

mais il est encore prématuré de vouloir les définir, ainsi que nous l'avons dit dans notre exposé systématique.

Une espèce seulement est cosmopolite des régions chaudes, *U. implicata*. Les douze autres sont ou bien, pour la plupart, exclusivement africaines, ou présentes également dans la région australienne : *U. contorta*, *U. plicurata*, *U. trichodeoides*, *U. subleprosa*. Cependant, il faut remarquer qu'*U. scutata*, *U. torrida* et *U. Leidenii* sont des espèces rares dont l'aire géographique est, de ce fait, encore peu connue.

Avant le présent inventaire, deux espèces seulement étaient déjà connues de Guinée française : *U. leprosa* et *U. africana* ; aucune ne l'était de Côte d'Ivoire. Toutes les autres, soit douze, sont nouvelles pour l'A. O. F. Ces récoltes montrent ainsi l'extension, vers les massifs montagneux du Nord du golfe de Guinée, d'une flore lichénique africaine sud-occidentale et australe mais, semble-t-il, appauvrie, du moins dans l'état actuel de nos connaissances.

Report on a collection of Odonata from Liberia

By F. C. FRASER.

Very little appears to have been written on the Odonata of Liberia, with the exception of a very short paper by Calvert contained in a report on the Harvard African Expedition. I am unable to trace any works dealing with this fauna. An analysis of the 141 specimens contained in the collection with which I am dealing shows that the fauna practically identical with that of the neighbouring countries and districts, both the west and east as well as inland. Thus papers dealing with the Odonata of these bordering districts will apply equally well to an account of the fauna of Liberia. Besides numerous mentions of individual species in various works, the most important papers to consult are those of R. Martin (1912, *Feuille Jaunes Natur.* (V^e), p. 93-99, Paris) and one by P. Lepesme, *Trans. R. ent. Soc. Lond.* 98, 1947, 19-39). The former paper deals with the Odonata of Sikasso which lies about 500-600 kilometres directly inland to Liberia, whilst the Ivory Coast lies due east of the area. Broadly speaking, it may be said that the fauna is identical with one which is widely distributed over an area covered by the great intermingling rivers, Senegal, Niger and Congo, with a few isolated species, which may however, with further collecting, be found common to the whole area.

Calvert, in his paper, mentioned the following species together with the localities in which they were taken: *Sapho ciliata* (F.), Bakratown, Liberia; *Chiroloepia dispar* (Beauv.), Du River; *Ceragrion glabrum* (Bunn.), Monrovia; *Disparoneura vittata* Selys (from Calvert's remarks on the single male taken at Bakratown, it seems clear that his identification was incorrect and that the specimen was one of *Prodasineura villiersi* FRASER, a new species described in 1948 (*Proc. R. ent. Soc. Lond.* B. 17: 7); *Tetrathemis camerunensis* (Sjöstr.), Du River; *Orthetrum microstigma* Ris, Gbanga; *Theophris tillarga* (F.), Du River; *Palpopleura lucia*

(Druvy), same locality; *Aisoma ascalaphoides* Rambur, Monrovia; *Trithemis nuptialis* Karsch, same locality as the last and also at Du River and lastly *Trithemis arteriosa* (Burm.), Changa, Liberia. A total of only 11 species which I am now able to more than table. Martin's list from Sikasso contains 43 listed in Calvert's and the present collection but there seems good reason to doubt some of his identifications which if corrected would bring the number up to about a score.

The collection before me consists of 144 specimens collected by MM. Dekeyser and Holas, of which 16 belong to the suborder *Zygoptera* and 18 species to the *Anisoptera*. The full list follows.

SUBORDER ZYGOPTERA.

1. *Sapho ciliata* (F.).
2. *Sapho puella* (Sjöstedt).
3. *Sapho superba* Sjöstedt.
4. *Umma cincta* (Hagen).
5. *Planon iridipennis* (Burm.).
6. *Chlorocypha dispar* (Beauv.).
7. *Chlorocypha rubida* (Hagen).
8. *Chlorocypha glauca* (Selys).
9. *Pseudagrion melaniterum* Selys.
10. *Pseudagrion busiocornu* Schm. in Ris.
11. *Pseudagrion conspicuum* Fraser.
12. *Ceriatrion glabrum* (Burm.).
13. *Ceriatrion ignitum* Campion.
14. *Ceriatrion rubellocerium* Fraser.
15. *Isonemoneis subnodalis* (Selys).
16. *Platynemoneis guttifer*, sp. nov.

