

# Proceedings of the Iowa Academy of Science

---

Volume 51 | Annual Issue

Article 2

---

1944

## Officers, Committees, Past Presidents, and Members, Iowa Academy of Science

Copyright © Copyright 1944 by the Iowa Academy of Science, Inc.

Follow this and additional works at: <https://scholarworks.uni.edu/pias>

---

### Recommended Citation

(1944) "Officers, Committees, Past Presidents, and Members, Iowa Academy of Science," *Proceedings of the Iowa Academy of Science*: Vol. 51: No. 1, Article 2.

Available at: <https://scholarworks.uni.edu/pias/vol51/iss1/2>

This Front Matter is brought to you for free and open access by UNI ScholarWorks. It has been accepted for inclusion in Proceedings of the Iowa Academy of Science by an authorized editor of UNI ScholarWorks. For more information, please contact [scholarworks@uni.edu](mailto:scholarworks@uni.edu).

# IOWA ACADEMY OF SCIENCE

## OFFICERS OF THE ACADEMY 1943-44

President, E. R. SMITH.....	Ames
Vice-President, BEN H. PETERSON.....	Cedar Rapids
Secretary-Treasurer, CORNELIUS GOUWENS.....	Ames
Editor, L. R. WILSON.....	Cedar Rapids
Librarian, C. H. BROWN.....	Ames

## OFFICERS OF THE ACADEMY 1942-43

President, C. W. LANTZ.....	Cedar Falls
Vice-President, E. R. SMITH.....	Ames
Secretary-Treasurer, E. R. BECKER*.....	Ames
Editor, L. R. WILSON.....	Cedar Rapids
Librarian, C. H. BROWN.....	Ames

## CHAIRMAN OF THE STANDING COMMITTEES

Biological Survey, H. S. CONARD, 1940-46.....	Grinnell
Conservation, J. M. AIKMAN, 1941-47.....	Ames
High School Relations, F. E. BROWN, 1942-48.....	Ames
Membership, PAUL E. KAMBLY, 1941-45.....	Iowa City
Finance and Endowment, J. B. CULBERTSON, 1938-44.....	Mt. Vernon
Legislation, J. H. BODINE, 1941-45.....	Iowa City

## SECTION OFFICERS

<i>Section</i>	<i>Chairman</i>	<i>Executive Committeeman</i>	
Botany	W. E. Loomis	Louisa Sargent	1943-44
Chemistry— General, Physical	Gerald A. Lillis	Jacob Cornog	1941-45
Chemistry— Organic, Biological	Geo. N. Schulte	L. Charles Raiford	1943-44
Geology	E. J. Cable	A. K. Miller	1942-46
Mathematics	N. B. Conkwright	Cornelius Gouwens	1940-44
Physics	L. T. Earls	Roy A. Nelson	1942-46
Psychology	H. F. Brandt	A. H. Lauer	1941-45
Science Teaching	K. A. Stiles	M. F. McDonald	1942-46
Zoology	L. P. Johnson	T. L. Jahn	1942-46

\*Dr. E. R. Becker resigned as of February 1, 1942, and Dr. Cornelius Gouwens was appointed to the office until the end of the year, March 1, 1943.

## PAST PRESIDENTS

OSBORN, HERBERT.....	1887-1888	NORTON, W. H.....	1899-1900
TODD, J. E.....	1888-1889	VEBLEN, A. A.....	1900-1901
WITTER, F. M.....	1889-1890	SUMMERS, H. L.....	1901-1902
NUTTING, C. C. (2 terms).....		FINK, BRUCE.....	1902-1904
	1890-1892	SHIMEK, B.....	1904-1905
PAMMEL, L. H.....	1892-1893	AREY, M. F.....	1905-1906
ANDREWS, L. W.....	1893-1894	BATES, C. O.....	1906-1907
NORRIS, H. W. (1 term).....		TILTON, JOHN L.....	1907-1908
	1894-1896	CALVIN, SAMUEL.....	1908-1909
HALL, T. P.....	-1896	ALMY, FRANK F.....	1909-1910
FRANKLIN, W. S.....	1896-1897	HOUSER, GILBERT L.....	1910-1911
MACBRIDE, T. H.....	1897-1898	BEGEMAN, L.....	1911-1912
HENDRIXSON, W. S.....	1898-1899	BENNETT, A. A.....	1912-1913

KINNEY, C. N.....	1913-1914	KAY, GEORGE F.....	1928-1929
CONRAD, HENRY S.....	1914-1915	SPINNEY, L. B.....	1929-1930
KELLY, HARRY M.....	1915-1916	RIETZ, H. L.....	1930-1931
STEWART, GEORGE W.....	1916-1917	LEES, JAMES H.....	1931-1932
ROSS, L. S.....	1917-1918	JAQUES, H. E.....	1932-1933
BEYER, S. W.....	1918-1919	CABLE, E. J.....	1933-1934
STEPHENS, T. C.....	1919-1920	BARTOW, E. W.....	1934-1935
KNIGHT, NICHOLAS.....	1920-1921	BUCHANAN, R. E.....	1935-1936
MOREHOUSE, D. W.....	1921-1922	SHERMAN, L. P.....	1936-1937
WYLIE, R. B.....	1922-1923	TROWBRIDGE, A. C.....	1937-1938
PAMMEL, L. H.....	1923-1924	MARTIN, J. N.....	1938-1939
SMITH, O. H.....	1924-1925	MCCLENON, R. B.....	1939-1940
CRATTY, R. I.....	1925-1926	CARTER, CHARLES.....	1940-1941
SEASHORE, C. E.....	1926-1927	NELSON, ROY A.....	1941-1942
WELD, L. D.....	1927-1928	LANTZ, C. W.....	1942-1943

# MEMBERS OF THE IOWA ACADEMY OF SCIENCE

## HONORARY FELLOWS\*

Osborn, Herbert (F).....State University, Columbus, Ohio  
Trelease, William (G).....State University, Urbana, Illinois

## EMERITUS FELLOWS

Aitchison, Alison E. (E).....Cedar Falls  
Boyd, Mark F. (F).....615 E. Sixth Ave., Tallahassee, Fla.  
Bruner, H. L. (F).....324 S. Ritter Ave., Indianapolis, Ind.  
Davis, W. H. (G).....Agri. College, Amherst, Mass.  
Goodell, F. E. (C).....3620 Adams St., Des Moines

## LIFE FELLOWS

Bartow, Edward W. (C).....State University, Iowa City  
Conard, Henry S. (G).....Grinnell College, Grinnell  
Erwin, A. T. (G).....State College, Ames  
Fitzpatrick, T. J. (G).....2002 North 68th, Lincoln, Neb.  
Gilman, J. C. (G).....State College, Ames  
Houser, G. L. (F).....State University, Iowa City  
Jones, David T. (F).....Vinton  
Kemmerer, Mrs. Mable C. (I).....Jackson, Miss.  
Keyes, Charles Reuben (E).....Cornell College, Mount Vernon  
Kuntz, Albert (F).....St. Louis University, St. Louis, Mo.  
Lindly, John M. (G).....Glenwood  
Martin, G. W. (G).....State University, Iowa City  
Norton, W. H. (E).....Cornell College, Mount Vernon  
Pellett, Frank C. (G).....American Bee Journal, Hamilton, Ill.  
Ricker, Maurice (F).....Los Angeles, Calif.  
Seashore, C. E. (I).....State University, Iowa City  
Summers, H. E. (F).....712 Edison St., Los Angeles, Calif.  
Sylvester, R. H. (I).....660 16th St., Des Moines  
Wilson, L. R. (E, G).....Coe College, Cedar Rapids  
Wylie, R. B. (G).....State University, Iowa City

