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Genesis: The Birth of the FDA in the Patent Office

May agriculture be ever cherished by the American citizen as the interest of his country greatest in honor, dignity, and importance, and constituting the very foundation of its independence, wealth, and power.¹

Everyone eats. Every day in America people partake of the bounty produced from the nation's farms. More often than not, they do so without hesitating to ponder the role of agriculture in society or the safety of the item they are about to consume. We are afforded this luxury because the Food and Drug Administration watches over the nation's food supply and ensures, to the best of its ability in a world of limited resources, that the food we consume is generally clean and safe. The FDA is a consumer protection agency, whose guidelines insure the integrity of the food and require that manufacturers disclose an extensive amount of nutritional information so that we consumers can make informed dietary choices.

But it was not always this easy. The FDA did not take its current form until 1938.² Prior to that it had gone through a period in which its power and purpose evolved as the needs and desires of the American public changed. In this paper, I seek to trace the origin of the FDA, from 1837, when Henry Ellsworth, Commissioner of Patents, decided that the federal government should undertake to further the public's knowledge of agriculture, through 1862, when the United States Department of Agriculture was created by Congress.³ Due to the voluminous nature of the annual Reports of the Commissioner of Patents and the dearth of secondary sources, I have decided to focus my analysis on the powerful words of the Commissioners

²See Peter B. Hutt and Richard A. Merrill, Food and Drug Law: Cases and Materials, 4-5 (1991).

³See Peter B. Hutt, "Symposium on the History of Fifty Years of Food Regulation Under the Federal Food, Drug, and Cosmetic Act: A Historical Introduction," 45 *Food Drug Cosm. L.J.* 17, 17-18.

themselves as they were presented to Congress in the yearly reports. Through these political documents, I hope to gain a sense for the perspective of the nation and the evolution of the fledgling enterprise that would eventually blossom into one of the nation's most powerful and influential agencies.

During the first 37 years of the nineteenth-century, while Congress devoted resources to protecting and fostering the manufacturing and banking industries, farmers were left to fend for themselves. In his 1837 annual Report, Patent Commissioner Ellsworth described the disparity in treatment:

For commerce and manufactures, much has been done; for agriculture, the parent of both, and the ultimate dependence of the nation, much remains to be done. Husbandry seems to be viewed as a natural blessing, that needs no aid from legislation. Like the air we breathe, and the element of water, which sustain life, the productions of the soil are regarded by too many as common bounties of Providence, to be gratefully enjoyed, but without further thought or reflection. Were the two former susceptible of the same improvement with the latter, who would not rejoice to enrol[1] his name high on the list of philanthropists, by making the first experiment?⁴

Despite the legislature's apparent indifference, Ellsworth found hope in the attitude of patent applicants toward agricultural improvement. He wrote, "[o]f late, however, inventors have directed their attention, with peculiar interest, to the improvement of the implements of *agriculture*, and many labor-saving machines have been patented, which are of the highest utility to the husbandman. These are rapidly increasing and it is scarcely possible to conjecture to what extent the labor of the agriculturist may be diminished, and the products of the country increased, by these improvements."⁵

Recognizing agriculture's importance within society and envisioning the Patent Office as a source of public

⁵*Id.* at 4.

information, Ellsworth planned to extend the Patent Office’s reach into the realm of agriculture. He wrote that new inventions, especially those related to agriculture “will all be collected and exhibited at the Patent Office, and, from the resort of thousands to the seat of Government during the session of Congress, a knowledge of their use and practical application will be extended over the whole country.”⁶ Furthermore, Ellsworth contemplated establishing a “regular system for the selection and distribution of grain and seeds of the choicest variety for agricultural purposes,” which he believed would greatly benefit farmers and the nation at large.⁷ Ellsworth’s passion for reform was fueled by the inventors who flocked to the Patent Office and their penchant for “communicat[ing] a knowledge of every other kind of improvement in agriculture, especially new and valuable varieties of seeds.”⁸ In an age free from the captivating influence of television, computers, and video games, the desire for interpersonal engagement and the exchange of ideas drove men to seek out sources of information and Ellsworth believed “that there [was] no spot in the Union so favorable to this object as the seat of Government.”⁹ In addition to acting as a meeting place for the exchange of ideas, Ellsworth suggested that the Patent Office serve as a distribution center. It would collect plants and seeds from other countries and distribute them throughout the nation to increase the variety and amplitude of the food supply.¹⁰ The process was simplified further because seeds could be gathered, with little effort, by “officers of [the] navy and others in public employment abroad.”¹¹ Ellsworth built on this foundation in 1839 when he “expend[ed] but a small part of the [Patent Office’s] appropriation for procuring agricultural statistics” for the Secretary of State’s next census report.¹² In support of his decision,

⁶ *Id.* at 4-5.

⁷ *Id.* at 5.

⁸ *Id.*

⁹ *Id.*

¹⁰ *See id.*

¹¹ *Id.*

¹² Report of the Commissioner of Patents for the year 1839, S. Doc., No. 111, 26th Congress, 1st Sess. 2 (1840).

