



George W. Carver and the Tuskegee Agricultural Experiment Station

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GEORGE W. CARVER AND THE TUSKEGEE AGRICULTURAL EXPERIMENT STATION

In 1896 George W. Carver received a master's degree in agriculture from Iowa State College, turned down a permanent position at Iowa, and accepted an offer from Booker T. Washington to become the head of the new Agricultural Department at Tuskegee Institute. He wanted to go to Alabama to teach agriculture because, as he explained to Washington, "it has always been the one ideal of my life to be of the greatest good to the greatest number of 'my people' possible." Agricultural education, he asserted, was "the key to unlock the golden door of freedom to our people."¹

When he arrived at Tuskegee, Carver quickly learned that his "mission field" offered numerous challenges. Southern farmers, both black and white, suffered from all the ills of northern agriculture and more. Various forces held most southern farmers to a bleak existence of grinding poverty. With poverty came apathy, despair, and a sense of being the victims of some vast conspiracy. In assessing the situation, Carver wrote:

The average Southern farm has but little more to offer than about one-third of a cotton crop, selling at 2 and 3 cents per pound less than it cost to produce it, together with the proverbial mule, implements more or less primitive, and frequently a vast territory of barren and furrowed hillsides and wasted valleys.

Another mortgage may have been added as an unpleasant reminder of the year's hard labor. The Southern farmers, as a whole, have been too slow to admit that the old one-crop and primitive implements are quite out of harmony with the new, up-to-date methods and machinery. Indeed, many are not aware that such conditions exist, and are patiently waiting, starving—blindly and stubbornly refusing to believe that their ills and misfortunes are not due to legislation or social reforms.²

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¹ G. W. Carver to B. T. Washington, 12 April 1896, Box 116, Booker T. Washington Papers, Library of Congress, Washington (hereafter BTW Papers).

² G. W. Carver, *The Need of Scientific Agriculture in the South*, Tuskegee Institute, Farmer's Leaflet 7 (Tuskegee, 1902).

Actually, legislation did have something to do with the plight of the farmer. State contract and debtor laws, coupled with a lack of credit facilities, led to the evolution of the crop-lien system and various forms of peonage. The Civil War had brought a transformation, but not elimination, of the southern plantation system. Land was still concentrated in the hands of a relative few, only now the landlords were frequently absentee landowners. Without land to mortgage, farmers resorted to mortgaging their future crops to landlords or merchants. These creditors usually insisted on the planting of the favored cash crop—cotton. At the end of the year it was a rare tenant farmer or sharecropper who had grown enough to start the new year free of debt. Usually each year the crushing burden of debt increased, leaving the farmer in a state of semislavery.³

Other factors worked to the detriment of the small farmer. Fluctuating agricultural prices, unfair taxation policies, lack of adequate transportation facilities, deflation, and poor marketing conditions all played a role in the chronic ills of agriculture. The problems were complex, and the farmer bewildered. To many trained agriculturists, like Carver, scientific agriculture seemed to promise salvation. In the 1880s agriculture had just begun to emerge as a scientific discipline, and much remained to be learned about all phases of farming. The land-grant colleges established by the Morrill Act wanted federal funding for agricultural research. The administrative heads of these colleges formed a loose association in the mid 1880s which undertook as its first campaign the passage of the Hatch Act. The resulting legislation in 1887 bore the mark of its creators. A federal research grant of \$15,000 per state was to “be divided between such institutions as the legislature of such State shall direct.” In the South the Hatch funds went the way of most of the land grants of 1862—exclusively to whites.⁴

Theoretically the southern land-grant institutions served all, but their doors were closed to blacks. In 1887 dividing Hatch funds between white and black land-grant colleges would have been impossible. Black land-grant colleges were not “separate but equal”; they were “separate

³ Theodore Saloutos, *Farmer Movements in the South, 1865–1933* (Lincoln: University of Nebraska Press, 1964), 1–30; Pete Daniel, *The Shadow of Slavery: Peonage in the South, 1901–1969* (Urbana: University of Illinois Press, 1972), 19–26; C. Vann Woodward, *Origins of the New South, 1877–1913*, vol. 9 of *A History of the South*, ed. Wendell Holmes Stephenson and E. Merton Coulter, 10 vols. (Baton Rouge: Louisiana State University Press, 1947–), 175–88.