## FELLOWS

Aikman, J. M. (G).....State College, Ames  
Aitken, W. W. ....Iowa Conserv. Com., 10th and Mulberry, Des Moines  
Allbright, C. L. (B).....University of Richmond, Richmond, Virginia  
Alcock, N. G. (F, O).....State University Hospital, Iowa City  
Anderson, J. P. (G).....State College, Ames  
Anderson, Keith E. (E).....Iowa Geological Survey, Iowa City  
Anderson, R. B. (C).....Baltimore, Maryland  
Anderson, W. A. (G).....State University, Iowa City  
Bair, Roy A. (G).....Belle Glade, Florida  
Baker, J. Allen (C).....Simpson College, Indianola  
Bakke, A. L. (G).....State College, Ames  
Barnes, M. E. (O).....State Univ. Hospital, Iowa City  
Bartsch, Paul (F).....U. S. National Museum, Washington, D. C.  
Beams, H. W. (F).....State University, Iowa City  
Becker, E. R. (F).....State College, Ames  
Begeman, Louis (B).....State Teachers College, Cedar Falls

\*The letter in parentheses following the name indicates the section in which the member is interested as follows: A, mathematics; B, physics; C, chemistry; E, geology; F, zoology; G, botany; I, psychology; O, bacteriology.

Bennett, Walter W. (F)	5617 Harcourt Ave., Los Angeles, Cal.
Berg, Clarence P. (C)	State University, Iowa City
Berg, William D. (A)	Iowa City
Biester, H. E. (F, O)	State College, Ames
Bissonnette, F. H. (F, G)	Trinity College, Hartford, Conn.
Bodine, Joseph H. (F)	State University, Iowa City
Bond, P. A. (C)	P. O. Box 22, Iowa City
Boyd, Ivan L. (G)	Baker Univ., Baldwin, Kansas
Boyer, E. H. (F)	St. Joseph's Hospital, Mason City
Brooks, F. G. (F, G)	Cornell College, Mt. Vernon
Brown, F. E. (C)	Chem. Dept., State College, Ames
Buchanan, R. E. (O)	State College, Ames
Buchholtz, W. F. (G)	State College, Brookings, S. D.
Buffum, Hugh S. (I)	2300 Franklin St., Cedar Falls
Burk, Myrle (G)	Waterloo
Butchart, J. H. (A)	Grinnell College, Grinnell
Butler, L. W. (B)	State College, Ames
Cable, E. J. (E)	Cedar Falls
Carothers, E. Eleanor (F, G)	Iowa City
Carr, A. B. (B)	Simpson College, Indianola
Carr, P. H. (B)	State College, Ames
Carter, Charles (G)	Parsons College, Fairfield
Chittenden, E. W. (A)	State University, Iowa City
Clark, J. C. (F)	Box 859, Presidio, Tex.
Clark, Norman A. (C)	State College, Ames
Cocroft, Robert (C)	Cornell College, Mt. Vernon
Coffin, L. M. (A)	Coe College, Cedar Rapids
Coleman, G. H. (C)	State University, Iowa City
Collins, Wm. B. (I)	Loras College, Dubuque
Coover, W. F. (C)	State College, Ames
Cornog, Jacob (C)	State University, Iowa City
Coss, James A. (C)	Morningside College, Sioux City
Cox, B. B. (E)	25 Broad St., New York (4), N. Y.
Craig, Allen T. (A)	State University, Iowa City
Crawford, L. C. (A)	State University, Iowa City
Crozier, W. D. (B)	126 N. Alcade, Albuquerque, N. M.
Culbertson, James B. (C)	Cornell College, Mt. Vernon
Daniells, Marian E. (A)	State College, Ames
Davis, George E. (B)	Univ. of Oklahoma, Norman, Okla.
Dawson, Helen (I)	College of Medicine, Iowa City
Dean, H. L. (G)	State University, Iowa City
Decker, George C. (F)	State College, Ames
Dembo, Tamara (I)	Child Welfare, Iowa City
Diehl, H. C. (C)	State College, Ames
Dill, Homer R. (F)	State University, Iowa City
Dodd, L. E. (B)	1263 Woodruff Ave., Los Angeles, 24, Calif.
Dole, J. Wilbur (G)	Fairfield
Doty, H. S. (G)	Simpson College, Indianola
Douglass, L. C. (I)	State University, Iowa City
Drake, Carl J. (F)	State College, Ames
Edgar, Rachel (C)	State College, Ames
Elridge, J. A. (B)	State University, Iowa City
Emme, E. E. (I)	Morningside, Sioux City
Emmons, C. W. (A)	Simpson College, Indianola
Ernsdorff, L. E. (A)	Loras College, Dubuque
Errington, Paul L. (F)	Zoology Dept., Ames
Evans, John E. (I)	State College, Ames
Eversole, W. G.	State University, Iowa City
Ewing, H. E. (F)	U. S. Nat. Museum, Washington, D. C.
Fleming, Annie W. (A)	State College, Ames
Fraser, C. M. (F)	University British Columbia, Vancouver, B. C.
French, Raymond A. (G)	University of Dubuque, Dubuque

