

Research Pioneers

Dr. F.A. Wyatt



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Dr. Frank Archibald Wyatt: Biography & Recognition

The Department of Soils was established at the University of Alberta in 1919. The persons mainly responsible for establishing the Department were: firstly, the Dean of the Faculty of Agriculture, E.A. Howes, who realized the desirability of such a department and was especially alarmed by the extent of wind erosion that had already taken place in southern Alberta; and second, the first Head of the Department, F.A. Wyatt, who started and developed the Department. Dr. F.A. Wyatt came to the University from the University of Illinois in 1919, and remained Head of the Department until his death in 1947 [Excerpts from article by J. D. Newton, 1978].

Soil Survey in Alberta

Soil survey work was started in 1921 by Dr. F.A. Wyatt of the Soils Department at the University of Alberta. The initiating force was the serious problem of wind erosion in southern Alberta which was resulting in large-scale land abandonment.

These first surveys, based almost wholly on surface textures, had, by 1926, covered over seven million acres, using two Model-T Fords for transportation. Funding for this early work came jointly from the University of Alberta and the Provincial Department of Agriculture, with cartographic help from the dominion Department of the Interior.

The late 1920s saw several changes. Literature from the USA and Europe, plus visits by noted soil scientists, such as Marbut and Glinks, sparked interest in the soil "profile" and subsequent soil surveys recognized additional soil features beyond surface texture. Also, in 1928 the recently established Research Council of Alberta made money available for exploratory soil surveys in the Peace River area of northern Alberta to assess its agricultural potential. Over the next three years some twenty million acres were covered by pack horse. At the same time, soil surveys were being conducted in the Lethbridge and Vauxhall areas to determine the suitability of these areas for irrigation.

The recession of the early 1930s halted soil-survey work until 1935 when the Dominion Government initiated programs under the Prairie Farm Rehabilitation Act (PFRA) to rehabilitate the drought-stricken prairies. As a result, W.E. Bowser, who had assisted with some of the earlier soil surveys, and W. Odynsky became the first full-time soil surveyors. While the PFRA paid their salaries and field

expenses, the organization remained, as before, attached to the Soils Department at the University of Alberta.

The remaining portion of the prairie region was covered at a rate of about 2.5 million acres per year in the period from 1936 to 1944. Soils were described by a three-number code, which indicated soil zone, mode of deposition of parent material, and profile type. The resulting soil survey report included a soil map and an agriculture rating map for each map area.

A new phase for soil surveys was started in 1945. It began with the first meeting of the National Soil Survey Committee out of which came the concept of the soil series as the basic unit of classification. This period was marked by increased activity in soil surveys for irrigation, and the Alberta Research Council's re-entry into the soil survey field with the establishment of its Soils Division. Council work was mainly confined to northern Alberta. In 1948, W. Odynsky left the Dominion soil survey to become head of the Research Council soil survey unit. From that time on the Federal and Provincial soil survey units collectively became known as the Alberta Soil Survey.

Soil survey techniques changed rapidly in the decade following 1945 with the introduction of air photos, and the replacement of pack-horses by all-terrain vehicles and helicopters. Reconnaissance soil surveys, covering some twenty million acres in the Peace River country, and ten million acres in the northern and western prairie, were completed by 1970. In addition, soil surveys covering all of the major irrigation districts had been completed.

During this period, soil survey units of both the Research Council and Canada Department of Agriculture approached their present sizes, receiving some impetus from the Canada Land Inventory program of the 1960s. Close association with the Department of Soil Science continued, and the University of Alberta continued to house the Alberta Soil Survey. In addition, soil survey reports were printed at the University and were made available through the University's Department of Extension. These informal arrangements were formalized into the Alberta Institute of Pedology in 1968. In 1977, primarily because of space limitation, the agonizing decision was made to move the majority of the Alberta Soil Survey staff to off-campus quarters.

In 1968, W.E. Bowser retired and T.W. Peters became head of the Agriculture Canada Soil Survey Unit, to be followed by W.W. Pettapiece in 1974. J.D. Lindsay has directed the Soil Division of Alberta Research Council since the retirement of W. Odynsky in 1971.

With the near completion of reconnaissance soil surveys in the province, 1970 saw the introduction of some new aspects to soil survey. More emphasis was placed on various kinds of interpretations for alternative land uses. More intensive soil surveys were initiated to be used in a variety of detailed plans, particularly in planning for urban development.

A couple of major developments in the Alberta Soil Survey during Dr. Wyatt's tenure at the University of Alberta were:

1. A compilation of information regarding potentially arable areas of Alberta.
2. The development of a soil zone map for the province. This was started by Dr. Wyatt in 1920 and culminated with the printed version prepared by W. Odynsky in 1945.

Credit: Anonymous. Soil Survey in Alberta, Folio, page 8, June 15, 1978.

Recognition

The Alberta Soil Monolith Collection in Room 2-36 Earth Sciences Building, University of Alberta is dedicated to Dr. Wyatt by the Department of Renewable Resources. In view of the tremendous contributions of Dr. F. A. Wyatt to Soil Science in Alberta and Canada, the lecture room located at 2-36 Earth Science Building was named as the 'F. A. Wyatt Lecture Room' by the Board of Governors, University of Alberta on June 22, 2001.

