	5.IV.51	NNE 2 W 2	01°16'S 67°24'E	01°07'S 68°06'E	680, Addu Atoll (Seychelles-Ceylon)	2	Dipt.	Phoridae*
F332	6.IV.51	SWxW 1 WSW 2	00°32'S 70°07'E	00°21'S 71°00'E	240, "	1	Coleopt.	Nitidulidae*
F334	7.IV.51	SxE 3 SW 1	00°23'S 71°52'E	00°15'S 72°53'E	80, "	1	"	Tenebrionidae
F338	"	NNW 3 W3	00°27'N 75°22'E	00°59'N 76°20'E	560, Ceylon (Seychelles-Ceylon)	1	Dipt.	Milichiidae
F340	8.IV.51		01°00'N 76°17'E	01°04'N 76°15'E	595, "	2	Dipt.	Milichiidae
F346	10.IV.51		02°44'N 77°33'E	03°24'N 78°02'E	321, "	1	"	Phoridae*
F352	11.IV.51	W 1	05°32'N 78°41'E	05°27'N 78°52'E	136, "	5 1 2	" " "	"* Drosophilidae* Milichiidae*
F353A	12.IV.51	SSW 2	06°00'N 78°58'E	06°43'N 79°07'E	193, India-72, Ceylon (Seychelles-Ceylon)	3	"	Phoridae*
F354	"	SW 1	"	"	"	1 1 1	Heteropt. Dipt. "	Alydidae Phoridae* Milichiidae
F356	"	SSW 2	07°05'N 79°39'E	07°10'N 79°34'E	25, Ceylon	3 1 1	" " "	Phoridae* Chironomidae Agromyzidae
F357A	13.IV.51	NE 2	07°10'N 07°39'E	07°10'N 07°49'E	3, Ceylon	1	"	Tipulidae
F358	"	NE 2	"	"	16, Ceylon (Seychelles-Ceylon)	1	Odonata	Coenagrionidae
F362	20.IV.51	S3	06°45'N 79°38'E	06°50'N 80°20'E	16, " (Ceylon-Calcutta)	1	Dipt.	Phoridae*
F364	"	NNW 1	07°50'N 81°43'E	08°56'N 81°14'E	12, "	1 8 1	Coleopt. Dipt. "	Corynetidae* Phoridae* Sciaridae
F365A	21.IV.51	NW 2	10°21'N 80°35'E	10°59'N 80°13'E	33, "	1	"	Cecidomyiidae

F366	"	SW 3	"	"	"	"	33,	"	1	"	Chironomidae
F368	"	SE 1 SxE 2	11°11'N	78°59'E	11°11'N	79°54'E	3, India (Ceylon-Calcutta)		2*	Coleopt.	Coccinellidae
									2	Heteropt.	Lygaeidae
									1*	Hymenopt.	Vespidae
									2	"	Perilampidae
									1	"	Braconidae
									1	Coleopt.	Chrysomelidae
									1*	Dipt.	Muscidae
F370	22.IV.51	SxE 2	11°13'N	80°02'E			10, Tranquebar (Ceylon-Calcutta)		2	Heteropt.	Lygaeidae