Friley, C. E.	State College, Ames
Fritz, Martin F. (I)	State College, Ames
Fulmer, Ellis I. (C)	State College, Ames
Gaessler, William G. (C)	State College, Ames
Gale, Grant (O)	Grinnell College, Grinnell
Gaskill, H. V. (I)	State College, Ames
Gayer, H. Kenneth (F)	Grinnell College, Grinnell
Geiser, Sam W. (F)	So. Methodist University, Dallas, Texas
Geisler, George (C)	Trinity College, Sioux City
Getchell, R. W. (C)	State Teachers College, Cedar Falls
Gilman, Henry (C)	State College, Ames
Glockler, George (C)	State University, Iowa City
Goodman, George J. (G)	State College, Ames
Gouwens, Cornelius (A)	State College, Ames
Graber, M. E. (B, A)	Morningside College, Sioux City
Grant, Martin L. (G)	State Teachers College, Cedar Falls
Greene, Paul C. (I)	Coe College, Cedar Rapids
Greenwood, D. A. (C)	Chicago, Ill.
Grelck, William	3117 Ferndale Ave., Baltimore, Md.
Gwynne, Charles S. (E)	State College, Ames
Haber, E. S. (G)	State College, Ames
Hale, William E. (E)	Iowa Geological Survey, Iowa City
Hammer, B. W. (O)	425 Battery St., San Francisco, Calif.
Harris, H. M. (F)	State College, Ames
Harris, Stanley E. Jr. (E)	Iowa Geological Survey, Iowa City
Harrison, Bruce M. (F)	Univ. So. California, Los Angeles, Cal.
Hartman, Geo. B. (G)	State College, Ames
Hartzell, Albert (F)	Boyce Thompson Institute, Yonkers, N. Y.
Hauber, Ulrich A. (F)	St. Ambrose College, Davenport
Hayden, Ada (G)	State College, Ames
Heitkamp, G. W. (G)	Loras College, Dubuque
Helser, M. D. (F)	State College, Ames
Henderson, Mack T. (I)	Grinnell College, Grinnell
Hendrickson, Geo. O. (F)	State College, Ames
Henry, Lyle K. (I)	State College, Ames
Herr, Gertrude A. (A)	State College, Ames
Hershey, H. Garland (E)	Geol. Survey, Iowa City
Higbee, F. G. (A)	State University, Iowa City
Hines, Harry Matlock (C, F)	State University, Iowa City
Hinman, Jack J. Jr. (C, O)	121 Melrose Ave., Iowa City
Hinrichsen, J. J. L. (A)	State College, Ames
Hjermstad, Erling (C)	Coe College, Cedar Rapids
Hodgson, James B. (I)	Coe College, Cedar Rapids
Holmes, John L. (I)	State College, Ames
Hooker, W. J. (G)	State College, Ames
Howell, J. W.	Loras College, Dubuque
Huff, George C. (F)	Drake University, Iowa City
Hufferd, Mrs. Margery Simpson (B)	532 20th St., N. W., Washington 6, D. C.
Hughes, H. D. (G)	State College, Ames
Irion, Arthur L. (I)	State University, Iowa City
Jaques, H. E. (F)	Iowa Wesleyan College, Mount Pleasant
Jordan, Carl F. (F)	State Health Service, Des Moines
Kadesch, W. H. (B)	State Teachers College, Cedar Falls
Kalina, M. H. (C)	3008 Cheltenham Pl., Chicago 49, Ill.
Kambly, Paul E. (F, G)	University High School, Iowa City
Kay, G. Marshall (E)	Columbia University, New York City
Kent, G. C. (G)	State College, Ames
Kercheval, James C. (C)	Ypsilanti, Mich.
King, Albion Roy (I)	Mt. Vernon
King, Robert L. (F)	State University, Iowa City
Knight, H. H. (F)	State College, Ames

Kountz, R. Rupert (F).....	Iowa City
Krull, Wendell (F).....	Alabama Poly., Auburn, Alabama
Kunerth, William (B).....	State College, Ames
Ladd, Harry S. (E).....	Rolla, Missouri
Lantz, C. W. (G).....	State Teachers College, Cedar Falls
Larsen, Julius A. (G).....	2107 Graeber Street, Ames
Le Clerg, E. L. (G).....	Baton Rouge, La.
Lee, Chester D. (O, F).....	State College, Ames
Levine, Max (O).....	State College, Ames
Lewis, Don (I).....	State University, Iowa City
Lierle, D. M. (C, F, I, O).....	State University Hospital, Iowa City
Liggett, Thomas H. (C).....	Pella
Lindsey, A. W. (F).....	Denison University, Granville, Ohio
Lindstrom, Ernest W. (G).....	State College, Ames
Loehwing, Walter F. (G, C).....	State University, Iowa City
Lonsdale, John T. (E).....	State College, Ames
Loomis, W. E. (G).....	State College, Ames
Luck, Robena E. (G).....	654 Hobart Pl. N. W., Washington, D. C.
MacDonald, G. B. (G).....	State College, Ames
MacEwen, Ewen (O, F).....	State University Hospital, Iowa City
MacGregor, J. B. (I).....	Mt. Vernon
McClenon, R. B. (A).....	Grinnell
McClintock, J. T. (F).....	State University, Iowa City
McCracken, Earl C. (B).....	New York City, N. Y.
McGaw, F. M. (A).....	Cornell College, Mount Vernon
McKelvey, J. V. (A).....	State College, Ames
McKenzie, R. Monroe (C, B).....	Parsons College, Fairfield
McNutt, S. H. (O, F).....	State College, Ames
Maney, T. J. (G).....	State College, Ames
Martin, John N. (G).....	State College, Ames
Mattill, Henry A. (C).....	Biological Chemistry, S. U. I., Iowa City
Maxwell, H. L. (C).....	Wilmington, Dela.
Meier, Norman C. (I).....	State University, Iowa City
Melhus, I. E. (G).....	State College, Ames
Mendell, Frank H. ....	Ames
Miller, A. K. (E).....	State University, Iowa City
Miller, Lewis B. (C).....	Ambler, Pa.
Mills, Wier R. (G).....	Pierson
Moots, Elmer E. (A).....	Cornell College, Mount Vernon
Moreland, F. B. (C).....	State University, Iowa City
Morrow, Roger (F).....	Albion, Michigan
Mouden, Homer (B, C).....	4740 Bernice St., Kansas City, Kansas
Murphy, H. C. (G).....	State College, Ames
Naylor, Nellie M. (C).....	Ames
Neff, I. F. (A).....	Drake University, Des Moines
Nelson, P. Mabel (C).....	State College, Ames
Nelson, Roy A. (B).....	Cornell College, Mount Vernon
Nelson, V. E. (C).....	State College, Ames
Newell, W. S. (I).....	Coe College, Cedar Rapids
Nichols, Mrs. Florence Willey (G).....	Ames
Norlie, O. M. (I).....	818 Forest Ave., Northfield, Minn.
Norris, H. W. (F).....	Grinnell College, Grinnell
Nye, Warren E. (F, G).....	Loras College, Dubuque
Ojeman, Ralph H. ....	State University, Iowa City
Orr, Ellison I. (E).....	Waukon
Paddock, F. B. (F).....	State College, Ames
Palmer, E. L. (F, G).....	Cornell University, Ithaca, N. Y.
Parish, Jessie Augusta (G).....	226½ Main Street, Cedar Falls
Park, O. W. (F).....	State College, Ames
Parker, Ralph L. (F).....	Agricultural College, Manhattan, Kan.
Patterson, T. L. (F).....	1512 St. Antoine, Detroit, Mich.
Patton, Leslie K. (I).....	Coe College, Mt. Vernon

