

19th of December, 1845, already remarked a kind of protuberance toward the north; but on the 21st there was, according to Encke's observation in Berlin, still no signs of a separation visible. The subsequent separation was first detected in North America on the 29th of December, 1845; in Europe, not until the middle and end of January, 1846. The new smaller comet proceeded toward the north. The distance of the two was at first 3', afterward (February 20th), according to Otto Struve's interesting drawing, 6'.\* The luminous intensity varied in such a manner that the gradually increasing secondary comet for some time exceeded the principal comet in brightness. The nebulous envelopes which surrounded each of the nuclei had no definite outlines: that of the larger comet, indeed, showed a less luminous protuberance toward S.S.W.; but the space between the two comets was seen at Pulkowa quite free from nebulous matter.† A few days later, Lieutenant Maury, in Washington, remarked, with a nine-inch Munich refractor, rays which proceeded from the larger older comet to the smaller new one, so that a kind of bridge-like connection was produced for some time. On the 24th of March, the smaller comet was scarcely perceptible, on account of the decreasing luminous intensity. The larger one only was seen up to the 16th or 20th of April, when this also disappeared. I have described the wonderful phenomenon in detail,‡ so far as it could be observed. Unfortunately, the actual separation and the immediately previous condition of the older comet escaped observation. Did the separated comet become invisible only on account of distance and feeble luminosity, or did it resolve itself? Will it be again detected as an *attendant*, and will the Comet of Biela present similar anomalies at other reappearances?

The formation of a *new* planetary body by *separation* naturally excites the question whether, in the innumerable comets revolving round the Sun, several have not originated by a similar process, or do not daily originate so? whether they

\* The subsequent (5th of March) increase of distance seen to the extent of  $9^{\circ} 19'$  was, as Plantamour has shown, merely apparent, and dependent upon the approximation to the Earth. Both parts of the *double comet* remained at the same distance from each other from February until the 10th of March.

† "Le 19 Février, 1846, on aperçoit le fond noir du ciel qui sépare les deux comètes."—Otto Struve, in the *Bulletin Physico-mathématique de l'Acad. des Sciences de St. Pétersbourg*, tom. vi., No. 4.

‡ Compare *Outlines*, § 580-583; Galle, in Olbers's *Cometenbahnen*, p. 232.