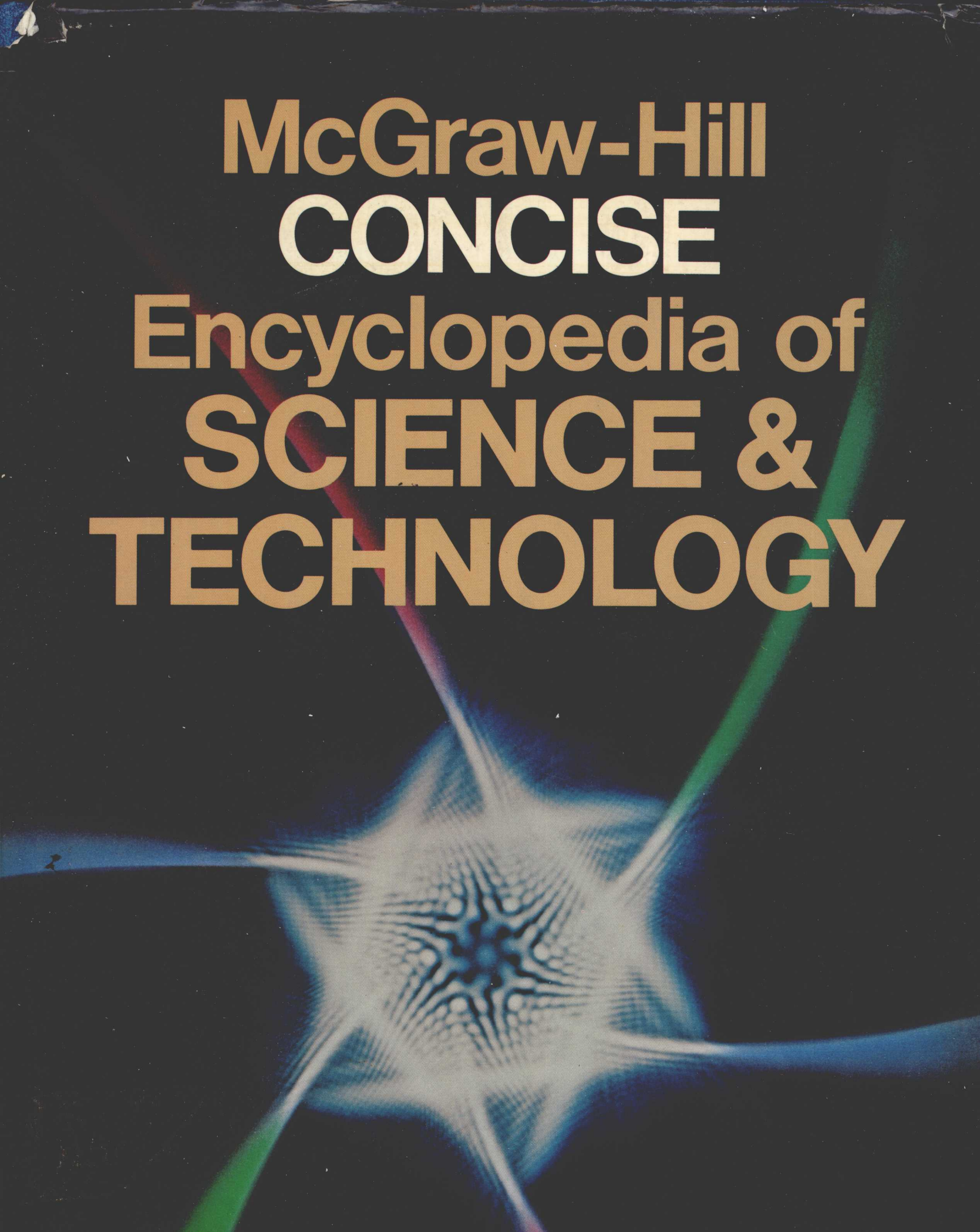


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Preface

For more than 20 years, in five editions, the *McGraw-Hill Encyclopedia of Science & Technology* (15 volumes) has been recognized as the leading international scientific encyclopedia. Authoritative, comprehensive, up to date, and eminently readable, that Encyclopedia has served the continuing reference needs of professionals, students, librarians, technical writers and editors, and the general public. However, that reference provides so much detailed information on every aspect of science and engineering that it is too comprehensive for many readers' needs.

With this in mind, the editors conceived a shorter version of the multivolume work which would retain the authoritativeness, accuracy, clarity, recency, quality, and coverage in a convenient, concise format. The result is the *McGraw-Hill Concise Encyclopedia of Science & Technology*—much more than a dictionary yet less than the 15-volume set.

In preparing the *Concise Encyclopedia of Science & Technology*, the editors extracted the essential text from each article in the parent work while retaining the same proportionality between subjects. The length of each article suits the importance and complexity of the subject. The material has been condensed so that it is appropriate to the likely requirements of a one-volume reader. The editorial philosophy emphasized pertinence and succinctness, and avoidance of detail suitable only for a multivolume format. All articles retain the identity of the original authors, all internationally recognized experts, whose affiliations are included in a complete alphabetical listing.

There are 7300 alphabetically arranged text entries. Virtually every entry includes cross-references to other articles to guide the reader to related subjects. Many of the articles are illustrated with photographs, maps, graphs, diagrams, and drawings. A second color is used for most drawings in the volume to enhance comprehension. Dual measurement units (U.S. Customary and International System) are used throughout the text to meet all users' needs.

The special features of this reference are three separate sections at the back of the volume. First, for the convenience of users seeking material for further study, is the "Bibliographies and Data Bases" section. The Bibliographies list hundreds of books and journals alphabetically by subject area. The other subsection is an alphabetical listing of 81 data bases available worldwide and representing "today's" research tool. Second is the 40-page Appendix which gathers together information on units of measurement, mathematical notation, chemical elements, electronic circuits, elementary particles, as well as animal and plant taxonomy. Finally, the 30,000-entry Index provides the reader with instant access to the specific information in the text.

This reference was created to meet the need for current, accurate information on classical and "newsworthy" concepts in science and engineering in a practical, economical format. It is a starting point for anyone with a serious interest in the sciences, and even for scientists and other professionals looking for information on subjects outside their specialty. As such, the *McGraw-Hill Encyclopedia of Science & Technology* will be an invaluable addition to the reference shelf of any library.

Sybil P. Parker
Editor in Chief

Organization of the Encyclopedia

Alphabetization. The 7300 article titles are sequenced on a word-by-word basis, not letter by letter. Hyphenated words are treated as separate words. In occasional inverted article titles, the comma provides a full stop. The Index is alphabetized on the same principles. Readers can turn directly into the pages for much of their research. An example of sequencing is:

Air	Air-traffic control
Air brake	Air waves, upper synoptic
Air-cushion vehicle	Airborne radar
Air pollution	Aircraft
Air-pollution control	Aistopoda

Cross-References. Virtually every article has one or more cross-references set in CAPITALS AND SMALL CAPITALS. These references offer the user the option of turning to other articles in the volume for related information.

Measurement units. Since some readers prefer the U.S. Customary system while others require the International System of Units (SI), most measurements in the Encyclopedia are given in dual units. Less familiar units are spelled out at first mention in an article, and may be abbreviated thereafter. Insight into the measurement systems is provided by the discussion in the Appendix, which also has handy conversion tables.

Contributors. The authorship of each article is specified at its conclusion, in the form of the contributor's initials for the sake of brevity. The contributor's full name and affiliation may be found in the "Contributors" section at the front of the volume.

