

milleniums; the Himalaya upthrust occurred and the ice sheet retreated into the heart of Tibet where the last remnants survive today in certain snow ranges. Formosa lost its land connections with Asia and became an island. Thus *Niitakacris* was stranded on the highest peaks where temperature conditions have remained favorable for its continued existence. The explorations of the future in the heart of China will undoubtedly bring to light relatives of these genera and thus broaden our concepts on the origin and distribution of the animal life in Asia.

Niitakacris goganzanensis n. sp. (Plate III, fig. 3.)

Holotype.—♂, Gokwanzan, Taichu Prefecture, Formosa, elevation 10,300 feet, Sept. 2, 1935, (E. R. TINKHAM; south-facing talus slope). Measurements in millimeters: Total length 18.0; pronotum 4.0; tegmen 2.5; hind femur 9.5; antenna 5.5.

Head broad and thick, melanoploid in form with the surface smooth and shining. Distance between the eyes only a shade wider than the frontal costa between the antennae. Fastigium of the vertex sloping, moderately sulcate, the sulcus bounded by smooth thick carinae commencing between the eyes and running to the apex which is angularly rounded into the frontal costa. Frontal costa expanding slightly below the apex of the fastigium and running parallel but disappearing before reaching the clypeal suture, moderately sulcate, the surface sparsely and feebly punctate. Antennae short and thick, less than the length of the head and the pronotum together. Eye subspherical, subglobose, its depth greater than the subocular depth of the gena.

Pronotum with the dorsum almost flat, the front margin squarely truncate, the hind margin obtusely angularly excised; surface rugosely punctate. Median carina almost obliterate on the prozona, evident as a fine raised line on the metazona. Lateral keels thick, prominent, somewhat irregular and diverging moderately caudad. Principal sulcus shallow but distinct, dividing the pronotum so that the metazona is about two-fifths the length of the prozona. Prozonal sulci almost obliterated by the punctation of the dorsum. Lateral lobes shining, sparsely and irregularly weakly punctate, their depth much

less than their length. Posterior margin of the lateral lobes strongly oblique, anterior and posterior angles rounded. Tegmina linear-oblong, barely covering the small tympanum. Prosternal spine short, pyramidal, with rounded apex. Sternites broad, mesosternal interspace moderately broad and transverse, metasternal interspace narrower. Median line of the meso- and metanotum and the abdomen keeled. Ninth abdominal tergite with well developed furculae. Supra-anal plate triangular, the margin in the apical third slightly bowed out. Median furrow in the basal two-fifths broad and deep with rounded apex; the furculae attingent and covering the basal half of the furrow. Remainder of the plate smooth with shallow lateral depressions (see Pl. IV, fig. 9.). Cerci long, broad at the base, strongly acuminate to the middle and attenuate beyond with the tip obliquely rounded, the apical third somewhat deflexed and overlying the apical third of the plate, (see Plate III, fig. 5.). Basal portions of the subgenital plate broad and transverse, the end broadly conical with bluntly rounded apex. Uncal plate with two inner, sharp, forward projecting teeth on the anterior lobe. Posterior lobe with the pointed processes converging towards the apex (see Plate IV, fig. 3 and 4.). Legs short and stout, moderately incrassate. Hind femora short and thick with the upper and lower surfaces rounded into the external face of the pagina, thus lacking the distinct longitudinal ridges common in Acridids and producing a distinctive feature of this insect.

Coloration.—Dorsum of the head and the pronotum piceous, that of the abdomen buff with the median area darker. Post-ocular band broad, shining black, the inner edge not distinct from the dorsum; caudad, paling to brownish-black on the caudal segments of the abdomen. Face below the eyes, lower portions of the lateral lobes of the pronotum and the abdomen below the post-ocular band, testaceous. Sternites of the thorax and the abdomen orange yellow. Legs orange yellow below, darker above. Hind femora with the outer face dark testaceous, almost black in places, with the upper and lower edges reddish-orange. External pagina with two elongated creamy patches near the base and the middle of the lower edge. Hind tibiae yellowish orange, the tibial spines with the apical half piceous.