SUBORDER ANISOPTERA.

17. *Euthemis zygoptera* Ris.
17. *Allorhiza kingi* (Karsch).
19. *Lakia incongruens* (Karsch).
20. *Hadrothemis defeca* Karsch.
21. *Hadrothemis carayensis* (Kimby).
22. *Hadrothemis versuta* Karsch.
23. *Orthetrum microstigma* Ris.
24. *Orthetrum farinosum* Förster.
25. *Orthetrum abbotti* Calvert.
26. *Orthetrum guineense* Ris.

27. *Orthetrum stemmale capense* Calvert.
28. *Therinochoria equivocata* Kirby.
29. *Aisoma trifidum* Kirby.
30. *Pelopoplectra lucia lucia* (Druvy).
31. *Pelopoplectra lucia porita* (Druvy).
32. *Trithemis nuptialis* Karsch.
33. *Crocothemis sanguinolenta* (Burm.).
34. *Holacastina fuliginosa* Selys.

Martin's list includes *Trithemis rubrivervis* which is however a synonym for *Trithemis annulata* (Pal. de Beauv.); *Orthetrum chryso stigma chryso stigma* (Burm.), which, he states extends as far as Western Asia; this species is however a purely African one, the representative in Asia being *O. chryso stigma luzonicum* (Burm.); *Pseudagrion precatatum* Selys, which is a synonym for *P. ker-stent* (Gestr.) and is confined to Africa (not extending to Asia as Martin stated); *Ceriatrion glabrum* (Burm.) was also said to extend to as far Mauritius and Australia; it is certainly common in the former island but quite unknown in Australia. Tillyard, probably following Martin, also gave Australia as the limit of this insects distribution, but confused it with *C. erubescens* Selys, a species closely resembling *glabrum*. Lastly Martin gave *Pseudagrion lindicum* Gestr., which was however a wrong identification for a new species since named *basicornu* and represented in the collection before me by a single male. *P. lindicum* Gestr. *glaucoideum* Schm. and *basicornu* Schm., are all closely similar by their wide extend of blue colour and restricted black markings; all differ in their anal appendages. *P. coelestis* Longweh, described in 1947 from South Angola, is a synonym for *P. lindicum* Gestr.

BIOGEOGRAPHICAL NOTES ON THE SPECIES

SUBORDER ZYGOPTERA

FAMILY COENAGRUIDAE.

Ceriatrion glabrum (Burmester).

A single ♂, Piste D'yiké-Kaouyôké, 19 III 48. A common species with a very wide distribution throughout the greater part of Africa and Madagascar; extending north to Palestine and eastwards to Mauritius. It is an archaic representative of a large genus which has species throughout the whole of the tropical Old World

and which is intimately related to the genus *Pseudagrion* with a similar distribution, the two genera almost certainly having sprung from the same common stem. *Ceragrion ignitum* CAMPTON.

I place here with some little doubt, a single female from Diaké-Kaouyèké, 26.III.48. It has too short an abdomen for *glabrum* which it otherwise resembles. It may be the female of *ignitum* CAMPTON or *corallinum* CAMPTON. Both species are found in the bordering colonies and both are apparently very local. They are more recent than *glabrum* of which they are probably offshoots.

Ceragrion rubellocerium FRASER.

This species was discovered by Dr. Paulian in the Côte d'Ivoire, so that its distribution is now considerably widened. I have already commented on its remarkable resemblance to the common and widely distributed southern Asiatic species *C. cerinorubellum* (Br.). There are four males in the present collection, all from Diyala, 12.IV.48. It differs from *cerinorubellum* and all other species of the genus *Ceragrion* by the assumption of melanism and dense pruinescence in old age. The resemblance between the two species is due to convergence and not to any closer relationship than generic.

Pseudagrion melanicterum SÉLYS.

Three males and one female from Máloumbi, 4.IV.48. The species has a wide distribution along the west coast of Africa and extending into the Belgian Congo. The genus *Pseudagrion* SÉLYS, with about 400 species is distributed very evenly between the tropics of Asia and Africa but with a remarkable development in Madagascar from where 22 species are known, only 2 of which are common to the neighbouring continent of Africa. Eastwards the genus extends into the Pacific to as far as Samoa. No species or subspecies is common to the Asiatic and African continents.