Ellsworth praised the usefulness of such statistics in making future predictions concerning crops and financial estimates.¹³ After Ellsworth's 1839 report, Congress appropriated money specifically for "statistics and other agricultural purposes."¹⁴ Ellsworth, however, seemed disappointed with Congress' action remarking in his 1840 report that "[t]he small appropriation made in 1839... has limited the expenses of the Commissioner to the sum granted."¹⁵ He noted that, despite the "small appropriation," over 30,000 packages of seeds had been distributed and welcomed with great appreciation by the agricultural community.¹⁶ In 1842, Ellsworth sought to extend further the Patent Office's reach in agriculture, suggesting that part of the Smithsonian bequest be used for a series of lectures, so that farmers could learn "not only the forms of legislation, but acquire such a knowledge of chemistry and the arts as will enable them to analyze the different soils and apply agricultural chemistry to its greatest effect."¹⁷ The need for this program demonstrates the farmers' apparent inability to mobilize a political lobby. While the importance of agriculture was widely acknowledged, and representatives of the South and West were interested in encouraging and protecting it, the agricultural industry was treated less well than either manufacturing or commerce. There were two reasons why. First, manufacturing and banking were treated as trades. Individuals went to school and learned these skills. Whereas farmers were seen as more self-reliant, rugged individualists. Second, most farmers lacked the time or the means to organize and thereby increase their collective strength. Although wealthy gentleman farmers certainly had occasion to contemplate politics and the political process, they did not necessarily represent the average husbandman. Unlike his banker and manufacturer counterparts, the small farmer lived in the

¹³ *See id.*

¹⁴ Report of the Commissioner of Patents for the year 1840, S. Doc., No. 152, 26th Congress, 2d Sess. 2 (1841).

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ Report of the Commissioner of Patents for the year 1842, H.R. Doc. No. 109, 27th Congress, 3rd Sess. 2 (1843).

country, usually a good distance from his neighbors and lacked clubs and societies through which to pursue political discussion and action.

Ellsworth sought to alter the conception of agriculture as an unthinking pursuit and infuse the industry with a more scientific, scholarly approach. He believed that government encouragement would “stimulate [agriculturists] to excel in their profession.”¹⁸In addition, Ellsworth asked for additional funds so that the Patent Office could produce more detailed agricultural statistics. He wrote, “[t]he diffusion of such information may save millions to the laborious tiller of the soil, besides adding directly to his means of export many millions more. An examination of this subject, and the expediency of fixing it on a more permanent and advantageous basis, by the constitution of an agricultural bureau, or at least an agricultural clerkship, at a moderate expense, to be drawn from the patent fund, is respectfully suggested.”¹⁹Moreover, Ellsworth recommended that a fund be appropriated to allow for personal examination of the crops. “Such indeed are the great benefits to result from personal observation and critical examination, not only of the crops, but agricultural implements—such the importance of explaining the new improvements, and collecting and distributing all the acclimated seeds, which are proved to be so signally productive or beneficial, that the Commissioner of Patents has doubted whether a modification of his duties, in connection with the Patent Office, would not be more useful to the community.”²⁰

¹⁸ *Id.*

¹⁹ *Id.* at 3.

²⁰ *Id.*

While some might wonder if Ellsworth was merely seeking a stipend to travel the country, his passion for agriculture and its improvement was beyond doubt. In each successive Report, Ellsworth urged Congress to become more active in its support of the agricultural industry. The nature of his requests reveal the rudimentary connection between his Patent Office and the future FDA. Although he did not advocate analyzing the safety of food, he did push for public education programs. In addition, he emphasized the importance of science to the advancement of the agricultural industry, a tradition which still exists in today's FDA. All of Ellsworth's recommendations were united by two underlying principles, they were progressive in nature and the public would benefit from their implementation.

Ellsworth continued his crusade for government sponsored education programs in his 1843 Report, in which he wrote, "the offer of free lectures could not fail to produce the most happy results. Thousands would resort hither from every part of our land, to attend a course of lectures at the seat of Government."²¹ He added that "the effects of the instruction obtained would be exhibited in the increased improvements of the people in the various states in the Union."²² In the appendix, which by this time was several hundred pages long and contained letters from all parts of the nation, Ellsworth included articles written on topics such as clarifying sugar and preserving butter in hot climates.²³ These missives were included to provide all reasonable information that would benefit the public.²⁴ In a year in which the electro-magnetic telegraph captured everyone's imagination and the streets of Paris were illuminated by electric spark, Ellsworth managed to provide a substantial amount of information on agriculture in his Report.

²¹Report of the Commissioner of Patents for the year 1843, H.R. Doc., No. 177, 28th Congress, 1st Sess. 3 (1844).

²²*Id.*

²³*See id.* at 4.

²⁴*See id.*

By 1844, Ellsworth's program had produced some positive results. He informed Congress that "[t]he science of agriculture has now become a study, and much greater improvement may be expected. Worn-out lands, that have been, as it were abandoned, are now being reclaimed, under scientific treatment. Guess work and hereditary notions are yielding to analysis and the application of chemical principles."²⁵ Ellsworth also provided concrete examples of the benefits stating that "[t]he superiority of one kind of Indian corn over another is surprisingly manifest. One is filled with oil, the other has no trace of it; hence the superiority of the former for fattening animals. Some grains contain a large quantity of phosphate... and hence their consumption tends greatly to increase the bones of animals."²⁶ By demonstrating the practical implications of these scientific discoveries, Ellsworth hoped to promote further the indivisible relationship between science and agriculture and the concomitant need for a government agency devoted solely to agriculture.

