

**MINUTES OF THE FIFTY-FIFTH ANNUAL MEETING
OF THE
SOUTH DAKOTA ACADEMY OF SCIENCE**

The fifty-fifth Annual Meeting of the South Dakota Academy of Science was called to order by President C.L. Hills at 10:00 a.m. Friday, April 24, 1970 in the Gilbert Science Center Auditorium at Augustana College in Sioux Falls.

The Academy was welcomed to the campus by Charles L. Balcer, President of Augustana College.

The Presidential address was presented by President C.L. Hills and follows.

The Annual Academy Address was given by Dr. Maynard M. Miller in the Commons Building following the banquet. Dr. Miller is chairman of the World Center for Exploration headquartered in New York City. The title of his talk was "Challenge of Exploration Sciences".

The Annual Business Meeting was called to order by President C.L. Hills at 10:30 a.m. Saturday, April 25, in the Gilbert Science Center. Mr. John Landegant introduced the two winners of the Junior Division who then gave their papers.

COMMITTEE REPORTS

Conservation Committee

Due to the absence of Dr. Byron Harrell a regular report was not given but Dr. David Holden gave an informal oral report. He mentioned that 151 natural landmarks were investigated in the state during the past year, 10 of which had been written up in detail. The committee would welcome new areas to be investigated.

Resolutions Committee

Dr. Ralph Huntsinger presented the report of the Resolutions Committee. The report was accepted and follows.

Report of the Resolutions Committee

Whereas, Dr. Charles Balcer has kindly made available the facilities of this campus for our meetings,

Whereas, the members of the science division of the Augustana College together with the officers and committees of the Academy have given freely of their time to make for a pleasant and rewarding Academy session,

Whereas, Dr. Maynard M. Miller has furnished us with a stimulating Academy address,

Therefore be it resolved, that the South Dakota Academy of Science express its appreciation to the above persons and that the secretary be instructed to send appropriate letters to the following:

Dr. Charles Balcer

Dr. Maynard M. Miller

Respectfully submitted,
Ralph Huntsinger, Chairman

Auditing Committee

Mr. Charles Sidlo and Dr. Theodore Van Bruggen of the Auditing Committee found the treasurer's report correct and approved the same. The report was accepted and follows.

Report of the Auditing Committee

The books of the secretary-treasurer have been examined and are found to be correct. We move that the report be accepted.

Dr. Ted Van Bruggen
Charles Sidlo

Nominating Committee

The report of the Nominating Committee was presented. There were three nominations for 2nd Vice President: Sister Veronica Fasbender, David Holden, and George Hoffman. After the election Sister Veronica Fasbender was declared elected 2nd Vice President. The following list of officers were elected:

President: R. R. Kintner, Augustana College
President-Elect: Ray Dillon, University of South Dakota
1st Vice-President: Ralph Huntsinger, School of Mines & Technology
2nd Vice-President: Sister Veronica Fasbender, Mt. Marty
Secretary-Treasurer: William L. Hoffman, University of S. Dak.
Editor: W.O. Read, University of South Dakota

Executive Council Members-at-Large:
Morton Green, School of Mines and Technology
Mrs. Edna Grieb, Black Hills State College
Roy Rissky, Mitchell High School
William Houk, Dakota Wesleyan University

Membership Committee:

Raymond Linder, S.D.S.U., Chairman
Jack Saunders, Dakota State College
Niel Bien, Sioux Falls Lincoln High School

Daniel Redin, South Dakota School of Mines & Technology

Collegiate Section Committee:

W. J. Martin, School of Mines and Technology, Chairman
Larry Tieszen, Augustana
David Ballou, School of Mines and Technology
Michael Foss, Southern State College

Junior Academy Committee:

Paul Anderson, School of Mines and Technology, Chairman
John Landegent, Lincoln High School
Jim Martin, Brookings High School
Keith Morrill, South Dakota State University
William Stalheim, Sioux Falls Lincoln High School

Membership Committee

The report of the membership committee indicated that we had 17 new members in the Senior Academy. Dr. Theodore Van Bruggen, Guy O. Karnes, and Charles Dewey were nominated for Life Membership in the Academy of Science. The motions were seconded and carried unanimously.

Collegiate Section

Dr. Larry Tieszen gave the Collegiate Section report. He announced the winning papers and introduced Mr. Rodney McNeil, student president for 1970-71. Mr. McNeil asked aid from each science department at each institution by having one undergraduate student in each department carry on correspondence with Collegiate officers to stimulate interest and growth. He also said that the Collegiate section needs more inspiration and assistance from the Senior division if it is to continue to progress. After much discussion, it was decided that Mr. McNeil should be invited to the Executive meetings next year. Dr. Ralph Huntsinger asked that the needs of the Collegiate Section be given high priority on the agenda of the Executive Committee. The report of this section was approved and follows.

Junior Academy Committee

The Junior Academy submitted a written report submitted by Junior Academy secretary.

OLD BUSINESS

Secretary-Treasurer's report

The Treasurer's report for the year ending April 24, 1970 was approved as read (See page 11).

