Personal report

# A birthday tribute to Karin Reich,
# with a selected bibliography



Courtesy of J. Gottschalk

Karin Reich, the historian of mathematics and director of the Institut für Geschichte der Naturwissenschaften, Mathematik und Technik of the University of Hamburg, will celebrate her 65th birthday on 13 October 2006.

Karin Reich née Bienfang was born and attended school in Munich. She studied mathematics, physics, and astronomy in Munich and Zurich from 1959 to 1965 and, among others, attended lectures of Bartel Leendert van der Waerden (1903–1996) on descriptive geometry and of Walter Heitler (1904–1981) on relativity theory. She was eventually attracted to the history of mathematics, in which she was taught by Helmuth Gericke (born 1909) and Kurt Vogel (1888–1985). After graduating in 1965, Reich became an assistant at the Research Institute of the German Museum (Forschungsinstitut des Deutschen Museums) in Munich from January 1967 to September 1972. During this period she was co-editor of a new edition of Johannes Tropfke's famous *Geschichte der Elementarmathematik* (*History of Elementary Mathematics*), of which only volume I ("Arithmetic and Algebra") was published in 1980.

Her first publication was a contribution on early algebra to the Festschrift in honor of Kurt Vogel's 80th birthday in 1968. This was also the basis of her first address at an international conference in Zagreb, Yugoslavia, in

1969. After this, she focused her attention on differential geometry. This resulted in a Ph.D. dissertation on differential geometry in the period from Gauss to Riemann ("Differentialgeometrie von Gauss bis Riemann") in 1973, which was published in the *Archive for History of Exact Sciences* in that same year. A few years later she received a stipend for her "habilitation" from the Deutsche Forschungsgemeinschaft (DFG) from January 1976 to December 1977.

Reich's Habilitationsschrift on the development of tensor calculus was completed in 1979 but remained unpublished until 1994, when it appeared in a totally revised and extended version as *Die Entwicklung des Tensorkalküls. Vom absoluten Differentialkalkül zur Relativitätstheorie* (*The Development of Tensor Calculus: From Absolute Differential Calculus to Relativity Theory*). This highly informative work was praised as follows in a review by the late Dirk Struik (1894–2000): "All in all, an admirable book, clearly written, looking as if it will be the definitive exposition of the history of the tensor calculus up to 1916" [*Historia Mathematica* 22 (1995) 323–326, esp. 326]. Among other topics the book deals with the priority discussions involving Hilbert's and Einstein's contributions to relativity theory as well as Einstein's mathematical development in general.

Reich's first lectures were on the history of algebra at the Maximilians-Universität in Munich (1976), after which she spent a winter term at Princeton University. At the beginning of 1980 she became the Professor for the History of Natural Sciences at the Fachhochschule für Bibliothekswesen in Stuttgart, and in 1988 she became a "Privatdozent" at the University of Stuttgart. Since 1994 she has held the position of Full Professor in the History of Mathematics at the Institut für Geschichte der Naturwissenschaften, Mathematik und Technik of the University of Hamburg. This institute was initially affiliated with the Department of Mathematics, but as of 2006 has become part of the extended Department of Mathematics, Engineering and Natural Sciences.

Reich's historical credo is found in the preface to her book *Die Entwicklung des Tensorkalküls*. She emphasizes that she has always followed the sources and paid close attention to the original texts. Her careful attention to the documents and knowledge of the associated mathematics have made her historical studies more than just a phenomenological description of certain developments or a cut-and-paste compilation of different texts. She has depicted the historical figures in her studies in a lively and sympathetic manner, but has always avoided any kind of hagiography.

Karin Reich has published more than 80 articles, has authored four books, and was editor of three more. She wrote 14 papers on algebra, with particular emphasis on early algebraists such as Viète and Stifel. She published 7 articles and one book on differential geometry, 6 papers on astronomy, as well as papers on mathematicians such as E. Fettweiss, H. Grassmann, H. Mehmke, B.F. Thibaut, and A. Voss. Reich has written approximately 20 articles and one book on a person that has captured her attention more than any other: Carl Friedrich Gauss. Furthermore she has been involved in the edition of many source works with commentaries and prefaces (Euler's Letters to a German Princess, Fontenelle's Dialogs, Gauss's abstracts in the *Göttinger Gelehrten Anzeigen*, Hessenberg's collected papers, and others). Finally, during her Hamburg period, she has devoted works to the history of mathematics in Hamburg, which is linked to such names as E. Artin, W. Blaschke, E. Hecke, O. Schreier, and H. Schubert. Reich has organized or shared in the responsibilities of internationally recognized exhibitions such as "Mass, Zahl und Gewicht" at the Herzog (Duke) August Library in Wolfenbüttel, which was accompanied by an outstanding catalogue.

