

XIII

THE SECRETARIES

From the founding of the Society to the present time there have been but three chief secretaries, each a man exceptionally endowed for the conduct of the Society's affairs on a high plane. According to the first Constitution of Dec. 1888, the only officers of the Society were a president and a secretary; there were then only six members. But in the next three years when the number of members increased to 210, there were still only two officers, but one of them held the dual position as secretary and treasurer. Beginning with 1892, however, the offices of secretary and treasurer were legally distinct, and have so remained ever since. To the end of 1923, secretaries were elected annually, but since then, biennially. The first meeting of the Council of the Society was in Oct. 1891. From then until Apr. 1894, H. Jacoby was secretary of the Council, and not until May 1894, did T. S. Fiske, the secretary of the Society, become also the secretary of the Council. Thereafter it was assumed that the secretary of the Society and Council should be the same person.

One of the notable features of the Society's development was the establishment of the Chicago Section in 1897. In Oct. 1913, after more than sixteen years of scientific activity of a high order, meetings of the Chicago Section so far as concerns the presentation of scientific papers were considered as meetings of the Society, and in the following Feb. the Constitution of the Society was amended, so as to provide that the secy. of the Chicago Section should be an officer of the Society. Beginning with 1924, meetings of the Society in Chicago were in all respects equivalent to meetings in New York, and among the officers of the Society an assistant secy. took the place of the former secy. of the Chicago Section; see chap. VII. There were then 1250 members. The endowment campaign of 1923-25, and the membership campaign, bringing the total number of members up to 1758 by 1927, added enormously to the burdens of the secretary in the east. Hence the Council decided that an additional secretary was needed, and beginning with 1928 the new secretary in the east and the former assistant secretary of the middle west were called "associate secretaries."

A San Francisco Section of the Society had been organized in 1902. After 56 meetings of this Section the Council voted, in Dec. 1928, to grant the request of the Section that meetings on the Pacific slope should thereafter be designated as regular meetings of the Society. This led to a third associate secy., for the Pacific Coast, being added to the officers of the Society in 1930. After the associate secy. of the middle west had se-

cured so many institutional members for the Society (see chap. III), it was thought wise for him later to devote himself largely to problems connected with the membership of the Society. As a result, another associate secy. was added in the middle west beginning with 1938.

A complete list of the various secretaries who have been officers of the Society is as follows:

- T. S. Fiske, secy. Dec. 88-89 and 92-95; secy. and treas. 90-91.
- F. N. Cole, secy. 96-20.
- R. G. D. Richardson, secy. 21-.
- H. E. Slaughter, secy. Chicago Sect. Feb. 14-15.
- A. Dresden, secy. Chicago Sect. 16-23; assist. secy. 24-Aug. 27; assoc. secy. 28-30.
- M. H. Ingraham, assist. secy. Sept.-Dec. 27; assoc. secy. 28-.
- T. M. Putnam, assoc. secy. 30-.
- T. Fort, assoc. secy. 31-32.
- J. R. Kline, assoc. secy. 33-36.
- T. R. Hollcroft, assoc. secy. 37-.
- W. L. Ayres, assoc. secy. 38-.

From the first, associate secys. have been elected for biennial terms.

Biographical and bibliographical details concerning the first secretary, Prof. Fiske, have been given in chap. XV. Similar sketches of the second and third secretaries now follow.