Paratypes.—62 males collected in the vicinity of Gokwanzan where the type was taken. Range in measurements, in millimeters: Total length, 16.0–18.5; pronotum 3.5–4.2; tegmen 2.0–3.0; hind femur 8.0–9.5; antenna 5.0–6.0. The coloration in the paratypes is remarkably constant, only the apex of the abdomen in some specimens being paler.

Allotype.—♀, same data as the holotype. Measurements: total length 21.5; pronotum 4.8; width of pronotum 4.5; tegmen 3.2; hind femur 9.5; antenna 4.7.

Similar to the holotype but differs by its larger size and more squattish build. Meso- and metanotum not so broad as the pronotum and though much broader than the abdominal segments do not appear to be inflated as is characteristic of *Kingdonella* females. Supra-anal plate triangular, weakly punctate, with a faint furrow-like impression in the basal half. Cerci short, conical with blunt apex. Valvulae of the ovipositor with their apical teeth moderately recurved.

Coloration much paler than the holotype, the piceous of the male replaced by verona brown on the head and thorax. Abdomen above buff with the median area medium brown; the sides blackish-brown.

Paratypes.—26 females with same data as the holotype. 1 ♀, below Sekimon. Taichu Prefecture, elevation 9500 feet, Sept. 2, 1935 (E. R. TINKHAM; at extreme lower limit of altitudinal range). Range in millimeters: Total length 20.0–22.5; pronotum 4.2–5.2; width of pronotum 4.2–4.8; tegmen 2.2–3.2; hind femur 9.8–11.0; antenna 5.0–5.8.

Habitus.—*Niitakacris* likes to sun on slabs of rock on the clayey talus slopes at very high elevations in the Formosan mountains. It prefers to crawl rather than jump and its actions are quite rapid in the sun. In this respect its actions are quite different from the grass and fern-dwelling *Podisma*. Where they occur they are usually found in abundance, and when disturbed invariably jump downhill. Their saltatorial powers are considerable. When mountain mists obscure the sun and the temperature drops as commonly happens many times during the day at high elevations they can be easily captured by hand, since they make little effort to escape. At Gokwanzan, which is a mountain pass at 10,300 feet elevation, the species was also common in the stunted bamboo, only a few inches high, which completely

matted the mountain tops and ridges at this elevation. There was no grass at this altitude. The species was first encountered at about 9500 to 9600 feet elevation and, from very careful observations, does not exist below that altitude. It is most abundant at 10,000 feet or more. At present I consider *Niitakacris* to belong to the Tibetan fauna. In Formosa this fauna has its lower limits at about 2700 meters or 9600 feet and extends up to about 3700 meters or about 12,500 feet. Mell, in 1929, proposed the term East Himalayan Subregion for high mountain forms of animal life in southeastern China but as he did not define its altitudinal range I hesitate to use the term, especially since I believe that that faunal subregion that he refers to does not extend into the lower altitudinal limits of the here designated Tibetan fauna.

Miramella

The discovery of two new species of the genus *Miramella* in the northern half of Formosa, and these on the eastern slopes of the lofty ranges of Formosan mountains seems to give additional support to the idea that Formosa is composed of several distinct faunas. For instance, the north is distinctly different from the south and there seems to be proof that the east and the west slopes of the mountains support different faunas.

Miramella splendida n. sp. (Plate III, fig. 1.)

Differs from *M. formosana* (Shiraki), as indicated in the key that follows, by its striking color pattern and larger size, being the largest species in the genus.

Holotype.—♂, Karenko, Karenko Prefecture, Formosa. Sept. 5, 1935. (E. R. TINKHAM, in banana jungle at base of mountain, about sea level.) Total length 33.0 mm.; pronotum 7.0 mm.; tegmen 5.0 mm.; hind femur 16 mm.

Form typical. Head rather narrow and deep with the face strongly aslant. Eyes suboval, subglobose, their depth much greater than the subocular depth of the genae. Vertex narrow, less than the width of the frontal costa between the eyes. Fastigium of the vertex sloping in front, slightly furrowed. Frontal costa narrow, subparallel,