Bibliographies and Data Bases. Users wishing to go beyond the scope of this Encyclopedia will find recommended books and journals listed at the back of the volume. The titles are grouped by subject area. For readers with advanced research facilities, the Data Bases listing provides the name of the data base, a description of its contents, and the names of the producer and distributor.

Appendix. Every user should explore the variety of succinct information supplied by the Appendix, which includes measurement tables, mathematical notation, electronic symbols, a detailed periodic table, abbreviations, and taxonomic classification.

Index. The 30,000-entry Index offers the reader the time-saving convenience of being able to turn quickly to the highly particular in the pages, rather than approaching the Encyclopedia via article titles only. This elaborate breakdown of the volume's contents assures both the general reader and the professional of efficient use of the *McGraw-Hill Concise Encyclopedia of Science & Technology*.

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Each article in the Encyclopedia is signed with the contributor's initials; coauthors' initials are separated by semicolons; initials of an original author are separated by a solidus from the initials of a validator who may have modified the text in a later printing. The section below, Contributors' Initials, gives all such initials, alphabetized according to the capital letters in each initials combination (lowercase letters have been added to differentiate contributors with like initials). The contributor's name is provided. The contributor's affiliation can then be found by turning to the following section, List of Contributors.

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C.B.C. **Charles B. Curtin**
C.B.D. **C. B. Duke**
C.B.O. **Charles B. Ogburn**
C.B.P. **Cornelius B. Philip**
C.B.S. **C. B. Skotland**

C.B.T. **Charles B. Tompkins**
 C.B.V.N. **Cornelis B. Van Niel**
 C.B.W. **Curtis B. Wilson**
 C.C. **Charles Collinson**
 C.C.B. **Clanton C. Black, Jr.**
 C.C.C. **C. C. Cutler**
 C.C.D. **Charles C. Davis**
 C.C.Du. **Charles C. Duncan**
 C.C.H. **Christos C. Halkias**
 C.C.Ho. **C. Clayton Hoff**
 C.C.K. **Clifford C. Klick**
 C.C.L. **Ching Chun Li**
 C.C.W. **Carl C. Wamser**
 C.D.B. **Carl D. Broadbent**
 C.DeB. **Carl de Boor**
 C.DeD. **Christian de Duve**
 C.D.G. **C. D. Gelatt, Jr.**
 C.D.H. **Charles D. Hurd**
 C.D.M. **C. D. Moak**
 C.D.O. **Charles D. Oviatt**
 C.D.T. **C. Donnell Turner**
 C.E. **U.S. Army Corps of Engineers**
 C.E.A. **Charles E. Applegate**
 C.E.B. **Clark E. Bricker**
 C.E.C. **Chester E. Cross**
 C.E.H. **Carl E. Howe**
 C.E.L. **Cecil E. Land**
 C.E.La. **Charles E. Lapple**
 C.E.M. **Charles E. Moyer, Jr.**
 C.E.P. **Charles E. Packard**
 C.E.S. **Charles E. Slonecker**
 C.E.Sm. **Carl E. Smith**
 C.E.T. **Clair E. Terrill**
 C.E.V. **Cecil E. Vanderzee**
 C.E.W. **Clyde E. Wiegand**
 C.F. **Cyrus Feldman**
 C.Fr. **Clifford Frondel**
 C.F.A. **C. F. Andrus**
 C.F.C. **Charles F. Curtiss**
 C.F.F. **Carl F. Floe**
 C.F.G. **Clarence F. Goodheart**
 C.F.K. **Carl F. Kayan**
 C.F.N. **Charles F. Niven, Jr.**
 C.F.Q. **C. F. Quate**
 C.F.S. **Charles F. Squire**
 C.F.S.S. **C. F. Stewart Sharpe**
 C.F.T. **C. F. Tsang**
 C.G.G. **Chauncey G. Goodchild**
 C.G.S. **C. George Segeler**
 C.G.St. **Christos G. Stergis**
 C.H. **Cadet Hand**
 C.Ho. **Cecil Hougie**
 C.H.B. **Catherine H. Bailey**
 C.H.C. **Clarence H. Cleminshaw**
 C.H.Co. **Carl H. Cotterill**
 C.H.D. **Charles H. Drake**
 C.H.H. **Clarence H. Hanson**
 C.H.L. **Choh Hao Li**
 C.H.M. **Carl H. Meyer**
 C.H.S. **Christopher H. Scholz**
 C.H.Sp. **Charles H. Sprankle**
 C.H.St. **Calvin H. Stevens**
 C.H.T. **Charles H. Townes**
 C.I.K. **Clarence I. Kado**
 C.J.A. **Constantine J. Alexopoulos**
 C.J.B. **Charles J. Baer**

C.J.G. **Charles J. Goebel**
 C.J.Go. **Clarence J. Goodnight**
 C.J.H. **C. Jack Hearn**
 C.J.He. **Carl J. Helmers**
 C.J.Her. **C. J. Herman**
 C.J.K. **Charles J. Kensler**
 C.J.P. **Charles J. Papuchis**
 C.J.R. **Chalmer J. Roy**
 C.K. **Cornelis Klein**
 C.K.B. **Charles K. Bradsher**
 C.K.J. **C. K. Jen**
 C.K.N.P. **C. K. N. Patel**
 C.K.T. **Charles K. Taft**
 C.K.W. **Charles K. Weichert**
 C.L. **Carl Lamanna**
 C.L.A. **Charles L. Alley**
 C.L.B. **Charles L. Bauer**
 C.L.C. **Charles L. Camp**
 C.L.Ch. **Charles L. Christ**
 C.L.D. **Clive L. Dym**
 C.L.M. **Charles L. Mantell**
 C.L.Ma. **Clement L. Markert**
 C.L.N. **Curtis L. Newcombe**
 C.L.P. **C. Ladd Prosser**
 C.L.R. **Charles L. Rulfs**
 C.L.W. **C. Langdon White**
 C.M. **Charles Mangion**
 C.Ma. **C. Martinson**
 C.M.A. **Charles M. Antoni**
 C.M.H. **Cyril M. Harris**
 C.-M.S. **Cheng-Mei Shaw**
 C.M.Si. **Chester M. Sinnott**
 C.M.Y. **C. Maurice Yonge**
 C.N.G. **Charles N. Gaylord**
 C.N.Sh. **Carl N. Shuster**
 C.O. **Cristian Orrego**
 C.O.D. **Carl O. Dunbar**
 C.O.hE. **Colm O hEocha**
 C.P. **Carl P. Pfaffman**
 C.P.B. **Charles P. Brewer**
 C.P.L. **Charles P. Lyman**
 C.P.R. **Clark P. Read**
 C.P.S. **Charles P. Slichter**
 C.P.Sm. **C. Price Smith**
 C.P.So. **Charles P. Sonett**
 C.P.Sw. **Carl P. Swanson**
 C.Q. **Chris Quigg**
 C.Qu. **Carol Quaife**
 C.R. **Claudio Rebbi**
 C.Ru. **Charles Rulfs**
 C.R.C. **Clark R. Chapman**
 C.R.F. **Charles R. Fourtner**
 C.R.L. **Chester R. Longwell**
 C.R.M. **Charles R. Marsland**
 C.R.Ma. **C. R. Martinson**
 C.R.S. **Charles R. Stephens**
 C.R.W. **Charles R. Wilke**
 C.R.Wi. **Clifton R. Williamson**
 C.S. **Christen Skaar**
 C.S.C. **Charles S. Cox**
 C.S.Cr. **Calvin S. Cronan**
 C.S.H. **C. S. Hammen**
 C.S.He. **Carl S. Herz**
 C.S.Hu. **Cornelius S. Hurlbut, Jr.**
 C.S.P. **Carl S. Pederson**
 C.S.V. **Carl S. Vestling**
 C.-S.Y. **Ching-Sung Yu**
 C.T.C. **C. T. Chen**
 C.T.S. **Chester T. Sims**