In 1845, Edmund Burke became the new Commissioner of Patents and he continued along the same path as his predecessor, emphasizing public education and the increasing importance of chemistry in agriculture. He wrote, "[t]he report this year will show... that agriculturists themselves are awaking to the consciousness of the importance of their noble avocation, and are calling science to their assistance in their efforts to improve."²⁷ At the same time that inventions such as Eli Whitney's cotton gin and Jethro Wood's cast-iron plow were saving farmers labor, chemistry, specifically "the analysis of soils, products, manures, and the food of cattle and other stock," were making farmers more productive.²⁸

²⁵Report of the Commissioner of Patents for the year 1844, H.R. Doc., No. 78, 28th Congress, 2d Sess. 6 (1845).

²⁶*Id.* at 7.

²⁷Report of the Commissioner of Patents for the year 1845, H.R. Doc., No. 140, 29th Congress, 1st Sess. 14 (1846).

²⁸*Id.*

In addition to continuing Ellsworth's mission to promote agriculture, Burke continued the quest for increased funding. He wrote, "[i]n discharging [the agricultural portion] of my duty, I have severely felt the want of sufficient means to collect important information for the purpose.... If the Commissioner were provided with more ample means, the theater of his operations in this branch of his duty could be greatly extended."²⁹ Burke envisioned more in-depth investigations into foreign techniques and improvements and more seeds for distribution. Like Ellsworth, he questioned Congress' attitude toward agriculture in light of the munificence bestowed on other areas of industry, writing, "[w]hen it is considered that much of the legislation of Congress, and millions of the treasure of the nation, are devoted, in one form and another, for the protection of manufactures, commerce, and other interests, it would not seem unreasonable if a few thousands should be annually appropriated for the promotion and advancement of that greatest and most essential of all the interests of the country—the agricultural."³⁰ In 1848, Burke noted that the nation's population was rapidly increasing and that large amounts of wilderness were being converted into farmland.³¹ He again posited that science was essential for agricultural success, writing that the physical sciences are beneficially applied "in the analysis of soils; in the nature, structure and habits of plants; in the food of plants and the adaptation of soils and manures to their sustenance and growth; in the improvement of the races and kinds of animals; in the invention and improvement of useful implements and machines; and finally, in political economy, which points the agriculturist to the contemplation of his interests as they may be affected by the institutions and the legislation of governments."³² In 1847, Congress had appropriated

²⁹ *Id.* at 15.

³⁰ *Id.* at 15-16.

³¹ Report of the Commissioner of Patents for the year 1848, H.R. Exec. Doc., No. 59, 30th Congress, 2d Sess. 10 (1849).

³² *Id.* at 11.

\$1000 for Professor Beck, an experienced analytical chemist, to study the effect of soil and climate upon grains produced in America and the “effect of a sea voyage and storage upon the flour and meal manufactured from grain and produced here and sent abroad.”³³ Again, Commissioner Burke requested additional funds, hoping that Congress would permit Professor Beck’s unfinished exploration to continue. He justified the program because it would produce “not only results of much scientific value,” but also “very valuable information to the manufacturers and exporters of flour and grain.”³⁴ This report is another example of the attitude toward agriculture at this time. Instead of appealing to Congress for funds purely on the basis of the program’s merit, Burke felt compelled to justify the program in terms of its benefit to producers and exporters. While that demonstrates an astute political mind, because diverse benefits lead to diverse coalitions of support and makes passage of appropriation bills easier, it also shows that agriculture was not yet fully appreciated by Congress.

In addition, the agricultural report had become a source of contention among patent applicants. They felt that an excessive amount of funds were being diverted to the agricultural programs from the task of reviewing patents. The applicants believed that the agency’s limited resources should be spent on items necessary for its primary function, such as increased staff or more patent books. This argument first appeared in the Commissioner’s Report in 1846;³⁵ but in 1848, Burke dismissed the patent applicants’ complaints stating that the agricultural reports have increased the Patent Office’s prestige and notoriety. Therefore, Burke concluded that patent applicants benefited from the existing regime because more people were aware of the

³³ *Id.*

³⁴ *Id.* at 12.

³⁵ Report of the Commissioner of Patents for the year 1846, H.R. Doc., No. 52, 29th Congress, 2d Sess. 16 (1847).

Patent Office and, subsequently, the existence and importance of patents.³⁶ Despite his questionable logic, Burke's public support for the agricultural program was important because it allowed the agricultural report to maintain the momentum it had built during the past decade. Any retreat on Burke's part would have retarded the program's development.

