

demonstration that intergradient forms existed in a broad zone running through northern China, Manchuria and neighboring lands, as well as in the high mountains of Japan, Korea and China. Putative intergrades were in our material nothing like so abundant as "pure" *herculeanus* and *japonicus*, a fact that makes it now possible, at least for the sake of argument, again to consider the two "extreme" forms as separate species. However, if we are to make such a separation more than a point of rhetoric, the samples we formerly called intergrades must be explained.

The *japonicus* extreme differs from the *herculeanus* extreme as follows.

*japonicus*

Color normally black overall, though head of major worker may be more or less dark red. Sculpture coarse, especially of gaster, dense, opaque. Median lobe of clypeus advanced distinctly beyond lateral lobes. Gastric pubescence long, coarse, abundant.

*herculeanus* (E. Asia)

Color normally black, with more or less red on alitrunk and legs. Sculpture fine, gastric dorsum more shining. Median lobe of clypeus approximately even with lateral lobes. Gastric pubescence short, usually not surpassing the posterior segmental borders.

As already mentioned above and in our 1951 paper, the great majority of available eastern Asian samples can be determined unequivocally as either *japonicus* or *herculeanus* on the basis of the characters cited. There may also be a difference in head shape, but the analysis of this character would require the measurement of a great many specimens, including the largest sizes of workers, which we do not have in sufficient numbers from the *herculeanus* (northern) part of the range. In 1951, we felt that the "intergrades," found mostly at low altitudes, indicated a zone of secondary intergradation between two subspecies. We know now that the intergrade samples (workers and females) we have actually seen do not form a continuum, but instead seem to fall into three classes. These classes exclude characterizations from the literature, to which we unconsciously gave too much weight in 1951.

*Class I.*

North Chinese and Manchurian specimens, essentially *japonicus*, but often with the clypeal lobe slightly less noticeably projecting and with gastric pubescence a bit more dilute, as compared to Japanese examples. Larger workers sometimes have the head more or less reddish in color, in life as well as in dried Museum specimens. This is the form Emery described as var. *aterrima*; specimens in the MCZ from the southern Urals ("var. *saxatilis*" Ruzsky) agree well with north Chinese