⁴ H. C. White, “The Experiment Stations,” reprint from *Proceedings*, Twenty-sixth Annual Convention of the Association of American Agricultural Colleges and Experiment Stations, Atlanta, Georgia, 13–15 November 1912; Jim Hightower, *Hard Tomatoes, Hard Times* (Cambridge, Mass.: Schenkman Publishing Co., 1973), 10–13; *U.S. Statutes at Large*, 24: 440.

and nonexistent.” By 1890 the complete abandonment of black farmers began to trouble the northern conscience, and when the second Morrill Act was passed to increase the funding of the land-grant colleges, a provision for the establishment of black land-grant colleges was tacked onto it.⁵

Some seventeen “1890 colleges,” as they came to be called, were established. The label was significant because the differentiation between the white 1862 colleges and the black 1890 colleges went beyond mere names. The 1890 colleges received a dismally low percentage of state and federal funds. Nevertheless, Booker Washington was ever eager to secure more for his school, and in 1890 had tried unsuccessfully to obtain some of the funds provided by the second Morrill Act. Instead the grant went to the state school at Huntsville, headed by W. H. Councill.⁶

In 1896 both Councill and Washington wanted the Alabama state legislature to provide funds for an experiment station at their schools. Although Councill was willing to “out-accommodate” Washington, by this time Washington had a number of factors in his favor. His Atlanta speech had won him national recognition and increased contributions, making possible the construction of a new agricultural building. He had carefully cultivated a number of prominent Bourbon politicians in Alabama and knew the arts of political bargaining. If these factors were not enough, Washington led a group of legislators through a tour of his campus, which allowed them to meet his impressive new head of the Agricultural Department—Carver. Also going to Montgomery to lobby, Washington outmaneuvered Councill and won the battle for the experiment station, even though the land-grant college was the more logical place for such a station.⁷

In reality, the two men were battling for a crumb. Typically, the financial support provided by the act to establish the station was rather token. Whereas the experiment station at nearby Auburn received \$15,000 of Hatch Act money each year, Tuskegee’s station received \$1,500 of state funds annually. There were also no provisions for land or buildings, which were to be supplied by the Institute. Nevertheless, Washington could claim a symbolic victory in obtaining the first all-black experiment station in the United States.⁸

⁵ *Ibid.*

⁶ Horace Mann Bond, *Negro Education in Alabama: A Study in Cotton and Steel* (Washington: Associated Publishers, 1939), 204.

⁷ *Ibid.*; *Montgomery (Alabama) Advertiser*, 4 December 1896; 22, 23, 26 January, 13 February 1897.

⁸ *Acts of the General Assembly of Alabama, 1896–1897* (Montgomery: 1897), 945–47; White, “Experiment Stations,” 15–17.

Other features besides black administration and low funding set Tuskegee's experiment station apart from others. Its failure to receive any Hatch Act funds placed it in a kind of stepchild relationship with the U.S. Department of Agriculture (USDA). The Hatch Act established an Office of Experiment Stations within the USDA to oversee the stations receiving federal funds. These stations, which were required to file annual reports to justify the use of their appropriations, received advice and aid from the USDA. Tuskegee's station might have been completely ignored by the federal government had it not been for Secretary of Agriculture James Wilson, a former teacher and close friend of Carver. Instead, Alfred C. True, the director of the Office of Experiment Stations, included Carver's station in the activities of his office, asking him to file voluntary reports and sending him all the publications of the office. True also included the Tuskegee Station in his reports, although he apparently received with some degree of incredulity Carver's assurances that \$1,500 constituted all the station's funding.⁹

