Historia Mathematica: 25 Years/Context and Content

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> *Kenneth O. May, when he launched Historia Mathematica, once
> said that if the journal survived into its 10th year, he would consider
> it well established. The fact that it has now reached its 25th year is
> an important landmark, and in recognition of this achievement, the
> following is dedicated to his memory, and to the energies of all who
> have contributed over the years to Historia Mathematica.*

This year marks the completion of the first quarter-century of *Historia Mathematica*, which initially appeared exactly 25 years ago, in February of 1974, under the editorship of Kenneth O. May. The brief survey presented here is intended to illuminate the context of the journal within the history of periodicals for the history of mathematics (dating back to 1855 when Olry Terquem launched the *Bulletin de bibliographie, d'histoire et de biographie mathématiques* in Paris). The origins of *Historia Mathematica* and its connections to the international community of historians of mathematics on the one hand and to mathematicians on the other are also discussed.   © 1999 Academic Press

La revue, *Historia Mathematica* (*HM*), apparut en février 1974, il y a vingt-cinq ans cette année, sous la direction de Kenneth O. May. L'étude présentée ci-dessous cherche à situer *HM* dans le contexte du développement historique des revues dévouées à l'histoire des mathématiques, dont la première fut le *Bulletin de bibliographie, d'histoire et de biographie mathématiques* fondé à Paris en 1855 par Olry Terquem. Les origines d'*HM* y sont discutées aussi, ainsi que les liens entre la revue et la communauté internationale d'historiens des mathématiques d'une part et la communauté mathématique internationale d'autre part.   © 1999 Academic Press

The first issue of *Historia Mathematica* appeared exactly 25 years ago, in February of 1974, under the founding editorship of Kenneth O. May. With May's death in December of 1977, the editorship passed to the author and Esther R. Phillips, who edited the journal from then until 1985. In the years since, the journal established itself as the primary vehicle for promoting the history of mathematics internationally, and has maintained a long-term relationship since 1977 with its publisher, Academic Press. In its first 25 years, *Historia Mathematica* has published more than 450 articles, a comparable number of book reviews, more than 10,000 abstracts, and countless notices, as well as news of the profession. It has also produced three edited volumes [51; 39], four *Festschriften* supported by the journal and the International Commission on the History of Mathematics (ICHM) [17; 18; 19; and 24], and the proceedings of an international conference devoted to the evolution of modern mathematics held at the American Academy of Arts and Sciences in Boston in 1974 [8]. Subsequent editors of *Historia Mathematica*, Eberhard Knobloch (1986–1993), Helena Pycior (1986–1989), and David Rowe (1990–1995), have overseen the continuing evolution of the journal, now in the hands of Karen Parshall and

Jan Hogendijk, who will entrust it to Umberto Bottazzini and Craig Fraser as of January, 2000.

As with any collaborative enterprise, the journal has both a prehistory and a context within which it should be understood as part of a remarkably long history of journals and serial publications devoted to the history of mathematics. In this brief survey, the origins and development of the history of mathematics will be sketched through an overview of the history of its major periodicals.[1] This will provide both the background and the afore-mentioned context with respect to which the founding and subsequent history of *Historia Mathematica* may then be considered.

Part of this context is the larger arena of the history of science generally, but to discuss this in addition to the history of mathematics is beyond the scope of the survey provided here. However, in certain exceptional cases, either journals for the history of science—that came to recognize with explicit changes of title the prominent role the history of mathematics played in their pages (e.g., the *Abhandlungen zur Geschichte der Mathematik* and *Centaurus*)—or journals for which the history of mathematics, despite the absence of explicit notice, plays a major role, have also been included. Otherwise, attention in what follows is focused on the nearly 20 journals specifically devoted to the history of mathematics since 1855.
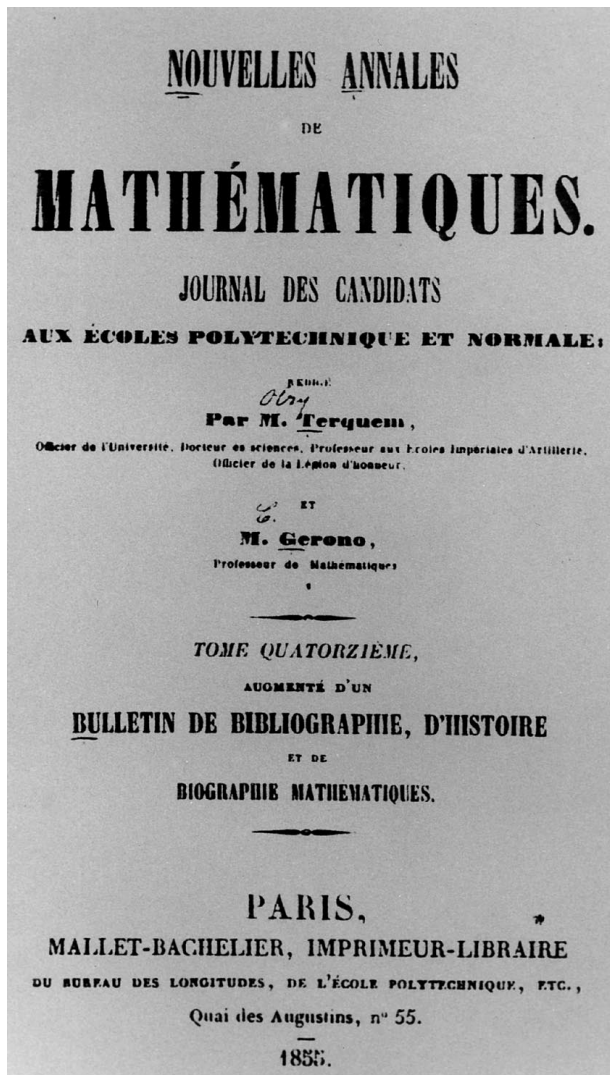
Bulletin de bibliographie, d'histoire et de biographie mathématiques

Of journals devoted to the history of mathematics, which extend well back into the 19th century, the earliest was the *Bulletin de bibliographie, d'histoire et de biographie mathématiques*, founded in 1855 by Olry Terquem. Terquem's *Bulletin* was issued as a supplement to the *Nouvelles annales de mathématiques*, also founded by Terquem along with his colleague, Camille Christophe Gerono, in 1842 (see Fig. 1). Terquem, a graduate of the École polytechnique, spent nearly a decade teaching at the lycée in Mainz before serving at the local "school of artillery." In 1814, he left Mainz for Paris, where he became the librarian for the Dépôt d'Artillerie [57, 84]. There, over several decades, he built up the library, one of the best of its kind when he died, nearly 50 years later, in 1862 [57, 85].

Some twenty years earlier, however, it was Gerono (1799–1892) who wanted, in 1841, to found a journal for students of mathematics, and he in turn persuaded Terquem to join him as editor of the *Nouvelles annales de mathématiques*. It was doubtless Terquem's position as a librarian that accounts for his own more specialized interests in bibliography, history, and the biographies of mathematicians. The *Bulletin* he subsequently launched in 1855 was later described as "a useful appendix destined to engender a taste for historical research in France" [57, 87].

Reflecting Terquem's belief that the history of mathematics embodied the most positive achievements of the human spirit, the first article he published was a "Notice on the Dis-covery of Logarithms" [61]. This opened with a quotation from the American inventor and

NOUVELLES ANNALES

DE

MATHÉMATIQUES.

JOURNAL DES CANDIDATS

AUX ÉCOLES POLYTECHNIQUE ET NORMALE;

RÉDIGÉ

Par M. Terquem,

Officier de l'Université, Docteur ès sciences, Professeur aux Écoles Impériales d'Artillerie.
Officier de la Légion d'honneur.

ET

M. Gerono,

Professeur de Mathématiques.

TOME QUATORZIÈME,

AUGMENTÉ D'UN

BULLETIN DE BIBLIOGRAPHIE, D'HISTOIRE

ET DE

BIOGRAPHIE MATHÉMATIQUES.

PARIS,

MALLET-BACHELIER, IMPRIMEUR-LIBRAIRE

DU BUREAU DES LONGITUDES, DE L'ÉCOLE POLYTECHNIQUE, ETC.,

Quai des Augustins, n° 55.

1855.

FIG. 1. Title page of the first issue of the *Nouvelles annales de mathématiques*, announcing the addition of the *Bulletin* in 1855.

polymath, Benjamin Franklin: "Time is the material of which life is made; to manage [time] is to prolong life" [61, 1]. Terquem emphasized that the greatest advances in the history of mathematics were associated with discovery of methods to increase the speed of calculation. As he put it, introduction of numerical arithmetic, algebraic algorithms, the invention of logarithms, and the infinitesimal calculus—like railroads and the electric telegraph—were all similar in that each made it possible for the mind to cover great distances in a matter of seconds. Before Napier, the comparison of arithmetic and geometric progressions was nothing more than an agreeable pastime, but the discovery of logarithms, which so greatly facilitated complicated multiplications and divisions, was taken to be an epoch-making

invention in the "annals of the human spirit." This was exactly the point made in the editorial preface to the first issue of the new *Bulletin*, which quoted Pascal: "The history of science is that of the human spirit, although the annals of man may be nothing more than a perpetual list of our follies, vices and passions. 'All the dignity of man is in (his) thought,' according to Pascal. Mathematics is a '*pensée continue*'."[2]

In addition to the "Notice on the Discovery of Logarithms," the first volume of the *Bulletin* included nearly a dozen biographies, including ones for Napier, Cavalieri, Rheticus, and Abel, bibliographic reviews of some three dozen works, and more than 30 historical notes on topics such as the first use of the $+$ and $-$ signs, the origin of the terms "positive and negative numbers," Fermat's theorem on polygonal numbers, the invention of the $=$ sign, the origins of the words "million" and "billion," the first use of imaginary roots, the first observation on the number of solutions of an equation, the first geometric interpretation of negative numbers, and the first evaluation of the areas of spherical triangles. Clearly, the preoccupation at this early stage in the history of the history of mathematics was an almost exclusive interest in "priorities"—in mathematical "firsts."[3]

The *Nouvelles annales de mathématiques* had just begun a new series, the first volume of which appeared in 1862, when—in the midst of publication—Terquem died suddenly after a brief illness. His fellow editor Gerono simply inserted a notice of the sad news following a problem on determinants! Although Terquem's death did not stop the presses, it did mean an end to the *Bulletin*, which had been his project, his interest, and primarily his responsibility. The very next issue of the *Nouvelles annales de mathématiques*, in fact, for 1863, bore no trace of the *Bulletin*, the first journal for the history of mathematics, which for the previous eight years had graced the title page of the *Nouvelles annales*.[4]

Bullettino di bibliografia e di storia delle scienze matematiche e fisiche

The first periodical to begin continuous publication as an independent journal devoted to the history of the mathematical and physical sciences was edited by Baldassarre Boncompagni.[5] Born in 1821, the son of Luigi Boncompagni, Prince of Piombino, Baldassarre studied mathematics with Barnaba Tortolini. Although he wrote an article on definite integrals that appeared in Crelle's *Journal für die reine und angewandte Mathematik* in 1843, he devoted the rest of his life to publishing and supporting works on the history of the exact sciences, primarily mathematics and physics. He is especially well known for his editions of Fibonacci (Leonardo of Pisa), as well as studies he published of Gerard of Cremona, Gerard of Sabbionetta, Plato of Tivoli, and Guido Bonatti.

