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INDEX TO THE LITERATURE OF ZIRCONIUM.

BY

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AND

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The Committee on Indexing Chemical Literature, appointed in 1882 by the American Association for the Advancement of Science, unanimously recommends for publication by the Smithsonian Institution the following:

INDEX TO THE LITERATURE OF ZIRCONIUM,

by A. C. Langmuir, Ph.D., and Charles Baskerville, Ph.D.

H. CARRINGTON BOLTON,
Chairman.

MR. S. P. LANGLEY,
Secretary of the Smithsonian Institution.

PREFACE.

An "Index to the Literature of Zirconium" was begun independently by the two authors. Learning of this, and in order to avoid further unnecessary duplication, it was decided to combine the references then on hand and to divide the remaining labor. The resulting product is thought to contain most of the important references to the element, and is offered to the Committee of the American Association for the Advancement of Science on Indexing Chemical Literature in hopes of its proving of value. The references are brought up to January 1st, 1899.

Besides our private libraries, we have sought references to the subject in the libraries of Columbia, Johns Hopkins, and the North Carolina Universities and the North Carolina Geological Survey. To the gentlemen in charge of these libraries we wish to extend our thanks for their courtesy and co-operation.

A. C. Langmuir,
C. Baskerville.

April, 1899.

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1832 : 36. Berthier. (Preparation.)
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1833 : 37. Berzelius. (Atomic weight.)
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1834 : 41. Berzelius. (Tellurite.)
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1835 : 42. Balard. (Behavior with bromine.)
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1843 : 46. Berthier. (Separation from iron.)
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1843 : 48. Scheerer. (Preparation pure Zirconia.)
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1844 : 49. Hermann. (Preparation. Salts.)
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1845 : 50. Scheerer. (Occurrence in Norway.)
Ann. der Phys. (Pogg.), **65**, 300.

1845 : 51. Svanberg. (A new earth, norium, in Zirkon.)

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1847 : 52. Henneberg. (Phosphorescence. Analysis.)

J. prakt. Chem., **38**, 508–10 ; Pharm. Centrbl., 1847, 22, 23.

1848 : 53. Damour. (Properties of some salts.)

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1849 : 54. Muspratt. (Selenite.)

J. Chem. Soc. (Lond.), **2**, 68.

1850 : 55. Sjögren. (Analysis. Katapleüt.)

Ann. der Phys. (Pogg.), **79**, 300 ; Chem. Centrbl., 1850, 426 ; Phil. Mag. [3], **37**, 235 ; Arch. ph. nat., **14**, 154 ; Jsb., 1850. 738.

1850 : 56. Rivot. (Separation from iron.)

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1852 : 57. Mazade. (Occurrence in spring-water.)

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1852 : 58. Sjögren. (Peculiarity of Zirconia from katapleüt.)

Ann. der Phys. (Pogg.), Ergänz., **3**, 465 ; J. prakt. Chem., **55**, 298 ; Jsb., 1853, 349.

1853 : 59. Berlin. (Researches. Existence of norium denied.)

J. prakt. Chem., **58**, 145–8 ; Am. J. Sci., [2], **16**, 412, 413 ; Jsb., 1853, 349, 350.

1853 : 60. Henry. (Occurrence in spring-water.)

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1853 : 61. Frémy. (Sulphide.)

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1854 : 63. Daubree. (Artificial production of Zircon.)

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1855 : 64. Schrötter. (Occurrence in zoisite.)

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1856 : 66. Chandler. (Analysis.)

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1857 : 67. Warren. (Double sulphate with potassium.)

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1857 : 68. Deville and Troost. (Comparison with titanium.)

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1857 : 69. Deville and Troost. (Chloride vapor-density.)

Compt. rend., 45, 821 ; Ann. chim. phys. [4], 5, 117 ; Ann. Chem. (Liebig), 105, 217 ; Phil. Mag. [4], 15, 459 ; Instit., 1857, 280 ; Arch. ph. nat. [2], 1, 191 ; Jsb., 1857, 11, 12.

1858 : 70. Deville and Caron. (Artificial preparation of Zircon.)

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1859 : 71. Mallet. (Metal. Nitride.)

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1859 : 72. Potyka. (Opening up Zircon.)

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1859 : 73. Deville. (Vapor density of chloride.)

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1859 : 74. Strohmeyer. (Separation from iron.)

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1859 : 75. G. Rose. (Isomorphism with silica.)

Ann. der Phys. (Pogg.), 107, 602–4 ; Chem. News, 1, 131 ; Jsb., 1859, 151.

1860 : 76. Marignac. (Fluoride. Researches. Norium.)

Compt. rend., 50, 952–5 ; Ann. chim. phys. [3], 60, 257–99 ; Ann. Chem. (Liebig), 116, 359 ; Arch. ph. nat. [2], 8, 121–5 ; Rep. chim. pure, 3, 39 ; Phil. Mag., [4], 20, 87 ; J. prakt. Chem., 80, 426 ; Chem. Centrbl., 1860, 603–5 ; Jsb., 1860, 134–40.