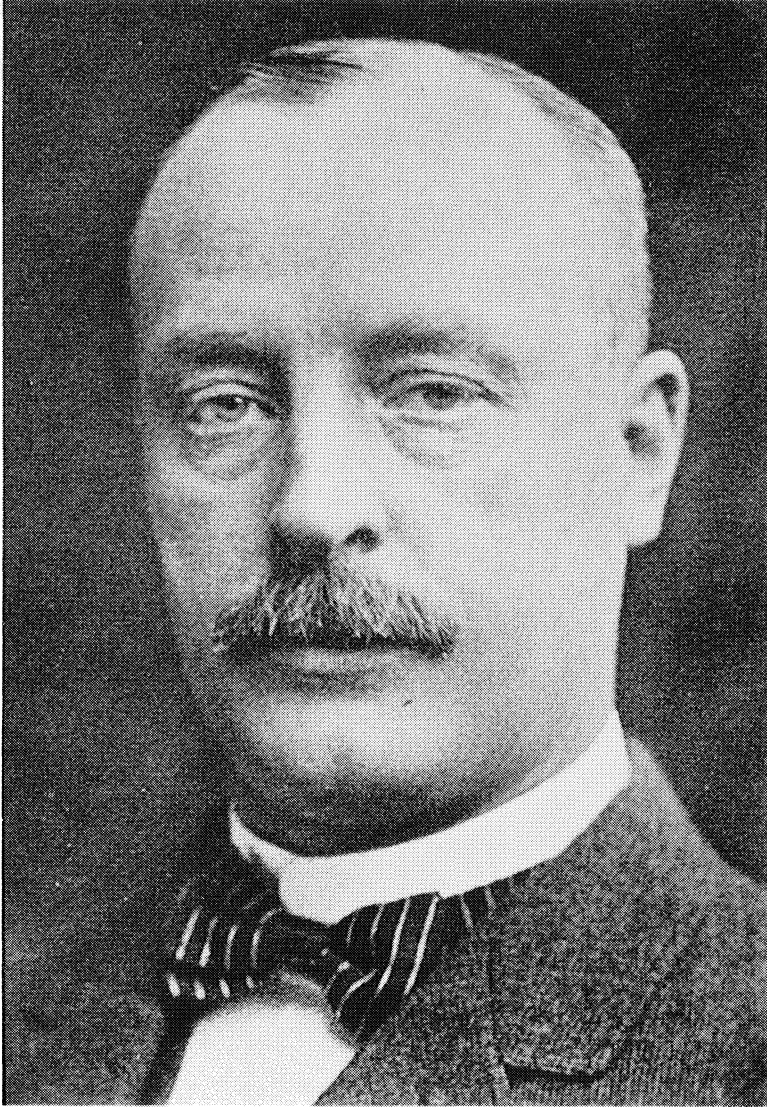
FRANK NELSON COLE

CURRICULUM VITAE.—B. Ashland, Mass. 20 Sept. 1861; d. New York, 26 May 1926. Prepared in the high school at Marlboro (Mass.) for entry into Harvard U. (78-83; A.B. 82 summa cum laude, second in a class of 189; Parker fellow U. Leipzig 83-85; lecturer on the theory of functions 85-86; A.M. and Ph.D. 86; lecturer in math. 86-87; tutor 87-88). Instr. U. Michigan (88-89; assist. prof. 89-95), prof. Columbia U. (95-26). Secy. faculty of pure science, Columbia U. 08-23; mem. comm. admissions Barnard C. 01-14.

HONORS.—Secy. AMS 96-20. Ed. in chief *AMS Bull.* Feb. 99-20. Starred *Amer. Men Sci.* 06. VP AMS 21; refused nomination as P. *AMS Bull.*, v. 27, dedicated to F.N.C. 21.

BIOGRAPHICAL NOTES: Prof. Cole was the third son in a family of ten children of Otis and Frances Maria (Pond) Cole, and a descendant of Timothy Cole, who settled at Rehoboth, Mass., prior to 1690. Otis Cole "was a farmer, an expert judge of standing timber and for a time interested in manufacturing. Moreover, he had a taste for mathematics and was a lover of flowers and trees. From both parents Prof. Cole inherited a taste for learning and a stability of character which showed themselves all through his life."