Editor's Report

Dr. Read reported that the June 15 deadline would again be adhered to this

year. The manuscript will go to the printers July 1st. A discussion followed as to the procedure of reviewing papers. Dr. Ralph Huntsinger mentioned that it should be noted that ALL papers submitted are subject to review.

A discussion followed regarding listing a faculty member as co-author of a collegiate member's paper. Reference was made to the fact that this had been discussed in previous years and the policy will remain that a faculty member should not be listed as a co-author of a paper. The faculty member's name should, however, be acknowledged at the end of the paper.

NEW BUSINESS

Proceedings Publication Costs

There was considerable discussion on the funding of the Proceedings since the cost of such funding was especially reflected in this year in the treasurer's report. Specific mention was made that no charges would be made to the collegiate section for their material. Dr. Robert Kintner presented a motion of two parts regarding funding and they carried unanimously. The motion follows.

Motion to the S.D. Academy on Funding of the Proceedings

Mr. President, on behalf of the executive committee of the Academy, I move that (1) we reaffirm institutional memberships for those institutions for whom it is appropriate.

(2) we initiate a system of page charges for publications in The Proceedings, said charges to be directed to those institutions for whom it is appropriate.

(3) we direct the executive committee of the Academy to investigate the feasibility of other measures of support for the Academy.

Rationale: Since the last annual meeting the executive committee has determined that an institutional membership is unacceptable to some schools, acceptable to others. Page charges for publications in The Proceedings face a similar situation. The executive committee thus recommends a multiple approach to the funding of the Academy in general and The Proceedings in particular. The flexibility and discretionary powers in the above motion would reside with and in the executive committee.

Robert Roy Kintner,
Chairman-Elect

Motion to the S. D. Academy on Proceedings Page Charge

Mr. President, on behalf of the executive committee of the Academy, I move that our initial page charge be set at \$10.00 per page for papers to be published in The Proceedings. The page charges are to apply as directed in part 2 of the motion on Academy funding.

Rationale: This page charge was determined in consultation with the editor of The Proceedings. The current cost (vol. 48, 1969) is between 5 and 6 dollars per page with 64 out of 200 pages being non-revenue generating pages.

Robert Roy Kintner,
Chairman-Elect

On behalf of the Executive Committee, Dr. Kintner mentioned that speakers from the Academy should be made available for public functions, especially groups interested in pollution and other subjects related to the science world.

Dr. Foss led a discussion about the feasibility of having a special section next year where teachers and other interested persons could discuss mutual problems in experiments and research problems. Dr. Kintner will appoint such a committee.

Dr. Van Bruggen presented a resolution concerning the Natural Science Field Station at Rapid City. The report was approved and follows.

A Resolution for the South Dakota Academy of Science to recommend the establishment of a natural sciences field station in the state of South Dakota.

Whereas various members of several institutions of higher education, both public and private, have recognized in the past the need for a summer field station for teaching and research in the natural sciences in the state of South Dakota and,

Whereas a committee of interested scientists have organized to recommend plans to locate a station site; seek out potential staff members from all colleges and universities in the state; suggest curricular offering; and have gained the approval of the Council of Presidents of the State Board of Regents to ultimately locate such site in the Black Hills area and,

Whereas such a field station will foster research and course study in a wide variety of disciplines of a unique area in the North Central Plains and Black Hills for students and researchers from adjacent states as well as South Dakota and,

Whereas the South Dakota School of Mines and Technology through President Fraser has offered that institution as at least a temporary site for the summer field station,

Be it Therefore Resolved

That the South Dakota Academy of Science duly recommends to The Council of Presidents of the Regents of Education, the Commissioner of Higher Education Richard D. Gibb and Regents of Education, and the Presidents of the private colleges in the state of South Dakota that such field station be established officially at the earliest possible moment.

The Time and Place Committee reported that the 1971 meeting of the Academy would be held the last full weekend in April in Rapid City and the 1972 meeting in Aberdeen.

President Hills expressed his thanks to all concerned for helping to make his year as president successful. He suggested a Special Awards Committee be established next year by the new president.

Succession of President Kintner

President Hills turned over the presidents gavel to incoming president R. R. Kintner.

President Kintner made several remarks concerning our image before the public, the speakers bureau, and plans for the coming year. President Kintner asked for a name from each institution of a man who could be contacted for this bureau.

President Kintner appointed the following committees:

Conservation Committee Byron Harrell, Chrmn.
 Jack Saunders
 David Holden
 Dilwyn Rogers

Nominating Committee James Schmulbach, Chrmn.
 Harold Cone
 Jim Fries
 W. J. Martin
 Sister Veronica Fasbender
 Leo Spinar

Contacts for Academy's
 Speaker's Bureau Marvin Hanson
 Sister Laetitia Kilzer
 Norman Miller
 Larry Tieszen
 Edna Grieb
 William F. Houk
 Jack Saunders
 Ralph Huntsinger
 Jim Worman
 Robert Buckman
 Mike Foss

Special Awards Loren Hills, Chrmn.
 Ray Dillon
 William Wadsworth

Educational Section
 Arrangements Harold Foss, Chrmn.

ADJOURNMENT

The meeting adjourned at 12:00 noon.

