

I can not, I think, make more honorable mention of the great work of the star maps of the Berlin Academy than by quoting the words used by Encke in reference to this undertaking, in his oration to the memory of Bessel: "With the completeness of catalogues is connected the hope that, by a careful comparison of the different aspects of the heavens with those stars which have been noted as fixed points, we may be enabled to discover all moving celestial bodies, whose change of position can scarcely, owing to the faintness of their light, be noted by the unaided eye, and that we may in this manner complete our knowledge of the solar system. While Harding's admirable atlas gives a perfect representation of the starry heavens—as far as Lalande's *Histoire Céleste*, on which it is founded, was capable of affording such a picture—Bessel, in 1824, after the completion of the first main section of his zones, sketched a plan for grounding on this basis a more special representation of the starry firmament, his object being not simply to exhibit what had been already observed, but likewise to enable astronomers, by the completeness of his tables, at once to recognize every new celestial phenomenon. Although the star maps of the Berlin Academy of Sciences, sketched in accordance with Bessel's plan, may not have wholly completed the first proposed cycle, they have nevertheless contributed in a remarkable degree to the discovery of new planets, since they have been the principal, if not the sole means, to which, at the present time (1850), we owe the recognition of seven new planetary bodies."* Of the twenty-four maps designed to represent that portion of the heavens which extends 15° on either side of the equator, our Academy has already contributed sixteen. These contain, as far as possible, all stars down to the ninth magnitude, and many of the tenth.

The present would seem a fitting place to refer to the average estimates which have been hazarded on the number of stars throughout the whole heavens, visible to us by the aid of our colossal space-penetrating telescopes. Struve assumes for Herschel's twenty-foot reflector, which was employed in making the celebrated *star-gauges* or *sweeps*, that a magnifying power of 180 would give 5,800,000 for the number of stars lying within the zones extending 30° on either side of the equator, and 20,374,000 for the whole heavens. Sir William Herschel conjectured that eighteen mill-

* Encke, *Gedächtnissrede auf Bessel*, s. 13.