									1	Dipt.	Milichiidae?
									2	"	Phoridae*
									1	"	Ceratopogonidae
									4	"	Milichiidae
F371A	23.IV.51	E 2	11°55'N	80°32'E	13°22'N	81°23'E	65,	"	1	Lepidopt.	Colophoridae
									1	Heteropt.	Lygaeidae
									1	Dipt.	Drosophilidae*
F374	"	SxW 4	14°16'N	82°01'E	14°27'N	82°06'E	110, India (Ceylon-Calcutta)		17	"	Phoridae*
F376	24.IV.51	SW 2	15°28'N	82°57'E	16°30'N	83°57'E	155,	"	4	"	"*
									1	"	Milichiidae
F378	"	SSW 3	17°63'N	54°46'E	17°14'N	54°52'E	85,	"	5	"	Phoridae*
									1	"	Sciaridae
E380	25.IV.51	SSW 5	19°42'N	86°48'E	20°16'N	87°02'E	15,	"	2	"	Milichiidae
F382	"	SSW 4	19°25'N	86°28'E	19°53'N	86°36'E	30,	"	1	"	Phoridae*
F384	26.IV.51	SSW 5	19°42'N	86°48'E	20°16'N	87°02'E	15,	"	2	"	"*
									2	"	Milichiidae
F385A	"	SW 5	20°44'N	87°51'E	20°58'N	88°02'E	45,	"	1	Coleopt.	Coccinellidae
F387A	"	SW 2	(Houghly River)				Nr. Calcutta		1	Hymenopt.	Formicidae
F388	27.IV.51		"	"	"	"	"		3	"	"
F389	2.V.51	SxE 4 SE 1	20°48'N	88°33'E	20°28'N	89°00'E	110, Calcutta (Calcutta-Singapore)		2	Dipt.	Milichiidae
F390	"	SSW 2	20°11'N	89°13'E	19°25'N	89°10'E	240,	"	5	"	Phoridae*
F391	3.V.51	SW 1	18°54'N	89°05'E	17°50'N	89°33'E	320,	"	1	"	Milichiidae
									1	"	Phoridae*
F392	"		16°20'N	89°88'E	16°03'N	90°15'E	400,	"	2	"	"*
F393	4.V.51	W 1	15°35'N	90°25'E	14°20'N	90°54'E	330,	"	1	Lepidopt.	Epermeniidae
									24	Dipt.	Phoridae*
F394	"	NE 2	13°26'N	91°05'E	12°40'N	91°17'E	760, Calcutta 135, Andaman (Calcutta-Singapore)		1	"	"*
F395	5.V.51	SxE 1	12°08'N	91°34'E	10°58'N	91°59'E	300, 25, Andaman (Calcutta-Singapore)		52	"	"*
									1	"	Chloropidae
F396	"	WSW 2	09°58'N	92°44'E	09°03'N	93°01'E	2, Carnicobar (Calcutta-Singapore)		10	"	Phoridae*
									1	Homopt.	Psyllidae

Number	Date	Direction	Coordinates	Location	Count	Order	Family
F397	6.V.51	W 1		Camorta-Nankauri	0, Nicobar (Nicobogeme)	6*	Phoridae
F398	8.V.51	SWW 3	06°48'N 94°38'E	Dschiahaje Kondul I, Nicobar	45, Nicobar 80, Sumatra (Nicobars-Singapore)	2* 1* 13	Milichiidae Dolichopodidae Phoridae*
F399	9.V.51	SW 5	06°40'N 94°55'E	06°35'N 95°03'E	60, Nicobar 70, Sumatra (Nicobar-Singapore)	5	" *
F400	"	WxN 4	06°11'N 95°52'E	06°02'N 96°09'E	40, Sumatra (Malacca Straits)	2 1 1 1 3	" * Drosophilidae* Milichiidae Muscidae
F401	10.V.51	W 2	06°02'N 96°09'E	04°51'N 98°13'E	18, "	1	Phoridae* (add. lost)
F402	"	NxE 1	04°20'N 98°54'E	03°29'N 99°42'E	15, "	1	Jassidae
F403	11.V.51	SSE 1 N 1	02°51'E	100°59'E	24, "	1	Phoridae*
F404	"	S 2 SxE 1	02°10'N 102°06'E	01°41'N 104°48'E	13, Malaya; 35 Sumatra (Malacca Straits)	6 2 1 1 3	Homopt. Dipt. Drosophilidae* Ceratopogonidae Braconidae Phoridae*
F406	5.VI.51	SE 1	01°17'N 104°01'E	01°35'N 104°31'E	26, Malaya (Singapore-Bangkok)	1	" *
F407A	6.VI.51	NNW 1	03°08'N 103°54'E		48, "	3	Formicidae
F408	"	NNW 1	"		48, "	1	Phoridae* Ephydriidae Phoridae*
F410	"	NNW 1 SE 1	03°48'N 103°39'E	04°30'N 103°28'E	2, "	1 12 1 1 1	Formicidae Corynetidae* Phoridae* Chloropidae Drosophilidae*
F412	7.VI.51	SE 1	04°38'N 103°39'E		10, "	2	Psocopt.
