

But a century later we find Nicolet reproaching naturalists that they have attached but little importance to the study of the order; and in 1872 Lubbock in his elaborate Monograph repeats the same complaint. Even to-day the sum of Collembola literature,—for the most part scattered through reviews and "proceedings" in half a dozen different languages—comprises only a few score papers. Nicolet's Memoir of 1841 and Lubbock's Monograph of 1872, although both beautifully illustrated with drawings and coloured pictures of an excellence seldom seen in modern insect books, are not nowadays of much use to the systematist. Linnaniemi's large Memoir (1907–1912) on the Apterygotan fauna of Finland is very useful to the American student, as many European species occur here. Guthrie's "Collembola of Minnesota" (1903) is the most comprehensive American volume, but the collector in this part of the country soon comes across numerous species not mentioned by Guthrie. However, Dr. J. W. Folsom, of the University of Illinois, the well-known authority on the Order, has lately published several exhaustive memoirs on certain of the North American sub-families, and I understand has others in preparation, so we may hope to have soon accurate and authoritative descriptions of all the known species on this continent. And we should be glad of this, for the Collembola are well worthy of study. The economic entomologist with his mercenary instincts may elect to ignore them, but their exceedingly primitive development makes them intensely interesting to the student of insect genealogy; while the astonishingly wide dispersal of some of their species and genera over the globe points to the immense antiquity of the Order, and sets some hard problems for the geologist to account for the primordial distribution of land and water.

If the bees and the ants be regarded as the aristocrats of the insect world, we must look on the springtails as belonging to the submerged tenth. They are among the most primitive of the "six-leggers." Some writers class the Thysanura as the lowest of the true insects, while others confer that doubtful honour on Berlese's *Mirientomata*; but all agree in placing the Collembola second on the list, only one step above the simplest known hexapods. The Order is divided into two suborders: the Arthropleona and the Symphyleona—which may be translated as the "Jointed-abdomens" and the "Together-grown-abdomens." The terms well express the difference in the appearance of the two divisions. The Arthropleona, which are considered the more primitive, have a well-marked head carried horizontally and bearing a pair of antennæ usually four jointed (but six jointed in one genus). The thorax consists of three conspicuous segments each with its pair of rather short legs, and the elongated abdomen is made up of six distinct divisions. In the Symphyleona the head is vertical, the constricted prothorax simulates a neck, while the other thoracic divisions are fused with the abdomen into an unsegmented globose body, the insect somewhat resembling a minute spider. (See plates III and IV.)

All the Collembola are without wings, and as no trace of these appendages can be found in the embryo at any stage of its growth, it is apparent that the wingless condition is primitive, and not the result of degeneration, as in the case of numerous other insects. Typically the mouth-parts of both sub-orders are withdrawn within the head, and are adapted for chewing, but in a few genera they project in a suctorial cone.