

A Short History of the W. P. Fraser Herbarium, University of Saskatchewan

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The herbarium of the University of Saskatchewan is the largest botanical collection in the province. It contains about 21,000 pressed and mounted plant specimens representing the flora of Saskatchewan and the surrounding prairie and boreal forest regions. Its present size and scope reflects the vision and energy of prairie naturalists who some 50 years ago sought to preserve a record of the flora of Saskatchewan, as well as the efforts of recent biologists and plant collectors. Its history can best be traced by considering some of the individuals who were associated with it and their contributions to Saskatchewan botany.

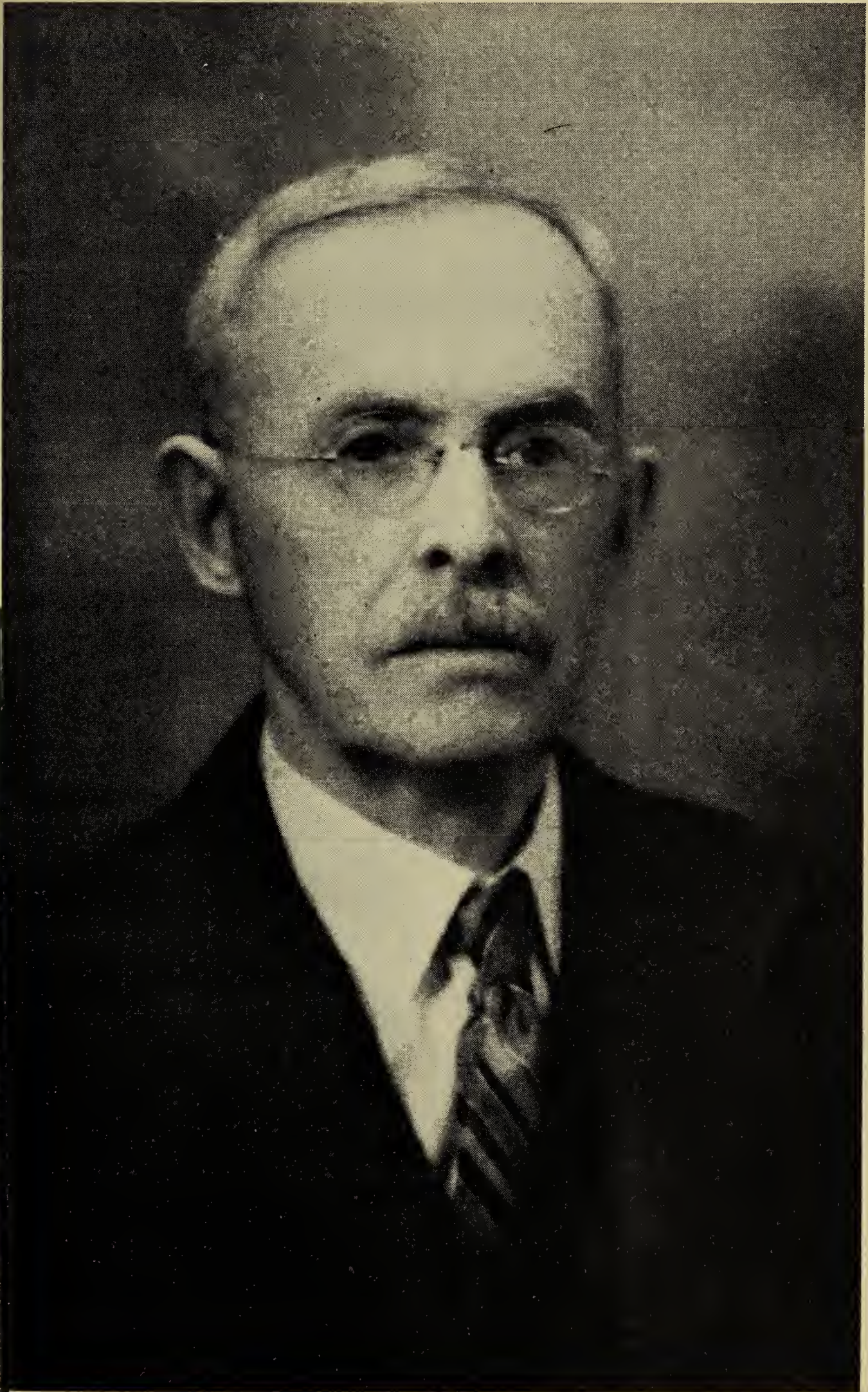
The first plant collections made for the University are credited to T. N. Willing, a weed inspector, and, from 1910 to 1919, an Assistant Professor of Natural History. Willing's collections are not very numerous and today they represent a minor part of the herbarium.

