

Early History of the Experiment Station

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We don't think much about institutions having "personalities." After all, companies, schools, organizations, and so forth, are constructed by humans for human purposes, but they are not human themselves. They are entities that have a legal existence, embodied in corporate charters or legislation or by-laws, but they don't really have an essence or a spirit, do they, beyond the paper creating them?

Well, I think institutions do have a personality. I believe that we can see in them character traits and values, patterns of behavior and commitments, that virtually assume a life of their own. True, the institution itself does not come with a personality. Its personality is imparted to it and strengthened in it by the people who bring life to the paper and the bricks and mortar. It is people who give institutions personalities, and the personalities that develop live on after the people who inculcated them originally pass from the scene.

So it is with the North Dakota Agricultural Experiment Station. It is an institution that manifests a personality largely implanted by the early people there and faithfully maintained by those who have followed them. Fortunately for the state of North Dakota, that personality is a very attractive one, characterized by a devotion to science and to service, and a commitment to helping people achieve all that they can for themselves and their posterity.

The NDAES was founded by remarkable men. They came to North Dakota with a sense of excitement and purpose. They were the bearers of the message of scientific agriculture in a new and strange land. They welcomed the opportunity to build an institution literally from the ground up. When they answered big questions — such as how best to serve the state — and when they answered small ones — such as what the relationship between College and Station would be — they knew they were setting precedents that would live beyond them. As founding fathers they enjoyed the opportunity that few of us enjoy — to shape the future in significant ways.

When we take a look at the early figures at the NDAES the reality that strikes us immediately is their youth. Horace Stockbridge, the first director, was only 33 when he assumed his position, and his four colleagues were all younger. Chemist Edwin Ladd, at 30, was the grey beard of the group; 25-year-old botanist Henry Bolley was the youngest.

The youth of that early staff is something more than just a curiosity. It reflects the fact that a century ago the agricultural sciences were young. The youth of the agricultural sciences had its negative facets. Foremost among these was the reality that these disciplines, with the exception of chemistry and, to a lesser extent, botany, lacked firm intellectual foundations and developed bodies of knowledge. This immaturity meant that practitioners necessarily felt their way along, trying to build sciences at the same time they were trying to serve agriculture and the state. Inevitably, this resulted in errors and mistaken endeavors.

But the newness could be positive too. It imparted a sense of excitement and possibility to the infant disciplines and the



Chemist Edwin Ladd joined the NDAC faculty at age 30, older than most of his colleagues.

people involved in them. The young scientists at the NDAES were evangelists for science. They believed science was the key to knowledge, and knowledge was the means to better, happier, and more abundant living.

They also believed that publicly supported scientific institutions could serve the public interest, that government could and should expand individual opportunity. They were government employees of a new kind, "public servants" in the truest sense of the word. Their fathers had believed that government could provide public education, distribute land, and even free slaves. They believed that by sponsoring scientific research government could free men from ignorance, helping themselves and society.

Today we have grown wary of science, and we distrust government. We tend to see both more as masters than servants. But the people in the NDAES are still believers. They don't think that science has all answers or that government can solve all problems. But they do believe that public science has played and will continue to play a crucial role in improving our lives, our environment, and our world.

The youth of the early scientists reflected the youth of the sciences. It also helped give them the energy and enthusiasm they needed to grapple effectively with the many problems they found in North Dakota.

These men were excited about this state that shared their youth, and most of them grew old in its service. There was so much to do and so few of them to do it. The fact that the early staff members were able to generalize was good for the state. Clare B. Waldron was a horticulturist, but he also served as Station entomologist and became an apostle for farmstead beautification. John Sheppard came as agriculturist in 1895, but he became a specialist in plant and animal breeding. Bolley was a plant pathologist, but he also made himself into a weed specialist and conducted early research on developing alternative fuels from plant matter. Ladd did all of the chemical analysis for the NDAES, while also serving as Station meteorologist and editing a farm newspaper, the **North Dakota Farmer and Sanitary Home**.

As Ladd's editorship of a farm paper indicates, the early researchers at the NDAES sometimes wandered a bit far from agriculture in their attempts to serve the state. Indeed, the early Station scientists had a very elaborate conception of the responsibilities of public servants.

The early researchers took a broad-gauged approach for several reasons. First, they were educated people with broad backgrounds at a time when relatively few people had attained their educational level. These were not simply trained technicians, they were truly educated men. Second, the people of North Dakota needed and wanted their help in a variety of areas. As a state with many social, economic, and scientific problems, and with little in the way of formal public structures to address these, it was natural that North Dakota would turn to the Station. Finally, these men **wanted** to be involved. They wanted to be part of the state, to share in its life, and to address its many problems. They were activists who believed that the scientific method could be applied fruitfully to all sorts of non-scientific problems. These were educated, energetic, concerned activists in a state with many problems. That they should address a whole range of challenges seemed a foregone conclusion to them.

The Station took an especially broad conception of its service role during the directorship of John Henry Worst (1895-1914). Worst was a politician who recognized that Station activism would both help the state and make the NDAES a popular institution. He believed that if the Station was popular and important it would be less vulnerable to petty politicians of the type who drove Stockbridge out of his position in 1893. But popularity and importance demanded activity in areas that transcended agriculture as such. Hence, Worst encouraged his colleagues to follow their reformist inclinations.

It was under Worst's directorship that Ladd became State Food Commissioner and a leader in the national crusade for pure food and drug products, a quest partially crowned by success in 1906 when the Pure Food and Drug Act was passed. It was with Worst's encouragement that Bolley

Henry Bolley, pictured here (left) demonstrating his research on "flax-sick" soil, was one of the original faculty at NDAC.





