

that the appendages under the pygidium of *Triarthrus* were flattened and adapted for swimming, while those under the thorax could be used either in swimming or crawling. It would seem that this sort of specialization had gone still further in *Isotelus* than in *Triarthrus*. Here there is a large pygidium, probably provided with swimming organs (Walcott found traces of them under the pygidium of the specimen he described), and under the thorax the inner portions of the appendages were strengthened to function as ambulatory appendages. In *Triarthrus*, a form adapted primarily for swimming and secondarily for crawling, the appendages are very long, and extend far beyond the outer margins of the test, while in *Isotelus* the appendages are hardly long enough to reach the outer margins. The swimming power had to some extent been sacrificed in the adaptation to crawling. *Triarthrus* depended on its swiftness in swimming to escape from its enemies, and lacked the power of enrolment. *Isotelus*, a slower moving, but heavier-shelled animal, protected itself by complete enrolment.



Fig. 3. Diagram of the trails on a slab of sandstone found at Deschenes. 1 is the trail shown in the photograph on the plate, and 1 and 3 are supposed to have been made by an *Isotelus*.

Certain trails found by the writer on the surface of slabs of sandstone from the Chazy at Deschenes tend to confirm the suspicion that the gnathobases were used as ambulatory organs. A diagram and photograph of one of these trails is here reproduced, and it will be seen that it is exactly the sort of marking that would theoretically be produced by a trilobite which was crawling with the aid of the gnathobases only. The trail numbered 1 in the diagram can be traced for about 100 mm. on the slab, and consists of a series of pairs of approximately parallel ridges, arranged on opposite sides of a narrow furrow. The ridges are inclined at angles of from 30 to 60 degrees to the direction of the furrow. Each ridge is about 10 mm. long, and the furrow is from 3 to 5 mm. wide. The slab is a mould of the