Instead the agricultural section of the Patent Office took another significant step toward becoming the FDA in 1849, when Burke's successor, Thomas Ewbank, wrote the first stand-alone agricultural report. Ewbank immediately placed his imprimatur on the Report, becoming the first Commissioner to deride the existing condition of the nation's agricultural industry. While Ellsworth and Burke had objected to the lack of attention and funds devoted to the agricultural program by Congress, they had always been quick to lavish praise on the toil and industry of farmers. Ewbank, however, contended that improvement was necessary, not to develop the world's best agricultural system, but merely to raise the industry to an acceptable level.³⁷

Although he differed in his approach, the new Commissioner remained faithful to his predecessor's goals of public education and government support. Ewbank declared that the nation's 5 million farm laborers were destroying the soil because they were not educated in the finer points of agriculture.³⁸ Like the prior Commissioners, he concluded that it was the government's "duty 'to promote the public welfare' by widely diffusing among its citizens a knowledge of the true principles of tillage, and by impressing upon them the obligation which every cultivator of the soil owes to posterity, not to leave the Earth in a less fruitful condition than he found it."³⁹ Ewbank added a new feature to the Report, including a discussion of preserving

³⁶ See Report of the Commissioner of Patents for the year 1848, H.R. Doc., No. 59, 30th Congress, 2d Sess. 13 (1849).

³⁷ See Report of the Commissioner of Patents for the year 1849: Part II. Agriculture, H.R. Exec. Doc., No. 20, 31st Congress, 1st Sess. 8 (1850).

³⁸ See *id.*

³⁹ *Id.* at 9.

provisions such as meat, lard, butter, and cheese.⁴⁰This work on preservatives foreshadows the future FDA in that it was the first agency sponsored discussion of food preparedness.

The following year, Ewbank turned the reporting duties over to his subordinate Dr. Daniel Lee, claiming that the agricultural section should be prepared by an agricultural expert. Included in the Report, was a fifty-six page treatise written by Lee entitled, “The Study of Soils.”⁴¹That article began:

If four-fifths of the persons employed in agriculture, in the United States, work 250 days in a year, their aggregate labor exceeds one thousand millions of days in twelve months. The compensation realized for this immense amount of industry depends in a large degree on the fruitfulness of the soil under cultivation. Hence, the study of the sources of fertility, and of the causes of barrenness in improved land, has a direct bearing on the every-day employment of more than two-thirds of the labor and capital of the republic. It is almost impossible to over-estimate the importance of understanding all the elements and circumstances which affect the natural productiveness of the earth.⁴²

This is further evidence and argument that agriculture deserved the attention that was being focused upon it. Not merely because it was the life blood of the populace, but because it was an economic pillar of the country as well. The number of people and hours of labor committed to the industry warranted Congressional attention on a large scale. In addition, it shows the continued importance of chemistry to agricultural development, as well as the expansion of the Patent Office’s role in the agricultural field. In earlier Reports, they would publish letters from farmers on a plethora of topics, now the Patent Office was publishing reports by official government experts.

In his 1851 Report, Ewbank again emphasized the importance of chemistry. He wrote, “[c]hemistry, the

⁴⁰See *id.* at 10-11.

⁴¹Report of the Commissioner of Patents for the year 1850: Part II. Agriculture, H.R. Exec. Doc., No. 32, 31st Congress, 2d Sess. 25-81 (1851).

handmaid of all the sciences, has within a few years past contributed largely to the development of agricultural resources; and in most of the agricultural schools which have been established a competent knowledge of this subject is made the basis of education. In this conjunction of science with what was once supposed to require little beyond mere physical labor are pre-eminently involved the present prosperity and future advancement of nations.”⁴³

In addition, the Commissioner stated that a recent Census showed that agricultural production per acre had increased in areas where science had enriched the soil. Although America still trailed some portions of the world in production, Ewbank was not surprised because “[t]he possession of too much land has hitherto induced a carelessness and slovenly system of husbandry, from the effects which in many of the earliest settled parts of our country we are but now beginning to recover.”⁴⁴ In 1853, the Commissioner reiterated the goals and purpose of the agricultural branch of the Patent Office. He wrote:

it has been the object to promote, as far as practicable, the paramount interests of the farmers and planters of the United States in the improvement of their crops and live stock; the introduction of new and valuable products; the amelioration of the exhausted and unimproved soils of the States lying along the seaboard and the Mexican Gulf; in developing the agricultural resources of those bordering on the Pacific, the Mississippi and its tributaries, the Great Lakes, and the Canada frontier, thereby producing larger quantities, and of better quality, of our chief staples for export and domestic use.⁴⁵

⁴³Report of the Commissioner of Patents for the year 1851: Part II. Agriculture, H.R. Exec. Doc., No. 102, 32d Congress, 1st Sess. 1 (1852).

⁴⁴*Id.*

The Commissioner noted that exchange programs had brought seeds from all over the globe, including tobacco from Cuba; alfalfa from Chili; peas from Japan; and butter beans from Russia.⁴⁶In addition, this Report contained discussion of a catalog of agricultural issues, including articles and letters on domestic animals such as cattle, horses, sheep, bees, and even camels. It also included in-depth discussions of fertilizers, fruits, wines, bread crops, and climatology. The Report was a complete information guide and included, statistics about use and production, new processes, and prices.⁴⁷This foreshadowed the work that the FDA now does with labeling, providing relevant information that allows consumers to make informed choices about their lives. While in the 1850s the Patent Office was concerned more with the producer than the consumer, the technique was the same. The Commissioner sought, through his report, to disseminate useful information concerning all aspects of agriculture to every section of the country, so that America's agricultural industry would be improved.