After two years under Klein at Leipzig, Cole spent the next three years at Harvard, where his career as an undergraduate had been so brilliant. Aglow with enthusiasm, he gave courses in modern higher algebra, and in the theory of functions of a complex variable, geometrically treated, as in Klein's famous course of lectures at Leipzig in 1881-82. He was the



F. N. Cole,

1900

first to open up modern mathematics to Prof. Osgood, as a student, who characterized the lectures as "truly inspiring." Another student, M. Bôcher, as well as nearly all members of the Department, Profs. J. M. Peirce, B. O. Peirce and W. E. Byerly, attended his lectures. He received the doctor's degree from Harvard for a dissertation on a topic, suggested by Klein, in the theory of the general equation of the sixth degree (Bibl. no. 2). All this was before the Society was founded.

The seven years at the U. Michigan were the most productive period of Cole's life, scientifically (nos. 4-14), and he was constantly eager to join in movements for promoting research (see chap. IV). His translation of Netto's *Theory of Substitutions* (no. 8) was of great service, it placed before the student the first textbook in English, in a form greatly improved over the German original, because of Netto's cooperation in revising. He made some definite contributions to group theory in his papers on simple groups (nos. 11, 12, one with Glover). Other details are given in Fiske's memoir listed below. At U. Michigan he found at least one able and appreciative pupil, G. A. Miller, who was under his influence for some time, as student and colleague.

In the period of thirty-one years that Cole was connected with Columbia U. he published eight scientific papers, over one hundred reports of meetings of the AMS (no. 15) and innumerable unsigned notes containing items of interest to followers of mathematics. Brief comment may be made concerning three of his papers in the Columbia period. In paper 17 he proved for the first time that the Mersenne number $2^{67}-1$ was composite and gave the factors. He also gave a satisfactory proof that $2^{61}-1$ was prime, which could not be said of Seelhoff's earlier discussion. Papers 21 and 22 were an outgrowth of the Netto translation, since in that book the question as to whether every triad system must have a transitive group, is left indefinite. In collaboration with Miss Cummings and Prof. White, but by entirely independent methods he contributed a notable part in entirely settling the questions arising in this regard. Paper 23 on "Kirkman parades" was essentially an extract from this larger work, and served conclusively to settle the "fifteen school-girls problem," first enunciated in the *Lady's and Gentleman's Diary* for 1850.

For a quarter of a century no one could think of the AMS apart from the personality of Prof. Cole. His scholarly care and his literary skill moulded the AMS *Bull.*; his personality dominated the scientific and business sessions for which he made such careful preparations; he was held in esteem by all and in affection by the many who had the good fortune to come into close touch with him. For details regarding the Frank Nelson Cole Fund, established as a token of esteem by more than two hundred contributors, see chap. III. In Dec. 1920 the P Carnegie Inst., R. S. Woodward, fifth P of the Society (see chap. XV) wrote to Prof. Cole as follows:

Hearing that you are to retire presently from the Secretaryship of the American Mathematical Society, and being in a somewhat reminiscent mood by reason of my own retirement at the end of this year from a similar occupation, I write to salute you and to express the personal satisfaction to be found in the fact that I shall not be alone on the retired list.

But I write more particularly to express my esteem and appreciation of the capital services you have rendered the American Mathematical Society. These have involved long, arduous and discriminating labors with a large number of colleagues whose critical faculties have been unduly sharpened perhaps by their favorite pursuits in the most rigid of sciences. It is no easy task for a man to get on with his neighbors under such circumstances.

But passing over matters of detail, the thing for us and for our successors to give attention to is the large aggregate of solid contributions to our favorite science which you have done so much to make of record. Our national scientific societies are cooperative enterprises of the most complex and difficult character, and in their evolution the secretaries must play the leading role. The members of the American Mathematical Society are deeply indebted to you, and as one of these members I am glad to express my personal sense of obligation and esteem for the unremitting labors you have given so freely in the interests of the Society.

Prof. Cole's death, resulting from an infected tooth, occurred only a short time before he had planned to retire from the faculty at Columbia U. and to live on a farm in Chatham, N.Y. He loved to take long walks in the country, and longer tramps in the Catskills, studying trees and wild flowers.