F414	8.VI.51	SE 1	05°19'N 103°32'E	06°20'N 103°15'E	64, "	2	Carabidae
F416	"	E 1	06°45'N 103°00'E	06°44'N 103°00'E	80, Malaya (Bay of Siam)	11 5	Formicidae Phoridae*
F418	9.VI.51	SW 1 SxE 1	06°55'N 102°55'E	07°37'N 102°57'E	129 "	1 1	Formicidae Chloropidae Psocidae Carabidae Phoridae*



F420	"	E 1 SW 1	08°07'N 102°27'E	08°41'N 102°08'E	193, Malaya ; 274 Coch-China (South Viet Nam)	1	"	Trypetidae*
F422	10.VI.51	WSW 5 W 3	09°20'N 101°59'E	09°45'N 101°04'E	193, Malaya (Gulf of Siam)	1	Dipt.	Cecidomyiidae
F425A	11.VI.51	WNW 4 WSW 2	11°38'N 100°53'E	12°36'N 100°31'E	48, Thailand (Gulf of Siam)	1*	Lepidopt.	Noctuidae
F426	"	WNW 4 WSW 2	"	"	"	1	Dipt.	Ceratopogonidae
F428	"	SW 2 SW 3	13°07'N 100°37'E	13°15'N 100°33'E	26, "	1	Coleopt.	Nitidulidae*
F429	12.VI.51	Bangkok River	13°36'N 100°36'E	Bangkok River	Thailand (Bankok River)	14* 2* 1* 1* 1	Lepidopt. Dipt. " " Coleopt.	Pyralidae Phoridae Culicidae Drosophilidae Chrysomelidae
F432	19.VI.51	SW 5 W 5	10°37'N 100°28'E	09°20'N 100°12'E	40, Thailand (Gulf of Siam)	3	Dipt.	Ceratopogonidae
F434	20.VI.51	SW 2 SW 2	08°32'N 100°21'E	07°39'N 101°05'E	64, "	1	Hymenopt.	Formicidae
F436	"	SW 2 W 1	06°53'N 102°03'E	06°05'N 102°52'E	40, "	1	Orthopt.	Gryllidae*
F438	"	SSE 2 SxE 2	06°53'N 102°03'E	06°05'N 102°52'E	40, "	1	Dipt.	Phoridae*
F438	"	SSE 2 SxE 2	05°18'N 103°34'E	04°20'N 103°51'E	35, "	1	"	Ceratopogonidae
F442	21.VI.51	SES 1 SxE 2	01°46'N 104°25'E	01°19'N 104°12'E	2, Malaya (Siam-Singapore)	1	Lepidopt.	Gelechiidae
F444	30.VI.51	SSW 2 SWxW 1	02°27'N 105°02'E	03°33'N 105°41'E	34, Malaya (South China Sea)	1	Coleopt.	Carabidae
F444	30.VI.51	SSW 2 SWxW 1	02°27'N 105°02'E	03°33'N 105°41'E	34, Malaya (South China Sea)	2	Dipt.	Phoridae*
F466	"	SW 2 SWxW 1	04°30'N 106°18'E	05°15'N 106°53'E	113, "	6	"	"*
F448	1.VII.51	SW 2	06°00'N 107°48'E	05°51'N 108°40'E	204, "	2	"	"*
F450	"	SWxW 3 S 3	07°41'N 109°33'E	08°37'N 110°36'E	306, "	1	"	"*
F451	2.VII.51	SW 3 SW 2	09°11'N 111°20'E	10°00'N 112°09'E	322, "	1	"	"*
F452	"	SWxW 5 SW 3	10°25'N 112°37'E	11°27'N 113°44'E	"	2	"	Milichiidae
F453	3.VII.51	SW 5 SWxW 3	10°51'N 113°11'E	11°42'N 114°00'E	435, "	1	"	Phoridae*
