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BRIEF BIOGRAPHY OF HUGH HAMMOND BENNETT

Revised 08/13/15 by Chris Lawrence, NRCS State Cropland Agronomist, Richmond, VA
(804/287-1680 / chris.lawrence@va.usda.gov)

This document consists of excerpts from an on-line biography of Hugh Hammond Bennett, no longer available on the internet, by Maurice G. Cook, Emeritus Professor of Soil Science, North Carolina State University.



Excerpts from:

Hugh Hammond Bennett: the Father of Soil Conservation

*An on-line article by Maurice G. Cook
Emeritus Professor of Soil Science, North Carolina State University*

The Formative Years

Hugh Hammond Bennett was born April 15, 1881, in Anson County, North Carolina. Hugh's father operated a 1,200-acre plantation in the Carolinas.

There were nine children in the Bennett family. For seven years, accompanied by two brothers, Hugh rode a mule to school using a fertilizer sack for a saddle. Sometimes when the mules were needed in the field, the brothers would walk to school and back, a distance of seven miles.



Hugh entered the University of North Carolina in the fall of 1897. By spring of 1899, funds were exhausted and he dropped out of college. He worked for two years in a pharmacy in Wadesboro to earn money to return to school.

Bennett specialized in geology and chemistry at the university. He graduated from the University of North Carolina in the spring of 1903.

Bennett, the Scientist

Hugh Bennett had numerous job opportunities available to him as a result of his college degree and his pharmacy work experience. It was a sheer accident, so he said, that caused him to take a job with the old Bureau of Soils. He saw an announcement for a Civil Service examination for chemist in the Bureau of Soils, U.S. Department of Agriculture. His examination grade earned him an appointment as chemist. However, the filling of the laboratory chemist position was delayed and Bennett was offered a temporary assignment in soil survey field work.

Hugh Hammond Bennett began working on July 1, 1903, in Davidson County, Tennessee. His assignment entailed the classification and mapping of soils by individual types, and observation of their productivity. During his multiple careers, but especially as a soil scientist, he would work in every state of the Union.

Bennett's many observations of soil erosion, originating with his home place in Anson County, were beginning to mold deep impressions in his thinking. Years later he would write, "The damaging effects of soil erosion were in evidence to right and left through the rolling farm country encountered in North

Carolina, Tennessee, and Virginia during my first two years of surveying, but it was not until 1905 that I began to understand just what was taking place on the land." Bennett was referring to his assignment to Louisa County, Virginia, in 1905 to conduct a soil survey with the assistance of W. E. McClendon. He liked to relate the Louisa County experience, which he regarded as sort of an epiphany, i.e., an awakening or revelation about the processes of erosion:

"Bill McClendon of Bishopville, South Carolina, and I were stirring through the woods down there in middle Virginia when we noticed two pieces of land, side by side but sharply different in their soil quality. The slope of both areas was the same. The underlying rock was the same. There was indisputable evidence that the two pieces had been identical in soil makeup. But the soil of one piece was mellow, loamy, and moist enough even in dry weather to dig into with our bare hands. We noticed this area was wooded, well covered with forest litter, and had never been cultivated. The other area, right beside it, was clay, hard and almost like rock in dry weather. It had been cropped a long time. We figured both areas had been the same originally and that the clay of the cultivated area could have reached the surface only through the process of rainwash—that is, the gradual removal, with every heavy rain, of a thin sheet of topsoil. It was just so much muddy water running off the land after rains. And, by contrast we noticed the almost perfect protection nature provided against erosion with her dense cover of forest."

As a result of this observation, Bennett and McClendon conceived the term "sheet erosion," in contrast with rill and gully erosion, which up until then had been the field clues for soil erosion.

The 1905 experience in Louisa County, Virginia, was a turning point for Bennett, one that he referred to throughout his life. In his retelling of the event, he made it clear that the immediate situation, the juxtaposition of a good soil with forest cover and a "washed" soil of the same subsoil provided them the crucial clues to this discovery—soil versus no soil. They could see that the "washed" soil had no topsoil when the contrasting soil was friable and soft, with organic matter, among other things. He attributed the strong impression of the experience to the shock of recognizing the true nature of a process he had lived with all of his life.

A second turning point that helped define the future direction of Bennett's career occurred in 1908 when President Theodore Roosevelt held the Governor's Conference on Natural Resources at the White House. T. C. Chamberlain, Head, Department of Geology, University of Chicago, spoke on "soil wastage." Chamberlain confirmed for Bennett that he was right to be concerned about the soil body and the connection between soils and the survival of a people.

