

BIOGRAPHICAL MEMOIR
OF
FRANCIS AMASA WALKER.
1840-1897.

BY
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With kindest regards,
Yours faithfully,
James S. Walker

BIOGRAPHICAL MEMOIR OF FRANCIS AMASA WALKER.

FRANCIS AMASA WALKER, member and Vice-President of the National Academy of Sciences, was born in Boston, Mass., July 2, 1840, and died in the same city January 5, 1897. He was a son of Amasa Walker, the well-known teacher and writer, whose studies in political economy had great influence in directing his own line of work. He graduated at Amherst in 1860, and studied law in the office of Devens and Hoar, of Worcester, Mass., until the commencement of the civil war, when he enlisted as sergeant major in the Fifteenth Massachusetts, under the command of Colonel Devens.

He soon received a commission as captain and was rapidly promoted through the several grades to that of brigadier general, serving on the staffs of Generals Couch, Humphreys, Warren, and Hancock, being long connected with the latter, and the author of the History of the Second Army Corps and of the Life of General Hancock. He was severely wounded in 1863, and was captured in 1864 and confined for a time in Libby Prison. After the war he was on the editorial staff of the *Springfield Republican* in 1868; was Chief of the Bureau of Statistics in Washington from January, 1869, to February, 1870, and then became Superintendent of the Census. In 1872 he accepted the chair of political economy in the Sheffield Scientific School at New Haven; in 1879 he became Superintendent of the Census, and in 1881 he accepted the presidency of the Massachusetts Institute of Technology, which he held until his death. He was Commissioner of Indian Affairs in 1871, Chief of the Bureau of Awards of the Philadelphia Exposition in 1876, United States Commissioner to the International Monetary Conference at Paris in 1878, President of the American Statistical Association in 1882, and President of the American Economic Association in 1886. His career was a brilliant one in many fields of labor, and in most of them it was his peculiar ability as an organizer and administrator which gave him preëminence. He was a born leader—bold, frank, sincere, and entirely devoted to his work—

and in the public offices which he held and as chief of a great educational institution his subordinates and assistants became, almost without exception, his loyal and devoted friends. He was elected a member of the National Academy of Sciences in 1878, as being the most distinguished American representative of the scientific side of economics and statistical methods. His most important contributions to the theories of economics were his "Law of Wages" and his "Law of Profits." In his work on "The Wages Question," New York, 1876, he opposed the then prevailing theory that wages were paid out of what was called "a wages fund," taking the ground that while wages may be, and often are, paid out of capital in advance of the product, yet that they are ultimately paid from the product, and must in the long run be less than the product by enough to give the capitalist his due returns and the employer his living profits. This work was largely critical, being destructive rather than constructive, but it has had great influence upon the modern teaching on that subject. Subsequently he developed the theory that rent, interest, and profit depend upon certain fixed laws, and that whatever does not belong by these laws to rent, interest, and profit belongs to the laborer. This theory is not generally accepted by recent writers on the subject, although they admit that it accords with recent facts which they would explain in another way. It is not my purpose in this brief sketch either to set forth General Walker's economic views or to criticise them, and I will only say that while his theories on bimetallism are not generally accepted by recent writers on the subject, they were by no means those of the so-called "Silver Party," and that he strongly disapproved of the legislative measures which were proposed by this party in 1896, at the time when his work on international bimetallism was published.

A characteristic feature of General Walker's views on questions in economics and political science is that they take into account the emotional and altruistic side of human nature, as well as the purely intellectual and selfish side. The ethical relations of men in different countries at different times, and under different conditions of popular opinion as to the moral obligations of men of different classes, occupations, and interests had much weight with him in the formation of his opinions upon economic questions, and abstract propositions derived

from the mathematics of exchange did not entirely govern his decisions as to what was the wise and right thing to do in a particular concrete case. In his own words, the political economist should take into account certain motives which influence men in respect to wealth, such as "love of country, love of home, love of friends, mutual sympathy among members of the same class, * * * good will between landlord and tenant, between employer and employed, the power of custom and tradition, the force of inertia, ignorance, and superstition."

He accepted the statement of Lightwood that "the object of law is to regulate the relations existing between men in such a way as to satisfy the sense of right existing in the community."* The laws of theoretical economics have been compared to the mathematical formula for the course of a cannon ball. This formula is valuable, but in its practical application the resistance of the air, the direction and force of the wind, and slight peculiarities in the gun itself must be taken into account if the mark is to be hit.