C.T.T. **Charles T. Tart**
 C.V. **Claude Veillon**
 C.V.C. **Charles V. Crittenden**
 C.V.S. **C. V. Shank**
 C.W. **Colin White**
 C.W.B. **Carl W. Boothroyd**
 C.W.By. **Charles W. Byers**
 C.W.E. **C. Wayne Ellett**
 C.W.N. **Chester W. Newton**
 C.W.Ni. **Charles W. Nixon**
 C.W.S. **C. W. Siegmund**
 C.W.Si. **C. W. Sisler**
 C.W.Sw. **Charles W. Swithinbank**
 C.W.T. **Charles W. Turner**
 C.W.V. **Charles W. Vokac**

D

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 D.Al. **David Altman**
 D.Ar. **Donald Armstrong**
 D.Ay. **D. Aylmer**
 D.A.B. **D. Allan Bromley**
 D.A.K. **David A. Keith**
 D.A.L. **Donovan A. Ljung**
 D.A.M. **Douglas A. Marsland**
 D.A.Me. **Duncan A. Mellichamp**
 D.A.R. **David A. Reid**
 D.A.Ro. **David A. Ross**
 D.A.S. **David A. Shirley**
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 D.B. **David Barr**
 D.Br. **Dirk Brouwer**
 D.Bu. **Donald Burdick**
 D.Bur. **Dave Bursky**
 D.B.C. **David B. Cohen**
 D.B.D. **Daniel B. Dallas**
 D.B.H. **David B. Harrison**
 D.B.J. **Deane B. Judd**
 D.B.M. **David B. Meyer**
 D.B.S. **Donald B. Sinclair**
 D.B.W. **Douglas B. Webster**
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 D.C.C. **David C. Coleman**
 D.C.G. **Detlef C. Gloge**
 D.C.H. **David C. Hazen**
 D.C.W. **David C. Weber**
 D.C.Wh. **David C. White**
 D.D.D. **D. Dwight Davis**
 D.D.Do. **Donald D. Dodge**
 D.D.F. **Dudley D. Fuller**
 D.D.J. **Dennis D. Juraneck**
 D.D.MacC. **Donnell D. MacCarthy**
 D.D.McC. **Dennis D. McCarthy**
 D.D.P. **David D. Perkins**
 D.D.R. **D. D. Robb**
 D.D.Ru. **David D. Rubis**
 D.D.S.T. **Donovan Des S. Thomas**
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 D.E.B. **Donald E. Becker**
 D.E.D.-B. **Derek E. Denny-Brown**
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D.E.R. **Duane E. Roller**
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D.E.W. **Daniel E. Whitney**
D.F. **Denis Forster**
D.F.O. **Donald F. Othmer**
D.F.P. **Donald F. Poulson**
D.G. **D. Gauss**
D.G.F. **Donald G. Fink**
D.G.Fr. **David G. Freiman**
D.G.Fre. **David G. Frey**
D.G.K. **Dennis G. Kovar**
D.G.S. **Demetrios G. Samaras**
D.G.Sc.. **Donald G. Schueler**
D.H. **Dorothy Hill**
D.H.A. **David H. Abrahams**
D.H.B. **Daryle H. Busch**
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D.H.Th. **David Hurst Thomas**
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D.J.Hor. **David J. Horn**
D.J.J. **Daniel J. Jones**
D.J.L. **D. J. Lewis**
D.J.M. **D. J. Morré**
D.J.N. **David J. Nesbitt**
D.J.O. **Donald J. O'Connor**
D.J.P. **Donald J. Patton**
D.J.R. **Dewey J. Raski**
D.J.S. **David J. Sellmyer**
D.J.S.B. **Donald J. S. Barr**
D.J.T. **Douglas J. Theis**
D.J.W. **Daniel J. Weiler**
D.K.S. **David K. Scott**
D.L. **David Lagunoff**
D.La. **David Layzer**
D.Laz. **David Lazarus**
D.Le. **D. Lewis**
D.Lo. **Donald Louria**
D.Low. **David Lowenthal**
D.L.D. **David L. Dahrymple**
D.L.H. **Donald L. Holt**
D.L.I. **Douglas L. Inman**
D.L.J. **Donald Lee Johnson**
D.L.T. **Donald L. Turrell**
D.L.W. **Donald L. Waidelich**
D.L.We. **Donald L. Weaver**
D.M. **Daniel Mazia**
D.Mo. **David Morrison**
D.M.DeL. **Dwight M. DeLong**
D.M.F. **David M. Farmer**
D.M.Fr. **David M. Fradkin**
D.M.G. **David M. Greenberg**
D.M.Gr. **Dieter M. Gruen**
D.M.H. **David M. Hodgins**
D.M.Hu. **Donald M. Hunten**
D.M.L. **David M. Larsen**
D.M.Lu. **Donald M. Lunetta**
D.M.P. **Daniel M. Popper**
D.M.S. **David M. Smith**
D.M.V. **Daniel M. Viccione**
D.M.Y. **Don M. Yost**

D.N. **David Nachmansohn**
D.N.H. **Douglas N. Halbe**
D.N.K. **David N. Keast**
D.N.L. **D. N. Langenberg**
D.N.La. **Daniel N. Lapedes**
D.O.H. **David O. Haynes**
D.P. **David Park**
D.P.A. **Donald P. Abbott**
D.P.Ad. **Douglas P. Adams**
D.P.An. **D. Philp Ankeney**
D.P.G. **Daniel P. Griffin**
D.Q.L. **D. Q. Lamb**
D.R. **Donald Raum**
D.Ru. **Dorothea Rudnick**
D.R.C. **Donald R. Calvert**
D.R.Co. **Dean R. Collins**
D.R.F.H. **Donald R. F. Harleman**
D.R.J. **David R. Jones**
D.R.P. **Donald R. Peacor**
D.R.S. **Donald R. Stranks**
D.S. **Dave Scott**
D.Si. **David Siminovitch**
D.St. **Donald Stansbarger**
D.Ste. **Dewey Stewart**
D.Sw. **Daniel Swern**
D.S.B. **Douglas S. Billington**
D.S.G. **D. S. Grosch**
D.S.H. **Donald S. Hayes**
D.S.He. **David S. Hepler**
D.S.K. **Douglas S. Kellogg**
D.S.L. **Daniel S. Lehrman**
D.S.P. **David S. Palermo**
D.S.V.F. **D. S. Van Fleet**
D.T. **David Turnbull**
D.T.L. **David T. Lykken**
D.T.R. **Donald T. Reay**
D.V.M. **Dal V. Maddalon**
D.V.Mo. **Donald V. Moore**
D.V.W. **David V. Widder**
D.W. **Daniel Wellner**
D.Wi. **Dudley Williams**
D.Wo. **David Wollersheim**
D.W.B. **Donald W. Banner**
D.W.C. **David W. Curkendall**
D.W.E.S. **David W. E. Smith**
D.W.F. **Don W. Fawcett**
D.W.K. **Donald W. Kerst**
D.W.Ki. **Donald W. King**
D.W.Ku. **Donald W. Kupke**
D.W.L. **David W. Latham**
D.W.S. **David W. Steadman**
D.X.F. **Daniel X. Freedman**