Pepinsky, Abe (A) Assoc.....	Prof., Mus. Ed., Uni. of Minn., St. Paul, Minn.
Peterson, Ben H. (C).....	Coe College, Cedar Rapids
Pettit, Don D. (C).....	Iowa City
Plagge, Herbert J. (B).....	State College, Ames
Plagge, Homer H. (G).....	State College, Ames
Porter, R. H. (G).....	State College, Ames
Prill, Edward A. (C).....	Bryce Thompson Inst., Yonkers 3, N. Y.
Prindle, Bryce (O).....	30 Lincoln Ave., West Barrington, R. I.
Ramsey, Guy R. (G).....	State College, Ames
Rath, H. Earl (F).....	Teachers College, Cedar Falls
Ray, Francis E. (C).....	Cincinnati, Ohio
Reddy, C. S. (G).....	State College, Ames
Reed, C. D. (B).....	U. S. Weather Bureau, Des Moines
Rice, William N. (G).....	State College, Ames
Rider, A. J. (C).....	Drake University, Des Moines
Risley, Paul L. (F).....	State University, Iowa City
Robinson, P. G. (A).....	State College, Ames
Robinson, W. Merle (C).....	Montezuma, Iowa
Rose, E. T. (F).....	Decorah, Iowa
Routh, J. I. (C).....	State University, Iowa City
Runner, Joseph J. (E).....	State University, Iowa City
Rusk, W. J. (A).....	Grinnell College, Grinnell
Salit, P. W. (C).....	State University Hospital, Iowa City
Sanders, W. E. (F, G).....	453 Chestnut, Long Beach 2, Calif.
Sargent, Louisa G. (G).....	Grinnell College, Grinnell
Sass, J. E. (G).....	State College, Ames
Scheck, M. George (I).....	Elmira College, Elmira, N. Y.
Schoewe, Walter H. (E).....	State University, Lawrence, Kan.
Schulte, Geo. N. (C).....	Loras College, Dubuque
Schulz, J. A. (C).....	306 Chemical Bldg., State College, Ames
Scott, Winfield (G).....	Cedar Falls
Seeburger, Mrs. M. M. (E).....	Des Moines
Semeniuk, George (G).....	State College, Ames
Sherman, L. P. (C).....	Grinnell College, Grinnell
Shipton, Washburn D. (E).....	Washington University, St. Louis, Mo.
Skeels, H. M. (I).....	P. O. Box 2, Randolph Field, Texas
Smith, Edwin R. (A).....	State College, Ames
Smith, Erma A. (F).....	Zoology Dept., I. S. C., Ames
Smith, F. F. (F).....	313 Ontario, Storm Lake
Smith, H. P. (O).....	State University Hospital, Iowa City
Smith, Lothrop (B, C).....	Chemistry Dept., State University, Iowa
Snedecor, George W. (A).....	State College, Ames
Speaker, E. R. (F).....	Des Moines
Spinney, L. B. (B).....	State College, Ames
Sprague, G. F. (C).....	State College, Ames
Stainbrook, Merrill A. (E).....	Texas Tech. College, Lubbock, Tex.
Stephens, T. C. (F).....	Morningside College, Sioux City
Stewart, G. W. (B).....	State University, Iowa City
Stiles, Bruce F. (F).....	Iowa State Conservation Com., Des Moines
Stiles, Harold (B).....	State College, Ames
Stiles, K. A. (F).....	Coe College, Cedar Rapids
Stoner, Dayton (F).....	Albany, N. Y.
Stookey, S. W. (E).....	2505 A Ave., N. E., Cedar Rapids
Stork, F. J. (C).....	Loras College, Dubuque
Stromsten, Frank A. (F).....	State University, Iowa City
Strother, C. R. (I).....	Iowa City
Stroud, J. B. (I).....	Iowa City
Swanson, Leonard W. (A).....	Coe College, Cedar Rapids
Swanson, Pearl P. (C).....	State College, Ames
Takazawa, Futoshi (C).....	State University, Iowa City
Tauber, Oscar E. (F).....	State College, Ames



Tester, A. C. (E)	State University, Iowa City
Theobald, John (A)	Loras College, Dubuque
Thielman, H. P. (A)	State College, Ames
Thomas, Byron H. (C)	State College, Ames
Trowbridge, A. C. (E)	State University, Iowa City
Tyndall, E. P. T. (B)	State University, Iowa City
Van Epps, C. (I)	College of Medicine, S. U. I., Iowa City
Vance, Thomas F. (I)	State College, Ames
Van Engen, Henry (A)	State Teachers College, Cedar Falls
Van Tuyl, Francis M. (E)	School of Mines, Golden, Colo.
Volz, E. C. (G)	State College, Ames
Von Korff, R. W.	406 Russell St., Peoria, Ill.
Wannier, Gregory (B)	State University, Iowa City
Ward, L. E. (A)	State University, Iowa City
Warner, Robert M. (G)	Laurel
Watson, Emery E. (A)	State Teachers College, Cedar Falls
Watson, Margaret Liebe (F)	Simpson College, Indianola
Webster, R. L. (F)	State College, Pullman, Wash.
Weeber, W. Keith (C, E, O)	219 Riverview, Iowa City
Weigle, O. M. (C)	Westminster College, Fulton, Mo.
Weld, L. D. (B)	Coe College, Cedar Rapids
Wellhouse, W. H. (F)	State College, Ames
Werkman, C. H. (O)	State College, Ames
Wilkinson, J. A. (C)	State College, Ames
Williams, Noel J. (F)	R. No. 2, Milford
Willson, L. H. (B)	State College, Ames
Wilsie, C. P. (G)	State College, Ames
Wilson, Ben H. (F)	Junior College, Joliet, Ill.
Witschi, Emil (F)	State University, Iowa City
Wittrock, G. L. (G)	Bronx Park, N. Y.
Wolden, B. O. (G)	Estherville
Wolfe, Russell M. (F, O)	Marshalltown
Wood, L. W. (E)	Madison, Wisconsin
Woodrow, Jay W. (B)	State College, Ames
Woods, R. W. (A)	Iowa City
Zuker, W. B.	Dubuque

ASSOCIATES

Aardal, A. A.	Wartburg College, Waverly
Adams, Clifford (E)	Rockville, Ind.
Adams, J. A. (F)	Box 1229, Poughkeepsie, N. Y.
Adams, Michael (I)	State University, Iowa City
Adams, Wallace W. (E)	New York, N. Y.
Albert, W. E. (F)	Lansing
Allen, Edward S. (A)	State College, Ames
Allen, Ted (F)	2520 Mulberry Ave., Muscatine
Anderson, E. W. (A)	State College, Ames
Anderson, Stanley (I)	Sioux City
Armocost, Richard (G)	Syracuse Univ., Syracuse, N. Y.
Arnold, L. K. (C)	Ames
Asprey, Winifred (A)	Dept. of Math. State Univ., Iowa City
Atanasoff, J. V. (A)	Ames
Augustine, D. W. (G)	Boone
Bacher, Paul H. (C)	Burlington
Bailey, Reeve M. (F)	Dept. of Zoology, Ames
Baker, H. T. (C)	Baton Rouge, Louisiana
Barr, Marjorie E. (F)	2015 Ave. J, Fort Madison
Barrett, James W. (G)	State College, Ames
Bass, Louis N. (G)	State University, Iowa City
Bates, Justine (I)	4025 Walnut, Kansas City 2, Mo.
Baxter, Richard (F)	Mount Pleasant

