

four of the six sub-faunas into which the *Paradoxides* fauna is divided viz :

The Sub-zone of	<i>P. lamellatus</i>	Hartt (cf. <i>P. Oelandicus</i>).	12.1.
"	"	" <i>P. Eteminicus</i> (cf. <i>P. rugulosus</i>).	12.2.
"	"	" <i>P. Abenacus</i> (cf. <i>P. Tessini</i>).	12.1.
"	"	" <i>P. Davidis</i> .	12.2.

Symbol

The first of these sub-zones is the oldest *Paradoxides* fauna of which we have any knowledge, and so far has been recognized in two countries only, viz.. Sweden in Europe, and New Brunswick in eastern Canada. It is characterized by Hartt's species, *P. lamellatus*, easily recognized by the interrupted, raised plates on the front of the glabella; the varieties of *Conocoryphe* and *Ctenocephalus* which occur here have more hispid tests than those of the next sub-zone. This sub-zone is the home of *Microdiscus Dawsoni* and *Liostracus tener*,* and occurs in Sweden.

The next sub-zone, that of *P. Eteminicus*, has a wide range on both sides of the Atlantic, but seems to be most fully represented in the southern regions of the area over which the genus *Paradoxides* was spread. It is the most prolific band of the *Paradoxides* beds in New Brunswick, and is the only sub-zone recognized in Massachusetts, France and Spain; the species cited by Walcott indicate its presence in Newfoundland; it occurs in Wales as the Solva group (or in that group); it is present in Bohemia, and is sparingly represented in Sweden in the "Eksulens Kalk."

The third sub-zone, that of *P. Abenacus* (a species closely allied to *P. Tessini* of Sweden and *P. Bohemicus* of Bohemia), is represented in New Brunswick by a well-marked fauna, in which *Ptychopariæ* and *Solenopleuræ* abound. *Microdiscus pulchellus* is a characteristic species of this sub-zone, and it is a stronghold of the genus *Agnostus*. This sub-zone is doubtfully present in Newfoundland,† but it is in full force in Norway, Sweden and Bohemia.

The highest sub-zone so far recognized in America is that of *P. Davidis*, which has a full representation at several localities in Newfoundland. It is characterized by the genus *Anopolinus*, by the species *Microdiscus punctatus* and by large *Agnosti*, including examples of the Section *Lævigati*. This sub-zone is

*Walcott catalogues this species from Newfoundland as occurring in his zone A at Manuel Brook, but the species quoted by him as associated with it there, are of the next sub-zone.

†I have spoken of this horizon being present there (Trans. Roy. Soc. Can., Vol. IV., p. 156) at Chapel Arm, but the presence of *Anopolinus* seems rather to indicate the next sub-zone. In Mr. Walcott's Zone B. of the Manuel Brook Section there is a mixture of the species of the second and fourth sub-zone, but the presence of species of the intermediate zone does not distinctly appear.