Under Secretary Wilson the USDA tried to aid Carver's work by enlisting him as a collaborator in research projects directly under the department's control. Usually such aid came in the form of sample seeds, fertilizers, or equipment to be tested, not monetary grants. Most of the USDA's research funds went to state legislatures and not to the research units themselves. The filtering process for these and other federal funds generally meant blacks received a disproportionately small share of such money. Carver was no exception. For example, when the Adams Act of 1906 increased federal research funds from \$15,000 to \$30,000 per state, all of the increase went to the Auburn station, placing the funding of Carver's station in a one to twenty ratio to it, instead of one to ten. Actually the discrepancy was even greater, because the Auburn station received other funds from the state and college, while Tuskegee's did not.¹⁰

In some ways the Tuskegee station resembled all the others in organization. It had a director and a board of control. The board was composed of the state commissioner of agriculture, the president and

⁹ White, "Experiment Stations," 15; A. C. True to G. W. Carver, 21 September 1906, 16 January 1909, Box 7, George W. Carver Papers, Tuskegee Institute Archives, Tuskegee, Alabama (hereafter GWC Papers). The originals of these letters are found in Record Group 164, National Archives, Washington (hereafter originals from the National Archives will be cited [NA RG]).

¹⁰ If James Wilson was unable to give Carver any significant financial support, he did provide him with a steady barrage of "encouraging words." James Wilson to G. W. Carver, 12 September 1898, 21 June 1901, Box 1, Jessie P. Guzman Collection of Carver Materials, Tuskegee Institute Archives, Tuskegee, Alabama; James Wilson to G. W. Carver, 6 September 1906, Box 1, Austin W. Curtis Papers, Michigan Historical Collections, Ann Arbor (hereafter JPG Carver Collection).

the experiment station director of the agricultural college at Auburn, and the members of the board of trustees of Tuskegee Institute who lived in Tuskegee. While it was given the power to supervise the work of the Tuskegee station and to suggest experiments, the Board never played a very active role. In reality, Booker T. Washington was a one-man "Board of Control." Washington was greatly interested in the work of the experiment station because he was anxious for it to be a credit to the Institute and to blacks. As was often the case, his expectations were sometimes exorbitant, and Carver rightfully resented impossible demands that were frequently not backed by any significant financial support.¹¹

Yet Carver, probably more than anyone else, wanted the station to be a success. He entered the work with an enthusiasm typical of a man who had often won despite the odds. In his first experiment station bulletin, published in 1898, Carver set forth the goals of his station, declaring that "neither time nor expense will be spared to make our work of direct benefit to every farmer." Expressing a desire not to duplicate the efforts of other stations, he noted that he would quote from other station's bulletins when "their work bears directly upon our interests." He also invited farmers to send samples of soils, fertilizers, insects, and feeding stuffs to the station for analysis and urged "every farmer within reach, to visit our Station frequently and come in more direct touch with us." Although this kind of invitation was fairly standard among experiment stations, black farmers likely felt more comfortable in accepting an offer from Carver than one from Auburn.¹²

Regarding the publication of bulletins, Carver promised to issue a bulletin about once a quarter and, as far as possible, to provide them free of charge. Publishing bulletins was considered one of the major functions of experiment stations. Quite often these early publications from white experiment stations reported the findings of experiments and were directed more at other researchers than at farmers. Thus many employed careful scientific language that described results, but only hesitantly suggested applications of those results.¹³ Carver, on the other hand, promised that "few technical terms will be used, and where such are introduced, an explanation will always accompany them."¹⁴

¹¹ *Acts of Alabama*, 1896–1897, pp. 945–47; G. W. Carver to A. C. True, 8, 14 May 1903, Box 5, GWC Papers [NA RG 164].

¹² G. W. Carver, *Feeding Acorns*, Tuskegee Institute Experiment Station, Bulletin 1 (Tuskegee, 1898).

¹³ Frederick B. Mumford, *The Land Grant College Movement*, University of Missouri Agricultural Experiment Station, Bulletin 419 (Columbia, 1940), 105–7; Roy V. Scott, *The Reluctant Farmer: The Rise of Agricultural Extension to 1914* (Urbana: University of Illinois Press, 1970), 138–40.

¹⁴ Carver, *Feeding Acorns*.