E.A.K. **Elbert A. King**
E.A.L. **Edmund A. Laport**
E.A.S. **Edward A. Smuckler**
E.B. **E. Bauer**
E.B.C. **Edward B. Curdts**
E.B.Cu. **Edward B. Cutler**
E.B.F. **E. B. Ford**
E.B.R. **Evans B. Reid**
E.B.W. **E. Bright Wilson, Jr.**
E.C. **Ellen Clarke**
E.Co. **Ernest Coleal**
E.C.A. **Ellsworth C. Alvord, Jr.**
E.C.J. **Earl C. Joseph**
E.C.Jo. **Edwin C. Jones, Jr.**
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E.C.M. **Earl C. Mansfield**
E.C.O. **Everett C. Olson**
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E.C.Pol. **Ernest C. Pollard**
E.C.R.-R. **Edward C. Roosen-Runge**
E.C.S. **Eugene C. Starr**
E.C.St. **Edward C. Stevenson**
E.C.Stu. **Erwin Charles Stumm**
E.C.T.C. **Edward C. T. Chao**
E.D. **Eric Delson**
E.Do. **Erling Dorf**
E.D.A. **E. Dwight Adams**
E.D.B. **Eugene D. Becken**
E.D.C. **Eugene D. Commins**
E.D.G. **Edward D. Goldberg**
E.E.C. **Ernest E. Charlton**
E.E.Co. **Earl E. Coulter**
E.E.F. **Eberhard E. Fetz**
E.E.S. **Esmond E. Snell**
E.E.U. **Erwin E. Underwood**
E.E.W. **E. Eugene Weaver**
E.F. **Emerson Foulke**
E.F.A. **Earl F. Arbuckle, III**
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E.F.S. **Emil F. Steinert**
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E.F.W. **Elliott F. Wright**
E.G. **Edward Gerjuoy**
E.Gr. **Emil Grosswald**
E.Gru. **Emanuel Grunberg**
E.G.B. **Elmer G. Butler**
E.G.C. **Elizabeth G. Cutter**
E.G.H. **E. G. Heyne**
E.G.N. **Elton G. Nelson**
E.G.P. **Edward G. Partridge**
E.G.Pr. **Ernest G. Pringsheim**
E.G.R. **Edward G. Ramberg**
E.G.Ro. **Eugene C. Rochow**
E.G.S. **Emilio G. Segré**
E.G.St. **Edward G. Stuart**
E.G.W. **Ernest G. Wever**
E.H.A. **Elbert H. Ahlstrom**
E.H.Ap. **Evan H. Appelman**
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E.H.Br. **Edgar H. Bristol**
E.H.C. **Edward H. Cole**
E.H.H. **Elbert H. Hadley**
E.H.Ha. **Edwin H. Hammond**
E.H.Q. **Edith H. Quimby**
E.H.R. **Ernest H. Runyon**

E

E.A. **Elihu Abrahams**
E.Ad. **Elijah Adams**
E.An. **Everett Anderson**
E.At. **Elisha Atkins**
E.A.A. **Edward A. Ackerman**
E.A.Ad. **Edward A. Adelberg**
E.A.B. **Edward A. Boyden**
E.A.C. **Edsel A. Caine**
E.A.F. **E. A. Freundt**
E.A.G. **Earl A. Gulbransen**
E.A.H. **Eugene A. Hollowell**

E.H.S. **Edgar H. Sibley**
 E.H.St. **Elmer H. Stotz**
 E.H.W. **Earl H. Wood**
 E.I. **Earl Ingerson**
 E.J. **Erik Jarvik**
 E.Jo. **Edward Johnson**
 E.Ju. **Evan Just**
 E.J.A. **E. James Archer**
 E.J.B. **Edward J. Beckhorn**
 E.J.Bo. **Edgar J. Boell**
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 E.J.G. **Edward J. Groth**
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 E.J.M. **Earl J. Merwin**
 E.J.Q. **Edward J. Quirin**
 E.J.T. **Edward J. Triebe**
 E.K. **Ernest Kent**
 E.Ki. **Eileen Kintsch**
 E.Kr. **Ernst Kramar**
 E.K.H. **Earl K. Hyde**
 E.K.K. **Edward K. Kaprelian**
 E.L. **E. Lazarides**
 E.L.B. **Ernst L. Biberstein**
 E.L.C. **Earl L. Core**
 E.L.E. **Ernest L. Eliel**
 E.L.G. **Edward L. Ginzton**
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 E.L.Hi. **Edward L. Hill**
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 E.L.P. **E. Lowe Pierce**
 E.L.Po. **Ernest L. Pollitzer**
 E.L.S. **Everett L. Saul**
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 E.M. **Ernesto Marcus**
 Ev.M. **Eveline Marcus**
 E.Me. **Edward Meyers**
 E.M.B. **Elliott M. Blass**
 E.M.Br. **Edward M. Breinan**
 E.M.C. **Edward M. Cohart**
 E.M.Co. **Esther M. Conwell**
 E.M.E. **Eugene M. Ettenberg**
 E.M.Ey. **Edward M. Eyring**
 E.M.H. **Elaine M. Hendry**
 E.M.L. **Edwin M. Larsen**
 E.M.M. **Emil M. Mrak**
 E.M.R. **Eugene M. Rasmusson**
 E.M.S. **Edith M. Sheppard**
 E.M.W. **Everard M. Williams**
 E.M.Wi. **Eva M. Winkler**
 E.M.Wis. **Edmund M. Wise**
 E.M.Y. **Edward M. Young**
 E.N. **Ernest Naylor**
 E.No. **Eskel Nordell**
 E.N.G. **Edgar N. Gilbert**
 E.N.H. **E. Newton Harvey**
 E.N.Ha. **Eastman N. Hatch**
 E.N.S. **E. N. Skinner**
 E.O.D. **Edward O. Dodson**
 E.P. **Elliot Postow**
 E.P.E. **Elbridge P. Eaton**
 E.P.O. **Eugene P. Odum**
 E.P.P. **Edwin P. Plueddemann**
 E.P.S. **Ellis P. Steinberg**
 E.R. **Ernest Rabinowicz**
 E.Ra. **Erwin Raisz**
 E.Ro. **Elliott Robbins**

E.R.B. **Elery R. Becker**
 E.R.C. **Earle R. Caley**
 E.R.Ca. **E. R. Carson**
 E.R.D. **Ellen R. Dirksen**
 E.R.G. **Edwin R. Gilliland**
 E.R.H. **Egbert R. Hardesty**
 E.R.J. **E. Ruffin Jones**
 E.S. **Ernest Schweizer**
 E.Se. **Emilio Segré**
 E.S.B. **Elso S. Barghoorn**
 E.S.Ba. **Edward S. Barnitz**
 E.S.G. **Emery St. George, Jr.**
 E.S.R. **Edward S. Ross**
 E.S.Y. **Edward S. Yang**
 E.T. **Erik Trinkaus**
 E.T.C. **Emil T. Chanlett**
 E.U.C. **E. U. Condon**
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 E.W.A. **Edward W. Allen, Jr.**
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 E.W.C. **Edward W. Comings**
 E.W.G. **Edward W. Gore, Jr.**
 E.W.H. **E. William Heinrich**
 E.W.He. **E. Wendell Hewson**
 E.W.K. **Edward W. Kimbark**
 E.W.M. **Erwin W. Müller**
 E.W.T. **Elmer W. Travis**
 E.Y. **Eiju Yatsu**