F455	4.VII.51	SSW 2 SExE 3	12°13'N 114°58'E	12°40'N 116°08'E	402, Mindoro (South China Sea)	1	"	Milichiidae
F458	5.VII.51	O	13°44'N 118°56'E	13°58'N 119°27'E	71, "	3	"	"
F459	6.VII.51	W 1	Manila Bay		"	1	"	Sarcophagidae

F461	11.VII.51	NE 1 E 3	12°41'N 123°27'E	12°58'N 124°17'E	14, Mindoro (East of Luzon)	1	Hymenopt.	Braconidae
F462	12.VII.51	SSE 2 SE 1	12°49'N 125°24'E	12°28'N 125°50'E	45, " (Philippine Deep)	1	Dipt.	Anthomyiidae
F465	13.VII.51	SE 1	11°15'N 126°23'E	11°15'N 126°17'E	64, "	2 1 1	" " "	Phoridae* Drosophilidae* Chloropidae
F466	14.VII.51	E 1 SE 1	11°06'N 126°26'E	12°20'N 125°45'E	"	1	"	Sciariidae
F467	"	SE 2 E 3	10°29'N 126°37'E	10°35'N 126°43'E	80, "	9	"	Phoridae*
F468	15.VII.51	NW 1 N 2	10°27'N 126°45'E	10°23'N 126°40'E	"	1	"	Chironomidae
F469	"	ESE 2 N 1	10°23'N 126°38'E	10°23'N 126°40'E	"	7 1	" "	Phoridae* Cecidomyiidae
F470	"	SE 2	10°19'N 126°39'E	10°25'N 126°39'E	48, "	1	"	Phoridae*
F471	17.VII.51				(Tubalonixy-Dinagat) "	1	"	"*
F472	20.VII.51	ENE 1 E 2	10°28'N 126°20'E	10°22'N 126°39'E	" (Philippine Deep)	2	"	"*
F473	"	E 1 NE 1	10°20'N 126°42'E	10°32'N 126°36'E	"	2	"	"*
F474	21.VII.51	E 1 NE 1	10°16'N 126°42'E	10°17'N 126°40'E	"	3	"	"*
F476	22.VII.51	NE 1	10°16'N 126°43'E	10°21'N 126°42'E	"	11	"	"*
F477	"	ENE 1	10°22'N 126°38'E	10°14'N 126°36'E	"	3	"	"*
F478	23.VII.51	SW 1	10°21'N 126°42'E	10°25'N 126°41'E	"	5	"	"*
F479	24.VII.51	E 1	10°24'N 126°10'E	10°37'N 126°03'E	"	1 1	" Hymenopt.	"* Braconidae
F480	"	NE 1 W 1	10°45'N 126°02'E	10°04'N 125°16'E	10, "	2	Dipt.	Phoridae*
F481	25.VII.51		Cebu, Nr. coast		" (Philippines)	1	Hymenopt.	Formicidae
F482	26.VII.51	NNE 1 NE 3	Off Cebu	10°31'N 126°07'E	" (East of Cebu)	1 1	Dipt. "	Trypetidae Phoridae*
F484	27.VII.51	NW 2 W 1	10°21'N 126°36'E		" (Philippine Deep)	1	Coleopt.	Curculionidae
F485	28.VII.51	WNW 4 SW 2	10°26'N 126°39'E		"	1	Dipt.	Opomyzidae
F486	"	WNW 1 NW 2	09°35'N 126°59'E		"	2	"	Phoridae*
F487	"	WSW 3 W 2	10°13'N 126°59'E	10°08'N 126°59'E	53, "	2	"	"*

F488	29.VIII.51	SW 6 W 5	09°21'N 126°57'E	09°40'N 125°55'E	"	1	Homopt.	Araeopidae
F490	31.VII.51	SW 4 WNW 3	09°02'N 126°30'E	09°03'N 127°04'E	"	1	Hymenopt.	Formicidae
F491	1.VIII.51	SSW 3	09°03'N 127°04'E	09°08'N 127°03'E	"	1	Dipt.	Trypetidae
