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Sir William Dawson has divided caverns into those of driftage, interment, and residence.* The Rock-shelters of Eastern Australia are clearly a combination of the two latter, similar to some of the European caves mentioned by him, such as the Dordogne and Mentone Caves. "The accumulation of ashes, bones, and other remains," says Dawson, "is in exact accordance with the want of cleanliness of the ruder American tribes, and also with the habits of a people who in summer live in the open air, or in temporary cabins or wigwams, and only in the colder months or in bad weather resort to more secure and permanent abodes."† No doubt this equally describes the occupancy of our Rock-shelters.

The absence of bones of mammalia in the refuse heaps at the mouths of the latter, other than those of recent species, is strong confirmatory evidence of the non-existence of man together with the extinct mammalian fauna of Australia.

DESCRIPTION OF A NEW PELAGIC HEMIPTERON FROM PORT JACKSON.

By Frederick A. A. Skuse.
(Entomologist to the Australian Museum.)

Halobates whiteleggei, *sp. n.*

(Plate xxvii., figs. 1–10.)

Ovate, widest behind the middle. Glaucous above, with a silvery bloom; yellowish-ochreous beneath. Antennæ (including jointlets) and legs black, with a very minute greyish pubescence. Head with two triangular reddish-yellow spots, which do not meet on the hind margin.

Male and female. Antennæ at the base, antennal tubercles, prosternum, coxæ and trochanters, and a spot (more prominent in female) beneath the base of femora, in the fore-legs, coxæ and trochanters (with the exception of a black spot beneath), in intermediate legs, a spot beneath the apex of coxæ, and the outer margin of trochanters, in the hind-legs, fore and intermediate acetabula beneath, and margin of first and whole of second genital segment above, and all beneath, ochreous. Apical half of the

* Fossil Men, 1883, p. 222.
† *Ibid*, p. 226.

horns of the second (male) genital segment microscopically tubercular, black (pl. xxvii., fig, 9). Antennæ: first joint three times the length of the second, third joint about two-thirds the length of the second, fourth joint scarcely the length of the second, stouter; second intermediate jointlet extremely minute (pl. xxvii., fig. 8). Front tarsi: second joint twice and a half the length of the first (pl. xxvii., fig. 6). Middle tarsi: first joint more than three times the length of the second.

Male. Length 3·81, breadth 1·77; intermediate femora 4·56, hind femora 4·06 mm.

Female. Length 4·31, breadth 2·54; intermediate femora 5·58, hind femora 4·81 mm.

Larva. About the same size as adult male but broader; the legs and antennæ stouter, and the hind femora shorter, similarly colored to those of the adult. In spirit specimens the dorsal integuments are sordid ochreous or yellowish-brown, with the chitenous plates glaucous (pl. xxvii., fig. 2); in dried specimens the integuments are deep brown or black, with the plates of a leaden and lighter hue (pl. xxvii., fig. 1). Abdominal segments nine, the two last entirely chitenous. Above, the first genital segment is narrow, and is the last segment bearing the chitenous dorsal plates, beneath, it is half the length of the whole of the preceding abdominal segments taken together, and like them of a pallid hue; beneath, the second segment is nearly twice the length of the first, somewhat wider than long, with the posterior half blackish; third segment small, blackish; the last two segments black above; these segments do not appear to exhibit any sexual characteristics.

Length 3·81, breadth 2; intermediate femora, 4·56, hind femora 3·55 mm.

Hab. Tarban Creek, Parramatta River, Balls' Head Bay, and Middle Harbour, Port Jackson, N.S.W. (Whitelegge and Skuse). April and May.

Male. Head moderately convex in middle of vertex, somewhat depressed in front. Antennæ three-fourths the length of the body, slender; first joint longer than the remaining three taken together; second, one-third the length of the first; third, two-thirds the length of the second, thicker; fourth, about the length of the second, incrassate, attenuate at the tip; several small spines at the apex above of first joint, and one or two at the apices of the remaining joints.

Pronotum rather more than twice and a half broader than long, flattened, with an anterior transverse forea laterally. Mesonotum widest at the middle, with a very indistinct longitudinal impressed median line.

Front legs: femora stout, narrower at the apex; tibiæ four-fifths the length of the femora; tarsi (pl. xxvii., fig. 6) five-eighths

the length of the tibiæ, second joint twice and a half the length of the first, cleft before the middle.