F

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 F.A.C. **Frank A. Carone**
 F.A.Ch. **Fenner A. Chace, Jr.**
 F.A.G. **Frank A. Geldard**
 F.A.J. **Francis A. Jenkins**
 F.A.L. **Franklin A. Long**
 F.A.L.C. **F. A. L. Clowes**
 F.A.R. **Francis A. Richards**
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 F.B.B. **France B. Berger**
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 F.B.S. **Frank B. Salisbury**
 F.B.Sh. **Frederick B. Shuman**
 F.B.T. **Franz B. Tuteur**
 F.B.V.H. **Franklyn B. Van Houten**
 F.B.W. **Frank B. Wood**
 F.C. **Francis Clark**
 F.Cr. **Friedrich Cramer**
 F.C.B. **Frank C. Benner**
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 F.E.G. **Frank E. Gardner**
 F.E.J.F. **Frederick E. J. Fry**
 F.E.N. **Fred E. Nicodemus**
 F.E.S. **Frank E. Snodgrass**
 F.F. **Ferdinand Freudenstein**
 F.F.E. **Fredric F. Ehrich**
 F.F.R. **Frank F. Richards**
 F.G.B. **Frederick G. Baily**
 F.G.C. **Forrest G. Chumley**
 F.G.D. **Frank G. Dollear**
 F.G.E. **F. G. Ely**
 F.G.Et. **Frank G. Ethridge**
 F.G.Ev. **F. Gaynor Evans**
 F.G.H. **Frank G. Hawksworth**
 F.G.S. **F. G. Shinskey**
 F.H.B. **Frank H. Bower**
 F.H.F. **Frederick H. Fisher**
 F.H.L. **Fritz H. Laves**
 F.H.Lu. **Frank H. Ludlam**
 F.H.M. **F. H. May**
 F.H.R. **Frank H. Rockett**
 F.H-Ro. **Frederick Hayes-Roth**
 F.H.S. **Frank H. Shelton**
 F.H.Sp. **Frank H. Spedding**
 F.H.T. **Frank H. Taylor**
 F.I. **Franco Iachello**
 F.J.A. **Frederick J. Almgren, Jr.**
 F.J.An. **Francis J. Ancombe**
 F.J.B. **Frank J. Blatt**
 F.J.E. **F. J. Edeskuty**
 F.J.G. **Fred J. Gruenberger**
 F.J.J. **Francis J. Johnston**
 F.J.L. **Frank J. Lockhart**
 F.J.R. **Fred J. Rosenbaum**
 F.J.S. **F. J. Simpson**
 F.K. **Fritz Kalhammer**
 F.Ke. **Frederic Keffer**
 F.K.H. **Forest K. Harris**
 F.K.L. **Frank K. Lawler**
 F.L. **Fritz Laves**
 F.Li. **Folke Linder**
 F.L.S. **Frederic L. Schwab**
 F.M.C. **Frank M. Carpenter**
 F.M.F. **Frederick M. Fowkes**
 F.McL.M. **Frank McL. Mallett**
 F.M.R. **Francis M. Rogallo**
 F.M.W. **Floyd M. Wahl**
 F.M.We. **Frances M. Weesner**
 F.P.S. **Francis P. Shepard**
 F.R. **Floyd Ratliff**
 F.Ro. **F. Rohrllich**
 F.Ru. **Fritz Ruch**
 F.R.B. **F. R. Boyd**
 F.R.E.C. **F. R. E. Crossley**
 F.R.F. **F. R. Fosberg**
 F.R.H. **Frederick R. Hanson**
 F.R.K. **Fazlur R. Khan**
 F.R.Ko. **F. Ralph Kotter**
 F.R.M. **Frederick R. Miller**
 F.R.McF. **Forest R. McFarland**
 F.R.V. **Frank R. Voorhees**
 F.S. **Frederick Sanders**
 F.St. **Fred Sterzer**
 F.S.G. **Fred S. Goulding**
 F.S.J. **Francis S. Johnson**
 F.S.M. **Frederick S. Merritt**
 F.S.S. **Frederick S. Szalay**

F.T.A. **Fredrick T. Addicott**
 F.T.L. **F. Thomas Ledig**
 F.T.T. **Fredrik T. Thwaites**
 F.V. **Felix Viro**
 F.V.G. **Fred V. Grau**
 F.V.K. **Frank V. Kosikowski**
 F.V.L. **F. V. Lenel**
 F.W. **Frank Wagner**
 F.We. **Fritz Weigel**
 F.Wi. **Fred Wilt**
 F.W.B. **Fred W. Billmeyer, Jr.**
 F.W.H. **Friedrich W. Hoffmann**
 F.W.K. **F. W. Karasek**
 F.W.Ko. **Frederick W. Koerker**
 F.W.K.F. **Frank W. K. Firk**
 F.W.M. **Franklin W. Martin**
 F.W.S. **Fred W. Smith**
 F.W.Sw. **F. W. Sweat**
 F.W.T. **Fred W. Tanner, Jr.**
 F.W.Z. **Frank W. Zink**

G

G. **Govindjee**
 G.A. **Gordon Atkinson**
 G.A.D. **Gregory A. Davis**
 G.A.E. **George A. Economou**
 G.A.H. **George A. Hawkins**
 G.A.Ho. **G. A. Horton**
 G.A.L. **George A. Ledingham**
 G.A.M. **Gordon A. Macdonald**
 G.A.R. **G. Alan Robison**
 G.A.S. **G. Alan Solem**
 G.A.W. **Gary A. Williams**
 G.B. **Gunnar Backstrom**
 G.Bi. **Garrett Birkhoff**
 G.B.H. **George B. Hess**
 G.B.P. **Gayle B. Priester**
 G.C.G. **Gerard C. Gambs**
 G.C.K. **George C. Kennedy**
 G.C.Ke. **George C. Kent, Jr.**
 G.D. **Gerhard Derge**
 G.De. **Guy Deutscher**
 G.D.B. **Glenn D. Breuer**
 G.D.F. **George D. Fulford**
 G.D.G. **George D. Garland**
 G.D.Go. **Gary D. Gordon**
 G.D.S. **Guy D. Smith**
 G.DeV. **Gerard De Vaucouleurs**
 G.E.A. **G. E. Archie**
 G.E.E. **George E. Ewing**
 G.E.L. **George E. Liedholm**
 G.E.Li. **Gene E. Likens**
 G.E.Liv. **Gideon E. Livingston**
 G.E.P. **George E. Pake**
 G.E.Pe. **Gertrude E. Perlmann**
 G.E.S. **Garland E. Scott**
 G.E.St. **George E. Stapleton**
 G.E.Str. **Gary E. Striker**
 G.E.T. **George E. Templeton**
 G.F. **Gioacchino Failla**
 G.Fa. **Gerhard Fankhauser**
 G.Fau. **Gunter Faure**
 G.F.B. **George F. Bobart**
 G.F.F. **Gordon F. Ferris**
 G.F.L. **George F. Ludvik**