The story of Boncompagni's exacting standards, and of the house he founded to ensure printing of the highest quality, is well known. In addition to publishing the papers and correspondence of Ferrari, Tartaglia, Lagrange, and Gauss, the journal he founded in 1868 comprised 20 volumes by the time it finally ceased publication in 1887. In addition to works

[2] "Avis de l'éditeur," *Nouvelles annales de mathématiques* **14** (1885), 6.

[3] This is the same view Gottfried W. Leibniz expressed two centuries earlier when he explained the importance of the history of mathematics: "to give everyone his due." See [43, 329; 68, 227; 21, 3].

[4] In an "Avertissement des rédacteurs," Gerono, joined by Eugène Prouhet as his new co-editor, explained that material from the earlier *Bulletin* would be absorbed by the *Nouvelles annales*. The latter would continue to include bibliographies and biographical articles, which were praised for serving as "good examples to young students," *Nouvelles annales de mathématiques* **2** (1863), 1–2.

[5] For biographies of Boncompagni, see [26; 31; 32]; [3; 37] offer evaluations of Boncompagni's contributions to medieval mathematics and to Renaissance mathematics and astronomy, respectively.

FIG. 2. Title page of the first issue of Boncompagni's *Bullettino* (1868).

on physics and astronomy, the first volume (1868) also included articles on Roman numerals, the *Introduction to Arithmetic* by Nichomachus, an article by Louis-Amélie Sédillot on Chinese mathematics and astronomy, an account of the life and works of the Bolyais, and a note on the ancient method of computing on the fingers of the hand (see Fig. 2).

The same broad range of topics characterized successive issues of the journal over the next 20 years. But when Boncompagni gave up the *Bullettino* following the appearance of volume 20 in 1887, there was no one to succeed him as editor, and when he died seven years later, in 1894 at the age of 72, the *Bullettino* was already history. And yet its handsome volumes, with colored plates and impeccable printing, set a standard at least for technical printing that no journal for the history of mathematics has since matched.

Abhandlungen zur Geschichte der Mathematik

Among periodicals specifically dedicated to the history of mathematics, none has a more complicated history than the *Abhandlungen zur Geschichte der Mathematik*. Like Terquem's *Bulletin*, the *Abhandlungen* first owed its existence to a mathematical journal, the *Zeitschrift für Mathematik und Physik*, founded by Oskar Schlömilch and Benjamin Witzschel in 1856. Several years later, the German historian of mathematics, Moritz Cantor, joined the *Zeitschrift* as an editor, and immediately articles on the history of mathematics began to appear.[6] But it was not until 1875 that a separately paginated *Historisch-literarische Abteilungen der Zeitschrift für Mathematik und Physik* made its debut. The first volume of this new historical journal was issued as a supplement to volume 20 (of the *Zeitschrift*) and included an article on the history of German mathematics in the 15th century as well as reviews of a number of historical works. This continued until volume 45 in 1900, which included articles on history of mathematics, surveys of Leonardo da Vinci and Ptolemy, and an account of the International Congress of Mathematicians held in Paris in 1900. Unfortunately, this was the last volume of the *Historisch-literarische Abteilungen* that Cantor was to edit, and was the last issue of the *Zeitschrift* to include the historical supplements.

Beginning with volume 46, when Rudolf Mehmke and Carl Runge assumed responsibility for the journal, the *Zeitschrift* was transformed into an "*Organ für angewandte Mathematik*." In a brief preface devoted to the "Future Goals of the *Zeitschrift für Mathematik und Physik*," the new editors expressed regret that Cantor had decided to retire as editor of the historical–literary section of the journal (by then Cantor was over 70) because this meant that it would no longer be possible to continue the supplement without him.

Meanwhile, Cantor had begun to edit a separate series of *Abhandlungen zur Geschichte der Mathematik*, the first of which appeared in 1877. Volumes in this series were published more or less regularly, beginning with an important study by Giovanni Virginio Schiaparelli on the homocentric spheres of Eudoxus, Callippus, and Aristotle (vol. 1). Volume 3, in 1880, provided an edition by Moritz Steinschneider of the Hebrew mathematical text, *Mishnat ha-Middot*, translated into German with additional introduction and comments by Hermann Schapira. Volume 7 (1895) included articles on the history of algebra in Germany in the 15th century, an autobiography of Gotthold Eisenstein, and a translation from the Russian of a lecture given by Aleksandr Vasilievich Vasiliev (also Vasil'ev or Wassiljef) on Nikolai Lobachevsky. Volume 9 (1899) was a special *Festschrift* edited in honor of Moritz Cantor's 70th birthday. This was also the 14th supplement and simultaneously volume 44 of the *Zeitschrift für Mathematik und Physik*, which gave the series a convoluted bibliographic history in terms of its various numberings! Volume 45 carried the last supplement, number 10, after which such complications were avoided as the *Abhundlungen* became an independent journal.[7]

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[6] Starting with volume 4 (in 1859), Cantor himself wrote on Ramus, and Schnitzler contributed an account of Abraham ben Ezra. For biographical details concerning Cantor's contributions to the history of mathematics, see [11; 14; 16; 36; 48].

[7] Subsequent volumes included, for example, volume 24 (1907), A. A. Björnbo's edition of a text by Johannes Verneri on spherical triangles; volume 25 (1907), a *Festschrift* celebrating the 200th birthday of Leonhard Euler in 1907; volume 28 (1910), mathematical papers from the Far East, compiled and edited by Yoshio Mikami, and published simultaneously in Tokyo; and volume 30 (1913), the last issue of the *Abhandlungen*, brought to an end by the First World War.

Bibliotheca Mathematica

The first truly professional editor of a journal devoted to the history of mathematics was the Swedish librarian, Gustav Eneström (1852–1923). After studying mathematics at the University of Uppsala (from which he graduated in 1871), Eneström worked for one year in the library at the University's observatory, after which he took a position in the University's main library. In 1879, he moved to the Royal Library in Stockholm, and thereafter he worked in a number of different governmental and court libraries.[8]

As early as 1876 Eneström published a paper on the history of mathematics—on the history of the isoperimetric problem—in the *Yearbook* of Uppsala University, and three years later (his last in Uppsala) he published another, on the history of the calculus. By then, Eneström knew that Boncompagni had decided to put an end to the *Bullettino*, and was planning to bring out a new journal concerned exclusively with the history of mathematics. But by the time Boncompagni had finally made up his mind to do so—not until 1887—Eneström had already published three volumes of his *Biblioteca Mathematica* as adjuncts to Gösta Mittag-Leffler's international journal, *Acta Mathematica*. Although this first series was bibliographic, only listing notices of recent mathematical works, Eneström soon launched a new series of the journal independent of *Acta Mathematica* and specifically intended to focus on history. Between 1887 and 1899, Eneström published 13 volumes of this second series of *Biblioteca Mathematica*, which was now a specialized journal for the history of mathematics [28, 2].

Although Eneström was supported by colleagues abroad who contributed material for his second series of *Bibliotheca Mathematica*—including Victor Bobynin, Georg Cantor, Moritz Cantor, Antonio Faváro, John Ludvig Heiberg, Tommaso Narducci, Eugen Netto, Pietro Riccardi, Moritz Steinschneider, Heinrich Suter, Paul Tannery, and Hieronymus Georg Zeuthen, among others—he had to finance the venture himself. This explains why each volume was limited to only 128 pages annually. At the end of the first decade of the second series, 1887–1896, Eneström issued a general index, including short biographical notes with portraits of those who had contributed to the first 10 volumes of *Bibliotheca Mathematica*.

Nevertheless, the real success of Eneström's efforts to establish an international journal for the history of mathematics of substantial proportions and quality were not realized until 1900, when he launched the third series of the journal. Before Eneström took this very important step in the history of journals for the history of mathematics, however, another important new periodical had appeared in Italy, one that was devoted in part to the history of mathematics.

Bollettino di bibliografia e storia delle scienze matematiche

The new Italian journal, which made its debut at the very end of the 19th century, did so at first as a supplement to the *Giornale di matematiche*, in 1897. A year later, it began to appear independently as the *Bollettino di bibliografia e storia delle scienze matematiche*, edited by Gino Loria, "the Dean of mathematical historians in Italy" [2, 5] (see Fig. 3). Loria had studied mathematics at Torino where he earned his Ph.D. in 1883 for a thesis

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[8] For a biography of Eneström, see [35]; for an assessment of his contributions to the historiography of mathematics, see [48].
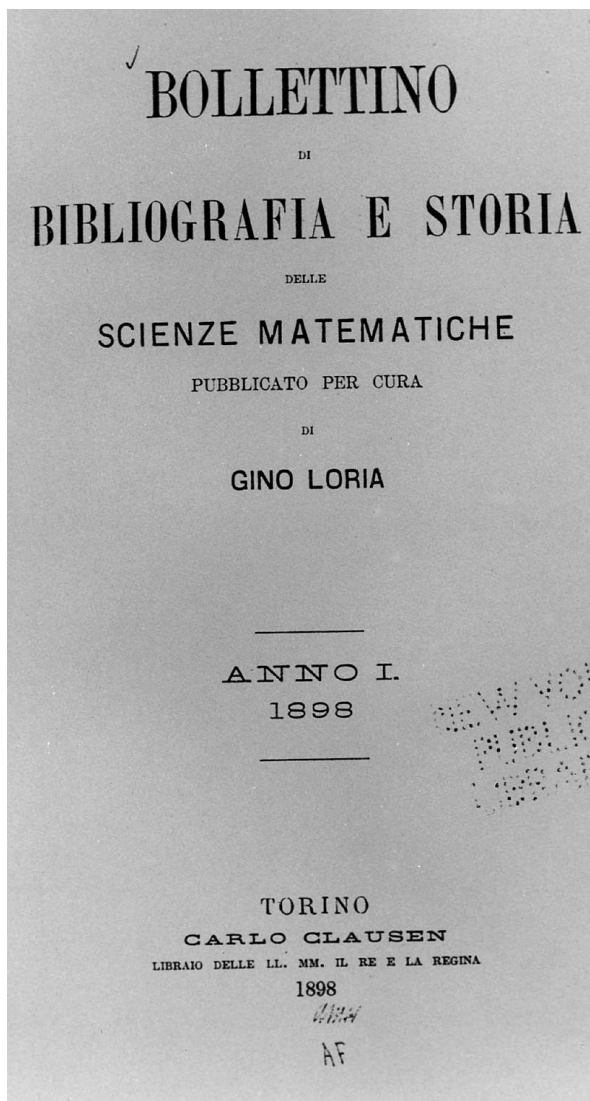
FIG. 3.   The first issue of Gino Loria's *Bollettino* (1898).

"On the Geometry of a Complex Tetrahedron." In 1886, he accepted a position teaching advanced geometry at Genoa, where he spent the rest of his career until retiring at age 73 in 1935.