Pseudagrion basicornu SCHMIDT.

A single male from piste Penoké-Oulodi, 12.IV.48. This species was first reported from Guinea but wrongly identified as *P. lindtouni*: it is apparently both local and rare. One pair are known from the Belgian Congo and a single male from the Côte d'Ivoire, a total of 4 males and one female only.

Pseudagrion conspicuum FRASER.

This is another West coast species unique in that the Anal vein leaves the posterior border of wing distal to the level of the cross-

= *flavipes*

vein Ac. The type in the Paris Museum is from the Côte d'Ivoire which is the limit of its distribution so far as it is known at present.

Isomecocoeremis subnodalis (SÉLYS).

There are 2 males and 4 females of this species from piste Fléoulole-Klaouoké, 22.III.48, piste Penoké-Oulodi, 12.IV.48, Louzon, 30.IV.48, Ziabli, 12.IV.48 and piste Kaouyèké-Penoké, 29.III.48. The genus is confined to West Africa and contains only two species *I. cyanura* (FOERSTER) being the genotype; it lies very close to genus *Chlorocnemis* SÉLYS which is also African in distribution. *I. subnodalis* has a distribution from the Côte d'Ivoire, where Dr. Paulian found it common, to as far south as the Congo.

Platycnemis guttifera sp. nov.

A single male from Ziabli, Liberia, 15.IV.48, collected by Dekeyser and Holas.

Male. Abdomen 34 mm. Hindwing 20 mm.

Head: labium straw coloured, labrum, bases of mandibles, anteclypeus and a narrow streak across the frons confluent with the pale colouring of the genae pale yellow (probably pale greenish during life). Rest of head on dorsum matt black but the area reddish brown as well as an ill-defined narrow stripe on each side of the occiput which is bordered posteriorly with black. Beneath head pale ochreous. Prothorax dark reddish brown with a narrow subdorsal yellow stripe on each side traversing all lobes and confluent posteriorly with a similiary coloured stripe on the dorsum of thorax. The latter pale greenish yellow marked very irregularly with black. The dorsum dull black peppered with small yellow dots and with a fine yellow stripe on each side of the middorsal carina: a narrow antehumeral yellow stripe on each side of dorsum confluent anteriorly with a similar stripe on prothorax. Laterally three black areas, the anterior one broad and splashed superiorly with broad pale spots, the median stripe narrower and bordering the postero-lateral suture. The posterior stripe on anterior part of metepimeron, broad above, tapering to a fine point below. Beneath pale greenish with a longitudinal black convex stripe on each side. Legs entirely bright ochreous with black spine: tibiae not dilated. Wings hyaline, 12 postnodals in forewings, 10-11 in the hind; pterostigma blackish brown with the costal and distal borders narrowly ochreous, the costal side slightly longer than the posterior, these sides diverging distally so that distal side is the longest cover-

ing I cell; Abdomen pale greenish laterally and beneath with black dorsal markings as follows: segment 1 with a quadrate dorsal spot, segment 2 with a broad dorsal stripe narrowly cleft into two by a fine middorsal yellow stripe; the stripe considerably broadened in its posterior half or less; segments 3-7 with dorsal stripe arrested just before the bases of segments to leave short pale annules; and constricted at junctions of middle and apical thirds to leave paired pale subdorsal subapical spots, 8 and 9 black, 10 and anal appendages greenish yellow. Superior anal appendages

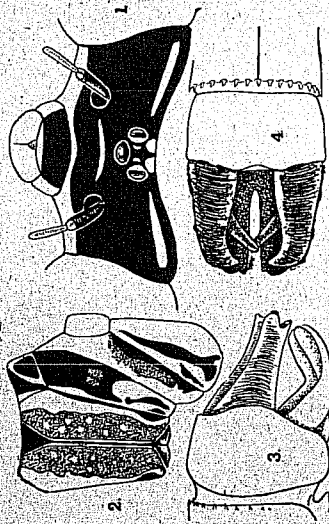


FIG. 1-4. — *Plagiogenis pulleri*, sp. nov.: 1, Head, dorsal view; 2, Thorax diagrammatic to show markings; 3, Anal appendages seen from the left side; 4, The same, dorsal view.

slightly longer than segment 10, broad at base, tapering gently to apex which is curled downwards and inwards and rather obtuse at end. A stout inner spine or tooth springing from the middle of each on its ventral surface and directed inwards and obliquely posteriorwards. Inferiors of the same length as superiors, broad at base, then narrowing and of even thickness to as far as apex which is distinctly bifid and truncated, the two appendages running parallel and straight posteriorwards. Female unknown. Type will be placed in the Paris Museum.