As a result, while Carver's bulletins rarely contained radically new scientific ideas, they were generally more simply written and readable than most. In the production of bulletins, as well as many other areas of his career, Carver often played the role of interpreter rather than that of innovator.

Carver fell far short of his optimistic projection of four bulletins a year. During Washington's lifetime, he averaged only a bulletin and a half each year, which was one of several sources of conflict between Washington and himself. The principal was concerned about the unfavorable comparison that could be made between the volume of Carver's production and that of other stations. The station at Auburn did outproduce Carver several times over, but such a comparison was unfair. With two exceptions Carver personally produced all the thirty-one bulletins written by 1916. By 1905 the Auburn station staff numbered thirteen men, and more than half of them held advanced degrees. Few of the thirteen could have had outside demands on their time that were comparable to those under which Carver labored.¹⁵

Nevertheless, Washington relentlessly pressured Carver, complaining, "I cannot feel that your department is doing justice to the matter of getting out the Bulletins." In the same letter he reluctantly granted Carver's request for a stenographer to help with the bulletins but warned him not to "make a mistake of becoming dependent upon this kind of help."¹⁶ Carver was expected to conduct the research, prepare the manuscript, and do the typing, but he was not provided with a printing press. Consequently, although Washington demanded more bulletins, when a finished manuscript was submitted to the school's printing office, Carver was often told there were no funds to print bulletins, and at least one bulletin was never published. At one point, after Carver had waited six months to get three different bulletins printed, he expressed his bewilderment to Washington. "I do not understand where the Experiment Station appropriation goes," he wrote, "I am very confident I have not used it."¹⁷

¹⁵ *Eighteenth Annual Report of the Agricultural Experiment Station of the A. & M. College, Auburn, Alabama* (Montgomery: Brown Printing Co., 1906). Carver not only operated the experiment station; he taught an average of four to five courses a day, served as the head of the Agricultural Department, and performed numerous miscellaneous duties at Tuskegee. See Linda O. Hines, "Background to Fame: The Career of George W. Carver, 1896-1916" (Ph.D. diss., Auburn University, 1976).

¹⁶ B. T. Washington to G. W. Carver, 1 April 1909, Box 7, GWC Papers. The original of this letter is in the BTW Papers (hereafter originals from the BTW Papers will be cited [BTW]).

¹⁷ G. W. Carver to J. H. Washington, 9 February 1912, G. W. Carver to B. T. Washington, 30 December 1913, Box 9, GWC Papers [BTW]; Minutes of the Executive Council, 27 February 1911, Box 1009, 17 February 1914, Box 1011, BTW Papers; "Eighty Birds of Macon County, Alabama, and Their Relation to Our Prosperity,"

Usually, between 2,000 and 5,000 copies of a bulletin were printed. It rarely took long for the supply to be exhausted, and getting money for reprints was even harder than for the first printing. This was frustrating to Carver, for he was delighted by the growing demand for his bulletins. He believed that this demand resulted from his unique "three-fold idea" in the writing of some of them. Carver sought to supply three different groups with valuable information in one publication. Thus several of his bulletins contained simple cultivation instructions for farmers, a "little of the history, botany, entomology and fungus diseases" of the plant for teachers, and recipes for housewives. Actually this was only one of the many kinds of publications produced by Carver. His bulletins covered a wide range of subjects and utilized various styles, from simple farming instructions to one mycological treatise.¹⁸

Both the variety of subjects and the multileveled approach of Carver's bulletins illustrated his unique position among agricultural researchers and educators. Other experiment station staffs included chemists, botanists, entomologists, and mycologists. At the Tuskegee station all these positions were filled by one man—Carver. This situation had its advantages and disadvantages. Obviously the division of Carver's labors made it practically impossible for his original research in any one given field to measure up to that of the specialists. Yet more than his working conditions pushed Carver toward the role of generalist in an age of increasing specialization. He viewed the world as an organic whole and was interested in all facets of nature and the relationships between them. Being a generalist meant Carver did not excel in any single branch of science, but his combined knowledge of the various branches was exceeded by few. The scope of his knowledge was a decisive factor in his becoming one of the most effective agricultural educators and scientific popularizers of his era.¹⁹

