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PRELIMINARY REPORT OF THE COMMITTEE ON
AIDS TO SCIENCE TEACHING¹PALMER O. JOHNSON, Chairman
University of Minnesota

To the Science Education Section of the Minnesota Academy of Science:

The Science Education Section of the Minnesota Academy of Science at its meeting on April 26, 1941 voted to sponsor a standing special and continuing committee to centralize and promote its activities especially in the field of aids to teaching science as found in the institutional and natural resources of the State. It was voted that the chairman of the Science Education Section of the M.A.S., for 1941, Dean E. M. Freeman, should appoint a committee to get the work under way. This committee has held a number of meetings throughout the year and through subdivision of labor has collected a considerable amount of information about institutional and state resources of potential value to science teachers. It is recognized that from this preliminary survey much remains to be done before a complete inventory is available. It is presented, therefore, as a preliminary report and the committee will appreciate very much your criticism of it from the standpoint of its special purpose, viz., to prepare materials of use to the science teacher for vitalizing the instruction of science, and also from the standpoint of its completeness. Members of the Science Education Section are urged to send criticisms to the committee as well as to report essential materials not encompassed by the present report.

The several phases of the project to date have consisted of the following inventories:

1. The resources of the Department of Agriculture including the substations of the University of Minnesota.
2. Resources of the biological departments of the main campus of the University of Minnesota.
3. The resources of the State Department of Conservation.
4. The resources of industry located in Minneapolis and St. Paul.
5. The resources of the colleges of the state and of their immediate environment.

Inquiries into the institutional resources and natural resources adjacent to the institution for teaching material in natural sciences were sent out to the following institutions:

Croxton, W. C. Dr., State Teachers' College, St. Cloud*
Gould, L. M. Dr., Carleton College, Northfield*
Luetmer, Wendel Rev., St. John's University, Collegeville
Tufte, E. T. Dr., St. Olaf College, Northfield
Westkaemper, Remberta Sister, College of St. Benedict, St. Joseph*

¹ Copies of the 25-page mimeographed report may be obtained by writing Palmer O. Johnson, University of Minnesota.

Alexander, H. S. Dr., Macalester College, St. Paul*
 Carlton, E. C. Dr., Gustavus Adolphus College, St. Peter
 (Prof. J. A. Elson)*
 Charles, H. Brother, St. Mary's College, Winona
 Sorenson, Herbert President, State Teachers' College, Duluth*
 Dildine, Glenn C. Dr., State Teachers' College, Moorhead
 Elliott, Alfred M. Dr., State Teachers' College, Bemidji*
 James, Marie Sister, College of St. Catherine, St. Paul
 Mary, Ralph W. Dr., College of St. Thomas, St. Paul*
 Wissink, G. M. Dr., State Teachers' College, Mankato*
 Hurd, A. W. Dean, Hamline University, St. Paul*

Replies were received from the institutions starred above. The reports varied in length and arrangement. We wish to render two services: (1) It is desired to inform teachers about the resources close to the place of their work; (2) It is also desired to give them general information about the resources obtainable somewhere else in the state with respect to certain fields and to certain items occurring in the field. Therefore, we present our findings in *double* form. First, the institutions are listed with their resources; second, items either available for visitation or for loan are listed under subject headings.

This list is still temporary. It is hoped that those institutions, which as yet have not replied, will do so in view of the usefulness the additional information will serve.

In order to explain the purpose of the double index, we construct a theoretical case like the following: A teacher of chemistry, biology, and physics plans to take his students to a neighboring town for a weekend field trip. He then would resort to the list of the institutions in that town. On the basis of the list, he would also be informed about interesting features close to the town which he may visit on the way, for example, Buck Lake close to Bemidji or an electric plant close to Mankato. If we receive further information about features to be observed along the highroad, he could make out a whole itinerary of field examples for subjects treated in his classes. For his own information he then resorts to the second index checking where similar industries, plants, sandhills, tamarack swamps, etc., may occur in the state. He might want to check if insects or plants of a certain type complementing the collection he is visiting can be loaned from another institution. He might wish to secure a map or outline maps to be filled out by his students. He might wish to secure several copies of the literature for free distribution, let us say, from the Conservation Department. For all such cross references a systematic index is serviceable. In its final form, it would have to be much more detailed and more clearly subdivided.

SUMMARY

Both indexes are considered to be temporary. It is suggested that the respondents kindly check the list of their respective college and

also check the systematic index if the items available in their institution are correctly listed. For example, a collection which is a permanent exhibit should be indicated as such. Collections not available upon visitation should also be marked. For this project, it is very significant to know what materials (books, exhibits, etc.) are available for loan. This point was indicated by only a few correspondents. Industries that have been visited or may be visited to the knowledge of respondents should be given with their full name. If everyone would kindly correct his list and then return it a new and improved list can be compiled.

Certain gaps are conspicuous. Mining and lumbering industries and localities should offer ample opportunity for field experience. Everybody who knows of firms or regions where visitations and field trips are feasible and profitable is requested to report these whether they have been visited by students of the respective college or not. Only Minneapolis and Mankato of Minnesota's larger cities were fairly well canvassed with respect to manufacturing and processing plants. For a final serviceable report, St. Paul, Duluth, St. Cloud, Winona and others should be included. On the whole, the scope of the project should be widened. Public utilities, such as sewage plants, dams, special features in highway building, etc., might be considered for our report. Regions of special geographic and geological interest should be brought to the attention of teachers in natural science fields. If you know of an interesting observation of erosion, of rock formation, highway-bank planting, plant growth, etc., or of interesting technical features, biochemical enterprizes, etc., tell us about them. Such unique occurrences or enterprizes as the pontoon bridge at Wabasha, cheese manufacturing in limestone caves along the Mississippi, wild rice collecting by the Indians, an outstanding gardening project like that in Alexandria, or a private rose garden in New Ulm — all these may come in as aids to enliven our teaching of natural sciences. In thanking all who cooperated to this point, the members of the Academy are asked for further suggestions and for further information be it directly related to their respective institution or be it an outcome of their personal state-wide experience and observations.

Respectfully submitted,
Committee:

WALTER J. BRECKENRIDGE
LEIGH H. HARDEN
PALMER O. JOHNSON, *Chairman*
SHAILER PETERSON
IAN W. TERVET
HAROLD K. WILSON