Beane, B. H. (G)	La Grande
Beebe, J. M. (G)	306 North St., Meadville, Pa.
Belanger, Agnes F. (I)	1040 22nd St., Des Moines
Benson, Edward (A)	Des Moines
Berg, J. Robert (E)	2301 North Tenth St., Terre Haute, Ind.
Bergman, H. D. (C, F)	Iowa State College, Ames
Bissinger, L. L.	Minneapolis, Minn.
Bledsoe, R. W. (G)	Gainesville, Fla.
Bliese, John C. W. (F)	219 Ankeny St., Waterloo
Blumer, J. C.	Ortonville, Minn.
Boardman, Donald C. (E)	Wheaton, Ill.
Boardman, W. W. (C)	Amcele, Maryland
Bowne, George (E, F)	1526 J Ave. N. E., Cedar Rapids
Bragonier, W. H. (G)	State College, Ames
Brandner, Fred (A)	State College, Ames
Brandt, A. E. (A)	Washington, D. C.
Brandt, Herman F. (I)	Drake University, Des Moines
Brewster, Earl L. (E, G)	Sheldon
Brown, Bernice (Mrs. L. T.) (A)	State College, Ames
Brown, C. H.	Ames
Brown, Elbert O.	San Antonio, Texas
Brown, George W. (C)	State University, Iowa City
Brown, Louise J. Jr. (I)	State College, Ames
Brown, Mabel Estelle (G)	Conesville
Bryan, A. W. (F, O)	Iowa City
Buchanan, L. L. (F)	Bureau of Entomology, Washington, D. C.
Bush, Gow M. (F)	No. Carolina College, Durham, N. Car.
Buurman, Clarence	Iowa City
Carstensen, G. D. (F)	Mt. Pleasant
Chamberlain, L. H. (C, O)	Des Moines
Chapin, Florence S. (E)	2306 Upland Drive, Cedar Rapids
Chehak, Milo A. (C, O)	Cedar Rapids
Chellevoid, John O. (A)	Waverly
Clapp, Philip Greeley	Iowa City
Clark, Hugh	Des Moines
Clauson, L. F. (F)	Kiron
Cline, L. M.	Houston, Texas
Cline, Wilbur	Centerville
Cochran, W. G.	State College, Ames
Coffey, George (G)	3464 Field Ave., Detroit, Mich.
Coffman, Barbara (F)	Keota
Condit, F. H.	Babylon, Long Island, N. Y.
Conklin, D. B. (G)	State University, Iowa City
Conkwright, N. B. (A)	Iowa City
Cook, Clarence P. (C)	Des Moines
Cook, Howard L. (A)	Bethesda, Md.
Cooper, Elizabeth M. (G)	Columbus Jct.
Cooper, Margaret M. (C)	Denton, Texas
Courtney, Evelyn (I)	Center Jct.
Crabb, Wilfred D. (F)	3626 Vine St. Sioux City
Craft, James H. (G)	Alamosa, Colorado
Craft, W. A. (F)	State College, Ames
Crosthwait, David N., Jr. (B, C)	Michigan City, Ind.
Curtis, Dwight K. (E)	Iowa City
Cuthbert, Mabel Jaques (F, G)	Jonesboro, Arkansas
Cuthbert, Nicholas L.	Jonesboro, Arkansas
Danielson, Loran L.	500 Sixth St., Rochelle, Ill.
Daum, Kate	State University, Iowa City
Davis, Arthur W. (A)	State College, Ames
Davis, Dan A. (E)	State University, Iowa City
Davis, Watson M. (A)	Cornell College, Mt. Vernon
Deam, Charles C.	Bluffton, Ind.

Deardorff, Dwight L. (B, C).....	Mellon Institute, Pittsburgh, Pa.
Deeds, Orville J. (F).....	611 A Ave. N. E., Cedar Rapids
Dennison, Mary Louise (G).....	Botany Dept. S. U. I., Iowa City
Dennison, R. A. (G).....	Iowa City
Dietrich, L. A. ....	2007 Grand, Des Moines
Dietz, S. M. (G).....	State College, Ames
Dodge, A. F. (G).....	State College, Ames
Dreier, William (I).....	O. T. Con. School, Waterloo
Drexler, Robert (G).....	Coe College, Cedar Rapids
Dudley, James R. (C).....	12 Suburban Ave., Cos Cob, Conn.
Dunn, William L. (C).....	Cornell College, Mt. Vernon
Dunnam, E. W. (F).....	Box 8, Leland, Miss.
Earls, Lester T.....	Physics Dept., Ames
Eastman, J. W.....	Des Moines
Edgecombe, S. W. (G).....	Winnipeg, Canada
Edwards, J. F. (F, O).....	State College, Ames
Edwards, W. (F).....	Camp Carson, Colorado
Emme, Eugene M. (I).....	Morningside College, Sioux City
Engle, Paul R. (A, B, C).....	2523 Adams Ave., Des Moines
Englehorn, A. J. (C, E).....	State College, Ames
Evans, T. C.....	630 W. 168th St., New York, N. Y.
Fan, Paul (E).....	507 Iowa Ave., Iowa City
Feaster, J. F. (C).....	409 Berkley Ave., Elmhurst, Ill.
Ferrel, Edwin W. (I).....	1621 Allison St., Des Moines
Fitch, C. L.....	Plant Lab., Ames
Floyd, Don E. (C).....	State University, Iowa City
Foladare, Joseph (B).....	Santa Barbara, Calif.
Ford, Kathleen (F).....	Mt. Pleasant
Foust, H. L. (F).....	Ames
Fox, Gerald W. (B).....	Ames
French, Mrs. Minnie E. (I).....	University of Dubuque, Dubuque
Freyermuth, H. B. (C).....	Easton, Pa.
Gabeline, Elda (F).....	Mt. Union
Gauler, John V. (C).....	R. R. No. 1, Hammond, Ind.
Gemmill, Wm. H.....	State College, Ames
Giese, Henry (B).....	State College, Ames
Gilkey, H. J. (A, B, E).....	State College, Ames
Gill, Lester N. (I).....	State College, Ames
Gilman, Ruth (G).....	Ames, Iowa
Goggin, J. F.....	St. Ambrose College, Davenport
Goldberg, Yale (A).....	Des Moines
Goldsmith, Wm. M. (G).....	Central College, Pella
Goodman, John (F, G).....	Fairfield
Goodrich, James P. (F).....	Hotel Washington, Iowa City
Goulding, Fern A. (I).....	State College, Ames
Gowen, J. W. (O).....	State College, Ames
Grace, Geneva N.....	High School, Muscatine
Grant, J. G. (I, O).....	College Hospital, Ames
Gray, LuVerne (F).....	Iowa City
Gray, Warren (E).....	c/o Gulf Refining Co., Box 106, Indianapolis, Ind.
Gross, George L.....	Box 210, Cumberland, Maryland
Grove, Clifford T. (B).....	1111 Park Ave., Omaha 5, Neb.
Gunderson, Harold (F).....	Ames
Gundy, Glen V. (C).....	Platteville, Wis.
Gunn, Mrs. Ella (G).....	203 W 3rd St., Boone
Hammer, A. J. (B, C, E).....	Iowa State College, Ames
Hammond, W. E. (F).....	Agric. Exp. Sta., Iowa State College, Ames
Harber, William I. (C).....	Chicago, Ill.
Harvalik, Z. V. (B).....	Duluth, Minn.
Haverkamp, H. G. (I).....	Iowa City
Hazlet, Stewart E. (C).....	State College, Pullman, Wash.
Hekel, R. J. (B).....	203 E. Broad, Mt. Pleasant

