1. August 1908. № 9. XXIII. Jahrgang.

Societas entomologica.

„Societas Entomologica“ gegründet 1886 von *Fritz Rühl*, fortgeführt von seinen Erben unter Mitwirkung bedeutender Entomologen und ausgezeichneter Fachmänner, erscheint monatlich zweimal im Kommissionsverlage von *Felix L. Dames*, Steglitz-Berlin.

Journal de la Société entomologique internationale.

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57 : 15

On some Curious Habits of certain West African Insects

by Dr. med. F. Creigton Wellman, of Benguella, West Africa.

During the process of collecting nearly two thousand African species of insects and other animals, the writer has made notes on the habits of a large number of these, only a few of which have been published. Most habits of African insects, it may be said in passing, are susceptible of some rational explanation by one familiar with the climate, flora, and other features of the continent; but occasionally one observes actions of which he can offer no certain interpretation whatever. It is of such that I wish to speak in this paper.

On October 29, 1905, I was collecting insects at a point two days' march inland east of Benguella, and on that occasion I saw a Coprophagide beetle (**Onthophagus sp.** — the specimen was later unfortunately ruined by mould) lying on its back and rapidly revolving by means of its six legs a piece of charcoal about half the size of its own body. The proceeding irresistably reminded me of the actions of a Japanese juggler who lies on his back and keeps a large ball revolving by moving it with his feet. Presently the beetle discarded the piece of coal and turned over into its natural position and started to walk off. In a few seconds it came back, siezed the piece of coal and went through the whole performance again. Then it turned over and walked off once more. I followed it for some distance and as it showed signs of flying away I caught it and put it into my killing bottle. Whether the object of this strange proceedure was to clean the beetles' legs from dung is more than I can say.

On the same journey I saw (October 24, 1905) one day in the bright sunlight a hazy ring come 30 mm. in diameter, which seemed to hover just above the short grass. The ring looked somewhat like the conventional halo one sometimes sees above the heads of saints in paintings. I struck my hat sharply against the ground and found that two Diptera (**Anthomyiae** ♂ ♀) rapidly flying in a circle had caused the illusion. I suppose the phenomenon to be some part of their courtship, but have no explanation to offer regarding its utility.

On another occasion I was in an old deserted camp in the desert east of Benguella. As I sat in my tent the flies were very troublesome. Presently a gentle rain began to fall, and after a few minutes the flies left the dry tent and went out into the rain. Most of them did not fly out but crawled on the ground. Among the flies I caught **Musca domestica** L., **Homalomyia scalaris** L., and **Pycnosoma chloropyga** Wied. As this occurred by a dried-up water hole, I concluded that extreme, thirst may have tempted the flies.

In February 1904 I saw in West Africa a species of **Phora** dragging about a small ant, having hooked the ungues or tarsi of its last pair of legs to the legs of the ant. The fly reminded one of a pony hitched to a cart. I conjectured that the fly had oviposited in the ants body (as some members of the Phoridae do) and was seeking a safe place to deposit its victim so that the maggot might develope undisturbed.

On still another journey I saw by the roadside some seeds from a tree called by the natives „Onjiliti“. These seeds were jumping about in a most startling manner and the natives declared they were bewitched. On cutting one open I saw the larva of a Curculionide beetle inside. This grub by contracting and then suddenly lengthening its body was able to deliver a blow hard enough to make the seed jump 40 or 50 mm from the

ground. After the seed was cut open, the grub in four minutes time had spun a thin web across the hole (which was $^1/_8$ as large as the entire seed) completely closing it. I kept some of these seeds seven months, when they were accidentally thrown away. During all this time the seeds continued to jump, nor did the grubs change to pupae. I can only think of one explanation of the strange action of these larvae, viz.: that the jumping about of the seeds prevents other insect enemies from invading them and destroying the inmates.

I have frequently noticed that a large, evil smelling, predatory ant (**Paltothyreus tarsatus** F.) is fond of going about in the driving rain when all other insects are in hiding. I once thought they were forced from their holes by the holes being filled with water, but I have since seen some of their holes in such a position that water cannot get into them. I suggest that this queer habit is possibly an effort to find prey that may have been driven from their holes by the entering water, or may have been overtaken in the rain and disabled making it easy for the ants to secure them.