General Walker was not a sentimentalist or a socialist, but he was a warm-hearted man, full of vitality and sympathy, which influenced his writings and made them understandable by, and interesting to, a great mass of people not familiar with the technical details of so-called scientific economics.

As a statistician, his reputation rests mainly on his work in connection with the United States censuses of 1870 and 1880. He reorganized the methods of the census and broadened its scope, so that its published results have become of great importance in statistical literature, incomplete and imperfect as some of them undoubtedly are. His object was to give a comprehensive view of this country at the end of the first century of its existence so far as this could be done by statistical methods, and in this he was fairly successful. He did not propose that this should be repeated every ten years, but advised that a permanent Census Bureau should be established to carry on the work on more limited and strictly scientific lines. His successors at the head of the Census Bureau have worked along the lines laid down by him, and have also advocated the establishment of the

* The Nature of Positive Law, by John M. Lightwood, p. 26, London, 1883.

permanent Census Bureau, which has recently become an accomplished fact.

Of his work as an educator it is unnecessary to speak here. Its record will be found in the history of the Massachusetts Institute of Technology and in the paper by H. W. Tyler on "The Educational Work of Francis A. Walker," published in the *Educational Review*, 1897, vol. XIV, pp. 55-70.

A good bibliography of General Walker's writings is given by J. Laurence Laughlin in the *Journal of Political Economy*, vol. 5, March, 1897, pp. 232-236, and a copy of this is appended.

The most important part of his work is not so much in his writings, interesting and valuable as many of them are, as in the influence which he exerted upon his assistants, associates, and pupils, and which appears in the character and amount of the work which they have been and are still doing. No American of his time was more widely known both in this country and abroad. He was the recipient of many academic and society honors, and his sudden death while in the full tide of successful effort was felt as a calamity, not only by his numerous personal friends, but by many who knew him only indirectly through his books and essays.

In the National Academy the place which he left is still vacant, and it will be long before it will be filled by one who will equal him in his knowledge of the wide field covered by his activity, and who will also be as perfect a gentleman and as agreeable an associate.

BIBLIOGRAPHY OF FRANCIS A. WALKER'S WORK.

1874. The Indian Question. Boston. Map, 12mo.
The Statistical Atlas of the United States. New York.
1875. The Wage-Fund Theory. North American Review, Jan.
1876. The Wages Question: A Treatise on Wages and the Wages Class.
New York: Holt. 8vo, pp. vi + 428.
1877. Money. New York: Holt. 8vo, pp. xviii + 550.
1879. Money in its Relations to Trade and Industry. New York: Holt.
8vo, pp. vi + 339.
1882. American Agriculture. Princeton Review, May.
The Growth of the United States. Century, Oct.
Remarks on the Character of President W. B. Rogers. Proc. Soc.
Arts, I. Also printed separately.