F492	2.VIII.51	SSW 2 SW 2	09°35'N 126°52'E	09°44'N 126°51'E	48,	1	"	Opomyzidae
F495	3.VIII.51	WxN 2 W 3	10°20'N 126°37'E		72,	1	Hymenopt.	Braconidae
F496	4.VIII.51	WSW 2 W 3	10°20'N 126°37'E	10°20'N 126°37'E	72,	1*	Dipt.	Mitichidae
F498	5.VIII.51	WSW 5 SE 3	10°18'N 126°33'E	10°00'N 126°41'E	56,	2	Dipt.	Muscidae
F499	"	WSW 4 E 2	09°57'N 126°36'E	09°46'N 126°50'E	48,	2	"	Phoridae*
F500	6.VIII.51	S 1 NW 2	09°46'N 126°50'E	09°46'N 126°50'E	48,	2	"	Drosophilidae*
F501	"	S 1 S 2	09°46'N 126°50'E	09°44'N 126°50'E	"	1	"	Mitichidae
F503	7.VIII.51	S 1	10°09'N 126°41'E	10°12'N 126°41'E	"	1	"	Drosophilidae*
F504	8.VIII.51	S 2	10°22'N 126°39'E	10°21'N 126°40'E	"	1	Homopt.	Ceratopogonidae
F505	"	NW 1 E 2	10°12'N 125°31'E	10°24'N 125°21'E	"	1	Dipt.	Cecidomyiidae
F506	"	NNW 4 WNW 1	09°57'N 125°12'E	10°22'N 124°26'E	(East of Cebu)	1	"	Muscidae
F507	14.VIII.51	NWxN 2 NW 3	10°14'N 125°26'E	10°28'N 126°17'E	(Philippine Deep)	1	Coleopt.	Corynetidae*
F508	"	WSW 2	10°26'N 126°40'E		"	1	Dipt.	Ceratopogonidae
F509	15.VIII.51	SW 3 SW 5	10°34'N 126°36'E	10°42'N 126°36'E	68, Mindoro (Philippine Deep)	1	"	Drosophilidae
F511	16.VIII.51	SW 5 SW 6	09°51'N 125°18'E	08°53'N 124°48'E	26,	1	"	Mitichidae
F512	"	NNW 1 WSW 4	08°07'N 124°45'E	08°39'N 124°36'E	19, (Mindanao Sea)	4	"	Chironomidae
F513	"	S 5 SW 4	08°48'N 124°09'E	08°49'N 123°21'E	16, (Celebes Sea)	4	Coleopt.	Phoridae*
F514	17.VIII.51	SxW 3 SW 3	08°23'N 122°26'E	07°41'N 121°37'E	660, (Mindanao?)	1	"	Corynetidae*
F519	21.VIII.51	SE 1	01°50'N 119°34'E	01°44'N 119°25'E	(Celebes Sea)	1	Dipt.	Curculionidae
						1	Homopt.	Drosophilidae
						1	Homopt.	Araeopidae

F520	22.VIII.51	SW 2 SW 3	01°44'N 119°19'E	00°49'N 119°19'E	" (Macassar Strait)	2	Coleopt.	Curculionidae
F521	24.VIII.51	ESE 2 S 2 E 1	03°25'S 118°32'E	03°56'S 118°26'E	63, "	1 1 3 1	Dipt. " " Araneida	Phoridae* Ceratopogonidae Chironomidae
F522	25.VIII.51	S 3 SSW 3	04°12'S 118°10'E	05°22'S 117°00'E	" (Java Sea)	1 3	Dipt. "	Scatopsidae Milichiidae
F525	26.VIII.51	SSE WSW 2	05°31'S 112°16'E	05°27'S 111°30'E	100, Kalemaban (Java Sea)	1 1	Lepidopt. Dipt.	Gelechiidae Ceratopogonidae