As the latter part of the 19th century witnessed increasingly widespread activity in the history of mathematics, the Academy of Sciences in Madrid offered a gold medal (in 1897) for the best study of the history and properties of "curves with a name," which Loria won. His earliest publications on the history of mathematics, however, date from the 1880s, when he published a history of classic geometric theorems in the *Memoirs* of the Royal Academy

of Torino. Loria's interest in history was related directly to teaching: "It is my conviction that whoever aspires to bring any contribution to our scientific knowledge can not avoid taking notice of what his predecessors have done; this is especially true of a teacher since his course should be a true mirror of the science of his time" [2, 7]. Equally important in stimulating his love of history, Loria said, were the examples biography could offer: "Ever since I was in my teens the reading of the biographies of the most eminent thinkers exercised on me an irresistible fascination; more even than the fantastic adventures conceived in the whimsy of the old-time writers of romances, I was especially interested in knowing the circumstances through which 'man makes himself eternal.' Was it perhaps to draw from them a norm for the government of my own life? I do not know" [2, 8].

Loria put his interest in history to work as editor of the *Bollettino di bibliografia e storia delle scienze matematiche* in 1898. Like Eneström's *Bibliotheca Mathematica*, each issue was limited to two signatures (or one fascicle of 32 pages) for a total of 128 pages a year. The first issue opened with an article by Loria himself, "Per la storia de alcune curve piane" (connected with Peano's own discovery of a plane-filling curve which raised serious questions about how dimension should be defined mathematically). Another article by A. V. Vasiliev described the works of Lobachevsky. Reviews and announcements followed, as did obituaries of Ernst Schering, Francesco Brioschi, and Hermann Schapira, with a variety of notes meant to be of interest to historians and mathematicians alike.

Loria's *Bollettino* published its last volume in 1918. This was announced as Volume 20, but it was simultaneously the first of a new series which unfortunately did not survive World War I. Instead, Loria continued to publish the *Bollettino* as a separate "*Sezione storico-bibliografica*" of Alberto Conti's *Il Bollettino di matematica*. This was later changed to *Archimede*, which Loria continued to oversee until his death in 1954. But as Luca dell'Aglio has said in a detailed study of Loria's *Bollettino*, in its second phase it lost its consistency, and consequently is not of as much historical interest compared with the volumes that Loria edited through 1919 [1, 283].[9]

Bibliotheca Mathematica—The Third Series

By the turn of the 19th century, despite the fact that there were a number of journals which published works on the history of mathematics, none was entirely satisfactory according to the exacting standards of Gustav Eneström. The *Historisch-literarische Abteilungen* of the *Zeitschrift für Mathematik und Physik* was not really an independent publication, he complained, nor was it exclusively devoted to the history of mathematics. It was also concerned with purely mathematical publications in general, the same being true of Loria's *Bollettino*.

Thus, at the turn of the century there was only one journal that was exclusively dedicated to the history of mathematics, namely, *Bibliotheca Mathematica*, but Eneström was aware of his journal's shortcomings. Until 1900 it only appeared in eight signatures a year, amounting to four quarterly issues of about thirty-two pages each. Since it had to include reviews, lists of recently published works, queries, and answers from readers, there was little room for substantial historical articles and virtually no space available for the history of applied mathematics.

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[9] For Loria's autobiographical account of the history of mathematics from his point of view as a "veteran," see [46]. Accounts of Loria's life and works are given in [62; 63]. An evaluation of Loria's views on the past and future of mathematics may be found in [67].

Meanwhile, the number of specialists interested in the history of mathematics had continued to grow, and many of his colleagues urged Eneström to expand *Bibliotheca Mathematica*. This, he confessed, had long been his plan as well. When the mathematical publishing house of B. G. Teubner announced an interest in taking over *Bibliotheca Mathematica*, it also agreed to increase the annual number of signatures from eight to thirty-five—from about 128 pages to well over 500 pages a year—more than quadrupling the size of the journal (see Fig. 4). This, as Eneström realized, would at last make it possible for *Bibliotheca Mathematica* to support research on the history of mathematics to a much greater extent than it had before. He also promised to encourage and to publish new work of the highest quality related to the history of mathematics, physics, and astronomy. In an opening editorial
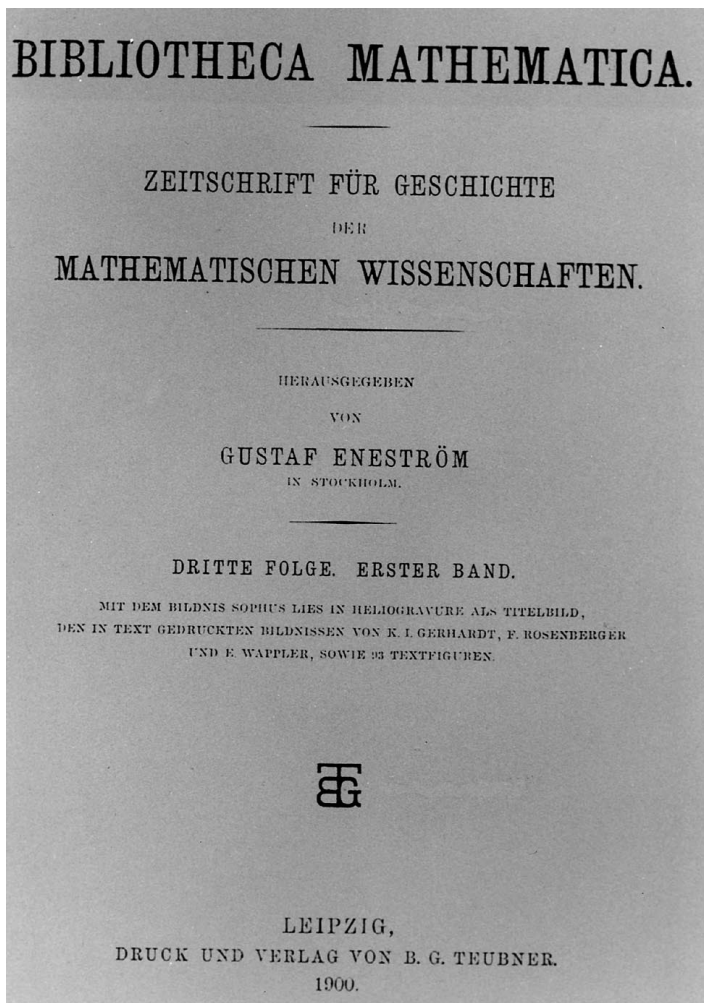

FIG. 4. Gustav Eneström's *Bibliotheca Mathematica*, the first volume of the new third series (1900).

in which he surveyed the "aims and mission of a journal for history of mathematics," Eneström mentioned Moritz Cantor's three magisterial volumes that had since appeared, perhaps making it seem that there was little more for anyone to add after so comprehensive a treatment of the field:

> But in fact, the truth is quite different and indeed it is the great service of [Cantor's] *Vorlesungen* to show how many gaps there are—and how much serious research has yet to be done. This is especially true of the middle ages, but no less for the more recent period up to 1758, where [Cantor's work] breaks off. For the rest of the 18th and for all of the 19th century there is no satisfactory overall treatment, and only a few more specialized historical studies of the recent period. [28, 3]

Eneström also emphasized the change in attitude that had taken place with regard to the history of mathematics. Thirty years earlier, he noted, most mathematicians thought any historical study was simply a waste of time. This was usually based on the assumption that anything really useful in earlier work would have been recognized, and therefore incorporated in newer, modern versions of classic results, theorems, and methods used by contemporary mathematicians [28, 4]. More recently, however, Eneström believed that most mathematicians were convinced not only of the intrinsic interest of the history of mathematics but also of the great pedagogical value of the subject heuristically in teaching mathematics. Furthermore, the history of mathematics could even be useful for the further development of mathematics itself.

Nothing exemplified the interest of, the value of, and the need for historical work more than the *Encyclopädie der mathematischen Wissenschaften*, edited by Heinrich Burkhardt and W. Franz Meyer, or Giuseppe Peano's *Formulaire des mathématiques*. These works not only were replete with historical references, but in part were the results of original historical research. The growing number of compendiums on the history of mathematics also reflected growing interest in the subject, for example, books by Heinrich Suter (1871–1873), Hermann Hankel (1874), Jean Chrétien Ferdinand Hoefer (1874, 1895), Walter William Rouse Ball (1888, 1893, 1895), and Florian Cajori (1893, 1895), many of which had gone through several editions and printings. The increasing number of courses being taught in professional schools and universities were another indicator of substantial interest [28, 5].

Eneström stressed that short notes might be as useful as more extensive research papers and promised to devote a special corner in each issue of *Bibliotheca Mathematica* to "Brief remarks on the most recent edition [*letzten Auflage*] of Cantor's *Vorlesungen über Geschichte der Mathematik*" [28, 6]. Another part of *Bibliotheca Mathematica* was to be devoted to questions and answers from readers. Methodological and pedagogical matters relevant to historians of mathematics would also be discussed, along with book reviews.

To cover everything of current interest related to the history of mathematics, from congresses and special meetings of learned societies to new publications, announcements of prizes, obituaries, etc., Eneström realized he would have to rely on the cooperation of colleagues everywhere. Fortunately, the more *Bibliotheca Mathematica* was recognized as the major clearing house for such information, the more it could depend on help from contributors in virtually all parts of the world. With all this in mind, at the end of his first editorial in the new, Teubner-sponsored version of his journal, Eneström emphasized that "In any case, the major purpose of *Bibliotheca Mathematica* remains to be an instrument

for mathematical–historical research, and thus in each issue at least 1/2 will be reserved for purely historical works" [28, 7].[10]

It was also a sign of the maturity the history of mathematics had reached that Eneström could declare that the time was long past when a simple chronological ordering sufficed for history of mathematics. Something more thoughtful, more analytical was now required, including exploration of historical connections between mathematical ideas themselves. While it was certainly of interest and might be useful to know the chronological development of mathematics, including when discoveries were first made, this was only a necessary, preliminary step towards writing truly "scientific" history that would penetrate to the level of explanation, to revealing the true nature, the essence of the development of mathematics.

In 1914, the first World War put a stop to most international collaboration, and for Eneström this meant the end of *Bibliotheca Mathematica*. Various efforts were made to revive it—one of which was inspired by the American historian of mathematics, David Eugene Smith. Early in 1921 Smith wrote to Herbert E. Slaught, who was then "Manager" of the *American Mathematical Monthly*. Smith described the "critical situation" of *Bibliotheca Mathematica* and Eneström's hope that, given the chaotic conditions in Europe due to the War, his journal might find a new home in the United States. Slaught in turn wrote to the philanthropist, Mary Carus, recounting what both Eneström and Smith had communicated about *Bibliotheca Mathematica*, which he characterized as "the greatest historical journal in the history of mathematics" for the past 30 years.[11] Slaught went on to emphasize the support both D. E. Smith as President of the Mathematical Association of America and Raymond Clare Archibald as Editor of the *Monthly* were prepared to give in hopes *Bibliotheca Mathematica* might be continued as part of the American journal. By adding about 100 pages per year to the *Monthly*, they not only expected this would be possible, but they hoped Eneström might agree to continue as the editor. The cost of all this was estimated at about $1500 per year. Unfortunately, nothing seems to have come of this attempt, nor of others, to perpetuate the first truly international, professional journal for the history of mathematics.