1883. American Manufacturers. Princeton Review, March.
 Political Economy. (Vol. V of the American Science Series.) 8vo,
 pp. 495. New York and London.
 Henry George's Social Fallacies. North American Review, Aug.
 Land and its Rent. 16mo, pp. 232. Boston and London.
 Report as President M. I. T., Dec. 12. Pph., 8vo, pp. 31.
1884. The Second and Third Army Corps. Nation, March 27.
 Political Economy. (American Science Series, Briefer Course.)
 Abridged from work of 1883. 12mo, pp. 419. New York.
 Industrial Education. Read before the American Social Science
 Association, Sept. 9, 1884. Pph., 8vo, pp. 16. (Society's Jour-
 nal, 1884. Part I, pp. 117-131.)
 Report as President M. I. T., Dec. 10. Pph., 8vo, pp. 20.
 Lalor's Cyclopædia of Political Science. Articles on "Wages,"
 "Wage Fund," "Public Revenue." Vol. III, 68, 1074.
1885. Johnson's Cyclopædia, 2d edition. "Census."
 (With Professors W. G. Sumner and J. L. Laughlin.) Shall Silver
 be Demonetized? North American Review, June.
 Report as President M. I. T., Dec. 9. Pph., 8vo, pp. 24.
1886. Introduction to New England Edition of Maury's Geography.
 What Industry, if any, can Profitably be Introduced into Country
 Schools? Science, IX, 365.
 History of the Second Army Corps in the Army of the Potomac.
 8vo, pp. 571. New York.
 Report as President, M. I. T., Dec. 8. Pph. 8vo., pp. 32.
1887. Socialism. Scribner's Magazine, Jan.
 Gen. Hancock and the Artillery at Gettysburg. Century, March.
 The Source of Business Profits. Quarterly Journal of Economics,
 April. (Also in Proceedings of Society of Arts, 1886-'7.)
 The Socialists. Forum, May.
 A Plea for Industrial Education in the Public Schools. Pph. 12mo,
 pp. 34, Boston.
 Arithmetic in Primary and Grammar Schools. Pph., 12 mo, pp. 29,
 Boston.
 Report as President M. I. T., Dec. Pph., 8vo, pp. 39.
 Meade at Gettysburg. Century War Book.
 Industrial Education in Cities and Large Towns. (Address given
 at Chicago, May, 1887.) Trans. Nat. Teachers' Asso., p. 196.
 The Labor Problem of Today. (Address at Commencement at
 Lehigh University, June 22.) Printed for Alumni. New York.
 Pp. 29.
 Efforts of the Manual Laboring Class to Better Their Condition.
 (Address as Pres. Am. Economic Asso., Boston, May 21.) Pub.
 Am. Econ. Asso. III, No. 3, p. 3.
 Memoir of William Barton Rogers, 1804-'82. (Read before the
 National Academy, April, 1887.) Pph., 8vo, pp. 13. Washing-
 ton. Also Biog. Memoirs of Nat. Acad., 1887.

NATIONAL ACADEMY OF SCIENCES.

1887. Remarks on Opening of Exhibition of Mass. Charitable Mechanic Association, Sept., 1887. *Trans. Mass. Char. Mech. Asso.*, p. 56.
 Arithmetic in the Boston Schools. (Read before Mass. State Teachers' Asso., Nov. 25.) *Academy*, Syracuse, Jan., 1888, p. 433. Separately reprinted.
 Sketch of the Life of Amasa Walker, in *History of North Brookfield, Mass.* The same expanded in *N. E. Hist. Genealogical Register*, April, 1888, p. 133. Separately printed.
 Reply to Mr. Ellis Peterson on the Study of Arithmetic in Grammar Schools. *Popular Educator*, Sept., pp. 209-211.
 Lord Wolseley on General Lee. *Nation*, XLIV, pp. 269, 362-363.
 What Shall We Tell the Working Classes? *Scribner's Magazine*, Nov.
 The United States: Population and Industry. *British Encyclopædia*, 9th ed., vol. XXII, pp. 818-829.
- 1881-'87. *Census Reports*, 22 4to volumes and 2 8vo volumes.
1888. On Economy of Food. *Science*, XI, p. 233.
 The Knights of Labor. *Princeton Review*, Sept., p. 196.
 Recent Progress of Political Economy in the United States. (Address as Pres. of the American Economic Association. Philadelphia, Dec. 27.) *Proc. Am. Econ. Asso.*, IV, No. 4, p. 17.
 A Reply to Mr. Macvane on the Source of Business Profits. *Quar. Journal Economics*, April.
 Report as President M. I. T., Dec. Pph., 8vo, pp. 50.
 Philip Henry Sheridan. (Eulogy delivered before the City Government of Boston, Dec. 18.) Printed in *Sheridan Memorial*, p. 41.
 The Eleventh Census of the United States. *Quar. Jour. Econ.*, Jan., p. 135.
 The Bases of Taxation. *Pol. Sci. Quar.*, March, p. 1.
1889. Can Morality be Taught in the Schools without Sectarianism? *Christian Register*, Jan. 31.
 The Laborer and his Employer. (Lecture delivered in Sibley College, Cornell University, Feb. 9.) *Sci. Amer.*, June 1.
 Indian Schools. Letter to Southern Workman, quoted in *Proc. 7th Annual Meeting Lake Mohunk Conference*, p. 36.
 The Nation that was Saved. (Oration at reunion of N. H. soldiers, Weirs, Aug. 29.) *Veterans' Advocate*.
 Civil-Service Reform. (Thanksgiving Day discourse.) *New York Independent*, Nov. 28.
 First Lessons in Political Economy. 12mo, pp. viii + 323. New York and London.
 Report as President M. I. T., Dec. Pph., 8vo, pp. 61.
1890. Mr. Bellamy and the New Nationalist Party. *Atlantic Monthly*, Jan., p. 248. Printed separately.
 America's Fourth Centenary. *Forum*, Feb., p. 612.