Intermediate legs: femora rather more than three-fourths the length of the tibiæ and tarsi taken together; tibiæ about five-sixths the length of the femora; tarsi (pl. xxvii., fig. 7) more than three-fifths the length of the tibiæ, first joint more than three times the length of the second.

Hind legs: femora about one-third longer than the tibiæ and tarsi taken together; tibiæ scarcely more than three times the length of the tarsi; tarsi cleft at two-thirds of their length.

Abdomen: second to fifth ventral segments narrow, parallel, of equal length, the first and sixth equally long, together equal to the remaining four.

Genital segments (pl. xxvii., figs. 9–10): first beneath about equal in length to preceding ventral segments taken together; second with horns reaching to two-thirds the length of the third, their apical half microscopically tubercular; third (pl. xxvii., fig. 10) above scarcely wider than long, with prominent lateral angles.

Female. Considerably larger than the male, agreeing with it in color and markings. Legs proportionately longer than in male.

Abdomen: ventral segments narrow, parallel, gradually increasing in length successively.

Genital segments: first beneath shorter than the preceding ventral segments taken together, the posterior margin concave; lamellæ of the second overlapping.

Obs. Closely resembling *Halobates Hayanus*, White (Voy. H.M.S. Chall., xix., p. 52, pl. i., fig. 8, 1883), described from the Red Sea. Differs principally in its larger size, the relative lengths of the joints of the antennæ and legs, and the shape of the terminal genital segment, and less prominently in some minor points of coloration.

I have much pleasure in dedicating this species to my esteemed colleague, Mr. Thos. Whitelegge, F.R.M.S., who first drew my attention to its occurrence at Tarban Creek, Parramatta River, during the course of his investigations in regard to the late organic discoloration of the waters of Port Jackson. But I must not omit to mention that I have subsequently ascertained, through the instrumentality of Mr. Geo. Masters, the Curator of the Macleay Museum, that several specimens of the larva of this insect, labelled N.S.W., have for many years existed under a MS. name in the Collection of the late W. S. Macleay. Mr. Masters also collected a few specimens many years since upon our coast. As far as I am aware the species is confined to Port Jackson, and like its congener, *H. Hayanus*, White, occurs in large "schools" close to the shore, usually in sheltered spots. At first sight I concluded that this species was no other than *H. Hayanus*, which supposi-

tion was strengthened by the possibility that it had in some way been imported to our waters through the medium of the mail steamers passing through the Red Sea *en route* for Australia. However, this does not appear to have originated its occurrence from the fact that specimens exist in the Macleay Collection which must have been obtained prior to the advent of steamers *via* Suez Canal. Even were this not the case, our insect, to my mind, proves itself sufficiently distinct structurally to separate it from *H. Hayanus*.

When our specimens were first obtained, during April of the present year, a large percentage were discovered *in copulâ;* but observations in regard to the time the eggs were deposited or where laid have up to the present been unavoidably postponed. As the insect occurs in immense numbers ample opportunity is thus afforded for further investigation, meanwhile I am content to present a preliminary description of the larval and adult forms. In the act of copulation the female carries the male on her back, the latter grasping her round the body with the front legs above the region of the intermediate acetabula.

NOTE ON THE NIDIFICATION OF *EDOLIISOMA TENUIROSTRE*.

By A. J. North, F.L.S.

Edoliisoma tenuirostre, *Jardine*.

Ceblepyris jardinii, Rüppell.

Campephaga jardinii, Gould.