In 1856, Commissioner Charles Mason focused his Report on the seed distribution program. He noted that individuals had not been complying with the Patent Office's guidelines for the distribution of seeds. The program was designed to introduce a new seed to a region and have some of the product used for future seeds and distributed to others in the area so as to populate the countryside with the new plant. He wrote:

⁴⁶See *id.* at v-vi.

⁴⁷See *id.* at 1-434.

It has been the special desire and object to provide and place within the reach of the people, wherever scattered, the means of propagating such new and improved varieties of plants as they would not otherwise have had access to, and which are adapted to their respective climates. It certainly was never the purpose of Congress to convert this Office into a common seed-store, intended to supply the public at large gratuitously with the means of planting their ordinary vegetable gardens. This fact seems frequently overlooked by applicants to the Office. It requires no little care and discrimination to guard against a growing tendency of this species of abuse. It would not only be overstepping the bounds of propriety, but would be doing injustice to the people at large, if, instead of their being accustomed to depend mainly upon their own efforts for the means of supplying their wants, they should be encouraged to turn their eyes habitually to the government, as a reliance for such purposes. If this were once established as the rule of action, it would be silently but certainly doing much to work a change in the very character of the government itself, by causing it to be regarded in this particular as the fountain of favors and benefits. The people would gradually be parting with that self-reliance which is the parent of energy and the main-spring of success in every undertaking, and which is so necessary to the preservation of individual self respect, and therefore of personal, and finally of national independence.⁴⁸

In addition to serving as commentary on big government, this excerpt shows why the Patent Office's agricultural department focused on assisting producers of goods. In America, at this time, there existed a culture of individualism. The government was designed to address and facilitate national objectives, such as defense or regulating patents or even negotiating with foreign countries for new species of agricultural products. But, it was not the government's job to "give" things to citizens. The seed distribution program was viewed as the most effective means to achieve the goal of "introducing and propagating new and useful products for the public benefit."⁴⁹ As the distribution program had evolved some people had been consuming all of the product and not keeping and distributing the seeds. Mason concluded that if such behavior became widespread, "continuing the system of distribution at public expense" would be improper.⁵⁰ Much like his predecessors, Mason also used his Report to extol the value of science as applied to agriculture. He wrote:

⁴⁹ *Id.*

⁵⁰ *Id.* at vi-vii.

The practical advantages resulting from the services of an entomologist are now fully recognized. The Patent Office Reports for the past two years leave no doubt on this subject. Those of an analytical chemist, when directed in the proper channel, would be equally certain and decisive. The progress in agricultural improvement is founded, in an eminent degree, upon this science. It intimates to us the adaptation of particular articles of food to the production of particular results in the growth of fat, bone, or muscle, in animals; why certain vegetables thrive on one soil and dwindle on another, while exactly the contrary is sometimes observed in regard to other plants; and what species of manures will supply the defects of any given soil, as to prepare it for the healthful growth of a particular product. In short, it renders agriculture a science, giving the farmer the sense of sight and the confidence of knowledge, instead of leaving him to grope his way in the darkness. He is thereby enabled to arrive at important truths, instead of occasionally stumbling over one by accident.⁵¹

This passage demonstrated the importance of science to the agricultural industry and thereby to the nation at large.

Mason, like Ewbank before him, touched on the need to use land in a responsible manner. As the time of manifest destiny wound down, people began to realize that America's ability to expand was probably limited. Toward the end of encouraging responsible land use, Mason wrote that people should balance crops with animal grazing. "The effort to keep up the productiveness of land which is solely used for the cultivation of grain, by means of guano or artificial manures is believed to be a vicious system of agriculture. That such manures are highly valuable in their way... is undoubtedly true; but, after all, with the exception of

the alkalis and phosphates they contain, they do not possess the elements of permanent benefit.”⁵²Mason believed that fertilizers “should be regarded as in the nature of medicines, or like artificial stimulants on the human system. The true pabulum of the soil, provided and arranged by Nature for this very purpose, is obtained by the rearing of live stock, and in no other manner.”⁵³

Consistent with the time in which he was writing, Mason implored the nation’s farmers to regulate their own land use. He dismissed the notion of government farms as contrary to American ideals. Instead, he declared, “[a]s in our political organizations, the arrangement which is deemed most judicious is found by placing the chief machinery in the States, and in the smaller and more distant localities, leaving at the center the least amount of power and contrivance which are sufficient to secure the harmonious working of the whole system.”⁵⁴ Although Mason believed in taking personal responsibility for one’s actions and welfare, he felt that it was the government’s obligation to provide information to those who wanted it. He viewed the recent development of the agricultural societies and clubs that had formed throughout the nation as a useful mechanism for the dissemination of the government’s information. He planned to tap this resource, stating that, “[a]ll that is necessary is to introduce system and order into this great agricultural militia.”⁵⁵He proposed further that Congress appropriate \$6000 annually so that three individuals could travel throughout the country, compiling data on agricultural experiments and techniques and synthesize this data into a report that would provide direction for the agricultural societies already in place. Because of the difficulties with the seed distribution program, Mason suggested that funds could be transferred from that endeavor to finance

⁵²*Id.* at x.