FRANCIS AMASA WALKER.

1890. Protection and Protectionists. Quar. Jour. Econ., April, p. 245.
 The Eight-Hour Law Agitation. Atlantic Monthly, June, p. 300.
 The Great Review. (Address before the Society of the Army of
 the Potomac, Portland, Maine, July 3.) Proc. Soc. Army of
 Potomac.
 Democracy and Wealth. Forum, Nov., p. 243.
 Statistics of the Colored Race in the United States. Pub. Am. Stat.
 Asso., p. 91.
 The Study of Statistics in Colleges and Technical Schools. Tech.
 Quar., III, 1.
 Address on Presentation of Diplomas. Tech. Quar., III, 202.
 Changes of the Year. Tech. Quar.
 The Tide of Economic Thought. (Address as President of Ameri-
 can Economic Association, Washington, Dec. 26.) Trans. Am.
 Econ. Asso., VI, Nos. 1 and 2, p. 15. Separate copies.
 Report as President M. I. T., Dec. Pph., 8vo, pp. 67.
1891. The Free Coinage of Silver. Evidence before the Committee on
 Coinage, United States House of Representatives, Jan. 29. Re-
 ports and Hearings, 548.
 Charles Devens. (Oration before the Massachusetts Commandery
 of the Loyal Legion, March 19.) Also pph., 8vo, pp. 20.
 The United States Census. Forum, May, p. 258.
 The Great Count of 1890. Forum, June, p. 406.
 The Census of the Colored Race. Forum, July, p. 501.
 The Doctrine of Rent and the Residual Claimant Theory of Wages.
 Quar. Jour. Econ., July, p. 417.
 Immigration and Degradation. Forum, Aug., p. 634.
 Report as the President M. I. T., Dec. Pph., 8vo, pp. 70.
 Hancock in the War of the Rebellion. (Paper read before the New
 York Commandery Loyal Legion, Feb. 4.) Pph., 8vo, pp. 16.
 The Place of Scientific and Technological Schools in the American
 System of Education. (An address delivered before the Convo-
 cation of the State of New York, Albany, June 1.) Tech. Quar.,
 IV, 293.
1892. Growth and Distribution of Population in the United States.
 Chautauqua, Feb. 9.
 Dr. Boehm-Bawerk's Theory of Interest. Quar. Jour. of Econ.,
 July.
 Immigration. Yale Review, Aug.
 Normal Training in Women's Colleges. Educ. Rev., Nov., p. 328.
 Report as President M. I. T., Dec. Pph., 8vo, pp. 81.
1893. Letter to Editor Engineering News. Eng. News, Jan. 26, p. 90;
 I. S. 2, p. 108.
 Athletics in College. Harv. Grad. Mag., Sept.
 Value of Money. Quar. Jour. Econ., Oct.
 Scientific and Technical Schools. (N. Y. Regents, 1892.)

NATIONAL ACADEMY OF SCIENCES.

1893. Free Coinage of Silver in United States. Jour. Pol. Econ., March.
Technical Schools and University. Atlantic Monthly, Sept.
1894. Professional Education. Educ. Review, Dec.
Lord Nelson and the Victory. Southern Mag., Feb.
Secondary School Programmes. School Rev., Dec.
Technological Education. Cong. of Educ. (Chicago, 1893).
"Victory," H. M. I. Southern Mag., Feb.
1895. American Nationality. Forum, June.
General Hancock. Dwight Fed. and Confed.
Samuel Dana Horton. Econ., June.
Quantity Theory of Money. Quar. Jour. Econ., June.
1896. Double Taxation in the United States. Rev. Critic, vol. XXVI,
p. 86.
International Bimetallism. Rev. of Rev., XIV, 195, 196.
Relation of Changes in the Volume of Currency to Prosperity
Amer. Econ. Asso. Jour., vol. I, 25-45.
Restriction of Immigration. Atlantic Monthly, June.
International Bimetallism. New York: Holt, 12mo, pp. vi + 297.
International Bimetallism: A Rejoinder. Yale Rev., Nov.