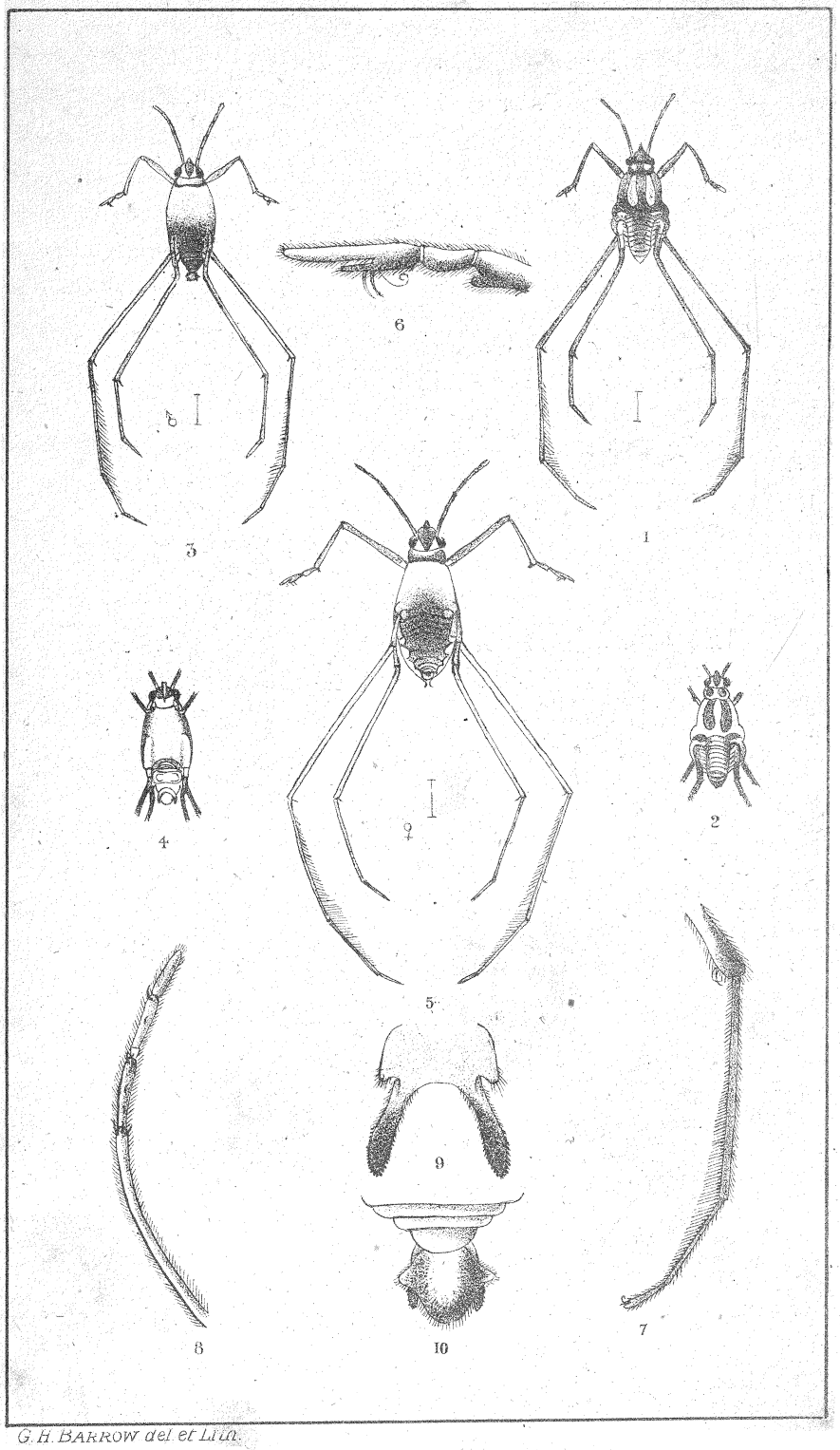
During the latter end of September, 1882, Mr. C. C. L. Talbot observed a pair of these birds building their nest in the angle of a thin forked horizontal branch of an Ironbark *(Eucalyptus sp.)*, about forty feet from the ground, on Collaroy Station, Broad Sound, 556 miles N.W. of Brisbane. A week after, seeing the female sitting on the nest for some length of time, he climbed up to it and found it contained a perfectly fresh egg, which he took (not waiting for the full complement, which is probably two), as the tree was a difficult one to climb, at the same time securing the nest. It was a small and shallow structure composed of wiry grasses securely fastened together with cobwebs, and closely

EXPLANATION OF PLATE XXVII.

HALOBATES WHITELEGGEI, Skuse.

Fig. 1. Larva (from dried specimen).
„ 2. Larva (from spirit specimen).
„ 3. Adult male.
„ 4. Underside of body of adult male.
„ 5. Adult female.
„ 6. Anterior tarsus of male.
„ 7. Intermediate tibia and tarsus of male.
„ 8. Antenna of male.
„ 9. Horn-like processes of second genital segment of male.
„ 10. Genital segments of male (from above).

All greatly magnified and drawn from nature by Mr. G. H. Barrow, Australian Museum. Natural sizes denoted by indicators.



G. H. BARROW del et Lith.

PELAGIC HEMIPTERA.