Her achievements have been recognized throughout the course of her scientific career, especially through her election as a Corresponding Member of the International Academy for the History of Sciences in 1983. She was a member of the German National Committee of the Division of History of Science (DHS) of the International Union of the History and Philosophy of Science (IUHPS) and an elected referee for history of science of the Deutsche Forschungsgemeinschaft (DFG). Through personal conversations and letters she has encouraged her students, doctoral candidates, and colleagues with many insightful comments and sound advice. Moreover, her kindness, intelligence, and readiness to help have stimulated the scientific work of her students and colleagues. Already her early colleagues in Munich have emphasized her ability to harmonize the relations between co-workers, especially in controversial debates. Karin Reich has been a respected colleague whose sureness of purpose has ended the endless talking of self-forgetful speakers.

As it is the custom in Germany, a 65th birthday brings both acclaim and retirement; Karin Reich prepares herself for the official end of her duties as professor of history of mathematics and director of the Institute at Hamburg University. Fortunately, until a new director is installed, she will remain in place for another year. Her friends, students, and colleagues look forward to her continuing labors, fruitful works, good health, and drive to pursue research in the history of mathematics for many years to come: *ad multos annos*.

## Selected bibliography

 1. Diophant, Cardano, Bombelli, Viète—ein Vergleich ihrer Aufgaben. In: *Rechenpfennige. Aufsätze zur Wissenschaftsgeschichte. Kurt Vogel zum 80. Geburtstag gewidmet*. München 1968, pp. 131–151.
 2. Quelques remarques sur Ghetaldus et Viète. In: *Actes du symposium international La géometrie et l'algèbre*. Zagreb 1969, pp. 171–174.
 3. *Françoise Viète* (with H. Gericke). Historiae scientiarium elementa, 5. 1973; 146 pp.
 4. Geschichte der Differentialgeometrie von Gauß bis Riemann. In: *Archive for History of Exact Sciences* 11 (1973), 273–382.
 5. *Carl Friedrich Gauß*. München 1977, 1985; 128 pp.
 6. Tropfke, *Geschichte der Elementarmathematik*, 4th ed. (with K. Vogel and H. Gericke). Vol. 1, *Arithmetik und Algebra*. Berlin/New York 1980; 742 pp.
 7. Who needs vectors? In: *Learn from the Masters!* Ed. by O. Bekken et al. MAA 1992, pp. 214–218.
 8. The American Contribution to the Theory of Differential Invariants. In: *The Attraction of Gravitation*. Einstein Studies, vol. 5. Boston 1993, pp. 225–247.
 9. *Die Entwicklung des Tensorkalküls*. Basel 1994; 331 pp.
10. *Die Stifel-Biographie von G.T. Strobel*. Algorismus, Nr. 11. München 1995; 147 pp.
11. *Im Umfeld der 'Theoria motus'. Gauß' Briefwechsel mit Perthes, Laplace, Delambre und Legendre*. Abhandlungen der Akademie der Wissenschaften in Göttingen, Mathematisch-physikalische Klasse, Nr. 48. Göttingen 2001; 144 pp.
12. *Gauß' Werke in Kurzfassung*. Algorismus, Nr. 39. Augsburg 2002; 196 pp.
13. Gauß und Russland, Russland und Gauss. In: *Russland und die 'Göttingische Seele'*. Hrg. E. Mittler und S. Glitsch. Göttingen 2003, pp. 365–384.
14. *Emil Artin*. Hrg. K. Reich. Mitteilungen der Hamburgischen Mathematischen Gesellschaft in Hamburg, in print.

Rüdiger Thiele
*Karl-Sudhoff-Institut für Geschichte der Medizin*
*und der Naturwissenschaften,*
*Universität Leipzig,*
*Augustusplatz 10/11, D-04109 Leipzig, Germany*
*E-mail address:* ruediger.thiele@medizin.uni-leipzig.de