The Bureau of Soils and the soil science community were not ready to adopt Bennett's view that soil erosion was a serious problem and that it should be dealt with actively. In 1909, the Bureau of Soils published its Bulletin 55. In this Bulletin, Professor Milton Whitney, Chief of the Bureau of Soils, argued that the soil was of inexhaustible and permanent fertility: "The soil is the one indestructible, immutable asset that the Nation possesses. It is the one resource that cannot be exhausted; that cannot be used up." At a later time, Bennett reacted to Whitney's statement: "I didn't know so much costly misinformation could be put into a single brief sentence."

Early in his career, Bennett worked hard to establish scientific credibility with a view to persuading his superiors to take initiative on the erosion problem. In the pursuit of this goal, he constructed a strong work ethic and a reputation as the foremost expert on soil erosion in the U.S. He also became the

Bureau's expert on soils of the southern U.S., publishing *The Soils of the South* in 1921, and was the individual in the Bureau of Soils with the most experience of soils in South and Central America.

Bennett gained a reputation as a voracious reader of publications on geology and soils, and as a gargantuan worker, able to endure hardship and privation, as on his assignments to Alaska and to Honduras and Guatemala. Although Bennett was primarily motivated to do something about erosion, he continued to build his professional reputation by contributing to the primary focus of the period, namely, a sound basis for soil classification.

Bennett, the Crusader

From his experiences in the field, Hugh Bennett had a conviction of the importance of erosion. But this conviction was not accepted nor appreciated in the Bureau of Soils, where Bennett's reports were received with indifference and skepticism. Soil conservation meant little or nothing to the public, including farmers.

In the context of such a passive view of erosion, Bennett set out to make people aware of the process and its effects. From the time of the Louisa

County survey, Bennett carried on with survey work, describing erosion wherever he found it and raising awareness of it in the surveys and in his personal contacts.

In 1911, as Inspector for the Southern Division of the soil survey, Bennett was responsible for the classic report on Fairfield County, South Carolina. There, by the account of his staff, 136,000 acres of formerly cultivated land had been ruined by erosion. This was the first survey to allocate a separate section to "Rough Gullied Land" as a soil type. Bennett expected this report to arouse public opinion. It was met instead with massive indifference.

The Fairfield County report was followed in 1913 by a soil survey of Stewart County, Georgia. This survey featured a gully of thousands of acres named "Providence Cave" because it grew by undercutting that had begun where rain dripped from the eaves of a barn. This report was accorded the same cold reception as previous reports.

Bennett seems to have been regarded by the Bureau of Soils hierarchy as a promising, but impetuous, young scientist. After his surveys of 1910, 1911, and 1913 emphasizing erosion, he was sent away on special assignments, as far away as possible it seemed. Whether or not he was intentionally sent away to distance him from his course of action, his publications trail shows him having worked in the Panama Canal Zone in 1909 and 1913, Alaska in 1914 and 1916, and the area bordering warring Honduras and Guatemala in 1919.



Bennett was moved out of the field to Washington in 1918. He persisted in working to establish a sound, scientific reputation by publishing extensively on soils in the South; conducting detailed technical investigations for his articles on the humid tropics; and contributing suggestions for technical improvement in the textural triangle to simplify soil survey work.

Biographers comment that while Bennett was not being advanced in the Bureau of Soils, he was gaining substantial recognition outside his organization as an expert on soils and soil erosion. He had developed many contacts among the public through his soil survey work and he informally promoted erosion control with them. He also had many contacts among the state experiment station researchers because the soil surveys were carried out in cooperation with the states. Bennett kept in communication with researchers who were interested in erosion, and information was exchanged through this network.

In the mid-1920s, Bennett began publishing in the popular and farm magazines, such as *American Game*, *Country Gentleman*, and *Nature*. In total, he published at least 40 items between 1920 and 1930, despite having had several assignments in South and Central America and the Caribbean during that period. His best known publication from this period was the 1928 Circular 33: *Soil Erosion, A National Menace*. The circular was regarded as more effective than any of the preceding erosion bulletins in that it was not technical and did not discuss erosion control measures. Instead, coming shortly after the great Mississippi flood of 1927, the costliest in lives and property the nation had ever seen, the bulletin emphasized only the damages caused by erosion and the need for action to stop it.

