

points as recorded in the Jyotisham. To believe that such an observation was imported from some foreign country, Babylon or China, would be absurd, for there is nothing in it to show, that it cannot have been made in the north-western part of India, or a closely adjacent country. A regulation of the calendar by such observations was an absolute necessity for the Brahmans ; for the proper time of commencing and ending their sacrifices, principally the so-called Sattras or sacrificial sessions could not be known without an accurate knowledge of the time of the sun's northern and southern progress. The knowledge of the calendar forms such an essential part of the ritual, that many important conditions of the latter cannot be carried out without the former. The sacrifices are allowed to commence only at certain lucky constellations, and in certain months. So, for instance, as a rule, no great sacrifice can commence during the sun's southern progress (*dakshināyana*) ; for this is regarded up to the present day as an unlucky period by the Brahmans, in which even to die is believed to be a misfortune. The great sacrifices take place generally in spring in the months *Chaitra* and *Vais'ākha* (April and May). The Sattras which lasted for one year were, as one may learn from a careful perusal of the 4th book of the Aitareya Brâhmaṇam, nothing but an imitation of the sun's yearly course. They were divided into two distinct parts, each consisting of six months of thirty days each ; in the midst of both was the *Vishuvan*, *i. e.* equator or central day, cutting the

whole Sattras into two halves. The ceremonies were in both the halves exactly the same; but they were in the latter half performed in an inverted order. This represents the increase of the days in the northern, and their decrease in the southern progress; for both, increase and decrease, take place exactly in the same proportions.

In consideration that these Sattras were already at the time of the compilation of the Brâhmaṇas an old institution, we certainly can find nothing surprising in the circumstance, that the Indian astronomers made the observation above mentioned so early as the 12th century B.C. For the Sattras are certainly as early, if not earlier than this time. Sattras lasting for sixty years appear even to have been known already to the authors of the Brâhmaṇas (see page 287).

Now that observation proves two things beyond doubt. (1) That the Indians had made already such a considerable progress in astronomical science, early in the 12th century, as to enable them to take such observations; (2) That by that time the whole ritual in its main features as laid down in the Brâhmaṇas was complete.

We do not hesitate therefore to assign the composition of the bulk of the Brâhmaṇas to the years 1400-1200 B.C.; for the Saṁhitâ we require a period of *at least* 500-600 years, with an interval of about two hundred years between the end of the proper Brâhmaṇa period. Thus we obtain for the bulk of the Saṁhitâ the space from 1400-2000; the oldest hymns and