

SAMUEL CHRISTIAN SCHMUCKER'S CHRISTIAN VOCATION¹

By Edward Davis

For back of all Nature there lies a Power that has been and is and is to be. What, after all, do we mean by Nature but the sum total of all these manifestations of purpose, of foresight, of helpfulness, of striving for higher and ever higher levels? Why does evolution mean life more abounding, and degeneration mean atrophy and death, if there be not, pervading the universe, a power, a principle, a stimulus, a goal?

–S. C. Schmucker, 1910²

Some of our finest men of to-day are being trained in modern science and in modern theology. There is no scorn in their minds for early science or for early theology. Each served its age, and each taught its truth. But its truth must be restated in terms of to-day. The old creeds will always be loved. The old creeds will always hold our reverence and allegiance. But each age must be at liberty to interpret these creeds in the terms in which that age best understands truth.

–S. C. Schmucker, 1913³

Every graduate of the Lutheran Theological Seminary at Gettysburg immediately recognizes the surname Schmucker and associates it with the word “Christian,” but few would likely do so using “Christian” as part of the Christian name. Eighty years ago, however, one could not have made such a claim. At that time, a science professor at West Chester (PA) State Normal School (now West Chester University) named Samuel Christian Schmucker (SCS), the author of five books about evolution, eugenics, and the environment for major publishing houses, was one of the most widely known science writers and lecturers in the United States.⁴ His most popular book, *The Meaning of Evolution* (1913), was printed eight times in a dozen years by Macmillan; the first edition was published simultaneously by the Chautauqua Literary and Scientific Circle as a national course text in 1913-14. Another book, *Man's Life on Earth*

¹ Portions of this essay were originally published as Edward B. Davis, “Fundamentalism and Folk Science between the Wars,” *Religion and American Culture: A Journal of Interpretation* 5/2 (Summer 1995) 217-48. Copyright 1995 by The Center for the Study of Religion and American Culture. Leonard Hummel particularly encouraged me to seek publication of this larger study here.

² *Under the Open Sky* (Philadelphia: Lippincott, 1910), 307-8.

³ *The Meaning of Evolution* (New York: Macmillan, 1913), 291.

⁴ For short biographical articles, see Charles A. Wagner, “Prof. Samuel Christian Schmucker, A.M., Ph.D.: Teacher and Writer,” *The Pennsylvania-German* 8/5 (May 1907) 220-21, and William Gould Vinal, “Samuel Christian Schmucker,” *Science Education* 42/5 (1958) 453-5, based mainly on an interview of the elderly SCS. The Chester County Historical Society, West Chester, Pennsylvania, and The University of Pennsylvania Archives have further information. See also *Who Was Who in America; American Men of Science*, 7th edition (1944); and obituaries in the *Philadelphia Inquirer*, December 28, 1943, 2, and the *New York Times*, December 28, 1943, 17.

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(1925), was a Chautauqua text in 1925-26.⁵ Traveling the Chautauqua lecture circuit for at least a quarter century, SCS appeared at summer schools and teachers' workshops in many states. He also spoke frequently at the Brooklyn Institute of the Arts and Sciences, the Free Public Lecture System for Adults in New York City, and the Wagner Free Institute of Science in North Philadelphia, where he was dean of the faculty for more than three decades.⁶ A high-profile event that did not add to his reputation took place in November 1930, when he debated the famous anti-evolutionist Harry Rimmer in the Metropolitan Opera House, the largest auditorium in Philadelphia. A skilled rhetorician with a pugilistic style, Rimmer was generally perceived as the winner of that encounter.⁷

In all of these activities, the message SCS brought to a very large audience was one of the fundamental harmony of science and religion—a message whose spirit, though not necessarily its specific content, resonated with many Americans at the time. This essay outlines his career as a popularizer of science, stressing how his professional commitment to the nature study movement resonated with his spirituality and empowered him to make science education his Christian vocation. I also analyze the theology of nature that he advanced in his books, showing how his emphasis on divine immanence at the expense of divine transcendence made eugenics so attractive to him.

Samuel Christian Schmucker's Youth and Education

Born one week before Christmas, 1860, SCS was a grandson of Samuel Simon Schmucker (SSS), arguably the best known American Lutheran of his generation. Controversial for his advocacy of an ecumenical, revivalistic, American style of Lutheranism, SSS founded the first Lutheran seminary and college in the United States at Gettysburg and wrote a highly accessible dogmatics text, *Elements of Popular Theology* (1834), that had nine editions.⁸ SCS's father, Beale Melancthon Schmucker (BMS), received a Doctor of Divinity degree from the University

⁵ The curriculum for the Chautauqua Literary and Scientific Circle is found at http://www.chautauqua-inst.org/clsc_booklist.PDF (accessed December 5, 2007). Macmillan no longer has information about the print runs for Schmucker's books.

⁶ A brief history of the Wagner Institute is contained in "The Wagner Free Institute of Science of Philadelphia: Annual Announcement of Lecture Courses for Session of 1991-92, One Hundred and Thirty-Sixth Year." See also Susan Glassman and Eugene A. Bolt, Jr., "Wagner Free Institute of Science," in *Invisible Philadelphia: Community Through Voluntary Organizations*, ed. Jean Barth Toll and Mildred S. Gillam (Philadelphia: Atwater Kent Museum, 1995), 816-19.

⁷ Davis, "Fundamentalism and Folk Science between the Wars."

⁸ See Peter Anstadt, *Life and Times of Rev. S. S. Schmucker, D.D.* (York, Pennsylvania: P. Anstadt, 1896); Abdel Ross Wentz, *Pioneer in Christian Unity: Samuel Simon Schmucker* (Philadelphia, Fortress Press, 1967); Jerald C. Brauer, "Samuel Simon Schmucker," in *Makers of Christian Theology in America*, ed. Mark G. Toulouse and James O. Duke (Nashville: Abingdon, 1997), 139-44; James Lawton Haney, "The Religious Heritage and Education of Samuel Simon Schmucker: A Study in the Rise of 'American Lutheranism'," doctoral dissertation at Yale University (1968); and Nancy Koester, "Enlightened Evangelicals: Benevolence in the Work of Jonathan Edwards, Charles Grandison Finney, and Samuel Simon Schmucker," doctoral dissertation at Luther Northwestern Theological Seminary (1994).