1861 : 77. Nordenskjöld. (Crystalline form of oxide.)

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1861 : 79. Deville. (Artificial production of Zircon.)

Compt. rend., **52**, 780; Rep. chim. pure, **3**, 219; Instit., 1861, 141; J. prakt. Chem., **86**, 35; Ann. Chem. (Liebig), **120**, 176; Chem. News, **5**, 57; Phil. Mag. [4], **21**, 496, 497; Chem. Centrbl., 1862, 660; Jsb., 1861, 2, 3.

1864 : 80. Pisani. (Separation from titanium. Determination.)

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1864 : 81. Nylander. (Existence of two earths in Zirconia.)

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1865 : 82. Troost. (Metal.)

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1865 : 83. Hermann. (Composition of minerals.)

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1865 : 84. Deville and Caron. (Artificial production crystallized Zirconia.)

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1865 : 85. Phipson. (Preparation of metal.)

Compt. rend., **61**, 745; J. prakt. Chem., **96**, 447; Bull. Soc. chim. (Paris), **5**, 353; Monit. sci. (Quesneville), **7**, 1007; Chem. News, **12**, 171; Ztschr. Chem., **9**, 30; Chem. Centrbl., 1866, 63; Jsb., 1865, 184.

1865 : 86. Hermann. (Ferrocyanide.)

J. prakt. Chem., **95**, 127; Jsb., 1865, 709.

1865 : 87. Hjortdahl. (Sodium salts.)

Compt. rend., **61**, 175, 213; Ann. Chem. (Liebig), **137**, 34, 236; Instit., 1865, 251; Chem. News, **12**, 58, 69; J. de Pharm. [4], **3**, 148; Bull. Soc. chim. (Paris), **5**, 213; Monit. sci. (Quesneville), **7**, 805; Ztschr. Chem., 1865, 619; Jsb., 1865, 184–6.

1866 : 88. Hermann. (Preparation from Zircon.)

J. prakt. Chem., **97**, 330; Ztschr. Chem., 1866, 717; Jsb., 1866, 189.

1866 : 89. Hermann. (Identity of zirconium and norium.)

J. prakt. Chem., **97**, 321; Bull. Soc. chim. (Paris), **6**, 383–5; Chem. News, **14**, 33; Ztschr. Chem., 1866, 443; Jsb., 1866, 191.

1866 : 90. Hermann. (Separation from earths.)

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1868 : 91. Websky. (Occurrence in kochelite.)

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1868 : 92. Fizeau. (Expansion of Zircon by heat.)

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1868 : 93. Caron. (Zirconia light.)

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1869 : 94. Streit and Franz. (Separation from titanium.)

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1869 : 101. Thalén. (Spectrum.)

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1869 : 102. Sorby. (A new element, jargonium, in Zircon.)

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1869 : 103. Forbes. (Jargonia.)

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1869 : 104. Sorby. (Spectrum of mixtures of Zirconium and uranium.)

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1869 : 105. Church. (Idem.)

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1870 : 106. Melliss. (Metal. Salts.)

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1871 : 110. Mendeléjeff. (Fluoride.)

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1871 : 111. Rath. (Occurrence in diorite.)

Ann. der Phys. (Pogg.), 144, 250.

1871 : 112. Knop. (Artificial production of crystals.)

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1871 : 113. Troost and Hautefeuille. (Oxychloride.)

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1872 : 116. Rammelsberg. (Action of heat on amorphous oxide.)

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1872 : 117. Rammelsberg. (Sulphate.)

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1872 : 118. Troost and Hautefeuille. (Action of silicon chloride on oxide.)

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1872 : 119. Nordenskjöld. (Occurrence in nohlite.)

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1873 : 120. Mallard. (Behavior of oxide with sodium carbonate.)

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1873 : 121. Hannay. (Zirconia.)

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1873 : 122. Mixter and Dana. (Specific heat.)

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1873 : 124. Jannettaz. (Propagation of heat by Zirconia.)

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Compt. rend., 73, 620 ; Ztschr. anal. Chem., 13, 313–4.

1875 : 126. Endemann. (Soluble basic salts.)

Am. Chemist, 5, 326–7 ; Bull. Soc. chim. (Paris), 24, 466 ; J. prakt. Chem. [2], 11, 219 ; Jsb. rein. Chem., 3, 84 ; J. Chem. Soc. (Lond.), 28, 1162 ; Gazz. chim. ital., 6, 428 ; Chem. Centrbl., 1875, 339 ; Jsb., 1875, 219.

1875 : 127. Nilson. (Selenites.)

" Researches on Salts of Selenious Acid," Upsala, 1875.