At about the same time a plant pathologist, who was to become famous for his investigations on the stem rust of wheat, came to Saskatoon. William P. Fraser worked at the Dominion Laboratory of Plant Pathology (now the Canada Department of Agriculture Research Station, Plant Pathology Section) from 1917 to 1925 and in his spare time he began his first collection of Saskatchewan plants which was to become the nucleus of the herbarium of the Plant Pathology Section. However, it was in his capacity as a Professor of Biology, from 1925 to 1937, that Dr. Fraser started the University collection which now bears his name: The W. P. Fraser Herbarium. In addition to being a successful plant pathologist, Dr. Fraser was a naturalist who was interested in all the life around him and the native plants in particular. In his free time he collected, identified, mounted, catalogued, and studied the native plants of Saskatchewan. He was primarily interested in knowing what kind of plants occurred in Saskatchewan and where

they grew. His interest was shared by colleagues, students, and amateurs all of whom drew from his store of knowledge about the native plants. Dr. Fraser's enthusiasm and boundless energy were an inspiration to many and several naturalists associated with him went on to publish their research on the flora of Saskatchewan. Three of these men can be singled out for their contributions to the W. P. Fraser Herbarium and to botany in Saskatchewan.

The first of these, Dr. R. C. Russell, was a friend and colleague of Dr. Fraser and their mutual interests in plant pathology and plant taxonomy spurred each of them to greater efforts. Dr. Russell taught Plant Taxonomy at the University for about 10 years after Dr. Fraser's retirement and, although now retired himself, he still adds specimens to the herbarium of the Plant Pathology Section which Fraser had started. They published several lists of the flora of Saskatchewan (Fraser and Russell, 1937, 1938, 1944) culminating in a third revision largely compiled by Dr. Russell (Fraser and Russell, 1954) in cooperation with Drs. Ledingham and Coupland. Today these lists, which used Rydberg's nomenclature (1922, p. vii), are nomenclaturally out-dated and have been superseded by a newer list (Breitung, 1957).

Mr. August J. Breitung was an amateur naturalist living at McKague, Saskatchewan, when he first came in contact with Dr. Fraser. He collected extensively and from 1934 to 1944 sent many of his plants to Fraser for identification, a service freely rendered by Fraser. This association stimulated Breitung's interest in the native flora and he became a well known collector of prairie and boreal forest plants. He has since published several papers dealing with the flora of the province including a list of the plants of central eastern Saskatchewan (1947), an account of the botany of the Cypress Hills (1954) and a catalogue of the vascular plants of Saskatchewan (1957).



William Pollock Fraser, 1867-1943

Thams Studio Photo.

A third individual who was influenced by Fraser is Dr. George F. Ledingham, now a biologist-geneticist at the University of Saskatchewan, Regina Campus and editor of this journal. Ledingham was a student of Fraser's at Saskatoon and the two made many collecting trips into the surrounding countryside. In 1943 he and Fraser collaborated on a study of the genus *Carex* (sedges) in the province (Fraser & Ledingham, 1943). Dr. Ledingham has since become well known for his research on the cytogenetics of the Leguminosae (Pea Family), has established an herbarium at Regina and maintains a deep interest in the natural history of Saskatchewan.

After his retirement in 1937, Dr. Fraser devoted an increasing amount of time to his herbarium and greatly enlarged his collections. During these retirement years Fraser derived considerable satisfaction from plant taxonomy and it was then that he was able to publish his research on the flora of Saskatchewan. It was noted by Professor Vanterpool (1944) that he visited his herbarium just a few days before his death in November, 1943. After Dr. Fraser's death his herbarium was little used for almost 11 years.