Prof. Ziwet recalled, "I do not think that 'cheerfulness' could properly be predicated of Cole's disposition at any time of his life. He always took life seriously, and his vigor and enthusiasm impressed even those of his students who could not always follow him. He was an individualist, and his rugged democracy had nothing but scorn for many of the conventions and insincerities of life."

Dean Gildersleeve wrote that Prof. Cole was one of the three distinguished scholars "whom President Low called to Barnard to give prestige to the Faculty of the infant college. A distinguished mathematician, a good teacher, a loyal friend, he won the regard and the affection of his associates.

"For the apparent eccentricities of his private life there must have been some sound reason, creditable to him. Those of us who know his gentle and lovable personality are sure of that.

"It seems unfitting that he should pass without at least this tribute of gratitude and affection from the College which he served so loyally and so long."

SOURCES.—T. S. Fiske, *AMS Bull.*, v. 33, 1927. D. E. Smith, *DAB*, v. 4, 1930. E. D. Harris, *A Geneal. Record of Daniel Pond and his Descendants*, Boston, 1873, p. 122. W. F. Osgood, "Professor Böcher's scientific start in life," *AMM*, v. 26, 1919, p. 262. *Nat. Cycl. Amer. Biog.*, v. 21, 1931. *Who's Who in Amer.*, v. 14. *Amer. Men Sci.*, 4th ed. *New York Times*, 1926, May 27, p. 25; May 28, p. 1; May 29, p. 24 (C. Seely); May 30, p. 14 (funeral services); May 30, p. 14 (editorial, "An example to the professoriat"); June 3, p. 8 (tribute by V. C. Gildersleeve); June 7, p. 18 (letter from J. G. Weld, a classmate).

BIBLIOGRAPHY

1. "The potential of a shell bounded by confocal ellipsoidal surfaces," *AACAS Proc.*, n.s., v. 10, 1883, p. 226-231.
2. "A contribution to the theory of the general equation of the sixth degree," *AJM*, v. 8, 1886, p. 265-286. Doctoral diss.
3. "Klein's Ikosaeder," *AJM*, v. 9, 1887, p. 45-61.
4. "On rotations in space of four dimensions," *AJM*, v. 12, 1890, p. 191-210.
5. "The linear functions of a complex variable," *AM*, v. 5, 1890, p. 121-176+4 plates.
6. "The diurnal variation of barometric pressure," U. S. Weather Bureau, *Bull.*, v. 6, 1892, 32 p.
7. "Simple groups from order 201 to order 500," *AJM*, v. 14, 1892, p. 378-388.
8. *The Theory of Substitutions and its Applications to Algebra*, by Dr. E. Netto, rev. by the author and trans. with his permission by F. N. Cole, Ann Arbor, 1892, xii+301 p.
9. "Note on the substitution groups of six, seven, and eight letters," *NYMS Bull.*, v. 2, 1893, p. 184-190; v. 3, 1894, p. 169.
10. "The transitive substitution-groups of nine letters," *NYMS Bull.*, v. 2, 1893, p. 250-258; "List of substitution groups of nine letters," *QJM*, v. 26, 1893, p. 372-388.
11. "On groups whose orders are products of three prime factors," (with J. W. Glover), *AJM*, v. 15, 1893, p. 191-220.
12. "Simple groups as far as order 660," *AJM*, v. 15, 1893, p. 303-315.
13. "List of the transitive substitution groups of ten and of eleven letters," *QJM*, v. 27, 1894, p. 39-50.
14. "On a certain simple group," *Intern. Congress Mathems.*, Chicago, 1896, p. 40-43.
15. Reports as secretary of the AMS, *AMS Bull.*, v. 3-27, 1896-1920, 1154 p.
16. Letter to Professor H. S. White about AMS, Carnegie Inst. *Yearbook*, v. 1, 1902, p. 235-238.
17. "On the factoring of large numbers," *AMS Bull.*, v. 10, 1903, p. 134-137, 362.
18. "The groups of order p^2q^2 ," *AMS Trans.*, v. 5, 1904, p. 214-219.
19. "The triad systems of thirteen letters," *AMS Trans.*, v. 14, 1913, p. 1-5.
20. "Note on solvable quintics," *AMS Bull.*, v. 21, 1915, p. 462-464.
21. "The complete enumeration of triad systems in fifteen elements" (with L. D. Cummings and H. S. White), *NAS Proc.*, v. 3, 1917, p. 197-199.
22. "Complete classification of the triad systems on fifteen elements" (with L. D. Cummings and H. S. White), *NAS Mem.*, v. 14, no. 2, 1919, 89 p.
23. "Kirkman parades," *AMS Bull.*, v. 28, 1922, p. 435-437.
24. "On simple groups of low order," *AMS Bull.*, v. 30, 1924, p. 489-492.
25. Reviews of books by Klein and C. A. Scott in *NYMS* and *AMS Bull.*, 1892-96.