Archiv für Geschichte der Naturwissenschaften und der Technik

Despite growing interest in the history of science during the first decade of the 20th century, as Eneström, Loria, and others had already noted, it was unfortunate that the *Archiv*

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[10] To give but a very brief idea of how comprehensive the new *Bibliotheca Mathematica* was, volume 2 for 1901 included articles on Egyptian calculations with fractions, Babylonian astronomy, the history of isoperimetric problems in antiquity, various topics on medieval mathematics, including Arabic and Hebrew works, and more than two dozen articles on more recent topics, including the algebra of Robert Recorde, Christiaan Huygens's approximations for calculating π and logarithms, John Wallis on elliptical integrals, James Gregory on quadrature of circles and hyperbolas, the history of Abraham de Moivre's theorem, a study of James Stirling's papers, another on the sum of two trigonometric series, the history of trigonometry in the 18th century, the origins of the expression "Pell's equation," and the theory of functions in the 18th century, along with obituaries including portraits of Eugenio Beltrami, Karl Peterson, and Oskar Schlömilch. The issue also contained an historical–linguistic article on the origins of mathematical terminology, an account of the International Congress on History of Science held in Paris in 1900, and bio-bibliographic notices for mathematicians who had died between 1881 and 1900.

[11] I am grateful to Ivor Grattan-Guinness for calling to my attention a letter from Slaught to Carus, dated March 3, 1921, in which Slaught addressed the plight of *Bibliotheca Mathematica*. The letter is among the Carus papers, Open Court Archives, University of Illinois at Carbondale, Carbondale, Illinois.

für Geschichte der Naturwissenschaften und der Technik should have launched its first edition in 1909. This was only a few years before the outbreak of World War I, which Eneström's *Bibliotheca Mathematica* did not survive. Loria's *Bollettino* did so only by merging with another journal. Although it managed to continue after the War, the *Archiv* was forced to suspend operation after volume 9 appeared in 1922. When it resumed publication five years later, it did so as the *Archiv für Geschichte der Mathematik, der Naturwissenschaften und der Technik*. The "*Mathematik*" was added as if it had been inadvertently omitted from the journal's original title! (See Fig. 5.)

But as Julius Schuster, the new editor of the *Archiv*, noted in an opening editorial, "History of the Sciences and Us," the emphasis upon mathematics at the beginning of the new title only acknowledged the prominence the history of mathematics had already assumed in the earlier series [59, 1]. To emphasize this, in fact, the journal was correspondingly renamed. Indeed, the original volume had opened in 1909 with an article by Gino Loria on means of facilitating and directing studies in the history of mathematics. Unfortunately, the revived *Archiv* was unable to keep up with the economic realities of the Depression and ceased publication in 1931 with its unluckily numbered last volume 13.

Quellen und Studien zur Geschichte der Mathematik, Astronomie und Physik

The spirit of the *Archiv* was continued briefly, however, at least for historians of mathematics and the exact sciences, by the creation of *Quellen und Studien zur Geschichte der Mathematik, Astronomie und Physik*, founded by Otto Neugebauer, Julius Stenzel, and Otto Toeplitz. In their foreword, Neugebauer and his colleagues noted, as had their predecessors in the previous century, the continued growth of substantial interest in the history of mathematics. They linked this interest not only to philosophical studies and the pedagogical usefulness of history in teaching but also to the demands of mathematics itself. Recognizing the emphasis early 20th-century mathematicians placed on foundations, greater appreciation for the history of mathematics, they argued, was a natural consequence. Thus, a new venture promoting the history of mathematics was timely.

By choosing for their title *Quellen und Studien*, the editors wished to emphasize the crucial importance of the retrieval of accurate versions of primary sources. Reliable and readily available transcriptions and translations of original sources were a prerequisite for any satisfactory historical interpretation. This, in turn, meant adherence to the highest standards of modern philology, to produce translations faithful to their originals, along with commentaries of the first rank. To join the talents of the philologist and the mathematician was the most important task facing *Quellen und Studien*.

This was not only meant to contribute to the history of mathematics; the editors hoped for even greater results. For those who regarded mathematics as more than an esoteric specialty, but as an essential part of human culture, it was hoped that by considering the historical development of mathematical thought, a bridge might be found between the world's intellectual progress and the seemingly ahistorical exact sciences. The ultimate goal, in fact, of *Quellen und Studien* was to help build just such a bridge.

Perhaps with the fate of the recently defunct *Archiv* in mind, the editors warned that to be successful *Quellen und Studien* would require more than the goodwill of its editors and the cooperation of contributors. They were especially mindful of acknowledging the

ARCHIV FÜR GESCHICHTE DER MATHEMATIK, DER NATURWISSENSCHAFTEN UND DER TECHNIK

UNTER MITWIRKUNG VON

O. APPEL-Berlin; R. C. ARCHIBALD-Providence, R.I.; K. BOPP-Heidelberg; E. BORTOLOTTI-Bologna; F. CAJORI-Berkeley; F. DANNEMANN-Godesberg; ERNST DARMSTAEDTER-München; H. DEGERING-Berlin; L. DEUBNER-Berlin; P. DIEPGEN-Freiburg i. B.; P. DIERGART-Bonn; H. DINGLER-München; H. DRIESCH-Leipzig; A. DYROFF-Bonn; M. EBERT-Berlin; ERICH FRANK-Heidelberg; W. GUNDEL-Gießen; A. HAAS-Wien; F. HENRICH-Erlangen; E. J. HOLMYARD-Bristol; F. HOMMEL-München; E. HOPPE-Göttingen; J. HOOPS-Heidelberg; K. JASPERS-Heidelberg; A. KISTNER-Karlsruhe; ARNOLD C. KLEBS-Nyon; W. KOLLE-Frankfurt a. M.; H. KRAEMER-Gießen; K. KRETSCHMER-Berlin; O. LAGERCRANTZ-Upsala; P. LASAREFF-Moskau; F. LEJEUNE-Köln; J. G. DE LINT-'sGravenhage; E. v. LIPPMANN-Halle a. S.; W. LUBOSCH-Würzburg; MAX MEYERHOF-Kairo; ALDO MIELI-Rom; OSKAR v. MILLER-München; MAX NEUBURGER-Wien; H. OBERMAIER-Madrid; RALPH E. OESPER-Cincinnati; L. OLSCHKI-Heidelberg; W. OSTWALD-Großbothen; E. PROBST-Karlsruhe; EM. RÁDL-Prag; A. REHM-München; J. REINKE-Preetz; W. RIECK-Berlin; M. v. ROHR-Jena; E. RUMPLER-Berlin; G. SARTON-Cambridge Mass.; F. SAUERBRUCH-Berlin; ALFRED SCHMIDT-Köln; G. SENN-Basel; CHARLES SINGER-London; E. STENGER-Berlin; G. STICKER-Würzburg; F. STRUNZ-Wien; W. THEOBALD-Berlin; H. THIRRING-Wien; R. THURN-WALD-Berlin; A. TITIUS-Berlin; E. TREPTOW-Freiberg i. S.; J. TROPFKE-Berlin; A TSCHIRCH-Bern; S. TSCHULOK-Zürich; W. J. VERNADSKY-Leningrad; P. VOLKMANN-Königsberg; P. WALDEN-Rostock; E. WASMANN S. J.-Aachen; M. WELLMANN-Berlin; M. WERTHEIMER-Berlin; R. WINDERLICH-Oldenburg; G. URDANG-Berlin; R. ZAUNICK-Dresden; E. ZINNER-Bamberg

IN VERBINDUNG MIT

L. BIEBERBACH-Berlin; A. BIER-Berlin; M. DESSOIR-Berlin; EUGEN FISCHER-Freiburg i. B.; F. HABER-Berlin; G. HELLMANN-Berlin; A. JOHNSEN-Berlin; G. LOCKEMANN-Berlin; H. LUDENDORFF-Potsdam; D. MAHNKE-Marburg; C. MATSCHOSS-Berlin; ADOLF MEYER-Hamburg; J. RUSKA-Berlin; K. SUDHOFF-Leipzig; H. E. SIGERIST-Leipzig; H. WIELEITNER-München

HERAUSGEGEBEN VON

JULIUS SCHUSTER
BERLIN

10. Band
Neue Folge I (1927/28)

1928
VERLAG VON F. C. W. VOGEL · LEIPZIG

FIG. 5. The new series of the *Archiv für Geschichte der Mathematik, der Naturwissenschaften und der Technik* (1927/1928).

magnanimity of the publisher, Julius Springer, in agreeing to shoulder the practical and financial burdens of printing the journal.[12]

The first volume of Series A (1930) was devoted to an edition with commentary by W. W. (Vasilii Vasilievich) Struve on the Moscow mathematical papyrus, with a transcription of the hieroglyphic text by Boris Aleksandrovich Turaev (Turajeff). The first volume of Series B

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[12] "Geleitwort," *Quellen und Studien*, Series B, **1** (1931) 2.

(1931), although published a year after the first volume of Series A, had actually been accumulating material for a number of years. Its first number was completed in 1929 and included an article on the relation of mathematics to Plato's theory of forms by Otto Toeplitz, another on the concept of *logos* in Aristotle by Julius Stenzel, a contribution by Otto Neugebauer on the history of Babylonian mathematics, and a study by J. J. (Iurii Iakovlevich) Perepelkin on problem #62 in the Rhind Papyrus. The second number (1930) included seven articles, among them one by Bidyaranya Swami Datta on the origin and history of Hindu terminology for geometry, while the third number (also completed in 1930) included an article by Adolf Prag on John Wallis and another by Solomon Gandz on the Egyptian *harpedonaptai*. The fourth number (1931) concluded the first volume of Series B, and included among its six articles three by Neugebauer on Egyptian geometry and Babylonian sexagesimal fractions, along with an article by Erich Bessel-Hagen and Otto Spies on the area of circular rings as calculated by Omar al-Karābīsī.

In 1932 the second volume in Series A appeared on sources, an edition of the *Mishnat ha-Middot* translated from the Hebrew by Gandz, along with a text of the earliest Arabic geometry by Al-Khwārizmī (ca. 830 CE), which was, according to Gandz, an Arabic version of the *Mishnat ha-Middot*. Three years later, the first two parts of volume 3 of Series A appeared and comprised Neugebauer's own path-breaking study of Babylonian mathematical cuneiform texts, Parts I and II (Part III appeared two years later in 1937). By then, Neugebauer was in Copenhagen, having left Germany of his own accord as the National Socialists came decisively into power there in 1933.[13]

Five years later, with the appearance in 1938 of volume 4 in both Series A and B, *Quellen und Studien* came to an end. Despite the extraordinary list of original sources and seminal studies it had put into print since 1930, it all too soon ran afoul of politics and the accelerating fragmentation of Europe through the stormy and difficult decade just prior to World War II. Otto Toeplitz (1881–1940), who was Jewish, was fortunate in being allowed to emigrate, and he left Germany in 1938 to live out the rest of his years in Palestine, where he taught briefly but died in 1940 just at the beginning of World War II [22, 49–50].[14] Neugebauer soon left Copenhagen for the United States, where he took up a position in the Department of Mathematics at Brown University. There he helped to found the *Mathematical Reviews*, and soon the only Department for History of Mathematics in the United States was created for him. Brown thus became an important center for the study of the exact sciences in antiquity.[15]

Scripta Mathematica

The last journal of the old order, regrettably also no longer extant, nevertheless persisted for nearly two decades after World War II. Founded in the United States by Jekuthiel Ginsburg in 1932, its aims were described succinctly by the editor, who outlined "The Policy of *Scripta Mathematica*" at the beginning of Volume 1:

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[13] At the beginning of volume 3 of series A, Neugebauer thanked in particular the Rask Ørsted Fond and the Rockefeller Foundation for supporting his continuing work in Copenhagen, as well as Julius Springer for agreeing to publish the work, especially with the inclusion of so many tables in order to make the book as easy to use as possible. See [53, x].