1876 : 128. Nilson. (Platinate.)

Ber., 9, 1143 ; Bull. Soc. chim., 27, 209 ; Jsb., 1876, 294.

1876 : 129. Hornberger. (Comparison with silicon. Preparation pure chloride. Alkaline tartrates. Cyanogen compounds.)

Am. Chem. (Liebig), **181**, 232 : Bull. Soc. chim. (Paris). **26**, 493 ; Jsb. rein. Chem., **4**, 90 ; J. de Pharm. [4], **25**, 154 ; J. Chem. Soc. (Lond.), **30**, 275 ; Chem. News, **33**, 261 : Gazz. chim. ital., **7**, 166, 232 ; Chem. Centrbl., 1876, 435 ; Jsb., 1876, 240.

1877 : 130. Philipp. (Technology.)

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1877 : 131. Draper. (Zirconia cylinders for oxyhydrogen light.)

Am. J. Sci. [3], **14**, 208 : Chem. Centrbl., 1877, 673.

1877 : 132. Vincent. (Behavior towards trimethylaniline.)

Bull. Soc. chim. (Paris), **27**, 194 ; Chem. Centrbl., 1878, 263.

1878 : 133. Philipp. (Zirconia light.)

Monit. sci. (Quesneville), **20**, 481.

1878 : 134. Mallet. (Occurrence in sipylite.)

Am. J. Sci. [3], **14**, 397 ; Chem. Centrbl., 1878, 7.

1879 : 135. Friedel and Crafts. (Action of chloride on organic compounds.)

Bull. Soc. chim. (Paris). **31**, 531 ; Ber., **12**, 373.

1879 : 136. Paykull. (Compounds.)

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1880 : 137. Ängström. (Oxide, diamagnetic.)

Jsb., 1880, 338 ; Dammer II., 1, 619.

1880 : 138. Soret. (Spectrum.)

Arch. ph. nat. [3], **4**, 261 : Jsb., 1880, 214.

1880 : 139. Nilson and Pettersson. (Specific heat.)

Compt. rend., **91**, 232 : Ber., **13**, 1461 ; Jsb., 1880, 237.

1880 : 140. Vincent. (Behavior towards dimethylaniline.)

Bull. Soc. chim., Paris, **33**, 156-8 ; Ztschr. anal. Chem., **19**, 479 ; Chem. Centrbl., 1880, 279.

1881 : 141. Clarke. (Atomic weight.)

Phil. Mag. [5], **12**, 101 ; Am. Chem. J., **3**, 263 : Jsb., 1881, 7.

1881 : 142. Crookes. (Phosphorescent spectrum.)

Bakerian Lecture, May 31, 1883, Lond. Roy. Soc. Proc., **32**, 206 ; Ann. chim. phys. [5], **23**, 555 ; Compt. rend., **92**, 1281 : Chem. News, **43**, 237 : Jsb., 1881, 131.

1882 : 143. Weller. (Action of hydrogen peroxide on.)

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1882 : 144. Classen. (Electrolytic separation.)

Ber., 14, 2783 ; Zeit. anal. Chem., 22, 421 ; Chem. Centrbl., 1882, 233.

1882 : 145. Levy and Bourgeois. (Microchemical reaction.)

Compt. rend., 94, 812 ; Chem. News, 45, 240 ; Jsb., 1882, 1527.

1882 : 146. Boisbaudran. (Separation from gallium.)

Compt. rend., 94, 1154 ; Chem. News, 45, 207 ; Jsb., 1882, 1296.

1883 : 147. Donath and Mayrhofer. (Affinity.)

Ber., 16, 1588 ; Jsb., 1883, 26.

1884 : 148. Clarke. (Atomic weight.)

Chem. Ztg., 8, 930.

1884 : 149. Stolba. (Opening up Zircons.)

Chem. News, 49, 174; J. Chem. Soc., 46, 821 ; Jsb., 1884, 1594.

1885 : 150. Groshaus. (Density.)

Rev. Trav. chim. pays bas., 4, 236 ; Jsb., 1885, 53.

1885 : 151. Crookes. (Spectrum when samarium is present.)

Compt. rend., 100, 1380 ; Lond. Roy. Soc. Proc., 38, 414 ; Chem. News, 51, 301 ; Jsb., 1885, 332.

1885 : 152. Demarçay. (Separation from titanium.)

Compt. rend., 100, 740-742 ; Rep. anal. Chem., 1885, 186 ; Chem. Centrbl., 56, 283 ; Jsb., 1885, 1929.

1885 : 153. Cléve. (Peroxide.)

Bull. Soc. chim. (Paris), 43, 57 ; Ztschr. anal. Chem., 28, 699 ; Jsb., 1885, 492.

1885 : 154. Linnemann. (Qualitative composition. Opening up Zircons.)