Respectfully submitted,
 William L. Hoffman,
 Secretary-Treasurer

TREASURER'S REPORT

For Fiscal Year Ended April 23, 1970

| | |
|-----------------------------------------------------------------------------------|------------|
| Balance on Hand, April 23, 1969 | \$ 2849.57 |
| Receipts: | |
| Membership | |
| Senior Academy | \$ 999.50 |
| Collegiate Section | 37.00 |
| Junior Academy | none |
| | \$ 1036.50 |
| Other: | |
| Interest on Certificates | 30.00 |
| AAAS Award | 100.00 |
| Banquet tickets | 171.00 |
| | 301.00 |
| Total receipts | 1337.50 |
| | \$ 4187.07 |
| Disbursements: | |
| Campus Copy programs and mailings for 1969 meeting | 67.55 |
| Annual meeting expense, secretary 1969 | 238.25 |
| Annual meeting expense, extra secretarial help, 1969 | 24.00 |
| Postoffice, stamps | 12.00 |
| USD Bookstore, supplies | 7.04 |
| Coyote Student Center, postage, zerox, and catering for 1969 meeting | 37.13 |
| AAAS Awards to students | 100.00 |
| Scholarship award | 200.00 |
| Postmaster, Permit and deposit for bulk mailing of 1969 Proceedings, etc | 165.00 |
| AAAS - Academy Conference dues | 7.70 |
| Broadcaster press for envelopes | 27.35 |
| Argus Printers for 1969 Proceedings | 1345.82 |
| C. L. Hills - trip to Pierre | 33.70 |
| Tommy's Typewriter Service - repairs | 16.00 |
| Bank charges & deposit tickets | 5.37 |
| Harold Foss for banquet tickets | 171.00 |
| Total disbursements | \$ 2457.91 |
| Balance on Hand, April 23, 1970 | \$ 1729.16 |
| Total Assets: | |
| Cash Balance on Hand | \$ 1729.16 |
| Certificates of Deposit | |
| #2283 | \$600.00 |
| #2282 | 600.00 |
| #1395 | 600.00 |
| | 1800.00 |
| Savings Account #7801 | 1773.79 |
| | \$ 5302.95 |

MINUTES OF THE COLLEGIATE SECTION

The Collegiate Section of the South Dakota Academy of Science met at the Gilbert Science Center at Augustana College on April 24, 1970. The sessions were presided over by the section president, Roderick McNeil of South Dakota State University. Mr. T. Randolph Nicholas presided over the annual business meeting.

Twenty papers were presented, six of which were in Biological Sciences, seven in Physical Sciences and seven in a section of Computer Applications. Awards of a subscription to Scientific American or American Scientist will be presented to the following students:

| | Biological Science | Physical Science | Computer Application |
|-----------|--------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------|
| 1st Place | Carol Summers Mt. Marty | Margaret Pearson S.D.S.U. | Larry Schaefer School of Mines |
| 2nd Place | Roderick McNeil S. D. S. U. | Donna Tramp Mt. Marty | T. R. Nicholas School of Mines |
| 3rd Place | John A. Weber tied with John Usera and Virginia Evridge Black Hills State College | Martin Hanson Augustana | J. Fredrickson and M. Hanson Augustana |

At the business meeting Mr. Roderick McNeil, SDSU, was elected president and Mr. Karl Gerdes, School of Mines and Technology, was elected vice president. Carol Wilcox, Mt. Marty, was elected secretary-treasurer.

The bulk of the meeting was spent in a discussion of the lack of organization in the Collegiate Section and in the lack of response and direction from members of the Senior Section of the S.D.A.S. It was the feeling of the group that if the Collegiate Section was to remain a viable scientific organization, it was going to require considerable planning and coordination on the part of the collegiate members. In an attempt to achieve this organization, the collegiate section is going to promote interest and coordination through elected or appointed undergraduate representatives from each school.

Mr. McNeil requested a short period in which to address the Senior Academy.

Respectfully submitted,
Larry L. Tieszen, Biology Dept., Augustana
Chairman, Collegiate Section Committee

MINUTES OF THE SOUTH DAKOTA
JUNIOR ACADEMY OF SCIENCE

Registration for the 1970 Junior Academy of Science General Meeting began at 8:00 a.m., on April 24, 1970, in the Gilbert Science Center on the campus of Augustana College, Sioux Falls, South Dakota.

General Meeting, April 24.

A general meeting was held in the Gilbert Science Center starting at 10:00 a.m. The president of the Junior Academy of Science, Mark Eaton, welcomed the teachers, students, and guests of the 1970 meeting. Announcements of schedule changes and paper cancellations were made. Mr. John Landegent, chairman of the Junior Academy's Advisory Committee, asked those in attendance for suggestions as to encourage more schools in the state to participate in the Junior Academy. A discussion was held. Mr. Landegent summed up the discussion and asked the secretary to mail the Junior Academy's literature and application forms earlier in the year than had been done in previous years. The meeting was dismissed.

Presentation of Papers, April 24.