[14] Additional biographical tributes to Toeplitz may be found in [6; 12; 27; 42; 64].

[15] On Neugebauer's life and scholarly career, see [9; 10; 25; 55; 56; 60].

> The historians develop mathematics as a function of the variable "time," while the philosopher's aim is to discover the logic behind the laws of mathematics, the mathematics of mathematical laws. History of mathematics presents the science in the state of becoming; by means of philosophy the crystalline structure of the finished product is revealed. These two aspects of the subjects are supplementary; one without the other loses the greater part of its value.
>
> The pages of [*Scripta Mathematica*] will therefore be devoted chiefly to the history and philosophy of mathematics. The expositorial treatment of mathematics will also be included for the purpose of giving to the reader a knowledge of what is being done at present in various branches of the subject, and of the history of mathematics in the making. [33, 1]

Ginsburg, who had studied mathematics with D.E. Smith at Columbia University's Teachers College, went on to serve as director of the Institute of Mathematics at Yeshiva University in New York City, where he also acted for 30 years as Chair of Yeshiva's Department of Mathematics. Among those who served on the editorial board of *Scripta Mathematica* were such well-known historians of mathematics as Abraham A. Fraenkel and Sir Thomas Little Heath. But Ginsburg also promoted women such as Lao Simons (Hunter College, New York) and Vera Sanford (Northwestern University, Illinois). Unfortunately, his vision of the journal was doomed in the hands of his successor, Abe Gelbart.

When Ginsburg died in 1957, the issue dedicated to his memory also bore a new title page. This reflected not only a change in editorship, but a change in editorial philosophy as well. Without explanation, *Scripta Mathematica* dropped its previously prominent, front-page interest in the history and philosophy of mathematics. But having lost its unique focus on the history of mathematics, *Scripta Mathematica* was suddenly just another journal of average quality advertising the "expository and research aspects of mathematics."

The journal managed to survive for another 15 years, but published its last volume in 1973 after announcing a dramatic increase in subscription rates, and yet another change in editorial policy.[16] This time the change was designed to eliminate most expository writing and limit submissions almost entirely to new works devoted to pure mathematics. Having given up its original mission, and now abandoning any effort to promote works of an expository nature in favor of research mathematics alone, *Scripta Mathematica* lost what following it had and was unable to compete with other, more successful journals for pure mathematics.

From Istoriko-Matematicheskie Issledovanya to the Archive for History of Exact Sciences

The first new journal for the history of mathematics to appear after World War II, with its own very interesting history tied directly to Karl Marx and Marx's own critique of the foundations of mathematics, was established in 1948 by the Russian historian of mathematics,

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[16] For decades since its inception, the annual cost of the journal had been $3.00 a volume. This increased modestly to $4.00 a volume in 1952 (beginning with volume 18), and continued without increase for the next 20 years! But with the first issue of 1973, volume 29, a notice appeared on the inside front cover: "Beginning with volume XXX (1974) the subscription price will be $16.00 per volume." The following information was also announced: "Scripta Mathematica is revising its editorial policy and will henceforth accept only papers devoted to new results in any branch of mathematics. Some expository articles of superior quality will also be accepted." This abrupt change in both editorial policy and pricing was apparently not well received, and the next issue of the journal, while noting the fourfold increase in subscription rates, said only that the revised editorial policy meant that henceforth papers "primarily devoted to new results" would be welcome. Whether or not the increase in price to $16.00 a volume was enough to scuttle the journal, the combined change in editorial policy and the dramatic increase in price apparently had an adverse affect on subscriptions.

Adol'f-Andrei Pavlovich Yushkevich, along with Georgiĭ Fedorovič Rybkin: *Istoriko-Matematicheskie Issledovanya* [IMI]. As noted in a recent *éloge* for Yushkevich, one written shortly after his death: "Since that time [1948] IMI has published the great majority of important contributions on the history of mathematics written in Russian, including commentaries and translations of classical works (e.g., the Chinese *Jiu zhang suanshu* and works of Omar Khayyam, N. Oresme, and others), as well as reminiscences of and about celebrated mathematicians, and various types of archival sources" [4, 115].[17]

Two years after the first appearance of *IMI, Centaurus* appeared, although this Danish journal did not emphasize mathematics when it first began publication in 1950. It was not long, however, before the journal recognized the fact that many of the articles it published were in fact related either directly or in part to mathematics. Consequently, beginning with volume 9 in 1964, *Centaurus* featured the history of mathematics prominently on its title page as well as in its contents.

A decade later, in the United States, Clifford Truesdell founded the *Archive for History of Exact Sciences*, with a large and international editorial board. On the occasion of the journal's 35th anniversary, marking publication of its 50th volume in 1996, Truesdell noted that from the beginning he had hoped to set high standards of technical competence and historical insight, standards to which both mathematicians and historians would aspire. In fact, due to its exacting standards, Truesdell has observed that the *Archive* has become mainly a journal for the history of mathematics in the "broad sense of the term" [66, 4].

Kenneth O. May

Kenneth O. May, the American-trained mathematician who emigrated to Canada, devoted most of his career there to promoting the history of mathematics. As an historian, May knew the lessons of Terquem, Boncompagni, Eneström, Ginsburg—in short, the story of journals that came to an end with the deaths of their founding editors. From the beginning, therefore, May sought broad international support, and following discussions at the International Congress of Mathematicians in Nice in 1970, it was decided that the time was right to launch a new journal specifically for the history of mathematics.[18]

May laid a careful foundation for the journal well before its first issue was scheduled to appear. He began with a series of newsletters, the first of which he printed at the University of Toronto in 1971, to begin preparations for the new journal. A second newsletter in 1972 announced a preliminary list of subscribers in 24 countries, and contributions that had been sent to support the new journal totaling more than $2,000.00. In June of 1973 another issue of the *Newsletter* announced, on the eve of the journal's official appearance, that it had 525 subscribers in 32 countries and nearly 100 institutional subscriptions. A grant from the Canada Council of $4500.00 had also been secured to help finance the venture.

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[17] For a detailed account of the life and work of A.P. Yushkevich, see [15].

[18] When May died in 1979, he had only recently negotiated a contract moving the journal from the University of Toronto Press to a viable commercial publisher, Academic Press, which ever since has overseen production of the journal. Meanwhile, by then the International Commission on the History of Mathematics was securely in place, and it continues to be responsible for the journal while taking on other projects of its own as well. For appreciations of May's life and work, and his role in founding both the Commission and *Historia Mathematica*, see [23; 38; 44; 65].

In February 1974, volume one of *Historia Mathematica* (HM) made its appearance, with a cover designed to underscore its universality, giving the journal's name in 10 languages. An editorial warmly congratulated the nearly 1000 subscribers—the goal May had targeted as the number necessary for the journal to survive. In a letter that June to the journal's major supporters, May urged the need for library subscriptions and announced that the Canadian Society for History and Philosophy of Mathematics had adopted *Historia Mathematica* as its official journal. Subsequently, the British Society for History of Mathematics also adopted the journal. As *Historia Mathematica* celebrates its 25th anniversary in 1999, it has clearly established itself as the most successful result of the International Commission on the History of Mathematics, which is responsible, with the journal's editors, for overseeing its production and ensuring that it maintains the highest scholarly standards for the history of mathematics.

Historia Mathematica

When HM published its first official issue in February of 1974, it listed an editorial board of 18 internationally prominent scholars and an equally distinguished list of "collaborators."[19] The initial subscription rate was $22 for libraries, $10 for individuals. Grants from the American Mathematical Society in 1972, and from the Canada Council in 1973 and 1974, helped to subsidize the production of the early numbers of the journal.

In his first issue, May greeted new subscribers with an editorial addressing "Congratulations to the Thousand." It recounted succinctly the steps that had led to the first issue of the journal, but with a warning—two words that breathe fear into the heart of any editor—"no backlog." Strategically, this was one of May's greatest concerns, finding enough good material to justify publication of four quarterly issues each year. He explained the journal and his hopes for its future in these terms:

> There are about 10^3 scholars throughout the world teaching or doing research in the history of mathematics. They are the heirs of a long tradition which goes back beyond Eudemus, who flourished in the 4th century B.C., and includes among its practitioners many of the great mathematicians. By

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[19] The original Editorial Board: Isabella G. Bashmakova (Moscow), Hubertus L.L. Busard (Venlo), I. Bernard Cohen (Cambridge, MA), Martin Dyck (Cambridge, MA), Churchill Eisenhart (Washington, D.C.), Hans Freudenthal (Utrecht), Ivor Grattan-Guinness (Enfield), Thomas W. Hawkins (Boston, MA), Shuntaro Ito (Tokyo), Phillip S. Jones (Ann Arbor, MI), Edward S. Kennedy (Providence, RI), Donald E. Knuth (Stanford, CA), Lam Lay-Yong (Singapore), Michael S. Mahoney (Princeton, NJ), Tamotsu Murata (Tokyo), Luboš Nový (Prague), Ryota Suekane (Kofu), and Hans Wussing (Leipzig).

Collaborators included Garrett Birkhoff (Cambridge, MA), Aleksei Nikolaevich Bogolubov (Kiev), Carl B. Boyer (Brooklyn, NY), Marshall Clagett (Princeton, NJ), Serguei S. Demidov (Moscow), Jean Dieudonné (Nancago and Nice), Shokichi Iyanaga (Tokyo), Galina P. Matvievskaya (Tashkent), Joseph Needham (Cambridge, England), John North (Oxford), Boyan I. Penkov (Sofia), Brian Randell (Newcastle-upon-Tyne), Konstantin Alexeyevich Rybnikov (Moscow), Christoph J. Scriba (Berlin), Samarendra Nath Sen (Calcutta), Dirk J. Struik (Cambridge, MA), René Taton (Paris), Clifford A. Truesdell (Baltimore, MD), Kurt Vogel (Munich), Raymond L. Wilder (Santa Barbara, CA), and Adol'f-Andrei Pavlovich Yushkevich (Moscow).

Institutional sponsors were also listed, among which were the Académie Internationale d'Histoire des Sciences, the American Mathematical Society, the Association of Teachers of Mathematics (Great Britain), the British Society for the History of Mathematics, the Canadian Mathematical Congress, the Canadian Society for the History and Philosophy of Science, the Fibonacci Association, the History of Science Society (US), the London Mathematical Society, the Mathematical Association of America, the Mathematical Association (Great Britain), the National Council of Teachers of Mathematics, and the Société Mathématique de France.

the late 19th century, it had a substantial literature and place in mathematical bibliography. Several specialized journals (Boncompagni's *Bullettino* (1868–1887), Moritz Cantor's *Abhandlungen* (1877–1913), Eneström's *Bibliotheca Mathematica* (1884–1915) and Gino Loria's *Bollettino* (1898–1919)) focused an intensive activity and collected rich sources for future workers. But after World War I, with the new growth of general history of science and the founding of broad journals such as *Isis*, the historians of mathematics seem to have become less visible. The literature was more than ever scattered in the journals of mathematics, education, popularization, and the general history of science. In the sixties, the continuing tradition, which had been kept alive by a number of distinguished workers, enjoyed a revival whose most notable feature was a rapid increase of interest in the mathematics community. At the same time, history of science had developed sufficiently in size and maturity to support specialized journals.