G.F.O. **Gilbert F. Otto**
 G.F.P. **George F. Pinder**
 G.F.R. **George F. Reddish**
 G.F.W. **George F. Wislicenus**
 G.G. **Gerson Goldhaber**
 G.Gu. **G. Guzinski**
 G.G.A. **George G. Adkins**
 G.G.B. **Gabriel G. Barna**
 G.G.L. **Gordon G. Lill**
 G.G.N. **Graham G. Nicholson**
 G.G.T. **Gerald G. Thorne**
 G.H. **George Harvey**
 G.Ho. **Gerald Holton**
 G.Hot. **Grosvenor Hotchkiss**
 G.H.B. **Glenn H. Brown**
 G.H.C. **Gilbert H. Cady**
 G.H.D. **George H. Davis**
 G.H.Di. **G. H. Dieke**
 G.H.F. **George H. Fried**
 G.H.M. **Glenn H. Miller**
 G.H.Mo. **George H. Morrison**
 G.H.My. **George H. Myer**
 G.J.G. **Gerald J. Gastony**
 G.J.H. **George J. Haltiner**
 G.J.W. **George J. Wilder**
 G.J.Z. **George J. Zissis**
 G.K. **Georges Knaysi**
 G.Kr. **George Krauss**
 G.L.B. **Gordon L. Brownell**
 G.L.C. **Guy L. Childberg**
 G.L.Cl. **George L. Clark**
 G.L.E. **Gunther L. Eichhorn**
 G.L.G. **George L. Gaines**
 G.L.S. **Gordon L. Shaw**
 G.L.St. **G. Ledyard Stebbins**
 G.L.T. **Gerald L. Thompson**
 G.L.V. **Gilbert L. Voss**
 G.M. **George Mandler**
 G.Mi. **Gardner Middlebrook**
 G.Mo. **Giuliana Moreno**
 G.Mu. **Glenn Murphy**
 G.M.B. **George M. Bouton**
 G.M.C. **Gerald M. Clemence**
 G.M.G. **Glenn M. Glasford**
 G.M.Gu. **Gay M. Guzinski**
 G.M.K. **Glen M. Kohls**
 G.M.R. **Gardner M. Reynolds**
 G.M.S. **George M. Savage**
 G.M.Se. **Gerhard M. Sessler**
 G.N. **Gerhard Neumann**
 G.N.R. **G. N. Richards**
 G.O. **Gerald Oster**
 G.Ow. **Guillermo Owen**
 G.O.A. **George O. Abell**
 G.O.B. **Glenn O. Bressler**
 G.O.D. **Gunter O. Dietrich**
 G.O.R. **Gilbert O. Raasch**
 G.P. **George Papageorgiou**
 G.Po. **Guido Pontecorvo**
 G.P.K. **Gerard P. Kuiper**
 G.P.M. **George P. Moore**
 G.P.S. **George P. Sutton**
 G.R.C. **Georgianne R. Caughlan**
 G.R.G. **G. Ronald Gray**
 G.R.H. **George R. Harrison**
 G.R.P. **G. R. Peirce**
 G.R.S. **G. R. Schoonmaker**
 G.R.St. **George R. Sturtevaut**
 G.R.St.P. **George R. St. Pierre**

G.S. **George Sistare, Jr.**
 G.Sl. **George Slomp**
 G.Sm. **Gaylord Smith**
 G.Sp. **Garrison Sposito**
 G.St. **Gus Stavits**
 G.Sw. **George Switzer**
 G.S.C. **George S. Carter**
 G.S.H. **G. S. Hurst**
 G.S.M. **George S. Mill**
 G.S.T. **Gordon S. Taylor**
 G.T. **Geza Teleki**
 G.T.J. **Gideon T. James**
 G.T.S. **Glenn T. Seaborg**
 G.V.D. **George Van Dyne**
 G.V.M. **Gerard V. Middleton**
 G.W. **Gerald Weiss**
 G.W.B. **George W. Barlow**
 G.W.Br. **George W. Brindley**
 G.W.DeV. **George W. DeVore**
 G.W.G. **Gordon W. Groves**
 G.W.H. **Gertrude W. Hinsch**
 G.W.K. **George W. Kessler**
 G.W.M. **George W. Mackey**
 G.W.O'D. **George W. O'Dom**
 G.W.P. **Gerald W. Prescott**
 G.W.R. **G. Wilse Robinson**
 G.W.S. **George W. Stroke**
 G.Y.C. **Gilbert Y. Chin**

H

H.A.B. **Horace A. Barker**
 H.A.Be. **Hans A. Bethe**
 H.A.F. **Henry A. Fairbank**
 H.A.L. **Herbert A. Laitinen**
 H.A.R. **Herman A. Rediess**
 H.A.W. **Harley A. Wilhelm**
 H.B. **Hans Brintzinger**
 H.Br. **Harold Brown**
 H.B.A. **H. Burnham Allport**
 H.B.F. **Howard B. Fell**
 H.B.G. **H. Bentley Glass**
 H.B.H. **H. B. Huntington**
 H.B.J. **Howard B. Jensen**
 H.B.M. **Harold B. Maynard**
 H.B.Mi. **Harlow B. Mills**
 H.B.S. **Howard B. Sprague**
 H.B.T. **Harold B. Tukey**
 H.B.W. **Harry B. Whittington**
 H.B.Wi. **Homer B. Willis**
 H.C. **Henry Charnock**
 H.Cl. **Hartwig Cleve**
 H.Cu. **Harold Cummins**
 H.C.B. **Herbert C. Brown**
 H.C.C. **H. C. Casey, Jr.**
 H.C.Co. **Herbert C. Corben**
 H.C.R. **Harold C. Ries**
 H.C.Ri. **Harold C. Riggs**
 H.C.S. **H. C. Schutt**
 H.C.W. **Harold C. Weber**
 H.C.Wi. **Hurd C. Willett**
 H.C.Y. **Harry C. Yeatman**
 H.D. **H. Date**
 H.De. **Hans Dehmelt**
 H.D.D. **H. D. Dooley**
 H.D.H. **Harold D. Hauf**