⁵³*Id.*

⁵⁴*Id.* at xii.

⁵⁵*Id.* at xiii.

this new undertaking.⁵⁶In addition, despite his statements favoring small government, he beseeched Congress to legislate on behalf of agricultural interests and offer that industry support and treatment on par with that shown to commerce and manufacturing.⁵⁷While initially the two statements appear contradictory, they are reconciled by Mason's willingness to use the federal government's power to ensure the efficient working of the national system. Certainly, if protecting the agricultural industry from foreign competition was deemed a desirable policy, it would fall to Congress rather than the states to enact that policy.

In the 1857 Agricultural Report, the Commissioner discussed the extent of the agency's chemical experiments. In addition to the typical chemical analysis designed to ascertain the usefulness and economy of several plants, including the cotton plant, potato, and Indian corn, the agency was performing some field testing. An agent was evaluating grape vines in Texas and Arkansas, "with a view to testing their adaptation to wine-making and for table use in various sections of the Union."⁵⁸While this action falls short of consumer protection, the willingness of the agency to not only compile field data, but to test the usefulness of certain products as food illustrates the continuing evolution of the government's agricultural and chemical program toward the modern FDA.

In 1858, Commissioner Holt concluded that people had begun to view agriculture properly, stating, "[a]t the present brilliant epoch in an age of progress more eventful than any which has preceded it, the world seems to have reached a just appreciation of the relative values of facts and theories, and agricultural statistics have assumed importance alike in the eyes of the intelligent farmer, the manufacturer, and the political

⁵⁶*See id.* at xiii-xiv.

⁵⁷*See id.*

⁵⁸Report of the Commissioner of Patents for the year 1857: Part IV. Agriculture, H.R. Exec. Doc., No. 32, 35th Congress, 1st Sess. iv-v (1858).

economist.”⁵⁹In light of increasing concern over deficient agricultural returns in many parts of the country, Holt invited agricultural experts from every section of the nation to go to Washington and offer advice on how to improve the situation.⁶⁰From January 3 to January 11, 1859, this “Advisory Board of Agriculture of the Patent Office” met and made several recommendations to help solve the country’s agricultural concerns.⁶¹The suggestions, not surprisingly, echoed recommendations from past Commissioners. The Advisory Board suggested that Congress “by law provide for the enlightenment of the people by encouraging scientific and practical education in agriculture, in the establishment of colleges and schools.”⁶²In addition, the Board concluded that the Patent Office should continue its current policy of compiling statistics, distributing new seeds, and collaborating with the Smithsonian Institution to collect meteorological information,⁶³but that Congress should provide an increased appropriation to expand the scope of these endeavors.⁶⁴

In addition to collecting and distributing seeds in 1858, the Patent Office constructed a national greenhouse on land in Washington so that fragile tea seeds from China could germinate before being shipped throughout the nation.⁶⁵The Commissioner feared that without this step, the entire crop of seeds would be lost when they

⁵⁹Report of the Commissioner of Patents for the year 1858: Part IV. Agriculture, H.R. Exec. Doc., No. 105, 35th Congress, 2d Sess. iii (1859).

⁶⁰*See id.* at iii-iv.

⁶¹*Id.* at iv.

⁶²*Id.*

⁶³The meteorological information was, in part, designed to help the farmers along the lower Mississippi River know when she was going to overflow her banks and take the necessary precautions. *See id.* at v.

⁶⁴*See id.*

⁶⁵“For this purpose propagating houses were erected upon the government grounds north of the canal, between Four-and-a-half and Sixth Streets.” Report of the Commissioner of Patents for the year 1859: Agriculture, S. Exec. Doc., No. 11, 36th Congress, 1st Sess. iii (1860).

were shipped domestically.⁶⁶In addition to using this ground for the incoming tea plants, the Commissioner used it to breed new varieties of grapes from collected seeds and cuttings of domestic and foreign grapes, in hopes of producing new types of wine for consumption and table use.⁶⁷In addition, the Patent Office commissioned two chemists from different parts of the country to investigate and analyze the ash of the tobacco plant, hoping to determine its effect on the land and where best to place tobacco in a system of crop rotation,⁶⁸further demonstrating chemistry's usefulness in the agricultural field.

The agricultural program's success was evident in the rise of agricultural societies throughout the nation. The Commissioner wrote that, "it is worthy of remark that, within the last four years, the number of Agricultural Societies in the United States... has increased in a ratio of two or three fold, and that the members of these societies have augmented in a still greater ratio, while agricultural schools and colleges are being formed in several of the States."⁶⁹The development of some schools and the sudden, precipitous rise of agricultural societies indicated that the agricultural movement's momentum was building and that both the citizenry and Congress were beginning to pay attention to this industry.⁷⁰ In the 1859 Agricultural Report, Patent Commissioner William D. Bishop gushed about the agricultural program's success during its short history. He wrote:

⁶⁶See Report of the Commissioner of Patents for the year 1858: Part IV. Agriculture, *supra* note 59, at v-vi.