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of Pennsylvania in 1870. An expert on Lutheran liturgy, BMS favored the new confessionalism that arose on both sides of the Atlantic in the second third of the nineteenth century, and he helped to start an alternative seminary in Philadelphia. His writings molded Lutheran worship in America for eleven decades and still have some influence today. When his elder son SCS was born, less than three years before two great armies would fight over the very ground where SCS had lived, BMS was the newly-married founder and first pastor of St. John's Lutheran Church in Allentown, Pennsylvania.

Times were hard, and a few years later BMS's wife Christianna broke down under the strain. Her physician advised daily walking, and for years the couple took their two sons on long hikes through the hills along the Schuylkill River near Reading, where the family had moved in 1867. BMS had a good working knowledge of plants and their scientific names, and this must have made a very favorable impression on young SCS. In summer, the family liked to board at a tavern in the Blue Mountains, and there SCS developed an interest in geology; on one occasion, he wrote to Berkeley geologist Joseph LeConte, inquiring about a particular formation he had found.⁹

In 1878, Schmucker entered Muhlenberg College, a Lutheran school in Allentown whose president, Benjamin Sadtler, was the husband of BMS's sister, Catherine. He studied biology with physician William Herbst and, during his senior year, he served as laboratory assistant to Edgar Fahs Smith, who had just been appointed Asa Packer Professor of Chemistry. A strongly religious man who kept copies of the Bible and the Moravian prayer book in his office, Smith had studied at Pennsylvania College under Sadtler's son, Samuel Philip Sadtler, an active Lutheran layman who had done his doctoral work with the pioneering organic chemist Friedrich Wöhler at the University of Göttingen and who later became professor of general and organic chemistry at the University of Pennsylvania. Smith had also been Wöhler's student, and a few years later he followed Sadtler to Penn as professor of analytical chemistry. Smith's collection of chemical books and memorabilia, probably unequaled in America at the time and appropriate to his serious interest in the history of science (he was a founding member of the History of Science Society), was given to Penn after his death. He was also renowned as a public speaker. Given this combination of piety, science, the history of science, and public speaking—not to mention the relationship between Smith and SCS's first cousin—it is not difficult to see Smith as an influential role model for the young Schmucker.¹⁰

Schmucker graduated from Muhlenberg in 1882 with the A.B. in analytical chemistry and mineralogy.¹¹ After a further year of study at Muhlenberg, he accepted a position as instructor in the natural sciences at Carthage College (a Lutheran institution then located in Illinois), where he stayed only one year. From 1884 to 1889, he taught science at Boys' High School in Reading,

⁹ Vinal, "Samuel Christian Schmucker."

¹⁰ On Smith, see C. A. Browne, "Edgar Fahs Smith," *Isis* 11 (1928) 375-84; and *American National Biography*. On S. P. Sadtler, see Charles H. Lawall, "Samuel Philip Sadtler," *Science* 59 (1924) 183-4. Information about SCS's undergraduate studies comes from "The Hall of Fame," an anonymous article about him in *Muhlenberg College Alumni Quarterly* (January 1939) 7-8.

¹¹ Muhlenberg catalogue for 1882-83, p. 12.

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Pennsylvania, after which he taught natural sciences for five years at the Indiana (PA) State Normal School, interspersed with a year as Professor of Chemistry at Colorado State College. During this period he apparently earned two more degrees from Muhlenberg, but the details are unclear.¹²

While on the faculty at Indiana in 1893, Schmucker completed a doctorate in chemistry at Penn, again working under Edgar Fahs Smith. Yet he never forgot his first love—the living world all around him—and in 1895 he accepted an appointment in biology, not chemistry, at the West Chester State Normal School, where he remained until retirement in 1923. He began going down to Penn on Saturdays to study with botanist John Muirhead MacFarlane, spending the final three years of the nineteenth century as an Honorary Fellow in Biology. He also studied zoology with Edwin Grant Conklin, a gifted and energetic young scientist who had only just arrived at Penn from Northwestern. Conklin later moved to Princeton and became one of the leading public intellectuals of the 1920's and 1930's. Like Schmucker, he wrote several books about science, and his reputation grew sufficiently large that his portrait appeared on the cover of *Time* magazine in July 1939. The two men were close in age—Conklin was actually three years younger, although farther along in his career—and their views on eugenics, education, and religion were quite similar. Schmucker was Conklin's teaching assistant, and they became lifelong friends. Both men, together with the famous paleontologist Edwin Drinker Cope, were active in the Graduate Biological Club at Penn; Schmucker gave talks on entomology and served as president for one year. Conklin and Cope liked to argue about the inheritance of acquired characteristics, Schmucker recalled half a century later. Their friendly but lively debates made a profound impression on Schmucker, who sought to approach scientific controversies with a similar grace and humility.¹³

We must not underestimate the importance of the encouragement that MacFarlane and Conklin gave Schmucker, when he decided at this point to spend his life interpreting science for the larger public instead of creating new knowledge in field and laboratory.¹⁴ They shared a strong commitment to educating ordinary citizens about the findings of science. Many years later, Conklin paid Schmucker a very high compliment, telling him that “I have been a great admirer of your work.” For his part, Schmucker was gratified to hear “The testimony of one of the outstanding biologists in America, that I have succeeded in my efforts to interpret the scientist to the untrained but intelligent layman...”¹⁵

¹² According to information Schmucker provided many years later to Penn and to the American Association for the Advancement of Science, Muhlenberg awarded him an A.M. in 1885 and either a B.S. or an M.S. in 1891. However, the Muhlenberg catalogue for 1884-85, p. 15, states that he was awarded a B.S. in 1884. No information about the specific academic fields for these additional degrees is contained in any of these sources.