Soon after the publication of this circular, Bennett finally saw some federal funding approved for erosion research. This came about through his connection to A. B. Conner, Director of the Texas Experiment Station. According to a prearranged plan, Conner was to discuss erosion with Congressman Buchanan of Texas. When the congressman maintained, as they expected he would, that federal money was to be spent for defense, Conner would bring up the large expenditure for battleships, and then argue that protecting the soil that supports the citizenship protects the nation. This arrangement worked and, as a result, Bennett was soon asked to testify before Buchanan's subcommittee. An amendment was attached to the 1929 appropriation for the Department of Agriculture authorizing \$160,000 over four years for soil erosion research. This money was to be used by the USDA "to investigate the causes of soil erosion and the possibility of increasing the absorption of rainfall by the soil in the United States."

Over a period of two years, Bennett established a network of ten erosion stations in various problem areas of the country: Clarinda, Iowa; Hayes, Kansas; Bethany, Missouri; Statesville, North Carolina; Zanesville, Ohio; Guthrie, Oklahoma; Temple, Texas; Tyler, Texas; Pullman, Washington; and La Crosse, Wisconsin. Of these ten, those at Bethany and Guthrie were already in existence, but experiments at these stations were adjusted so that all of the stations were testing the same variables. With this approach, for the first time, commensurable data on soil erosion from different locations in the U.S. became available. Bennett provided findings from these stations in 1930 at the annual convention of the American Society of Agronomy, the largest and most prestigious body he had addressed up to that point.

More than 25 years after the Louisa County, Virginia, discovery of sheet erosion, Hugh Hammond Bennett finally saw some positive tangible results of his efforts to arouse the American public to act. The soil erosion peril was, for the first time in the nation's history, an official concern.

Bennett, the Administrator

President Franklin Roosevelt, in promoting his New Deal agenda, encouraged the Congress to establish a Civilian Conservation Corps (CCC). The Corps was envisioned as a means of reducing unemployment, making a positive contribution to the future state of the nation's resources, and instilling in the young men of the Corps a sense of a stake in that future. The CCC was established "to carry out reforestation and other conservation projects in the national forests and national parks." A five-million-dollar appropriation was made available for erosion control on private and public lands, with work to be administered by USDA.

Assistant Secretary of Agriculture Rexford Tugwell, a new administrator with Roosevelt's administration, greeted Bennett as the nation's erosion expert. Thus, with Bennett's planning and Tugwell's support, the Soil Erosion Service (SES) was established in the Department of the Interior (DI) in September 1933. Predictably, the head of this new agency was Hugh Hammond Bennett.

Upon receiving the SES appropriation, Bennett lost no time in undertaking work that he had been trying to get done for decades. By mid-October 1933, there were twelve people on the payroll, and the erosion reconnaissance survey was started immediately. One of the first administrative actions affecting the SES was the transfer to it from the Forest Service of over 150 CCC camps.

Over the next two years, Bennett set up approximately 40 large demonstration projects, applying a wide array of soil conserving and restoring practices at the demonstration sites. The CCC participants were engaged in doing the actual work on the demonstration projects, e.g., planting trees, building erosion control structures, planting cover crops. This work was well received by the farming communities and the general public, and it attracted much favorable attention. The value of the SES work was soon to be realized as the forces of nature were about to act in a spectacular way to drive home the reality and devastation of soil erosion.

In 1934, just as the first national survey of soil erosion was being completed, wind storms hit the drought-stricken Great Plains and the term "dust bowl" was born. On May 12, 1934, a major storm hit the plains, later to be described by Bennett as a turning point in the battle to get public attention to the erosion problem:



"This particular dust storm blotted out the sun over the nation's capital, drove grit between the teeth of New Yorkers, and scattered dust on the decks of ships 200 miles out to sea. I suspect that when people along the seaboard of the eastern United States began to taste fresh soil from the plains 2,000 miles away, many of them realized for the first time that somewhere something had gone wrong with the land. It seems to take something like a disaster to awaken people who have been accustomed to great national prosperity, such as ours, to the presence of a national

menace. Although we were slowly coming to realize that soil erosion was a major national problem, even before that great dust storm, it took that storm to awaken the nation as a whole to some realization of the menace of erosion."

