

CORRESPONDENCE OF GAUSS AND GERLING

Briefwechsel zwischen Carl Friedrich Gauss und Christian Ludwig Gerling.

By Dr. Clemens Schaeffer. Herausgegeben im Auftrage der Gesellschaft zur Beförderung der gesamten Naturwissenschaften zu Marburg. Berlin, Otto Elsner, 1927. xx+820 pp. Price 36 marks; bound, 40 marks.

It is not too much to say that Germany sets a standard not reached by any other country in the recognition, through publications of this kind, of the work of a nation's great scientists. More than a half a century ago there appeared six volumes of the correspondence between Gauss and Schumacher; a quarter of a century ago there were added two volumes of letters exchanged between him and others; and beside these there has been published a considerable amount of correspondence between him and both Bessel and Humboldt. There now appears the present work of more than eight hundred pages, giving 388 letters dating from 1810 to 1854, of which 163 are those written by Gauss and 225 by Gerling.

Such extensive publications as these relating to the friendly intercourse between the great Göttingen scientist and his fellow workers are not often possible. Such a body of material is not available, even in the case of men of highest standing,—men whose letters would naturally be preserved. Some, like Cayley, were not prolific letter writers; while others, like Sylvester, wrote apparently for the love of writing. It was not, however, because Gauss was accustomed to correspond so freely with his friends that his letters have been so freely made known to the world, nor was it merely because Germany or a German learned society desired to honor his memory. It is in a large measure due to the fact that German readers are numerous enough to purchase volumes of this kind and thereby render their publication possible. Such source material is invaluable to the historian, but there are few historians to use it; the support of the publication must have come from the large body of cultured scientists who find in the past a stimulus to their work for the future. In our own country, with all its wealth, such publications seem to be almost impossible. Perhaps it is because letter writing is with us a lost art; more probably it is because reading is such.

Gerling was professor of mathematics, physics, and astronomy in the the University of Marburg from 1817 to 1864. He was repeatedly offered positions elsewhere, but for nearly a half a century he continued to fill the chair for which he had been chosen in his early years. He was eleven years younger than Gauss and an acquaintance formed in Göttingen had been maintained until the latter's death in 1855.

Professor Schaeffer, the editor, has shown himself admirably adapted to the work. His tastes are those of both Gauss and Gerling. He is professor of physics at Breslau, and hence his field of major interests was at least one of the fields which each writer cultivated with a success that the world recognizes. As editor he has been painstaking in giving the letters as they would have been written today, with modern spelling and punctu-

ation, and in supplying a large number of footnotes of a biographical and bibliographical nature. While many readers may wish that the text had been given precisely as the original letters were written, it should be said that all alterations from those mentioned are made in brackets so that the reader is sure of the text as Gauss or Gerling would have prepared it at the present time.

It is, of course, impossible to call attention to all points of historical interest in such a collection, but some idea of the scientific range may be obtained from a few references. Gerling told Gauss as late as Nov. 22, 1818 (see p. 182) that the construction of the 17-gon as given in the *Disquisitiones Arithmeticae* was not clear; indeed, that it was merely suggestive; and he asked for a complete proof. This Gauss gave (letter of Jan. 6, 1819, p. 185) in the form which is now familiar, together with a historical note (p. 188) concerning his discovery of the method. The work of Gauss and Weber on the electric telegraph is well known, and in his letter of Aug. 26, 1835, he goes into the subject of his later improvements (p. 447). Gerling's reply (p. 451) shows how much interest was being aroused at that time in the new invention.

We usually think of Gauss as a great mathematical genius and as a great astronomer, forgetting that he ranked relatively as high as a geodesist. Those who are interested in this phase of his work will find a large amount of material in this correspondence, not merely with respect to triangulations and accuracy of observation, but as to the advanced phases of the subject and as to the improvement of instruments and the application of the method of least squares to geodetic work.

As to his pure mathematical interests, there are numerous references to his early work on critical points of a triangle (p. 340), the question of the angle (p. 195), and the various theories of parallels, although these are generally in the nature of obiter dicta rather than of proof. Speaking of Legendre's treatment of parallels, for example, he remarks "das für mich gar keine Beweiskraft in seinem Schluss liegt," and he proceeds succinctly to give his reasons, and similarly in various other matters of a similar kind.

Naturally the work should and will find place in all mathematical and reference libraries of importance.

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