The presentation of papers began at 10:30 a.m., recessed at lunch, and resumed at 1:30. There were sixteen papers presented at the Gilbert Science Center. The speakers, as well as the title of their presentations, are listed as follows:

1. Keith Bostian and Denise Gerber, "Chemotaxis in E. Coli", Seniors, Aberdeen High School.
2. Brian Dykstra, "The Generating of Electricity by Water Droplets", Freshman, Marion High School.
3. Patricia Gibbs, "Dimethyl Sulfoxide: A Wonder Drug?", Sophomore, Lincoln High School, Sioux Falls.
4. David Gilkerson, "A Study of Bridge Structure Designs", Sophomore, Brookings High School.
5. Richard Goodwin, "Exact Trigonometric Ratios", Junior, Lemmon High School.
6. Marlys Hauck, "Chromatography of Fungus", Senior, Menno High School.
7. Greg Hofer, "Growing Crystals in a Magnetic Field", Freshman, Marion.
8. Paul J. Karlin, "The Major Applications of the Theory of Infinity as Applied Generally to Certain Basic Aspects of Plane Geometry", Senior, Todd County High School, Mission.
9. Lowell Kolb, "Ions in Water", Senior, Lemmon High School.
10. Peter L. Larson, "Paleontological Techniques" Senior, Todd County High School, Mission.
11. Don Lemke, "Effects of 2,4-D on Radishes", Senior, Lemmon High School.

12. Tim McCarthy, "Certain Effects of Antibiotics on Bacteria", Sophomore, Brookings High School.
13. Pam Moore, "Using Hormones to Speed Up the Growth Rate of Algae for Use in Future Space Travel", Sophomore, Vermillion High School.
14. Carol Neuhaus, "The Effect of Gamma Radiation on the Leukocytes of Rats", Junior, Vermillion High School.
15. Carmen Pauling, "The Influence of Detergents on Microbe Populations in Raw Sewage" Junior, Lincoln High School, Sioux Falls.
16. James Wentzy, "A Study of the Liesegang Phenomenon", Junior, Brookings High School.

Banquet, April 24, 1970

A banquet was held at the Commons Dining Hall in the Augustana Commons Building at 6:30 p.m., with the South Dakota Senior Academy of Science.

Lecture, April 24.

An address was given by Dr. Maynard M. Miller on "The Challenge of the Exploration Sciences" at 8:00 p.m., in the Gilbert Science Center.

Lecture, April 25.

Our speaker, Dr. John Nickum of the Department of Wildlife and Fisheries Sciences of the State College spoke on "The Agriculture and Other Ecological Factors Influencing Water Quality in South Dakota Lakes and Streams."

Business Meeting, April 25.

President Mark Eaton called the meeting to order at 10:45 a.m. in the Gilbert Science Center. The minutes of the 1969 meeting of the South Dakota Junior Academy of Science were read and approved.

Committee Reports were made by the Resolutions Committee and Nominations Committee. New business included the election of new officers and the announcement of scholarships and grants-in-aid.

The Resolutions Committee report was given as follows:

The Resolutions Committee of the Junior Academy would like to extend a grateful thanks to:

1. Our Judges:
 1. Mr. Harold Cone, Spearfish
 2. Prof. Marvin Hanson, Huron
 3. Sister Marmion Howe, Rapid City
 4. Mr. Andy S. Kleinsasser, Huron

2. Augustana College for the use of the Gilbert Science Center and the provision of all necessary equipment.
3. The Junior Academy Advisory Committee:
 1. John Landegent, Sioux Falls, Chairman
 2. William Stahlheim, Sioux Falls
 3. Rudolf Eslick, Vermillion
 4. Joel Padmore, Vermillion
 5. Keith Marril, Brookings
4. Special thanks to the Junior Academy Advisory Committee Chairman, John Landegent, for the special effort given to make this meeting a success.
5. The Junior Academy's Officers:
 1. President - Mark Eaton
 2. Vice-President - Sidney Milburn
 3. Secretary-Treasurer - Karen Aukerman
 4. Acting Secretary - Mary Eastwold
6. The members of the Senior Academy for close and helpful coordination of the joint session.
7. Our Speakers:
 1. Dr. Maynard M. Miller on "The Challenge of the Exploration Sciences," and
 2. Dr. John Nickum for his address on the ecological factors affecting the water quality in the lakes and streams of South Dakota.
8. All the members of the Junior Academy and their advisors who most certainly were behind this meeting's success.

President Mark Eaton suggested that the Nomination Committee's suggestions be read after the nominations from the floor. Nominations from the floor for the office of president were: James Wentzy and Charles Matthews. There were no other nominations from the floor for the other offices.

The Nominations Committee suggested the following people as officers:
 President: James Wentzy
 Vice-President: Richard Goodwin
 Secretary-Treasurer: Mary Eastwold

The Nominations Committee's suggested officers were elected.

The announcement of scholarships and grants-in-aid was given by Mr. John Landegent. The choices for the \$200.00 scholarship were given as follows:

Lowell Kolb, Lemmon High School
 Alternates: Keith Bostian and Denise Gerber, Aberdeen High School (\$100.00 if they both attend South Dakota Colleges).

Those presenting their papers to the Senior Academy were: Marlys Hauck and Lowell Kolb.