Monatsh. Chem., 6, 335-47 ; Chem. Ztg., 9, 1244 ; Ber., 18, c, 459, 460 ; J. Chem. Soc., 48, 1042 ; Chem. News, 52, 233, 240 ; Chem. Centrbl., 56, 666, 667.

1885 : 155. Linnemann. (Absorption spectra of Zircons.)

Monatsh. Chem., 6, 531, 536 ; Ber., 18, c, 605 ; J. Chem. Soc., 48, 1173 ; Chem. News, 52, 220 ; Chem. Centrbl., 56, 907 ; Jsb., 1885, 2271.

1886 : 156. Bailey. (Separation and estimation by hydrogen peroxide.)

J. Chem. Soc., 49, 149-152 ; Chem. News, 53, 55, 260 ; Ann. Chem. (Liebig), 232, 352 ; Ber., 19, c, 319 ; Chem. Ztg., 10, 1, 148, 677 ; Pharm. J. [3], 16, 1022 ; Chem. Centrbl., 57, 172, 451.

1886 : 157. Bailey. (Separation and estimation by hydrogen peroxide.)

J. Chem. Soc. (Lond.), **49**, 481–6 : Chem. News, **53**, 160 ; Am. J. Sci., **26**, 470 : Ztschr. anal. Chem., **28**, 699 ; Ann. Chem. (Liebig), **232**, 352 ; Ber., **19**, c, 881 ; Chem. Centrbl., **57**, 682 ; Jsb., 1886, 1942.

1886 : 158. Linnemann. (Zirconia light.)

Monatsh. Chem., **6**, 899–908 ; J. Chem. Soc. (Lond.), 50, 417 ; Chem. Centrbl., **57**, 263, 264 ; Wagner's Jsb., **32**, 381–4 ; Jsb., 1885, 2167.

1886 : 159. Hautefeuille and Margottet. (Phosphate.)

Compt. rend., **102**, 1017–1019 : Ber., **19**, c, 387 ; J. Chem. Soc. (Lond.), **50**, 670 ; Chem. News, **53**, 252 ; Chem. Centrbl., **57**, 468 ; Jsb., 1886, 447.

1886 : 160. Van der Plaats. (Atomic weight.)

Ann. chim. phys. [6], **7**, 501 ; Zeitschr. anal. Chem., **26**, 276.

1886 : 161. Troost and Ouvrard. (Double potassium phosphate.)

Compt. rend., **102**, 1422–7 : Ber., **19**, c, 659 : J. Chem. Soc., **50**, 853 ; Chem. Centrbl., **57**, 594 ; Jsb., 1886, 453, 454.

1887 : 162. Meyer and Wilkins. (Action of carbon tetrachloride on oxide.)

Ber., **20**, 683 ; Jsb., 1887, 379.

1887 : 163. Ditte. (Behavior towards sulphuric acid. Selenate.)

Compt. rend., **104**, 172 ; Jsb., 1887 [1], 547, 549 ; Dammer. II, 1, 622.

1887 : 164. Rammelsberg. (Separation from thorium, cerium, etc.)

Sitzber. Akad. Wissin., Berlin, 1886, 441 ; Ber., **20**, c, 413.

1887 : 165. Piccini. (Action of hydrogen peroxide.)

Gazz. chim. ital., **17**, 486 ; Jsb., 1887, 551.

1887 : 166. Demarçay. (Action of carbon tetrachloride on Zirconia.)

Compt. rend., **104**, 113 ; Ber., **20**, c, 96 : Chem. Centrbl., **58**, 214 ; Jsb., 1887, 380.

1887 : 167. Willgerodt. (Action as a chloridizing agent.)

J. prakt. Chem. [2], **35**, 391 ; Ber., **20**, c, 312 ; Chem. Centrbl., **58**, 720 ; Jsb., 1887, 618.

1887 : 168. Weibull. (Crystalline forms of Zirconyl chloride and bromide ; also sulphate.)

Ber., **20**, a, 1394–6 ; J. Chem. Soc. (Lond.), **52**, 778 ; Chem. Centrbl., **58**, 778 ; Jsb., 1887, 553.

1887 : 169. Troost and Ouvrard. (Double sodium phosphate. Comparison with thorium.)

Compt. rend., **105**, 30–4 ; Ber., **20**, c, 534 ; J. Chem. Soc. (Lond.), **52**, 1017 ; Chem. News, **56**, 57 ; Chem. Centrbl., **58**, 1015 ; Jsb., 1887, 554–6.

1887 : 170. Hinsberg. (Attempt to prepare Zirconium ethyl. Iodide.)

Ann. Chem. (Liebig), **239**, 253–6 ; Ber., **20**, c. 413 ; J. Chem. Soc. (Lond.), **52**, 896 ; Chem. News, **56**, 219 ; Chem. Centrbl., **58**, 1016 ; Jsb., 1887, 553.

