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Gauss, Bessel and the adjustment of triangulation. (English. English summary)

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Carl Friedrich Gauss (1777–1855) was a leading mathematician of the early nineteenth century, while Friedrich Wilhelm Bessel (1784–1846) was a master of precision astronomy, famous for his measurement of stellar parallax in 1838 at his Königsberg observatory. Both men also carried out geodetical investigations in which they used the statistical method of least squares to estimate the sides of triangles appearing in the triangulations that arose in surveying. Although Gauss supported Bessel in his early career, Bessel later became critical of Gauss for what he viewed as the latter's failure to acknowledge the work of others. In particular, Bessel emphasized that Adrien-Marie Legendre (1752–1833) deserved credit for having invented the method of least squares, and he also observed that his own application of this method to triangulation was prior to and independent of Gauss's. The article examines the second of these issues and adduces some evidence to show that Bessel was incorrect in claiming that contemporary writers had overlooked his work. Indeed, Bessel's method had been described by Otto A. Rosenberger (1800–1890) in 1827, and later writers cited this source.

The terminology employed in the article is less than standard—the reduction of data is called the adjustment of data, errors are called residuals, what we call the method of least squares is called the pattern of indirect observations, and the Lagrange-multiplier form of this method is called the pattern of conditioned observations. The relevance of the two forms of the method to the priority question under consideration is not made clear in the paper. *Craig G. Fraser*