In February 1907 I noticed a large Elateride beetle larva travelling on its back by means of a peculiar wriggling motion. When turned over into its normal position it immediately resumed its topsy-turvy attitude. This larva has six well developed legs, and its preference for travelling on its back is something of a mystery. One day while watching some large Julide millipedes (**Spirostreptus** and **Odontopyge**) a possible explanation presented itself to me. These millipedes when disturbed turn on their backs and adopt the same erratic wriggling motion that I noticed in the grub. Possibly this very rapid, irregular motion (which would be hindered by the legs) is calculated to disconcert intending enemies, and is best performed on the back.

I have frequently been much interested in watching the swarming of termites. In September 1907 I observed a very peculiar phenomenon among them. A nest was swarming, the termites flying in great numbers all about me. Suddenly the termites ceased to fly. They continued to come up from the interior of the nest, but on arriving at the top of the ground they simply sat, slowly moving their wings but making no attempt to fly. Soon a space about one metre square was almost completely covered with the insects. I watched them for twenty minutes and none flew away. I was then most unfortunately called away. I do not know what the reason of their actions could be. Some swallows were hawking the flying termites, but it would require almost miraculous powers of sight and intelligence to enable the insects to see and act on this contingency.

Quite recently (October 22, 1907) I discovered a small, strikingly coloured, black and white moth (since sent to Berlin for determination) moving on a **Brachystegia** leaf. On watching it, its movements were seen to be amazingly regular and rythmical. It circled to the left, then to the right, then **vice versâ**, all slowly and in a very stately manner, as though performing a waltz or some other dance. The explanation I suggest is that the slow, unusual motion displayed to the best advantage the warning colours which are doubtless its chief protection.

The foregoing are among the most remarkable of my experiences with exotic insects.

57.32, .64, .65, .68, .72, .96

57.93 Taxonus : 15

Biologische Beobachtungen an Taxonus glabratus Fll. (agilis) Klg.

Von R. Kleine.

Die Blattwespen haben sich viele Freunde erworben und das mit Recht. Einmal ist es heute möglich, seit der nun verstorbene Konow seine Chalastogastra geschrieben hat, einen ansehnlichen Teil sicher zu bestimmen, und zum anderen ist die Biologie dieser merkwürdigen Tiere, die obendrein den Beobachter noch nicht einmal mit einem Stachel drohen, so interessant, dass es sich wohl lohnt, auch hier die einzelnen biologischen Momente zu fixieren und so nach und nach auch nach dieser Seite hin eine gewisse Vollkommenheit zu erzielen.

Es kann sich im vorliegenden Falle nur um eine vorläufige Mitteilung handeln, da ich zunächst den Sommer zu weiteren Beobachtungen nötig habe; aber auch diese Einzelheiten erscheinen mir wichtig genug, um als Bruchstück einstweilen mitgeteilt zu werden.

In der Umgebung von Halle a. S. hat sich seit einer Reihe von Jahren eine Pflanze ausserordentlich verbreitet, die nach den Angaben von Garcke [1]) Ende der vierziger Jahre des verflossenen Jahrhunderts im Halleschen Gebiete selten war, heute aber fast jeden Schuttplatz mit Beschlag belegt hat und teilweise eine fast undurchdringliche Hecke darstellt; diese Pflanze ist Atriplex nitens Rebentisch aus der Familie der Chenopodiaceen [2]). An sich ist sie ein lederner Geselle, Lepidopterenraupen habe ich noch nie daran gefunden, Käfer scheinen ebenfalls nicht darauf zu leben, kein Frass an Stengel oder Blättern; so präsentiert sie sich, saftgrün glänzend, den ganzen Sommer und oft bin ich mit einem wahren Verdruss daran vorbeigegangen.

Im ersten Frühjahr, wenn die Föhnwinde auch

[1]) Garcke, Flora von Halle, p. 396.

[2]) Nach Schirmer bohrt die Larve auch in Rumexarten, nach Kaltenbach in Chenopodium album L.