F527	27.VIII.51	SE 3 S 3	05°58'S 108°10'E	06°00'S 107°46'E	6, "	1	"	Milichiidae
F529	1.IX.51	S 3	06°18'S 105°34'E		32, " (Sunda Strait)	1	Coleopt.	Chrysomelidae
F530	2.IX.51	SE 6 SSE 3	07°05'S 105°24'E	07°50'S 106°00'E	56, "	1	"	Staphylinidae
F531	"	SE 6 SE 3	08°35'S 106°39'E	09°20'S 107°35'E	166, " (S. of Java)	1	Dipt.	Milichiidae
F547	10.IX.51	SE 2 SE 3	10°12'S 118°05'E	10°16'S 113°57'E	148, "	1	"	"
F551	13.IX.51	NE 2 S 1 ESE 3	07°46'S 116°05'E	07°30'S 116°10'E	37, Bali (Bali Sea)	1	"	Phoridae*
F555	17.IX.51	SE 7 ESE 2-4	05°20'S 118°52'E	06°03'S 119°51'E	24, Makanar (Banda Sea)	1	Coleopt.	Corynetidae*
F556	"	E 2	05°46'S 119°58'E	05°53'S 121°58'E	42, "	2	"	"*
F557	18.IX.51	E 3 SE 3	05°02'S 123°01'E	06°11'S 124°11'E	14, "	2	"	Nitidulidae*
F559	19.IX.51	ESE 4	06°20'S 128°10'E		80, Amar (Banda Sea)	1	"	Corynetidae*
F560	"	ESE 3 E 2	06°16'S 129°05'E	06°07'S 130°05'E	66, Nila (Banda Sea)	5	"	Nitidulidae*
F561	20.IX.51	ESE 2 SE 1	05°39'S 131°04'E	05°31'S 131°00'E	97, Koer (Banda Sea)	1	"	"*
F567	23.IX.51	SExE 1 SSE 1	05°43'S 131°08'E	05°28'S 130°54'E	101, "	1	"	"*
F573	26.IX.51	ESE 4 SE 4	08°54'S 133°41'E	09°38'S 134°16'E	225, Tanimbar (Arafura Sea)	1	Blattaria	Blattidae*
F576	27.IX.51	ESE 1 ESE 1	10°43'S 139°17'E	10°46'S 140°00'E	"	1	Coleopt.	Nitidulidae*
F577	28.IX.51	ESE 6 E 2	10°42'S 141°21'E	Port Kennedy	3, Thursday I. (Torres Strait)	1	Lepidopt.	Gelechiidae
F616	25.I.52	ENE 1 SSW 2	39°55'S 177°32'E	39°07'S 178°16'E	26, New Zealand (SW Pacific)	1 1	Dipt. "	Phoridae* Milichiidae

F619A	26.I.52	W 3 W 3	37°25'S 178°18'E	37°31'S 177°18'E	10, White Is. (SW Pacific)	2 3 1 1	" " Homopt.	" Anthomyiidae Agromyzidae Aphididae
F620	"	W 3 W 3	37°25'S 178°18'E	37°31'S 177°18'E	"	3 1	Dipt. "	Milichiidae Chloropidae
F620		W 3 W 3	"	"	"	1*	"	Sarcophagidae
F623	13.II.52	W 2 NNW 3	35°58'S 178°06'W	35°41'S 179°25'W	274, New Zealand (SW Pacific)	1	Coleopt.	Anobiidae*
F636	19.II.52	NE 4 NE 3	35°13'S 177°08'W	35°33'S 178°15'W	515, " (Kermadec Deep)	1	Dipt.	Calliphoridae
F642	22.II.52	NE 5 E 4	35°35'S 178°51'W	35°30'S 178°41'W	483, "	1	"	"
F646	24.II.52	ESE 3 ESE 3	36°34'S 178°59'W	36°34'S 179°55'W	370, "	1	"	Drosophilidae
