above noticed was split. Portions of the lower margins of the head and tail, and the extremities of some of the pleuræ, remained sticking in the stone. It can also be proved by polished sections through the head and tail of any well-preserved specimen. Such sections usually show that a portion of the crust, called the "doublure" by Barrande, all round the margin is folded under and reflected upwards, ending in a free thin edge (Pl. XXXI. figs. 2, 3, 4). The pleuræ have also a doublure, which extends upwards, nearly halfway to the median lobe of the body. In consequence of this structure the extremities of the pleuræ are hollow, exactly like those of a lobster.

In *Limulus* a similar doublure occurs; and we can see there that it is continuous with the thin membranous crust which covers the underside of the body and bears the limbs. Between the sternum of *Limulus*, with its load of ponderous legs, and the doublure there is no connexion, all round, except this fragile membrane. In consequence of this structure it often comes away with all its appendages, leaving nothing of the animal except its huge carapace, pygidium, and telson. Specimens of this great crab in this condition are common in museums.

In the genus *Asaphus*, and, no doubt, in all other Trilobites, the doublure is, as in these imperfect specimens of *Limulus*, only the remains of the integument which covered the underside and supported the sternum. These two genera, however, differ widely in other respects.

The doublure of *A. platycephalus* was figured by Dr. Bigsby so long ago as 1823, in the Geological Transactions, 2nd series, vol. i. pl. xxvii. fig. 1 *c*, among the illustrations of his paper "On the Geography and Geology of Lake Huron." The figure shows a section through the doublure on the right side, just in front of a line drawn across the head through the centres of the eyes. In the description of the figure the true character of the part in question is recognized, by the remark that "*the shelly crust of the under side joins the upper at the sides.*" It is also shown in fig. 1 *b*, on the same plate, which represents the underside of the same specimen, with the hypostoma in place*. In that paper this now famous Trilobite

* This is the second hypostoma ever figured. Barrande, in his great work on the Trilobites of Bohemia, commences the history of the organ in question, thus:—

"A. *Données Historiques.*

"1821. Le plus ancien hypostome connu, est figuré et décrit par Wahlenberg, sous le nom de *Entomostracites bucephalus* (Nov. Act. Soc. Sci. Upsal. viii. 37, pl. i. fig. 6).

"1822. Ch. Stokes découvre sous la tête d'*Asaphus platycephalus* (*Isotelus gigas*, De K.) une pièce crustacée, placée à l'entrée de l'estomac; et il la décrit dans les Transact. Géol. (nouv. sér. i. 208, pl. 27).

"La même année, le savant Américain De Kay décrit et représente le même appareil que nous retrouvons figuré par Buckland dans les *Bridgew. Treatises*, en 1837." (Barrande, Système Silurien &c. vol. i. p. 154.)

There is a difficulty about the nomenclature of this Trilobite, owing, in part, to some uncertainty as to the true dates of publication. In the later reports of our survey we have adopted the name given to it by Stokes, while most American authors call it either *Asaphus gigas* or *Isotelus gigas*. Dr. Bigsby's paper was