Recipients of the \$25.00 grants-in-aid were:

Marlys Hauck, Menno High School
James Wentzy, Brookings High School
Carol Neuhaus, Vermillion High School
Greg Hofer, Marion High School

The meeting was then adjourned at 11:00 a.m.

Respectfully submitted,

Mary Eastwold
Secretary-Treasurer

MEMBERSHIP LIST

The letters in parentheses following the names indicate: A, Mathematics; B, Physics; C, Chemistry; D, Biology (includes Zoology, Botany, Physiology, Psychology, Bacteriology, Health, Biochemistry, Wildlife, Nutrition and Philosophy); E, Geology; F, Agriculture (includes Agronomy, Poultry Science, Dairy Science, and Animal Husbandry); G, Engineering (includes Metallurgy); H, English; and J, Administrative. *Life members.

Augustana College

Dejmal, Roger (D)
Foss, Harold (D)
Forman, Richard W. (A)
Foster, Faryl J. (C)
Froemke, John A. (C)*
Gallswyk, Arie (A)
Gildseth, Wayne M. (C)
Glendinning, William J. (D)
Johnson, Leland G. (D)
Kintner, Robert R. (C)
Landborg, Richard J. (C)
Nelson, V. Ronald (B)
Prescott, Lansing M. (D)
Rogers, Dilwyn J. (D)
Rosine, Willard (D)
Smith, James R.
Thiessen, Carolyn (D)
Tieszen, Larry L. (D)
Viste, Arlen E. (C)
Whitney, C. B. (B)

Black Hills State Teachers College

Bare, Charles L. (A)
Berry, Charles E. (A)
Follette, Everett LeRoy (D)

Garske, David
Grieb, Edna (C)
Hauck, William C. (D)
Richmond, Mark G. (C)*

Dakota Wesleyan University

Barca, Robert H. (C)
Dewey, Charles S. (C)*
Doescher, Wilmer J. (A)
Hartung, John
Hills, Carroll Loran (BC)
Houk, William F. (D)
Risky, Roy W. (C)
Westra, Marlin D. (A)
Wingfield, Frank J. (D)

Huron College

Hanson, Marvin (B)
Okonkwo, Augustine I.
Strong, Ralph K. (C)*
Vitters, Richard
Weidner, Larry D. (A)

Mt. Marty College

Curran, Sister Mary Carole (A)
Diggins, Sister Kieran (D)
Fasbender, Sister Veronica (D)

Harris, W. H. (D)
Kilzer, Sister Laetitia (C)
Stene, John W. (A)
Wagner, Richard Earl (C)
Wingate, Paul John

Northern State College

Miller, Gertrude N. (D)
Roberts, R. Evelyn (D)
Saunders, Jack K. (D)
Stolle, Louise C. (D)
Wood, Edmund (B)

Sioux Falls College

Bathey, James H. (B)
Bierle, Donald (D)
Burney, Gilbert M. (A)
Butler, John L. (D)

Southern State College

Foss, Michael D. (B)
Hempel, Robert D. (D)
Hukki, James
Kreber, Robert (D)
Miedema, Edward
Stanley, Lowell (D)
Strong, Robert S. (C)

South Dakota School of Mines and Technology

Anderson, Paul H. (G)
Ballard, Bruce J. (G)
Ballew, David Wayne
Bien, Gary K. (G)
Boldt, Charles E. (D)
Callison, George (D)
Carlson, Timothy
Davis, Briant L. (A)
Dorland, Dianne (C)
Garske, David H. (E)
Gilbertson, Lyle I. (C)
Gnirk, Paul F. (G)
Goodell, Harold B. (D)
Green, Morton (D)
Gries, John Paul (EG)
Harksen, J. C. (E)
Hopkins, Don C. (B)
Howe, Sr. Marmion
Huntsinger, Ralph (G)
Jonte, J. Haworth (C)
Lingard, Amod L. (G)
Lutton, Robert C. (C)
Lutz, Carl F. (JG)
McHugh, Alexander E. (G)

Martin, W. J.
Mickelson, John C. (G)
Osterhof, Gerard G. (C)
Partlo, Fay L. (J)
Patterson, James D. (B)
Rapp, John S. (E)
Redin, Robert Daniel (B)
Roberts, Willard L.
Russell, James E. (G)
Sandvig, Robert L. (G)
Swanson, Edgar L. (A)
Ting, Chen-Wei
Weyland, Jack A. (B)
Willard, John W. (C)
Wilson, Robert W. (E)

South Dakota State University

Acker, Dean Duane (F)
Balsbaugh, Edward Jr., (D)
Block, Dale
Boddicker, Major L. (D)
Brandwein, Bernard J. (C)
Briggs, H. M. (J)
Carlson, Charles W. (F)
Clifford, Thomas J. (D)
Dahlgren, Robert B. (D)
Emerick, Royce J.
Frazee, Charles
Gehrke, Henry Jr. (C)
Geise, Harry A. (F)
Graetzer, Hans G. (B)
Greichus, Algirdas (D)
Greichus, Yvonne A. (D)
Guild, Louise (D)
Halverson, Andrew W. (D)
Hannon, Michael R. (D)
Holden, David J. (D)
Horten, H. Liland (C)
Huggins, Ernest (D)
Hutcheson, H. L. (D)
Jensen, William P. (C)
Johnson, Elmer (C)
Jones, Philip A. (D)
Kamstra Leslie D. (F)
Kieckhefer, Robert W. (D)
Klug, Harlan L. (C)
Kohlmeyer, William (F)
Linder, Raymond L. (D)
Lund, Lillian O. (D)
Luther, Richard M. (F)
Lynch, Robert H. (B)
McRoberts, Donald (C)
Manning, Melvin L. (G)