H.D.He.	Hollis D. Hedberg	H.J.Wi.	Herold J. Wiens	H.T.H.	Henry T. Harrison
H.D.Ho.	Heinrich D. Holland	H.J.Wir.	Henry J. Wirry	H.T.Ha.	Hudson T. Hartman
H.D.O.	Harold D. Orville	H.K.	Herwig Kogelnik	H.T.N.	H. Thomas Norris
H.D.P.	Harry D. Patton	H.K.W.	Helmut K. Weickmann	H.V.	Howard Vollum
H.D.T.	Horace D. Taft	H.L.	Helge Larsen	H.V.B.	Henry V. Borst
H.E.	Henry Eyring	H.La.	Harry Lass	H.V.B.K.	Hibberd V. B. Kline, Jr.
H.E.C.	Harold E. Campbell	H.Le.	Henry Leland	H.V.C.	Homer V. Craig
H.E.Ca.	Herbert E. Carter	H.Li.	Helmut Lieth	H.W.	Herbert Wells
H.E.D.	Henry E. Duckworth	H.Lip.	Harry Lipner	H.Wh.	Harry Wheeler
H.E.E.	Harold E. Edgerton	H.L.B.	H. L. Beggs	H.Wi.	Hugh Wilcox
H.E.McG.	Harold E. McGannon	H.L.Bo.	Harry L. Bowman	H.Win.	Herman Winick
H.E.N.	Homer E. Newell	H.L.C.	Helen L. Cannon	H.W.B.	Horace W. Babcock
H.E.R.	Harold E. Rosenberger	H.L.D.	Herbert L. Dupont	H.W.Be.	H. Wayne Beaty
H.E.S.	Hans E. Suess	H.L.F.	Harold L. Friedman	H.W.Bl.	H. Weston Blaser
H.E.T.	Helmut E. Thies	H.L.G.	Henry L. Gabelnick	H.W.Br.	Henry W. Brandli
H.E.V.G.	Henning E. Von Gierke	H.L.G.S.	Henry L. G. Stroyan	H.W.Bro.	Harold W. Brown
H.E.W.	Harvey E. Wegner	H.L.H.	Howard L. Hamilton	H.W.C.	Howard W. Campbell
H.F.	Herman Feshbach	H.L.He.	Harry L. Helms	H.W.F.	Henry W. Fischer
H.Fi.	Harold Fischer	H.L.Ho.	Harold L. Hoffman	H.W.K.	Harold W. Keller
H.Fo.	Herbert Fox	H.L.J.	Hans L. Jensen	H.W.Ki.	Harold W. Kirby
H.Fr.	Hans Frebold	H.L.K.	Henry L. Kinnier	H.W.M.	Hans W. Meissner
H.Fre.	Herbert Frey	H.L.S.	H. L. Shands	H.W.Me.	Henry W. Menard, Jr.
H.F.K.	Harold F. Klock	H.L.Sh.	Harry L. Shipman	H.W.Mo.	Harland W. Mossman
H.F.O.	Harry F. Olson	H.L.St.	Herbert L. Stahnke	H.W.O.	H. W. Oliver
H.F.R.	Harry F. Remde	H.M.	Herbert Maisel	H.W.P.	Hermann W. Pfefferkorn
H.F.S.	Henry F. Schaefer, III	H.Ma.	Henry Margenau	H.W.Pi.	Hal W. Pilgrim
H.F.Sh.	Hugh F. Shannon	H.Mar.	Harvey Marshak	H.W.R.	H. W. Ritchey
H.F.V.	Herbert F. Volk	H.Mo.	Hugh Morrow, III	H.W.Ru.	Howard W. Russell
H.F.W.	Harold F. Walton	H.M.B.	Harris M. Burte	H.W.S.	Horace W. Stunkard
H.G.	Harold Goodglass	H.M.G.	Hyatt M. Gibbs	H.W.W.	Howard W. Wainwright
H.Gr.	H. Gränicher	H.M.H.	Howard M. Hickman	H.W.Wi.	Hazel W. Wilkinson
H.G.B.	Harriet G. Barclay	H.M.J.	H. Mark Johnston	H.W.Y.	Herbert W. Yankee
H.G.Ba.	Herbert G. Baker	H.M.M.	H. M. Munger	H.Y.F.	Hsu Y. Fan
H.G.Bo.	Holbrook G. Botset	H.M.S.	Herman M. Schwartz	H.Z.	Hubert Ziegler
H.G.C.	Harold G. Corwin, Jr.	H.M.T.	Howard M. Temin	H.Zi.	Harold Zirin
H.G.M.	H. G. Marshall	H.M.Ts.	Henry M. Tsuchiya		
H.G.S.	Heinz G. Sell	H.N.P.	Henry N. Pollack		
H.G.Sh.	Harley G. Sheffield	H.N.W.	Henry N. Wagner, Jr.		
H.G.St.	H. G. Stubbings	H.O.H.	Harlyn O. Halvorson		
H.H.	Henry Hellmers	H.P.B.	Harlan P. Banks		
H.H.B.	Harrison H. Barrett	H.P.H.	Harry P. Hale		
H.H.F.	H. Hugh Fudenberg	H.P.T.	Henry P. Treffers	I.A.B.	Irving A. Breger
H.H.H.	Henry H. Hausner	H.R.	Hans Rademacher	I.A.L.	I. A. Lesk
H.H.He.	Hans H. Hecht	H.Ra.	Hans Ramberg	I.A.S.	Ivan A. Sellin
H.H.Ho.	Herman H. Hobbs	H.Ras.	Howard Rasmussen	I.B.	Ivan Barnes
H.H.J.N.	Herbert H. J. Nesbitt	H.Ri.	Herbert Riehl	I.Ba.	Itzhak Bars
H.H.K.	Herbert H. Kellogg	H.R.B.	Howard R. Batchelder	I.Bl.	Ira Block
H.H.L.	Heinz H. Lettau	H.R.C.	Hollis R. Cooley	I.D.A.J.	Ivan D. A. Johnston
H.H.M.	Hilton H. Mollenhauer	H.R.H.	H. Rex Hartson	I.E.L.	I. E. Levine
H.H.Mu.	Haydn H. Murray	H.R.J.	Howard R. Jory	I.E.Li.	Irvin E. Liener
H.H.R.	Herbert H. Ross	H.R.L.	Hans R. Lindner	I.E.O.	I. Edgar Odom
H.H.S.	Harry H. Sisler	H.S.	Hymin Shapiro	I.F.	Irving Fox
H.H.Sk.	Hugh H. Skilling	H.Si.	Herschel Sidransky	I.F.A.	Isabel F. Ahlgren
H.H.Sm.	Harold H. Smith	H.Sm.	Harry Smith	I.F.K.	Isaac F. Kinnard
H.H.St.	Henry H. Storch	H.So.	Harry Sohon	I.G.	Isidore Gersh
H.H.Su.	Hans H. Suter	H.S.A.	H. S. Aldwinckle	I.Gi.	Ian Gibbons
H.J.	Hans Jakobi	H.S.B.	Howard S. Bean	I.Go.	Ivan Goodbody
H.J.A.	Henry J. Albert	H.S.Bl.	Harold S. Black	I.Gor.	Isabella Gordon
H.J.C.	H. John Carew	H.S.Br.	Harry S. Brigham	I.H.G.	Irvin H. Gatzke
H.J.Cl.	Harry J. Clausen	H.S.H.	Helen S. Hogg	I.J.G.	Irving J. Good
H.J.E.	H. John Evans	H.S.I.	Herbert S. Isbin	I.K.F.	Irene K. Fischer
H.J.G.	Harold J. Gibson	H.S.K.	Hugh S. Knowles	I.L.	Irving Lefkowitz
H.J.H.	Harvey J. Hoge	H.S.L.	Harry S. Ladd	I.Le.	Ilse Lehiste
H.J.L.	Harry J. Lipner	H.S.La.	Hugh S. Landes	I.L.K.	Irving L. Kosow
H.J.McL.	Hugh J. McLellan	H.S.M.C.	H. S. M. Coxeter	I.L.T.	Ivan L. Tyler
H.J.P.	Herman J. Phaff	H.S.P.	Harvey S. Price	I.M.B.	I. M. Bernstein
H.J.R.	Herbert J. Reich	H.S.S.	H. Subak-Sharpe	I.M.L.	I. Michael Lerner
H.J.S.	Harlan J. Smith	H.T.	Helen Tappan	I.M.T.	Ian M. Tattersall
H.J.W.	Herbert J. Welshimer	H.Ta.	Henry Taube	I.P.	Igor Paul

I.P.K. **Ivan P. Kaminow**
 I.P.T. **Irwin P. Ting**
 I.R. **Irvin Rock**
 I.S. **Irving Sheft**
 I.St. **Isles Strachan**
 I.S.G. **Irving S. Goldstein**
 I.Z. **Israel Zelitch**
 I.Zl. **I. Zlotnik**

J.C.G. **Jeffery C. Gibeling**
 J.C.L. **John C. Lane**
 J.C.M. **Julian C. Miller**
 J.C.Mo. **John C. Moore**
 J.C.N. **John C. Niedermair**
 J.C.O. **J. C. Overlay**
 J.C.P. **John C. Polking**
 J.C.R. **John C. Reilly, Jr.**
 J.C.Ri. **J. C. Ritchie**
 J.C.S. **John C. Schelleng**
 J.C.Sm. **Julian C. Smith**
 J.C.Sp. **John C. Spindler**
 J.C.W. **James C. Warf**
 J.C.Wy. **James C. Wyant**

