

which, from the structure of its palpi, mandibles and legs, M. Dugès was inclined to refer to the neighbourhood of Tetranychus. In every other recorded immature state of Acaridæ the animals possessed six legs. The question of the introduction of such great numbers of these minute creatures within the closely-packed leaves of the currant buds was difficult of explanation, but Mr. Stainton suggested that the eggs had been introduced into the immature buds in the previous autumn.

Prof. Westwood also exhibited a remarkable new species of butterfly from East India, which, although presenting all the general appearance of a species of the Brazilian genus *Brassolis* in its robust body and wings and in the coloration of the latter, belongs to the *Lycenidæ*, having the veins of the fore wings arranged as in *Amblypodia Timoleon*. The following are its characters:—

GENUS *LIPHYRA*, *Westw.*

Corpus breve, crassum. Caput mediocre, oculis magnis. Palpi minuti, obliqui, supra vix visibiles, articulo ultimo ovali, apice acuto. Antennæ rectæ, dimidio apicali sensim clavatæ. Pedes valde abbreviati, crassi, omnes sex æquales, perfecti, tibiis omnibus ecalcaratis; tarsorum unguibus integris, nec bifidis, pseudonychiis conicis, pulvillo subbilobato. Alæ magnæ, obtusæ, ecaudatæ; anticarum vena postcostali 4-ramosa, ramis duobus ante apicem cellulæ discoidalis, alterisque duobus æquidistantibus inter cellulam et apicem, cellula clausa; posticarum margine costali angulato, cellula in angulum acutum terminata.

*LIPHYRA BRASSOLIS*, *Westw.*

*L. fusca*; alis anticis nigris, plaga magna hastata interno-basali, maculaque subquadrata parva discoidali fulvis; alis posticis fulvis, limbo maculisque quatuor parvis disci nigris.

Expans. alar. unc. 3½.

Habitat Assam (Jenkins), Singapore (Horsley).

In Museo Hopeiano Oxoniæ.

*Paper read.*

Mr. Francis Walker communicated a paper entitled "Descriptions of undescribed Chalcidites." The whole of the species belonged to the genus *Smicra*, were discovered by Mr. Bates in the Amazon country, and are now in the collection of the British Museum.

July 4, 1864.

A. R. WALLACE, Esq., V.P., in the chair.

*Additions to the Library.*

The following donations were announced, and thanks voted to the donors:—  
 'Proceedings of the Royal Society,' Nos. 62, 63 and 64; presented by the Society.  
 'Journal of the Proceedings of the Linnean Society,' Vol. viii. Botany, No. 29; by the Society.  
 'The Journal of Entomology,' No. 10; by the Proprietors.  
 'Catalogue of the Coleopterous Insects of the Canaries in the Collection of the British Museum,' by T. Vernon Wollaston, M.A., F.L.S.; by the Author.  
 'A Treatise on Insects



injurious to Gardeners, Foresters and Farmers,' by Vincent Köllar: translated from the German, and illustrated by engravings, by J. and M. Loudon, with Notes by J. O. Westwood, Esq., F.L.S., &c.; by James Bladon, Esq. 'Sitzungsberichte der Königl. bayer. Akademie der Wissenschaften zu München,' 1864, I. Heft. 1, 2; by the Academy. 'Exotic Butterflies,' Part 51; by W. W. Saunders, Esq. 'Horæ Societatis Entomologicæ Rossicæ variis Sermonibus in Rossia usitatis editæ,' Fasciculus secundus; by the Entomological Society of Russia. 'The Intellectual Observer,' No. xxx.; by the Publishers. 'The Zoologist' for July; by the Editor. 'The Entomologist,' Vol. ii. No. 3; by the Editor. 'The Entomologist's Monthly Magazine,' No. 2; by the Editors. 'Stettiner Entomologische Zeitung,' Vol. 25, Parts 7-9; by the Entomological Society of Stettin. 'The Journal of the Society of Arts' for June; by the Society. 'The Reader' for June; by the Editor. 'The Athenæum' for June; by the Editor.

The following addition by purchase was also announced:—'Entomographie de la Russie,' par Gotthelf Fischer. Tomes 1-3.

#### *Exhibitions, &c.*

Prof. Westwood directed attention to a paper in the second part of the 'Horæ Societatis Entomologicæ Rossicæ' on the parasites of bats: not only were several species of Pulicidæ and of Nycteribia enumerated, but also species allied to the latter, yet differing so much in structure as to necessitate the creation of new genera (or subgenera); he might remind the members present of the extraordinary mode of transformation of Nycteribia, the larva state being passed within the egg, which was not extruded from the body of the female until after the pupa state had commenced.

Mr. A. R. Wallace mentioned that he had found Nycteribiæ in the tropics, but not in large numbers, though probably a sufficient examination would show that each species of bat was infested with its own peculiar species of Nycteribia.