Middaugh, Paul
 Miller, Ward L. (D)*
 Morgan, Walter (F)
 Musson, Alfred (F)
 Myers, Gerald A. (D)
 Nickum, John G. (D)
 Olson, Edward (D)
 Olson, Oscar E. (D)
 Pengra, Robert M. (D)
 Roller, Michael H. (D)
 Schneeweis, James C. (D)
 Semeniuk, George (D)
 Sheets, Robert G.
 Spinar, Leo H. (C)
 Taylor, Charles (D)
 Thibodeau, Gary A. (D)
 Thorn, William C. (D)
 Tunheim, Jerald A. (B)
 Voelker, Howard (F)
 Wadsworth, William S., Jr. (C)
 Walstrom, R. J. (D)
 Webster, V. S. (C)
 Whalen, Richard (B)
 White, Everett M. (F)
 Whuk, Michael (G)
 Worman, James J. (C)

University of South Dakota

Babb, Ray (D)
 Beaty, Marjorie H. (A)
 Beck, William W. (D)
 Brown, Richard A. (C)
 Carraher, Charles, Jr. (C)
 Choudhuri, G. N. (D)
 Churchill, Edward P. (D)*
 Cobb, Henry V.
 Coker, E. Howard (C)
 Connors, Howard W. (A)
 Dahlgren, Robert B.
 Davis, Roger T. (D)
 Delzell, Mark W. (J)
 Dillon, Raymond D. (D)
 Dobson, Gerard R. (C)
 Dunlap, Donald G. (D)
 Dunston, Thomas (D)
 Einhellig, Frank (D)
 Ekman, W. E. (A)
 Estee, Charles R. (C)
 Goldman, Max (D)
 Grosz, Fred
 Haines, A. L. (C)*
 Hampshire, Alan A. (C)
 Harrell, Bryon (D)
 Hein, John (D)

Heisinger, James F. (D)
 Hofer, Douglas (C)
 Hoffman, George R. (D)
 Hoffman, William L. (B)
 Huff, Lawrence R. (A)
 Johnson, Allen
 Kabeiseman, William (A)
 Lardinois, Claude
 McGregor, Duncan J. (E)
 McMullen, James (C)
 Miller, Norman (C)
 Moller, Gottfried I. (B)
 Moller, Margot (D)
 Moos, Richard (D)
 Naber, Stephen (C)
 Namminga, Harold (D)
 Padmore, Joel M. (C)
 Peaslee, Margaret H. (D)
 Posey, David
 Raab, Wallace (A)
 Raszkowski, Robert R. (D)
 Read, Willard O. (D)
 Reznicek, D. L. (D)
 Riley, Marvin (D)
 Rothrock, E. P. (E)*
 Rutford, Robert (E)
 Schmulbach, James C. (D)
 Schoon, Robert A. (E)
 Scott, George P. (C)
 Shaw, Edwin H., Jr. (D)*
 Sill, Webster (D)
 Slagle, Charles F. (C)
 Small, Gary D. (D)
 Smith, Harold L. (D)
 Smith, Leonard M. (D)
 Smith, Paul F. (D)
 Spencer, Joseph N. (D)
 Spiegel, Douglas K. (D)
 Stevenson, Robert E. (E)
 Stoner, M. Robert (C)
 Tipton, Merlin J. (E)
 Van Bruggen, Theodore (D)*
 Walsh, Gary (D)

Yankton College

Boos, Gerald J. (D)
 Evans, Gregg M. (C)*
 Howell, S. W. (A)
 Kleibacker, Willson (C)
 Schulze, Arthur W. (C)
 Schultz, Alfred

High School Teachers

Albin, Roy W., Maryland

Bittner, Benjamin R., Artesian
 Bien, Neil H., Sioux Falls
 Bradshaw, Charlotte, Kimball
 Burden, Harry Robert, Hill City
 Campbell, Ronald G., Madison
 Cheadle, James, DeSmet
 Cone, Harold D., Lead
 Dale, Lloyd, Lemmon
 Gross, Erwin, Freeman
 Gustad, Lanny R., Alcester
 Halstead, Alfred A., Yankton
 Hansen, Muriel, Kimball
 Haynie, Suzanne, Vermillion
 Jurgens, Gary, Mission
 Kehrwald, Sr. Jennifer, Sioux Falls
 Landegant, John, Sioux Falls
 Martin James M., Jr., Belle Fourche

