

auf dem Gipfel des Kutelo (2908 m) beobachtet.

Es wurde festgestellt, daß der Wanderzug nur bei extrem schlechter Witterung (Gewitter, Schauer) eingestellt wurde, denn zwischen den die Gipfel verhängenden Wolkenketzen wurden wieder ziehende Falter beobachtet.

Auf der beobachteten Breite von annähernd 5 km zogen an den beiden Tagen 16. und 17.VII. (bei Annahme einer durchschnittlichen Zugfolge von 2 Tieren/min und einem durchschnittlichen Abstand von 100 m) während des Beobachtungszeitraumes etwa 50 000 Exemplare von *Cynthia cardui* L. vorbei. Das kann natürlich nur eine grobe Näherung darstellen. Die ziehenden Falter befanden sich alle in einem frischen Zustand; bei der vorherrschenden Zugrichtung nach SW könnte es sich um einen Rückflug (Termin?) oder eine lokale Wanderung handeln.

Die Ursachen des Wanderzuges sind unklar. Es soll jedoch in diesem Zusammenhang bemerkt werden, daß die standortfesten lokalen Populationen im gesamten Piringebiet sehr stark waren und *Cardui* dort zu den häufigsten Tagfaltern zu zählen war.

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### **A migration of *Libythea labdaca* WESTWOOD in Nigeria**

(Lep., Libytheidae)

by

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On 29.XI.1980 I was travelling by car from Benin City, Bendel State in Nigeria towards Lagos on the new Ore expressway. At 12.00 noon we ran into a dense migration of *Libythea labdaca* about 24 km NW of Benin. Time and circumstances did not permit a genuine investigation of the nature of the migration, but some details were observed and form the basis of the following notes and estimates.

1) At 12.08 we stopped for four minutes to observe the true direction of the migration and the behaviour of the individual migrant. The main stream was

moving almost due East. Most individuals were travelling some 100 to 150 cm above the ground, a few somewhat higher.

2) A significant number of specimens were stationary in the area, leaving the distinct impression that the main swarm was „dropping off“ populations along the migratory path. The stationary specimens appeared quite agitated and it is, of course, also possible that they were preparing to join the migration, but I think this rather less likely.

3) We entered the front very abruptly at 12.00 and left it equally abruptly at 12.28. Migrants were always plentiful, but some topographical features such as forest edges or valleys concentrated the stream into exceptionally dense swarms. In one or two places the density was that of slight snowfall (admittedly of black snow).

4) The density appeared to be between 50 and 100 individuals crossing a 50 metre front per minute. I shall use 30 per minute as an average, though some of my fellow travellers would insist that the true average was higher. The speed of flight was that of a light run, i.e. 8 km per hour.

5) At 12.08 the front grille of our Peugeot 504 had swallowed more than 60 individuals and at 12.28 there were marks of more than 35 individuals on the windscreen.

The observations can be summarised in the map (fig. 1).

The minimum extent of the observed migration would thus be a width of about 15,5 km and a depth of 27 km. The depth may, of course, have been much greater (and if we ran into the tail-end of the migration the width might have been broader). It is therefore possible to derive the following minimum estimates.

1. Time needed to pass given point for a swarm of 27 km depth travelling at 8 km per hour is 3.37 hours or about 200 minutes.
2. Numbers crossing a front of 13.5 km if 30 pass a 50 metre front every minute is 8100 individuals per minute.
3. 8100 per minute crossing the total front for 200 minutes yields a total minimum estimate of the swarm size of 1.620.000 individuals.

It therefore appears quite safe to say that at least one million specimen of *Libythea labdacca* crossed a narrow front on the day in question, but as the actual observations spanned only half an hour it may have been many times greater. On a personal note I might add that I was very surprised when my calculations arrived at a figure as low as that; a spontaneous on the spot which my fellow travellers cajoled out of me was 5 million.

During the preceding fortnight I saw no specimen of *Libythea labdacca* at Lagos or Ibadan, but some were observed at Akure a few days prior to the migration. The two preceding days none were seen at Benin City or between Benin and Sapele. However, I had few opportunities to look. Still, the phenomenon appears to have been quite localised and I saw no *Libythea labdacca* in

Lagos between 1. and 15.XII.

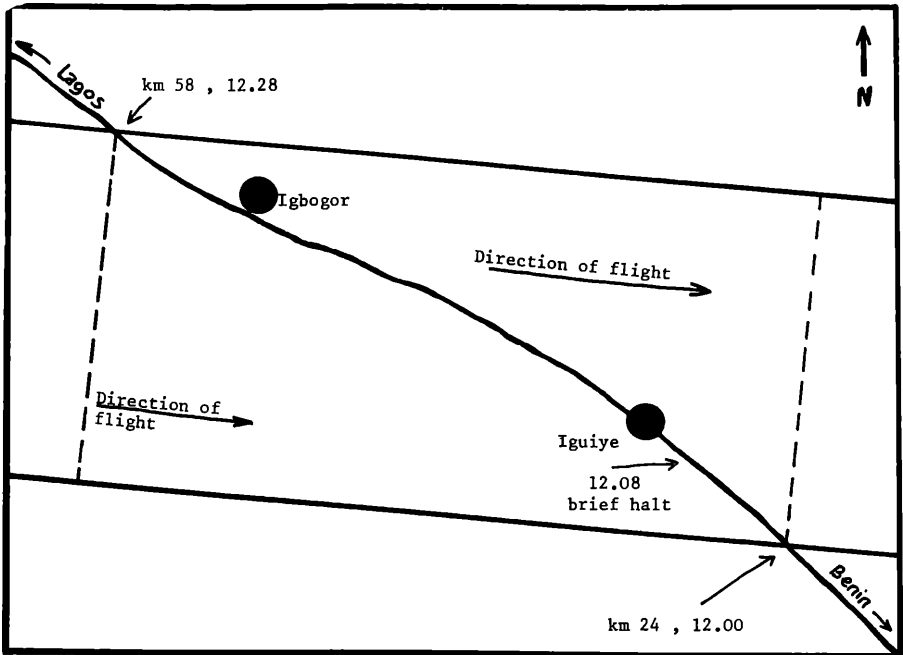


Fig. 1 Map of area in which the migration of *Libythea labdacæ* was observed

The species is a well known migrant. In an earlier paper in *Atalanta* (LARSEN, 1978) I reported on a more modest migration in Ghana. In that paper I commented that the local farmers recognised the butterfly not to have been studied. This statement has been misunderstood. There are many references to the timing of migration and the rains in the case of individual observations. I was suggesting – and would still suggest – that correlation of all migration data on *Libythea labdacæ* with relevant meteorological data on a systematic basis might be a useful exercise.

References:

LARSEN, T.B. (1978): A migration of *Libythea labdacæ* WESTW. in Ghana (Lep.; Libytheidae). – *Atalanta* 8: 253-254.

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