Dr. J.D. Newton



Dr. J. D. Newton

Dr. John Dawson Newton: Biography & Recognition

John Dawson Newton was born in Plaisance Quebec, in 1894. He graduated from McGill University with a B.Sc. (Agric.) in 1917, and received his Ph.D. from the University of California in 1922. He was a member of the Agronomy Department at the University of British Columbia from 1918 to 1920, and concurrently served in the army. Dr. Newton was appointed Associate Professor in the Department of Soils, University of Alberta in 1922, promoted to Professor in 1933, and served as Department Head from 1947 until his retirement in 1959.

Discovers Sulphur Deficiency in Gray Luvisols

During his career as a soil scientist, Dr. Newton made some very significant contributions. He played the key role in the discovery that sulphur deficiency in some Gray Wooded soils of Alberta (now called Gray Luvisols) greatly limited growth and yields of crops on these soils. The fertilizer program and cropping pattern developed at the Breton Plots, where the discovery was made, is now the basis of successful farming on millions of acres of Gray Luvisols - with great benefit to the farmers following those practices as well as to the economy of those districts and indeed of the country as a whole.

While on assignments in Indonesia during the 1950's, Dr. Newton established that yields of peanuts, soybeans and other legume crops were limited by lack of adequate amounts of available molybdenum in some of that country's tropical soils. Less than a kilo per hectare of a molybdenum fertilizer resulted in marked increases in growth, yield and nitrogen fixation by these crops. Early in his career (1952) Newton had shown that the energy barley plants must expend to absorb water increases as the osmotic pressure of the solution in which they are growing increases. As a result of that research on plant physiology, he annually studied development of salinization in parts of the irrigated area of southern Alberta for many years.

Investigated Soil Deterioration in Prairies

Dr. Newton's other activities as a soil scientist were wide-ranging. During the 1930's he and a succession of graduate students investigated soil deterioration in the prairie provinces, from Edmonton to Winnipeg, and established that there had been large decreases in the organic matter and nitrogen contents of those soils during the 20 or 30 years that they had been farmed. As a soil microbiologist he identified the effects of crops and cultural methods on the numbers of micro-organisms in soils at Edmonton identifying thereby the effects of such practices on nitrification and the supply of available nitrogen for crops. That led to the subsequent development of a method for determination of available nitrogen by a rapid test for ammonification. His work on sulphur deficiency which primarily affected legume crops led to research on the effectiveness of Rhizobia cultures for the inoculation of such crops with those beneficial organisms. Newton developed a superior procedure for production of legume inoculation cultures for Alberta crops and for several years thousands of bottles of such inoculants were produced each year for distribution to Alberta farmers by him and his associates in the Department of Soil Science. Newton was active in two other microbiology areas. During the 1930's he and his students did pioneering work on the decomposition of some chemical weed killers and their effects on soils. He also studied non-symbiotic nitrogen fixation in some prairie province soils identifying, isolating and culturing some of the organisms involved.

The soils work of Dr. Newton included much in-the-field activity. He was involved in the Alberta Soil Survey from its inception until his retirement. He was also a vigorous participant in the extensive on-farm fertilizer experiments of the Department of Soil Science - field experiments that did a great deal to convince farmers of the need for and very attractive returns from recommended use of fertilizers. Many graduate students developed their interest in soil science from involvement in such field work.

Head of Soil Science - First President of Canadian Society of Soil Science

Professionally, J. D. Newton was very active and highly regarded. For 12 years he was Head of the Department of Soil Science at the University of Alberta. He was a long-time member of the Agricultural Institute of Canada and he was the first President of the Canadian Society of Soil Science

when that Society was formed in 1954. He was made a Fellow of the CSSS in 1964. He served on two technical assistance assignments in Indonesia for the Food and Agriculture Organization.

Dr. Newton was a family man keenly interested in his hobbies. A professional as well as a hobby painter (he was a member of the Businessmen's Art Club of Vancouver and of the Western Artists Association), he did portraits of all of his grandchildren during his retirement. He was also an avid swimmer doing a quarter-mile three times a week throughout his retirement years. He enjoyed music and was himself a violinist.

Dr. Newton left an additional legacy in the students he influenced. An educator may be judged by the quality of people he/she attracts, and the contributions they subsequently make in their chosen careers. By that standard, Dr. Newton is exemplary. He supervised or served on the committees of 31 M.Sc. and Ph.D. graduates of this Department alone. These scholars have achieved recognition as scientists in Agriculture Canada, the National Research Council, in industry, and in Universities. Some have made noted contributions to International Agriculture, and to improvement in profitability of local farming practices; others have been successful entrepreneurs. At least one Dean of Agriculture and four Chairmen of Soil Science Departments benefited as students from Dr. Newton's inspiration.

Recognition

The Soil Science Collection in Room 4-42B Earth Sciences Building, University of Alberta was dedicated to Dr. Newton on October 20, 1987 by the Department of Soil Science. In 2001, the book collection was donated to the Cameron Library but the reprint, thesis and journal collections were retained. Now the room is also used as a conference room by the Department of Renewable Resources. In view of the tremendous contributions of Dr. J. D. Newton to Soil Science in Alberta and Canada, the conference room located at 4-42B Earth Science Building was named as the 'J. D. Newton Conference Room' by the Board of Governors, University of Alberta on June 22, 2001.