Helmick, Paul (B).....	Drake University, Des Moines
Hemmings, William A.....	Hillsboro
Henderson, John H., Jr. (B).....	1917 Winnemac, Chicago, Ill.
Hendriks, Herbert E.....	935 E. College, Iowa City
Hertel, Elmer W. (F).....	Wartburg College, Waverly
Hewitt, E. A. (C, F).....	Ames
Hilbe, James J. (F).....	Des Moines
Hilleary, Doris (F).....	1321 Madison Ave., Burlington
Hissong, R. D. (F, G).....	High School, Sioux City
Hixon, R. M. (C).....	Dept. Chemistry, I. S. C., Ames
Hjort, Lillian V.....	Box 107, Oskaloosa
Hockett, S. W. (C).....	Iowa Wesleyan, Mt. Pleasant
Holl, D. L. (A).....	State College, Ames
Hoslett, Sherman A. (F).....	Decorah
Hoxmeier, Sister Mary Claire (G).....	Briar Cliff College, Sioux City
Hratz, Joseph A. (A).....	St. Ambrose College, Davenport
Hubbard, Earl D. (G).....	1227 Duff Ave., Ames
Irwin, Orvis C.....	Iowa Child Welfare Research Station, Iowa City
Jacobsen, R. S. (A).....	Decorah
Jahn, Theodore L.....	Iowa City
Jenness, J. R. (B).....	Parsons College, Fairfield
Jerrel, Elizabeth (F).....	Mt. Pleasant
Johns, I. B. (C).....	Ames
Johns, M. Rae (G).....	1424 Main St., Davenport
Johnson, I. J. (G).....	State College, Ames
Johnson, Leland T. (F, G).....	Des Moines
Johnson, Wendell.....	E. Hall, S. U. I., Iowa City
Keck, Warren N. (F).....	Coe College, Cedar Rapids
Kildee, H. H. (C, F).....	Ames
Kilgore, Bonnie Thompson (Mrs. W. L. ).....	Colusa, Calif.
Kirkman, Hadley (F).....	Stanford, Calif.
Knowler, Lloyd A. (A).....	Iowa City
Kopf, Kenneth (G).....	Honolulu, T. H.
Kos, Charles G. (E).....	Cedar Rapids
Kosanke, Robert M. (E).....	U. of Cin., Cincinnati, Ohio
Kreider, Orlando.....	Troy, N. Y.
Krezek, K. M. (F).....	527 40th St., Des Moines
Kyl, George.....	Bloomfield
Laffoon, Jean.....	Sioux City
Lambert, J. L. (E).....	Iowa City
Lantz, H. L. (E).....	Pomology Subsection, Plant Lab., Ames
Lapp, C. J. (B).....	State University, Iowa City
Lauer, A. R. (I).....	State College, Ames
Lentz, Paul L. (G).....	State University, Iowa City
Levin, Arthur (F).....	531 So. Van Buren, Iowa City
Leyendecker, P. J. (C).....	State College, New Mexico
Lillis, Gerald A. (C).....	St. Ambrose College, Davenport
Lockridge, Lowell (C).....	Junior College, Boone, Ia.
Lonseth, A. J. (A).....	State College, Ames
Lorenzen, R. N. (G).....	St. Ansgar
Lotz, E. P. (F).....	Burlington
Lovell, Geo. D. (I).....	Grinnell College, Grinnell
Luber, Doris Helen (F).....	612 Fourth Ave. S. W., Cedar Rapids
MacGaw, B. K.....	Mt. Vernon
Mallams, Glen.....	Freemont
Martinson, Glenn O. (B, I).....	101 Eastwood Ave., Silver Spring, Md.
Marts, Ralph O. (G).....	Madison, Wis.
Matthews, John M. (E).....	State University, Iowa City
McClelland, James (A).....	Drake University, Des Moines
McComb, A. L. (G).....	State College, Ames
McCreary, E. J. (C).....	Freemont, Neb.
McDonald, Malcolm (F).....	Fairfield

McIlrath, Wayne (G).....	220 S. College, Cedar Falls
McKee, J. R. (G).....	Spencer
McLaughlin, K. F. (A, B, C).....	1428 43rd St., Des Moines
McLaughlin, Sister M. Aquinas (I).....	Sioux City
McLaughlin, W. M. (E, F).....	Des Moines
McNee, Marcia (I) Dept. of Ed. and Psy., Morningside Col.,	Sioux City
Means, John A.....	114 E. Market St., Iowa City
Meier, Sister Mary Paul O. S. B. (F) St. Vincent's Hosp.,	Sioux City
Meyer, Alfred W. (A).....	Cedar Rapids
Miller, Edwin L. (F).....	Lawrence College, Appleton, Wis.
Miller, Harry K.....	Junior College, Centerville
Miller, Robert C. (G).....	854 S. Kenilworth Ave., Oak Park, Ill.
Miller, Russel D. (B).....	Ames
Miller, S. Porter.....	704 N. Main, Fairfield
Milleson, Helen K.....	Carleton College, Northfield, Minn.
Millsbaugh, Dick D. (F).....	Mt. Pleasant
Miner, Neil A.....	Mt. Vernon
Moore, John (G).....	608 N. Lincoln St., Mt. Pleasant
Morehouse, N. F. (F).....	205 Fifth Ave., Charles City
Morrison, J. W. (O).....	Alta
Morrissey, Thomas (F).....	921 Mississippi Ave., Davenport
Muench, V. O. (O).....	Nichols
Mulsow, Frederick W. (O).....	Cedar Rapids
Murley, Margaret (F, G).....	Iowa State College, Ames
Murray, F. G.....	Cedar Rapids
Nelson, Clarence H. (G).....	Marshall, Missouri
Nettleton, Guy R. Jr. (F).....	Morningside College, Sioux City, Ia.
Niles, Stanley B.....	Mt. Pleasant
Norman, A. G. (C, O).....	Dept. of Soils, Ames
Oberg, Edwin N. (A).....	Iowa City
Oelke, W. C. (C).....	Grinnell College, Grinnell
O'Harra, Roberta (G).....	309 Dinwiddie Bldg., Tulane Univ., New Orleans, La.
Otto, Edna Hartman.....	703 Carver Bldg., Ft. Dodge
Otto, George R. (F).....	Mankato, Minn.
Ough, Lee D. (C).....	Clinton
Overley, C. A. (B, C).....	Cedar Rapids
Owen, Billy (F).....	Mt. Pleasant
Palmer, Lulu (I).....	Montgomery, Ala.
Paris, Clark D. (G).....	Clarinda
Parizek, Eldon J. (E).....	State University, Iowa City
Pattee, Steven (G).....	Roosevelt High, Cedar Rapids
Payton, Marcus (E).....	221 No. Linn, Iowa City
Peasley, Mrs. Harold R.....	2001 Nash Drive, Des Moines
Perisho, F. W. (A, B, C).....	Ft. Collins, Colo.
Peterson, Harold D. (E).....	Lutheran Hospital, Ft. Dodge
Peterson, John B. (G).....	Ames
Pèwè, Troy (E).....	Rock Island, Illinois
Phillips, Earl (A, B).....	Olin
Plass, Everett D. (C).....	Iowa City
Platz, G. G.....	Lamoni
Poneck, Esther N. (I).....	Saugerties, N. Y.
Porges, Nandor (C).....	U. S. D. A., New Orleans, La.
Pottebaum, Sister M. Edward (C).....	Sioux City
Price, H. V. (A).....	University High, Iowa City
Pullman, R. (I).....	Sioux City
Radloff, H. (C).....	Cedar Rapids
Rau, Weldon W. (E).....	State University, Iowa City
Redlinger, Leonard (F).....	300 N. Main, Mt. Pleasant
Rice, Verne J. (F).....	State University, Iowa City
Rich, Catherine (I).....	Sioux City
Richardson, Charles H. (F).....	State College, Ames

