The 'old' quadrant (quarter-circle in brass) was known in Europe in the first half of the thirteenth century. It could be used to measure altitudes; the observer looked along the edge of the instrument towards the target object, whose altitude was shown by the position of the plumb-bob on the scale at the circumference. But the sophistication of the instrument lay in the engraved, curved hour lines and adjustable scale, which enabled it to be used as a sundial for any latitude.

retrograde motion of planets. He described the geometrical models briefly but with definitions clearly stated. He was, however, less satisfactory on the other he tackled, such as eclipses.

In time other authors were to write treatises to make good the shortcomings in the Theory, just as the Theory made good shortcomings in the Sphere. The history of medieval astronomy is able to monitor the steady improvement in the quality of teaching in astronomy, by studying the works that were grouped to in surviving manuscripts to form the set of treatises that a student needed, quality of the sets steadily improved as the less satisfactory works dropped o were replaced by better ones.

Other works that we find in such collections are treatises on the calendar: the Alfonsine Tables of the planetary motions, named after the thirteenth-century patron of astronomy, King Alfonso X of Castile, though some modern historians believe the tables are in fact of French origin. These tables soon replaced the Toledan Tables inherited from the Arabs. Modern computer analysis has show