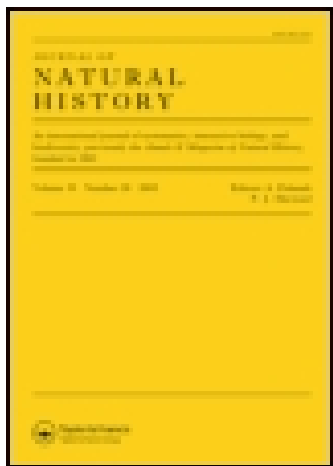


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### On the races of the honey-bee

Rev. H.W. Lett M.A. T.C.D.

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4. The Australian Tertiary flora, in accordance with the preceding statements, is but a part of one and the same original flora upon which all living floras of the globe are founded.

5. The comparison of this original flora with the present floras of the globe shows that in Australia the differentiation of the Phylones reached its highest limit.

6. Many analogies to the Tertiary flora are nevertheless to be found in the living Australian flora.

4. "On some new Features in *Pelanechinus corallinus*." By T. T. Groom, Esq. (Communicated by Prof. T. M. Kenny Hughes, M.A., F.G.S.)

The discovery by the Author, in the Coral Rag at Calne, of an additional and well-preserved specimen of the Echinoderm originally described by Dr. Wright as a *Hemipedula*, but subsequently made the type of a new genus, *Pelanechinus*, by Mr. Walter Keeping, afforded an opportunity of adding considerably to the known characters of the type. The test proved to be flexible, as in the Echinothuridæ, a point already noted by Mr. Keeping.

A number of details as to the interambulacral and ambulacral areas, the imbricating peristomial plates, pedicellariæ, and teeth were given. Pedicellariæ did not appear to have been previously observed in fossils.

The genus appeared to occupy an intermediate position between the Echinothuridæ, Echinidæ, and Diadematidæ, and must form the type of a distinct subfamily, perhaps referable to the last named. A new description of the species was added.

## MISCELLANEOUS.

### *On the Races of the Honey-Bee.*

By the Rev. H. W. LETT, M.A., T.C.D.

THE increase of bee-keeping, the spread of literature treating exclusively of the subject, and the attention paid by bee-keepers in Europe, America, Asia, and Africa to the improvement of the honey-bee (*Apis mellifica*) have demonstrated that there are at least ten distinct varieties of this insect which are kept in hives.

And though this has occurred within the last fifteen years, no notice seems to have been taken of the existence of these well-marked races of the domesticated insect in its bearing on the theory of evolution. That interesting chapter in the history of that teaching has not yet been written; indeed, the facts summarized below are only to be found scattered over the pages of many bee-publications, some of which are difficult of access. The present paper is offered as a contribution towards that part of the natural history of the honey-bee.

The following are the names and distinguishing features of each

of the races of honey-bees that are best known to the bee-keeping community :—

I. **BLACK OR BROWN.**—The ordinary hive- or honey-bee, called by way of distinction the black or brown, from being of almost one uniform brown-black colour, with slight indications of paler bands on the abdomen, and clothed with greyish-brown hairs. Till within the last fifteen years no other bee was known in North or West Europe \*. This is also the bee which, after escaping, has made itself wild in the American and New-Zealand woods.

II. **ITALIAN ALP.**—The Italian Alp bee, sometimes called Ligure, is indigenous to the mountainous district that lies in the north of Italy round about the Lakes Maggiore and Como. It is of a light orange-yellow colour, with two orange-red bands on the abdomen, and is longer and more slender than the black. They are better honey-gatherers, more hardy and prolific, and very courageous in defending their own hives, even from the ravages of the wax moth.

III. **CYPRIAN.**—The Cyprians are natives of Cyprus and part of Turkey in Asia. They are yellow, quite slender, wasp-like, and smaller than Italians. They always have a yellow shield-mark on the back between the wings. They are strong, excellent honey-gatherers, winter better than any other race, and are proof against being robbed by other bees. But they are easily excited and most revengeful stingers.

IV. **SYRIAN.**—The Syrian bees are found on that part of Asiatic Turkey which lies north of Mount Carmel. They are of the same size, qualities, and temper as the Cyprians, from which they differ in showing less yellow and being on the whole of a greyer colour over their whole bodies. They are quite distinct from the next.

V. **HOLY LAND.**—The Holy-Land, or, as the natives call them, the Holy Bees, are found in Palestine, south of Mount Carmel. They are marked like the Cyprians; but their hair is so light in colour that they appear to be beautifully striped. Their size is smaller than Italians, but larger than Cyprians. They are very active and far-flying, most wonderful cell-builders, and get honey from red clover; but they are ready to sting, become furious at the least smoke, and run off their combs when one is lifted from the hive.

VI. **TUNISIAN.**—Tunis, on the north of Africa, has a peculiar race of bees. They are the same in size as the Cyprian and Syrian, but their colour is dark brown—even darker than the common black or brown. They are active workers, keep on the combs when being handled, and bear smoke better than other eastern races; but they are liable to attack a person coming near them, even though not interfered with.

