

**Jacobus Cornelius Kapteyn.** By Professor R. A. Sampson, F.R.S.

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JACOBUS CORNELIUS KAPTEYN occupied a unique place in astronomy. Born on January 19, 1851, he was appointed in 1878 to the professorship of astronomy at the University of Groningen, a post which he held till his retirement in 1921, and which he made one of the most famous chairs in the world. There was no observatory. Under parallel circumstances, he might have occupied himself with mathematical developments, as many celebrated astronomers have done. In place of that he conceived and gradually perfected a new branch of discussion. The first phase of it was the measurement and reduction of the photographic survey of the southern heavens. The plates had been taken by Gill at the Cape Observatory, but they lay unusable because unreduced. The work of reduction was new, it required a man of first-rate ability, and was immensely laborious. Kapteyn volunteered to undertake it, and it occupied him for thirteen years. The *Cape Photographic Durchmusterung*, which resulted, contains measures of place and magnitude of 450,000 stars. Laborious as the task was, it gave Kapteyn a sureness of judgment in dealing with voluminous stellar material which could not perhaps have been otherwise acquired. It secured him permanently against unreality in discussing the documents of astronomy. He saw, perhaps the first, that the time was now ripe for a real attack upon the question, What is the Stellar Universe? The Groningen publications are devoted to this question—or since, when Kapteyn began to write, we were very far from being in a position to give any answer, he set himself to collect such contributory particulars as were available, to criticise them, to point out what more was required, to devise means of evading some obstacle that could not be conquered, to select regions for intensive study that should give an intelligent statistical view of the whole, to define practicable problems, the solution of which could throw a light on dark places; and so forth. His zeal and judgment made him eminently successful in this, and he gradually acquired an unquestioned and magisterial authority in the astronomical world. His contributions were not, however, confined to pointing out the path. In his searches through the material, he made many discoveries. The most famous of these, as it well deserves to be, is the discovery of the two Star Streams. From Herschel's time it had

been recognised that the Sun's motion among the stars could be seen reflected in a systematic spreading or closing of the fields towards or away from which the Sun was moving. Kapteyn discovered that, apart from this, there was a polarity in the proper motion which might be understood as dividing the stars considered, into two great clusters, one moving across the other. This wholly unexpected revelation, which has since been amply confirmed, gave a new orientation to research, showing, as it did, the possibility of separating the stellar problem into manageable portions, and of thinking in terms of groups and clusters of stars, the common properties of which were discoverable.

Kapteyn's writings are often mathematical, but with mathematics severely subordinated to his actual problem, which is usually of a statistical or numerical character. Though not himself an observer, he kept touch with observation by annual visits, for many years, to the great observatory of the Carnegie Institution at Mount Wilson, California, of which he was a Research Fellow. His simple-hearted enthusiasm endeared him to many friends. He was well known to British astronomers, and was an Associate of the Royal Astronomical Society and a Foreign Member of the Royal Society of London, as well as of our own Society. He visited Edinburgh on the occasion of the meeting of the British Association in 1921, when the University conferred upon him the Honorary Degree of LL.D. He died on 18th June 1922.