¹³ Vinal, “Samuel Christian Schmucker,” 454. Vinal's account, based on an interview with Schmucker, perhaps overstates Cope's commitment to Lamarck's view of inheritance, which Cope was no longer defending as vigorously in the late 1890's; see Ronald L. Numbers, *Darwinism Comes to America* (Cambridge: Harvard University Press, 1998), 33-40.

¹⁴ Vinal, “Samuel Christian Schmucker.”

¹⁵ Conklin to Schmucker, March 19, 1930; Schmucker to Conklin, December 24, 1935, Edwin Grant Conklin Papers, box 20, folder 24, Manuscripts Division, Department of Rare Books and Special Collections, Princeton

There can indeed be no doubt about Schmucker's success in his chosen field, given his level of involvement with the nation's most famous platform for orators: the Chautauqua Institution in upstate New York. Founded in 1874 as the Chautauqua Lake Sunday School Assembly by ecumenical Methodists, it was never simply and narrowly dedicated to studying the Bible. Soon it became a national forum (with many regional affiliates) for the exchange of views on political, social, intellectual, and religious issues, with increasing attention given to cultural activities as time went on. Science occupied a substantial niche in their programming, starting with the Scientific Congress in 1876, which was intended to rival the Centennial Exhibition at Philadelphia. In addition to scientific lectures and demonstrations by college professors, the program that summer included several talks on the Bible and science, touching on miracles, heaven, "Alleged Discrepancies between Science and the Bible," and the significance of science for religious thought. Similar events took place the following year, and in 1878 the Chautauqua Literary and Scientific Circle (CLSC) was established, providing a national program of self-education through a four-year curriculum of readings, discussions, and examinations by correspondence. This program continues even today with far smaller numbers, but in its heyday in the 1880's it enrolled about 130,000 people for the decade.¹⁶ The CLSC embodied the broad vision of John Heyl Vincent, a Methodist minister from Alabama with an evangelical spirit and modern attitudes toward secular learning, who had done more than anyone else to originate the Chautauqua Institution. Making reference with his language to a conception of science that was commonly accepted by American Protestants at the time, Vincent expressed the motto for the CLSC as follows: "We Study the Word of God and the Works of God." Above all, Vincent wanted to "keep the thought of our Father in the midst of nature," and thus he invited people to "Look through microscopes, but find God. Look through telescopes, but find God. Look for him revealed in the throbbing life about you, in the palpitating stars above, in the marvelous records of the earth beneath you, and in your own souls."¹⁷

As we will see below, Schmucker's views on God and nature dovetailed perfectly with those of Vincent and the CLSC. His involvement with Chautauqua began no later than July 1896, when he spoke at the assembly in Mt. Gretna, Pennsylvania. He appeared regularly there for several years, and also at the assembly in Eagles Mere, Pennsylvania in 1899 and 1900.¹⁸

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¹⁶ On science and religion at Chautauqua, see Andrew C. Rieser, *The Chautauqua Moment: Protestants, Progressives, and the Culture of Modern Liberalism* (New York: Columbia University Press, 2003), 94-109, with enrollment estimates on 299-300; Theodore Morrison, *Chautauqua: A Center for Education, Religion, and the Arts in America* (Chicago: The University of Chicago Press, 1974), 42-57, quoting 43; and Jeffrey Simpson, *Chautauqua: An American Utopia* (New York: Harry N. Abrams in association with Chautauqua Institution, 1999), 45-7.

¹⁷ John H. Vincent, *The Chautauqua Movement* (Boston: Chautauqua Press, 1885), 90-91. For comments on the metaphor Vincent employed, see Edward B. Davis, "The Word and the Works: Concordism in American Evangelical Thought," in *The Book of Nature in Early Modern and Modern History*, ed. Klaas van Berkel and Arjo Vanderjagt (Leuven: Peeters, 2006), 195-207.

¹⁸ "Other Chautauqua Assemblies," *The Chautauquan* 23 (July 1896) 518-28. Schmucker was mentioned almost one hundred times in *The Chautauquan* between 1896 and 1914. I will not give details for most of the references cited implicitly in this paragraph, which can be readily found using the ProQuest database.

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Apparently his talks were received very enthusiastically, for he was invited to address the main Chautauqua Assembly in July 1902. There he delivered a week-long lecture series on “Nature Study,” a vitally important subject for him (more will be said about this below) that he had already presented to the regional assemblies.¹⁹ Anna Botsford Comstock, a leading scientific artist and pioneer of the nature study movement who was also the first female faculty member at Cornell University, was very favorably impressed by this dynamic new speaker. “The inspiration I received from the gospel of the dandelion,” she told him the following winter, “has been a positive help to me in my work all this year. Heaven bless you for preaching it to a benighted world!”²⁰

Comstock was obviously not the only person whom Schmucker impressed, for he was invited back the following year. In 1904 he was named president of the CLSC class of 1908, taught for three weeks in the summer college, and was billed as one of eight “leading speakers” in advertisements for the assembly program.²¹ At that point, according to one (perhaps overly friendly) source, he was “attracting the largest audiences gathered during the sessions.” The following summer he spoke at some assemblies in the western part of the country instead, only increasing his growing national reputation, and a few months later his article on the great naturalist John James Audubon was published in *The Chautauquan*.²² He remained a fixture with the Institution for at least two more decades; two of his books were used as texts by the CLSC, and his lectures still got top billing in advertisements as late as 1927.²³

Schmucker was equally successful in other prestigious places. No later than the fall of 1905, he began lecturing on weekend evenings at a public school on the southeast corner of St Nicholas Park in Manhattan. Soon other venues in New York City were added, including numerous schools and libraries, the Cooper Union, and especially the American Museum of Natural History—this would become perhaps his most frequent venue, and museum director William King Gregory, a leading paleontologist, quickly became a warm friend. Schmucker lectured regularly in Manhattan and Brooklyn until at least 1932, when he was in his seventy-

¹⁹ “The Classified Program,” *The Chautauquan* 35 (July 1902) 374-5.