VII. **CARNIOLIAN.**—The Carniolian bees are natives of Carniolia, in South Austria. They are longer and thicker than the black or brown, being the largest domesticated European bee. The colour

\* [This is hardly correct; the Italian Bee was known in Germany more than thirty years ago, when Siebold wrote his '*Wahre Parthenogenesis.*'—EDS.]

is a rich dark brown, nearly black, while each ring of the abdomen is clearly marked by whitish-grey hairs, giving it a silvery look. They are equal to Italians in honey-gathering, fecundity, and hardiness, while they are of a most remarkably gentle disposition, never attacking the manipulator except when treated with improper roughness.

VIII. HUNGARIAN.—The bees peculiar to Hungary are the size of, but far blacker than, the common browns. They are very fair honey-gatherers and as gentle as Italians; but their propensity to swarm renders them unprofitable.

IX. EGYPTIAN.—The Egyptian bees are like Syrians in size, but quite yellow, like the Italians. They abound, both wild and in domestication, along the valley of the Nile, and while famed for good honey-gathering qualities, are, without exception, the most ferocious bees known outside of India.

X. SOUTH AFRICAN.—There is an excellent race of bees, both wild and hived, in the Cape Colony, which it is to be hoped will soon be introduced to British bee-keepers. They are the size and colour of Italians, but greyer, while they are more tractable and at the same time very prolific and of most remarkable working-powers; where honey is to be gathered they keep at it early and late, and often even by moonlight.

Whilst all these races breed freely when crossed with each other, so that they cannot be regarded as separate species, they all differ in certain particulars, the most striking of which are noted above. The differences are no doubt the result of their being influenced by climatic surroundings, as well as, in some districts, of a long course of too close breeding.

Studying these ten varieties with the aid of a map of the world it appears that the nearer India is approached so much fiercer is the temper of the bees found to be. The question then might arise, Was this the condition of the first original bee, and have her descendants, as they migrated into colder climes, lost some of that ferocity which renders the Indian bee the terror to all travellers through the woods of that continent?

A point which opens a wide field of study is the colour of several races, and what developed it, and how far it is to be taken as an index of common descent; thus dark-coloured races are found in north-west Europe, Hungary, Carniola, and Tunis, where they are wide apart from each other.

American bee-keepers have set before them the project of breeding bees by a judicious selection of queens and drones, with what they consider these six indispensable qualifications in bees kept for profit:—1. Hardy; able to bear bad winters without too great dwindling. 2. Good breeders; the queens laying in abundance, early in spring and late in autumn. 3. Gentle and quiet; not attacking mankind without provocation, and allowing themselves to be examined on a bar-frame comb when lifted from the hive. 4. Good honey-gatherers; working on the flowers from sunrise to sunset. 5. Strong and active; flying long distances to pasturage,

and vigorously defending their stores. 6. Long-tongued; being able to get honey from many flowers which defy most bees.

And so far intelligent bee-masters have been partially successful; indeed, there is every reason to expect that the honey-bee of the future will be as different from, and as much more valuable than, "the little busy bee" of the past as an English shorthorn excels an Irish brindled cow.

It is to be hoped that before the modern bee-breeders have obliterated the old distinct varieties those who have the opportunities will make careful coloured drawings, measurements of queens, drones, and workers, and further observations of all their peculiarities. It will be too late to attend to this branch of natural history when *Apis americana*, as we are told the new and improved bee of the "good time coming" is to be called, has taken possession of the hives of the world.—*Proc. Belfast Nat. Field Club*, ser. 2, vol. ii. pt. 6, p. 451.

*On the Organization of Chætopterus.* By M. JOYEUX-LAFFUE.

*Chætopterus* is one of the commonest Annelids on the coast of Calvados, where it lives abundantly below the level of the lowest tides; but considerable quantities are thrown up by the waves during strong gales, and it may be obtained by the dredge. The specimens observed by the author are referred by him to *Chætopterus Vulencinii*, Quatref., notwithstanding some differences, and especially the number of segments in the inferior region, which was 30–35, instead of 15 as described.

On the median posterior\* line of the superior region there is a furrow running from the posterior margin of the buccal funnel to the base of the two dorsal rami of the first pair of feet of the middle region. Here it bifurcates, and is continued in the form of two deep grooves situated in the thickness of the two great wing-like rami. These grooves traverse the rami from the base to the extremity, and are lined with an epithelium with long vibratile cilia.

The *Chætopterus* in its tube presents its two great rami bent upwards and backwards, with the two extremities in contact in the median line. The extremities of the two grooves are also in contact, so that there is a passage from one to the other, and their function is to guide to the buccal funnel the alimentary particles conveyed by the current which traverses the tube, and is caused by the paletteiform rami of the three last segments of the region. This is easily determined by the addition of some coloured powder, when the particles are seen to collect in the grooves into small masses, which pass towards the buccal furrow. The author compares this function of the grooves to that of the endostyle of the Ascidia.

The segmental organs are remarkably developed in *Chætopterus*.

\* The animal is supposed to be placed mouth upwards.