Mr. Tegetmeier exhibited one of the frames from the bee-hive, mentioned in the minutes of the previous Meeting, in which wax had been secreted for the purpose of repairing the old comb and fastening it securely, with a view, as he thought, to future occupation of the hive. He added that the expected swarm had not taken possession, for the recent cold weather had killed the young queens, and the hive from which had issued the bees which did the repairs had not swarmed at all.

Mr. A. R. Wallace inquired what evidence there was of any purpose or design of taking possession of the empty hive? Had not the bees simply obeyed a mere impulse to make wax?

Prof. Westwood asked whether it was certain that there had not been a "false swarm," or that the queen had not been accidentally killed? If Mr. Tegetmeier's hypothesis were true, that the bees, without a queen, had repaired the old combs with the intention of taking possession of them, how was the swarm to compel the queen (who was commonly supposed to lead the swarm) to carry out their design and enter the repaired hive?

Mr. Tegetmeier replied that it was a common occurrence for bees to visit a tenantless hive, in which comb was left, and clear out the refuse, after which a swarm would take possession of the hive: in the present case the existence of the new wax was indubitable, the scales on the floor-board showed that it had been recently made in the hive, and it was found in those places, and those only, in which the old combs had become detached from the sides of the frame and required support. If a queen had



entered the hive she would immediately have laid eggs, and the bees would then have remained. He believed that bees somehow or other decided beforehand upon the place of which, on swarming, they would take possession; it was difficult otherwise to account for the perfectly straight and rapid flight of a swarm to a window or other suitable spot, such selected spot being often at the distance of a mile or two from their starting point. His view was that the swarm carried the queen, and not that the queen led the swarm.

Mr. Tegetmeier also exhibited a number of pieces of comb of the honey-bee showing singular formations of cells; the specimens had been picked out of heaps of old combs, and were not the result of special experiment or of artificial manufacture. One piece of comb contained a row of sixteen central (not marginal) cells which were pentagonal, two of the angles being right angles; a second piece contained a group of cells, some pentagons, some hexagons, of various degrees of irregularity, in the middle of a mass of the regular hexagonal form; a dependent piece of old comb had had formed on its edge a number of shallow cells which were nearly hemispherical cups, and which gradually ran into the hexagonal shape where they came in contact with the regular cells of the old comb; other pieces contained cells which appeared to be circular-cylindrical; and a specimen of comb containing three queen-cells had on each of those cells a number of hemispherical excavations. Mr. Tegetmeier was of opinion that the cell of the hive-bee was invariably hemispherical at its commencement, and a section of a cell which was not in contact with other cells was always circular; hemispherical cups or depressions were hollowed out, these excavations were made near to one another, almost in contact, and the bees enlarged them until they came in contact; the enlargement being continued to the full extent possible (or, in other words, the bees gnawing away all the material so far as was consistent with the integrity of the comb), the cells of necessity assumed the hexagonal form. He did not believe that the pressure of contiguous cells upon each other had anything to do with the form of the cell, nor did he believe in the existence of a "hexagonal instinct" or "geometrical instinct" in the bee; the hexagonal form was a consequence of the property of space that, of seven circles of equal radii, six will just surround the seventh; if it had been the case in nature that seven circles would just surround another of equal radius, then the cells of bees, when in contact, would have been heptagonal, instead of hexagonal.

Mr. F. Smith remarked that Mr. Tegetmeier's observation that a cell was invariably commenced as a hemisphere, if true of the hive-bee, was not true of all wasps, those, *e. g.*, which built dependent nests, starting from a flat or plane base.

Mr. F. Smith read the following account, supplied by Mr. S. Stone, of Bright-hampton, of the manner in which that gentleman had induced a colony of wasps to construct the series of six nests, of extraordinary shapes, which were exhibited at the previous Meeting of the Society:—

"About the middle of the month of August, 1862, a large nest of *Vespa germanica* was taken by a person residing at Stanlake, a village adjoining Bright-hampton. It was brought home by him, tied up in a handkerchief, and deposited for the night in a room in his house. In the morning word was sent me that if I could go down and fetch it away I might have it. Now it so happened that I could not go that day or the next, so it was allowed to remain where it was; but, as might have been expected, the insects very soon found their way through the handkerchief in which the nest was enclosed, completely riddling it, when a second was tied round it, which of course soon