²⁰ Comstock to Schmucker, January 27, 1903, Schmucker File, Department of Physics, West Chester University, quoted with permission of Anthony Nicastro. Author of a widely used textbook, *Handbook of Nature-study for Teachers and Parents, Based on the Cornell Nature-study Leaflets, with Much Additional Material and Many New Illustrations* (Ithaca: Comstock Pub. Co., 1911), Comstock was equally renowned for the engravings she made for the entomological works of her husband, John Henry Comstock.

²¹ “Chautauqua Institution Anniversary Year,” *The Chautauquan* 37 (July 1903): 397-8, and advertisement in *ibid.* 38 (February 1904) ii.

²² Wagner, “Prof. Samuel C. Schmucker,” 221; “CLSC Round Table,” *The Chautauquan* 48 (November 1907) 422-3; S. C. Schmucker, “Some Great American Scientists, II. John James Audubon,” *The Chautauquan* 48 (October 1907) 239-48. Mark Oldenburg informs me that Lutheran pastor John Bachman, a close friend of SSS, was Audubon’s co-worker, and that two of Audubon’s sons married two of Bachman’s daughters. I am unable to say whether SCS knew this.

²³ Advertisement in *Warren Morning Mirror*, July 12, 1927, p. 3.

second year. He also spoke in numerous other cities and towns, especially in the Northeast but also in distant places such as Galveston, Texas, Chicago (where he received national press coverage for a lecture on wild flowers at the Art Institute in 1923), Winona Lake, Indiana, and Greeley, Colorado. Speaking about birds, flowers, worms, fossils, early hominids, natural selection, heredity, Charles Darwin, and other topics, Schmucker polished his rhetorical skills, pleased the audience with numerous glass lantern slides (now archived at West Chester University), enthusiastically spread optimism about the next generation, explained technical scientific points in plain language, drew heavily on the history of science, and tried out chapters from his books before they were published.²⁴

To all indications, Schmucker was unusually effective at relating science to lay audiences, probably one of the very best in America at the time. A reporter in Frederick, Maryland, said that a lecture on evolution in 1912 “was one of intense interest, and the accompanying illustrations, among others those of the development of frogs and toads, with the vein of quiet humor throughout, were fully appreciated by the large audience present.” A story about a week-long Chautauqua series in Bedford, Pennsylvania, in 1918, promised that Schmucker “will analyze the meaning of a flower,” adding that “he will do it so gently and beautifully, and apply the lessons to human life so aptly that you will be held completely within his grasp.” “Dr. Schmucker has developed an unusual capacity for stating the principles of science so simply that any intelligent person can understand them, and so interestingly as to have created for himself a permanent place in work of this kind,” according to a newspaper in Bridgeport, Connecticut. “There is probably no lecturer in the east on scientific subjects who approaches Dr. Schmucker in popularity and effectiveness,” someone else said of him in the same story. “His personality, with its genial robust manliness of character, and his fresh, vigorous, incisive speech, make his audiences immediately friendly and responsive.”²⁵

Schmucker’s Christian Vocation: God, Nature, and Science Education

Having seen how Samuel Christian Schmucker became one of the great science popularizers of his generation, we will now see how he made this his Christian vocation. As a budding scientist from one of America’s most important Christian families, the young SCS had felt a tension between these two areas of allegiance, but it was through family that his faith found a resolution. His grandfather’s book, *Elements of Popular Theology* (1834), had affirmed the traditional biblical chronology and cosmogony, placing the creation of humans to “the sixth day of the creative week, about 4000 years before the birth of the Saviour,” consistent with the traditional calculation of James Ussher from the mid-seventeenth century. SCS likewise accepted the historicity of Noah’s flood, finding support for this “in the discoveries of geologists, who find in

²⁴ A search for Schmucker’s name in the ProQuest Historical Newspapers database for the *New York Times* returns information about dozens of lectures given between 1905 and 1932. On King and Schmucker, see Vinal, “Samuel Christian Schmucker,” 454. His Chicago lecture was covered by Universal Service correspondent A. J. Lorenz and published by (for example) *Bridgeport Telegram*, February 13, 1923, 33; *Oakland Tribune*, January 28, 1923, 75; and *San Antonio Express*, January 28, 1923, 57.

²⁵ *Frederick Evening Post*, March 1, 1912, 3; *Bedford Gazette*, June 7, 1918, 1; *Bridgeport Telegram*, March 5, 1920, 17.

the bowels of the earth conclusive proof of a universal deluge, of antediluvian animals, &c.”²⁶ He was probably referring here to the leading American professor of natural history, Benjamin Silliman of Yale, who taught this view of the flood in his lectures, published in 1829.²⁷ More than fifty years ago, apparently on the basis of statements like those just quoted, Milton Millhauser compared SSS with the so-called “scriptural geologists,” who essentially used the Bible as their primary text for interpreting earth history, but this comparison completely overlooks SSS’s highly positive attitude toward science, in contrast to the contempt that one usually finds in the scriptural geologists.²⁸ For example, his views on the plurality of worlds reflect genuine openness, even enthusiasm, for the possibility suggested by heliocentric astronomy that there are other inhabited worlds in the universe. When someday “the affairs of this earth will then be brought to a close,” he mused, “the separate existence of other worlds may not be affected by it,” and “the loss of this little speck in creation” might not even “be noticed by the inmates of other worlds!”²⁹

Although SCS left no specific comments on this aspect of his grandfather’s views, he certainly detected a very helpful attitude in his father, BMS. As he reflected at the height of his career,