In March 1935, a bill was introduced in Congress to set up the Soil Conservation Service as a permanent agency. It was one of many dropped in the hopper under the urgency of the Dust Bowl and its accompanying consequences of depression, unemployment, and hunger. Bennett was called by a Senate committee to argue the case for the proposed legislation. His appearance and what followed it are now legendary. A Bennett biographer, Wellington Brink, graphically describes the event:

"The witness was not cheerful, but he was persistent, informed, and courageous. He told a grim story. He had been telling it all morning. Chapter by chapter, he annotated each dismal page with facts and figures from a reconnaissance he had just completed. . . . The witness did not hurry. He did not want to hurry. That extra ace he needed was not yet at hand. Well he realized that the hearing was beginning to drag. Out of one corner of his eye, he noted the polite stifling of a yawn, but Hugh Bennett continued deliberately. . . . Bennett knew that a dust storm was on its way. He had newspaper items and weather reports to support this knowledge. But it seemed mighty slow arriving. If his delaying tactics were successful, the presence of the swirling dust—material evidence of what he was talking about—ought to serve as a clincher for his argument. Presently one of the senators remarked—off the record—'It is getting dark. Perhaps a rainstorm is brewing.' Another ventured, 'Maybe its dust.' 'I think you are correct,' Bennett agreed. 'Senator, it does look like dust.' The group gathered at a window. The dust storm for which Hugh Bennett had been waiting rolled in like a vast steel-town pall, thick and repulsive. The skies took on a copper color. The sun went into hiding. The air became heavy with grit. Government's most spectacular showman had laid the stage well. All day, step by step, he had built his drama, paced it slowly, risked possible failure with his interminable reports, while he prayed for Nature to hurry up a proper denouement. For once, Nature cooperated generously."

The committee went back to the conference table no longer in doubt. The 74th Congress passed without a dissenting vote Public Law 46, The Soil Conservation Act, the first soil conservation act in the history of this or any other nation. It was signed by the President on April 27, 1935.

With the passage of Public Law 46, the Soil Conservation Service (SCS) was established as a permanent agency in the USDA. The soil erosion and soil conservation activities that had been carried out in the Soil Erosion Service of the Interior Department were transferred to the Agriculture Department. The only logical choice to be the first Chief of the newly created Soil Conservation Service was Hugh Hammond Bennett.

Bennett was disturbed with the slowness of getting conservation on the ground. After two years of work, the SCS reported the completion of less than one million acres of treated land. One reason for the slow progress, thought Bennett, was the lack of involvement of farmers in the nationwide program. Out of this need for farmer participation came the idea of soil conservation districts, an idea credited primarily to Hugh Bennett.

Nearly a year of technical and legal work was required to develop an appropriate document to implement the concept of conservation districts. The completed document was called *A Standard*

State Soil Conservation Districts Law. President Roosevelt sent a letter in February 1937 to all the state governors, enclosing the standard enabling act and recommending that each state adopt such a law as part of an effective national effort to conserve the soil. A total of 22 states had enacted the district enabling law by the end of 1937. The formation of local districts began immediately. It was most fitting that the first conservation district in the nation, the Brown Creek Soil Conservation District, was established in Hugh Bennett's home county, Anson County, North Carolina, in August 1937.

Hugh Bennett officially concluded his career of distinguished public service on April 30, 1952, when he retired from the SCS. He died on July 7, 1960, after a long battle with cancer.

Epilogue

Hugh Hammond Bennett was a special man for a special time in history.

Bennet's scientific training and experience provided a solid foundation for soil erosion research and interaction with scientists. His soil survey experience provided him an understanding of the soils of the U.S. unmatched by anyone else of his time. Also, through his soil survey experience, he developed strong professional associations with soil scientists and personal friendships with people all across the land. These personal and professional relationships stood him in good stead as he assumed leadership responsibilities in the government. Even the cooling-off assignments to distant lands served to strengthen his scientific credibility and extend his interpersonal ties across political and cultural lines.

Hugh Bennett left a rich legacy for all who follow in the soil science profession. He left an enviable publication record: five books; more than 400 technical, semi-popular and popular papers; hundreds of soil survey reports, magazine articles and miscellaneous materials not officially totaled by the USDA.

He struck out many times. He continued to call soil erosion a national menace in the face of official rebuffs. He reached his 47th birthday before any influential scientists would take him seriously. Although Hugh Bennett received many scars, none of them ever dampened his sense of humor, his sense of humanity, or his sense of scientific simplicity.

Hugh Hammond Bennett was many things—visionary, scholar, strategist, politician, tactician, realist, prophet, naturalist, to name a few. A tribute by Louis Bromfield, a well-known conservationist and Bennett contemporary, sums it up well: "Hugh Bennett deserves the greatest honor from the American people as one of the greatest benefactors since the beginning of their history."