Robertson, J. Fred (A).....	Ames
Rochford, Sister M. DePazzi (A).....	Sioux City
Rohret, L. A. ....	Clinton
Romm, H. J. (G).....	Tuskegee, Ala.
Rooks, Roland (O).....	State University, Iowa City
Rose, Edward S. (C, O).....	Iowa City
Rothe, Erich (A).....	Ann Arbor, Mich.
Rothfus, L. J. (B).....	R. 7, Des Moines
Runkel, S. T. (G).....	Story City
Saint John, Nina B. (B, C).....	Lamoni
Savage, David (G).....	Mt. Pleasant
Scantlebury, Ronald E. (F, E).....	14329 Faust Ave., Detroit 23, Mich.
Schaefer, Walter (F, G).....	Wartburg College, Waverly
Scheidemann, Norma V. (I).....	Drake Univ., Des Moines
Schemel, Mart P. (E).....	Coe College, Cedar Rapids
Schilz, Gordon B. (E).....	Iowa Wesleyan, Mt. Pleasant
Schipper, Arthur (F).....	College Station, Texas
Schubert, Ralph (I).....	Drake Univ., Des Moines
Schwarte, L. H. (C, O).....	Ames
Schwob, Fred T. (F).....	10th and Mulberry, Des Moines
Serbousek, Lillian (F).....	1226 2nd St. S. W., Cedar Rapids
Shaw, Franklin J. (I).....	217 S. Gilbert, Iowa City
Shawhan, Mrs. Fae McClung.....	Drake Univ., Des Moines
Shepherd, Donald (G).....	111 Federal Office Bldg., Minneapolis, Minn.
Shipley, James.....	Wilmington, Ill.
Shumaker, John B. (C).....	1421 47th St., Des Moines
Shupe, Leonard (I).....	703 Fulton St., Gen. Del., Wilmington, Ill.
Simonson, Roy W. (C, E, G).....	210 New Sprinkle Bldg., Knoxville, Tenn.
Smith, Helen F. (A).....	State College, Ames
Smyth, J. H. (B).....	Coe College, Cedar Rapids
Snyder, Rev. Chas. E.....	Davenport
Spence, Kenneth W. (I).....	State University, Iowa City
Stanley, Phyllis (O).....	Newark, N. J.
Stickler, W. Hugh (B, E, F).....	114 South Tampa Lane, Oak Ridge, Tenn.
Stiles, Margaret (F).....	Des Moines
Stolpe, Stanley (F, G).....	DeKalb, Illinois
Stroud, D. C. ....	3925 Cornell Ave., Des Moines (13)
Sulkin, Norman N. (F).....	Iowa City
Sweeney, O. R. (C).....	Ames
Swenson, A. W. (C).....	Waverly
Swenson, Frank (E).....	Davenport
Sybil, Edw. W., Jr. (G).....	1310 Cedar St., Iowa City
Tag, Herbert G. (F).....	Iowa Wesleyan, Mt. Pleasant
Tallman, R. W. (I).....	2024 Avalon Rd., Des Moines
Taylor, Dorothy M. (B).....	Univ. of Dubuque, Dubuque
Therese, Sister M. Joseph, B. V. M.....	Clarke College, Dubuque
Tibeau, Sister M. Etienne (A, F, G).....	Cedar Rapids
Tillapaugh, Iola.....	1722 Ellis Blvd., Cedar Rapids
Tinter, G. (I).....	Ames
Todd, John N. (F).....	Box 943, Fort Myers, Florida
Trachsel, Chas. S. (B, I).....	High School, Iowa City
Trimble, H. C.....	1815 College St., Cedar Falls
Trumbower, Jno. A. (G).....	Britt
Tudor, William J. (I).....	State College, Ames
Tung, Jo-fen (C).....	Standard Oil Development Co., Elizabeth, N. J.
Turrell, Frank M. (G).....	Riverside, Calif.
Uhl, Edith C. (I).....	State College, Ames
Uhlaner, J. E. (I).....	Washington, D. C.
Underkofler, L. A. ....	Chemistry Dept., Ames
Underwood, B. J. (I).....	Marshalltown
Unklesbay, Athel G. (E).....	Tallahassee, Florida
Uthoff, Lualis (I).....	Norway

Vorhis, Robert C.....	1120 West First St., Oil City, Pa.
Wagner, Holly (F).....	Danville
Walker, Mabel (A, I).....	Mt. Pleasant
Watson, Jeannette B. (C, F, G).....	Estherville
Webster, Ruth.....	720 9th St. S. W., Cedar Rapids
Weeks, Carl (C).....	124 Des Moines St., Des Moines (6)
Welch, Donald L. (C).....	Iowa City
Wenberg, Edwin H.....	U. S. Naval Air Station, Anacostia, D. C.
Wetzstein, H. L. (C).....	Iowa City
Whitworth, J. T. (E).....	610 E. Jefferson, Iowa City
Widmer, J. M. (C, O).....	Physician, Cedar Rapids
Wilhelm, H. A. (C).....	State College, Ames
Williams, George T. (B, C, O).....	Davenport
Wilson, R. G. (B).....	Dubuque
Wilson, W. B. (E).....	Box 661, Tulsa 2, Okla.
Winsor, Charles P. (A).....	Princeton, N. J.
Winterstein, Merryn G. (C).....	735 No. 7th St., Burlington
Wissink, G. M. (B).....	Mankato, Minn.
Wolden, Ida Iverson (G).....	Estherville
Wolfe, Otis.....	Marshalltown
Woodyard, Floy.....	1019 21st St., Des Moines
Wright, L. D. (F).....	Lake View
Wylie, C. C. (A).....	State University, Iowa City
Yamakawa, K. A. (B).....	933 High, Grinnell
Yarrow, Leon.....	Iowa City
Yeager, Walter (F).....	3800 Garretson, Sioux City
Yoder, Lee (E).....	Drake University, Des Moines
Yoder, Lester.....	Iowa State College, Ames
Yoho, Herbert (E).....	7 Maple St., Canton, N. Y.
Young, G. Y. (G).....	State College, Mississippi
Zabel, H. E.....	3208 S. Sheffield Ave., Chicago, Ill.

**PROCEEDINGS OF THE IOWA ACADEMY OF SCIENCE**

Reports ..... 21

**MEMORIALS**

Elmer Darwin Ball ..... 97  
 James B. Craney ..... 107  
 George Frederick Kay ..... 109  
 Frank Leverett ..... 113  
 Benjamin Leroy Miller ..... 115  
 Herman A. Mueller ..... 117  
 Olaf Martin Oleson ..... 119  
 Lemuel Charles Raiford ..... 121  
 Henry Lewis Rietz ..... 123  
 Althea Rosina Sherman ..... 125  
 James Timothy Whiting ..... 127

**TITLES OF PAPERS PRESENTED**

The address of the President: Mathematical combinations which correspond to physical impossibilities, E. R. Smith ..... 129  
 The Iowa Academy of Science in relation to its contributions to the welfare of the commonwealth of the state and nation, J. N. Martin ..... 135  
 The survey courses in science, C. W. Lantz ..... 141  
 Academy address: Oil from the Arctic, L. R. Laudon .....