Milburn, Corinne, Elk Point
 Moody, Oletha J., Garretson
 Parkening, Terry, Norfolk, Nebr.
 Petzoldt, Herman, Menno
 Pribyl, Darel F., Milbank
 Selnes, Marvin D., Sioux Falls
 Sidlo, Charles, Parker
 Stalcup, Rex C., Rapid City
 Stalheim, William, Sioux Falls
 Stanhope, Russell, Massachusetts
 Stoeckmann, James A., Baltic
 Thaddea, Sister M., Sioux Falls
 Thurston, Marion, Arizona
 Tichy, Jerome J., California
 Toering, Jerry, Artesian
 Vitters, Richard, Huron

General Classification

| | |
|-----------------------------|-----------------------------------------------|
| Acroyd, Earl A..... | U. S. Geological Survey, Huron |
| Aldrich, Douglas E..... | Midland, Michigan |
| Baldwin, Kenneth V..... | Briar Cliff College, Sioux City, Ia. |
| Beckman, Lance G..... | North Central Reservoir Invest., Pierre, S.D. |
| Belzer, Norbert..... | Washington State Univ., Pullman |
| Benson, Norman G..... | Fisheries Research, Yankton, S.D. |
| Bergstrom, Wils..... | Wentworth, Wisconsin |
| Brummel, Cletus..... | Benton Harbor, Michigan |
| Chace, G. Earl..... | Curator, Black Hills Reptile Gardens |
| Cope, Joseph H..... | Yankton |
| Crooks, Thomas J..... | Boise, Idaho |
| Disrud, Dennis..... | Minot State College, Minot, N. Dak. |
| Duffey, Lowell M..... | Biology Dept., N. Texas State University |
| Dugle, David L..... | Pinawa, Manitoba, Canada |
| Dugle, Janet R..... | Pinawa, Manitoba, Canada |
| Friesen, Lorne W..... | Freeman Junior College, S.D. |
| Hassler, Thomas J..... | Pierre |
| Heemstra, John G..... | Yankton Clinic, S.D. |
| Hyland, James B..... | Soil Conservation, Huron |
| Ideker, Joe..... | Patterson Laboratories, Univ. of Texas |
| Katwatski, Joseph..... | Madison, Wisconsin |
| Kume, Jack..... | Geological Survey, Vermillion |
| Leroux, Edmund F..... | Geological Survey, Huron |
| Martin, John..... | Nebraska |
| Masteller, Vance J..... | Madison, Wisconsin |
| Moen, Thomas..... | Fish Hatchery, Moberg |
| Monaghan, James R..... | Geologist, Huron |
| Peterson, Robert L..... | Pocatello, Idaho |
| Raney, James A..... | Coralville, Iowa |
| Rathamann, Franz..... | North Dakota State University, Fargo |
| Sauder, Darrel W..... | Eureka, Kansas |
| Shimamura, Tetsuo..... | Rutgers Medical School, New Jersey |
| Smith, Gary B..... | Southington, Connecticut |
| Starler, Norman..... | Ellsworth Air Force Base, Rapid City |
| Stachour, Frances Jobs..... | Yankton, S.D. |

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|----------------------------|---------------------------------------------|
| Stedman, Earl | |
| Steece, Fred V. | South Dakota State Geological Survey |
| Tario, Rex. | Spearfish, S.D. |
| Thomas, Howard M. | Chemistry Dept., Wisconsin State University |
| Throckmorton, Carl R. | Hastings College, Hastings, Nebr. |
| Timken, Richard L. | Minot State College, North Dakota |
| Van Deusen, James | Research Forester, Rapid City |
| Vaughn, Charles M. | Zoology Dept., Miami University |
| Vaughn, Kenneth D. | Department of Water, Sioux Falls |

Collegiate Section

| | |
|---------------------------|------------------------------------------|
| Donna Tramp. | Mt. Marty, Yankton |
| Arlinda Hildebrand | Mt. Marty, Yankton |
| Linda Miller | Mt. Marty, Yankton |
| Sr. Flora Olhaiser | Mt. Marty, Yankton |
| Roderick J. McNeil | S. D. State University, Brookings |
| Claudia O'Neil | Yankton College, Yankton |
| David Vollmer | Yankton College, Yankton |
| Carol Wilcox | Mt. Marty, Yankton |
| Theresa Nemmers | Mt. Marty, Yankton |
| Jess Wolf | Mt. Marty, Yankton |
| John A. Weber | Dakota Wesleyan, Mitchell |
| T. R. Nicholas | S. D. School of Mines & Tech, Rapid City |
| Karl Gerdes | S. D. School of Mines & Tech, Rapid City |
| Arnta Flindt | S. D. School of Mines & Tech, Rapid City |
| Li-ying Kuan | University of S. D., Vermillion |
| Carol Summers | Mt. Marty, Yankton |
| Janet Egger | Mt. Marty, Yankton |
| Jim Rasmussen | Mt. Marty, Yankton |
| Shehla Anjum | Mt. Marty, Yankton |
| Dianne Walker | Mt. Marty, Yankton |
| Debbie Raynie | Mt. Marty, Yankton |
| Mary McEntee | Mt. Marty, Yankton |
| Pam Grosshuesch | Mt. Marty, Yankton |
| Fred Grosz | University of S. D., Vermillion |
| Marvin Riley | University of S. D., Vermillion |
| William Schutte | University of S. D., Vermillion |
| Robert C. Torkelson | University of S. D., Vermillion |
| Gary Kine | University of S. D., Vermillion |
| D. L. Reznicek | University of S. D., Vermillion |
| David Holden | S. D. State University, Brookings |
| Laurine Hagley | Dakota State, Madison |
| Ronald Schultz | S. D. State University, Brookings |
| Margaret Pearson | S. D. State University, Brookings |
| Marty Hanson | Augustana, Sioux Falls |
| Douglas Meyer | S. D. State University, Brookings |
| Douglas Johannsen | S. D. State University, Brookings |
| Frances Taylor | Huron College, Huron |
| Sherry Clark | Mt. Marty, Yankton |
| Sherman V. Johnston | Sioux Falls College, Sioux Falls |
| Mike McEnroe | Augustana College, Sioux Falls |
| Robert Vandall | S. D. State University, Brookings |
| Mike Hanson | Augustana, Sioux Falls |
| Jim Frederickson | Augustana, Sioux Falls |