Many of the experiments he conducted on the ten-acre experimental plot were similar to those at other stations. He conducted fertilization experiments, tested grains and crops not usually grown in Alabama, developed a hybrid cotton seed, investigated various kinds of livestock raising, collaborated on a number of mycological articles, and under-

1914, Typescript, Box 65, GWC Papers; G. W. Carver to B. T. Washington, 20 June 1912, Box 9, GWC Papers [BTW]. A public accountant sent in 1907 to examine Tuskegee's use of the experiment station appropriation found charges against the account by other departments (*Tuskegee (Alabama) Student*, 3 August 1907).

¹⁸ G. W. Carver to B. T. Washington, 14 March 1911, Box 8, GWC Papers [BTW]. For more information on other bulletins by Carver see Hines, "Background to Fame."

¹⁹ This evaluation by the author was affirmed in a personal interview with Dr. Paul R. Miller, Beltsville, Maryland, 13 October 1975.

took other activities typical of all experiment stations.²⁰ Carver made no revolutionary departures from standard procedures, and none of his findings had a radical impact on the practice of scientific agriculture. The emphasis of his work, however, was decidedly different from that of most stations. Actually his lack of funds may have been a blessing in disguise, for most of his results were within the reach of the "man furthest down," the black farmer.

Many of the standard practices of scientific agriculture were sound in theory, but could not possibly be duplicated by impoverished sharecroppers and tenant farmers. Partly by intention and partly because of existing limitations, Carver's station became more of a "little man's station" than others. Even though his experiments were aimed at all levels of farming, Carver spent significantly more time on projects that required hard work and the wise use of natural resources rather than expensive implements and fertilizers.

For example, Carver selected one acre of the poorest land in the experiment station fields for a soil-building experiment. Using good cultivation practices and rotating between soil enriching plants like cowpeas and velvet beans, he was able to increase dramatically the productivity of the soil without heavy use of commercial fertilizers. In 1897 the yield of the one-acre plot resulted in a net loss of \$2.40, but by 1903 Carver was able to produce a net gain of \$94.65 from the same acre. The results of this experiment were published in 1905 as Bulletin 6, *How to Build Up Worn Out Soils*. The bulletin stated that the experiment was conducted "keeping in mind the poor tenant farmer with a one-horse equipment" and that "every operation performed has been within his reach."²¹

Carver continued experimenting with organic fertilization, first on cotton crops and then on other kinds of crops. He used two methods of fertilization which were, he declared, "the cheapest and most effective way of reclaiming barren land." The first of these methods was the green-manuring system where "heavy growths of cowpeas, velvet beans, grass, etc." were plowed under in the fall and "rye, wheat, oats, barley, vetch, etc." in the spring. The second method employed a compost made of leaves, muck, and barnyard manure. By this method Carver grew numerous bolls of "unusually large and healthy development" on ordinary cottonstalks and produced about a bale and a half per acre. When he extended the experiment to other crops, he got phenomenal results

²⁰ See Hines, "Background to Fame," chap. 4.

²¹ G. W. Carver to Warren Logan, 3 November 1903, Box 5, GWC Papers; G. W. Carver, *How to Build Up Worn Out Soils*, Tuskegee Institute Experiment Station, Bulletin 6 (Tuskegee, 1905), p. 4.

and vegetables of gigantic size.²² Obviously, if a tenant farmer could reduce his need for commercial fertilizer, the chances of lifting his burden of debt improved.