This new species differs from two others described from the West coast of Africa, viz *sikassoensis* MARTIN which has the epistome yellow and the anal appendages of quite different shape: and *congolensis* MARTIN which has the tibiae of the male dilated.

P. milarina FORSTER has the thorax unmarked laterally and the superior anal appendages one third shorter than the inferiors. NAVAS has described two species from the East coast, *zanzibarica* and *laetipes*, neither of which I have been able to examine. *Copeira* (*Plagiogenis*) *subaequisetula* FRASER from Uganda has the inferior appendages one fourth longer than the superior and the head is traversed from eye to eye by a creamy yellow stripe. The two general *Copeira* SEXVS and *Plagiogenis* BURM. were originally separated by differences in the antennae which however have since proved to be invalid owing to the finding of exceptions, thus I follow most modern authors in treating *Copeira* as a synonym for *PLAGIOGENIS*. The nomenclature of the African species is in a chaotic state and is in urgent need of revision. The present new species closely resembles in general appearance several of the Asiatic ones, such as *marginipes* (RAMBUS). The distribution of the genus *tropica* of the Old World is a close parallel of that of *Pseudagrion* (vide supra) and like it, has a curious development of species in Madagascar where some six or more species are known. All the originally described species under *Plagiogenis* are palaeartic in distribution, whilst those formerly under *Copeira* are found in the tropics as given above. Thus on geographical grounds the two genera might usefully be kept apart.

FAMILY AGRIDAE.

Sappho ciliata (F.).

This is apparently an extremely dominant species on the West coast. I received 26 specimens in Dr. Paulian's material from the Côte d'Ivoire and there are 18 males and 4 females in the present collection including all stages from the teneral uncoloured ones to old adults with intense blue black metallic wings. Some adults with hyaline and partially infuscated wings are so markedly pronounced that they appear to have attained maturity; if this is so, then the species must be polymorphous, a character which can only be studied by those on the spot.

Sappho superba (STROEDR.) = *gilchristi*

A single male in teneral condition and with the end segment abdomen missing. Piste Kaoyéle-Penolté 8.IV.48. The type came from the Cameroons and together with one cotype, are the only specimens known. The wings are shaped similar to those of *S. bicolor* SEXVS and the apical marking is of the same extent as in that

species but differs by having a white crescentic opalescent stripe along its inner border. In the present specimen the dark-apical marking is pale and only just beginning to develop, otherwise it is similar to the type.

Sapho puella Sjöstedt.

A single male from Mâboulé, 5.IV.48. The species was described by Sjöstedt as an *Umma* but it is clear from the venation of his figure and the large pterostigma that it is a *Sapho*. Only 2 males (and a female?) are known of this rare species, the type coming from the Cameroons. From the figure of the female which Sjöstedt has given on Plate 5, it is evident that two species have been included under *puella*: figure on Plate 4 represent a *Sapho* ♂ type of *puella* and that on the following plate showing a species of *Umma* ♀ which may be *justamargina* Sjöstedt? Thus it would appear that female of *puella* still remains to be discovered. The difficulty of distinguishing a *Sapho* from an *Umma* arises from the difficulty of determining whether CuP is branched or not. A much easier method depends on the angle which the related branch of the Anal vein makes with the posterior border of the wing: in *Sapho* this is directed very obliquely towards the base of the wing, whilst in *Umma* it forms almost a right angle with the posterior border of the wing.

Umma cincta (HAGEN).

Four females from Mâboulé, 3.IV.48, Piste Doukè, 19-III.48, Touzon, 30.IV.48 and piste Kaonyéké-Penoké 29.III.48. All are typical of this wide-spread species. It is distributed along the whole tropical zone of the West coast and extends deep into the Belgian Congo.

Phaon iridipennis (BURMEISTER).

Seven males from piste Penoké-Oulodi, 12.IV.48, Bihei, 48, Ziabli, 12.IV.48, Touzon, 30.I.V.48 and Diyala, IV.48. The specimens from the latter locality and Ziabli are without a pterostigma to their wings but are otherwise similar. The species is distributed throughout tropical Africa and Madagascar, forms with or without pterostigma cropping up in all localities. In the present material it is noted that the pterostigma varies widely in its size and length covering from 3-6 cells. I cannot find in any description that the wings viewed by reflected light are brilliantly iridescent, the forewings with the middle two fourths a brilliant bluish green metallic, the hindwings throughout a fiery coppery metallic.