F648	25.II.52	E 2 E 1	36°31'S 178°44'E	36°30'S 176°47'W	64, "	1	"	Calliphoridae
F649	26.II.52	W 1	36°24'S 175°36'E	off Auckland	3, Auckland (New Zealand)	1*	"	Sarcophagidae
F653	1.III.52	ESE 2 SSE 2	34°07'S 179°20'W	33°25'S 178°20'W	410, Raoul Is. (Kermadec Deep)	1	"	Phoridae
F658	4.III.52	SE 2 NW 1	29°09'S 177°41'W	28°51'S 176°25'W	145, "	1	Lepidopt.	Drosophilidae
F666	7.III.52	NNW 4	21°56'S 174°46'W	Tongatabu	2, Eua Is. (Tonga)	1	Dipt.	Lyonetiidae
F667	9.III.52	E 1 SE 1	21°12'S 174°41'W	21°26'S 173°47'W	116, " (Tonga Deep)	1 1	" "	Muscidae Agromyzidae
F673	11.III.52	NE 4 ENE 5	17°46'S 172°09'W	15°54'S 171°38'W	113, Tutuila, Samoa (Tonga Deep)	1	Coleopt.	Corynetidae*
F676	16.III.52	E 3 E 3	12°41'S 170°49'W	11°58'S 170°58'W	80, Swains I. (Pacific)	1	"	"*
F677	"	E 4 SE 4	11°01'S 171°07'W	10°00'S 170°42'W	113, Swains (Off Swains)	1 1	Dipt. "	Phoridae Drosophilidae*
F678	17.III.52	ENE 3 E 4	09°06'S 170°20'W	07°41'S 170°01'W	322, Swains (N. of Samoa)	2	Coleopt.	Corynetidae*
F679	"	ENE 5	05°42'S 165°37'W	05°52'S 169°19'W	241, Sydney Is. (N. of Samoa)	2	"	"*
F680	18.III.52	ExS 5	04°50'S 168°50'W	04°01'S 168°25'W	241, Phoenix Is. (C. Pacific)	1	"	"*
F682	19.III.52	ENE 4 ENE 3	01°51'S 167°01'W	00°53'S 166°41'W	853, Christmas I. (C. Pacific)	1	"	"*
F683	"	ENE 4 ENE 3	00°02'S 166°29'W	01°01'N 166°03'W	740, "	1	"	"*

F686	20.III.52	ESE 3 ENE 5	04°07'N 164°50'W 05°00'N 164°29'W	241, Palmyra (C. Pacific)	1	"	" *
F689A	21.III.52	ENE 5 NExE 5	07°45'N 163°02'W 08°45'N 162°35'W	241, "	1	Dipt.	Anthomyiidae
F693A	22.III.52	ENE 5	11°52'N 161°35'W 12°46'N 161°16'W	772, Hawaii (Pacific)	1	"	Milichiidae
F694	"	ENE 5	" " " "	"	1	"	Agromyzidae
F701A	24.III.52	NExN 3 ENE 4	19°38'N 158°26'W 20°18'N 158°09'W	97, Oahu (Pacific)	1	"	Anthomyiidae
F707	30.III.52	E 2 E 4	24°26'N 152°47'W 25°04'N 151°49'W	563, Molokai (N. Pacific)	1	"	Phoridae
F708	31.III.52	ENE 4 NExE 4	25°41'N 150°47'W 26°12'N 149°50'W	772, "	1	"	Anthomyiidae
F723	4.IV.52	SE 2 E 1	34°46'N 132°20'W 35°09'N 130°56'W	772, San Francisco (Hawaii-San Francisco)	1	"	"
F738	26.IV.52	NW 3	20°20'N 106°42'W 19°55'N 105°59'W	? Lower California (W. of Mexico)	1	"	Chironomidae