At the Twelfth International Congress on the History of Science at Paris in 1968, René Taton and A. P. Yushkevich suggested the formation of a sub-commission on the history of mathematics to consider the founding of a specialized journal. The Commission was formed the following year and initiated discussion by correspondence. It met for the first time at the International Congress of Mathematics in Nice in 1970. At the Thirteenth International Congress on the History of Science in Moscow in 1971, it was made permanent, an executive committee was appointed, and definite plans for the journal were formulated. The following three years were devoted to establishing communications, publishing a world directory, and preparing for the birth of the new journal. The story is recorded in the five issues (Nov. 1971–June 1973) of the newsletter *HISTORIA MATHEMATICA*. In its pages and by extensive correspondence, consensus was reached on many problems. Others will be worked out in practice. [49, 1–2]

The first issue opened with an article written jointly by Edward S. Kennedy of the American University in Beirut (and Brown University) and Yusuf 'Id of Lebanon on "A Letter of Al-Bīrūnī: Ḥabash al-Ḥāsib's Analemma for the Qibla." Articles on topics devoted to diverse subjects were intended to show the breadth and depth of the discipline; these included Nachum L. Rabinovitch (Jews' College, London) on "An Archimedean Tract of Immanuel Tov-elem (14th century)," Raymond W. Wilder (University of California at Santa Barbara) on "Hereditary Stress as a Cultural Force in Mathematics," Lam Lay-Yong (National Universty of Singapore) on "Yang Hui's Commentary on the *Ying Nu* Chapter of the *Chiu Chang Suan Shu*," Kurt-R. Biermann (DDR) on "Übersiedlung eines deutschen Mathematikers von Braunschweig nach Kazań im Jahre 1807/08: Zur Biographie von M. Bartels, des Lehrers von Gauss und Lobačevskij," Barnabas B. Hughes (California State University at Northridge) on "The Earliest Known Record of California Indian Numbers," and a closing article for the first issue by Fred Ustina (University of Alberta, Edmonton) on "Henry Wilbraham and the Gibbs Phenomenon." Sources, Projects, Meetings, Correspondence, News and Notices, nine book reviews, and abstracts of 50 books and papers comprised the first number of the first volume of *Historia Mathematica*, which ran to a respectable total of 126 pages.

The journal was obviously off to a good start—consciously international in its list of published authors, clearly wide-ranging in its choice of topics. Two years later, in 1976, May began the journal's first issue of volume 3 with an editorial devoted to "Questions of Policy." As he explained:

Thanks to the many colleagues who have contributed papers, helped with editorial tasks, subscribed and obtained subscriptions, or given welcome advice and moral support, *HM* has survived a three-year gestation and two years since birth with every prospect of a long and vigorous life. This issue will go to nearly double the original 700 subscribers. The flow of manuscripts seems likely soon to produce a modest backlog. Enthusiasm and willingness to help are undiminished. International collaboration in the journal is a reality. The journal is solvent in spite of very modest subscription charges. Of course, a

continuation of this happy state of affairs is not automatic. It requires very broad support and participation, and for this reason I wish to share with all readers some questions of policy.

Succession: The distinguished predecessors of HM were associated with their founders and died with them. If HM is to avoid this fate, we must prepare and carry through a prompt transfer of editorial responsibility to younger hands.

Decentralization of editorial decisions: A high degree of centralization was essential in the early stages of preparing and founding the journal. Continued centralized management of finances, subscriptions, communication, copy editing, and printing is most efficient, but there is no such advantage in a narrow assignment of editorial responsibility. On the contrary.

First, this journal is the organ of the international community of historians of mathematics, and as such it should reflect a variety of approaches both substantive and methodological. It should not be the expression of the preferences of only one individual or subgroup.

Second, no one individual can be competent to judge papers in all branches of our subject.

Third, the editorial work is too heavy for one person.

Finally, broad participation is the only way to bring forward new leadership to assure succession. [50, 1]

May went on to announce the formation of a board of associate editors with responsibility for handling manuscripts in all fields; these editors had agreed to arrange for refereeing, working with authors on revision, deciding on acceptance or rejection, and preparing accepted papers for publication. Others had agreed to help with arranging for book reviews. May was still responsible for the abstracts department but had a number of colleagues helping with specific journals. As for the content of the journal, he noted general satisfaction, although a few colleagues dissented, hoping that the quality of papers might be improved. This led May directly to the question of audience, especially differences of opinion over the right degree of specialization for articles published in the pages of *Historia Mathematica*. As May realized, the answer to this question depended upon the journal's readership. Should an article on Newton or Euler, for example, be written for experts, or for a broader audience? May expressed his own opinion as follows:

Papers in *HM* should be addressed to a broad audience of historians of mathematics, historians of science, and mathematicians interested in the history of mathematics. On any particular topic in the history of mathematics there is only a handful of experts in the world. They do not need a journal to communicate with each other! Of course basic documents and treatises of interest only to specialists should be published somewhere because of their value to future as well as contemporary scholars, but they belong in reference works, books, and journals designed for this purpose (inevitably expensive and with narrow circulation). This is not the function of *Historia Mathematica*. In short, I view HM as a journal in the traditional sense of a medium of communication to be read by its subscribers rather than as an archive to be deposited for reference. [50, 2]

On the subject of subscriptions, May acknowledged that the situation was acceptable but could be improved:

The number of subscribers is respectable, but we need more. There remains a substantial potential among both libraries and individuals. Libraries, in spite of curtailed budgets, may be impressed by the fact that ours is a readable journal with a unique coverage and reasonable cost. Individuals could hardly find a comparable bargain among journals. HM costs individuals less than 2¢ a page, compared to as much as 10¢ or more for other journals. But perhaps it is too much of a bargain. In spite of inflation, we have not raised the subscription rate for individuals since the journal was founded. An increase of nearly 400% in postal rates is forcing us to increase the individual rate from $10 ($8 in advance) to $12 ($10 in advance) beginning with the current Volume 3. A larger subscription price would not be out of line. If we can increase the number of subscribers and keep other costs down in spite of inflation, a further increase may be avoided. [50, 3–4]

As for what it was publishing in 1976, the journal continued to represent the broadest possible historical spectrum with articles on the physico-mathematical works of Ibn al-Haytham (by Boris A. Rozenfeld in Moscow), a study of the quantitative growth of modern mathematics in Japan (by Katsuhiko Yoshida in Tokyo), and a discussion of problems related to the history of mathematical analysis which focused specifically on the works of Karl Weierstrass and Richard Dedekind (by Pierre Dugac in Paris). Projects and Meetings accompanied letters to the editor, the Education Department, and nine book reviews, with abstracts provided for 159 books and articles [vol. 3, February, 1976].

To mark the journal's 10th volume, the first number began with an editorial:

> Almost ten years ago, late in 1973, the first issue of *Historia Mathematica* was on the drawing boards following several years of preliminary preparation, with Ken May serving as Editor, Managing Editor, Book Review and Abstracts Editor, Proof Reader and Business Manager, as well as Chairman of the International Commission on the History of Mathematics responsible for publishing the journal. Over the last ten years it has expanded its readership, constituted a board of Associate Editors, and drawn upon the talents of scores of historians of mathematics in all parts of the world to produce, promote, and advise the journal in virtually all phases of its operation.
>
> One of the special accomplishments of *Historia Mathematica* in the last year, in collaboration with Academic Press, has been the production of a supplementary volume of essays entitled *Mathematical Perspectives: Essays on Mathematics and Its Historical Development*. Produced as a *Festschrift* in honor of the 60th Birthday of Kurt-Reinhard Biermann (Director, Alexander-von-Humboldt Research Institute, Berlin, DDR), it is an indication that the journal can serve a variety of formats, especially when the four quarterly issues prove inadequate to cover the amount of high-quality research submitted to the journal. While neither the journal nor Academic Press is committed to the production of any future supplementary volumes, the success of *Mathematical Perspectives* is indicative of the kinds of projects the journal is capable of undertaking in promoting the history of mathematics. [*Historia Mathematica* **10** (1983), 1–2]

Greek was added as a subtitle for the journal beginning with volume 18 (1991); the suggestion had actually been made earlier, by Boris Schein, who wrote May from Saratov (USSR) to suggest that subtitles in Greek and Hebrew both be added: "the lines in non-European langages reflect the contribution of the nations using them to matematics, especially at its earlier states. I am quite sure two more lines (in (Neo-) Greek and Hebrew) would make a nice dozen" [*Historia Mathematica* **3** (1976), 80].

In 1993 the first issue of *Historia Mathematica* for the year opened with an editorial devoted to "A 20th Anniversary Message from the International Commission on the History of Mathematics." As for May's early worries about the journal's future, the editorial observed that:

> Initially, the journal had about 700 paid subscribers from 39 countries, most of whom were English-speaking. Since then, library and institutional subscriptions have increased considerably, and the international diversity of individual subscribers has also broadened. The major difference today, however, is in the amount and quality of material available to the journal. As the first issue of *Historia Mathematica* went to press, May worried that "we have several excellent manuscripts being prepared for printing and others being refereed, but there is no backlog. We need a steady flow of manuscripts."
>
> He need not have worried, for *Historia Mathematica* has built steadily on the interest and reputation of its early issues. In fact, on several occasions, the number of articles accepted for publication has reached the point where Academic Press, its publisher, has agreed to issue a separate volume to accommodate quality work exceeding the space limitations of the journal's regular issues. Another such special volume is now in preparation, edited by Eberhard Knobloch and David Rowe. It will include nine articles and appear as Volume 3 of *The History of Modern Mathematics* (Academic Press). [*Historia Mathematica* **20** (1993), 2]

FIG. 6.   May Medal as shown in *Historia Mathematica* **20** (1993), 3.

To help celebrate the 20th anniversary of the journal, a number of special symposia devoted to the history of mathematics were planned for the XIXth International Congress of History of Science, held in Zaragoza, Spain in August of 1993. Among nearly 20 symposia related to the history of mathematics, the International Commission on the History of Mathematics sponsored five under its own auspices, with a special symposium on "The History of History of Mathematics" dedicated to the memory of Kenneth O. May. The Zaragoza Congress was also the first occasion on which an engraved bronze medal (Fig. 6), designed by the Canadian sculptor, Saulius Jaskus, was presented as part of the Kenneth O. May Prize in History of Mathematics.[20]

Before the international impact and significance of *Historia Mathematica* for the maturing profession of the history of mathematics around the world are assessed, the last elements of context—namely journals for the history of mathematics founded after *Historia Mathematica* appeared in 1974—should be mentioned briefly.