| | |
|-----------------------|------------------------------------------|
| Nancy Russell | Augustana, Sioux Falls |
| Douglas Modica | Sioux Falls College, Sioux Falls |
| Richard Seibel | Augustana, Sioux Falls |
| Douglas E. Cain | S. D. School of Mines & Tech, Rapid City |
| Larry Schaefer | S. D. School of Mines & Tech, Rapid City |

Junior Academy

| | |
|---------------------------|------------------------------------|
| David Cutshall | Lincoln High School, Sioux Falls |
| Denise Gerber | Aberdeen Central, Aberdeen |
| Keith Bostian | Aberdeen Central, Aberdeen |
| Dale Foss | Lincoln High School, Sioux Falls |
| Jean Gerber | Aberdeen Roncalli, Aberdeen |
| Pat Hoffeman | Aberdeen Roncalli, Aberdeen |
| Peter L. Larson | Mission-Todd High School, Mission |
| Paul Karlin | Mission-Todd High School, Mission |
| Lowell Kolb | Lemmon High School, Lemmon |
| Donald Lemke | Lemmon High School, Lemmon |
| Richard L. Goodwin | Lemmon High School, Lemmon |
| Patricia Gibbs | Lincoln High School, Sioux Falls |
| Joe Durham | Lincoln High School, Sioux Falls |
| Gary Melton | Lincoln High School, Sioux Falls |
| Greg Marek | Lincoln High School, Sioux Falls |
| Mark Eaton | Lincoln High School, Sioux Falls |
| Pamela Moore | Vermillion High School, Vermillion |
| Carol Neuhaus | Vermillion High School, Vermillion |
| James Wentzy | Brookings High School, Brookings |
| David Gilkerson | Brookings High School, Brookings |
| Tim McCarthy | Brookings High School, Brookings |
| Tom Dunn | O'Gorman High School, Sioux Falls |
| Ralph Cook | Brandon Valley High, Brandon |
| Donna Harrum | Brandon Valley High, Brandon |
| Jill Petersen | Brandon Valley High, Brandon |
| Marilyn Swenson | Brandon Valley High, Brandon |
| Sharlene Whipkey | Brandon Valley High, Brandon |
| Darold Otten | Brandon Valley High, Brandon |
| Steve Taylor | Brandon Valley High, Brandon |
| Roger Vanderlinde | Brandon Valley High, Brandon |
| Michael Latendresse | Beresford High School, Beresford |
| John Manning | Beresford High School, Beresford |
| Scott Erickson | Beresford High School, Beresford |
| Scott Latendresse | Beresford High School, Beresford |
| LaVerne Hofer | Beresford High School, Beresford |
| Paul McGann | O'Gorman High School, Sioux Falls |
| Gary Fischer | O'Gorman High School, Sioux Falls |
| Tim Plas | O'Gorman High School, Sioux Falls |
| Sandi Rhore | Lincoln High School, Sioux Falls |
| Marcia Rupp | Lincoln High School, Sioux Falls |
| Cathy Parezo | O'Gorman High School, Sioux Falls |
| Karn Brick | O'Gorman High School, Sioux Falls |
| Marcia Houck | O'Gorman High School, Sioux Falls |
| Deb Vollmer | Yankton High School, Yankton |
| Greg Hofer | Marion Ind. High School, Marion |
| Brian Dykstra | Marion Ind. High School, Marion |
| Ed Cannon | O'Gorman High School, Sioux Falls |

| | |
|-----------------------|-----------------------------------|
| Mike Orr | O'Gorman High School, Sioux Falls |
| Dee Meyer..... | O'Gorman High School, Sioux Falls |
| Dave Kemp | O'Gorman High School, Sioux Falls |
| Charles Matthews..... | Parker High School, Parker |
| Tony Poppe | Parker High School, Parker |
| Dan Jongeling | Parker High School, Parker |
| Leon Begeman | Parker High School, Parker |
| Carmen Paaling | Lincoln High School, Sioux Falls |
| Mary Eastwold..... | Lincoln High School, Sioux Falls |
| Glenna Bruffy..... | Lincoln High School, Sioux Falls |