FAMILY CHLOROCYPHIDAE

Chlorocypha rubida HAGEN

Three males all from Touzon, 30.IV.48. This beautiful species is so attractive that I think if it had been seen in numbers, more would have been taken, as well as the little known female: I therefore conjecture that the three specimens were the only ones seen of this comparatively rare species. All are fully matured specimens with the antehumeral and humeral stripe separated, and a blood-red kite-shaped dorsal marking on segment 2. The type is in the Copenhagen Museum and is from Guinea: I have specimens from the Cameroons which appears to be the zoo-centre of the species.

Chlorocypha glauca SÉLYS.

A single male from piste Diakaké-Kaonyéké 6.II.48 is quite typical in colour and markings. The antehumeral and humeral stripes are separated below as in *rubida*: segments 1-4 are pale blue whilst the remainder are blood-red, a complex shared by no other species. The type is from the Cameroons which appears to be the zoo-centre of this species as in the of *rubida*.

Chlorocypha dispar (PAL. DE BEAUVOIS).

There is a single female of this uncommon species, the markings of which are exact as shown in my figures (1949, *Bull. Inst. R. Sci. Nat. Belg.* 25, 6: 36 fig. 3, 4, 6, a-b) save that the inverted yellow trident-shaped markings are continued on to segments 8 and 9 and segment 10 is bordered posteriorly with yellow. These markings may be obscured in full adults, the present specimen being somewhat teneral. The present specimen comes from Bardayville, Liberia, 10.III.48: the species is distributed thinly from Sierra Leone to Guinea: it varies considerably in size and especially in the markings on segments 2 and 3 of the male.

SUBORDER ANISOPTERA

FAMILY AESHNIDAE

Heliaeschna fuliginosa Sélys.

A single female from Sinlitrou, Liberia E., 1948, rather teneral in condition, is quite typical. The genus is closely related to *Gynacantha* and like that genus, species are crepuscular in habits and

deposit their eggs in dry soil. The crepuscular habits no doubt account for the few specimens which are taken by collectors, they may however be beaten up and marked down to their next resting place, which is usually after but a short flight. The dense shade of bamboo clumps is a favourite dormitory for these insects during the day time. The species has been previously reported from Liberia and from Sikasso; its headquarters however are in the foothills of the Cameroons.

FAMILY LIBELLULIDAE.

Bothemis zygoptera Ris.

1 male from Touzon, 30.IV.48 and 1 female Zibahi, 10.IV.48
2 males and 2 females, Douala, Côte d'Ivoire, also reported from Bavia S. Paul, Liberia and several specimens from the Cameroons.

This archaic Libelluline is distributed from Sierra Leone to the Cameroons, which latter appears to be its zoo-centre. The genus is purely Ethiopian and restricted to the West coast; it is however intimately related to genus *Tetraletmis*, a genus distributed throughout the tropics of both Asia and Africa. A knowledge of these genera might throw much light on their origins and affinities. They breed in deep still pools in close jungle and I have known them to breed in deep wells. They deposit their eggs in moss or in the open on foliage well above water level a unique habit among Libellulines.

Allorhynchus kingi Karnsch.

This species which has a distribution extended from the Côte d'Ivoire to the Congo and Angola, is represented in the present collection by 4 females, from Kaouyéké, Fléouloté and Zibahi, 27.III.45-IV.48; Dr. R. Paulian found it quite in the former colony and sent me 46 males and 7 females for examination. Its zoo-centre is evidently in the neighbourhood of the Côte d'Ivoire and Liberia. It is a more recent genus than *Bothemis* but may be expected to possess similar habits and habitats. As the most archaic representatives of the group *Tetraletmis* are found in the oriental region, they probably originated there and spread to Africa during a pre-glacial period.

Lokia incongruens (Karnsch).