F742	4.V.52	N 3 NE 2	12°25'N 94°31'W 11°39'N 93°39'W	467, Mexico (W. of Mexico)	1	"	Muscidae
F745	6.V.52	ESE 1	09°23'N 89°32'W 09°26'N 89°27'W	362, " (Acapulco-Panama)	1	"	Chloropidae
F750	9.V.52	SSW 2 W 2	07°49'N 79°49'W Off Panama	Panama (Acapulco-Panama)	1	Dipt.	Drosophilidae
F751	10.V.52	SW 3 SW 2	06°52'N 79°30'W 05°52'N 79°31'W	145, " (Gulf of Panama)	1	Lepidopt.	Blastobasidae
F759	14.V.52	SW 1 SW 2	07°24'N 79°30'W 07°17'N 79°35'W	40, "	1	Dipt.	Empididae
F761	15.V.52	W 4 WSW 3	07°24'N 79°35'W 07°21'N 79°38'W	35, "	4	"	Ceratopogonidae
F763	16.V.52	SW 1	07°26'N 79°39'W 07°16'N 79°41'W	24, "	1	Coleopt.	Phoridae*
F764	17.V.52		06°52'N 80°09'W 06°38'N 80°14'W	56, "	1	Dipt.	Nitidulidae*
F765	"		06°37'N 80°46'W	48, "	2	"	Sarcophagidae
F766	18.V.52		06°36'N 80°48'W 06°42'N 80°51'W	32, "	2	"	Phoridae*
F767	"		06°52'N 80°09'W 06°38'N 80°14'W	56, "	2	"	Drosophilidae
F771	23.V.52		12°37'N 74°48'W 13°10'N 74°07'W	169, Columbia (Caribbean Sea)	1	Heteropt.	Anthocoridae
F773	24.V.52		14°42'N 71°27'W 15°05'N 70°56'W	241, Hispaniola (Caribbean Sea)	3	Coleopt.	Nitidulidae
F775	25.V.52		17°02'N 68°02'W 17°20'N 66°59'W	72, Puerto Rico (Caribbean Sea)	1	Dipt.	Ceratopogonidae
					1	"	Drosophilidae*
					2	"	Phoridae*

F777	1.VI.52	SE 3 ESE 2	19°58'N	65°50'W	20°54'N	64°24'W	290, " (Off Puerto Rico)	1 1	" "	Chironomidae Muscidae
F778	2.VI.52	ESE 2 ESE 3	21°22'N	63°21'W	21°56'N	62°17'W	483, " (Sargasso Sea)	1	"	Milichiidae
F779	"	ESE 3 SE 3	22°34'N	61°16'W	22°57'N	60°20'W	531, Anguilla (Sargasso Sea)	1 1	" "	Anthomyiidae Ephydriidae
F781	3.VI.52	SE 4	24°25'N	57°04'W	25°02'N	56°04'W	855, "	2 1	Dipt. Coleopt.	Phoridae* Nitidulidae*
F783	4.VI.52	SE 1 SE 2	25°01'N	56°06'W	25°13'N	55°51'W	909, "	1	Dipt.	Phoridae*
F784	5.VI.52	E 2 SE 1	25°47'N	54°52'W	26°28'N	53°49'W	2720, Azores (West Atlantic)	1	"	"*
F787	6.VI.52	SE 4 SE 3	29°18'N	48°18'W	29°45'N	47°25'W	1827, "	1	"	"*
F791	8.VI.52	SE 1 SE 2	33°24'N	39°19'W	33°54'N	38°07'W	1054, "	1	"	Ephydriidae
F798	15.VI.52	NW 5 NW 7	38°56'N	23°23'W	39°37'N	22°34'W	290, Sao Miguel (East Atlantic)	1	Coleopt.	Staphylinidae
F805	18.VI.52	NW 3	47°49'N	08°26'W	47°55'N	08°12'W	258, England (East Atlantic)	1	Dipt.	Chironomidae