Cotton was still “king” in the South, and Carver, like other agricultural researchers of the day, tried to find ways to help farmers increase the quantity and quality of their cotton production. In addition to his fertilization experiments, he developed a hybrid cotton seed and published five bulletins on cotton culture by 1915.²³ Yet Carver was a dreamer, more interested in discovering something to end the debilitating reliance upon cotton. James Wilson shared this dream, and, in a joint USDA and Tuskegee project, they tried to develop silk culture in Alabama from 1901 to 1904. Carver was encouraged by the initial success and declared that “something is going to be done for our people which will be far reaching and of lasting benefit to them.” The glowing hopes in silk culture began to fade in the face of practical difficulties and waning interest. Apparently the project quietly collapsed within a few years.²⁴

After Carver lost interest in silk cultivation, he devoted the years from 1902 to 1905 to finding crops that would both build up depleted soil and be attractive to farmers. With the cooperation of the USDA, Carver experimented with sugar beets and a new variety of cowpea. Then in 1903 he began “making a pretty thorough test of the Spanish peanut.”²⁵ Gradually Carver started to focus his attention on three crops that seemed most promising to him: cowpeas, sweet potatoes, and peanuts. He realized that while farmers were desperate for help, they

²² G. W. Carver to B. T. Washington, 31 March 1910, Box 8, 26 November 1910, Box 9, GWC Papers [BTW]; Harry Simms, “A Visit to the Tuskegee Institute Experiment Station,” *Tuskegee Messenger*, 20 September 1912.

²³ G. W. Carver, *Fertilizer Experiments with Cotton*, Tuskegee Institute Experiment Station, Bulletin 3 (Tuskegee, 1910); G. W. Carver, *Cotton Growing on Sandy Upland Soils*, Tuskegee Institute Experiment Station, Bulletin 7 (Tuskegee, 1905); G. W. Carver, *How to Make Cotton Growing Pay*, Tuskegee Institute Experiment Station, Bulletin 14 (Tuskegee, 1908); G. W. Carver, *Cotton Growing for Rural Schools*, Tuskegee Institute Experiment Station, Bulletin 20 (Tuskegee, 1911); G. W. Carver, *A New Variety of Cotton*, Tuskegee Institute Experiment Station, Bulletin 26 (Tuskegee, 1915).

²⁴ James Wilson to G. W. Carver, 25 November 1901, 27 March 1902, G. W. Carver to James Wilson, 25 April 1902, Box 1, JGC Carver Collection [NA, RG 16, Secretary's Correspondence, USDA]; G. W. Carver to L. O. Howard, 22 October 1906, L. O. Howard to G. W. Carver, 30 October, 14 November 1902, Box 4; G. W. Carver to L. O. Howard, 30 April, 3 October 1903, L. O. Howard to G. W. Carver, 7 August 1903, Box 5, GWC Papers, [NA RG 7].

²⁵ G. W. Carver to B. T. Washington, 17 June 1902, Box 4, GWC Papers [BTW]; G. W. Carver to Albert F. Woods, 2 May 1902, A. F. Woods to G. W. Carver, 24 June 1902, Box 4, GWC Papers [NA RG 54]; G. W. Carver to B. T. Washington, 17 October 1904, Box 4 GWC Papers [BTW].

were also reluctant to try anything new. He therefore embarked on a program to convince them of the value of these crops. To do this he stressed not only the soil-building qualities of the plants, but also how the crops could help make the farmer more self-sufficient by meeting needs previously requiring purchased goods.

Beginning with the cowpea, Carver investigated its possible uses. In 1902 he informed Booker T. Washington that cowpeas could be grown in abundance and would meet many of the needs of the school. In November 1903 Bulletin 5, *Cow Peas*, was published. In this bulletin Carver stressed that although cowpeas were not quite as good as alfalfa in nitrogen gathering, they provided "much nutritious and palatable food for both man and beast." To prove his point he gave twenty-five recipes for the use of cowpeas, including directions for making coffee, griddle cakes, soup, pudding, salad, and croquettes. The bulletin was so popular that it was revised and reprinted in 1908. It was followed by a more complete bulletin on cowpeas in 1911, which incorporated his "three-fold" idea to meet the needs of farmers, teachers, and housewives.²⁶