A single male from piste Penoké-Oulodi, 12.IV.48. The specimen is a little damaged but quite easily repairable. The genus is

a small one confined to equatorial Africa and Madagascar and consisting of four species all of which are very rare, the Madagascar species *madagascaris* Ris being the best known. *L. incongruens* is known from only 3 males, but a female taken by Dr. Paulian in the Côte d'Ivoire which I determined as *L. girce* Ris, may actually be this species. Abd. 29 mm., H. 30 mm. All wings are evenly tinted with pale brown, this deepening at extreme apex, narrowly the bases of all veins with amber yellow but only so as the 1st or 2nd antennodal, much less so than the Selysian specimen, which is said to be juvenile. The thorax is black the abdomen also save segment 3 and the sides of 2 which are blood-red (as in *L. erythromelas* Ris). The specimen differs strongly from type by having only a single row of cells between Rs Rsp1, in which respect it again resembles *erythromelas*. The identification has been made by the details of the genitalia.

Hadrothemis defecta (Karnsch).

A single defective female from piste Kaouyéké-Penoké, 1.IV.48. This is another rare species known from very few specimens, with a distribution from Sierra Leone to the Cameroons and Belgian Congo. Specimens of this and the former genus are probably often overlooked, being mistaken for common *Oritharum* which they greatly resemble and are closely related to.

Hadrothemis versuta Karnsch.

1 male, piste Fléouloté-Klaoutoké, 23.III.48, 1 pair from Penoké, 1.IV.48. Dr. Paulian found this species common along the Côte d'Ivoire, so that colony, along with Liberia, represents its greatest incidence. My remarks on Dr. Paulian's specimens apply equally to the present ones. Of the 42 known specimens, 28 have been taken in these two areas, all others having been taken in the Cameroons and adjacent littoral areas.

Hadrothemis camarensis (Kunze).

Two males from Máloubit and a female from piste Kaouyéké-Penoké, 29-III.48-3.IV.48. One of the males has only a single P cuq in the hindwings thereby agreeing with Dr. Paulian's specimen from the Côte d'Ivoire and so confirming my determination. Kirby's type in the British Museum has actually only a single cubital cross-vein in both hindwings, a circumstance queried by Dr. Ris.

Thermochoria eutvocata Kinay.

One female from Ziblibi, 12.IV.48. The genus is a monotypic one confined to West Africa and the Congo, from Sierra Leone to Portuguese Guinea. The species is uncommon and not a great number of specimens have been received in collections. It is nearly related to *Hemistigma* with which it is sometimes confused. Dr. Paulian sent me a pair from the Côte d'Ivoire.

Aciroma trifidum Kinay.

One male only, taken at piste Kaouyéké-Fléouloké, 22.III.48. This is quite the most uncommon of the two species and one subspecies make up the genus. One, *ascalaphoides* RAMBUR, is distributed throughout S. Asia, whilst its subspecies *panzerpoides* RAMBUR is equally distributed throughout tropical Africa; *trifidum* is confined mostly to West Africa but occasional specimens are received from Uganda and Kenya. It is sharply defined from the other two forms by its gradually tapered abdomen (abruptly constricted at segments 6 to 10 in the others).

Palpopleura lucia (Druay).

Both forms *lucia lucia* and *lucia portia* are well represented in the present collection, and were taken at piste Diakaké-Kaouyéké; Penoké; piste Kaouyéké-Fléouloké; Webo; Máloubli; Piste Douéké and Piste Fléouloké during March and April. The relationships and pairing between the two forms needs to be studied on the spot. The species is distributed throughout tropical Africa and Madagascar.

Orthetrum microstigma Ris.

There are 6 males and 2 females belonging to this species which appears to be almost entirely confined to West Africa although occasional specimens have been reported from the Congo and Uganda districts. It differs from other species as its name implies, by its very small pterostigma.

Orthetrum guineense Ris.

12 males and 4 females are represented of this local species which appears to have its zoo-centre in Liberia. They were taken at piste Kaouyéké-Fléouloké, Webo, Touzon and Ziblibi during February to April.

Orthetrum stemmale capense CALVERT.

A common and very widely distributed species throughout Africa represented by 4 males and 9 females but some of the latter may have been wrongly determined for lack of good characters in this sex. They were taken at piste Kaouyéké-Fléouloké, Ziblibi, Máloubli and piste Douéké during March and April '48.

Orthetrum farinosum FONSBRAN.

A single male from piste Kaouyéké-Fléouloké, 22.III.48. This species is sparsely distributed throughout tropical Africa and is especially rare in the west. His remarks that specimens from the West coast are abnormally small but the present specimen is of average build.

Orthetrum chryso stigma chryso stigma. (BURMEISTER).