shared the fate of the first. It was then placed in a sack, such a one as those used by farmers or millers, through which they were not long in making their way, although they must have found it tougher work than eating through the handkerchief. The sack with its contents was next put into a hamper and tied down. On the third day I had an opportunity of sending for it, and on its arrival proceeded to remove the different coverings, and make some arrangement for placing the combs contained in the nest (which, in consequence of the treatment to which it had been subjected, was of course in itself a complete ruin) in a more favourable situation for work than the one they then occupied. This was a ticklish piece of work, but somehow or other I managed to separate two or three combs from the mass, which I reduced in size with a pair of scissors, and running a wire through them placed them inside a small square box (No. 1 of the series), the combs resting on the bottom of the box and the wire reaching from thence to the top: I then fixed the box in the window of a room, making an aperture through the back of the box to correspond with one in the window, for the purpose of allowing the insects to pass out and in. The front of the box was of glass, moveable at pleasure, by means of which I could introduce a constant supply of sugar. I now collected together, in the best way I could, the workers belonging to the nest, and introduced them into the box; they numbered, I should think, somewhere about three hundred, and as the box contained only three small pieces of comb it was only possible for a limited number to work at them: the consequence was, that by far the greater number, after providing themselves with materials, were compelled to work wherever they could find room: the wire and all the sides of the box, except the glass front, which was frequently being moved, were speedily covered with the paper-like fabric, the produce of their labours. The insects were placed in the box on a Thursday afternoon, and on the following Saturday the work had proceeded and was proceeding so rapidly that I could perceive, if I let them go on till Monday, the box would be filled with a mass of work without beauty or design, so I determined upon fitting up another box in a somewhat similar way, and causing the insects to pass into it from the one they then occupied. I accordingly cut two or three more pieces of comb, and passing a wire through them suspended them inside a box (No. 2 of the series) of about the same size as the first, and similar thereto in other respects; then by tapping upon and shaking box No. 1, I caused most of the insects to leave it and pass out through the aperture in the window into the open air, then, by means of a sliding door, preventing their immediate return, I took box No. 1 away, and in its place put box No. 2; then, withdrawing the slide, the insects crowded into it and with seeming unconcern began working away as before. The combs not resting upon the bottom of the box, as in the former case, but being raised an inch or two above it, caused the workers to form a structure differing considerably from the first. On the following Wednesday the work had become so far advanced that I found it necessary to provide the workers with a fresh box; a larger one (No. 3 of the series) was therefore procured, and fitted up much in the same way as the last, and the insects were introduced into it in the same way as before; in seven days a structure somewhat resembling the last, but much larger, was raised, when another box (No. 4 of the series) was procured; this was provided with a moveable wooden back, which, when the building was finished, was replaced by one of glass. The box was fitted up in a way quite different from the preceding ones: two rows of pillars formed of wire, four in a row, the rows being about two inches apart, reaching from the bottom to the top, were placed at regular intervals across the box; at the base of each pillar, and also at the top, a small piece of comb



was fixed. The filling up of this design occupied the insects fifteen days, when another box (No. 5 of the series) was procured: this was fitted up in a manner differing somewhat from the last; four pillars were placed across the box, a little behind the middle, and two a little in advance, while between the two a short one, three or four inches only in height, was inserted, at the top of which, but not at the base, a small circular piece of comb was placed, while at the bottom as well as the top of the other columns pieces of comb were fixed: the erection of the singularly beautiful structure contained in this box only occupied the workers five days, when a fresh one (No. 6 of the series) was procured, fitted up in nearly the same style as the last: in other five days they raised a structure very similar to the preceding one, when they were shifted into a much larger box, fitted up in nearly the same way as the two previous ones had been, but the weather becoming cold they did not make progress enough to bring their work in this box to anything like perfection.

"One of the chief objects wasps have in view in their building operations is to enclose the combs so as to ensure as high and as uniform a degree of temperature as may be,—a thing essential in the hatching of the eggs and the well-being of the larvæ when produced: thus by placing combs or pieces of comb in particular positions the insects are literally compelled, in their endeavours to cover them in, to carry out the design of the person so placing them.

"One reason why the work was not attached either to the back or front of cases 4, 5 and 6 was, that the pillars or columns were placed at some distance from each of those sides, and as there were no intervening combs, or pieces of comb, to be covered in, the operations of the insects did not extend in either of those directions sufficiently far to reach them during the period they were allowed to remain in each box."

Mr. Stainton exhibited a new *Gelechia*, allied to *G. nigricostella*, and for which he proposed the specific name of *Lathyri*, the moth having been bred by Mr. Brown, of Cambridge, from larvæ which fed on *Lathyrus palustris*.

Prof. Westwood mentioned that the larvæ found by Captain Cox in a bin of bran, and exhibited at the Meeting on the 2nd of May last (*ante*, p. 20), had proved to be *Pyralis farinalis*.

*Paper read.*

Mr. Roland Trimen, of Cape Town, communicated a paper entitled "Descriptions of some new Species of Butterflies found in Southern Africa." Sixteen species were characterized, one of which belonged to the *Pieridæ*, one to *Satyridæ*, six to the *Lycænidæ*, and eight to the *Hesperidæ*. Ten out of the sixteen were discovered by Mr. James Henry Bowker, Inspector of Mounted Police, who for several years has devoted his leisure to the observation and collection of the Flora and Fauna (especially the *Lepidoptera*) of Kaffraria.

*New Part of 'Transactions.'*

A new part of the Society's 'Transactions' (Third Series, Vol. ii. Part 1), being the second quarterly Part for 1864, containing Major Parry's Catalogue of the *Lucanoid Coleoptera*, with descriptions of new, and remarks on some of the rarer species, and illustrated with twelve plates, was announced as ready for distribution.