My faith was stayed by a godly and learned father, humble in science, when my own first difficulties with the story of evolution began to trouble my faith. His teachings were, I believe, God’s lamp to my feet and light to my path. He said to me, “Theology is man’s interpretation of God’s revelation of Himself in the Bible. Science is man’s interpretation of God’s revelation of Himself in Nature.”³⁰

He had been more specific several years earlier, when lecturing on “Science and the Book” at the Woman’s College of Frederick, Maryland (now Hood College). On that occasion, according to a newspaper account, he said that “his father had given him an unusually liberal education: and unlike many fathers, had respected the embryo man in the boy, by answering all his questions clearly, and patiently, endeavoring to help his son solve the religious doubts that came to him, as

²⁶ Samuel Simon Schmucker, *Elements of Popular Theology*, 5th edn. (Philadelphia: S. S. Miles, 1845), 136 and 39-40; cf. 124-5.

²⁷ Benjamin Silliman, *Outline of the Course of Geological Lectures Given in Yale College* (New Haven: Howe, 1829). “Respecting the deluge, there can be but one opinion,” Silliman wrote (p. 7), that “geology fully confirms the scripture history of that event.”

²⁸ Milton Millhauser, “The Scriptural Geologists: An Episode in the History of Opinion,” *Osiris* 11 (1954) 73. For a more recent, insightful analysis of the American situation, see Rodney L. Stiling, “Scriptural Geology in America,” in *Evangelicals and Science in Historical Perspective*, ed. David N. Livingstone, D. G. Hart, and Mark A. Noll (New York: Oxford University Press, 1999), 177-92.

²⁹ *Elements of Popular Theology*, 382; cf. 123-4.

³⁰ *Man’s Life on Earth* (New York: Macmillan, 1925), 289. The relationship between SSS and BMS was probably strained for most of SCS’s youth, and SCS might have been completely unacquainted with his grandfather’s views on science.

to all others, when he took up physical science.”³¹

Clearly there had been doubts, and this had involved some struggle on the part of SCS. As he saw it, “the thinking man” had two obligations: to “become reasonably acquainted” with evolution, and to “wrestle with the theory until it no longer hinders the hold of religion upon his life. He may be perfectly sure that he does not clearly understand both, but he must get them into reasonable concordance before he can be quite at peace.”³² The result would likely have pleased his illustrious forebears, although for reasons unknown to me he left the Lutheran Church for the Episcopal Church, which he served as a vestryman.³³

For a clearly Lutheran element, however, we turn more closely to his emphasis on Christian vocation. Bringing faith into harmony with science was absolutely central to Schmucker’s role as an educator, even at a secular institution: students must be shown the presence of God in nature and must be helped to develop a healthy, positive view of the relationship of science and religion. He displayed a similar attitude toward religious education. When a young man raised in a very conservative church encounters a broader range of views, Schmucker advised readers a few years after the *Scopes* trial,

he finds that the type of religion he had must grow with his experience or utterly lose its vitality. If this young man is told by his parents and his pastor that he is losing his faith and that his religion is worthless, it is not unlikely that he will turn against all manifestation of religion. For a time his own inner life remains religious. Cut off however from the fellowship of others who think as he does, and with whom he can discuss his problems, religion will come to mean less and less in his life, to the serious detriment of his character and perhaps of his morality. The boy and girl must be free in their religious life.³⁴

Both the fundamentalists and the modernists at that time were deeply concerned that evolution raised very serious challenges to the faith of Christian youth—this is almost the only point of agreement between someone like William Jennings Bryan and someone like Harry Emerson Fosdick. Where the fundamentalists responded by rejecting evolution and trying to stop it from being taught, however, the modernists responded by cultivating a different religious attitude—and that is precisely what Schmucker did. He realized as well as anyone that “many influences are at work which are distinctly weakening the confidence of our young folks” in religion. He acknowledged that criticisms of traditional religious views, if carelessly presented to youth, “may throw them entirely out of the road, perhaps even wreck them.” But when “guided step by step, with reverence for the past on which we must build,” he advised, “our youthful students will know little of the shocks which have broken many men.” Noting with approval the gradual

³¹ “Both Must Coincide: Science Not Hostile to Religion, Says Dr. Schmucker,” *Frederick Daily News*, March 25, 1912, 4.

³² *The Meaning of Evolution*, 278-9.

³³ He was a member of the Church of the Holy Trinity in West Chester for many years, but the church was unable to provide further details.

³⁴ *Heredity and Parenthood* (New York: Macmillan, 1929), 261.

appearance of “a restatement of our religious faith in terms of our present thinking,” he underscored the importance of cultivating a sense of divine immanence for developing a new spirituality. “Everything that fosters the consciousness of the deep, abiding presence underlying nature,” he concluded, “will help our young people to bridge the interval during which the new statement of their faith is developing.”³⁵

Nothing was better suited to facilitate this outcome than the relatively new field of nature study, an early form of environmental education to which he devoted considerable time and energy. The American Nature Study Society, founded in 1908, promoted science education through active, direct encounters with the natural world, aimed at cultivating attitudes of appreciation, respect, and wonder on the part of elementary and secondary students. Practitioners saw themselves as putting into practice a dictum of the great Swiss-American naturalist Louis Agassiz, to “Study nature, not books.”³⁶ Schmucker was already an advocate in 1894, when he recommended that teachers read *Nature Study for the Common Schools* (1891), the book by Chicago teacher Wilbur Samuel Jackman that effectively began the nature study movement, and he served as president of the Society in 1918 and 1919.³⁷ As far as possible, Schmucker believed, children should be taught to observe natural things in their natural environments, out of doors and “under the open sky,” as one of his books is called.³⁸ Only then could they begin both to understand and to appreciate for themselves the wonders of nature. Ultimately, this could lead a young person “to observe that there is an orderly sequence here and not a kaleidoscopic jumble. He will recognize a coordinating power that underlies it all. This power we older folks have learned to call God.”³⁹

With its emphasis on the attitudes of children rather than abstract ideas, nature study was the ideal approach for Schmucker, who believed that science teaching was the educational equivalent of a moral crusade: it was indeed his Christian vocation. Liberty Hyde Bailey, the horticulturalist who had been instrumental in founding the nature study movement, defined the focus of the movement as neither facts, nor knowledge, but “spirit. It is concerned with the

³⁵ “The Philosophy Underlying Nature Education,” *Proceedings of the Annual Meeting – National Education Association of the United States* 70 (1932) 469-70.