1887 : 171. Troost and Ouvrard. (Zircon not isomorphous with thorium silicate.)

Compt. rend., **105**, 255 ; Chem. Centrbl., **58**, 1098 ; Jsb., 1887, 556 ; Ber., **20**, c. 534.

1887 : 172. Welsbach. (Welsbach burners.)

Ber., **20**, c, 406 ; Chem. News, **55**, 192 ; Chem. Centrbl., 1887, 1125 ; Jsb., 1887, 2670 ; German Patent, 39, 162.

1888 : 173. Hautefeuille and Perrey. (Artificial preparation of Zircon.)

Compt. rend., **107**, 1000, 1001 ; Ber., **22**, c, 94 ; J. Chem. Soc. (Lond.), **56**, 355 ; Chem. News, **59**, 11 ; Monit. sci. (Quesneville), **33**, 199 ; Chem. Centrbl., 1889 [1], 127 ; Jsb., 1888, 638.

1888 : 174. Blömstrand. (Constitution of silicates containing Zirconium.)

Ztschr. Kryst., **15**, 83, 84 ; Chem. Centrbl., 1889 [1], 821 ; Jsb., 1888, 637.

1888 : 175. Keeport. (Application in gold metallurgy.)

Ber., **21**, c, 458 ; Wagner's Jsb., **34**, 369 ; Jsb., 1888, 2650 ; German Patent, 43, 231.

1888 : 176. Carnelley and Walker. (Action of heat on hydrate.)

J. Chem. Soc. (Lond.), **53**, 68, 82 ; Ber., **21**, 131.

1888 : 177. Schmidt and Haensch. (Emissive power of Linnemann's light.)

Ann. der Phys. (Pogg.), Berbl., **12**, 244 ; Jsb., 1888, 2838.

1889 : 178. Riördan. (Preparation from eudialyte.)

Chem. Centrbl., 1889, 533.

1889 : 179. Welsbach. (Preparation of pure nitrate.)

Chem. Ztg., **13** [2], 1192 ; American Patent, 409, 653.

1889 : 180. Stolba. (Opening up Zircon.)

Listy chemické, **13**, 117, 118 ; Chem. Centrbl., 1889, 1, 297.

1889 : 181. Davis. (Separation from aluminium.)

Amer. Chem. J., 11, 26–9 ; Ztschr. anal. Chem., 29, 454, 455 ; Ber., 22, c, 300 ; J. Chem. Soc. (Lond.), 56, 551 ; Chem. News, 59, 100, 101 ; Chem. Centrbl., 60, 1, 454 ; Jsb., 1889, 2388.

1889 : 182. Day. (Production in United States.)

Mineral Resources, U. S. 6th report ; J. Soc. Chem., Ind., 8, 591.

1889 : 183. Bailey. (Atomic weight. Oxychloride. Peroxide.)

Lond. Roy. Soc. Proc., 46, 74–87 ; Chem. News, 60, 6–8, 17, 18, 32 ; J. Chem. Soc. (Lond.), 58, 705 ; Ztschr. anal. Chem., 29, 743–7 ; Nature, 36, 568 ; Ber., 22, c, 655, 666 ; Ztschr. physikal Chem., 4, 494 ; Chem. Centrbl., 1889 [2], 311, 312 ; Jsb., 1889, 113–6 ; Brit. Assn. Trans., 1887, 636.

1890 : 184. Hautefeuille and Perrey. (Action of hydrochloric acid gas on oxide.)

Compt. rend., 110, 1038 ; Ber., 23, c, 428 ; J. Chem. Soc. (Lond.), 58 1071.

1890 : 185. Warren. (Precipitation by magnesium.)

Chem. News, 61, 183 ; Ber., 23, c, 560 ; Jsb., 1890, 42.

1890 : 186. Hirschwald. (Solubility in microcosmic salt bead.)

J. prakt. Chem. [2], 41, 360 ; Jsb., 1890, 2421.

1890 : 187. Winkler. (Reduction of oxide by magnesium.)

Ber., 23, b, 2664–8 ; J. Chem. Soc. (Lond.), 58, 1375 ; Chem. Centrbl., 1890 [2], 644, 645 ; Jsb., 1890, 432.

1890 : 188. Imray. (Preparation from ores.)

J. Soc. Chem. Ind., 9, 941 ; English Patent, 16, 555.

1890 : 189. Kochs. (Zirconia light.)

Dingl. Polyt. J., 278, 235–40 ; J. Soc. Chem. Ind., 10, 37 ; Wagner's Jsb., 37, 62 ; Eng. and Mining J., 51, 466 ; Jsb., 1890, 2850.

1891 : 190. Venable. (Preparation of pure chloride.)