In 1949 Dr. R. T. Coupland started a small plant collection in connection with his research on the ecology of the native grasslands and the distribution of weeds in Saskatchewan. The value of the Fraser Herbarium was recognized by Dr. Coupland and in 1954 Dr. Rawson, Head of the Department of Biology, agreed to the temporary transfer of the herbarium to his care. At this time the W. P. Fraser Herbarium contained some 14,700 specimens. With the transfer of the Fraser Herbarium its development took a new direction. Now the collections were being made by biologists and their students who were studying the vegetation of Saskatchewan and knew the importance of preserving voucher specimens and the need for an authentically identified collection of comparative specimens. Duplicates of most of the collections made at this time were sent to the herbarium of the Canada Department of Agriculture, Ottawa, for identification or verification and large sections of the herbarium were

sent to specialists who checked their identification. From 1949 to 1961 more than 5,000 specimens, largely collected in connection with the Saskatchewan Weed Survey (1949-1955) were added to the Department of Plant Ecology Herbarium.

In 1961 the author, a plant taxonomist, came to the University as a National Research Council Postdoctorate Fellow, and stayed on as a Faculty member in the Department of Biology and Plant Ecology. With the addition of a full time taxonomist to the staff, the herbarium became an important research tool which required rapid, planned expansion. At this time interest was being centred on the boreal and subarctic region of Saskatchewan due, in part, to the establishment of the Institute for Northern Studies and to new ecological and taxonomic research interests. To facilitate this research program there was an urgent need to add plants from northern regions to the herbarium. Since 1961 several large collections of plants from the boreal, subarctic and Arctic region have been collected or received in exchange. Additions of special importance include the collections of Dr. Hugh M. Raup made along the Alaska Highway and in the Northwest Territories from the Gray Herbarium, Arctic plants of the Hudson Bay region from the National Museum of Canada; plants of Ontario and *Carex* of northwestern Canada and Alaska from the Canada Department of Agriculture; collections made by Dr. J. S. Maini, then of the Department of Plant Ecology, in northern Saskatchewan; and collection made by the author in the Lak Athabasca region and in the north eastern corner of Saskatchewan. More than 6,000 specimens were added to the W. P. Fraser Herbarium during these two years. These specimens of the boreal and Arctic region not only contribute to current ecological and taxonomic research but make the herbarium a better balanced collection of the entire flora of the province.

This emphasis on the flora of northern Saskatchewan does not reflect a lack of interest in the prairie regions. On the contrary, the prairie flora of Saskatchewan is still of great interest and specimens are being collected which will fill gaps in our

knowledge of the flora. Plants from southern Saskatchewan collected by Dr. B. Boivin of the Plant Research Institute, Ottawa, and those of several students in the Department of Plant Ecology have been added to the herbarium. In addition, exchange with the Rocky Mountain Herbarium at Laramie, Wyoming, has been initiated and exchange with other institutions on the Great Plains is contemplated.

As the herbarium grows the functions which it can perform will also grow. At the present time it serves as a representative sample of the flora of the province which may be borrowed by specialists studying a particular group of plants or by taxonomists working on the flora of central Canada. In addition it is used in teaching graduate and undergraduate students, as an aid in the identification of specimens, and as a place to preserve specimens studied in research projects. In the near future it will also serve as a source of materials for taxonomic and phyto-geographic research, and through herbarium study taxonomic problems may be recognized and their study initiated.

However, in order to achieve these ends and to serve the community in general, the herbarium needs the support not only of professional biologists, but also of the amateur naturalists who are as important today as they were in Dr. Fraser's day. Large areas of Saskatchewan are poorly explored botanically and the amateur, utilizing the techniques of the plant taxonomist, can still make significant contributions to the knowledge of the flora of Saskatchewan. In future articles I plan to discuss techniques which should be used in collecting specimens, the information which must accompany each specimen, and how to receive help in preparing and identifying specimens.

For the past 10 years the W. P. Fraser Herbarium and the Department of Plant Ecology Herbarium have been housed as a single collection in the Crop Science Building, and it is anticipated that they will remain together in the future. The research value of these collections is enhanced by their integration and the spirit of co-operation which it reflects bodes well for the future of

plant taxonomy at the University of Saskatchewan and for the W. P. Fraser Herbarium.

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