ROLAND GEORGE DWIGHT RICHARDSON

CURRICULUM VITAE.—B. Dartmouth, Nova Scotia, 14 May 1878. Entered Acadia C. (96-98; A.B. 98); teacher of a school at Margaretsville, N.S. (95-96, 98-99), principal high school at Westport, N.S. (99-02). Student at Yale U. (02-06; A.B. 03; A.M. 04; instr. math. 04-07; Ph.D. 06). Assist. prof. math. Brown U. (07-12; assoc. prof. 12-15; prof. and head of the dept. since 15; dean of the graduate school since 26; acting VP first sem. 28-29). Naturalized citizen of U.S. 23 May 32. Lect. U. Chicago summer 18. Lect. U. California summer 20.

HONORS.—Fellow AACAS 14. VP MAA 19. VP AMS 20. Starred *Amer. Men Sci.* 21. Secy. AMS 21-. Trustee AMS 24-. Trustee Teachers Ins. and Annuity Assoc. 26-35. Representative in Amer. Sect. Intern. Math. Union 24-28. Mem. AMS Semicentennial comm. 28-38. Hon. D.C.L. Acadia U. 31. Del. from AMS to Intern. Math. Congress Zürich 32. Mem. Council

AAcAS 32-34. Mem. Div. Phys. NRC 33-36. Mem. visiting comm. dept. math. M.I.T. 34-36. On behalf of Brown U. P Assoc. Amer. Universities 37. Secy. AMS organizing comm. for Intern. Congress Mathems. 1940, 37-.

BIOGRAPHICAL NOTES.—Prof. Richardson is a son of George Josiah and Rebecca A. (Newcomb) Richardson. His mother was a direct descendant of Simon Newcomb (b. in Maine c. 1665), from whom Simon Newcomb the astronomer, fourth P AMS, was also descended. Prof. Richardson inherited a love of learning from both of his parents. His chief source of mathematical inspiration at Yale was Prof. Pierpont, and part of his doctoral diss. on improper multiple integrals (Bibl. no. 1) was a continuation of a paper on the same subject by Pierpont. His mathematical research deals with different topics in analysis (nos. 1, 3-10, 14-16, 19) and his results in oscillation theorems are particularly important. During 1908-09 he pursued studies and research at the U. Göttingen, when Hilbert and Klein were still active and attracting many disciples. While carrying the very heavy load as secy. of the AMS, and as a dean building up a greater graduate school at Brown U., in addition to directing a department, he does all that lies in his power to promote mathematical research by others. In chapter III some of his contributions to the development of the Society have been suggested, but his other contributions are manifold. His willingness to add to his burdens by heading the secretariat of the organizing comm. for the forthcoming Intern. Math. Congress, in order to serve the cause of American mathematics to the full extent of his strength, is characteristic. As an organizer he has remarkable gifts. Quite apart from the obligations connected with his office, scores of members of the Society can recall how their academic careers have been advanced by Prof. Richardson's thoughtful and timely acts, and countless others remember kind deeds in their behalf, outpourings from the fullness of his generous spirit. His whole-hearted service in helping to place foreign scholars is also not forgotten. So far as the Society is concerned he must surely be regarded as a worthy successor to Fiske and Cole. May his recorded favorite recreations of golf and fishing never be neglected!