Sweet potatoes seemed especially attractive to Carver because they could be cultivated relatively easily and could be stored for use during the winter months. In 1906 he issued a bulletin on methods of preserving sweet potatoes, and in 1910 he published another of his "three-fold" bulletins. Bulletin 17, *Possibilities of the Sweet Potato in Macon County, Alabama* included information on the history and varieties of sweet potatoes, their cultivation, insect and fungus problems with their treatment, harvesting, storing, canning and the preparation of sweet potatoes for stock food and for human consumption. Few of these ideas were original with Carver. He openly acknowledged that many of the recipes were taken verbatim from a USDA bulletin. But he combined his experience with the existing knowledge to produce a readable bulletin popular enough to require several reprintings.²⁷

The peanut, the crop that eventually won Carver his fame, was the last of the three to receive his attention. It captured his imagination originally because, in addition to its easy cultivation and soil-building

²⁶ G. W. Carver to B. T. Washington, 7 February 1902, Box 4, GWC Papers [BTW]; G. W. Carver, *Cow Peas*, Tuskegee Institute Experiment Station, Bulletin 5 (Tuskegee, 1903); G. W. Carver, *How to Cook Cow Peas*, Tuskegee Institute Experiment Station, Bulletin 13 (Tuskegee, 1908); G. W. Carver, *Some Possibilities of the Cow Pea in Macon County, Alabama*, Tuskegee Institute Experiment Station, Bulletin 19 (Tuskegee, 1911).

²⁷ G. W. Carver, *Saving the Sweet Potato*, Tuskegee Institute Experiment Station, Bulletin 10 (Tuskegee, 1906); G. W. Carver, *Possibilities of the Sweet Potato in Macon County, Alabama*, Tuskegee Institute Experiment Station, Bulletin 17 (Tuskegee, 1910).

properties, it also provided a much needed source of protein. Carver was deeply concerned about nutrition and realized that for the impoverished sharecroppers meat was a luxury beyond their economic reach. His plot work convinced him that the cultivation of peanuts was uniquely suited for the needs of small southern farmers. He began collecting data and recipes for a bulletin on peanuts. The final product, *Bulletin 31, How to Grow the Peanut and 105 Ways of Preparing It for Human Consumption*, was published in 1916 and proved to be one of Carver's stepping-stones to fame.²⁸

Carver had once been an art major, and his artistic temperament made him yearn for more than full stomachs and secure houses for "his people." He wanted their drab existences to be enriched with an appreciation of beauty. Besides preaching on the joys of nature study, he provided practical suggestions for the poor farmer to beautify his dismal surroundings. Few could afford to paint their shacks or landscape their barren yards, which more often than not did not belong to them. They could not afford such improvements, that is, if they relied upon merchants for their materials, but nature provided materials free of charge.

In *Bulletin 21* Carver gave detailed descriptions of how native clays could be prepared for white and color washes to enhance both the exterior and interior of houses. All shades of red, yellow, and white could be made directly from the clays, and even blues and greens could be produced with the addition of a little laundry blue. To prevent interior color washes from rubbing off, one could add glue, well-boiled starch, flour or rice paste, or specially prepared milk. Red clays worked best for exterior use, but white ones worked as well as lime whitewashes. For greater permanence, linseed oil could be used instead of water to thin the clay. The bulletin, Carver declared, was intended to aid the farmer in "making his surroundings more healthful, more cheerful, and more beautiful, thus bringing a joy and comfort into his home that he has not known heretofore."²⁹

To landscape a yard one did not have to rely on an expensive commercial nurseryman. Carver explained in *Bulletin 16* that by turning to the native plants of Macon County one "can find flowers of rare beauty and fragrance, foliage unsurpassed in richness, and fruits, berries and other forms of seed capsules possessing a richness of color and gracefulness of form, which well nigh approaches the ideal in beauty

²⁸ G. W. Carver, *How to Grow the Peanut and 105 Ways of Preparing it for Human Consumption*, Tuskegee Institute Experiment Station, *Bulletin 31* (Tuskegee, 1916).