A single female appears to belong here, from Kaouyéké-Fléouloké. The species is one belonging to the Mediterranean group with a distribution limited to northern Africa but extending into Spain. In West Africa it is largely replaced by its near relatives guineense and the next species.

Orthetrum chryso stigma abboti CALVERT.

I place here with some doubt, a pair from Webo and piste Douéké. The species is mainly distributed in East and South Africa: the male has been determined by its genitalia; the female may possibly be a wrong determination for *guineense*? A revision of the whole of the African *Orthetrum* is very necessary, to be worked out on a basis of a careful comparison of their genitalia. No less than 16 species have been described from Africa out of a total of 57 for the whole genus.

Tritthemis nuptialis KANSEN.

Two males from piste Douéké, 19.III.48. The species is by no means common and represents *T. siatica* (BURM.) in the West. Its zoo-centre is in the Cameroons from where it extends into the Congo and westwards along the coast. It was not represented in Dr. Paulian's material from the Côte d'Ivoire.

Crocothemis sanguinolenta (BURM.).

3 males and a single female from piste Kaouyéké-Penoké, 29.III.48 and piste Glofaké-Kabouké, 6.III.48. It is an unusual species to be found on the West coast but is common in the Congo

area and has been reported from French Guinea. The lateral black markings on the abdomen are absent as is usual in specimens from the West coast.

This paper discusses the geographical distribution and relationships of some 3½ species of *Odonata* collected in Liberia over a short period of about two months and probably incidental to the collecting of other orders. The list probably represents not more than half the fauna of Liberia, probably less than half. It agrees closely with the list of species taken by Dr. R. Paulian in the Côte d'Ivoire and still more closely with that of the Cameroons, these two territories forming part of an enormous area drained by the Senegal, Niger and Congo rivers over which a common fauna is distributed. As pointed out in a former paper (*Odonata* of the Ivory Coast, FRASER, 1947-*Paras. R. ent. Soc. Lond.* 88: 19) these rivers closely interlock, their tributaries being separated by comparatively low watersheds which offer no barriers to insects endowed with such strong flight as dragonflies.

Hesperidiæ du Liberia collectés par P. L. Dekeyser et B. Holas

par J. PICARD.

I

A l'exception d'une espèce, les exemplaires examinés appartiennent à la race typique de chaque espèce. L'abréviation O. signifie qu'il s'agit d'une forme répandue en Afrique occidentale (zone comprise entre la Mauritanie et l'Angola), et l'abréviation E. indique que cette forme se rencontre aussi en Afrique orientale (région à l'Est des grands lacs).

- Pyrrhocalcia iphis* Druv., 1 ♀ Kaoukè, 20-III-1948 (O.).
Sarangesa thecla Prösz, 1 ♂ Máloubli, 3-IV-1948 (O. E.).
Sarangesa grisea Hewitson, 1 ♂ Máloubli, 3-IV-1948; 1 ♂ Patá, 10-IV-1948 (O.).
Spialia plötz Rebel, 2 ♂ Máloubli, 4-IV-1948; 1 ♂ Pénoké, 8-IV-1948 (O.).
Ceraticocha plicicornis Fabricius, 2 ♂ Diyala, 1948 (O.).
Pardalodes incerta Snellen, 1 ♂ Kaoukè, 25-III-1948; 1 ♂ Diyala, 1948, qui fait transition à la forme *maureta* Prösz.
 Cette dernière n'est pas une race, mais une aberration fréquente presque partout où se trouve la forme typique (O. E.).
Pardalodes oedippus Graeser, 1 ♂ Taôké, 4-III-1948 (O.).
Pardalodes reichenozi Prösz, 1 ♂ Kaoukè, 28-III-1948 (La race typique en O. et la race *lorensis* BÉTRUNE-BAKEN en E.).
Osmodes onar Swinhoe, 2 ♂ Pénoké, 8-IV-1948 (O. E.).
Osmodes laronta Hewitson, 1 ♂ Máloubli, 3-IV-1948 (O. E.).
Acleros plötz Mabille, 1 ♀ Máloubli, 3-IV-1948 (O. E.).
Grina cylindrica Hewitson, 1 ♂ Tchien, 24-IV-1948 (O. E.).
Pteroteron laujella Hewitson, 1 ♂ Zaïbli, 12-IV-1948; 1 ♂ Tchien, 25-IV-1948 (O.).