From The Intelligencer to Mathesis

In 1978, Springer Verlag relaunched what earlier had been an in-house publication, largely to benefit advertising, namely *The Mathematical Intelligencer*. Its two founding editors, Bruce Chandler and Harold Edwards—both historians of mathematics—hoped, in the spirit of Leonhard Euler, to promote as much discussion of mathematics among mathematicians as possible. Although it contains a considerable amount of material devoted to the history of mathematics, it is not as academic a publication, nor does it publish as many pages annually, as *Historia Mathematica*. Given its targeted audience—mathematicians rather than historians of mathematics—it is understandable that it would tend to popularize the

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[20] The first two recipients of the May medal, awarded at the International Congress for History of Science (Hamburg) in 1989, were Dirk J. Struik and Adol'f-Andrei Pavlovich Yushkevich. At the Zaragoza Congress in 1993, the medal was awarded to Christoph J. Scriba and Hans Wußing. The most recent recipient of the May medal, announced at the XIXth Congress in 1997 (Liège) was René Taton.

subject to a greater extent than *Historia Mathematica*, which has always been an academic rather than a commercial publication.

In 1979 Radha Charan Gupta founded *Gaṇita Bhāratī*, the *Bulletin of the Indian Society for History of Mathematics*. After slightly more than a decade, by 1991, the journal had published in all nearly 1200 pages, 150 articles, 90 book reviews, and more than 2400 bibliographic notices [*Gaṇita Bhāratī* **12** (1991), 1].

In Italy, thanks to the inspiration of Enrico Giusti and Luigi Pepe, the Italian Mathematical Union, with the strong support of its President, Luigi Pucci, founded the *Bollettino di storia delle scienze matematiche* in 1981. As its prospectus acknowledged, the journal was intended to meet "a growing demand for history in scientific and cultural environments." The name, specifically chosen to emulate Boncompagni's great, earlier enterprise, set a high yet well-known standard. It was also hoped that the *Bollettino* would serve to galvanize an Italian community of historians of mathematics, rather than leaving Italian historians of mathematics to continue working as isolated, individual scholars.

Meanwhile, in Mexico in 1985, Alejandro Garciadiego (one of May's students) founded *Mathesis*, a journal for the philosophy and history of mathematics. Acknowledging the lack of important primary and secondary resources in Spanish, *Mathesis*, from its inception, has published translations of classic works from other languages. An editorial for volume 3, however, was pleased to announce the first issue of *Mathesis* based wholly on original works, although the journal has continued to offer a balance of new material and translations of fundamental studies from other foreign sources.

Studies in the History of Modern Mathematics and the Revue d'histoire des mathématiques

The two most recent journals to appear on the international scholarly scene are both associated with established societies. In 1994, the *Rendiconti del Circolo matematico di Palermo* began publication of a new series as a regular supplement with an English title: *Studies in the History of Modern Mathematics*, under the editorship of Umberto Bottazzini. After discussing the idea with his colleague, Pietro Nastasi, the two met with the editor of the *Rendiconti*, Pasquale Vetro. Arguing that the founder of the *Rendiconti*, Giovani Battista Guccia (1855–1914), had a definite interest in history (he even considered launching a new historical journal himself), Bottazzini and Nastasi proposed to establish just such a journal with an emphasis on the 19th and 20th centuries, as Bottazzini explained in a note introducing the first issue of the new journal.

The newest journal for history of mathematics, the *Revue d'histoire des mathématiques*, was launched by the French Mathematical Society in 1995. This journal concentrates on the modern period, emphasizing the history of mathematics from the 17th century to the present. In an opening editorial, Christian Gilain (then Editor in Chief, with co-editors Jean-Luc Chabert and Amy Dahan Dalmedico) stressed the current dynamic development of mathematics, as well as expanded interest in and research on the history of mathematics, especially in France, as grounds for establishing the new journal.

Arabic/Islamic and Chinese Journals for the History of Mathematics

Although the focus here has been on journals primarily in the West, it should be added that there is also growing interest in the history of science throughout the Near and Far East. This has led, for example, to the founding of the Algerian Society for the History of Mathematics,

which regularly publishes (since 1986) a newsletter of the "Seminar Ibn al-Haytham," and has organized a series of colloquia (five to date) on the history of mathematics in the western Arabic world.[21] In Aleppo, Syria, the Institute for the History of Arabic Science has also been created, and in Frankfurt, Germany, there is the Institute for the History of Arabic–Islamic Science; in each case, the history of mathematics is a prominent component of research.

Following the creation of the People's Republic of China in 1949, a few scholars within the Chinese Academy of Sciences in Beijing formed a Research Group for the History of Science and Technology in the early 1950s. Headed by Li Yan, a pioneering historian of mathematics, a serial entitled *Collected Papers on History of Science* (= *Ke Xue Shi Ji Kan*, 1958–1966) published 80 articles in the course of nine years, 11 of which were concerned with the history of mathematics. The Great Proletarian Revolution, however, put an end to most all academic publications, including this journal, in 1966.

In 1982 the Research Group in Beijing was reestablished and enlarged, whereupon a new journal was founded, *Studies on the History of Natural Sciences* (= *Zi Ran Ke Xue Shi Yan Jiu*). This national publication is sponsored by the Institute of the History of Natural Sciences and the National Society for the History of Science and Technology. The history of mathematics, however, is its most important subject.

In 1990, to satisfy the needs of historians not centered at the Institute in Beijing, Li Di of Inner Mongolia Normal University revived a journal that had been founded by a consortium of scholars in Hang Zhou, Xi'an, and Huhhot in the 1980s, namely the *Collected Research Papers on History of Mathematics* (= *Shu Xue Shi Yan Jiu Wen Ji*), which began publication in 1990 in cooperation with a publisher in Taiwan. Also founded by Li Di, in 1991, with the collaboration of colleagues in Japan and Beijing, is a journal in English devoted to the *Cultural History of Mathematics*, but its appearance has been irregular.

Conclusion

In the final analysis, what significance may be drawn from this history of journals for the history of mathematics? And in acknowledging the 25th anniversary of *Historia Mathematica*, is there a message to be derived from this history?

If this brief survey of journals dedicated to the history of mathematics demonstrates anything, it is the remarkable stability the profession has come to enjoy at the end of the 20th century, and the diversity of publications it supports for the history of mathematics. At the end of the 19th century, there were a number of journals where serious historians of mathematics could publish works of high, scholarly quality. But in virtually every case the early journals were strongly associated with their editors—with Olry Terquem, Baldassarre Boncompagni, Gino Loria, Gustav Eneström, Moritz Cantor. When their editors grew tired of the constant demands of editing, or when they either retired or died, their journals came to equally abrupt ends. None of these early editors seems to have prepared the necessary institutional infrastructure to ensure their journals would survive, and without successors, there was no continuity of interest or responsibility. Lacking any institutional mechanisms of self-perpetuation, the early journals for the history of mathematics were simply abandoned.

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[21] Among other newsletters devoted to the history of mathematics, mention should also be made of the *Newsletter of the British Society for the History of Mathematics*, the *Newsletter of the Commission on the History of Mathematics in Africa* of the African Mathematical Union, and the *Newsletter of the International Study Group on the Relations Between History and Pedagogy of Mathematics*, each of which appears regularly.

Fortunately, this has not been the pattern followed by journals established since World War II. Although single individuals such as Kenneth May may have provided the initial inspiration for the new journals, they have also been supported by national mathematical societies and international bodies like the International Commission on the History of Mathematics. The new journals for the history of mathematics have also prospered due to the growing interest in history of science that now seems well-established as a global phenomenon. This, in turn, has served to ensure that there is not only a rich supply of authors, but the most important factor of all—that there is also an interested readership, a growing audience upon which any periodical, scientific or otherwise, depends.

Journals for the history of mathematics record and survey the cumulative record of the progress of mathematics. Unlike that of any of the other sciences, this is to a considerable extent a truly "living" history. What mathematicians have established as "true" in the past remains a permanent part of mathematics in the present. Thus, it is no surprise that mathematicians have a very special reason for being interested in their history. Traditionally, the first historians of mathematics were mathematicians; often they had pedagogical interests, for there is also a strong correlation in mathematics, given its history, with a "genetic" approach to teaching. Like a palimpsest, journals for the history of mathematics record over time the continuing progress of mathematics.

So, too, *Historia Mathematica*. In its pages can be found editions of original texts, hypotheses about the origins of mathematics in ancient Egypt, Babylonia, Greece, India, and China. Original contributions to Islamic, Hebrew, and medieval mathematics are presented, and virtually every facet of the history of modern mathematics has been considered from multiple points of view. While many articles have taken a traditional, internalist approach, *Historia Mathematica* has also included philosophical, sociological, and even anthropological studies of mathematics.

In short, *Historia Mathematica*, as it begins its 26th year, can look back on 25 years of successful growth and development. And just as Kenneth O. May anticipated when the journal first appeared in 1974, *Historia Mathematica* has in the years since come to serve as "the professional journal of the world community of history of mathematics and the focus of communication between it and the wider communities of mathematicians, historians of science, and others interested in the history of mathematics" [49, 1].

REFERENCES

1. Luca dell'Aglio, Des glissements dans l'historiographie, des mathématiques: Le cas du *Bollettino di bibliografia e storia delle scienze matematiche* de Gino Loria, in *Messengers of Mathematics: European Mathematical Journals (1800–1946)*, ed. Elena Ausejo and Mariano Hormigón, Madrid: Siglo XXI de España Editores, 1993, 283–297.

2. Raymond Clare Archibald, Gino Loria, *Osiris* **7** (1939), 5–10.

3. Gino Arrighi, Baldassarre Boncompagni e la matematica medioevale, in *Atti del convegno "Pietro Riccardi (1828–1898) e la storiografia delle matematiche in Italia" (Modena, 16–18 Marzo, 1987)*, ed. F. Barbieri and F. Cattelani Degani, Modena: University of Modena, 1989, 23–45.

4. Isabella Bashmakova, Aleksandr O. Gelfond, Boris A. Rozenfeld, Konstantin A. Rybnikov, and Sofia A. Janovskaya, Adolf Pavlovic Juskevic, *Uspekhi Matematicheskii Nauk* **22** (1967), 187–194.

5. Isabella Bashmakova, Alexis N. Bogolyubov, Serguei S. Demidov, Boris V. Gnedenko, Eberhard Knobloch, Galina Matvievskaya, David E. Rowe, Boris A. Rozenfeld, Oskar B. Sheynin, and Vladimir M. Tikhomirov, In Memoriam. Adolph Andrei Pavlovich Yushkevich (1906–1993), *Historia Mathematica* **22** (1995), 113–118.

6. Heinrich Behnke, The Man and the Teacher [Otto Toeplitz], *Integral Equations and Operator Theory* **4** (1981), 281–288.

7. Moïse Israel Biding, *La vengeance d'Israel*, Metz: published privately by the author, 1840.

8. Garrett Birkhoff and Sue Ann Garwood, ed., Proceedings of the American Academy Workshop on the Evolution of Modern Mathematics held at the American Academy in Boston, Massachusetts, August 7–9, 1974, *Historia Mathematica* **2** (1975), 425–615.

9. Ralph P. Boas, Award for Distinguished Service to Otto Neugebauer, *American Mathematical Monthly* **86** (1979), 77–78.