John Shepperd championed livestock production in North Dakota — with mixed success.

became State Seed Commissioner, inspecting and certifying seed, and a vigorous advocate of economic cooperation in agriculture. And it was when Worst was director that the NDAES undertook politically sensitive research, such as L.R. Waldron's study of abusive dockage practices by North Dakota grain elevators.

Eventually such activities landed the Station in political trouble with powerful railroads, food companies, millers, and seed concerns. And as agricultural science matured, the regulatory work Ladd and Bolley engaged in seemed increasingly pedestrian and inappropriate for experiment station scientists. But the public interest work of the NDAES fulfilled two important functions: it served the state in ways the state needed to be served and it made the Station a vital institution in the lives of North Dakotans.

The high visibility of public interest research in the early years of the NDAES obscured the fact that the Station was always devoted first and foremost to enhancing the incomes and income security of North Dakota farmers and of the state in general.

Stockbridge clarified the purpose of the Station in his first message to the state, when he noted that "we wish to impress upon the attention of the farmers of the State that this institution belongs exclusively to them, that it receives its income for the sole purpose of being expended in their aid, [and] that in its work their desires and interests will be constantly furthered." That definition was subject to broad interpretation, but more than anything else it implied economically oriented agricultural research.

When the Station was created, 80 percent of the state's people lived on farms and 80 percent of farm income was derived from spring wheat. This left the state almost totally dependent on a commodity that was vulnerable to violent price swings and to a host of natural enemies.

The Station attacked the wheat problem in two sensible and related ways. First, it attempted to reduce dependence on wheat, and second, it attempted to reduce the vulnerability of wheat itself.

Reducing dependence meant encouraging diversification. But before agriculture could be diversified it was necessary to discover what could be grown and the best methods of growing it. Consequently, horticulturist C.B. Waldron and agriculturist John Shepperd devoted most of their attention to testing crop varieties and experimenting with cultural methods. Bolley and Ladd, as well, were involved in that endeavor. The search for new crops and improved methods paid dividends. Among other benefits, it led to the introduction of durum wheat and sugarbeets and the discovery of the cause of flax wilt.

Shepperd was a great champion of diversification through the raising of livestock. He urged farmers to raise beef cattle and especially dairy cattle. His efforts to upgrade North Dakota herds ranged from the encouragement of professional stock judging at county fairs to the development of the New Salem Breeding Circuit.

While Shepperd enjoyed some successes, he also had some failures. Never a patient man, he became frustrated by the unwillingness of Norwegians in particular to raise livestock. He attributed their reluctance to an ethnic flaw, complaining at one point that "Scandinavians have worked with fish too much. They do not understand anything with warm blood in it." Shepperd was learning that a public institution can lead people only as far as they are willing to go.

Diversification ultimately proved to be a major contributor to income security in North Dakota agriculture. Today the state ranks second only to California in the number of economically significant agricultural commodities it produces, and the NDAES and the innovative farmers it serves deserve most of the credit.

The Station also attempted to diminish the vulnerability of wheat. Aside from using Ladd's milling and baking studies to promote wheat, there wasn't much that could be done about price fluctuation; it was not until the New Deal agricultural programs of the thirties that this problem was effectively addressed. What the Station could do, and did do, was to attempt to reduce wheat's vulnerability to natural threats. The search for drought-tolerant wheats led to the introduction of new varieties, including the early durums. And the attempt to counter plant diseases led Bolley to crusade for seed sanitation and for the eradication of the barberry bush, a host for stem rust spores. The devastating stem rust problem led in 1916 to the creation of a formal wheat breeding program under L.R. Waldron. This program has been one of the most successful of the many endeavors of the NDAES.

It was not just that the Station served North Dakota that was important, it was **how** it served it. For example, the NDAES always followed the policy of serving the state by telling it the truth, even when the truth was unpleasant and the state didn't want to hear it.

Consider, for example, the case of the Campbell Dry Farming System. This was a cultural system promoted during the 1890s by South Dakotan Hardy Webster Campbell. The system was labor- and capital-intensive, but Campbell claimed that it would produce large and dependable small grain crops on dry land.

As an answer to the prayers of the arid West, the Campbell System was eagerly embraced by those promoting the region. The business interests and railroads championed the Campbell System with particular vigor, and in North Dakota the Northern Pacific provided cash prizes to farmers producing the largest crops using it.

Everybody believed in the Campbell System. Everybody, that is, but John Shepperd, who decided to test it scientifically. He didn't need to investigate it, but he believed it was his duty to serve North Dakota farmers by honestly and skeptically researching all suggested methods, however broadly supported those might be. Shepperd discovered that the Campbell System did not produce better crops than conventional cropping systems, and he shared his discovery with the state. In essence, he said that the North Dakota environment presented problems for which there were no quick and easy solutions.

When Shepperd took on the Campbell System, in defiance of the movers and shakers of North Dakota, he was not chasing popularity. He knew people would rather hear a reassuring lie than an unpleasant truth. But he also believed that his purpose was to serve, and that the teller of truth was ultimately the best servant. That commitment to truth was held by all of the people in the early NDAES, and it lives on today in a world in which people don't like the truth any better than they did a century ago, but in which their best servants will still share it with them.

I don't want to leave the reader with the impression that the early figures of the NDAES were always right, or that their judgment was always unerring, or that they never made a misstep. They were human, and they suffered from their share of frailties and their failures of vision.

But because of their commitment and values they gave the NDAES the personality it continues to have today. They believed in science, they believed in service, and they believed in people. They were devoted to the state, and they told the truth. It is the good fortune of North Dakota that they were the kind of people they were.