

## The discovery of NGC 6822

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On August 17, 1884 Barnard found an unusual nebula in Sagittarius, using the 6"-Cook-refractor of Vanderbilt University Observatory, Nashville, which he describes as „exceedingly faint“ (Sidereal Messenger 3, 254 (1884)). It is “with small magnification in the same field as the planetary GC 4510“ (NGC 6818). A year later Barnard looked once again at the nebula with the same instrument and now it seems to be „larger and denser“ (Sidereal Messenger 5, 31 (1886)). He guessed it was “grown” – a further example of a “variable nebula”? He wondered why the object was missed, for instance when observing NGC 6818 (40' NNW). Dreyer entered Barnard's object as NGC 6822 in the NGC, with correct position and description: „vF, L, E, dif“.

In autumn 1887 Francis Leavenworth inspected the field with the 26" refractor of Leander McCormick Observatory. These observations – together with others of Ormond Stone, Frank Muller and N. M. Parrish – were published in the Publ. Leander McCormick Obs. 1, 175 (1915). Dreyer credited all new objects incorrectly to Stone (being the director!). Leavenworth found two objects in the area (listed as No. 790 and 791), 12s apart in AR at nearly identical declinations, which he curiously credited to Barnard. It is also strange, that he describes No. 790 (Hubble V) as „round“, which is oval, and No. 791 (Hubble X = IC 1308) as „largely elongated“, which is round - a matter of confusion? Neither of these objects is identical with Barnard's NGC 6822! This nebula was obviously not seen by Leavenworth due to the magnification of 175x and the resulting small field of view. His findings are bright HII-regions in NGC 6822, which were later studied by Hubble (Astrophys. J. 62, 409 (1925)).

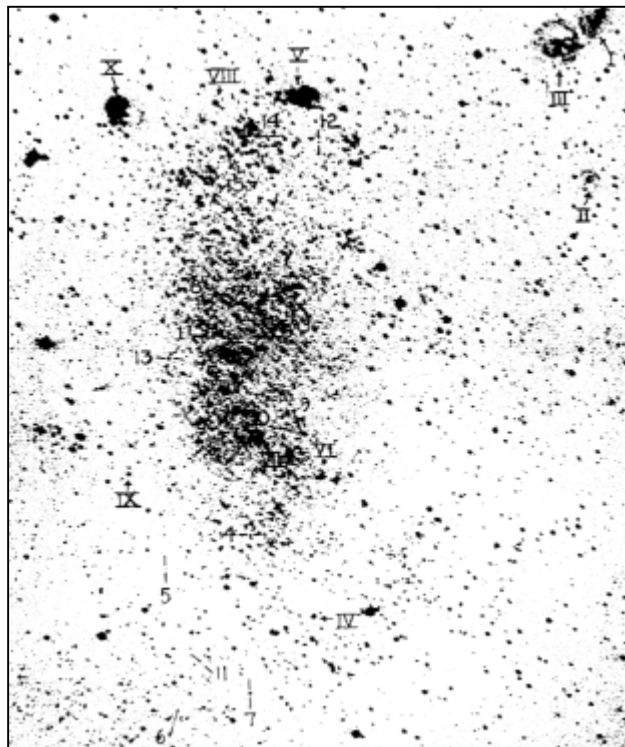


Abb. 1: Hubble's classic photo of NGC 6822, made with the 100"-Hooker-reflector on Mt. Wilson (July 10, 1923). It shows also the positions of objects identified by him (roman numbers = HII regions, latin numbers = cepheids).

Guillaume Bigourdan observed the field in 1889 and 1893 with 12" refractor of Paris Observatory. He did not know Leavenworth' observations and saw neither NGC 6822 nor its HII regions. His telescope was too large for the extended object but too small for details!

What did Dreyer with Leavenworth' observations, which he noticed only after publication of the NGC in 1888? He ignored No. 790 and put No. 791 in the first Index catalogue of 1895: as IC 1308. His description reads „IE, 6822 p 12s“ (e.g. object is largely elongated and NGC 6822 is 12s preceding!), and this had disastrous consequences! It is obvious, that Dreyer ignored his own NGC - not knowing any reason - and degrades Barnard's fine nebula to a mere HII region, indentifying it now as Leavenworth' No. 790!

First victim of this confusion was Herbert Howe, director of Chamberlin Observatory, Denver. In atuum 1898 he observed NGC 6822 and IC 1308 with the 20" refractor (Mon. Not. Roy. Astr. Soc. 60, 130 (1900)). He correctly identifies IC 1308. But he notes on NGC 6822, that the nebula is not „large“, as stated by Dreyer, but „very small“. This can be understood, as he saws the HII region west of IC 1308. But Dreyer, preceding on his fatal line, notes to NGC 6822 in the appendix of the second Index catalogue (1908): „not L but vS (Ho)“.

The next victim was Max Wolf, director of Königstuhl observatory, Heidelberg. On a 3 hour exposure with the 16“ Bruce astrograph taken on July 16, 1906, he found an „ausgedehnten Nebelflecken“ (extended nebulosity; Astr. Nachr. [4207] 176, 109 (1907)). In his paper he mentioned a similarity with IC 1613 in Cetus, found by him in september 1906. A further 3 hour foto taken with the 72 cm Waltz reflector on August 8, 1907, shows the object being a cluster of many small nebulae („aus zahllosen einzelnen Nebelfleckchen zusammengesetzt“). These are the bright HII regions. But now Wolf creates the fatal words: „Im nördlichen Rand des Haufens liegen die zwei für den Reflektor helle Nebel: IC 1308 und NGC 6822. Der letztere ist von Barnard, der erstere von Stone entdeckt. Der Barnard’sche Nebel geht dem Stone’schen 12<sup>s</sup> voraus.“ (At the northern edge of the cluster are two, for the reflector, bright nebulae: IC 1308 and NGC 6822. The latter was found by Barnard and the first by Stone. Barnard’s nebula precedes Stone’s by 12s). Wolf follows Dreyer’s line: NGC 6822 as Leavenworth’ Nr. 790 (Hubble V).

What was Dreyer’s action on Wolf’s new nebula? Obviously completly confused, he adds it as a totally new object in the IC II: IC 4895, with the description „group of nebulae, 25' diameter“!

The resolution of this strange story had to wait for some years. On september 19, 1919, Charles Perrine of Córdoba observatory took photos with the 30“ reflector (Mon. Not. Roy. Astr. Soc. 82, 486 (1922)). He denotes NGC 6822 as the nebula found by Barnard, meaning the large object of today (but he clever ignores all other designations). The final identifications are due to Hubble’s exhaustive study of the system (the first puplication on cepheids in an external galaxy!).

In 1968 the confusion rised again, due to Boris Vorontsov-Velyaminov. Volume 4 of his „Morphological Catalogue of Galaxies“ contains MCG -2-50-2 and MCG -2-50-3, which are identical with the HII regions Hubble I and III. Who has not read the MCG notes on these objects, where the possibility of being HII regions is stated, must see them as „galaxies“ So happening in the „Catalogue of Principal Galaxies“ (PGC 63596, PGC 63500) or in software like „Guide“.

[See german version for literature]