10. Ralph P. Boas, Otto Neugebauer, 1899–1990, *Notices of the American Mathematical Society* **37** (1990), 541.

11. Karl Bopp, Moritz Cantor, *Deutsches biographisches Jahrbuch*, vol. 2 (1917–1920), Stuttgart: Deutsche Verlags-Anstalt, 1928, 509–512.

12. Max Born, Professor Otto Toeplitz, *Integral Equations and Operator Theory* **4** (1981), 278–280.

13. Carl B. Boyer, Jekuthiel Ginsburg (1889–1957), *Isis* **49** (1958), 335–336.

14. Florian Cajori, Moritz Cantor, the Historian of Mathematics, *Bulletin of the American Mathematical Society* **27** (1920/1921), 21–28.

15. Karine Chemla, Adolf Andrei Pavlovich Yushkevich, *NTM. Schriftenreihe für Geschichte der Naturwissenschaften, Technik und Medizin* **28** (1986), 1–11.

16. Maximilian Curtze, Zum 70. Geburtstage M. Cantors, *Bibliotheca Mathematica* **1** (1900), 227–231.

17. Joseph W. Dauben, ed., Festschrift in Honor of Erwin Hiebert, *Historia Mathematica* **7** (3) (1980).

18. Joseph W. Dauben, ed., *Mathematical Perspectives: Essays on Mathematics and its Historical Development: Festschrift in Honor of Kurt-R. Biermann*, New York: Academic Press, 1981.

19. Joseph W. Dauben, ed., Festschrift in Honor of Carolyn Eisele, *Historia Mathematica* **9** (3) (1982).

20. Joseph W. Dauben, ed., *The History of Mathematics from Antiquity to the Present: A Selective Bibliography*, New York: Garland Press, 1985.

21. Joseph W. Dauben, Mathematics: An Historian's Perspective, *Philosophy and the History of Science* **2** (1993), 1–21; also in *The Intersection of History and Mathematics: Proceedings of the International Symposium on History of Mathematics* (Tokyo, 1990), ed. Chikara Sasaki, Joseph W. Dauben, and Mitsuo Sugiura, Basel: Birkhäuser, 1993, 1–13.

22. Joseph W. Dauben, *Abraham Robinson: The Creation of Nonstandard Analysis, A Personal and Mathematical Odyssey*, Princeton: Princeton Univ. Press, 1995; paperback ed., 1998.

23. Joseph W. Dauben and Laura Roebuck, Kenneth O. May, 1915–1997, *Historia Mathematica* **5** (1978), 1–2.

24. Joseph W. Dauben, Menso Folkerts, Eberhard Knobloch and Hans Wußing, ed., *States of the Art. Flores quadrivii: Studies in Honor of Christoph J. Scriba*, San Diego: Academic Press, 1996.

25. Philip J. Davis, Otto Neugebauer: Reminiscences and Appreciation, *American Mathematical Monthly* **101** (1994), 129–131.

26. Michele Stefano de Rossi, Commemorazione del socio ordinario Principe D. Baldassarre Boncompagni, *Atti dell'Accademia pontificia dei nuovi lincei* **47** (1893–1894), 131–134.

27. Jean Dieudonné, O. Toeplitz's Formative Years, in *Toeplitz Centennial (Tel Aviv, 1981)*, ed. Israel Gohberg, Basel: Birkhäuser, 1982, pp. 565–574.

28. Gustav Eneström, Ziele und Aufgaben eines Organs für mathematisch-historische Forschung, *Biblioteca Mathematica* **1** (1900), 1–7.

29. Gustav Eneström, Über litterarische und wissenschaftliche Geschichtsschreibung auf dem Gebiete der Mathematik, *Bibliotheca Mathematica* **11** (1911), 1–4.

30. Antonio Favaro, Studi italiani di storia della matematica, *Bibliotheca Mathematica* **6** (1892), 67–84.

31. Antonio Favaro, Don Baldassarre Boncompagni e la storia delle scienze matematiche e fisiche, *Atti del reale istituto veneto di scienze, lettere ed arti* **53** (1894–1895), 509–521.

32. Ignazio Galli, Elogio del Principe Don Baldassarre Boncompagni, *Atti dell'Accademia pontificia dei nuovi lincei* **47** (1893–1894), 161–170.

33. Jekuthiel Ginsburg, The Policy of *Scripta Mathematica*, *Scripta Mathematica* **1** (1932), 1–2.

34. Ivor Grattan-Guinness, History of Science Journals: 'To Be Useful, and to the Living'? *Annals of Science* **34** (1977), 193–202.

35. Karl-Gustav Hagstroem, Gustaf Eneström. Till hundraårsminnet av hans födelse, *Nordisk Matematisk Tidskrift* **1** (1953), 145–155 and 182.

36. Joseph E. Hofmann, Moritz Benedikt Cantor, Neue deutsche Biographie, vol. 3, Berlin: Duncker & Humblot, 1957, 129.

37. Sugathadasa A. Jayawardene, Renaissance Mathematics (and Astronomy) in Baldassarre Boncompagni's *Bullettino di Bibliografia e di Storia delle Scienze Matematiche e Fisiche* (1868–87), in *Mathematics from Manuscript to Print, 1300–1800*, ed. Cynthia Hay, New York: Oxford Univ. Press, 1988, pp. 190–194.

38. Charles V. Jones and Philip C. Enros, Kenneth O. May, 1915–1977: His Early Life to 1946, *Historia Mathematica* **11** (1984), 359–379.

39. Eberhard Knobloch and David Rowe, ed., *History of Modern Mathematics*, vol. 3, Orlando: Academic Press, 1995.

40. Helga Koch, Oskar Schlömilch—Ein Schuler Dirichlets, *Wissenschaftliche Zeitschrift der Technischen Hochschule Otto Von Guericke-Magdeburg* **30** (1986), 82–85.

41. Helga Koch, Oskar Xaver Schlömilch—Ein Förderer des mathematischen Unterrichts für Techniker und Ingenieure, *NTM-Schriftenreihe für Geschichte der Naturwissenschaften, Technik und Medizin* **27** (1990), 1–10.

42. Gottfried Kothe, In Memory of Otto Toeplitz, *Toeplitz Centennial (Tel Aviv, 1981)*, ed. Israel Gohberg, Basel: Birkhäuser, 1982, 545–556.

43. Gottfried Wilhelm von Leibniz, Historia et origio calculi differentialis, in *Mathematische Schriften*, ed. Carl Immanuel Gerhardt, vol. 5, Leipzig: Benediktus Gotthelf Teubner, 1858; reprinted Hildesheim: Georg Olms, 1962, 329–410.

44. Trevor Levere, Kenneth O. May (1915–1977), *Archives internationales d'histoire des sciences* **31** (1981), 199–200.

45. Wilhelm Lorey, Gustav Eneström: In Memoriam, *Isis* **8** (1926), 313–320.

46. Gino Loria, Sur les moyens pour faciliter et diriger les études sur l'histoire des mathématiques, *Atti del IV Congresso internazionale dei matematici, Rome, April 6-11, 1908*, Rome: Tipografia della R. Accademia dei Lincei, C.V. Salviucci, 1909, vol. 3, pp. 541–548; also published in *Archiv für Geschichte der Naturwissenschaften und der Technik* **1** (1909), 1–7.

47. Gino Loria, La Storia della matematica vista da un veterano, *Bollettino della Unione matematica italiana* **5** (1950), 165–170.

48. Jesper Lützen and Walter Purkert, Conflicting Tendencies in the Historiography of Mathematics, M. Cantor and H.G. Zeuthen, in *The History of Mathematics*, vol. 3, ed. Eberhard Knobloch and David E. Rowe, Boston: Academic Press, 1995, pp. 1–42.

49. Kenneth O. May, Congratulations to the Thousand, *Historia Mathematica* **1** (1974), 1–2.

50. Kenneth O. May, Questions of Policy, *Historia Mathematica* **3** (1976), 1–4.

51. John McCleary and David E. Rowe, ed., *History of Modern Mathematics: Proceedings of the Symposium on the History of Modern Mathematics, Vassar College, Poughkeepsie, New York, June 20–24, 1989*, 2 vols., Orlando: Academic Press, 1989.

52. Rudolf Mehmke and Carl Runge, Künftige Ziele der Zeitschrift für Mathematik und Physik, *Zeitschrift für Mathematik und Physik* **46** (1901), 8–10.

53. Otto Neugebauer, Vorwort, *Quellen und Studien* (Series A) **3** (1935), v–x.

54. Lewis Pyenson, Inventory as a Route to Understanding: Sarton, Neugebauer, and Sources, *History of Science* **33** (1965), 253–282.

55. David Pingree, In Memorian Otto Neugebauer (1891–1990), *Archives internationales d'histoire des sciences* **40** (1990), 82–84.

56. David Pingree, Eloge: Otto Neugebauer, 26 May 1899–19 February 1990, *Isis* **82** (1991), 87–88.

57. Eugène Prouhet, Notice sur la vie et les travaux d'Olry Terquem, *Bulletin mathématique* **8** (1862), 81–90.

58. George Sarton, For Gustav Eneström's Seventy-First Anniversary, *Isis* **5** (1923), 421.

59. Julius Schuster, Die Geschichte der Naturwissenschaften und wir, *Archiv für Geschichte der Mathematik, der Naturwissenschaften und der Technik* **10** (1928), 1–11.

60. Noel M. Swerdlow, Otto E. Neugebauer (26 May 1899–19 February 1990), *Journal for the History of Astronomy* **29** (1993), 289–299.

61. Olry Terquem, Notice sur la découverte des logarithmes, *Bulletin de bibliographie, d'histoire et de biographie mathématiques* **14** (1855), 1–2.

62. Alessandro Terracini, Gino Loria: Cenni commemorativi, *Atti dell'Accademia delle scienze di Torino* **88** (1953–1954), 6–11.

63. Alessandro Terracini, Commemorazione del socio Gino Loria, *Atti della Accademia nazionale dei lincei, Rendiconti, classe di scienze fisiche, matematiche e naturali* **17** (1954), 402–421.

64. Uri Toeplitz, Toeplitz, Otto, *Toeplitz Centennial (Tel Aviv, 1981)*, ed. Israel Gohberg, Basel: Birkhäuser, 1982, pp. 545–556.

65. Henry S. Tropp, Kenneth O. May, July 8, 1915–December 1, 1977, *Isis* **70** (1979), 419–422.

66. Clifford C. Truesdell, The Thirty-Fifth Anniversary of this Archive, *Archive for History of Exact Sciences* **50** (1996), 1–4.

67. Johan Adriaan Vollgraff, Kurze Bemerkungen, und Zitate, über Vergangenheit und Zukunft der Mathematik, so wie Gino Loria (1862–1954) versucht hat sich derselben zu denken, *Synthese* **9** (1954), 485–491.

68. André Weil, History of Mathematics: Why and How, in *Proceedings of the International Congress of Mathematicians, Helsinki, 1978*, ed. Olli Lehto, Helsinki: Academia Scientiarum Fennica, 1980, vol. 1, pp. 227–236.

69. Adol'f-Andrei Pavlovich Yushkevich, Ot Redaktsii, *Istoriko-Matematicheskie Issledovanya* **1** (1948), 7–8.