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CHAMPLAIN'S ASTROLABE.

BY CHARLES MACNAMARA, ARNPRIOR, ONTARIO.

The astrolabe was an instrument for measuring the altitude and relative positions of heavenly bodies. It was probably invented by those eminent astronomers of antiquity, the Chaldeans; at any rate it was well known to the Greeks and Orientals long before Christ. Essentially it consisted of a graduated circle, across the diameter of which was a moveable bar, pivoted at the centre. In use the instrument was hung plumb, and the body whose altitude it was desired to ascertain, was sighted along the bar, the angle above the horizon being read on a scale at the edge of the circle. The name of the instrument, derived from the Greek, may be translated as "star-taker."

The astrolabe gradually developed into two different types: a large stationary spherical apparatus that was the chief instrument in observatories even into the 17th century, and a small circular model that could be conveniently carried by travellers. This portable type was often richly ornamented, and engraved with elaborate graduations and scales, but about 1480 a simple form was designed for the use of mariners, and it was apparently this model that Columbus used on his voyages of discovery. It proved, however, an awkward instrument on a pitching vessel, and shipmen generally seem to have preferred another device known as the cross-staff. Nevertheless, the astrolabe continued in use until well into the 18th century, when it was displaced by the quadrant.

In 1867 an astrolabe was found near Cobden, Ontario, on the old portage route which cuts off the great elbow that the Ottawa river makes to the north between its expanses known as Allumette lake and Lac des Chats; and as first noticed by the late A. J. Russell of Ottawa, in a pamphlet published in 1879, evidence points strongly to the instrument having been lost by Champlain on his journey up the Ottawa in 1613, more than 250 years before.

Champlain was induced to undertake this expedition by the lying story of one Nicholas de Vignau, whom he had entrusted with some minor explorations in Canada, and who had spent a winter with the natives there. On de Vignau's return

to France in 1612, he told Champlain a wonderful tale of how he had reached the North Sea by way of the River of the Algonquins—otherwise, the Ottawa. One could travel, de Vignau said, from the Falls of St. Louis (Lachine) to this sea and back again in 17 days; and he amplified his story by asserting that he had seen the wreck of an English ship on the shore, and that the Indians there could show the scalps of the crew of 80 men that they had killed, sparing only one English boy whom they were keeping for Champlain.

Deceived by this fabrication—to which de Vignau actually made affidavit before two notaries at La Rochelle—Champlain, on Monday, the 27th May, 1613, to the sound of a parting salute from his ships, set out with five companions from Isle Ste. Hélène (opposite the present city of Montreal) to seek the mythical sea. The party travelled in two canoes, and at starting consisted of Champlain, de Vignau and three other Frenchmen with one Indian; but later on one of the Frenchmen was sent back and a second Indian took his place.

A saying of the late Mr. Lindsay Russell, one time Surveyor General of Canada, was that "a multiplicity of apparatus is the hall-mark of the amateur." Champlain was an old experienced traveller, to whom voyages of discovery had become so much a matter of course that his journals never make any particular mention of his equipment, and we may be sure that he carried no "multiplicity of apparatus." But he certainly must have been provided with an astrolabe, for at three different places along his route he took observations for latitude. The first was near the foot of Lake St. Louis on the St. Lawrence, the position of which he gives as $45^{\circ} 18'$. Considering the crudeness of his instrument, his observation was remarkably accurate, for the correct latitude is about $45^{\circ} 25'$.

In these days of swift and luxurious travel, it is interesting to note that it took the explorer eight days to cover the distance between Montreal and Ottawa; and that on the way he was nearly drowned in the Long Sault rapids. Thus, he reached the Chaudière Falls on the 4th of