⁶⁷See *id.* at vi.

⁶⁸See *id.*

⁶⁹*Id.* vii.

⁷⁰See *id.* at 92-213 (providing examples of the types of societies that were forming from Alabama to Wisconsin).

It is now about twelve years since Congress adopted the system of making annual appropriations for agricultural purposes. Previous to this time, there seemed to be but little progress made by the people in this branch of our national industry. Agricultural newspapers were then in their infancy, while agricultural societies were scarcely known or heard of. The attention paid by Congress to this subject seems to have awakened the people to its importance. It has stimulated inquiry, encouraged new experiments, and to such an extent has the public mind been excited, that agricultural societies have been formed and are now in successful operation in nearly every county and state throughout the Union. Newspapers entirely devoted to agriculture are published in nearly every State, and at prices which place them within the reach of all.... More recently, a national agricultural society has been established, which will undoubtedly prove valuable as a medium of communication between the various county and State societies. Indeed, so thoroughly have the public become impressed with the importance and necessity of paying more strict attention to improvements in agriculture, that it may well be doubted whether anything Congress may do can give an additional impetus to the movement.⁷¹

Because of the program's success, Bishop was unfazed by the decrease in funds for agricultural pursuits, stating that domestic seeds no longer needed to be distributed.⁷² Despite the lack of funds, the government experimental and propagating garden (as the greenhouses had come to be called) managed to produce "30,000 well-rooted tea plants; 12,000 foreign and domestic grapevines; 900 rooted, seedless pomegranate cuttings; and various foreign, medicinal, and ornamental plants."⁷³ The 1860 Report was perhaps the most visionary in its recommendations and the most outspoken in its language. The Superintendent of

⁷² See Report of the Commissioner of Patents on Agriculture for the year 1859, *supra* note 65, iii.

⁷³ *Id.* at iv.

Agricultural Affairs, Thomas Clemson wrote, “[a] vast majority of the intelligent agriculturists of the country, dissatisfied with the limited functions now exercised by the Government, not only confidently anticipate, but demand an organization at least equal in importance to that of any other department.”⁷⁴ These bold words reflected the frustrations of the proponents of an agricultural bureau. Clemson also suggested that the government engage in an incentive program designed to advance the interests of agriculture by spurring interest and innovation in the field. This could be achieved either by creating bounties or imposing restraints on competition.⁷⁵ Either approach would serve to encourage others to not only enter the industry but to devote time, money, and energy toward innovation and experimentation.

Clemson then launched into a discussion of the agricultural programs of other leading nations, including England, France, Spain, Belgium, Austria, Russia, and Prussia.⁷⁶ The comparison was designed to highlight the deficiencies of the American approach and illustrate that other nations would increase their wealth, power, and independence, as America faded into the abyss of mediocrity. Clemson announced, however, that such disaster could be averted and a finer civilization achieved if the government devoted more attention and money to the nation’s agricultural pursuits.⁷⁷ Praising the current agency and its commitment to scientific discovery for the advancements of the previous twenty-five years, Clemson wrote, “[i]t is only within the last quarter of a century that science has vindicated its true position. Without it there is no help for agriculture [and]... [n]o nation can prosper without progression in this branch of industry.”⁷⁸ He added that through vigilance and further scientific exploration that the advancement of American agriculture would

⁷⁴Report of the Commissioner of Patents on Agriculture for the year 1860, H.R. Exec. Doc., No. 48, 36th Congress, 2d Sess. 5 (1861).

⁷⁵*See id.*

⁷⁶*See id.* at 6-11.

⁷⁷*See id.* at 11.

⁷⁸*Id.* at 13-14.

continue. He wrote:

As is elsewhere intimated in these remarks, the mineral wealth of the nation, so intimately connected with its agricultural prosperity, demands the highest and most intelligent offices of the Government, guided by the lights of science. These great national resources cannot be neglected with impunity; they demand more than any other portion of the nation's dependencies, other cares than they have received; and this interest could not be placed in better keeping than under a Department of Agriculture of ample capacity and power.⁷⁹

This statement accurately captures the tone of Clemson's Report. Much like Ellsworth in 1837, Clemson tried to convince Congress that the nation's welfare was tied to agriculture's success and advancement. Hence, he advised that Congress become more actively involved in the preservation and promotion of the agricultural industry.

Toward the end of ensuring the industry's successful development, Clemson advocated that the government work more closely with the numerous agricultural societies in existence. He suggested that these groups could be used not only to disseminate government information, but also to gather statistical data from their localities.⁸⁰ This recommendation headed a list of seven duties that the Agricultural Agency would either continue or begin performing. The list also included, publishing the yearly report, studying plants for cultivation, entomological investigations into the nature and history of predatory insects that destroy crops, chemical investigations both in the laboratory and field, stocking rivers with fish, and creating examples of useful agricultural practices, such as irrigation, that might be examined and studied by the public.⁸¹

⁸⁰ See *id.* at 20-21.