J. anal. Chem., 5, 551 ; J. El. Mitchell Sc. Soc., 8, 20 ; Chem. Ztg., 15, 328 ; J. Chem. Soc. (Lond.), 62, 412 ; Chem. News, 64, 315, 316 ; Chem. Centrbl., 1891 [1], 149 ; Jsb., 1891, 575.

1891 : 191. Drossbach. (Zirconia pencils.)

Chem. Ztg., 15 [1], 328 ; Chem. Centrbl., 1891 [1], 772, 773.

1891 : 192. Behrens. (Microchemical reaction.)

Ztschr. anal. Chem., 30, 156 ; Chem. News, 64, 124.

1891 : 193. Morehead. (Analysis of Zircon.)

J. El. Mitchell Sc. Soc., 8, 24.

1891 : 194. Winkler. (Action of magnesium on oxide. Hydride.)

Ber., 24, a, 888 ; J. Chem. Soc. (Lond.), 60, 802 ; Bull. Soc. chim. (Paris), [3], 6, 173 ; Chem. Centrbl., 1891 [1], 912 ; Jsb., 1891, 499.

1891 : 195. Venable. (Occurrence.)

J. El. Mitchell Sc. Soc., 8, 74.

1891 : 196. Ouvrard. (Alkaline Zirconates.)

Compt. rend., 112, 1444–6 ; Ber., 24, c, 694 ; J. Chem. Soc. (Lond.), 60, 1431 ; Monit. sci. (Quesneville), 37, 868 ; Chem. News, 64, 26 ; Chem. Centrbl., 62, 2248 ; Jsb., 1891, 576.

1891 : 197. Ouvrard. (Alkaline earth Zirconates.)

Compt. rend., 113, 80–2 ; Monit. sci. (Quesneville), 37, 976 ; J. Chem. Soc. (Lond.), 60, 1431 ; Chem. News, 64, 61 ; Chem. Centrbl., 1891 [2], 415 ; R. Meyer's Jahrb., 1, 89.

1891 : 198. Waller. (Zirconium light.)

Eng. and Mining J., 51, 520.

1892 : 199. Chrustschoff. (Artificial production Zircon.)

Jahrb. Mineralogie, 1892 [2], 232–6 ; Chem. Centrbl., 1893 [1], 123 ; [2], 880, 881.

1893 : 200. Baskerville. (Comparison of methods of analysis.)

Doctorate Dissertation, J. El. Mitchell Sc. Soc., 10, 45–68.

1893 : 201. McKean. (Color of light emitted.)

Zeit. Ver. Deutschr. Ing., 1893, 310 ; R. Meyer's Jahrb., 3, 335.

1893 : 202. Venable. (Examination of chlorides.)

J. El. Mitchell Sc. Soc., 10, 79–87.

1893 : 203. Moissan. (Volatilization in electric furnace.)

Compt. rend., 116, 1222–4 ; J. Chem. Soc. (Lond.), 64 [2], 532 ; Chem. News, 68, 16 ; Ber., 26, d, 482 ; Ztschr. anorg. Chem., 4, 473 ; Bull. Soc. chim. (Paris), [3], 11, 863–4 ; Chem. Centrbl., 1893 [2], 190 ; R. Meyer's Jahrb., 3, 71.

1893 : 204. Troost. (Preparation of metal in electric furnace.)

Compt. rend., 116, 1227–30 ; J. Chem. Soc. (Lond.), 64 [2], 473 ; Bull. Soc. chim. (Paris), [3], 9, 792 ; Ber., 26, d, 483 ; Ztschr. anorg. Chem., 4, 474 ; R. Meyer's Jahrb., 3, 75 ; Chem. Centrbl., 1893 [2], 191.

1893 : 205. Troost. (Preparation of oxide in electric furnace.)

Compt. rend., 116, 1428, 1429 ; J. Chem. Soc. (Lond.), 64 [2], 532 ; Chem. News, 68, 28 ; Ztschr. anorg. Chem., 5, 241 ; Bull. Soc. chim. (Paris), [3], 9, 794 ; Ber., 26, d, 669 ; Chem. Centrbl., 1893 [2], 356.

1893 : 206. Péchard. (Molybdate.)

Compt. rend., **117**, 788–90 ; J. Chem. Soc. (Lond.), **66** [2], 96 : Bull. Soc. chim. (Paris), [3], **11**, 184 ; Ztschr. anorg. Chem., **6**, 200 ; Ber., **27**, d, 2 ; Chem. Centrbl., 1893 [1], 140.

1894 : 207. Read. (Behavior of oxide at high temperatures.)

J. Chem. Soc. (Lond.), **65**, 314.

1894 : 208. Witt. (Emissive power in Welsbach burner.)

Wagner's Jsb., **40**, 540.

1894 : 209. Baskerville. (Separation by sulphur dioxide.)

