Catching Glimpses of the Extragalactic World

While the overall picture of our Galaxy was taking shape (see Parsecstone 12), the astronomers were also becoming aware of what lies beyond. As early as 1755, in his book *Universal Natural History and Theory of the Heavens*, Immanuel Kant laid down what has become known as the "Island Universe" hypothesis. According to this hypothesis, the Galaxy is a stellar system floating like an island in space along with innumerable other such systems separated by enormous distances.

This idea was slow to catch on despite evidence coming through observations. For example, in the beginning of this century spiral nebulae were known as individual entities. But how large and how distant were they? As late as 1920, many astronomers believed that the Galaxy is larger than any other system and that the spiral nebulae were part of it or its satellites. A minority, however, believed like Kant that these nebulae were distant and were galaxies in their own right.

Harlow Shapley who had been correct in the controversy regarding the Galactic Centre (see Parsecstone 12) was on the wrong side in this argument. In 1919, for example, there was a debate between Shapley and Curtis with the latter maintaining the Kantian view. A major factor in these arguments was the claim by Van Maanen at the Mount Wilson Observatory that spiral nebulae like M 33, M 81, etc. (M denoting the Messier Catalogue) possessed proper motions, i.e., they moved perpendicular to the line of sight. If this claim was correct then they could not be very far as their transverse speeds would have to be impossibly high.

However, thanks to the work of Edwin Hubble who measured the distances of such nebulae by the more reliable method of Cepheid Variables (to be described in the next Parsecstone), the Curtis claim gradually prevailed. Moreover, by the mid-1930s Van Maanen's claim lost credibility as it could not be substantiated by others and the doors to the vast extragalactic universe were thrown open.