³⁶ Quoted in John C. Burnham, *How Superstition Won and Science Lost: Popularizing Science and Health in the United States* (New Brunswick: Rutgers University Press, 1987), 157. Schmucker stated his views on nature study most clearly in “Science and Nature-Study,” *Nature-Study Review* 14 (1918) 48-52, and “The Philosophy Underlying Nature Education.” For a short history of the nature study movement, see Sally Gregory Kohlstedt, “Nature, not Books: Scientists and the Origins of the Nature-Study Movement in the 1890s,” *Isis* 96/3 (2005) 324-52.

³⁷ Schmucker, “College Graduates and Public Schools,” *The Muhlenberg* 11/7 (March 1894) 1-2. For more on Wilbur S. Jackman, author of *Nature Study for the Common Schools* (New York: H. Holt, 1891) see Orville T. Bright, “Wilbur S. Jackman,” *The Elementary School Teacher* 7/8 (April 1907) 433-8; and Audrey B. Champagne and Leopold E. Klopfer, “Pioneers of Elementary School Science: I. Wilbur Samuel Jackman,” *Science Education* 63/2 (2006) 145-65.

³⁸ *Under the Open Sky* (Philadelphia: Lippincott, 1910).

³⁹ “The Philosophy Underlying Nature Education,” 469.

child's outlook on the world."⁴⁰ This message was not lost on Schmucker. "The real purpose of nature study," he wrote in his primer on the subject, was "to uplift the moral life." More than anything else, Schmucker sought in his own teaching to produce at least a few other teachers—"intensely effective teachers," he called them—who shared his goals. "They will feel [that] these purposes, --the enrichment of life, the establishment of firm character and a reverent attitude towards the great Power about us, --are the highest attainments which school life can bring." No human book was up to this task, not his nor anyone else's. The "book of books," he wrote, "is Nature herself, and its author is God." Though he recognized that the mixed population of students in public schools made "religious exercises entirely inadmissible," Schmucker hoped nonetheless that "the teacher who is himself filled with holy zeal, who has himself learned to find in nature the temple of the living God," would "bring his pupils into the temple and make them feel the presence there of the great immanent God."⁴¹ If this was not a religious exercise in a public school, then I do not know what it was.

Teaching was indeed for Schmucker nothing other than the practical part of his religion of divine immanence. If the proper laboratory for doing science was the world itself, then the proper teacher was the divine world spirit. In leading his pupils to reverence that spirit, the human teacher was only acting according to the proper order of things. Schmucker was more than a Christian pietist with a profound sense of ecology; he was above all a post-Darwinian natural theologian, arguing from nature to the wholly immanent God that lay within it. A pertinent example is the discussion of the coadaptation of bees and flowers in his book on *Heredity and Parenthood* (1929). Flowers attract bees with beautiful displays and pleasant odors, and reward bees with nectar. Bees in turn carry pollen from one flower to another, achieving the cross fertilization that produces new traits, ultimately benefitting the flower. This inter-dependence led Schmucker to ask, "Could the flower have thought this all out for itself? Could even the bee have accomplished this?" Even given "countless years, could chance happenings have blindly sifted themselves out to such good purposes?" Was it not evident that "coadaptation, so wonderfully helpful to two such different creatures," had to be "the necessary result of something like that which in ourselves we call intelligence?" Conceding that it was "child-like (though not childish) to think of God as planning it, as we would plan a machine," Schmucker confessed that this was nevertheless the only way we could think about it—evolution was not a Godless process:

Somehow the infinite power, acting with infinite resource, having infinite matter through which to operate and infinite time to accomplish its unendingly increasing results is behind all of this activity. I like the happy phrase "creation by evolution." It is not a Godless phrase. It does not imagine a Godless process. It is our impotent way of reaching one step farther towards a glimmer of an understanding in the workings of an Infinite Power whom we lovingly name God.⁴²

⁴⁰ Bailey, *The Nature-Study Idea: Being an Interpretation of the New School-movement to Put the Child in Sympathy with Nature* (New York: Doubleday, Page & Co, 1903), quoted in Burnham, *How Superstition Won*, 182.

⁴¹ *The Study of Nature*, 2nd edn (Philadelphia: Lippincott, 1920), 41, 44, and 308.

⁴² *Heredity and Parenthood*, 197-8.

We should not be misled by this reference to “Infinite Power,” into thinking that Schmucker had in mind the omnipotent, transcendent creator who became incarnate in Jesus Christ. Manifestly, he did not. This is most evident in a fascinating little pamphlet published shortly after the *Scopes* trial, *Through Science to God* (1926), although it was probably based on a lecture he had been giving for two decades. Published by the American Institute of Sacred Literature, a correspondence school for clergy affiliated with the Divinity School at the University of Chicago, the shirt-pocket sized tract was part of an influential series of ten pamphlets on “Science and Religion” that was very widely distributed to students, scientists, Protestant ministers and lay people, and political leaders in the years surrounding the *Scopes* trial.⁴³ Most of this pamphlet is devoted to observations about the behavior of two kinds of birds, goatsuckers and hummingbirds. Making no explicit theological points here, Schmucker intended simply to suggest “the infinitude of unnoticed marvels going on about us all the time if with open eyes and mind we recognize them,” and to illustrate how “the evolutionist’s fancy (if you wish to so call it—he would call it constructive imagination)” forms conclusions from observations. When he finally did turn his attention to theology, he began by reflecting on the interplay of natural and sexual selection in the process of evolution. “There are two great instincts in the animal world,” he wrote, “the instinct of self-preservation and the instinct for the continuation of the race. There are two great color-schemes corresponding to these instincts, the protective and the attractive.” The first employs camouflage for safety, which makes it more difficult to attract a mate; and *vice versa* for the second. These two states correspond to “two overpowering emotions, fear and love,” in which “one is at war with the other.” With the dull, mottled goatsuckers, “the protective coloration alone prevails,” but with the hummingbirds, “attractive coloration has completely won out.” From this brief comparison Schmucker drew a moral conclusion: “Here at last, in the bird-world as in the human world at its highest, perfect love has cast out fear.”⁴⁴