J. Amer. Chem. Soc., **16**, 475, 476 ; J. Chem. Soc. (Lond.), **66** [2], 401 ; Chem. News, **70**, 57 ; Ztschr. anorg. Chem., **7**, 434 ; Bull. Soc. chim. (Paris), [3], **12**, 1283 ; Chem. Centrbl., 1894 [2], 299 ; R. Meyer's Jahrb., **4**, 98 ; J. El. Mitchell Sc. Soc., **11**, 85–7.

1894 : 210. Venable. (Chlorides. Separation from silicon and iron.)

J. Amer. Chem. Soc., **16**, 469–75 ; Chem. News, **70**, 217–9 ; J. Chem. Soc. (Lond.), **66** [2], 385 ; Chem. Centrbl., 1894 [2], 299 ; R. Meyer's Jahrb., **4**, 98.

1895 : 211. Smith and Harris. (Action of phosphorus pentachloride on oxide.)

J. Amer. Chem. Soc., **17**, 654-6 ; J. Chem. Soc. (Lond.), **70** [2], 179 ; Bull. Soc. chim. (Paris), [3], **16**, 225 ; Chem. Centrbl., 1895 [2], 590.

1895 : 212. Venable and Baskerville. (Sulphites.)

J. Amer. Chem. Soc., **17**, 448–53 ; J. Chem. Soc. (Lond.), **70** [2], 527 ; J. El. Mitchell Sc. Soc., **12**, 16–22 ; Bull. Soc. chim. (Paris), [3], **14**, 107 ; Chem. Centrbl., 1895 [2], 15.

1895 : 213. Venable. (Chlorides.)

J. Amer. Chem. Soc., **17**, 842, 843 ; J. El. Mitchell Sc. Soc., **12**, 22, 23 ; J. Chem. Soc. (Lond.), **70** [2], 478 ; Chem. News, **73**, 25 ; Chem. Centrbl., 1896 [1], 15.

1896 : 214. Larsson. (Niobate.)

Ztschr. anorg. Chem., **12**, 203 ; Ber., **29**, d, 635 ; Chem. Centrbl., 1896 [2], 235 ; J. Chem. Soc., **70** [2], 564.

1896 : 215. Barnes. (Use as a mordant.)

J. Soc. Chem. Ind., **15**, 420 ; Ber., **29**, d, 1097.

1896 : 216. Piccini. (Action of hydrogen peroxide on fluoride.)

Ztschr. anorg. Chem., **10**, 438 ; Ber., **29**, d, 129.

1896 : 217. Landolt. (Zirconia light.)

Ztschr. anal. Chem., **35**, 714.

1896 : 218. Phipson. (Abundant source in Norwegian granite.)

Chem. News, **73**, 145 ; Bull. Soc. chim. (Paris), [3], **16**, 1756 ; J. Chem. Soc., **70** [2], 422 ; Chem. Centrbl., 1896 [1], 1052.

1896 : 219. Moissan and Lengfeld. (Carbide.)

Compt. rend., **122**, 651–4 ; Bull. Soc. chim. (Paris), [3], **15**, 1275–8 ; Monit. sci. (Quesneville), **46**, 393 ; Ber., **29**, d, 343 ; Chem. Centrbl., 1896 [1], 1887 ; R. Meyer's Jahrb., **6**, 78.

1896 : 220. Hallopean. (Tungstates.)

Bull. Soc. chim. (Paris), [3], **15**, 917–23 ; Compt. rend., **122**, 1419–22 ; Chem. News, **74**, 12 ; Monit. sci. (Quesneville), **47**, 636 ; J. Chem. Soc. (Lond.), **70** [2], 607 ; Ber., **29**, d, 582 ; Chem. Centrbl., 2896 [2], 775.

1896 : 221. Venable and T. Clarke. (Various Zirconates of Alkalies and alkaline earths.)

J. Amer. Chem. Soc., **18**, 434–44 ; J. El. Mitchell Sc. Soc., **13**, 1–13 ; Chem. News, **74**, 42–4, 54, 55 ; J. Chem. Soc. (Lond.), **70** [2], 653 ; Ber., **29**, d, 1094 ; Chem. Centrbl., 1896 [2], 11, 12.

1896 : 222. St. John. (Illuminating power of oxide.)

Ann. der Phys. (Wied.), **56**, 433 ; Wagner's Jsb., **42**, 72.

1896 : 223. Traube. (Opening up Zircons.)

Jahrb. Mineral., **10**, 470–6 ; Chem. Centrbl., 1896 [2], 130.

1896 : 224. Müller-Jacobs. (Tannate.)

American Patent, 558, 197 ; Ber., **29**, d, 448.

1896 : 225. Moissan. (Carbide.)

Compt. rend., **122**, 1462 ; Ber., **29**, d, 614 ; Chem. News, **73**, 175 ; J. Chem. Soc. (Lond.), **70** [2], 428 ; R. Meyer's Jahrb., **6**, 78.

1896 : 226. Wells and Foote. (Double fluorides.)