²⁹ G. W. Carver, *White and Color Washes with Native Clays from Macon County, Alabama*, Tuskegee Institute Experiment Station, *Bulletin 21* (Tuskegee, 1911).

and grace." The bulletin, *Some Ornamental Plants of Macon County, Alabama*, told where to find and how to care for numerous wild trees, shrubs, vines, and ornamental grasses. With only the expense of labor, a yard could be transformed into a beautiful garden.³⁰

The fact that a large portion of Carver's experiment station work was aimed at the "man furthest down" presented special problems. He realized that the farmers who could most benefit from his work could not read even his simplified bulletins. Consequently, under Carver's direction Tuskegee Institute's extension efforts were greatly expanded. The annual farmers' conference, monthly farmers' institutes, short courses, and agricultural fairs opened the doors of the school to those who wanted to learn.³¹ Yet these programs did not reach the more ignorant and remote farmers, and therefore Tuskegee became one of the first schools in the United States to take scientific agriculture directly to the farmers through a "movable school" and demonstration work. Tuskegee's success with these methods convinced Seaman A. Knapp, the head of demonstration work for the USDA, of the value of black extension agents. He had initially been opposed to the use of black agents, but Washington and Carver persuaded him in November 1906 to name a Tuskegee graduate, Thomas M. Campbell, as the first black agent. Thus Tuskegee Institute became the first college to participate directly in Knapp's new demonstration program.³²

Eventually, Carver's increasing age, a reorganization in Tuskegee's Agricultural Department, and other factors caused Carver to turn more and more to the laboratory and the lecture circuit. The extension work was taken over by other people and the plot work at the experiment station ceased in 1925.³³ In the end Carver's dream of scientific agriculture opening the "golden door of freedom" for his people proved to be a false one.

The white domination of the programs of the USDA played a significant role in killing the dream. Economic, social, and technological forces operating to weed out the small farmer from American agriculture received a boost from the land-grant complex's increasing orientation toward large agribusiness units. The aim of Carver's work was the improvement of the quality of life among black farmers, but the evol-

³⁰ G. W. Carver, *Some Ornamental Plants of Macon County, Alabama*, Tuskegee Institute Experiment Station, Bulletin 16 (Tuskegee, 1909).

³¹ For more information on Tuskegee Institute's extension work see Allen W. Jones, "The Role of Tuskegee in the Education of Black Farmers," *Journal of Negro History* 60 (April 1975): 252-67 and Hines, "Background to Fame," chap. 6.

³² *Ibid.*; Thomas Monroe Campbell, *The Movable School Goes to the Negro Farmer* (Tuskegee: Tuskegee Institute Press, 1936); Scott, *Reluctant Farmer*, 232-34.

³³ See Hines, "Background to Fame."

ing system of American agriculture has made the small farming operation economically untenable, so that each day that passes leaves fewer and fewer people to whom the legacy of Tuskegee's work is applicable. Such changes may have come even if all levels of government had made a concerted effort to maintain a viable rural community. The point remains, however, that Tuskegee and other institutions whose work was directed toward the small and landless farmers received a pitiful fraction of the support that state and federal governments granted to the agricultural research units which developed the technology to make the family farmer obsolete. As early as World War I blacks began migrating to northern cities in search of the economic opportunities they could not find in southern agriculture. Urban ghettos filled with displaced rural families ill equipped for city life was a high, and perhaps unnecessary, cost to pay for agricultural efficiency.

Even if factors beyond his control prevented Carver's dream from being fulfilled, his efforts at producing self-sufficient and economically independent black farmers should not be ignored. The fame that finally came in the 1920s as a result of his laboratory and lecture work has obscured this earlier phase of his career. In addition the grueling years of the depression erased many of the gains blacks in Alabama had made with the help of Carver and Tuskegee.

Nevertheless, the combination of Washington's ambition with Carver's advanced agricultural training placed Tuskegee Institute in the mainstream, and sometimes the forefront, of early agricultural research and education. Washington's consummate skill at political bargaining obtained for Tuskegee the only all-black experiment station of the era. Carver's ability and dedication brought remarkable success in the face of incredibly limited resources. The lessons Carver taught were not radically new ideas, but the staples of scientific agriculture, combined with a plea for the wise use of natural resources. Like his white counterparts, he often found large segments of his audience unreceptive. Yet to thousands of blacks in the South, Washington and Carver brought the means for a better life, and this is both an intangible and a significant legacy.