**Botany-Bacteriology**

Microclimatic differences in minimum temperature and variations in frost injury to hillculture plants, J. M. Aikman and G. L. Brackett ..... 147  
 The structure and function of the border parenchyma and vein-ribs of certain dicotyledon leaves, Richard R. Armacost ..... 157  
 Tannin production from native species of sumac, Ivan L. Boyd .... 171  
 Use of a constant-temperature water bath as a culture chamber, James H. Craft ..... 175  
*Oxalis europaea* and *Oxalis stricta* in Iowa, H. S. Conard and E. D. Hubbard ..... 177  
 Ultra-violet irradiation of spores of certain molds collected from bread, D. B. Conklin ..... 185  
 Illustrations of the fleshy fungi of Iowa. VI. Fleshy poroid forms, Joseph C. Gilman ..... 191  
 The spread of perennial sow thistle in Iowa, Ada Hayden ..... 199  
 Recent advances of the forest in Iowa, W. E. Loomis and A. L. McComb ..... 217  
 The habits of two weedy grasses, *Alopecurus carolinianus* Walt. and *Poa chapmaniana* Scribn., J. N. Martin ..... 225  
 Changes in the germination of red clover seed in storage, J. N. Martin ..... 229  
*Verbascum phlomoides* L. and *V. lychnitis* L. in Iowa, Robert C. Miller ..... 235  
*Paspalum* in Iowa, Margaret Murley ..... 237  
 A seed key to fourteen species of Geraniaceae, Margaret Murley.. 241  
 Soleil d'Or, the progenitor of golden colored roses, Clark D. Paris and T. J. Maney ..... 247  
 Relation of molds to the deterioration of corn in storage, a review, G. Semeniuk and J. C. Gilman ..... 265  
 Rubber industry of West Africa, Robert M. Warner ..... 281  
 Comparison of the wilting percentage values of soils computed from moisture-equivalent and hygroscopic-coefficient data with those obtained from plants, J. M. Aikman and J. R. Dilworth....



Variable nitrogen nutrition in relation to physiological development of the tomato, R. W. Bledsoe .....  
 Oak wilt in Iowa, S. M. Dietz .....  
 Physiology of *Chalara quercina*, S. M. Dietz and J. W. Barrett....  
 Structure of the endosperm of pop corn, R. E. Rundel and J. E. Sass .....  
 The relation between bulb size and flowering in the tulip, J. E. Sass and E. C. Volz .....  
 A stromatic structure produced by *Diplodia zeae* (Schw.) L. G. Semeniuk and J. E. Sass .....

**Chemistry, General and Physical**

Raman effect of some complex phosphates, Geo. Glockler and J. A. Campbell ..... 293  
 Modification of blood by zeolites for transfusion purposes, Walter J. Sweet and O. R. Sweeney ..... 299  
 A polarographic study of acetophenone and benzalacetone, Futoshi Takazawa and Lothrop Smith ..... 301  
 Some oxalate-halogen reactions, Jacob Cornog .....  
 The system: Tertiary butyl alcohol-acetamide, Ben H. Peterson..

**Chemistry, Organic and Biological**

Extraction of soybean oil with various solvents, L. K. Arnold ..... 309  
 Phenyl chlorocarbonate and substitution products as acylating agents, L. Chas. Raiford and J. R. Dudley ..... 313  
 Spectrographic studies of human blood, Jo-fen Tung ..... 319

**Geology**

Seven new species of unassigned plant microfossils from the Des Moines series of Iowa, L. R. Wilson and R. M. Kosanke ..... 329  
 Quality of the ground water in the Jordan sandstone, K. E. Anderson .....  
 Correlations of Illinois coals by plant microfossils, R. M. Kosanke .....

**Mathematics**

A design for sampling Iowa families, Bernice Brown ..... 335  
 A mechanical calculator to solve the equation  $x = \frac{(d+z+c).y}{b+y}$  ..... c  
 Z. V. Harvalik ..... 341  
 The mechanism of gravitational force, E. E. Watson ..... 345  
 Repetitious numbers, E. S. Allen .....  
 On the number of permutations of a given character, E. W. Chittenden .....  
 The mathematics situation in the high schools before Pearl Harbor, Henry Van Engen .....  
 A simple treatment of perturbations in linear algebraic systems, A. T. Lonseth .....

**Physics**

A simple demonstration of the maximum density of water, Grant O. Gale ..... 349  
 Physics in the Army specialized training course at Grinnell College, Grant O. Gale ..... 351  
 The determination of surface-tension by standing waves, K. A. Yamakawa and W. C. Oelke .....  
 Some aspects of design of a spectrofluorometer, P. H. Carr .....

**Psychology**

An empirical study of superstitions and unfounded beliefs, Agnes F. Belanger .....	355
Your eyes reveal the secrets of your interests, H. F. Brandt .....	361
A study of the improvement of reading rate and comprehension, Louise Brown, A. R. Lauer, and Edith Uhl .....	367
Clinical analysis of a specific case in remedial reading, Evelyn C. Courtney .....	371
The correlation of reading rate with intelligence scores of grade school children after training in phonics, Lester N. Gill and Myrtle Paine Gill .....	377
Scholastic progress of students entering the Iowa State College with low high school averages, John L. Holmes .....	383
An experimental study of the development of democratic behavior, Ralph H. Ojemann and Leon Yarrow .....	389
The performance of psychopaths on the Wechsler-Bellevue test, C. R. Strother .....	397
The effect of two types of music distraction upon reading efficiency, Mack T. Henderson, Jean Barlow and Ann Crews .....	
Alcohol and tunnel vision, Albion R. King .....	
The relation between the angle of declination and blinding effect of automobile headlights, A. R. Lauer .....	
A study of reaction time in schizophrenics with or without sodium amytal, Charles R. Strother .....	
The relation between visual acuity and accuracy in space perception, A. R. Lauer and M. G. Winterstein .....	

**Science Teaching**

Current developments in science and biology teaching, W. F. Loehwing .....	401
The preparation of high school science teachers in Iowa, Karl A. Stiles .....	407

**Zoology**

The anatomy and embryology of the hemipenis of <i>Lampropeltis</i> , <i>Diadophis</i> and <i>Thamnophis</i> and their value as criteria of relationship in the family Colubridae, Hugh Clark .....	411
Notes on the egg laying habits of the soft shell turtles, Wm. M. Goldsmith .....	447
Life histories and ecology of Iowa midges (Tendipedidae). I. The genus <i>Tanytarsus</i> , U. A. Hauber .....	451
A preliminary report on the Geometridae of Iowa, Elizabeth Jerrel and H. E. Jaques .....	463
Summer birds of the Okobojo region 1938-1942, Robert L. King....	467
A list of the Chloropidae (Diptera) known to occur in Iowa, Leonard Redlinger and H. E. Jaques .....	471
Studies on Iowa spiders, Karl A. Stiles and Doris Helen Luber....	473
Physiological variations in human intracranial pressure, as determined by indirect manometer through a healed trephine perforation of the frontal bone, L. A. Detrich .....	
Studies on vigor in the rotifer <i>Hydatina senta</i> , E. W. Hertel .....	

**INDEX TO VOLUMES 1-50**

Botany, R. V. Drexler .....	487
Chemistry, Ben H. Peterson .....	547
Geology, Ruth M. Webster .....	569
Mathematics, Cornelius Gouwens .....	601
Physics, H. J. Plagge .....	605
Psychology, Mack T. Henderson .....	621
Zoology, K. A. Stiles, Erma A. Smith, Stella Johnson .....	631