J.F.L. **J. F. Loneragan**
 J.F.M. **José F. Maldonado**
 J.F.Me. **John F. Meyer**
 J.F.Mo. **J. F. Moser, Jr.**
 J.F.McM. **John F. McMahon**
 J.F.McP. **Joseph F. McPartland**
 J.F.R. **John F. Reintjes**
 J.F.S. **James F. Scott**
 J.F.Se. **Joseph F. Sebalde**
 J.F.W. **John F. Wallace**
 J.F.We. **Jonathan F. Weil**
 J.F.Wo. **J. F. Worley**
 J.G. **John Garcia**
 J.Ge. **John Gergely**
 J.Go. **Joseph Golden**
 J.Gr. **Jerry Grey**

J

J.A. **Jaime Amorocho**
 J.As. **James Aston**
 J.A.B. **J. A. Bolt**
 J.A.Br. **Joseph A. Brink, Jr.**
 J.A.C. **Joseph A. Cestone**
 J.A.Cl. **John A. Clements**
 J.A.D. **James A. Donaldson**
 J.A.H. **John A. Harvey**
 J.A.Hr. **John A. Hrones**
 J.A.Hy. **J. Allen Hynek**
 J.A.L. **James A. Lane**
 J.A.L. **James A. Lane**
 J.A.M. **John A. Manson**
 J.A.N. **James A. Noble**
 J.A.O. **John A. Osterman**
 J.A.P. **Joseph A. Pask**
 J.A.Ph. **James A. Phillips**
 J.A.S. **J. Allen Scott**
 J.A.Sh. **John A. Shellenberger**
 J.A.Si. **Jack A. Simon**
 J.A.Sm. **John A. Smith**
 J.A.Sw. **John A. Swets**
 J.A.W. **John A. Wheeler**
 J.B. **Jack Bass**
 J.Be. **Jesse Beams**
 J.Bi. **Joseph Bicknell**
 J.Bid. **Jesse Bidanset**
 J.Big. **Jacob Bigeleisen**
 J.B.B. **J. Bruce Beckwith**
 J.B.C. **J.B. Cheatham, Jr.**
 J.B.E. **James B. Evans**
 J.B.F. **Jack B. Fisher**
 J.B.Fr. **J. Bruce French**
 J.B.H. **Jacques B. Hadler**
 J.B.Ha. **Jeffrey B. Harborne**
 J.B.He. **John B. Hersey**
 J.B.J. **J. B. Jennings**
 J.B.K. **J. B. Ketterson**
 J.B.L. **James B. Lackey**
 J.B.Lo. **Joseph B. Long**
 J.B.P. **Jon B. Pangborn**
 J.B.Po. **James B. Pollack**
 J.B.S. **John B. Scalzi**
 J.B.T. **Joyce B. Turner**
 J.B.V.S. **John B. Vander Sande**
 J.B.W. **John B. Woodward**
 J.C. **Joseph Callaway**
 J.Ca. **John Catchpole**
 J.Ch. **James Christensen**
 J.Cl. **John Clarke**
 J.Co. **Jerome Cohen**
 J.C.B. **John C. Brandt**
 J.C.C. **John C. Couch**
 J.C.D. **John C. Drake**
 J.C.F. **John C. Ferm**

J.D. **Jack Davis**
 J.D.A. **John D. Anderson**
 J.D.B. **J. D. Bjorken**
 J.D.Br. **John D. Briggs**
 J.D.Bu. **James D. Burke**
 J.D.C. **J. Donald Capra**
 J.D.Co. **James D. Cobine**
 J.D.G. **J. D. Gannon**
 J.D.H. **J. Donald Harris**
 J.D.He. **Julius D. Heldman**
 J.D.J. **James D. Johnston**
 J.DeL. **Jules de Launay**
 J.D.M. **J. Derral Mulholland**
 J.D.R. **James D. Reilly**
 J.D.Ro. **J. David Robertson**
 J.D.S. **James D. Schoeffler**
 J.D.Si. **John D. Singleton**
 J.E. **John Ehrlich**
 J.Ei. **John Einset**
 J.Ev. **John Everetts, Jr.**
 J.Ew. **John Ewing**
 J.E.B. **James E. Bayfield**
 J.E.Bi. **John E. Biegel**
 J.E.Bl. **John E. Blair**
 J.E.Bla. **James E. Blankenship**
 J.E.G. **John E. Gibson**
 J.E.Gr. **Jonathan E. Grindlay**
 J.E.Gu. **James E. Guncel**
 J.E.H. **John E. Haines**
 J.E.Ho. **J. Edgar Hoover**
 J.E.J. **J. Egil Juliusen**
 J.E.L. **John E. Lamar**
 J.E.Lo. **James E. Loughlin**
 J.E.M. **Joseph E. Marian**
 J.E.Ma. **James E. May**
 J.E.McC. **John E. McCarty**
 J.E.McD. **Joseph E. McDade**
 J.E.R. **Johannes E. Rijnsdorp**
 J.E.S. **James E. Schindler**
 J.E.Sc. **John E. Scott, Jr.**
 J.E.St. **John E. Stevens**
 J.E.U. **John E. Ullmann**
 J.E.W. **John E. Ward**
 J.E.We. **J. E. Webb**
 J.E.Wi. **Judith E. Winston**
 J.E.Wo. **James E. Woodall**
 J.F.B. **Joseph F. Bunnett**
 J.F.C. **James F. Connors**
 J.F.Cr. **James F. Crow**
 J.F.D. **John F. Dewey**
 J.F.Di. **J. F. Dillon, Jr.**
 J.F.E. **John F. Endicott**
 J.F.F. **James F. Ferry**
 J.F.H. **John F. Hahn**
 J.F.J. **Julian F. Johnson**

J.G. **John Gergely**
 J.Go. **Joseph Golden**
 J.Gr. **Jerry Grey**
 J.G.C. **J. G. Carter**
 J.G.E. **J. Gordon Elder**
 J.G.F. **J. G. Futral**
 J.G.G. **Joseph G. Gall**
 J.G.H. **James G. Horsfall**
 J.G.J. **James G. Johnson**
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 J.G.Ma. **John G. Maisey**
 J.G.P. **June G. Pattullo**
 J.G.R. **Jerome G. Rozen, Jr.**
 J.G.T. **John G. Trump**
 J.G.Tr. **John G. Truxal**
 J.G.W. **J. Guy Woodward**
 J.H. **John Handin**
 J.Ha. **John Hansen**
 J.Har. **J. Harris**
 J.Hart. **Jack Hartstein**
 J.Hu. **Jack Huebler**
 J.H.B. **J. Harlen Bretz**
 J.H.Bu. **John H. Busser**
 J.H.C. **Joseph H. Camin**
 J.H.Cl. **J. Harold Clarke**
 J.H.Cla. **John H. Clarke**
 J.H.Co. **J. H. Collins**
 J.H.Cr. **John H. Crowe**
 J.H.D. **John H. Davis**
 J.H.F. **J. Homer Ferguson**
 J.H.Fi. **Joseph H. Field**
 J.H.H. **Joseph H. Hamilton**
 J.H.Ha. **John H. Harley**
 J.H.Hi. **Joel H. Hildebrand**
 J.H.J. **J. Harlan Johnson**
 J.H.L. **Jean H. Langenheim**
 J.H.Lo. **John H. Lochhead**
 J.H.M. **John H. Miller**
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 J.H.Ne. **James H. Nelson**
 J.H.O. **John H. Ostrom**
 J.H.S. **James H. Schulman**
 J.H.Si. **John H. Silliker**
 J.H.T. **J. Herbert Taylor**
 J.H.Ta. **Joseph H. Taylor, Jr.**
 J.H.W. **J. H. Walker**
 J.H.We. **James H. Webber**
 J.H.Z. **John H. Zifcak**
 J.I.K. **Joseph I. Karash**
 J.I.Y. **John I. Yellott**
 J.J. **Jules Janick**
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