SOURCES.—*Nat. Cycl. Amer. Biog.*, v. C, 1930, portrait. *Who's Who in Amer.*, v. 19. *Canadian Who's Who*, v. 2, 1936. B. M. Newcomb, *Andrew Newcomb 1618-1686 and his descendants*, New Haven, 1923, p. 393. *Amer. Men Sci.*, 5th ed.

BIBLIOGRAPHY

1. "Improper multiple integrals," *AMS Trans.*, v. 7, 1906, p. 449-458; correction, v. 9, 1908, p. 371-372. Doctoral diss. Another part of the diss. was developed in no. 3.
2. "The Cologne meeting of the Deutsche Mathematiker-Vereinigung," *AMS Bull.*, v. 15, 1908, p. 117-119.
3. "The integration of a sequence of functions and its application to iterated integrals," *AMS Trans.*, v. 9, 1908, p. 339-371. See note for no. 1.
4. "Note on determinants whose terms are certain integrals" (with W. A. Hurwitz), *AMS Bull.*, v. 16, 1909, p. 14-19.



P. G. D. Richardson

1937

5. "Das jacobische Kriterium der Variationsrechnung und die Oszillationseigenschaften linearer Differentialgleichungen 2. Ordnung," *MA*, v. 68, 1910, p. 279-304; v. 71, 1911, p. 214-232.
6. "On the saddlepoint in the theory of maxima and minima in the calculus of variations," *AMS Bull.*, v. 17, 1911, p. 177-184.
7. "Theorems of oscillation for two linear differential equations of the second order with two parameters," *AMS Trans.*, v. 13, 1912, p. 22-34.
8. "Über die notwendigen und hinreichenden Bedingungen für das Bestehen eines Kleinschen Oszillationstheorems," *MA*, v. 73, 1913, p. 289-304; Berichtigung, v. 74, 1913, p. 312.
9. "A new method in boundary problems for differential equations," *AMS Trans.*, v. 18, 1917, p. 489-518.
10. "Contributions to the study of oscillation properties of the solutions of linear differential equations of the second order," *AJM*, v. 40, 1918, p. 283-316.
11. "Courses in college in preparation for the navy," *AMM*, v. 25, 1918, p. 321-325.
12. Reports as secretary of the AMS, *AMS Bull.*, v. 27-43, 1921-37, 585 p.
13. Nine lists of officers and members of AMS, 1922-38, 49-80 p. each.
14. "On the reality of the zeros of a λ -determinant," *AMS Bull.*, v. 29, 1923, p. 467-469.
15. "A new method in the equivalence of pairs of bilinear forms," *AMS Trans.*, v. 26, 1924, p. 451-478.
16. "Relative extrema of pairs of quadratic and hermitian forms," *AMS Trans.*, v. 26, 1924, p. 479-494.
17. "Time and space," *Brown Alumni Monthly*, v. 24, 1924, p. 187-197.
18. Reports as Dean of the Graduate School, *Brown Univ., Report of the President to the Corporation*, 1927-36, 65 p.
19. "A problem in the calculus of variations with an infinite number of auxiliary conditions," *AMS Trans.*, v. 30, 1928, p. 155-189.
20. *Theory of Linear Differential Equations of the Second Order* (mimeographed lectures). Providence, 1929, 5+83 p.; reprinted 1934.
21. "International congress of mathematicians, Zürich, 1932," *AMS Bull.*, v. 38, 1932, p. 769-774.
22. "The present need of a constructive review of graduate schools," *AAU Journ. Proc. and Addresses*, 1935, p. 119-134.
23. "The Ph.D. degree and mathematical research," *AMM*, v. 43, 1936, p. 199-215.
24. Reviews of books by Betz and Webb, and Bôcher in *AMS Bull.*, 1916-19.