In a concluding section called “Going Deeper,” Schmucker probed the ultimate questions this suggested to him. Here we find the most subtle and theologically sophisticated material in the entire “Science and Religion” pamphlet series—despite the fact that Harry Emerson Fosdick and Shailer Mathews, two of the most influential Protestant clergy in the nation, wrote some of the other pamphlets. Why do beauty and the care for beauty, Schmucker asked, seem to increase with time in evolutionary history? “Why is the whole trend of the history of the animal and plant-world, in spite of occasional lapses, steadily upward, through long, succeeding ages?” The answer was the immanent God, whom Schmucker virtually equated with the evolutionary process itself. “The laws of nature,” he stated, “are not the decisions of any man or group of men; not even—I say, say it reverently—of God. The laws of nature are eternal even as God is

⁴³ *Through Science to God: The Humming Bird’s Story, An Evolutionary Interpretation* (Chicago: American Institute of Sacred Literature, 1926). On the pamphlets, see Edward B. Davis, “Science and Religious Fundamentalism in the 1920s: Religious Pamphlets by Leading Scientists of the Scopes Era Provide Insight into Public Debates about Science and Religion,” *American Scientist* 93 (May-June 2005) 254-60.

⁴⁴ *Through Science to God*, 2, 12-13, and 19-20.

eternal.” Probably unaware that Isaac Newton himself had explicitly rejected both the physics and the theology he was about to utter, Schmucker then said that gravitation “is inherent in the nature of the bodies. It was not ‘put there’ by a higher power.”⁴⁵ His concluding paragraph is as pure a confession of divine immanence as has ever been written:

The laws of nature are not the fiat of almighty God, they are the manifestation in nature of the presence of the indwelling God. They are the principles of his being as they shine out, declaring his presence behind and within and through the whirling electrons. These eternally restless particles are not God: but in them he is manifest. Science, in studying them, is studying him. Science is man’s earnest and sincere, though often bungling, attempt to interpret God as he is revealing himself in nature.⁴⁶

Blending the language of Christianity with that of evolution, Schmucker constructed an evolutionary theism that stripped God utterly of transcendence and removed from the laws of nature every ounce of the sense of contingency that was central to the development of early modern science. His God was coeval with the world and virtually indistinguishable from the laws of nature, and the evolutionary progress they had produced was the source of his ultimate hope. It was through the very struggle for existence, he said elsewhere, that “God is ever raising his great creation to higher and nobler levels.”⁴⁷

Human beings occupied a central place in this progressive scheme. The process of evolution would, he argued in *The Meaning of Evolution*, lead inevitably to our moral perfection as we slowly but surely cast off our animal nature. If “the guiding hand of an Almighty God” had made men from apes, “then this is only an earnest and foretaste of that which may be expected in the future. A time will come,” he added, “when man shall have risen to heights as far above anything he now is as to-day he stands above the ape.” Indeed, there seemed “no end” to what “Infinite Power” and “limitless time” could bring about in the human character. “Slowly the brute shall sink away, slowly the divine in him shall advance, until such heights are attained as we today can scarcely imagine.”⁴⁸ God was working yet to perfect in us a higher moral nature, to transform us from Neanderthals into His own image. “Not to believe this,” he wrote in *Man’s Life on Earth* (1925), “is not to see in the working of the world the presence of the Eternal

⁴⁵ *Ibid.* 20-22. In a famous letter to Richard Bentley of January 17, 1692, Newton wrote, “You sometimes speak of gravity as essential and inherent to matter. Pray do not ascribe that notion to me...” H. S. Thayer, *Newton’s Philosophy of Nature: Selections from His Writings* (New York: Hafner Press, 1953), 53. In fact, for much of his life Newton believed that God was probably the direct cause of gravitation; his understanding of divine activity and governance of the universe was fundamentally different from that often attributed to him by later writers. See Edward B. Davis, “Newton’s Rejection of the ‘Newtonian World View’: The Role of Divine Will in Newton’s Natural Philosophy,” in *Facets of Faith and Science, vol. 3: The Role of Beliefs in the Natural Sciences*, ed. Jitse M. van der Meer (Lanham, MD: University Press of America, 1996), 75-96.

⁴⁶ *Through Science to God*, 22.

⁴⁷ *Heredity and Parenthood*, 207.

⁴⁸ *The Meaning of Evolution*, 190-1.