Ztschr. anorg. Chem., **10**, 434–7 ; Ber., **29**, d, 128 ; J. Chem. Soc. (Lond.), **70** [2], 179 ; Chem. Centrbl., 1896 [1], 239 ; R. Meyer's Jahrb., **7**, 86.

1896 : 227. Dennis and Spencer. (Tetraiodide.)

J. Amer. Chem. Soc., **18**, 673–9 ; Chem. News, **74**, 102–4 ; Ber., **29**, d, 1097 ; Chem. Centrbl., 1896 [2], 651, 652 ; R. Meyer's Jahrb., **6**, 82.

1896 : 228. Fresenius and Hintz. (Determination in thorium nitrate.)

Ztschr. anal. Chem., **35**, 535.

1896 : 229. Glaser. (Determination in monazite.)

J. Amer. Chem. Soc., **18**, 782–93 ; Chem. News, **75**, 145–7, 157 ; Chem. Ztg., **20**, 612–14 ; Chem. Centrbl., 1896 [2], 803.

1897 : 230. Venable and Baskerville. (Oxalates.)

J. Amer. Chem. Soc., **19**, 12–18 ; J. El. Mitchell Sc. Soc., **14**, 4–12 ; Chem. News, **75**, 113–15 ; Chem. Centrbl., 1897 [1], 905 ; R. Meyer's Jahrb., **7**, 86 ; J. Chem. Soc. (Lond.), **78**, a [II], 295.

1897 : 231. Delafontaine. (Separation from thorium.)

Chem. News, **75**, 230 ; Chem. Centrbl., 1897 [2], 70.

1897 : 232. Wells and Foote. (Double fluorides.)

Am. J. Sci. [4], **3**, 466–71 ; Chem. News, **76**, 44–6 ; Chem. Centrbl., 1897 [2], 94, 95.

1898 : 233. Truchot. (Occurrence.)

Revue générale des Sciences ; Chem. News, **77**, 146.

1898 : 234. Venable. (Atomic weight.)

J. Amer. Chem. Soc., **20**, 118–28 ; Chem. News, **77**, 221–3 ; J. El. Mitchell Sc. Soc., **14**, 27–46 ; Chem. Centrbl., 1898 [1], 708, 709 ; J. Chem. Soc. (Lond.), **78**, a [II], 438.

1898 : 235. Venable and Belden. (Properties of dioxide.)

J. Amer. Chem. Soc., **20**, 273–6 ; Chem. Centrbl., 1898 [1], 1095 ; J. Chem. Soc. (Lond.), **78**, a [II], 597.

1898 : 236. Venable and Baskerville. (Oxyhalides.)

J. Amer. Chem. Soc., **20**, 321–9 ; J. El. Mitchell Sc. Soc., **14**, 12–31 ; Chem. Centrbl., 1898 [II], 87 ; J. Chem. Soc. (Lond.), **78**, a [II], 596 ; Ztschr. angew. chem., 1898, 559 (obs.).

1898 : 237. Boudonard. (Determination in monazit.)

Bull. Soc. chim. (Paris), [3], **19**, 10–13 ; Chem. Centrbl., 1898 [1], 435.

1898 : 238. Possetto. (Qualitative analysis.)

Giorn. Farm. Chim., **48**, 49–54 ; Chem. Centrbl., 1898 [1], 634.

1898 : 239. Haber. (Behavior toward chromates and some organic acids. Formate.)

Monatsh. Chem., **18**, 687–99 ; Chem. Centrbl., 1898 [1], 657 ; J. Chem. Soc. (Lond.), **78**, a [II], 295.

1898 : 240. Hintz. (Influence of dioxide on emissive power of incandescent gas mantels.)

J. Chem. Soc. (Lond.), **78**, a [II], 587.

1898 : 241. de Gramont. (Detection, spectroscopically.)

J. Chem. Soc. (Lond.), **78**, a [II], 636.

1898 : 242. Holmquist. (Niobate.)

J. Chem. Soc. (Lond.), **78**, a [II], 388.

1898 : 243. P. H. Walker. (Separation from iron and uranium.)

J. Amer. Chem. Soc., **20**, 514 ; J. Chem. Soc. (Lond.), **78**, a [II], 540.

1898 : 244. Matthews. (Derivatives of the tetrachloride.)
J. Amer. Chem. Soc., **20**, 815.

1898 : 245. Matthews. (Derivatives of the tetrabromide.)
J. Amer. Chem. Soc., **20**, 839.

1898 : 246. Matthews. (Preparation of nitrides.)
J. Amer. Chem. Soc., **20**, 843.

1898 : 247. Matthews. (Separation of iron from Zirconium.)
J. Amer. Chem. Soc., **20**, 846.

1898 : 248. Landolt, Ostwald, and Seubert. (Atomic weight.)
Ber., **31** [3], 2762.