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About the Institute
The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

26 February 1968

Dr. R. W. Richardson, Jr.
The Rockefeller Foundation
111 West 50th Street
New York, N. Y. 10020

Dear Ralph:

Here are copies of my letter to Dr. Wellhausen and the blurb that I wrote to describe our information retrieval system. I am not sure that the description is much more than an advertisement but I hope that it has the characteristics necessary to indicate the value of our methodology. I will be pleased to hear from either you or Dr. Wellhausen when you have had an opportunity to talk it over together.

You will note that we expect to give a demonstration of the system sometime this summer and would like to have you see the system in operation. This, I believe, will be more meaningful than any otherway to show the values of the system. We will give you more details of exact timing as we come closer to completion.

Thanks for your attention.

Sincerely,

David J. Rogers
Professor of Biology

DJR:gm

Taximetrics Laboratory

Armory 101

23 February 1968

Dr. Edwin J. Wellhausen
International Maize and Wheat Improvement Center
Rockefeller Foundation
Londres 40, MSA
Mexico, D. F.

Dear Dr. Wellhausen:

I enclose herewith a statement concerning the possible application of a computerized information retrieval system which I hope will be of interest to you. The reason I send it to you at this time is that I learned from Dr. Mario Gutierrez just before Christmas that he was intested to learn whether or not some such system might be used for the maize germ plasm bank maintained at Chapingo. I told Dr. Gutierrez that we had developed a useful system, but we did not have an opportunity to discuss its details.

Earlier this week, I visited Dr. Richardson in New York and explained to him that we have a computerized information retrieval system whose design is useful for maintenance and retreival of information about germ plasm. He suggested that I write to you, giving a brief description of the methods we have developed, in the hopes that you might be interested in adapting the methods to use with the collections of data on your germ plasm for wheat, maize, and other small grain coops.

We developed our system under a grant from the National Science Foundation, and it is, therefore, in the public domain. Our hope is that it can be put to use as an aid to your valuable collections, and to this end, we are willing to do more than just "turn it over to you". We recognize that any such system, if adopted, requires some aid and instruction in getting it to work for you. To this end, we will be glad to instruct staff members in the methodologies, and give short (one, two, or perhaps three weeks) instruction to your scientists in the ways of getting the most benefit from the system.

I hope that we can be of service to you, and that you will accept our invitation to drop by Boulder some time in the near future for a more detailed description of our methods. I might say in passing that we are acquainted with the problems of information storage and retrieval for the problems of germ plasm banks, having worked with Dr. Ed. James, Director of the Seed Storage Lab, USDA, in Fort Collins, Colorado. Because of our knowledge of the germ plasm collections there, we feel confident that the system we have designed is directly applicable to your collections.

Please let me know if you would like to have more information about this proposal.

Sincerely yours,

David J. Rogers

DJR:gm

We propose that computerized information retrieval system be adopted for the germ plasm banks now maintained in Mexico under the direction of the Rockefeller Foundation. The purpose of the information system is to provide rapid access to any information or data about the collection, to allow for expansion of the data store in an orderly, economic fashion, to provide inventories of the collection and most important, to increase the usefulness of the stored germ plasm for plant breeders and other agricultural specialists.

TAXIR

The characteristics of the proposed system are as follows:

1. Easy conversion of existing data files. We have designed a procedure which is close to the normal procedures used to describe the data about each of the germ plasm collections. A person presently charged with the filing of the data can be trained in about 4 hours to convert the data to computer-readable form. No computer experience is necessary for this part.

data bank

2. The system is open-ended. Because of the amount of information about a germ plasm collection (and other data files) is already of considerable quantity, and will continue to grow, it was critical to develop a system using the computer which would not eventually be too cumbersome in the memory systems of the computer. Our system not only is efficient in terms of present needs but allows for even greater storage efficiency as more data are accumulated. Other characteristics which are important are the updating, correction and deletion of data features. In each of these our system provides automatic procedures, and no rewriting of the system will be required.

data bank may be

3. Complete flexibility of access to the incorporated data. We have developed a system which allows inquiries about the items included in the data bank. Specified listings of information may be requested. For example, "list all the 12-rowed maize varieties with a waxy endosperm from Peru;" names of varieties with certain attributes: "What varieties are available in the germ plasm bank with qualities _____, _____, and _____? The program also allows inventory of the data, or complete listings of the incorporated data.

data bank

4. Speed of access. One of the most significant contributions that our computer based information retrieval system offers is the saving of time of searching the files for information. With data banks the approximate size of yours, it is reasonable to expect an answer back from an inquiry almost immediately. This is true because of the unique design of our system.

most

5. Compactness of permanent storage. The reduction in amount of shelf-space needed to keep all the records in permanent storage is considerable. We expect that the data bank could be kept on one reel of computer tape, which is probably a considerable saving over present files of stored data.

6. System designed for the working biologist. This system is designed with the practical considerations of the working biologist in mind. Not only is it possible to retrieve the information from the system, but he can test new hypotheses by rewording and recombining queries about the data. For example, discovery of the most "typical" attribute, when a range of attributes is given. In addition, the system is designed to inform the user of errors when modifications, additions, deletions, etc., are made. Once a record has been placed on the tape, it is not subject to loss, as is the case with card file systems.

7. Complete computer programs for the above, with advisors on both the agricultural and computer setups. We have set a target date of July 1, 1968 for completion of the programs. A demonstration of the techniques, with information very similar to that incorporated in the germ plasm files, will be given in Boulder in August or September of this year. Preliminary to this demonstration, however, we could begin to gather pertinent data into computer-ready form, and include a sample study or demonstration using the information from your own collection. It is not anticipated that you will have personnel who are knowledgeable of our techniques, and we anticipate close cooperation with you to give the necessary instruction on the methodologies. More important, the working biologist can be given instructions in a short time which will enable him to use the system confidently. It is not necessary that he become a computer specialist to fully use the system.

With respect to computer requirements to mount such an information retrieval system for your germ plasm data, several possibilities exist. At the beginning, we suggest that the data be processed on computers available in Boulder here. While we recognize that you will eventually want to have the system mounted on computers available to you in Mexico, it seems reasonable to begin here in Boulder working on a machine readily available, and at a later date, mount the system on your hardware. While we could mount the system on your own equipment at first, the process would be more time-consuming and not particularly efficient. The reasons for this are several, but the over-riding reason for starting here is that the programs and staff are here. We could begin actual operations with your data very shortly, and then, while your personnel gain familiarity with the procedures and values of the system, carry out the process of preparing your data for mounting on your equipment. We can work out the actual details of procedures with you, if you find the idea appealing and useful to you.