Power whom Jesus taught us to call Father.” Why should we believe that evolution has ceased, without bringing us to moral perfection? Why not see in the correction of our own faults “the future path of evolution? Driven, by a Spirit that groans and travails through all creation,” the animal and vegetable kingdoms “have steadily risen to higher and higher levels, without leaving unoccupied the lower ranks.” Out of all “has risen a creature capable of recognizing the Power which has made and is making him what he is, and filled with a striving to work towards His likeness.” “Truly,” Schmucker concluded with a nod to the apostle Paul, “it doth not yet appear what we shall be.”⁴⁹

As the reader might guess, Schmucker was an ardent, outspoken advocate of what he called “the new, and as yet very imperfectly developed practical science of Eugenics.” The “high hope” of eugenics, as he put it, was to “increase the proportion of fine strong beautiful upright human families and diminish the ratio of shiftless, weak, defaced, unmoral people,” and thereby “the world will be bettered for ages.” Both eugenics (“the scientific knowledge that would improve the stock”) and euthenics (“that which would better the surroundings in which that stock must grow up”) would have plenty of work to do, for “There is no limit to human perfectibility. There is enough perfectly certain knowledge now on both sides of the problem to make human life a far finer thing than it now is,” if only enough people could be “persuaded of the truth of what the scientist knows and to act on it.”⁵⁰

Despite his enthusiasm for it, Schmucker said relatively little about the actual practice of eugenics and euthenics in *Heredity and Parenthood* and his other books. One subject he did address was interracial marriage—and he was very open-minded yet realistic in his attitude. “As a scientific problem,” he noted, “most biologists are agreed that the question is quite open whether mixed races, in the absence of social and political stigma, are not entirely the equal of so-called pure races. It will be ages before there will be any larger intermingling of races. We believe religiously in the brotherhood of man; but practically we are far from accepting it as true.”⁵¹

Schmucker believed that eugenics was the best means by which humans could carry out God’s desire to eliminate sinful behaviors—even sexual promiscuity, the exploitation of workers, and undemocratic systems of government. He was hardly alone in this. Liberal Protestant scientists and clergy of the 1920’s took to eugenics as bees take to pollen—despite the fact that Francis Galton, who coined the word “eugenics” in 1883, had seen it as form of scientific religion that would replace traditional religion. The liberals understood their own faith more in terms of appropriate moral actions than traditional doctrinal beliefs, such as the salvation of fallen and sinful humans through the blood of Christ. They believed that evolution is simply God’s way of creating humanity and, given their further belief in the possibility of improving human nature, they saw many eugenic reforms as morally appropriate means to spread the kingdom of God on earth. Liberal clergy were especially keen to cooperate with scientists at a time when their conservative religious brethren were fighting tooth and nail against evolution.

⁴⁹ *Man’s Life on Earth*, 281 and 285-6.

⁵⁰ *Heredity and Parenthood*, vi and 13-14.

⁵¹ *Man’s Life on Earth*, 267-8.

Edward Davis on Samuel Christian Schmucker: 15

Fosdick and dozens of other pastors served formally as advisors to the American Eugenics Society, while Schmucker and many other Protestant scientists offered explicit religious justification for their efforts to promote eugenics.⁵²

Whether or not they shared his enthusiasm for eugenics, many ordinary people obviously appreciated Schmucker's efforts to bring science down to their level and to relate it to their own faith in God. To see what they saw, I will borrow the words of a former student, reviewing one of Schmucker's books in 1930, who expressed appreciation in the following words:

The debt owed by science to Dr. Schmucker for his skill at popularization of biology cannot be estimated, nor can that owed by countless young people to him for his sane and understanding counsel on what to them were vital personal problems. It is exceedingly fortunate that in his writing Dr. Schmucker has been able to preserve so much of his warm personality and of his appealing style.⁵³

This sounds remarkably like what Charles Wagner (perhaps another former student) had noticed back in 1907, early in Schmucker's career, in *The Pennsylvania-German* magazine. "As teacher and lecturer," he wrote,

Dr. Schmucker takes his audiences and classes captive at the first meeting. His cheery, breezy manner; his full, clear knowledge; his earnest convincing tones; his rich fund of apt anecdotes, and his ripe store of personal experience—all of this he pours forth so easily and so charmingly that his [class] periods are never cut, but rather they are looked forward to with pleasant anticipation and with eager expectation. To many a student in school, and to many an after-school seeker for wider knowledge and better understanding, his talks have brought the help needed, and to many others he has opened the gateways of knowledge, so that new interests, new enjoyments, even new purposes in life, were born through his stimulating lectures on Nature-Study and kindred subjects.⁵⁴

Those who heard Schmucker typically admired his eloquence, his concern, and his thoughtfulness. Memorials published at the time of his death in December 1943 make frequent reference to his charming personality, keen mind, and rhetorical skill. The comments of literature professor Francis Harvey Green, who praised "His superior scientific knowledge, mingled with his fine Christian faith, his courteous thoughtfulness, joined to his noble generosity, his charm as a public speaker and his worth as a clear and helpful author," are

⁵² Most of this paragraph is taken with permission from my article, "Science and Religious Fundamentalism in the 1920s." For a comprehensive account of religious views of eugenics in this period, arguing that liberal clergy tended to support eugenics, see Christine Rosen, *Preaching Eugenics: Religious Leaders and the American Eugenics Movement* (New York: Oxford University Press, 2004).

⁵³ H. E. W., "Samuel Schmucker And His Searching Essays in Biology," a review of Schmucker's *Heredity and Parenthood*, printed in the *Philadelphia Public Ledger* around February 1930, from a clipping at the Chester County Historical Society.

⁵⁴ Wagner, "Prof. Samuel C. Schmucker," 221.

typical.⁵⁵ But perhaps the most telling tribute came from a friend who simply described him as “one of God’s noblemen.” Each year, he recalled, it was “a rare treat” to hear Schmucker start a series of discussions on “religion and science and many phases of life and conduct.” Schmucker “was ever keen for a good live crossing of mental swords. He was a fine combination of religionist and scientist. He insisted that there could not be two separate kinds of truth, scientific and religious; that they can and must be reconciled; there can be but one kind in the end.”⁵⁶ Whatever else we may say about Samuel Christian Schmucker, he clearly got that message across—and that was his Christian vocation.

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⁵⁵ Letter to the editor, *West Chester Daily Local News*, January 17, 1944, from a clipping at the Chester County Historical Society.

⁵⁶ J. Carroll Hayes, *West Chester Daily Local News*, December 29, 1943, from a clipping at the Chester County Historical Society.