⁸¹ See *id.* at 22.

Clemson then specifically articulated the usefulness of a division of chemistry within the contemplated Department of Agriculture. He wrote that “[t]he duties of a chemist in connection with this division are most important. [The government] should be able to give information upon all questions of general interest relating to agriculture... such as the analysis of soils and of all other substances.”⁸² He added that “[n]o true assistance can be given to the farmer in which the results of chemistry do not bear a part. The extraordinary progress which agriculture has made within a quarter century is due to it. The prospects for advancement in that vast interest are greater now than ever before, and their realization will doubtless lead civilization to the goal most ardently desired by the majority of mankind.”⁸³ Furthermore, Clemson concluded that “[a]s the science of chemistry takes cognizance of the properties of all substances, and of their action upon each other, its varied and multiplied connections with all that appertains to agriculture is without limit.”⁸⁴ Again, the importance of chemical analysis to the Patent Office’s work and agriculture in general provides the most easily discernible connection between the Patent Office’s Agricultural Department and today’s FDA.

Finally, Clemson closed with the notion that it was unfair to the patent applicants, the agriculturists, and the Patent Commissioner himself to continue to run the agricultural program as a sub-division of the Patent Office. Instead, the contemplated Department of Agriculture should be headed by someone with great familiarity with the relevant sciences and with a singular focus on agriculture. As it stood, reasoned Clemson, both patent applicants and agriculturists were being deprived of the undivided attention of their government officials. Moreover, the Commissioner of Patents was being held responsible for the activities of a branch under his control but outside his expertise. The government, Clemson argued, should restructure the agencies so that the responsibility for agriculture and the credit for the success achieved in that industry fall

⁸² *Id.* at 23.

⁸³ *Id.* at 25

⁸⁴ *Id.*

upon the shoulders of one prepared and accountable for that task.⁸⁵ In his 1861 Report, Commissioner Holloway wrote of the progress that had been made on the grapes in the propagating garden. An eminent Boston chemist had analyzed samples and determined the grapes' chemical composition. He concluded that native grapes possessed the necessary chemical properties to make good wine. The Commissioner hoped that soon "pure domestic wines may supplant the vile and poisonous adulterations, foreign and domestic, now in use, and that there may be saved to the country the considerable sums of money now sent to Europe for foreign wines."⁸⁶ Here is a clear example of the type of consumer protection that, today, is the hallmark of the FDA. One of the goals of the tests was to determine if the wine was injurious or pernicious to health and to solve any possible problems so that any physical threat would be nullified.⁸⁷ In addition, the end result was to provide a wholesome commodity for domestic consumption at a less expensive price than here-to-fore paid. This was one of the earliest examples of this type of pro-active behavior from the agency.

As a result of the Agricultural Division's expanded operations and the importance of agriculture in general, the Commissioner suggested that Congress create a division of Agriculture with its own Secretary, on par with those of State, Treasury, and War. He wrote that it was amazing that this great nation, approximately three-fourths of whom were agriculturists, did not have a Department of Productive Arts, but instead relied on "an appendage to the Patent Office, designed mainly... to furnish members of Congress 'cuttings and garden seeds' to distribute among favored constituents..."⁸⁸ The Commissioner could not fathom how Congress had managed to devise a number of fiscal agencies, but could not devote resources "to promote the welfare of the people who toil."⁸⁹ He submitted to Congress that the nation's agricultural interests

⁸⁵ *See id.* at 25-26.

⁸⁶ Report of the Commissioner of Patents on Agriculture for the year 1861, S. Exec. Doc., No. 39, 37th Congress, 2d Sess. 4 (1862).

⁸⁷ *See id.*

⁸⁸ *Id.* at 5.

⁸⁹ *Id.*

should “be recognized in the government of the State, and have awarded them a *commissioner, with powers for usefulness in some degree commensurate with their magnitude and importance.*”⁹⁰ Despite the less than delicate nature in which he phrased his appeal, the Commissioner’s plea was well received. This would be the last Commissioner of Patents Report on Agriculture because in 1862, Congress created the United States Department of Agriculture and transferred the Agricultural Division of the Patent Office, including its chemical laboratory, to the new Department.⁹¹ The vision entertained by Ellsworth and the other Commissioners finally had come to fruition. In 1862, Congress recognized the importance of the agricultural industry and devoted the necessary resources to treat it as a priority. Although the evolution of the FDA was still far from complete, it had developed rapidly during its twenty-five years in the Patent Office. That Ellsworth’s idea had come so far in such a short period of time is a testament to all the Commissioners and their devotion to public service. It would have been easy for them to ignore the Agricultural Division and focus solely on their primary function, reviewing patents. But, almost too a man, they accepted the challenge and worked feverishly to bring science and recognition to an industry long neglected. While it is likely that the United States would have eventually developed an agricultural agency even without their efforts, the pioneering Commissioners from Ellsworth to Holloway laid the foundation for the rapid development of what has become the most advanced and discriminating consumer protection agency in the world.

⁹⁰ *Id.*

⁹¹ See Hutt, “Symposium,” *supra* note 3, at 18.

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